

# *LIFE* *with bears*

**LIFE DINALP BEAR project bulletin 2016**

Counting bears with genetics – the final stages

GPS-tracking of bear movement

Bear-proof compost bins help keep bears out of your yard

Livestock guarding dogs help farmers protect their herds

Acoustic deterrents on Slovenian railways save bears' lives

Importance of public awareness and education

LIFE DINALP BEAR info points opened



**LIFE  
DINALP  
BEAR**



LIFE13 NAT/SI/000550

Dear readers:

International project LIFE DINALP BEAR proceeds at full speed. The analyses and implementation of good practices are underway as planned and the undertaken project actions have already provided us with important and interesting insights. The results will guarantee a way towards successful co-existence between man and bear, and sustainable management of this charismatic carnivore at the international level.

With the second year of the project finished, we are introducing a new issue of the yearly bulletin, which summarizes some of the most insightful and interesting events and conclusions. Hopefully, the contributions will satisfy your curiosity and give you an insight into project actions conducted in cooperation among four countries, all of which stand for implementation of common guidelines for population-level management of brown bears.

Enjoy the reading.

Nives Pagon

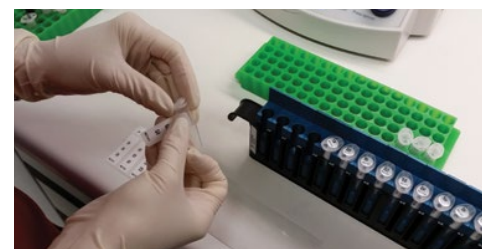
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### Counting bears with genetics – the final stages

An important part of the brown bear monitoring effort within the project is the population size estimate with the use of non-invasive genetic sampling. It is important to know how many bears there are to be able to manage them. So, we organized a very intensive three-month sampling session in the core bear areas of Slovenia and Croatia at the end of 2015, where over 3000 volunteers (mainly hunters and foresters) collected nearly 4500 samples of bear scats. In the Alps, where the bears are expanding, we will continue the sampling throughout the project to monitor the expansion of bears into these areas in real time.

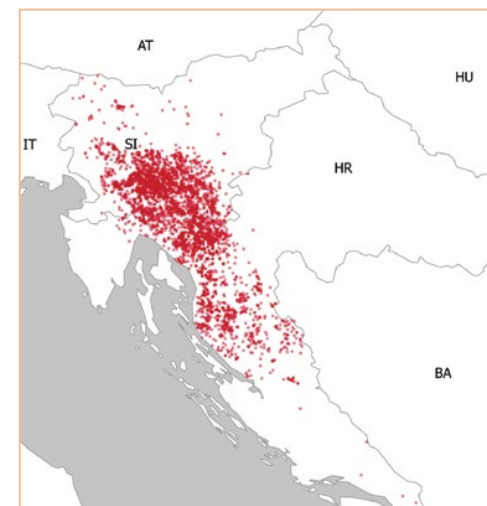
Once the samples were collected, the second part of work started: genotyping and producing results. As this is an area of our considerable experience, we could have used the “old” methods that were used before. However, LIFE DINALP BEAR is all about laying foundations for the future. Thus, we made a decision to up our game.



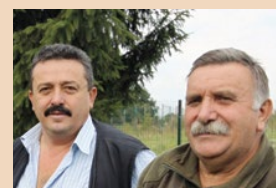
Once in the laboratory, the sample is entered into a database. After pre-processing, the samples are ready to start DNA extraction.

Genetics is among the fastest-developing fields in all of science. A lot of effort was put into making the analysis faster, cheaper and more reliable. We automated DNA extraction using robotics, and we are one of the first laboratories in the world to switch to Next Generation Sequencing for this type of work. A lot of effort was devoted to doing this, but we consider it a long-term investment - it will make future genetic monitoring of bears (and other species) considerably cheaper and faster.

With new methods in place, we should be able to share the first results through the Geo Database in early 2017.



Map of non-invasive samples received in laboratory from September 2015 till December 2016. Vast majority of samples has been sent in by volunteers.



Project LIFE DINALP BEAR is certainly improving conservation and management of the brown bear in Croatia. One of the most important factors to making sound management decisions is to know the bear population size. Members of our hunting organizations hence participated in intensive brown bear genetic sampling in autumn 2015, and we are impatiently waiting for the results of the analysis.

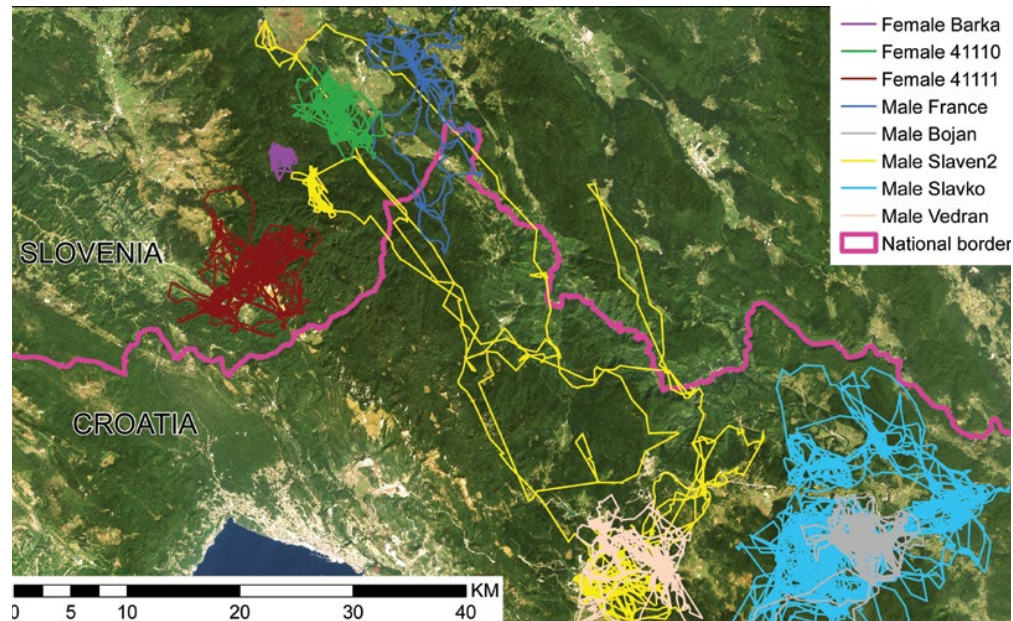
**Mladen Milohnoja, hunting club Kapela, Jezerane, Croatia**  
**Miko Pavlović, hunting club Jelen, Vodoteč, Croatia**



### GPS-tracking of bear movement

Within the LIFE DINALP BEAR project we plan to equip 22 bears with GPS telemetry collars. These data provide researchers with valuable information for better understanding bear behaviour in the project area and for monitoring effectiveness of the project activities. Some of the collars also have a in-built video camera, which gives us an intimate view into the bear life from their perspective. Bears are being captured by experienced field-crew accompanied with a veterinarian, using special traps or free-darting from high stands. In Italy, four bears have been radio-collared by the Autonomous Province of Trento so far: a 3 year-old female, monitored from 21/8/2015 to 6/09/2016; 8-10 year-old male, which lost its collar 12 hours after the capture; 13 year-old female, monitored from 15/10/2015 to 16/4/2016; and a 1,5 year-old female, monitored from 6/09/2016 with the collar still

working. The goal is to follow bears exhibiting conflict behaviour and to monitor effectiveness of mitigation measures in conflict hot-spot areas. The monitored females that roamed in relatively small home ranges close to Adige Valley, regularly visited crops at night, but with no real damages to the protected property, such as beehives. In Slovenia, four bears have also been equipped with GSP telemetry collars. One of them, a 175-kg male named “France”, who regularly crosses the border with Croatia, received a collar with a video camera. The telemetry data is being used to understand how feeding sites work to attract bears and to determine how well bear-proof garbage and compost bins deter bears. An abundance of beech nuts in 2016 was reflected in bear diets through scat analysis; bears fed mainly on beech nuts in autumn 2016. In Croatia, five GPS-collared bears were studied



Radio-collared bear movements within the LIFE DINALP BEAR project along the Slovenian-Croatian border.

to better understand their movements in relation to the Rijeka-Zagreb highway. The telemetry data show how often and where the bears cross the Rijeka-Zagreb highway. Four tracked bears (the fifth bear shed the collar after a few days) crossed the highway 59 times: 49 times

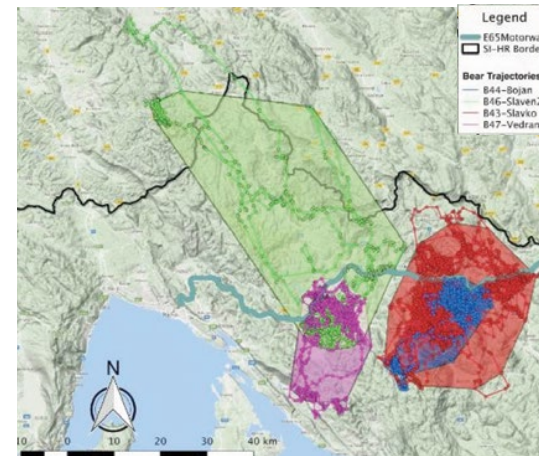
over the tunnel, 8 times under the viaduct and possibly 2 times over the fence (in sections with no electric fence), while spending 4 to 19% of the time within 1 km of the highway. One bear (named Slaven2) went to Slovenia and back four times, using a home range of 904 km<sup>2</sup>.



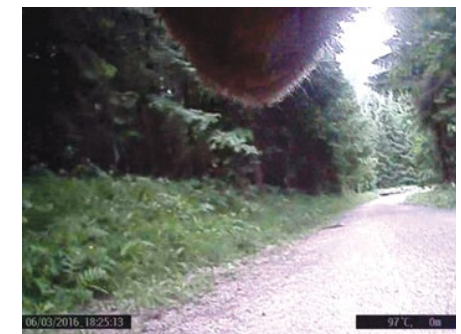
Bear Slaven2 walked for 6 km along the highway fence, where the electric fence was added, till it crossed over the tunnel Vršek.



Bear Slavko with GPS collar pictured by a camera trap.



Locations and home ranges of 4 bears along the Rijeka – Zagreb highway.



Example of a recording by a video-camera in a GPS-collar mounted on a bear: male “France”, while walking on a forest road.



## Bear-proof compost bins help keep bears out of your yard

Long-term conservation of brown bears is a challenge especially if bears become frequent visitors to settlements. Their repeated presence can cause worry and fear among inhabitants reducing tolerance for bears. The main reason for bears approaching settlements are easily accessible leftovers of human food: garbage, slaughter remains, household waste and composts. Therefore, in the LIFE DINALP BEAR project we introduced, as the first in the world, bear-proof compost bins, which make compost inaccessible to bears. Because such compost bins had not existed before, we had to find a proper solution ourselves. An exceptionally robust compost bin was constructed, which has passed reality-test in an area with one of the highest bear densities in Slovenia. It is made of firm oak wood and perfectly fits the image of the countryside, and many residents of the bear area immediately expressed interest. We will distribute over 100 of them at human-bear conflict hot spots in Slovenia. Residents who have already received compost bins are enthusiastic about them. We also established contacts with several carpenters to make sure that bear-proof compost bins are now accessible in the market, too.



*Bear-proof compost bin of massive oak wood fits nicely in the image of the countryside.*



*Bears can't access organic waste in the robust bear-proof compost bin.*

*In the past bears came to our yard several times, where they fed on the compost. Every year they destroyed our plastic compost bin. Since we received the professionally designed and constructed wooden bear-proof compost bin from the LIFE DINALP BEAR project, we have not had conflicts with bears anymore. Besides, it is much more attractive in its design than our previous compost bins.*



**Polona Mertelj,**  
*inhabitant of Travna Gora village, Slovenia*

### Bear-proof compost bins now available also for commercial use

If you would like to contribute to mitigation of conflicts by preventing bears access to food resource in residential areas, thus keeping them out of settlements, you can now purchase a bear-proof compost bin.

Craftsmen produce them in two sizes: 80x80x80 cm (price 205 €) and 100x100x100 cm (price 295 €). They are made of massive oak wood and equipped with opening mechanism and anchoring parts.

For inquires and information please contact the carpenter on e-mail address [klemen.trobec@gmail.com](mailto:klemen.trobec@gmail.com) or mobile number +386 40 624 422.



## Livestock guarding dogs help farmers protect their herds

The use of livestock guarding dogs (LGDs) is a proven and effective measure for preventing damages on livestock caused by large carnivores. The aim of this project is to develop a successful working-line of LGDs by developing a breeding program where offspring of effective parents are used.

In Slovenia, we are establishing working lines with three different breeds: the Caucasian Shepherd dog, the Karst Shepherd Dog and Tornjak. We are cooperating with four experienced dog breeders, who have already purchased their dogs that take part in the working lines. From these, we will distribute at least 20 pups to new owners. The first donated dog was a young female Caucasian Shepherd dog that became part of the new herd in summer 2016. New litters of LGDs are expected in winter.

In the Province of Trento in Italy, fourteen Maremma Sheepdogs were distributed to motivated farmers from 2014 to 2016. The dogs are protecting goats, sheep, cattle, horses, and lamas on farms and on mountain pastures in summer.

Every year all the dogs are examined by a veterinarian and the training staff to ensure their health, physical condition and proper education. As the first phases of adjustment of puppies to the new environment represent a crucial period for developing proper working abilities, cynologists supervise them closely at this stage.

*I own a farm with 150 goats, 6 donkeys and 1 horse. In summer the herds roam to a large mountain pasture, protected by four guarding dogs, all Maremma Sheepdogs. I have suffered only one bear attack (on one goat) since 2014. The dogs are doing their work perfectly and they are integrated very well with the livestock. I am very glad that I received such an offer and happy for my time invested in rearing and training of dogs.*

**Ivan Zanoni, a goat breeder from Trentino, north Italy**



*A Maremma Sheepdog protecting a herd of goats in Province of Trento, Italy.*



*A Tornjak dog named Dexter has become a part of a working line of livestock guarding dogs in Slovenia.*





## Bear intervention groups in the project area

Effective management of problem bears and emergency situations requires skilled personnel and an organized response protocol. Bear Intervention Groups (BIGs) do just this.

Bear Intervention Groups (BIGs) ensure security of people and their property, and contribute to bear conservation by collaborating with public to avoid conflicts with bears. BIGs consist of experts, trained to act in emergency situations involving problematic bears or bears in trouble, to evaluate the damage caused by bears and to promote coexistence between people and bears. One of the LIFE DINALP BEAR project goals is to ensure that the whole project area is covered with skilled and operating BIGs.

### Newly established BIGs

All four countries already had their BIGs established before the project. However, within the project we established two new BIGs: Regional BIG in Veneto, Italy, and the Highway Bear Intervention Group (HBIG) for the Highway Rijeka – Zagreb in Croatia.

Over the past 10 years in Veneto, there were on average, 1 to 3 male bears present per year; still, bear damages were registered every year. The authorities faced particularly problematic bears two times: in 2010, the bear “Dino” M5, coming from Slovenia and in 2014, the bear M4, coming from Trentino. These events urged for the establishment of the BIG, which was formed within the frame of LIFE DINALP BEAR project in 2016. It consists of 60 members from the National Forest Service and Provincial Police. They all attended an intensive training and educational programme in April 2016.

Croatian BIG for Rijeka - Zagreb highway was established in 2015 and consists of 9 experts and several trained road workers. Its principal duty is to react quickly, when a bear or other wildlife gets trapped between the fences along the highway, to take care for the safety of drivers and to enable safe exit for the bear if possible.



*Bear Intervention Group in Trentino, Italy, uses Laika dogs for help at work.*

### The work of the BIGs was taken on a next quality level

Within the project, the international guidelines were produced. The formation of an internationally shared set of guidelines is a critical step for achieving overall population management. The guidelines contain a protocol how the BIGs should react when facing particular situations, e.g. injured bear, dead bear, bear on a motorway, orphaned cubs, bear causing damages, or bears threatening human safety. Besides, common guidelines will also unify the data collection on the interventions and thus significantly improve the quality of the BIGs work.



*Bear capture training with culvert tube trap for the newly established Veneto Bear Intervention Group in Paluzza (Udine, Italy) in April 2016.*



*Bear capture training with Aldrich snare.*



*Radio telemetry training for bear monitoring purposes.*



*Veneto Bear Emergency Group in Paluzza (Udine, Italy) in April 2016, when undertaking 4 days of intensive training.*



## Acoustic deterrents on Slovenian railways save bears' lives

Traffic mortality represents an important factor of the total brown bear mortality in Slovenia and Croatia. In both countries at least 313 bears were killed by traffic in the period 2005-2014 (15% of the total mortality), of which 45% was mortality on railways.

To minimize the effect of the railway traffic on the Slovenian bear population, we introduced certain technical measures on the most problematic sections ('black spots') of railway for bear - train collisions. One hundred and sixty acoustic deterrents were installed on electric poles along the 8 km of railway between Ljubljana and Postojna. These deterrents have sensors sensitive to noise that is produced by the train. When a train approaches, they start to release very-high-frequency noise, which alerts the bears about the arrival of the train. As bears are not used to this kind of noise, they become more alert and consequently run away from the track a few seconds faster, which gives them opportunity to avoid the crash more frequently.



*Acoustic deterrents were installed on electric poles along the railway tracks in Slovenia to reduce train-bear collisions.*



## Reducing traffic-bear mortality on Slovenian roads

Bear mortality on state, regional and local roads is a widespread problem in Slovenia, representing 37% of bear traffic mortality. To reduce this problem, we implemented two measures: acoustic deterrents and for the first time in Slovenia, dynamic traffic systems, on the state road Ljubljana - Kočevje, where this problem is most critical.

Two dynamic traffic systems (electronic signs with additional sensors and equipment) were installed along two road 'black spots'. At each location, two dynamic signs are placed on each side of the road to warn drivers. The signs are

connected with sensors and are triggered only when a bear or other large animal is approaching the dangerous road section. These systems produce better driver responses than normal "caution wildlife" sign, because the flashing signal is a real-time warning.

Additionally, 240 acoustic deterrents with sensors were installed into the roadside traffic pillars, on a total length of 7.3 km. They produce a high-frequency noise in case of approaching vehicle. Bears are thus more alert and more often successfully run away from the road.



*Dynamic traffic sign, which alerts drivers to wildlife near the road.*



*Acoustic deterrents with sensors were installed into the roadside traffic pillars on most critical road sections.*



*Brown bear approaching the road section, where dynamic traffic signs were implemented, during video surveillance at Jasnica on 15. 8. 2016.*



## Become bear-friendly

Local acceptance of bears is very important. Specific activities were designed to contribute towards reaching this goal through promotion of specific economic opportunities for the local communities. One of them is also a “bear friendly” certificate that emphasises the added value of the products and services produced and carried out in a manner that contributes towards bear conservation. So far 52 certificates have been awarded. Among them are honey, meat and cheese products produced by using appropriate property protection measures, tourist programmes increasing awareness about the

importance of the bear and its habitat and other products actively promoting bear conservation. Write to us at [dinalpbear@gmail.com](mailto:dinalpbear@gmail.com) and become bear friendly.

With the help of international experts we have produced guidelines for responsible non-consumptive use of bears in tourism in [Slovenian](#), [Croatian](#) and [English](#) languages. The guidelines were also the main teaching material in the two educational seminars organized for tourist guides and interested hunters by the University of Ljubljana and University of Zagreb.



Hand-made bear Populiin has a special mission to promote bear conservation.



Beekeepers who are applying bear friendly practices have a bear-friendly certificate on their honey products.



### International collaboration on the non-consumptive use of brown bears in tourism

LIFE DINALP BEAR has successfully completed an international cooperation with **Dr. Alexandros Karamanlidis from Greece** and produced guidelines for responsible practices in the non-consumptive use of brown bears in tourism. Alexandros has been involved in bear conservation for the past 15 years and is actively involved in the conservation of the endangered Mediterranean monk seal. He works as a scientific coordinator of the non-governmental organizations ARCTUROS and MOM and as a regional manager for Rewilding Europe.

## Effective communication with the public is crucial

### Popular press publications generated from project

- 1 *Keep bears wild and away from human foods (leaflet)*
- 2 *Non-consumptive use of brown bears in tourism: Guidelines for responsible practices (guidelines)*
- 3 *Brown bear in Dinarides and Alps (brochure)*
- 4 *LIFE with bears – LIFE DINALP BEAR project bulletin 2015*
- 5 *How to behave in bear areas (leaflet)*
- 6 *A Guidebook to Human-Carnivore Conflict (manual)*
  - “Bear Friendly” (leaflet; in Slovenian and Croatian)
  - Posters LIFE DINALP BEAR
  - Poster Coexistence with brown bear (in Slovenian)



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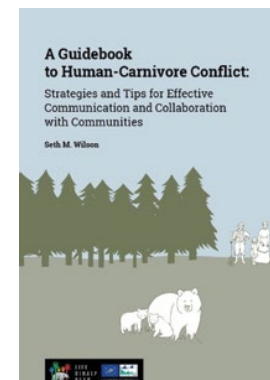
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In 2016 we released Dr. Seth Wilson's **Guidebook to Human-Carnivore Conflict: Strategies and Tips for Effective Collaboration with Communities**. The guidebook offers new tools and innovative approaches for field-level practitioners who want to conserve and manage brown bears and wolves that inhabit human-modified landscapes. The guide offers practical tips for effective communication and proven strategies for building partnerships and collaborations with people who live with large carnivores.

A core theme found throughout the guidebook is that positive working relationships among wildlife managers, local communities and other stakeholders is fundamental for addressing, reducing and preventing human-carnivore conflict in a meaningful way.



## Importance of public awareness and education

Conservation of nature and protection of endangered species requires a broad approach, particularly when it comes to large carnivores that can conflict with people. Efforts that are based purely on biology are likely to fail. With species like bears, it is important that people learn how to coexist by understanding both bear and human behaviors.

Our public awareness campaign has a strong emphasis on reaching out to specific interest groups, such as local inhabitants, livestock owners, beekeepers, hunters, scouts, mountaineers, speleologists and other people who share their living space with bears. Project publications, presentations, interactive info points and workshops for schools in bear areas not only offer an insight into the biology of the brown bear, but also provide a wide range of information on reducing human-bear conflicts. They also promote good practice examples and explain how bear friendly practices can provide additional value for local economies.



*Presentation of LIFE DINALP BEAR project and human-bear coexistence at a "mountaineer camp".*



*"Hands-on" workshops involve working with bear footprint models, real parts of specimens and educational games.*



*Five project info points, like this one, are placed in frequently visited tourist spots across the bear area.*

## LIFE DINALP BEAR info points opened

In November 2016 we held official openings of 4 LIFE DINALP BEAR info points at Risnjak, Plitvice lakes, Northern Velebit National Parks and at the castle Zrinski, Brod na Kupa. Info points, "information boxes" where users can browse data, inform visitors about the project and bear biology, offer advice on how to behave in bear area and promote better coexistence through conflict solutions and bear related eco-tourism. Visitors can also take a quiz and test their knowledge of bears, or experience different bear thematic games like Tic-Tac-Toe, Pairs and Puzzle.



*Public opening of the info point at Risnjak National Park.*

## Increase in non-consumptive use of bears and „Bear friendly“ products in Croatia

Kuterevo's bear sanctuary recently earned its "bear friendly" label due to their work to rehabilitate orphan bear cubs and educate the public. "Grandma Dragica" is producing Kuterevo wool slippers (coklje). The city of Fužine expressed the idea of becoming a "Bear friendly" city, which our team wholeheartedly approves. Bear watching is offered by Risnjak NP, Rewilding Europe and a few hunting units near Delnice and Plitvice lakes. The "Queen Sheep" farm manages their production on bear friendly principles: electric fence, closed night shelters and a shepherd dog. "Linden Tree Retreat" offers horse riding across Velebit for observation of bear presence signs. Danijel Popović from Crni Lug sells various products, but dried bear scats are sold out the quickest.



*"Bear friendly" products from Kuterevo.*



*Closed night shelters at the "Queen Sheep" Farm.*



*Bear watching hide near Brušane, by Rewilding Europe.*

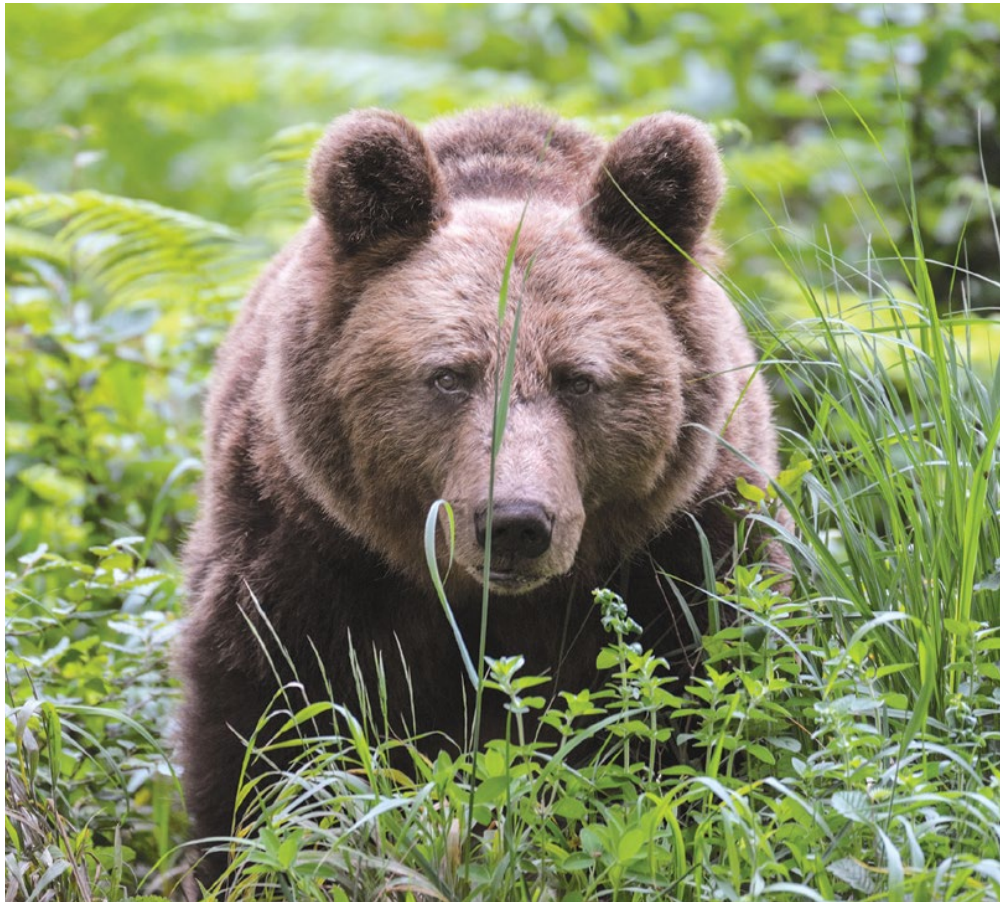


## Bear movements in Austria

In 2016 have bears in Carinthia roamed around the border region with Slovenia and Italy. Bear sign, damages and sightings were reported from the Karawanks, the Carnic Alps, the Gailtaler Alps and the Reißeck. Bears have destroyed approximately 10 beehives and 40 sheep this year, which is a level comparable to the damages in previous years in Carinthia.

Three individuals, all males, have been detected so far by the analysis of 5 DNA samples (hairs and scats); 4 additional samples are still to be analysed. Two bears are well known and have been living in the area for years already:

KJ2G2 and Ktn-03 (= Gen04 in Italy). The third genotype belonged to a conspicuous bear, characterized by a prominent white patch on the shoulder and bold behaviour. In May and June it was observed several times rather unimpressed by people at close distance and on May 15 it even ventured by night, presumably by following the rails, into the western railway station of Villach. Very likely this was also the bear that challenged a hunter for his bag right after he shot a deer. At the moment it is not known if the bear has remained in Carinthia or has moved on or back to Italy or Slovenia.



## Brown bear filmed in the centre of Tarvisio. Something new? Or is it normal?

In November 2016 a brown bear was filmed by a “security camera” in the main street of Tarvisio, while it was crossing the street at night. That was not the first time this happened: three years ago a bear crossed the village in the same spot, effectively using the shortest way to move from the Julian to the Carnic Alps. This new event received great interest among the public; the local intervention team received numerous phone calls from people who wanted to know more about bears and their habitat.

Generally, the apparent increase in sightings and encounters with bears is likely due to the fact that today, people can more easily document them using smart phones and camera traps, creating the perception of increased encounters when in fact, there is no evidence that bears are changing behaviors.

Historically, there have always been close encounters between people and bears. In the Tarvisio case, what was new was the rapid spread of the “event” over the internet leading

to a host of reactions and perceptions by the general public.

In the era of social media, rapid dissemination of news will inevitably continue and poses a variety of challenges that communication strategies should consider.



*Bear crossing the main street in Tarvisio.*







Central information point in Pivka municipality is located at the Park of Military history (Pivka, Slovenia) that has been visited by more than 40.000 visitors this year. Despite the fact that we manage the other sort of »green tourism« at the Military Park, the info point of LIFE DINALP BEAR project raises great curiosity and appreciation among the visitors and contributes a great deal to awareness of the visitors who hike in the area and elsewhere. We are most glad to host such an interesting and useful interactive point.

**Janko Boštjančič, Association for heritage management and tourism, Pivka, Slovenia**



At a bear visit to my mobile beehive four years ago I was confronted with huge damage. When a colleague informed me about the possibility to receive an electric fence for protection of a beehive in the frame of LIFE DINALP BEAR project, I couldn't even believe my ears at first. Now that I am using this protection equipment, everyone is at an advantage: me, my bees and the bears. I am using the »Bear-friendly« label proudly and inform all my buyers about this project and bear conservation.

**Andrej Bergoč, beekeeper from Ilirska Bistrica region, Slovenia**

### Coordinating beneficiary



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### Associated beneficiaries



### Cofinancers



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Ministry of Agriculture  
Republic of Croatia



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