

LIFE *with bears*

LIFE DINALP BEAR project bulletin 2015



Bear population monitoring

Damage prevention

Traffic impacts to bears

Increasing public awareness

Ecotourism

Experiences from abroad

In focus

From the Editor

Dear Readers,

Please enjoy our first issue, *LIFE with bears*, the yearly bulletin for the LIFE DINALP BEAR project. The purpose of this bulletin is to share important and interesting project activities that are currently underway. We will also highlight topics that complement our understanding of the LIFE project. In addition, we will present experiences and thoughts of others who are associated with our project, are professionally involved with bears, or simply live alongside this charismatic yet sometimes challenging species. I hope our bulletin will encourage you to think about coexistence among people and bears.

Matija Stergar



Table of contents

A brief background of the LIFE DINALP BEAR project.....	3
International partnership established to monitor brown bear population	4
GPS technology helps scientists learn where bears cross Croatian highway.....	5
Simple and proven techniques can reduce bear damage	6
Bear damages in Croatia 2004-2014.....	7
Making Slovenian roads, highways, and railways safer for bears and people.....	8
Measures to reduce traffic impacts to bears on the Rijeka-Zagreb highway.....	9
Do you know how to behave around bears?	10
Increasing the value of bears through non-consumptive use	11
The human-bear conflict situation in Romania.....	12
Opportunities for an international collaboration to further bear conservation	12
Analysis of human-bear conflicts in Slovenia	13
Health and reproductive status of bears in Croatia.....	14
Present situation of brown bears in Carinthia	15
Tools for problematic bear management.....	16
Upcoming activities.....	17

A brief background of the LIFE DINALP BEAR project

In the last decade, new challenges have emerged in the management of brown bears in the Dinaric – Pindos and Alpine populations. Important challenges that require collaboration across international borders include population level management and reducing human-bear conflicts. Therefore, nine partners from Slovenia, Austria, Italy and Croatia joined efforts and received funding in 2013 to implement the LIFE DINALP BEAR project, coordinated by the Slovenia Forest Service.

The first key goal of LIFE DINALP BEAR project is to monitor the bear population as a basis for future transboundary management. Additionally, we are doing our best to improve outlooks for maintaining connectivity of bear habitat in the project area. This is crucial for connection of the Dinaric – Pindos and Alpine populations as well as for the long term viability of the Alpine population.

A second and equally important goal of the project is to help people to live with bears by reducing or even preventing conflicts. We hope to achieve this by collaborating with people throughout the project area to protect human safety, property, and to prevent access of human foods by bears. Finally, we are developing opportunities with local communities to provide economic benefits from coexistence with bears through ecotourism and bear friendly products.

Looking to the future we are hopeful that our comprehensive and holistic approach to bear conservation and management will emerge as a global model for human-bear coexistence.

Rok Černe, project coordinator



Project team at the steering group meeting in Trentino, October 2015.

BEAR POPULATION MONITORING

International partnership established to monitor brown bear population

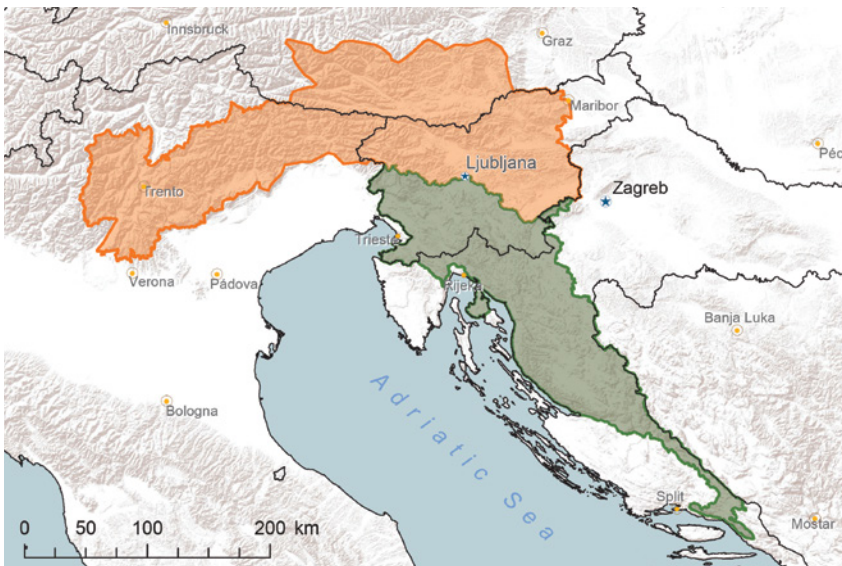
Monitoring is critical for the successful management and conservation of any wildlife species. Brown bears are no exception. Even with many new tools at our disposal, monitoring wild animals like bears remains a challenge.

However, we believe that science-based population monitoring of brown bears is fundamental to the long term success of this project. At the core of our monitoring approach is an information infrastructure system that will enable instantaneous exchange of monitoring data among managers, decision makers, and scientists across all countries participating in the project. All data will be systematically recorded in a common database, providing a foundation for effective transboundary conservation and management of our bears.

While many different types of data are collected in population monitoring, the most difficult question still remains – how many bears are

there? It has been noted that “Counting fish is like counting trees – except that they are invisible and keep moving.” The same applies for bears, therefore genetic sampling is particularly useful for wildlife population estimates in densely forested environments in places like Slovenia and Croatia. Our large scale field efforts involve hundreds of volunteers who are collecting bear scat samples across more than 2 million hectares of bear range in Slovenia and Croatia. The volunteer participation and support of Slovenian and Croatian hunters is crucial to the success of this important action. We are grateful for their help.

From each scat collected, we can identify individual bears and estimate the total population size using inferential statistical models. This will provide a robust population estimate – a strong foundation for future management and the first reliable historical reference point for bear populations in the Northern Dinaric Mountains.



Zones for genetic sampling and project area. Red - expansion zone (opportunistic sampling), green - core area (intensive sampling). Both sampling zones cover the entire project area of LIFE DINALP BEAR.

GPS technology helps scientists learn where bears cross Croatian highway

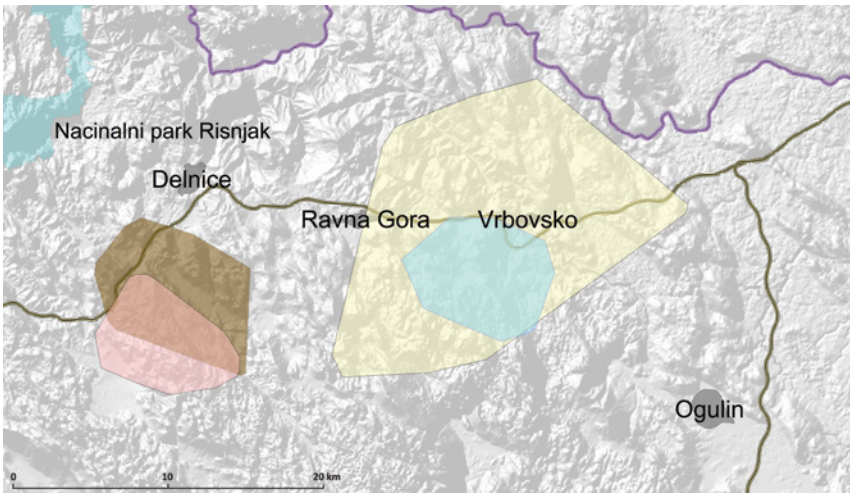
When fitted on bears, GPS collars allow us to study how bears travel and use their habitat. This is particularly important when bears may need to cross highways. An important action in the LIFE DINALP BEAR project is to better understand how bears move in relation to the Rijeka – Zagreb highway. In this case, GPS technology allows us to observe bear movements in the vicinity of the highway. To do this, we can increase the location rate of a collar from a point every two hours to every fifteen minutes as a bear approaches the highway, allowing us to precisely “see” the bear’s path. During the summer of 2015, three out of four collared bears crossed the highway – two bears each crossed the highway 11 times and the third bear crossed it four times. All recorded crossings were in places where the highway is in a tunnel.

conventional mesh fence can help direct bear movements to safe highway crossing areas (e.g., where the highway is in a tunnel). The collars are expected to last approximately two years until a special “drop-off” signal releases the collar, eliminating the need to recapture the bears.



Immobilized bear Bojan (B44), after handling and collaring.

This research will help us to determine whether the addition of an electric fence to a section of



Home ranges of four collared bears. From May/June 2015 until the end of August 2015 three of four collared bears crossed highway several times.

- B43_Slavko_MCP100
- B44_Bojan_MCP100
- B46_Slaven2_MCP100
- B47_Vedran_MCP100

DAMAGE PREVENTION

Simple and proven techniques can reduce bear damage

Damage to human property is one of the most common types of human-bear conflict. Proper protection of human property like livestock and beehives is crucial for reducing bear damage and minimizing bear habituation and food conditioning.

We are using two approaches to achieve our goal for damage prevention: firstly by protecting livestock, beehives and other properties with electric fences, and secondly by using

guard dogs that are a traditional and proven method of livestock protection. The use of fencing and dogs will help prevent damage cases and is generally accepted by local residents.

In the summer of 2015, we constructed the first sets of electric fences to protect livestock and beehives. In Slovenia, we have donated 17 sets of electric fences (of 40 available) in the project area.



Constructing an electric fence to protect livestock.



A six-wire electric fence protects beehives.



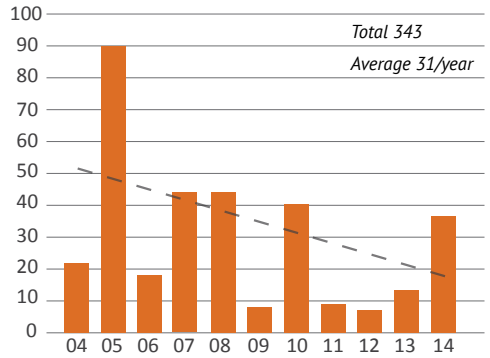
Janez Kržič, farmer from Prevalje pod Krimom:

Recently I received 400 m of electric fence from the LIFE DINALP BEAR project. For our farm, the electric fences brought us better sleep and less worries about our herd safety during the night. Now we can leave our animals grazing in remote pastures and meadows. The project definitely brings protection not only to our domestic animals but also for the wild ones since the electric fence defines their boundaries.

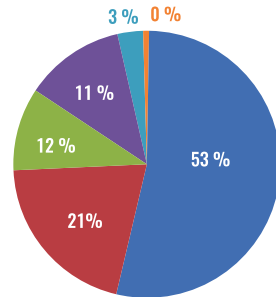
Bear damages in Croatia 2004-2014

Croatian hunting organizations pay compensation for bear damages. Over the past 11 years there were 343 damage cases or an average of 31 damages per year. More than half (53%) of bear damages were to fruit trees, cereal crops, gardens, and vineyards. Damages to livestock (21%), beehives (12%), and homes (property) (11%) were the other main types of damage reported.

The total recorded damage from 2004-2014 was 70,992 EUR, or an average of 6,454 EUR per year. Remarkably low levels of bear damages can likely be attributed to traditional knowledge for understanding how to live with bears, the fact that damages are not paid by the state, and unreported damages. As a partner in the LIFE DINALP BEAR project, we are striving to better understand the full story of bear damages in Croatia and to help reduce conflicts as they are one of the key factors that shape public acceptance of bears.



Numbers of bear damage cases in Croatia, 2004-2014.



- Agriculture
- Beehives
- Traffic
- Livestock
- Objects
- Trees

Types of bear damages in Croatia, 2004-2014.

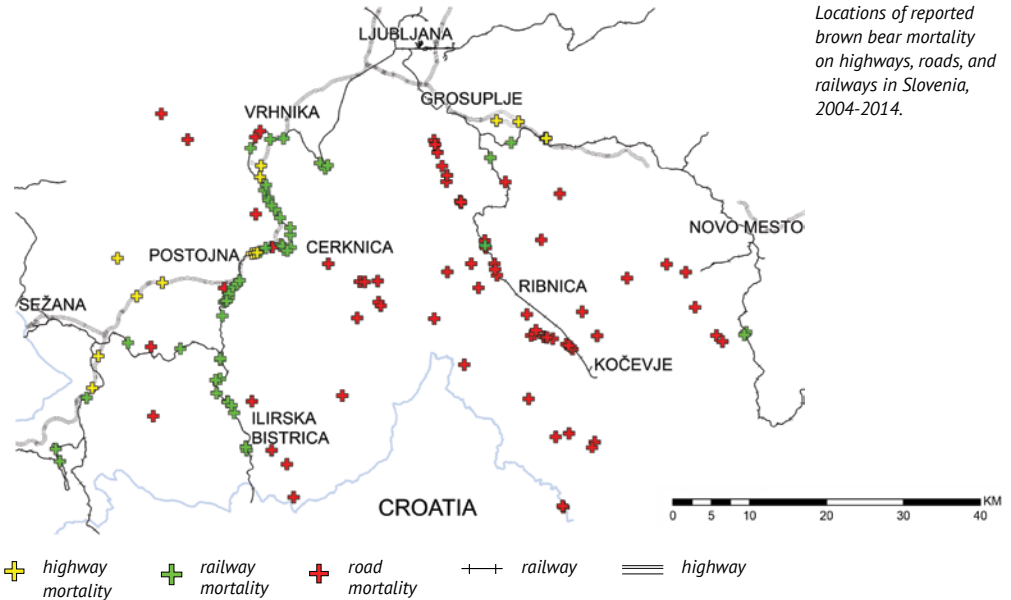


Marko Tomljanović, Head of the Hunting unit of the Croatian Ministry of agriculture:

This Ministry is the co-financer of the LIFE DINALP BEAR project and it supports all the project activities. The Republic of Croatia is managing its bears to keep the population at the optimal size and to ensure the long term survival for the benefits and satisfaction of hunters and local inhabitants.

TRAFFIC IMPACTS TO BEARS

Making Slovenian roads, highways, and railways safer for bears and people



Highways, roads, and railways can have negative impacts on bears and many other species of wildlife. Bears killed by motor vehicles and trains are a significant part of the total documented bear mortality in Slovenia. Additionally, bear-vehicle collisions represent an important risk to drivers and passengers. Overall, vehicle-related mortality of bears represents a risk to long-term viability of bear population in Slovenia; moreover, highways represent barriers to bear movement and can reduce connectivity of population(s).

To address this important issue, we developed an action plan to mitigate the impacts of traffic on bears. Several mitigation measures will be implemented at the most problematic sections of highways, state roads and railways where traffic-related bear mortality is concentrated. The main road from Ljubljana to Kočevje, the highway from Ljubljana to Postojna and sections of railway from Postojna to Pivka and

from Ljubljana to Postojna are areas where we are working.

We will use electric fences (highway) and acoustic deterrents (main road and railways) to discourage bears from crossing these sections. At the same time, dynamic signs will be placed along two sections of the main road from Ljubljana to Kočevje to alert and hopefully to slow down drivers in order to avoid potential collisions with wildlife, including bears.



Two types of acoustic deterrent that have been used so far in Slovenia.

Measures to reduce traffic impacts to bears on the Rijeka-Zagreb highway

For the Rijeka-Zagreb highway the main emphasis of the project is to deter bears from entering the corridor in high risk areas (hotspots). In 2015, 30 km of the highway was electrically fenced (1-meter outside of the conventional mesh fence) to deter bears from coming onto the highway.

In cases when a bear or another large animal does enter the fenced highway corridor, we have installed a series (30) one-way, self-closing exit doors, and six jump-out-ramps to allow animals to safely exit the area. At the most problematic sites, two different types of exit doors were used that allow an animal to open the door by pushing from the inside. Jump-out ramps are the same height as the highway fence and allow animals to jump outside the fenced part of the highway.

Additionally, at the selected “hot spots” on the highway in Gorski Kotar, bear-proof trash bins will be used to avoid attracting bears near or onto the highway corridor.



Electric fence on the Rijeka-Zagreb highway.



A jump-out-ramp allows wildlife to approach the fence from the top of the ramp and safely jump over to exit the highway.

INCREASING PUBLIC AWARENESS

Do you know how to behave around bears?

Do you know how to behave in bear areas? Do you know what it means if a bear stands up on its hind legs? You can find these answers and additional information about how to behave around bears in our leaflet, *How to behave in bear areas*:

<http://dinalpbear.eu/download/documentation/>

The aim of this leaflet is to provide information for guiding our human behaviours when around bears. Our goal is to spread knowledge about how to live alongside brown bears in the Dinaric Mountains and Alps.



The leaflet *How to behave in bear areas* is available in five different languages.



Carlo Maiolini, Communication officer for the LIFE WOLFALPS (LIFE12 NAT/IT/000807) project:

The LIFE DINALP BEAR and LIFE WOLFALPS projects have state-of-the-art technical and scientific teams that are well versed in the specific values of stakeholders. These teams are committed to engaging all Alpine citizens in large carnivore conservation and management issues. The LIFE DINALP BEAR and LIFE WOLFALPS are two great projects for two great species—we believe that with hard work, most citizens will eventually view large carnivores as a sign of distinction and excellence for the Alpine region.

Increasing the value of bears through non-consumptive use



Bear watching and photography hide in Loški Potok, Slovenia.



"Bear friendly" forest honey.

To ensure the long-term survival of bears, it is important to increase local appreciation of the species. Today, increasing numbers of people travel to rural areas to observe nature and wildlife. This trend presents an economic opportunity for local communities and potential conservation benefits for bears. We are developing bear-related tourism products as part of the LIFE DINALP BEAR project. We will promote the use of special, bear-friendly labels to bring an added value to products like milk, honey, or handicrafts that are produced in bear areas using bear friendly practices.

We are also exploring opportunities for bear ecotourism. One of the first steps we took was

to assess the interest of hunters and tourists in bear watching. Results of the questionnaires showed that tourists are mostly interested in one or two day bear watching programmes combined with other outdoor activities. Several hunting clubs in Slovenia have shown a keen interest in offering bear-observing activities. The fact that there is no seasonal overlap between bear watching and hunting activities offers a good starting point for the development of bear ecotourism. Follow-up activities will include organization of seminars for hunters, tour guides, and tourism providers and the development of an ecotourism website portal for reserving bear related trips.



EXPERIENCES FROM ABROAD

The human-bear conflict situation in Romania



In Romania, the presence of shepherds and guarding dogs is a common protection measure for large carnivores including bears.

This summer our project team visited Romania for an exchange to share our experiences with bear conservation and management practices. In general, there are many similarities between our project area and the Carpathian part of Romania—both are mountainous, rural, and

have important local economies supported by forestry and agriculture. And in both cases, when people and bears overlap, conflicts can occur. Therefore, addressing human-bear conflicts represents a challenge for ensuring long-term coexistence for both areas.

However, people in Romania seem to be more accustomed to protect their property against large carnivores. Almost every flock of sheep has its own shepherd, usually accompanied by several guarding dogs, but few sheep breeders use electric fences to protect their animals. Human presence in Romania appears to be the most common method to prevent damages.

To prevent bears from visiting garbage containers in human settlements, there is some limited use of fences and cages. In this way, bears cannot gain access to the containers and will hopefully lose their interest in visiting these inhabited locations. Despite the occurrence of human-bear conflicts, some emerging activities like bear watching contribute to the increase in public acceptance of bears in Romania.

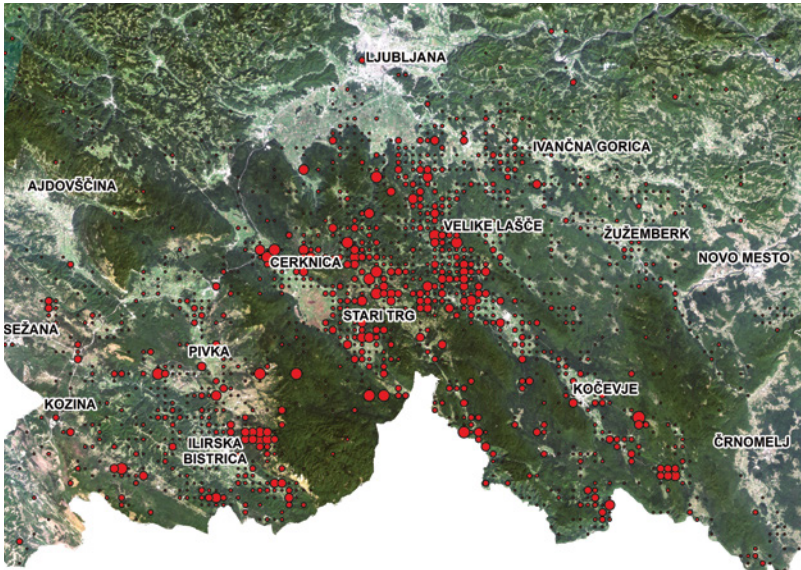
Opportunities for an international collaboration to further bear conservation

We are pleased to welcome Dr. Seth Wilson to the LIFE DINALP BEAR project. Seth will be in Slovenia for one year, providing technical expertise on the project. For nearly twenty years, Seth has worked to help people and carnivores coexist. His research experiences include geospatial modelling of carnivore conflict risk, community-based approaches to conservation, and conservation policy. He currently works with the Northern Rockies Conservation Cooperative and the Blackfoot Challenge, and is an Affiliate Faculty at the University of Montana. Seth was a Visiting Fellow at Yale University from 2003-2013, is a Team Member of the IUCN Human-Bear Conflict Specialist Group, and was recently appointed by the Governor of Montana to the Montana Livestock Loss Board.



Dr. Seth Wilson at the Slovenia Forest Service, Ljubljana.

Analysis of human-bear conflicts in Slovenia



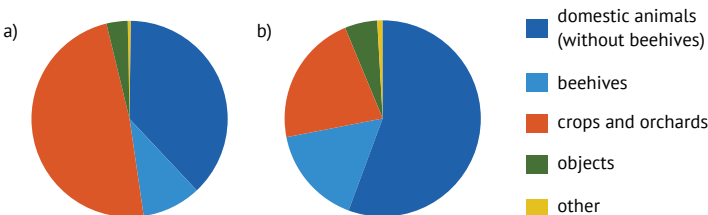
Conflict locations in the area of permanent bear presence in Slovenia. The size of the circles represents conflict intensity.

Reducing and preventing human-bear conflicts is crucial to the long-term conservation of brown bears in Europe. A first step to address this issue is to develop a strong understanding of the causes and spatial and temporal nature of conflicts. We offer a brief summary of our analysis of human-bear conflicts in Slovenia.

From 1998-2014, damage to domestic livestock, especially sheep, was the most common type of conflict caused by bears followed by agricultural damage to fruit trees, grass silage and corn and beehives. On average, 365 damage cases

were recorded annually, costing ca. 124,000€ or approximately 300€ per bear per year given the current population. The highest densities of conflicts were found in the north-central part of the Dinaric Mountain range in Slovenia.

The most important factors affecting human-bear conflicts were local bear density, annual productivity of beechnuts, presence of anthropogenic food sources, various landscape characteristics (especially habitat fragmentation), and past experiences of local people in coexisting with bears.



Average annual frequency (a) and average annual costs (b) of main damage types in Slovenia.

Health and reproductive status of bears in Croatia

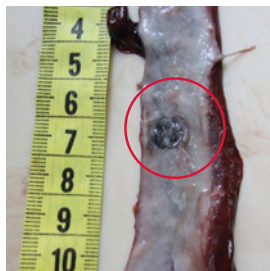
It is difficult to assess the health and reproductive status of free roaming bears in the wild. However, undiscovered disease(s) can put the population at risk. Bear hunting under a quota system in Croatia provides us an opportunity to regularly collect samples from dead bears.

From each dead bear, measurements and samples can be collected. For example, from muscle tissue we can isolate DNA, from teeth we can tell how old a bear is and from internal organs we can test for specific diseases or investigate reproductive status. With the LIFE DINALP BEAR project, hunters have been very

cooperative and so far 36 bears were fully sampled. This helps us understand what types of parasites may be living inside bears, the reproductive status of bears and the composition of their body fat. We can even assess the stress levels bears may be subjected to by testing their adrenal glands. Of the 36 sampled bears, nine bears tested positive to one or more parasites. The study of reproductive organs revealed that both male and female bears become sexually mature in their third year of life. Previously we considered them to be active in the fourth year.



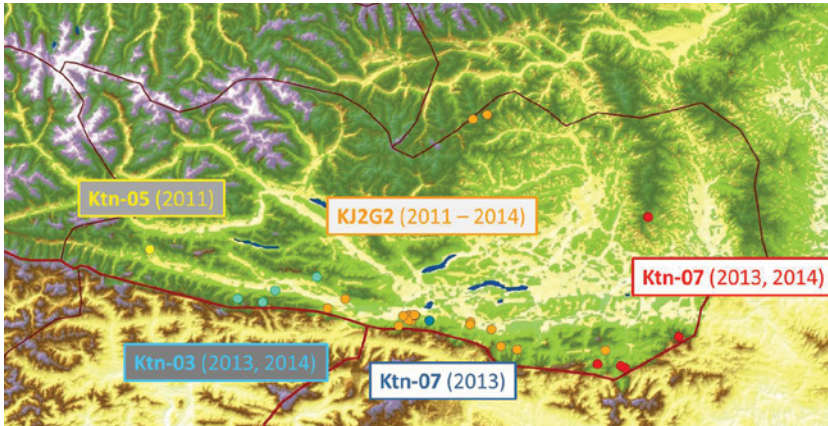
Yellow body (Corpus luteum) on the ovary of a female bear.



Placental scar in the uterus of a female bear; evidence that female gave birth last denning period.



Present situation of brown bears in Carinthia



Bears identified genetically in Carinthia in 2011-2014.

Carinthia lies at the northern range of the Slovenian bear population. Since the 1950s, individual dispersing bears have ventured over the Austrian border. Some bears stayed for years, others only for a short visit, and rarely have bears moved into other parts of Austria. Although the Slovenian bear population has grown markedly in the last decades, only a few individuals tend to be present in Carinthia at a given time. Determining the exact number of bears is difficult since genetic monitoring is still opportunistic and conducted at a low level of intensity.

What we can say is that the maximum number of genetically identified bears detected in a given year (2013) was four. In that same year, a bear radio-collared in Friuli (Italy) visited Carinthia for a few weeks briefly increasing the minimum number of bears detected in Carinthia to five.

Bear observations and signs are reported mainly from regions close to the Slovenian and Italian border (Carnic Alps and Karawanken). There is no pure Carinthian bear; all bears are shared with Slovenia and Italy. Most of the bears identified genetically in Carinthia have

also been detected in Friuli-Venezia-Giulia (FVG). Matching Carinthian genotypes with Slovenian genotypes is still underway. Two bears identified in Carinthia did not originate from the Slovenian population but arrived from the Trentino population. The bear named KJ2G2 was first detected in 2009 in Eastern Tyrol and FVG and is still present in Carinthia and FVG. In 2012, this bear made an extensive excursion through Styria during the mating season but returned to the Carnic Alps in early July. Nearly every year, single observations of females with cubs are reported in Carinthia but have never been officially verified. All bears genotyped in Carinthia were males.

In Carinthia, sheep losses and beehive damages are the most commonly reported conflicts from bears. The number of damages varies annually and does not reflect the number of bears in the area. For example, an individual bear, KJ2G2, likely killed multiple sheep over the course of several weeks and then stopped for a long period of time. In general, people accept the presence of bears in Austria's Carinthia area. However, we have found that when bear damages increase, so does local opposition.

Tools for problematic bear management

In the Autonomous Province of Trento, we are focusing our efforts on understanding problematic bear behaviour, assessing the effectiveness of prevention measures, and reducing problems in conflict hotspots. Our plan is to capture ten problematic bears and fit them with GPS collars. This will help us precisely monitor their activity, movements, and to swiftly and efficiently intervene in cases of emergencies.

GPS collars also give us the opportunity to test how well preventative measures work with problematic bears. For example, we can precisely monitor how well a bear resistant trash bin might work against a bear trying to access it. Also, our emergency response teams can approach problematic bears in certain cases and initiate aversive conditioning using rubber bullets and or Laika bear dogs when needed. We are hopeful that our approach of targeting problem bears for GPS monitoring will help us protect human safety, property, and provide

efficient bear management in Trentino. This is important since human-bear conflicts are still relatively high and improving local tolerance of bears will help reduce the risk of poaching.



GPS collar for a male brown bear.



Intervention by the emergency team.

Upcoming activities:



State-of-the Art Science:

- The first-ever transboundary bear population estimate will be completed.
- Population monitoring geo-database will enable new ways to enter data about bears and increase public participation.

New Conflict Prevention Actions:

- Bear-resistant compost bins will be distributed in Slovenia.
- Problematic garbage containers will be protected in Slovenia.
- New electric fences for livestock and beehive protection in Slovenia and Italy will be distributed.
- Livestock guardian dogs from established breeders will be distributed in Italy and Slovenia.

New Communication Tools:

- A new guidebook will be developed for all project partners on best communication and collaboration techniques.
- Info-points with interactive terminals will be set up to inform local communities and visitors of bear areas.
- A new website will be established with detailed information on how to properly protect your property against wildlife and how to react in case of damage.

Non-consumptive Use of Bears:

- Educational seminars will be held for bear-related tourism options in Slovenia and Croatia.

A Shared Intervention Protocol across Four Countries:

- First shared protocol for recording conflicts and damages will be developed.
- New guidelines for intervention team response to conflicts will be developed.



Dr. Peter Skoberne, Slovenian Ministry of the Environment and Spatial Planning, Nature Conservation Division:

The presence of large carnivores is an indicator of a well-preserved environment and a positive connection between people and nature. Therefore it is important to encourage and develop an approach to coexistence that considers the needs of humans and large carnivores. The LIFE DINALP BEAR project will help us to develop a stronger understanding of coexistence and how we might gradually shift our attitudes towards carnivores – from burden to benefit.

Project beneficiaries:



University of Ljubljana



REGIONE DEL VENETO



PROVINCIA
AUTONOMA DI TRENTO



AUTOČESTA RIJEKA-ZAGREB

POSREDOVANJE ZA PROMET I UČESTVOVANJE U PROMETU

Cofinancers:



REPUBLIC OF SLOVENIA
MINISTRY OF THE ENVIRONMENT
AND SPATIAL PLANNING



Ministry of Agriculture
Republic of Croatia



MINISTERIUM
FÜR EIN
LEBENSWEERTES
ÖSTERREICH

BERND THIES
STIFTUNG

EURONATUR

Photo: Marko Masterl



About the project

Acronym: LIFE DINALP BEAR

Project title: Population level management and conservation of brown bears in northern Dinaric Mountains and the Alps

Reference: LIFE13 NAT/SI/000550

Project time frame: 01/07/2014 – 30/06/2019

Webpage: www.dinalpbear.eu

You can follow us also on Facebook (www.facebook.com/dinalpbear) and Twitter (twitter.com/dinalpbear).

E-mail: dinalpbear@gmail.com

About this bulletin issue

Editor: Matija Stergar **E-mail:** matijastergar@gmail.com

Authors and reviewers: Samar Al Sayegh Petkovšek, Matej Bartol, Tomaž Berce, Natalia Bragalanti, Rok Černe, Claudio Groff, Dario Hipolito, Đuro Huber, Maja Jelenčič, Klemen Jerina, Marko Jonozovič, Irena Kavčič, Felix Knauer, Miha Krofel, Josip Kusak, Urša Marinko, Seth M. Wilson, Aleksandra Majić Skrbinšek, Tatjana Matković, Maja Mohorović, Anja Molinari-Jobin, Tanja Musil, Boštjan Pokorny, Georg Rauer, Slaven Reljić, Tomaž Skrbinšek, Bojan Vivoda

Credits for photographs, maps and graphs: Samar Al Sayegh Petkovšek, Archive Servizio Foreste e fauna PAT, Matej Bartol, Tomaž Berce, Petra Draškovič Pelc, Đuro Huber, Miha Krofel, Josip Kusak, Maja Mohorović, Zoran Pavšek, Boštjan Pokorny, Georg Rauer, Slaven Reljić, Tomaž Skrbinšek, Matija Stergar, Bojan Vivoda

Proofreading: Seth M. Wilson

Publisher: Slovenia Forest Service

Graphic design: Nuša Stanojević Suwa

Cover photo: Petra Draškovič Pelc

Ljubljana, November 2015



**LIFE
DINALP
BEAR** Population level management and
conservation of brown bears in northern
Dinaric Mountains and the Alps



With the financial
contribution of
the LIFE financial
instrument of the
European Union.

