



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



2016 ANNUAL POPULATION STATUS REPORT FOR BROWN BEARS IN NORTHERN DINARIC MOUNTAINS AND EASTERN ALPS

Action C.5: Population surveillance

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July, 2016

Univerza v Ljubljani



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REGIONE DEL VENETO

Introduction

Understanding the status of populations of conservation concern is essential for effective conservation and management, which is also true for brown bears in the area covered by LIFE DINALP BEAR. Such population-level understanding is the foremost condition that must be met if we are to transcend the national or regional-level conservation and management practices that are the current norm in wildlife management and conservation.

This is the second of annual Population Status Reports planned within LIFE DINALP BEAR. It provides an overview of both how population is being managed and its current status over the entire area in question. With these reports, we'd like to give the basic tool to wildlife managers dealing with bear management in each respective country/region, to include the situation in neighboring areas in their conservation and management planning.

In this second report we've learned some lessons and its production went smoother than for the first report. However, while the key informational infrastructure, the Internet-based Geo Database is developed, the data are still being migrated into it and its current usability is still limited. This meant that this report also had to be compiled in the old-fashioned way – by sending questions to experts from different areas and summarizing their replies in a comprehensive document. Each of the experts updated the text for his or her geographic area with the most recent available data on all recorded aspects of bear monitoring to produce an up to date picture of the status of the bears in our area. The same goes for the distribution maps – we used distribution maps prepared for the previous report and updated them with new information. We also solved some inconsistencies in data reported for different areas and separated “permanent presence” into areas where there is confirmed reproduction and areas where bears are constantly present, but reproduction has not been confirmed (as is the case in many areas at the edge of distribution). We believe that this makes the maps much more consistent and consequently more useful.

We believe that this document is a useful, updated compendium of available knowledge about our bears and that it will serve its purpose for management and conservation.

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Bear population status – project area overview

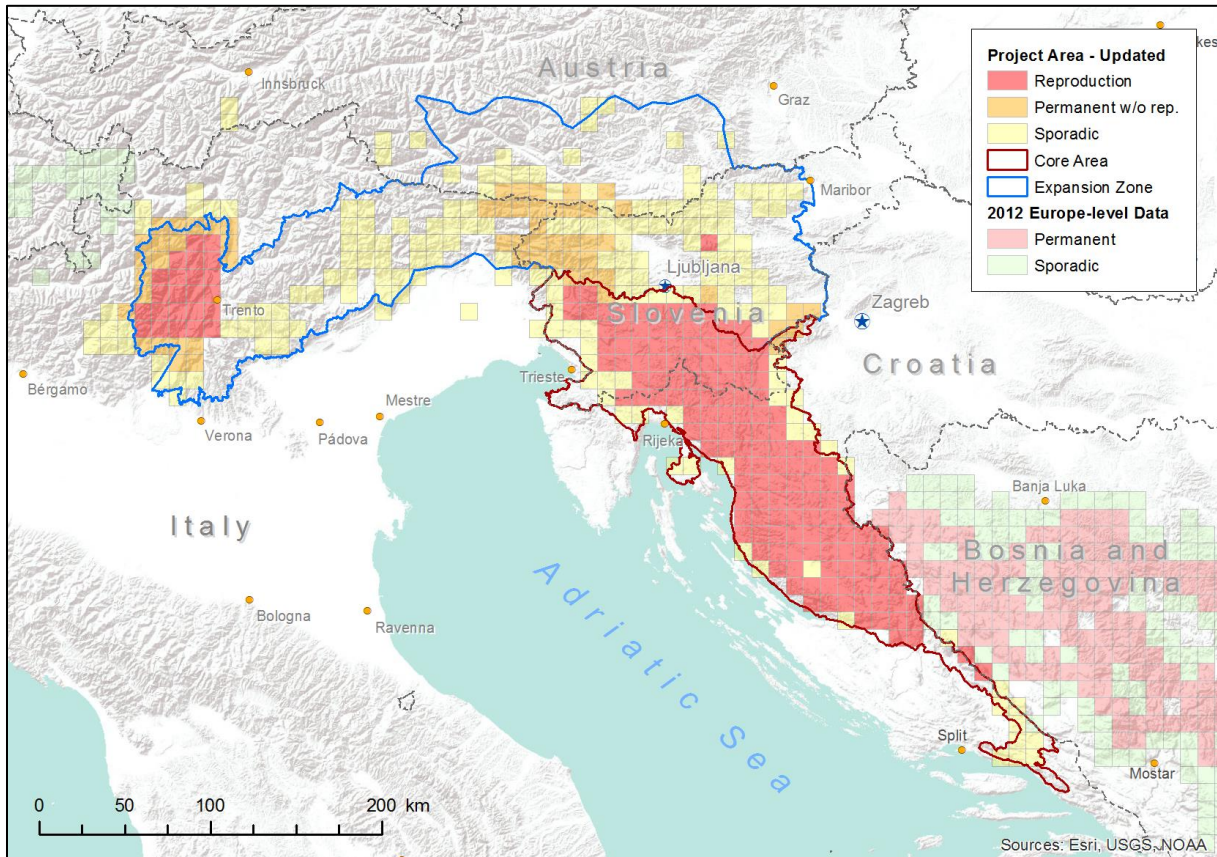


Figure 1: Bear distribution in LIFE DINALP BEAR project area – updated (status for 2015).

Distribution

The project area of LIFE DINALP BEAR spans over four countries: Croatia, Slovenia, Austria and Italy. It is roughly divided into two areas: the Core Areas and the Expansion Zone.

The **Core Areas** are the main brown bear range in Croatia, Slovenia and western Trentino in the Central Alps. The first area stretches from Bosnian border in Croatia, along the Dinaric Mountain Range up to the foothills of the Alps. This is where most of the bears are. The area is rugged, covered by dense forests and has relatively low density of people, mostly limited to valleys. It has one of the highest brown bear population densities ever recorded. It is the main source for natural expansion of bears into the Alps, and has been the source for all reintroductions of this species in Western Europe. The second area, in Central Alps, host a small but so far viable population of around 50 bears originated by the



reintroduction carried out in the frame of two LIFE projects (Ursus I and II) in 1997-2004. 48 litters and 101 cubs have been recorded in that area in 2002-2015, representing an important stepping stone for natural expansion of bears into the Central and Eastern Alps.

The **Expansion Zone** includes Eastern Alps in Slovenia, Austria and Italy. Bears are expanding into this zone from the Core Areas in Slovenia and in western Trentino. There is permanent bear presence in the southern part of this zone, in the pre-alpine areas in Slovenia and in the alpine and pre-alpine range in the Region of Friuli V.G., Veneto and eastern Trentino, but the last genetic survey in Slovenia in 2007 has shown that the bears in Slovenian Alps were few (21, 19-23 95% CI) and that the sex structure was heavily male-biased (70%M vs. 30%F).

Population estimates & monitoring

While monitoring of brown bear conservation status has traditionally been country-specific, this situation is improving considerably through the monitoring activities within LIFE DINALP BEAR. There are estimated to be around 1500 bears in the entire project area in 2015, but the quality of these estimates still varies between countries (see country-specific chapters below). The vast majority of these bears are in the Core Areas (48-54 are in the Trentino area where bears were reintroduced). We estimate that approximately 30 animals are present in the expansion zone (not including Trentino).

Table 1: Population estimates for bears in the project area for 2015.

Item	Slovenia	Croatia	Italy, FVG	Italy, Veneto	Italy, Trentino	Austria
Number of bears (best estimate)	478 (437 - 512 95%CI, estimated in 2007)	1000	5	2 (temporary presence)	48-54	2, temporary presence
Sex structure	Males 40.5%, Females 59.5% (2007 estimate)	50% females, 50% males (on limited number of samples (67) in 2008); likely more females than males	5M	2M	20 M, 21 F, 7 I	2M
Method of estimation	Mark-recapture estimate using noninvasive genetic samples, entire range sampled (2007)	Mark-recapture estimate using noninvasive genetic samples and extrapolated for whole bear range (2007)	Minimal number based on genetic data	Minimal number based on genetic data	Minimal number and mark-recapture estimate (2013) based on genetic monitoring (opportunistic on damage and other and systematic on rub trees), camera traps	Minimal number based on genetic data

Detected bear mortality

No bear mortality was detected in 2015 in Austria. 5 dead bears have been detected in Trentino. 3 of them because of natural mortality, 1 poisoned and 1 for unknown reasons. (sex: 3 males and 2 females; age: 2 cubs, 1 young, 2 adults). Most of mortality in Slovenia and Croatia has been through legal cull/hunting (80.8 %), followed by traffic mortality (13.3 %). Mortality is male-biased (M:62% vs. F:38%). In Slovenia this ratio is less skewed (M: 60 % vs F: 40 %), and is expected since females with cubs are protected, making males more exposed to legal cull. In Croatia this skew is somewhat more pronounced (M: 65 % vs. F: 35 %), probably because apart from the same moratorium on killing of females with cubs, bears are being trophy-hunted, with (big) males providing a more interesting (and profitable) trophy.

Table 2: Mortality in the project area in 2015.

Item	Slovenia	Croatia	Italy, Trentino	Total
Number	112	144	5	261
Sex structure	M: 67, F: 45	M:92, F:50, unknown:2	M: 3, F: 2	M: 162, F: 97, U: 2
Legal cull/hunting	88	119	0	207
Illegal killing	1	0	0	1
Intervention cull	6	4	0	10
Traffic: car	10	9	0	19
Traffic: train	5	10	0	15
Found Dead	1	1	1	2
Intraspecific aggression	1	0	3	1
Poison	0	0	1	0
Other	0	1*		1

*Apparently the bear fell from an apple tree, could not move and was later euthanized.

Population goal and population level cooperation

There are currently no clear guidelines or common visions for development of a common bear management strategy, and collaboration at the management level is still relatively poor. The initiative is starting within LIFE DINALP BEAR to change this through the project. The first step are these reports.

Conflicts and conflict management

Over the entire area there are conflicts with humans. These are mainly livestock and property damages, but there have also been cases of humans being injured by bears. Compensations are being paid for bear-caused damage, but the compensation systems vary. The differences between countries are huge, but in 2015 they have been a little less dramatic than what we have observed in the previous report for 2014. In 2015 there were 262,388 € paid for compensations in 653 damage cases. This is a considerable reduction from 2014, when 414,850 € were paid for 850 damage cases. A large proportion of this is on account of Slovenia, where the number of damages was reduced by 32% (or by 99,047 €, 404 damage cases compared to 597 in 2014). This decrease is in all damage categories and not connected to a specific type of damage. The majority (60.9 %) of damage compensations are still paid in Slovenia. This is not unexpected since there are many bears sharing space with a considerable population of humans. But as a contrast, damages in Croatia remain remarkably low, with altogether 5,917 € (2.3 %) paid for 20 (3.1 %) cases. While the money paid per damage case is close to that in Slovenia or the Friuli Venezia Giulia part of Italy, there are not many damage cases. In Croatia, damages done by bears are compensated by responsible hunting right owners directly to the owners of the damaged property. Investigation of damage cases is done by representatives of the hunting organizations and owners of the property, and they agree on the value of compensation. If they cannot agree the court process is initiated. Because the state does not cover damage compensations, reporting of damage cases to the responsible Croatian Ministry of Agriculture may be incomplete. The number of damage cases is also down in Trentino (128 compared to 167 in 2014). In Austria we didn't have complete damage data for 2014 (and no data on the amount of compensations paid that year), but these data became available for 2015. In Friuli VG the number of damages is higher than reported in 2014 (20 vs. 11 in 2014), but this is still low and quite probably just by chance. As a contrast, the damages in Regione Veneto dropped considerably (to 8 from 36 in 2014, and 3,382 € compensations paid vs. 47,124 € in 2014). The vast majority of damages in 2014 in this area were caused by a highly problematic bear (M4), and the damages nearly disappeared when this situation was resolved. The bear damage data for 2015 is summarized in the table below.

There have been reports of humans injured by bears in 2015. A hunter sustained severe injuries in Croatia when a mother bear was provoked during a group hunt, and had to be hospitalized. A caver sustained light injuries in Slovenia when a bear was denning in entrance of a cave he was entering. A



female bear with cubs attacked a jogger in Trentino region (a similar event with a different bear happened also in 2014). There were also several reports of false attacks by bears that have ended without injuries.

Table 3: Damages done by bears in the project area in 2015.

Item	Slovenia	Croatia	Italy, FVG	Italy, Veneto	Italy, Trentino	Austria	Totals, Medians
No. of cases	404	20	23	8	128	70	653
No. of cases %	61.9%	3.1%	3.5%	1.2%	19.6%	10.7%	100.00%
Paid (€)	159,807 €	5,917 €	9,176 €	3,382 €	65,595 €	18,511 €	262,388 €
Paid (%)	60.9%	2.3%	3.5%	1.3%	25.0%	7.1%	100.00%
Paid per case	395.6 €	295.9 €	399.0 €	422.8 €	512.5 €	264.4 €	397.3 €
Paid per bear	334.3 €	5.9 €	1,835.2 €	1,691.0 €	1,366 €	9,255.5 €	1,528.5 €
Cases per bear	0.8	0.02	4.6	4.0	2.6	35.0	3.3
Damages by subject							
Sheep	102	1	1	1	44	47	196
Cattle	27	0	1	1	0	2	31
Other domestic animals	12	4 (pig, poultry)		1 donkey	115 (chicken and rabbits)	1 goat	133
Beehives	66	4	19	5	72	20	186
Crops	116 (incl. 69 silage bales and 5 hay bales)	1			8		125
Orchards	68	2			30		100
Vegetables	0	0					0
Objects	8	9 (wildlife feeders, cellar window)	1		9		27
Other	5	0				22 kg fish	6

All areas have implemented some sort of a quick-response system (bear response team) that is used when a situation with a problem animal has to be dealt with. These activities are summarized in Table 4. For Austria and Veneto region in Italy, no such activities were reported for 2015.

Table 4: Interventions in case of “bear problems” – by reasons and outcomes. The organization of bear response teams, collection of data and actions taken are different in different countries and regions, so the data may not be directly comparable.

Item	Slovenia	Croatia*	Italy, FVG	Italy, Trentino
Total Number of Interventions	261	39	1	28
Causes				
Bear damage	34	4	0	6
Bear in/near settlement	190	7	1	5
Traffic accident	29	14	0	2
Attack on human	1	1	0	1
Orphaned cub(s)	0	0	0	
Other	7	0	0	17
Outcomes				
Talking with people	189	Not recorded	0	Not recorded
Averse conditioning (chasing bear away)	38	8	0	2
Translocation of bear	0	0	0	
Removal of bear, number	1 (cub, heavily injured in a traffic accident)	4	0	1
Removal of attractant (garbage...)	0	0	0	0
Other	25	0	0	0
Bear on the highway	0	1	0	0
Search for a bear after collision with a car.	8	0	0	2
Presidium of the area frequented by problematic bear.	0	0	0	17

* In Croatia hunting right owners are investigating bear damage sites since they are responsible for damage compensation. IT members visit bear damage site only in the case of repeated damage and when her/his opinion is needed for intervention removal request by hunting right owner.

Threats

There are several threats listed in different areas, and most are repeated from the previous report. Conflicts with humans are still listed as the foremost threat in most areas. Garbage conditioning / poor waste management and poor protection of property have been frequently listed. Additional threats are genetic isolation (in Trentino core area) and lack of females (reproduction) in FVG, Austria and Alpine area of Slovenia. While a case of a bear immigrating (probably from the Dinaric Mountains) in 2009 and emigrating back in 2010 has been reported, no natural geneflow from the larger population (which would require successful reproduction of the immigrant animal) has been recorded so far.

Table 5: Threats to bear conservation and main causes of conflict with humans.

Item	Slovenia	Croatia	Italy, FVJ	Italy, Veneto	Italy, Trentino	Austria
Main Threats to Bear Conservation	Low tolerance of local residents, increasing conflicts.	Garbage conditioning (individual bears), male biased trophy hunting.	Lack of females; Habitat fragmentation, traffic accidents, disturbance through tourism.	Presence of bear is still sporadic and totally male-biased; conflicts at local level caused by damages and misinformation by local media about the danger; potentially, poaching / poisoning.	Low tolerance of local residents, genetic isolation.	No females; low tolerance to damages.
Main Causes of Conflict With Humans	Poor protection of property, poor handling of garbage.	Accessible garbage, poor or no protection of property.	Low conflict level. Few damages on sheep and beehives.	In general, problematic bears causing a lot of damage create a lot of conflict (as was the case with the bear M4 in 2014). Low conflict in 2015, due to very low bear presence.	Management of problem bears.	Unprotected beehives and sheep on Alpine pastures.

Croatia

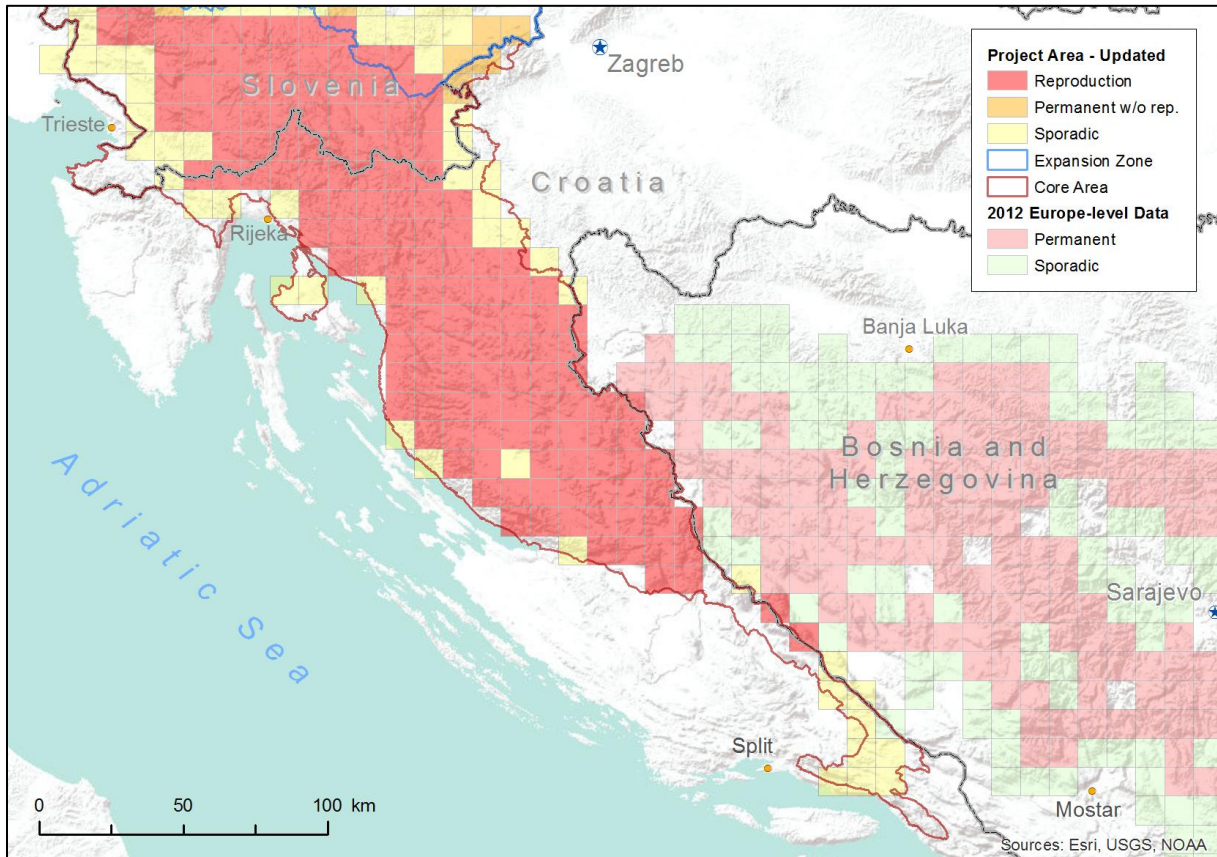


Figure 2: Brown bear distribution range in Croatia.

General Information

Distribution

The total bear distribution area in Croatia extends over 11,824 km². The permanent bear presence habitat extends over 9,253 km², while sporadic bear presence extends over 2,570 km². Bears are distributed over the entire Gorski Kotar and Lika regions, the western and southern part of the Karlovac county, the Učka and Ćićarija mountains in Istria, the central and northern part of the island of Krk, the Žumberak mountains, the coastal part from Bakar to Maslenica and the area surrounded by the Kamešnica, Mosor and Biokovo massifs.

The best habitats in Gorski Kotar, Velika Kapela, Mala Kapela and Velebit, have an average density of

10 or more bears per 100 km². High population density drives frequent migration of younger males to neighboring peripheral areas of the bear range (Učka, Čićarija, Pokuplje, Priobalje, etc.). 94.2% of the permanent bear presence areas are hunting units, and 5.8% are located in national parks. In the national parks, bears are permanently protected.

Permanent bear presence habitats are areas in which bears satisfy all their food, water, space, non-disturbance, cover, breeding and denning needs and are present year-round. In those areas all prescribed protective measures are implemented in order to ensure the stability of the population. Local inhabitants accept bears as a part of their natural environment.

Sporadic bear presence habitats are areas with a sporadic presence of bears or areas in which the number of bears does not guarantee the continued existence of the species, or where bears do not den regularly. These are habitats to which bears are returning and which are usually connected to permanent bear presence areas in Croatia, Slovenia, or Bosnia and Herzegovina.

Bears occasionally cause damage in these areas. Within the sporadic bear presence habitats are areas where bear presence is desirable and areas in which bear presence is undesirable, which is reflected in the management regime.

Population estimates & monitoring

The current estimate of the number of bears in the Croatian segment of the Dinara-Pindos population is about 1000 individuals. (Kocijan and Huber, 2008). This is still the best available estimate for 2015. The number has been obtained by genotyping 547 bear scat samples collected in 3 study areas: 9378 km² Gorski Kotar North, 1000 km² Gorski Kotar South, 998 km² Velebit (about 30% of bear range in Croatia), where a minimum of 210 different individuals were genetically determined. Those data were analysed through mark – recapture modelling and “Rarefaction” curve calculations, and then extrapolated across the entire bear range in Croatia. Resulting estimates had a relatively large margin of error but also indicated that at least 1000 bears were present.

In addition to the genetic approach, coordinated bear counts from high stands at feeding sites are done during pre-specified days in spring and autumn. These counts are envisioned in the Bear Action Plan and are used to determine population trends, not population size. Monitoring also includes a full record and samples of each dead bear (from hunting, traffic mortality and other causes of death), and data from satellite telemetry research.

A large non-invasive genetic study of population size has been organized in 2015 within LIFE DINALP BEAR together with Slovenia. A total of 2205 scat samples were collected from September until December 2015 in Croatia. The study should provide a precise abundance estimate and a reference point for future brown bear monitoring. Laboratory analyses are being done at the time of writing of this report.

Legal status & relevant management agencies

With accession to EU in 2013 brown bear in Croatia became a strictly protected species, but also remained a game species. The main management agency for bears in Croatia is the Hunting Directorate within the Ministry of Agriculture. Since the bear became a protected species, the management is shared with the Directorate for Nature Protection within the Ministry for Protection of Environment and Nature. The operational management follows the Brown Bear Management Plan for the Republic of Croatia. The Brown Bear Management Committee prepares yearly Action plans and supervises their implementation. The Bear Intervention Team helps with the actions in the field including the management of bears showing problem behaviour.

In the last three years quota for bear hunting has been set to 120 bears plus up to 30 individuals expected to be lost due to other reasons, including the intervention removal of problem ones. The outcome for 2015 was 119 hunted and 25 lost by other means: 10 on railroads, 9 on roads, 1 euthanized after accident, 1 of unknown reason, 3 intervention removal and 1 shot outside the bear zone. On a multi-year average only 85% of the hunting quota has been fulfilled and other losses were also lower than anticipated (78%).

Population goal and population level cooperation

According to the management plan the total habitat capacity is around 1100 bears and the social capacity (acceptance) may be around 900. Currently both are assumed to have been reached and the goal of active management is to keep the population within the given limits.

Bears in Croatia are a part of the Dinaric-Pindos population and are directly shared with neighbouring Slovenia and Bosnia and Herzegovina. With Slovenia there is full cooperation on the level of scientists, while the political agreement and collaboration in management is still in need of improvement. Intensive activities are planned within LIFE DINALP BEAR to overcome these difficulties. With Bosnia and Herzegovina the main difficulties are lack of capacity and complicated political situation in that country.

Conflicts and conflict management

Current conflict levels are surprisingly low. The acceptance of bears can be on average considered as very good. The extensive surveys in 2002 and 2008 showed that 86% and 72%, respectively, respondents living in the bear range would agree with increasing bear numbers in Croatia (Majić et al 2011). That is mainly related to the status of bears as a game species, where maintenance of large population secures income through hunting. Continued tradition of living with bears makes coexistence easier as local inhabitants know how to minimize livestock depredation and destruction of beehives. The damages that occur are compensated by hunting organizations (except in the national parks) that are in most cases comprised by local inhabitants as well. Hence the total compensations paid per year are very low, on average about 6000 €, or only about 6 €/bear/year. Comparably low bear damages can only be found in Sweden (3.6 €/bear/year), while the other extreme is Norway where one single bear causes twice as much damage as ~1000 bears in Croatia (12,666 €/year/bear).

The Brown Bear Management Committee and the Bear Emergency Team are the bodies that care for the implementation of the Brown Bear Management plan (Huber et al. 2008) and the implementation of the yearly Bear Action Plans. That work includes decisions on the size and distribution of hunting quotas and on emergency removals of problem bears after other measures have failed.

Threats

The current situation with bear population segment that lives in Croatia is very favourable and the potential threat may only be the events that would change something in the ever fragile balance between any large carnivore and humans. The immediate problem was the forced change of bear status from “game” to “strictly protected” by EC decision. Efforts were taken to mitigate the negative effect on the public acceptance and to prevent the explosion of damage compensation requests towards the state. The quota hunting continued smoothly through “derogations” and bear kept the “game” status as well. The bear-caused damages are continued to be compensated by hunters.

Another issue is to prevent habituation of bears to human food sources (accessible garbage and poor or no protected property, e.g. beehives, crops, livestock...) through timely actions such as appropriate garbage disposal and better property protection or negative conditioning and removal of habituated individuals.

There was extensive construction of major new infrastructure (highways) in the bear habitat over the previous decade, but these seem to have been satisfactory mitigated by numerous crossing structures including a number of large green bridges (Kusak et al 2009). In 2015, within the scope of LIFE DINALP BEAR, large scale protection measures were implemented to prevent brown bear appearance and mortality on highways: electric fences, one-way exit doors, jump-out ramps and 25 bear-proof garbage bins were installed along the Rijeka-Zagreb motorway. A future threat may be the planned construction of “wind power parks” in the core bear habitat, especially in the critical denning zones (Huber and Roth 1997).

Situation and events in 2015

Population size and trends

The estimate of the population size has not changed – in lack of better data it is still estimated at approximately 1000 bears. Intensive noninvasive genetic sampling was carried out from September till end of December 2015 in a whole bear range in Croatia in order to obtain genetically based estimation of population size. 2205 samples were collected in Croatia alone (4677 together with Slovenia), which should provide a very reliable estimate. Laboratory analyses are in progress at the time of writing of this report.

Management decisions

Following the standard decision-making procedure, hunting quota has been set as 120 plus up to 30 for other causes of mortality.

Special events

On 25 October 2015 in Koritnik area around city of Vrbovsko during a group hunt, a female bear was provoked and defending her cubs attacked and heavily injured one hunter. Open injuries of the head, left shoulder and upper arm, and left lower leg with fracture of fibula and damage of nerves and blood vessels occurred. The hunter was transferred to Rijeka Hospital and was subjected to surgery and hospitalization until December 4, 2015. After the surgery, Decreased Activity of Daily Life was estimated at 50% and the hunter is demanding a compensation (29.000 EUR) from his Hunting Club. After the accident, the National Bear Committee approved intervention shooting of the female, which was accomplished on 5 November 2015.

On 5 November 2015 at 01:07 a bear was spotted inside the corridor of Rijeka-Zagreb motorway close to tunnel Čardak. Firemen checked highway section twice and could not see the bear. At 03:36 the bear has been seen again around the same spot. Highway Brown Bear Emergency Team (HBBET) has been informed and the nearest member was at the location at 04:34, and the other members arrived at 05:20. After repeated attempts of both firemen and the road patrol to chase the bear away from the highway corridor through two newly constructed exits through the fence, HBBET decided to approach the bear that was hiding on the hill behind the vegetation. The approach with a dog and firearms resulted with a bear being shot at 06:29. It was a big male bear (195 kg) and members of HBBET and highway traffic were in danger. Action has been done according to newly established Protocol in a case of bear appearance inside the highway corridor. HBBET and Protocol were established in 2015 within LIFE DINALP BEAR project.

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Slovenia

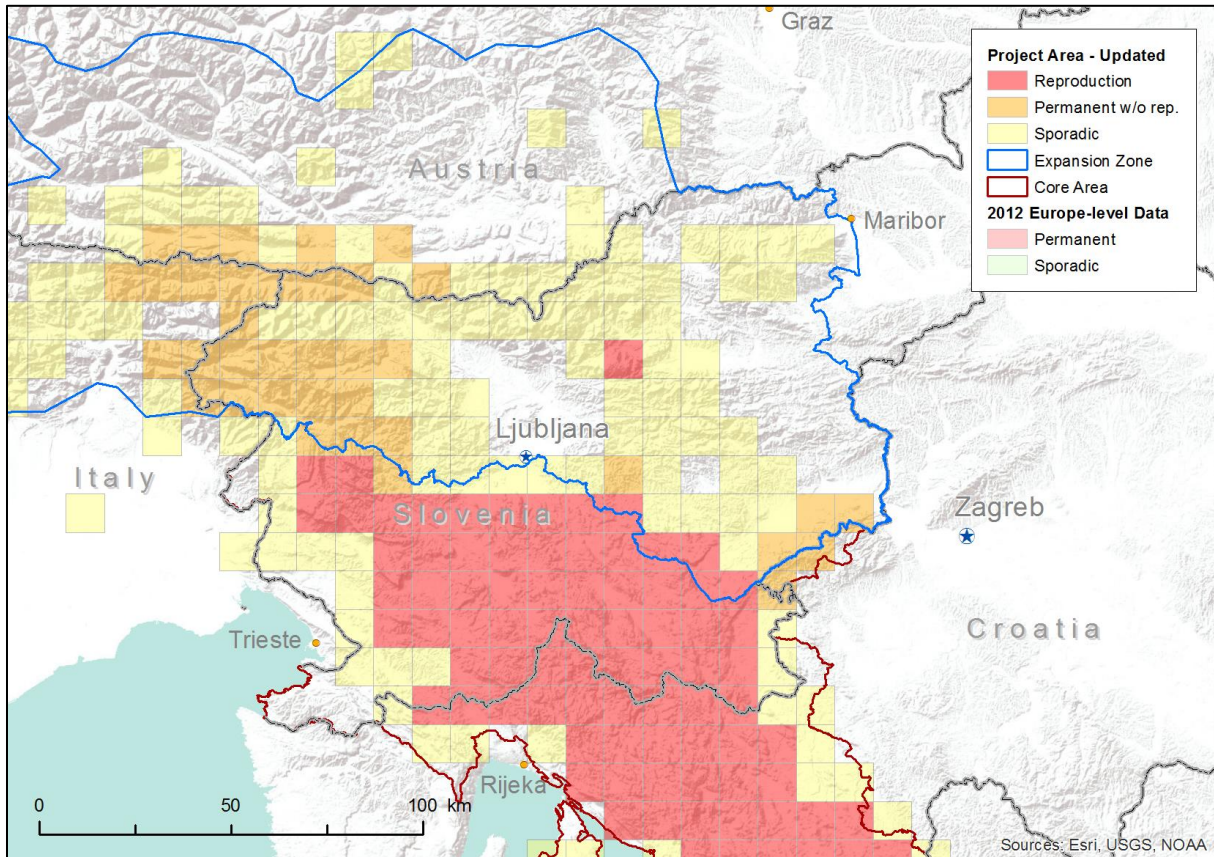


Figure: Bear distribution in Slovenia.

General Information

Distribution

Bears in Slovenia are the northern edge of the large Dinaric-Pindos population. The majority of bears in Slovenia are found in the south of the country, next to Croatian border, south of Ljubljana – Trieste motorway and Sava River. The population density of bears NW of this highway is considerably lower, but some bears are permanently present, and there are frequent occurrences of bears in the Julian Alps and the pre-alpine regions. North of Ljubljana and Sava river bears appear sporadically, and are typically dispersing juvenile males.

Populations estimates & monitoring

The population size was last estimated in a high-intensity noninvasive genetics CMR study in 2007 which covered the entire area of permanent bear presence in Slovenia. The population size in winter, after the yearly cull and before the new generation of bears was born in the spring (the lowest yearly number), was estimated at 440 (396-480 95%CI).

Bears are also routinely monitored through yearly systematic observations at feeding places (352 feeding places monitored simultaneously) and through population reconstruction using age data of culled bears. The population is considered stable.

For the core area in the Dinaric Mountains, a highly-intensive noninvasive genetic sampling was implemented between September and December 2015, together with Croatia. 2472 samples were collected in Slovenia (4677 together with Croatia), which should provide a very reliable estimate. Laboratory analyses are in progress at the time of writing of this report.

Parallel to this, less intensive but long-term genetic sampling has been started in the Alpine and Pre-Alpine areas of Slovenia, complementary to such sampling in border areas of Italy and Austria. The goal of this sampling is to keep a close watch on how the population expansion into the Alps is progressing. Samples are being analyzed and we expect to include the first results in the next Population Status Report.

Legal status & relevant management agencies

Bear is listed as a strictly protected species in Slovenia, and its management and conservation is the responsibility of the Ministry of Environment and Spatial Planning. There is a yearly cull quota which is based on an expert opinion by Slovenia Forest Service, which is then discussed and modified by the Large Carnivore Management Advisory Board, which consists of representatives of various stakeholders. On basis of this the “exceptional cull” is allowed through a decision by the competent minister.

Population goal and population level cooperation

The management goal is to keep the population size stable and minimize conflicts with humans. The population is conserved mainly in the bear core area, except potentially in some “corridors” towards Austria and Italy, if decided so (not precisely defined what this means). However, bears are not supposed

to be permanently present in these “corridors” according to official management strategy, although at present there is no regular hunting there (only so called management removals of problem individuals).

Considerable efforts have been made to improve transboundary cooperation in bear management. These goals are planned to be realized within LIFE DINALP BEAR.

Conflicts and conflict management

There are regular conflicts with agriculture and occasional bears wandering into villages or even cities which create considerable fear among local residents. There have been infrequently injuries of humans, however no fatalities have happened in the last couple of decades. Damages to property are being systematically compensated, but the compensation system has been criticized as it does not stimulate people to invest in protection (compensations usually exceed commercial value of the destroyed property). A “Bear Response Team” has also been organized which deals with problem bears and immediately reacts to concerns expressed by people in the bear area. However, any other actions preventing conflicts (e.g. bear-friendly garbage management, removal of “bear attractants” from the environment etc.) are sorely lacking.

Threats

The main threats are habitat fragmentation/loss through urban sprawl and development of traffic infrastructure. A considerable threat is also traffic (automobile or train collisions) which causes significant bear mortality on a yearly basis. An indirect, but very serious threat are conflicts with humans and destruction of their property, as this lowers the support for bear conservation and increases demands for high cull quotas.

The culling quota in the last 10 years varies between 60 and 90 animals (with the exception of the season 08/09). The quota in the last years is similar to what it has been over the past decade. In 14/15 the number of killed bears was the highest recorded in Slovenia

Situation and events in 2015

Population size and trends

The population size estimate from 2007 is not reliable anymore since too much time has passed. Jerina & Krofel (2012) estimated on basis of population reconstruction using dentin-layer aging of killed bears that up to 2012 the population size should have remained approximately the same. A highly successful noninvasive genetic sampling has been implemented in the fourth quarter of 2015 within the LIFE DINALP BEAR project, and the results should provide a new reliable orientation point for management.

Management decisions

A culling decision was made for the period 1 October 2015 until 30 September 2016. Culling took place until 30 April 2016.

Bear cull was precisely specified by weight categories spatially precisely distributed. The planned cull was 89 bears. For the core area, the planned cull was 72 bears – 50 below 100 kg, 13 between 100 and 150 kg, and 9 above 150 kg. In the “edge” area a cull of 14 bears was planned: 6 below 100 kg, 3 between 100 kg and 150 kg, 3 below 150 kg, and 1 over 150 kg. Out of this quota, a cull of one bear <100 kg was planned in Prealpine and Alpine areas. Other mortality (traffic, natural death etc.) is not part of the quota.

In 2015, 112 bears were recorded dead in Slovenia, 67 males and 45 females. 88 died in legal cull, one in illegal killing, 6 in intervention culling, 10 in car accidents, 5 in train accidents, one bear was found dead by undetermined reasons, and one died because of intraspecific aggression.

Special events

A speleologist was injured by a brown bear when entering a cave on 7 April 2015. The person received light injuries and was positive about the accident.

Italy

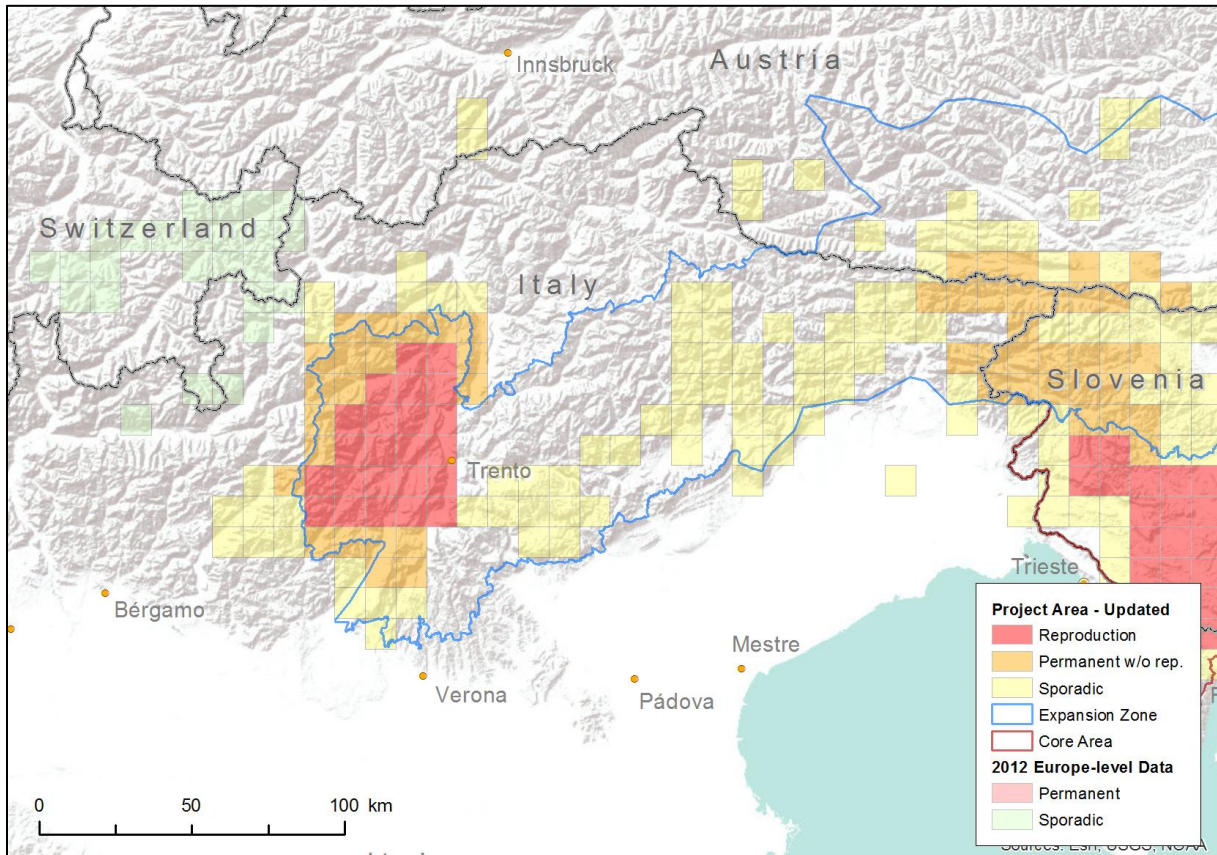


Figure 3: Brown bear distribution in Northern Italy.

General information

Distribution

Bears in Italy are found in 2 populations, the autochthonous Central Apennine and the re-introduced Alpine population in Trentino. The autochthonous population in the Apennines is outside of the project area, completely isolated and will not be treated in this report.

In Trentino the female area covers 1,303 km² in the western part of the province. The resident range is more or less stable since 2012, as well as the range of the dispersers. Additionally, there is a third nucleus in the eastern Italian Alps which is part of the expanding Slovenian population and partially from expanding individuals from Trentino. This occurrence is situated in north-eastern Friuli VG, where a

few male bears are permanently present.

In Veneto only opportunistic monitoring is done by the provincial police and national forest service (CFS) staff, following damages or presence signs reports. Biological samples collected during the monitoring are sent to ISPRA (the national Institute for Environmental Research) for genetic analysis. In 2015, after the “annus horribilis” of 2014 with the highest amount of bear damages ever recorded (caused by M4 bear), only a few sporadic bear presences were detected in the region. These were concentrated in spring and autumn and in areas neighboring to Trentino and Friuli VG (Monte Baldo in Verona province, Alpago – Cansiglio in Belluno and Treviso province), hosting permanent presences. Only two bears were detected using genetics, M19 from Trentino population (in Monte Baldo area) and Gen15 from Slovenia (in Alpago-Cansiglio area). This confirms that the bear in Veneto is still a sporadic and irregular presence.

Populations estimates & monitoring

The minimum estimate for the Trentino bear population is 48 individuals, and the population trend is apparently stable in the last three years. Monitoring is done by Forestry service personnel, park staff, Museum of Science staff and local Hunting Association. In Friuli VG in 2015 five different bears (all males) have been detected through genetic sampling. The monitoring is done by the Regione Autonoma Friuli Venezia Giulia and national forest service staff, Progetto Lince Italia and the University of Udine.

Legal status & relevant management agencies

Bear management in Italy is mostly decentralized at regional and local (i.e. provincial and regional) level. The bear is fully protected in Italy. A management plan was drafted in 2010 by a team of experts (neither the public, nor stakeholders have been involved) of the Ministry on Environment and the Regional governments; it has no real legal or jurisdictional value, but in the facts it's pretty much observed by g.o. managers.

The Trentino population falls under the jurisdiction of the Forestry and Wildlife Department of the Provincia Autonoma di Trento. Management involves the public and all stakeholders on the highest level possible. The management of bears in Trentino does not depend on single projects, but is rather carried out since the 1970s as part of routine wildlife management.

Population goal and population level cooperation

The goal for the Trentino population is a MVP of ~50 individuals and to connect the small and isolated Alpine population with the large Dinaric-Pindos population. So far, a couple of bears are known to have moved from Trentino to northern Slovenia but no significant movements in the opposite direction (which would be useful for the small isolated population of the central Alps) have been recorded so far. International cooperation occurs through the Alpine Convention and other international networks.

Conflicts and conflict management

Conflicts exist over livestock depredation and destruction of beehives. In Trentino, compensation is paid by the Forestry and Wildlife Department after inspection and confirmation by own, specifically trained personnel. 100% of the market value is paid. In Trentino, additional funds are available by the Forestry and Wildlife Department for prevention measures such as electric fences, livestock guarding dogs and shelters for shepherds in the mountains. Two attacks on humans have been recorded in 2014 and 2015 (females with cubs) reducing even more the positive attitude of people toward bears.

Threats

Trentino: Despite the positive trend, livestock depredation and the occurrence of problem bears (bears approaching human infrastructure & settlements in search of food in a place with high human density) still remain a challenge when it comes to local acceptance of bears. This makes it necessary and important to improve 1) quantity and quality of information, and 2) efficiency in removing problem bears. Both are regarded critical success factors.

Friuli VG: there is a low conflict level with only a few damages.

Veneto: both conflicts and threats, and the overall perception of bears, follows the irregularity of bear presence, changing radically from year to year between “total indifference” and “priority emergency”. These conditions, which is reflected in the attention of media and local politics, makes it difficult to build a balanced and regular management approach to the bear in the region.

Situation and events in 2015

Population size and trends

The monitoring season 2015 (14th year of successive genetic monitoring) on brown bears in Trentino-Italy pointed out that the population has an essential stability in the last three years, with a minimum population presently estimated to be 48 (max 54) individuals with 7 litters genetically recorded in 2015 (13 cubs).

Trentino is still the only region in the Italian part of the project area where reproduction is reported.

In Friuli VG five different bears have been confirmed using genetic sampling, all of them males.

In Veneto in 2015, only few sporadic presences of bear were recorded in the region, concentrated in spring and autumn and in areas neighbouring to Trentino and Friuli VG (Monte Baldo in Verona province, Alpago – Cansiglio in Belluno and Treviso province). The presence of bears in Veneto is still a sporadic and irregular event.

Management decisions

In 2015 the process of updating the National Action Plan PACOBACE, begun in 2013, ended. The new version has been approved by the Ministry of the Environment.

Special events

The case of female bear named “KJ2” received considerable media attention in 2015. On 10 June, above the village of Cadine not far from Trento, a jogger inadvertently arrived just a few meters from KJ2 (aged 13) together with three cubs of the year. The man began to scream and was immediately attacked by the bear. It was decided to capture the bear (first to identify her) for reasons of public safety, following an order of the President of the provincial government. The Ministry of the Environment and ISPRA confirmed the decision, as it had been made in accordance with the provisions of the National Action Plan PACOBACE. This was followed by around three weeks of attempts of capture using a tube trap. Collection of organic samples at the site of the attack made it possible to attribute the aggression with certainty to the bear called KJ2, a 13-year-old female. Only subsequently was data acquired proving the existence of three cubs. The activities involved in capturing the bear were lengthy and demanding, because she was not marked and therefore not recognizable, but finally met with success on 15 October

2015, allowing a radio collar to be fitted to a bear compatible with the known characteristics (mainly the fact that she was accompanied by three cubs), within the home range of KJ2. Subsequent genetic tests confirmed that the bear fitted with the radio collar was effectively KJ2. The bear then went into hibernation at the end of last autumn; capture activities for removal started again during spring 2016.

Altogether, two bear attacks on humans have been recorded in Trentino in 2014 and 2015 (first ever cases in the last 150 years).

In both cases:

- Mature females with cubs have been involved.
- Young and strong man alone approached the bear at very short distance (<10m), surprising them.
- Incidents occurred in the forest, far from villages.
- Men involved fought back actively.
- Bear behaviour was not abnormal according to expert opinions and literature.

Consequent actions:

- Removal of both bears because of human safety reasons, with an order of the President of the Province (Environment Ministry and National Wildlife Institute supported the decision).
- Intensive monitoring of the areas, specific communication campaign enforced, meetings with locals.
- One bear captured 3 weeks after the attack (dead during anaesthesia), second one captured and collared (described above). Will be removed as well.

During 2015, three cases of false attacks have also been recorded.

In Friuli the male bear MADI crossed the plain south of the Carnic and Julian Prealps from west to east passing through Codroipo. The same bear was noticed the year before to approach the highly anthropized center of Conegliano in Veneto region.



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Austria

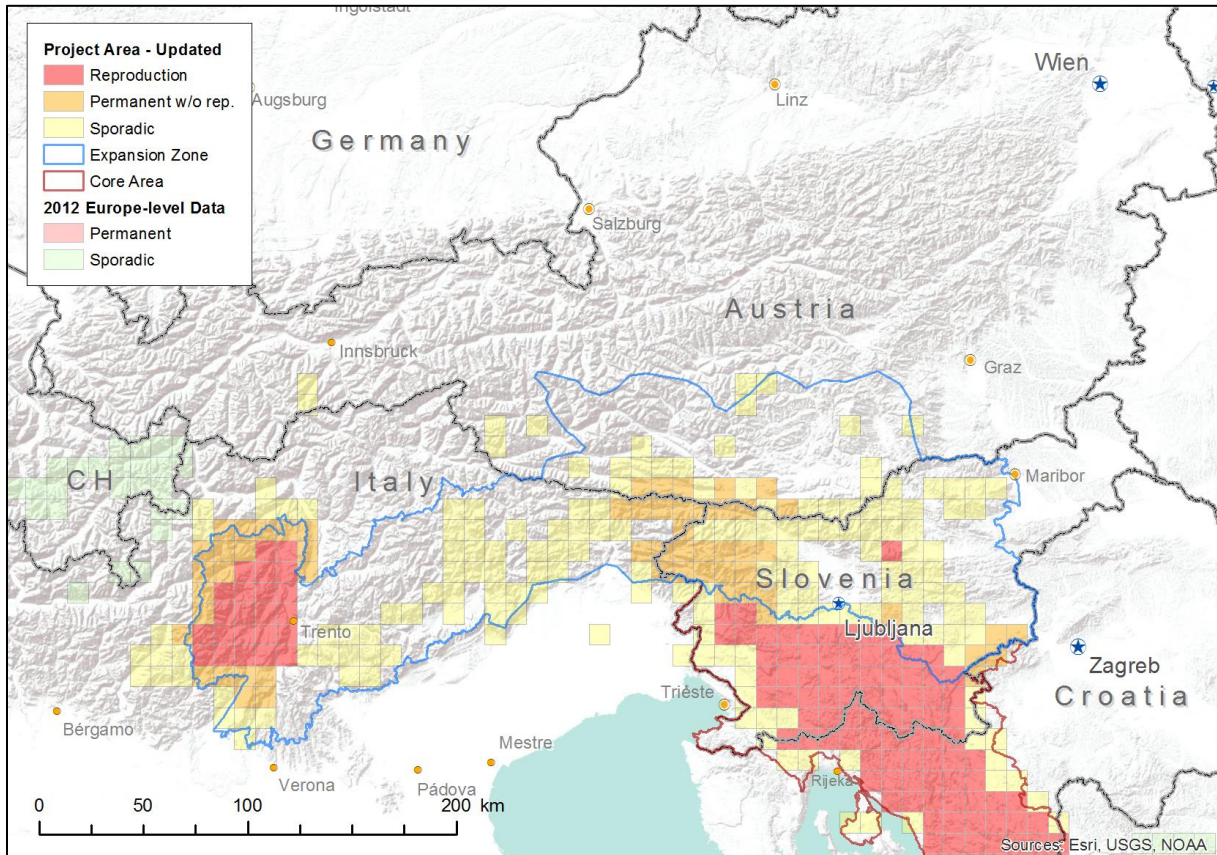


Figure 4: Bear distribution in Austria.

General information

Distribution

Bears in Austria are part of the Alpine bear population, but are presently only found in southern and western Austria along the border to Slovenia, Italy and Switzerland. No reproduction has been confirmed in this area and so far all animals that were individually identified have been males, either originating from the Slovenian or the re-introduced Trentino bear population.

Between 1989 and 1993 three bears (2 females and 1 male) were re-introduced to the Northern Limestone Alps in central Austria where a single migrant male bear had settled in 1972. Between 1991 until 2006 a minimum of 31 cubs was produced. However, genetic monitoring which was started in

2000 finally revealed that the population never reached more than 12 individuals (1999) and that most cubs disappeared already as a yearling or two-year-old bear (Kruckenhauser et al. 2008). By 2011 the last descendent of the released bears had finally disappeared and the population is now formally considered extinct. The most likely explanation for the disappearance of this small population is illegal killing in combination with the small population size.

Population estimates & monitoring

Population size of the bear occurrence in Austria is difficult to provide as long-distance dispersers from both the Slovenian and the Trentino bear population seem to move in and out of the border region. It is probably realistic to assume that ~5 different male bears may roam for some days, weeks or months the southern Alps of Austria within the course of a year (in 2013, 2014 and 2015 four, three and two individuals, respectively, were detected by genetic monitoring). Presumably no bear is staying permanently in Austria but some individuals have been registered in several consecutive years indicating that some bears stay permanently in the border region of Slovenia, Italy, and Austria.

Bear signs reported by third parties are inspected and documented by three wildlife professionals, the so called “bear advocates”. All bear signs (with the reservation that in Carinthia not all data collected by the provincial administration and hunting organization are provided) are entered into a central database and rated according to the re-fined German SCALP criteria (Kaczensky et al. 2009). Bear monitoring is heavily based on genetic monitoring since 2000 (Kruckenhauser et al. 2008).

Legal status & relevant management agencies

In Austria the bear is mainly subject to the hunting law, but enjoys a year-round closed season. Responsibility for protecting species in accordance with the Habitats Directive lies with the hunting and nature conservation authorities of the provinces. A Coordination board for bear, wolf and lynx management in Austria (KOST) - composed of representatives of the hunting and nature conservation authorities of the provinces, the bear advocates and representatives of selected stakeholders - meets twice a year to review and discuss management issues regarding large carnivores in Austria.

The first bear management plan for Austria was published in 1997 and revised in 2005 (Coordination board for Bear Management in Austria 2005). The target of the Austrian bear management is “to protect brown bears in Austria and to establish and maintain a viable population in a favorable conservation status, with special emphasis on a peaceful coexistence of humans and bears and the creation of

necessary conditions to connect existing populations to allow the bears to expand into suitable habitats” (Coordination board for Bear Management in Austria 2005).

Population goal and population level cooperation

There are no explicit population goals for bears in Austria. Habitat modelling shows a high habitat suitability of the Eastern Alps (Austria, NE Italy, Germany & N Slovenia) and suggests a habitat capacity for a minimum of 518-686 mature bears (1228-1625 individuals; G thlin et al. 2011).

Monitoring within Austria is coordinated by the bear advocates. Genetic monitoring is closely coordinated with the neighboring countries so that individual bears can be identified and backtracked to the respective source population (Karamanlidis et al. 2009). Furthermore, there is and always has been close cooperation on the technical level with colleagues from neighboring countries e.g. cross-border tracking of radio collared animals. On the political level cooperation is happening within the framework of the Alpine Convention. However, there is no formal population level management or even a commonly expressed goal.

Conflicts and conflict management

The main conflicts with bears are over 1) damages caused by bears to beehives and to free-ranging livestock on Alpine pastures (~130,000 sheep / goats and ~300,000 cattle graze with minimal supervision on Alpine meadows over the summer months) and 2) actual or perceived impacts on hunting (bears visiting ungulate feeding sites spooking game and raiding feed, bears killing red deer in winter enclosures or at feeding sites, hunters risking close encounters).

Damage compensation is paid for destroyed beehives and confirmed livestock kills. However, compensation payments are “voluntary” (no legal right for compensation) and in most provinces they are covered by the hunting associations through the hunting insurance. Compensation payments do not cover additional labor costs. Because of the expansion of the wolf population in the Alps, a pilot project for damage prevention in sheep grazing on Alpine pastures has been launched in 2012. The program includes the testing of fencing, herding, and livestock guarding dogs in 5 pilot areas (in two areas the program has been started so far).

Game killed by bears or damages to hunting infrastructure (e.g. feeding sites) are not reimbursed.

Re-introduced bears seem to have been perceived by local people as “artificial” and “belonging to

WWF". The official policy by the Austrian hunters associations is that they oppose any re-introductions, but welcome bears that arrive naturally.

Threats

The re-introduced bear population in central Austria became extinct, the situation in Carinthia is stagnant, but dispersing male bears from Trentino are increasingly reaching Western Austria. Illegal killings seem to be a problem, although a proof is extremely difficult to obtain (Kruckenhauser et al. 2008). The latest case was the radio collared male bear *Rožnik*, which dispersed from Slovenia into the Austrian province of Carinthia in May 2009. Three days after having crossed the border into Austria for the first time the collar stopped. Twelve days later the carcass was found by locals on the Slovenian side of the border and an autopsy confirmed the bear had been shot (Kaczensky et al. 2011). Another case was detected in Central Austria in 2007, 13 years after the bear has been shot.

Situation and events in 2015

The general situation of bears in Carinthia and in the whole of Austria did not change in 2015. There is no trend visible in the number of bears present and the number of damages recorded. The number of bears individually genotyped was lower than in the years before (only 2) but also the number of samples was considerably lower than in the years before. Several damages to beehives and sheep happened close to houses or settlements and once a bear was observed crossing a village by several persons but no definitely problematic behaviour was shown by any bear in Carinthia.

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