



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



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# 2019 ANNUAL POPULATION STATUS REPORT FOR BROWN BEARS IN NORTHERN DINARIC MOUNTAINS AND SOUTH-EASTERN ALPS

*Action C.5: Population surveillance*

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## Introduction

This is the fifth and last 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. The aim of the report is to give the basic tool to wildlife managers dealing with bear management in each respective country/region, to include the situation in neighbouring areas in their conservation and management planning.

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.

In this last report we wanted to keep information and its presentation consistent with all previous reports. So once again, 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 the entire area. The same goes for the distribution maps – we used distribution maps prepared for the previous report and updated them with new information.

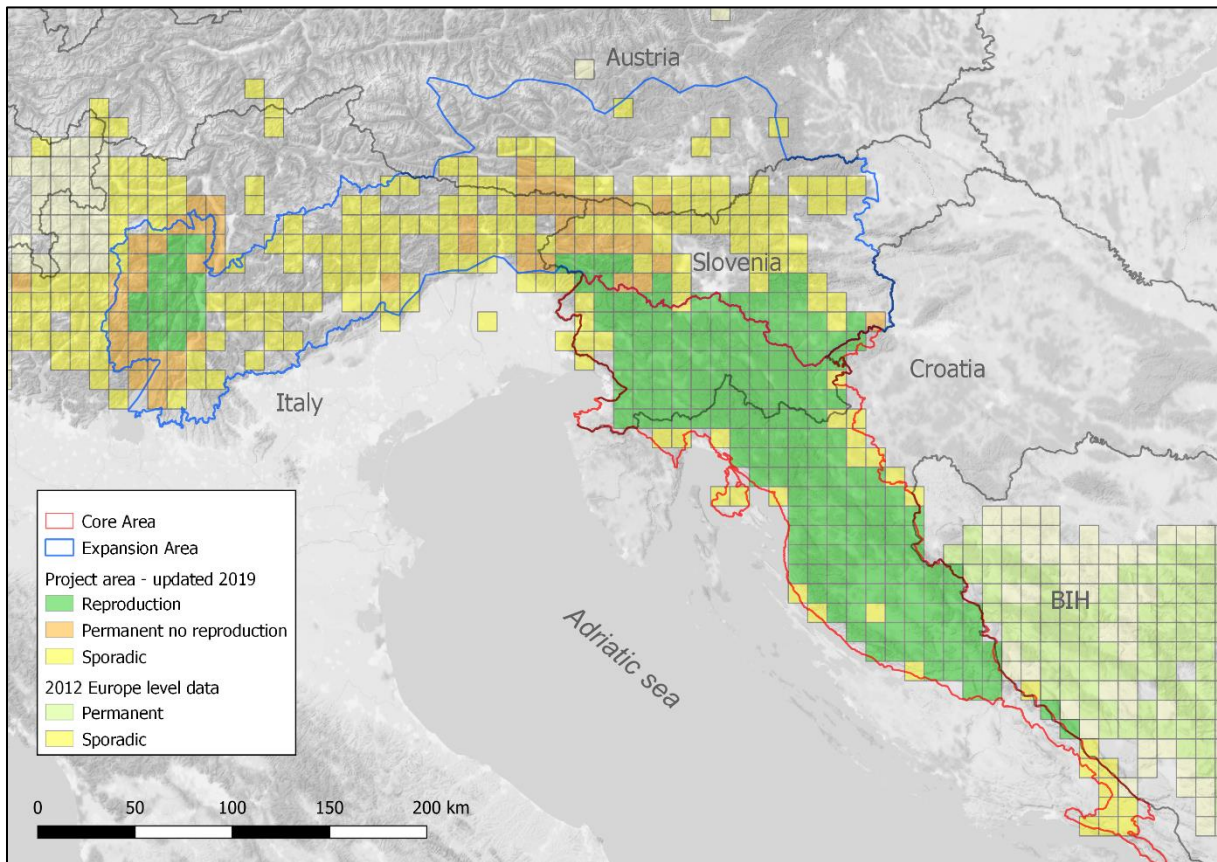
We believe that this document is a useful, updated compendium of available knowledge about our bears and that it will serve its purpose for management and conservation.

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## Bear population status – project area overview



**Figure 1: Bear distribution in LIFE DINALP BEAR project area – updated 2019 (status between 2012 and 2018).** **Permanent presence, reproduction** – areas where cubs were confirmed within the last three years; **permanent presence, no reproduction** – areas where bears have been present for at least three years over the last five years; **sporadic presence** – areas where bear presence has been documented for fewer than three seasons in the last five years period.

### 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, hosts a small but so far viable population of around 60-78 bears originated by the reintroduction carried out in the frame of two LIFE projects (Ursus I and II) in 1997-2004. 71 litters and 144 cubs have been recorded in that area in 2002-2018, representing an important stepping stone for natural expansion of bears into the Central and Eastern Alps. The resident range of bears in Trentino is more or less stable since 2012, while the range of the dispersers grew in 2018 (around 38.700 km<sup>2</sup> compared with 24360 km<sup>2</sup> in 2017).

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 and alpine areas in Slovenia, and in the alpine and pre-alpine range in the Region of Friuli V.G., Veneto and eastern Trentino. The last genetic survey in Slovenia in 2015 has shown that bears in Slovenian Alps are still few (48, 41-57 95% CI), but the population more than doubled since the last survey in 2007. Even more important, while the sex structure was still male-biased (60% M vs. 40% F), this ratio improved since 2007 (70% M vs. 30% F). Over three times as many females were detected in 2015 compared to 2007 (16 vs. 5), and the reproductive area (where females are present) is slowly expanding, now almost reaching the southern slopes of Julian Alps. However, “Alps proper” are still populated only by males, and (as expected from the biology of the species) females are expanding considerably slower.

## 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. In 2017, the estimate based on non-invasive genetic sampling in autumn 2015 in Slovenia and Croatia within LIFE DINALP BEAR was published (Table 1) (Skrbinšek et.al., 2017). Later, modelling tools for predicting population size were developed in order to monitor the brown bear population dynamic during the years with no genetic monitoring (Jerina et.al., 2018). All modelling is based on extensive long-term dataset on sex and age of recorded dead bears from both countries. The models are calibrated with “point” estimates of size and sex structure of the bear population in Slovenia in fall 2007 and 2015, and Croatia in fall 2015, which are determined based on non-invasive genetic sampling. Using this methodology, the mean population size in both countries combined is estimated to be around 2145 (1875-2450). In Trentino, where bears were reintroduced, population slightly grew compared to year 2017 to about 60 to 78 brown bears. We estimate that approximately 50-60 animals are present in the expansion zone (not including Trentino), majority of those in the Slovenian part (estimated in 2015 as 48, 41-57 95% CI).

**Table 1: Mark-recapture estimates of brown bear population size in the core bear range (Slovenia and Croatia). Estimates were produced for 2015: the minimal yearly estimate is the actual mark-recapture estimate and excludes all yearly mortality (winter estimate). The maximal estimate is the minimal estimate with added complete detected yearly mortality (spring estimate, applies to spring 2015).**

Area	CMR Model	Minimum Yearly N (95% CI)	Maximum Yearly N (95% CI)	Sex ratio F:M [%]
Entire study	MhChao+Capwire TIRM	1363 (1248-1522)	1619 (1504-1778)	58.9 % : 41.1 %
Slovenia	MhChao	599 (545-655)	711 (657-767)	59.6 % : 40.4 %
Croatia	MhChao+Capwire TIRM	764 (679-893)	908 (823-1037)	58.2 % : 41.8 %

It should be noted that for Slovenia we switched from reporting the lowest yearly number to reporting the maximum yearly number. This makes the data more directly comparable with other countries, but care must be taken in interpretations and comparisons with previous estimates since because of considerable annual dynamic in population size, the yearly maximum and minimum population size differ considerably (Table 1).

**Table 2: Population estimates for bears in the project area for 2018.** M – male, F – female, U - unknown

Item	Slovenia	Croatia	Italy, FVG	Italy, Veneto *	Italy, Trentino	Austria
<b>Number of bears (best estimate)</b>	711 (657-767)/ 975 (875-1130)	937 (846-1072)	<10	2 (temporary presence)	60-78	3
<b>Sex Structure (if available)</b>	59.6 % : 40.4% (F:M)	58.2 %:41.8% (F:M)	0:100% (F:M)	2M	M:20, F:26, U:14	3M
<b>Method of Estimation</b>	Mark-recapture estimate using noninvasive genetic samples (2015)/Predictive model (2018)	Mark-recapture estimate using noninvasive genetic samples (2015)	Information from genetics, camera traps and telemetry	Minimal number based on genetic and GPS data	Population abundance based on genetic monitoring, camera traps, observations	Minimal number based on genetic data

\* As already in the last 4 years, sporadic presence only in spring: in central Cadore (Belluno province), bear Gen23 of Slovenian origin (radiocollared by University of Udine and subsequently killed in Slovenia); in Monte Baldo (Verona province, border TN), Bear M19 from Trentino population

### Detected bear mortality

Most of mortality in Slovenia and Croatia has been through legal cull or hunting (88.6 %). There was one case of illegal killing reported in Croatia. In Slovenia legal cull was followed by 10 cases of intervention cull (6.6 %), a half less than the number of intervention culls in previous year. There was only one case of intervention cull in Croatia. The percentage of mortality by traffic is the lowest since the beginning of the LIFE DINALP BEAR project and for the first time under 10%. In Slovenia 6% of bear mortality was caused by traffic accidents, while in Croatia three bears were killed by traffic (2.8 %). The numbers of traffic accidents combined for the core area show that in 2018 only 4.7% mortality was caused by traffic.

Throughout the project area a few bears were also found dead, three in Slovenia, one in Croatia and one in Trentino, Italy (unknown cause of death). In fact, that was the only case of bear mortality in Trentino area in 2018. There was one detected case of bear mortality by intraspecific aggression in Slovenia.

In Croatia detected mortality is smaller as reported in previous years. On a multi-year average only 86 % of the hunting quota has been fulfilled and other losses were also lower than anticipated (76 %). The fall of 2018 was abundant with the crop of beech nuts. That also made hunting quota out of reach as bears were less frequently visiting feeding sites.

On the other hand, mortality in Slovenia is in comparison with the previous year 24% higher and the highest since 2014 (5.6 % higher in comparison with 2014).



Mortality in Slovenia and Croatia is as in previous years male-biased (M: 64 % vs. F: 36%), the same ratio is reported in both countries. Such ratio skewness is expected since females with cubs are protected, making males more exposed to legal cull.

There was no case of bear mortality in Austria and in the other two Italian regions, Veneto and Friuli VG. However, a bear called Gen23 that was sporadically occurring in Veneto (bear of Slovenian origin) was radio collared by University of Udine and subsequently killed in Slovenia.

**Table 3: Mortality in the project area in 2018.** M – male, F – female, U - unknown

Item	Slovenia*	Croatia	Italy, FVG	Italy, Veneto	Italy, Trentino	Total
<b>Number</b>	151	104	0	0	1	256
<b>Sex structure</b>	M: 97, F: 54	M:66, F:38			U:1	M: 163, F: 92, U:1
<b>Legal cull/hunting</b>	128	98				226
<b>Illegal killing</b>		1				1
<b>Intervention cull</b>	10	1				11
<b>Traffic: car</b>	5	2				7
<b>Traffic: train</b>	4	1				5
<b>Found Dead</b>	3	1			1	5
<b>Intraspecific aggression</b>	1					1
<b>Accident</b>						

\* In addition to 151 dead bears, 2 females were removed from the population for translocation to France.

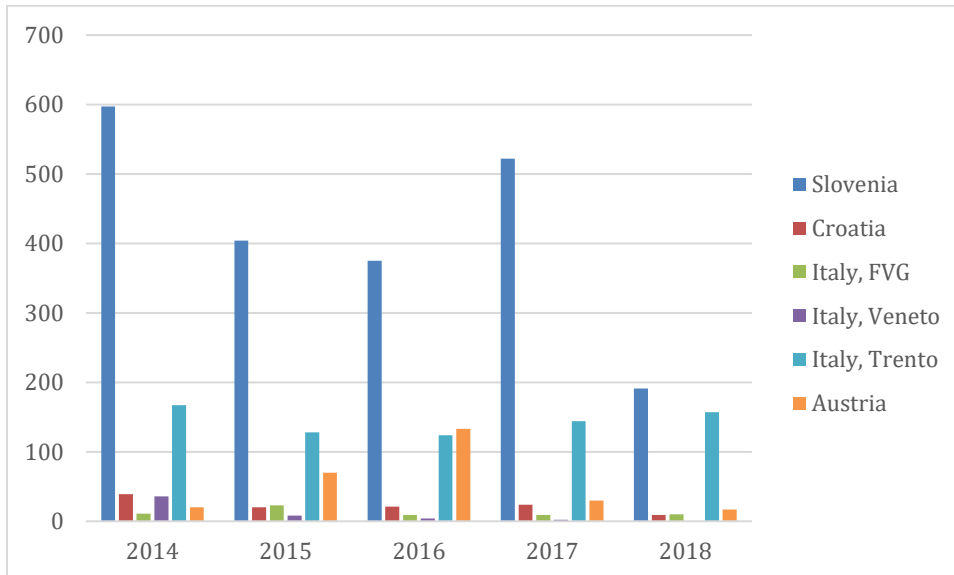
### Population goal and population level cooperation

At the moment of writing this report Guidelines for transboundary monitoring of brown bears in NW Dinaric Mountains and SE Alps are being prepared. But unfortunately, there is still no practical population-level management, and collaboration at the management level is still relatively poor.

### Conflicts and conflict management

Conflicts with humans appear over the entire project area. These are mainly livestock and property damages. In some years there have also been cases of humans being injured by bears. In all countries involved compensations are being paid for bear-caused damage, but the compensation systems vary. The differences between countries are huge. In 2018 altogether 384 damage cases were reported. In all project areas, except Trento where the number of damages has slightly increased, the number dropped compared to all other years, since the beginning of this project in 2014 (Figure 2). The same goes for compensations of damage cases, where altogether 175.044,8 € was paid. As in previous years the highest number of damages was reported in Slovenia (191 or. 49,74 %). In accordance with proportion of

damages per region also most of the compensations were paid in Slovenia (75.411,28 €) and in Trento region (94.977,52 €).



**Figure 2: Number of damage cases per project region per year.** In all project regions, except for Trento, in 2018 the number of damages was the lowest.

The number of damages in Slovenia was reduced by 32% in 2015 (or by 99,047 €, 404 damage cases compared to 597 in 2014) and further reduced to 375 cases in 2016. This decrease is in all damage categories and not connected to a specific type of damage. However, in 2017 it has again increased to 522 reported cases (or to 222,121€, compared to 162.202 € in 2016). The biggest difference in number of damages was in crops and grass silage (category other), followed by sheep and orchards. There were only 8 more cases of damaged beehives (93 in 2017 compared to 85 in 2016). In 2018 the drop of damage cases was huge in all categories compared to 2017, but the biggest difference was in crops (10 cases in 2018 vs. 94 cases in 2017) and damaged beehives (21 in 2018 vs. 93 in 2017). Compared to 2017 also number of damage cases on sheep and cattle (more then) halved. Damages in the last two years of the project at least partly reflect the situation of two very different years considering beech mast production, which was very low in 2017 and very abundant in 2018. All in all, a decrease in number of damage cases has been observed from the beginning of the project in 2014 even though the population has grown. For sure also efforts in use of preventive measures has added its part to the picture we're seeing. Nevertheless, a relatively large number of damages in Slovenia is still not unexpected since there are many bears sharing space with a considerable population of humans.

As a contrast, in Croatia where the situation regarding sharing space among humans and bears is similar to Slovenia, the numbers of damage cases are far smaller. In all five project years 113 damage cases

were reported (9 in 2018), and 41.3517,00 € of compensations paid (1.986 € in 2018). Also, in Croatia 2018 had the lowest number of reported damage cases: five objects at feeding sites were damaged, two beehives and two damages in category of crops. The difference in number of reported damage cases can also be due to different system of damage compensation. The money paid per damage case in Croatia is the lowest (417.8 €), and closest to that in Slovenia (425.5 €). 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.

In Trentino there was a drop in 2015 to 104 cases, but over the years the number slowly increased. In 2018 there were 157 cases, and almost reach the number from 2014, when 167 cases were reported. On average 604.9 € were paid for damage compensation, which is the highest in the project area. Nevertheless, the number of damages cases is fluctuating on a smaller scale and remains stable.

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. Number of damage cases and the amount of money paid for compensations have almost doubled from 2015 to 2016 (2015: 70 cases, 18,510 €; 2016: 133 cases, 36,560 €) and are significantly reduced to 30 cases in 2017. However, the amount of money paid per case was much higher in 2017 (666 €) than it was in 2015 (264 €). The number of damage cases dropped to 17 in 2018, but again we didn't have the data about damage compensations paid. Nevertheless, damage compensation is paid for destroyed beehives and confirmed livestock kills, but not for game killed by bears or damages to hunting infrastructure (e.g. feeding sites). However, compensation payments are "voluntary" (no legal right for compensation) and in many provinces they are covered at least partly by the hunting associations through the hunting insurance.

In Friuli Veneto Giulia the number of damages remains low (10 in 2018, 9 in 2017 and 2016). In 2018 the average damage compensations paid has decreased remarkably to 267 € per case (689.6 € per case in 2017 and 940.11 € in 2016). In Regione Veneto there were no damages in 2018. There had already been a drop to two cases in 2017 (to 2 from 36 in 2014, and 1,186 € compensations paid vs. 47,124 € in 2014). Most damages in 2014 in this area were caused by a highly problematic bear (M4), and the damages nearly disappeared when this situation was resolved. Bear M4 was monitored during 2015/16 in Friuli.

The bear damage data for 2018 is summarized in table below.

**Table 4: Damages done by bears in the project area in 2018.**

Item	Slovenia	Croatia	Italy, FVG	Italy, Veneto	Italy, Trento	Austria	Totals, Medians
No. of cases	191	9	10	0	157	17	384
No. of cases (%)	49.74	2.34	2.6		40.89	4.43	100 %
Paid [€]	75,411.28	1,986.00	2,670.00	0	94,977.52	?	17,5044.8
Paid (%)	43.08	1.13	1.53		54.26	?	100 %
Paid per case [€]	394.8	220.6	267		604.9	?	371.83
Paid per bear [€]	106.06/ 77.34	2.12	267		1,376.48	?	106.06
Cases per bear	0.27/ 0.2	0.01	1		2.27	5.6	0.27
Damages by subject							
Sheep	45		11		35	5	
Cattle	13		1		13	3	
Other domestic animals	7				12		
Beehives	21	2	2		48	40	
Crops	10	2					
Orchards	40				37		
Objects –feeding devices	12	5					
Other	43*				12	1**	

\*35 grass silage + 8 other; \*\*a raised hide

All areas have implemented some sort of a quick-response system (bear intervention group) that is used when a situation with a problem animal has to be dealt with. These activities are summarized in Table 5. For Austria, Veneto and FVG region in Italy, no such activities were reported for 2018.

In Croatia hunting right owners are investigating bear damage sites since they are responsible for damage compensation. Intervention team 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. Also hunting right owners and property owners implement aversive conditioning measures. Intervention team members are not paid for their interventions by responsible Ministry. Due to all above reasons most of interventions are not recorded and data not available.

**Table 5: Interventions in case of “bear problems” – by reasons and outcomes in 2018. 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, Trento	Total
<b>Total Number of Interventions</b>	200	7	34	241
<b>Causes</b>				
<b>Bear damage</b>	18	1	14	33
<b>Bear in/near settlement</b>	161		16	177
<b>Traffic accident</b>	16	3	4	23
<b>Outcomes</b>				
<b>Talking with people, number</b>	133*	NA		133
<b>Averse conditioning (chasing bear away), number</b>	50		5	55
<b>Removal of bear, number</b>	2	1		3
<b>Other</b>	8	1		9
<b>Monitoring the area</b>			12	12
<b>Research a bear after collision with car</b>	7		4	11
<b>Presidium of the area frequented by problematic bear</b>			9	9
<b>Illegal killing</b>		1		1

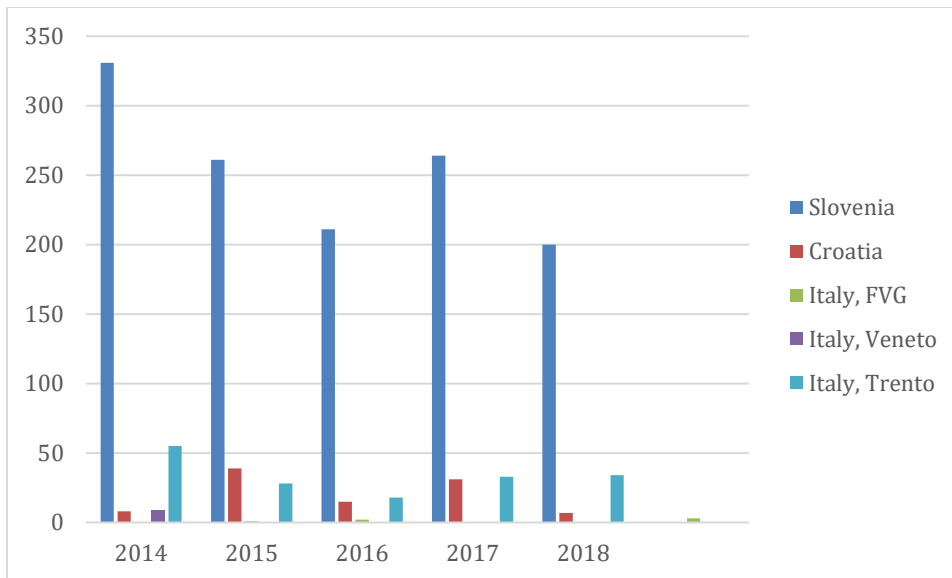
\*101 telephone calls + 32 personal visits on the field

Over all project regions and all five project years 1547 interventions were carried out, 82 % in Slovenia, 11 % in Trento and 6.5 % in Croatia. In Austria there were no interventions reported, as in Veneto and FVG region there were 12 interventions all together (respectively 9 and 3). In general numbers of reported interventions decreased over the project years, where the highest number was reported in 2014 (see Figure 3).

From 1267 interventions in Slovenia 75.4 % were in category bears near settlements, 12.2 % were damages, 10 % were traffic accidents and other (1.4 %). There were also seven attacks on human (0.55 %) reported. Most of the interventions was resolved with talking to people (68.3 %). In 12.6 % of interventions averse conditioning of bears was used. There were 19 translocations carried out, which didn't turn out to be very successful for Slovenia, since the country is small and even the core bear area is fragmented. Thus, most of the translocated bears returned to the site of conflict or remain approaching human settlements. Altogether 25 bears were removed from population through interventions.

From 100 reported interventions in Croatia 47 % were in category traffic accidents, 20 % were bears near settlements, the rest were damages and other. Two attacks on human were reported.

In Trento from 168 interventions, where 29.2 % were in category damages, 19 % were in category bears near settlements, 4.8 % were traffic accidents and other.



**Figure 3: Number of interventions per project region per year.** In all project regions, except for Trento, in 2018 the number of interventions was the lowest.

## Threats

There are several threats listed in different areas, and most are repeated from the previous reports. Conflicts with humans (low tolerance of local residents and damages) are still listed as the foremost threat in most areas. Additional threats are sources of anthropogenic food (poor waste management and poor protection of property), habituation and habitat fragmentation. Especially in Alpine part of the population another threat is genetic isolation (in Trentino core area) and lack of females (reproduction) in Friuli-Venezia-Giulia (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. In Croatia one of the threats in the future may be the planned construction of “wind power parks” in the core bear habitat, especially in the critical denning zones.

**Table 6: Threats to bear conservation and main causes of conflict with humans.**

Item	Slovenia	Croatia	Italy, FVG	Italy, Veneto	Italy, Trentino	Austria
<b>Main Threats to Bear Conservation</b>	Low tolerance of local residents.	Habituation to anthropogenic food	Very low immigration, lack of females	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.	Low tolerance (esp. farmers)
<b>Main Causes of Conflict With Humans</b>	Small-holder grazing, ranching and farming. Increase in numbers is too fast for many people and is resulting in many complains, opposition.	Habituation	Low conflict level	In general, problematic and "high damaging" bears: as in the previous 4 years, is not the case of 2018, due to very low presence and no damage cases	Fear and damages.	Fear and damages

## Croatia

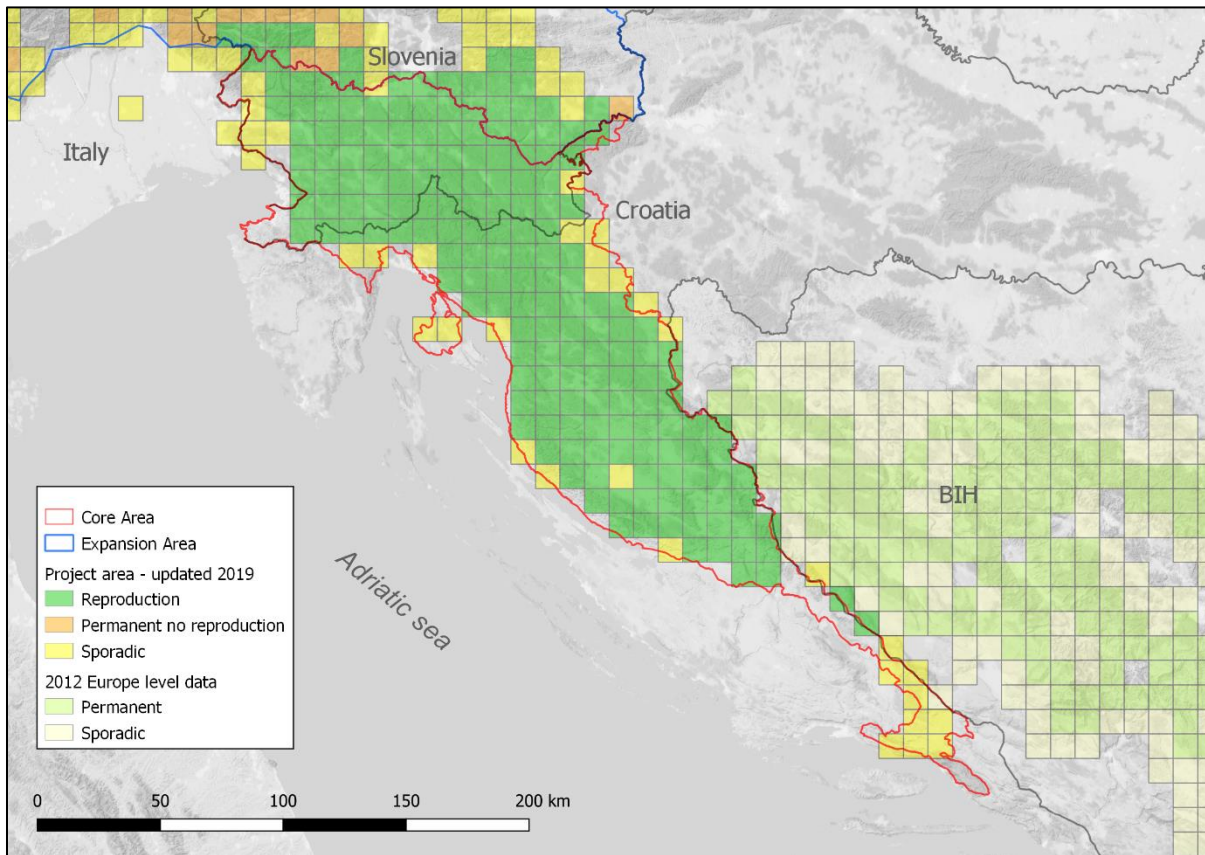


Figure 4: Brown bear distribution range in Croatia.

## General Information

### Distribution

The total bear distribution area in Croatia has been defined in 2008 and no new information were obtained in 2019. The refining of the bear range was done in 2018. New total bear range surface is 14090.04 km<sup>2</sup>, and out of that permanent 10341.36 km<sup>2</sup>, and occasional 3748.68 km<sup>2</sup>. This means that since 2008 the total range increased for 2.226 km<sup>2</sup> (16%), in that permanent increased 1.088 km<sup>2</sup> (10%), and occasional 1.179 km<sup>2</sup> (31%).

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 km<sup>2</sup>. High population density drives frequent migration of younger males to neighboring peripheral areas of the bear range (Učka, Čićarija, Pokuplje, Priobalje, etc.).

94.8% of the permanent bear presence areas are hunting units, and 5.2% 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. Females with cubs are regularly recorded in those areas. 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. There is a trend that some of “sporadic” areas became “permanent” as seen in the figures shown above.

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

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 provided a precise abundance estimate and a reference point for future brown bear monitoring. Laboratory analyses, genotyping and capture-mark-recapture models were done and final are available. In 1539 genotyped samples 582 individuals (339 females and 243 males) were recognized. Among those 62% (N=316) have been recaptured. The bear population size estimates are shown in table below.

**Table 7: Mark-recapture estimates of brown bear population size in Croatia. Estimates were produced for 2015: the minimal yearly estimate is the actual mark-recapture estimate and excludes all yearly mortality (winter estimate). The maximal estimate is the minimal estimate with added complete detected yearly mortality (spring estimate, applies to spring 2015).**

	CMR model	Minimal yearly N (95% CI)	Maximal yearly N (95% CI)	Sex ratio F:M [%]
Croatia	MhChao+Capwire TIRM	793 (702-928)	937 (846-1072)	58.2 % : 41.8 %

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.

## 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 Group helps with the actions in the field including the management of bears showing problem behaviour.

In the last two years quota for bear hunting has been set to 130 bears (including the intervention removal of problem ones), plus up to 20 individuals expected to be lost due to other reasons. The outcome for 2018 was 98 hunted, 1 intervention removed, and 5 lost by other means: 1 on railroads, 2 on roads, 1 poached and 1 found dead of unknown reason. On a multi-year average only 86 % of the hunting quota has been fulfilled and other losses were also lower than anticipated (76 %).

## **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. The official number reported for Croatia on accession to Europe was 940. Currently the population targets can be assumed as 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. Promising partnership continues with National Park Una (Bihać) and NGO “Centar za životnu sredinu” from Banja Luka.

## **Conflicts and conflict management**

Current conflict levels are continuing to be 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 almost 1000 bears in Croatia (12666 €/year/bear). Hipolito et al (2018) published on the analysis of the more recent damages caused by bears in Croatia.

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. The revision of Brown bear management plan for Croatia is planned for the year 2019.

## **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 30 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; Whiteman et al., 2017).

## **Situation and events in 2018**

### **Population size and trends**

Reljić et al (2018) published on the bear population modelling. The model showed that in the long run the problem might be the unproportionally high hunting mortality of adult males. The model provided useable means to calculate the sustainable hunting removals and it will be implemented in the new Bear management plan for Croatia.

### **Management decisions**

Following the standard decision-making procedure, hunting quota has been set as 130 plus up to 20 for other causes of mortality.

## Special events

The year 2018 was similarly to 2017 calm considering special events with bears. Fewer bears were approaching houses and fewer than average died in traffic accidents. The fall of 2018 was abundant with the crop of beech nuts. That also made hunting quota out of reach as bears were less frequently visiting feeding sites.

Lazarus et al (2018) published on the findings of the trace and macro elements in the bear femoral bones as indicators of long-term environmental exposure to toxic metals. The values obtained were within the reference ranges, with only lead as a potential threat.

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# Slovenia

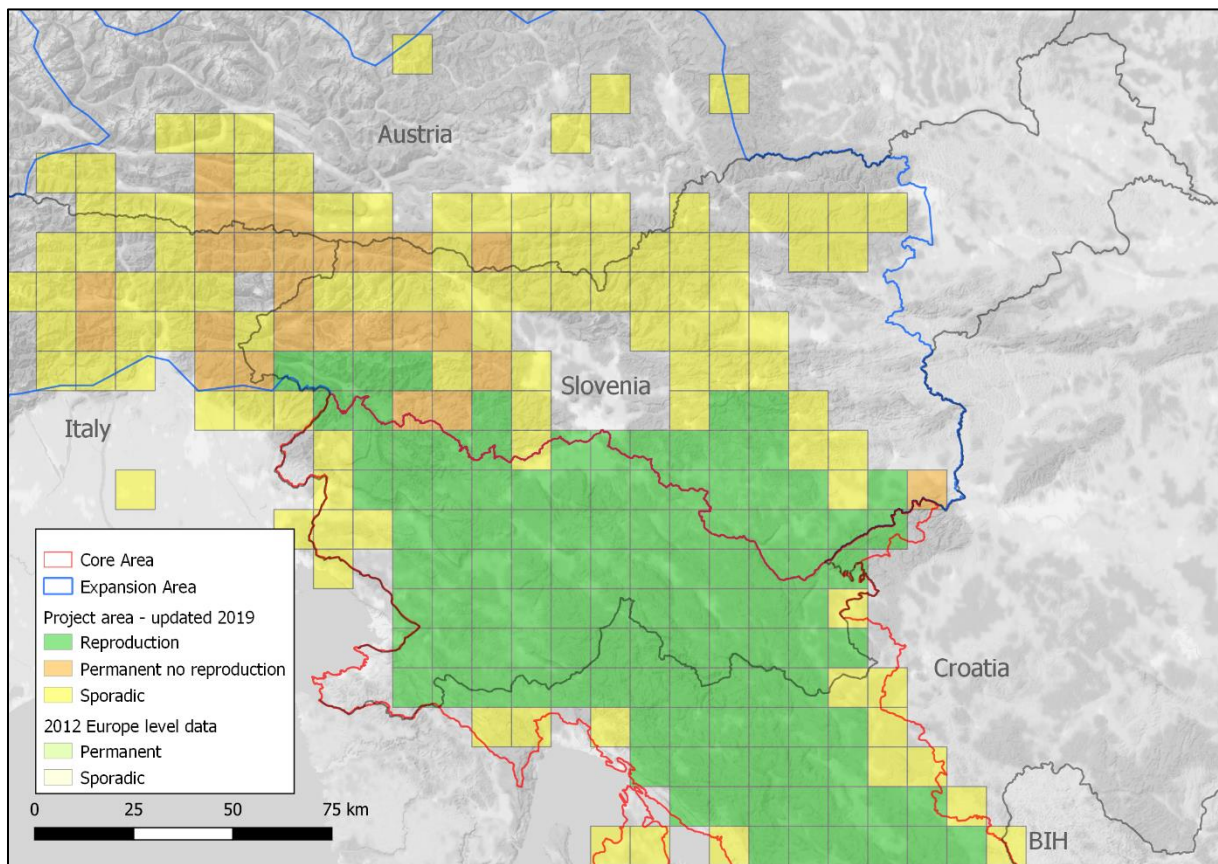


Figure 5: Bear distribution in Slovenia.

## 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 seems to be slowly increasing. North of Ljubljana and Sava river bears appear sporadically and are typically dispersing juvenile males.

### Populations estimates & monitoring

There have been two large non-invasive genetic studies in Slovenia, one in 2007 and the other in 2015 within LIFE DINALP BEAR Project. The 2015 population estimate was done together with Croatia. A total of 2472 scat samples were collected from September until December 2015 in Slovenia (4677 together with Croatia). The study provided a precise abundance estimate and a reference point for future brown bear monitoring. Laboratory analyses, genotyping and capture-mark-recapture models were

done, and results are available on project website. In 1962 genotyped samples 614 individuals (366 females and 248 males) were recognized. Among those 69.5% (N=427) have been recaptured. Due to high anthropogenic mortality in the area, a minimum and a maximum yearly abundance were estimated (Table 8) (Skrbinšek et.al., 2017).

The minimum yearly abundance is the estimate for autumn 2015, when the yearly cull was finished and the next reproduction hadn't yet begun, estimated directly through mark-recapture.

The maximum yearly abundance is derived from the minimum yearly abundance through addition of all detected mortality in that year, that is spring 2015. It is an underestimate since it doesn't consider undetected mortality, which is assumed to be relatively low in brown bears (with the possible exception of the cubs of the year which may go undetected).

**Table 8: Mark-recapture estimates of brown bear population size in Slovenia. Estimates were produced for 2015: the minimal yearly estimate is the actual mark-recapture estimate and excludes all yearly mortality (winter estimate). The maximal estimate is the minimal estimate with added complete detected yearly mortality (spring estimate, applies to spring 2015).**

Area	CMR Model	Minimum Yearly N (95% CI)	Maximum Yearly N (95% CI)	Sex ratio F:M [%]
Slovenia	MhChao	599 (545-655)	711 (657-767)	59.6 % : 40.4 %

In the proposal of new Strategy for brown bear management in Slovenia it is anticipated that such genetic estimates will be done every eight years. To monitor the brown bear population dynamic during the years with no genetic monitoring, within the same project modelling tool for predicting population size was developed (Jerina et.al., 2018). All modelling is based on extensive long-term dataset on sex and age of recorded dead bears from both countries. The models are calibrated with "point" estimates of size and sex structure of the bear population in Slovenia in fall 2007 and 2015, which are determined based on non-invasive genetic sampling. This will, at least for several years after the genetic estimate, enable us to have a very good idea of the actual population size. Current results indicate that the population has most likely grown since the 2015 estimate (see *Situation and events in 2018, Population size and trends*).

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.

Parallel to non-invasive sampling in the core area in Slovenia and Croatia in autumn 2015, less intensive but long-term genetic sampling had 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.



## **Legal status & relevant management agencies**

Bear is listed as a strictly protected species in Slovenia. Its management and conservation are responsibility of Ministry of Environment and Spatial Planning. The Minister approves of/ issues the Plan for hunting bears for a maximum period of one year (with one hunting season lasting for seven months then). The Minister takes a decision with the help of an expert opinion and public opinion. Expert opinion is issued by Slovenia Forest Service and goes firstly in commenting to the Institute for Nature Protection and after its approval/ consensus/ modifications, the Advisory board for large carnivore management to the Ministry (consisting of various stakeholders, including scientists) evaluates it. Afterwards, the proposal for Hunting Plan undergoes public commenting, where all interested public, organisations or institutes express their opinion and propose solutions. After the Ministry evaluates all opinions, it proposes its final Plan for bear removal from the nature to the Government, which then decides on issuing an Act for bear removal.

Agency of Republic of Slovenia for Environment is a responsible institution for developing, maintaining and adjusting damage compensation system.

## **Population goal and population level cooperation**

The management goal in the bear core area is to keep the population in favourable conservation status, minimize conflicts with humans and raise tolerance for coexistence. Towards the Alps, corridors are designated to enable movement of bears into the Alps and across the border with Italy and Austria. At present there is no hunting planned there, only potential decisions on removal of conflict individuals can be taken. Slovenian management strategy is outdated, but currently the revised document is prepared, after a series of workshops with stakeholders and meetings with the competent authorities. The new strategy is in its final stages of preparation and the clauses that define the status of bears outside of the core area will be updated to adhere to the international “Guidelines for Common Management of Brown Bear in the Alpine and Northern Dinaric Regions” that were drafted within LIFE DINALP BEAR. These Guidelines are a very important step towards transboundary harmonization of conservation and management efforts. When integrated into national management documents of respective countries, it is expected to have an important impact on improving coordination of conservation and management actions, particularly in the transboundary areas in the Alps.

## **Conflicts and conflict management**

There are regular conflicts with agriculture and occasionally bears wandering into villages and towns, which create considerable fear/ negative feelings among local residents. Rarely, there have been injuries of humans, however no fatalities have happened in the last couple of decades. Damages to human property are being systematically compensated by the state authorities. The compensation system has

been criticized for not stimulating people to invest in protection (compensations usually exceeded commercial value of the destroyed property). However, in the last few years the National Agency for Environmental protection has been subsidising protective fences for livestock - following the example of LIFE DINALP BEAR project results and experience - with the difference to the full price being paid by the farmers themselves, which motivates them to take care of their property by the example of good husbandry. Additionally, there is no compensation paid, if a protective measure is not properly maintained or even lacking after repeated damage cases. Bear Intervention Group, founded by the competent Ministry, regularly deals with and immediately reacts to concerns and needs expressed by people in the bear presence area. It solves problematic situations immediately in the field and advises to upset people.

Within LIFE DINALP BEAR project, extensive work in the field of conflict mitigation has been done. Damage prevention measures (electric fences, livestock guarding dogs) have been implemented in bear core area as well as in the expansion zone. Following the best practice examples from the project, prevention measures are now systematically being implemented by the competent authorities. Bear-proof containers and bear-proof compost bins were also installed on several conflict “hot-spots” within LIFE DINALP BEAR.

### **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. During the last years, bear population in Slovenia has increased in numbers and expanded its distribution area. From the perspective of maintaining human acceptance, the pace of population increase is happening very fast, which could consequently cause resistance and opposition of certain interest groups.

## Situation and events in 2018

### Population size and trends

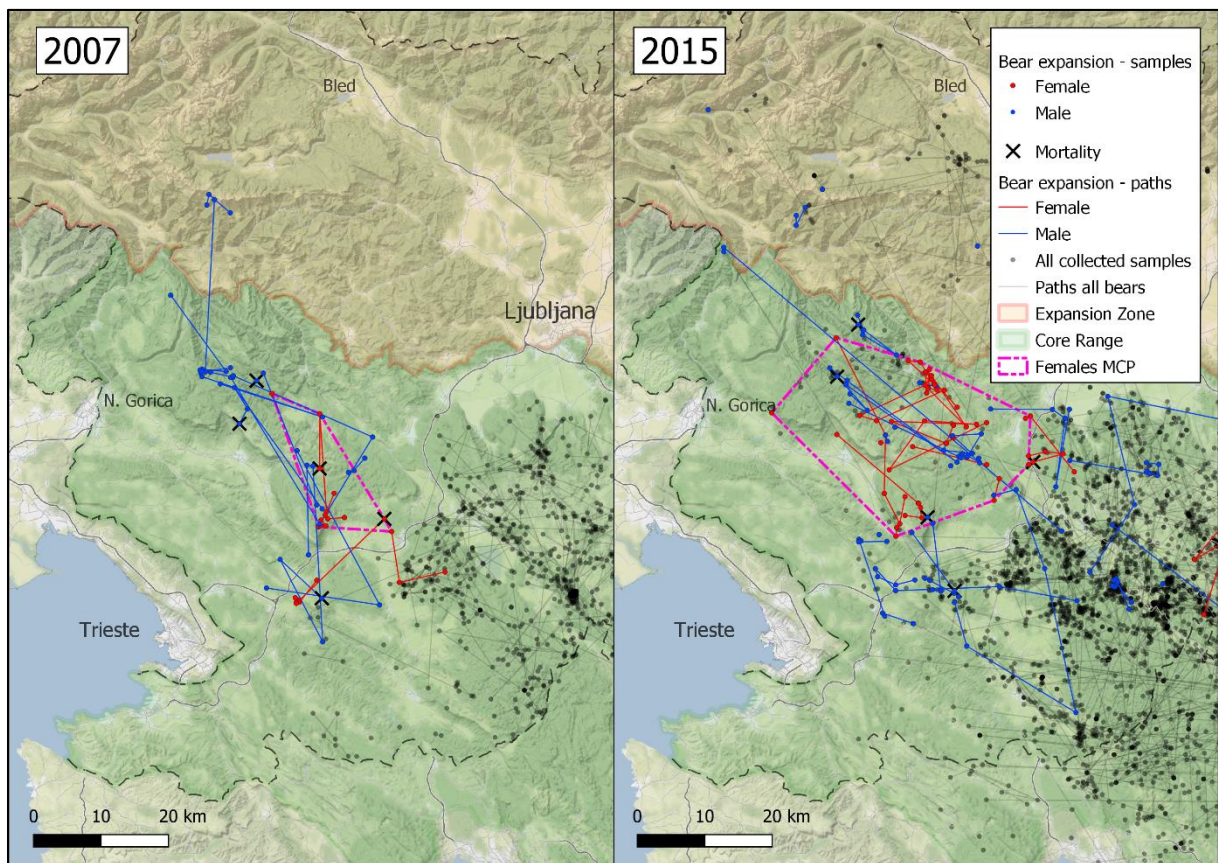
The population has shown remarkable dynamics since we've seen 41% population growth between 2007 and 2015. Interestingly, this has not been followed by an increase in human-bear conflicts up until 2017. In fact, the number of emergency calls to the Bear Intervention Group and the number of damage cases both decreased in 2018, compared to 2017. Number of registered bear damage cases for 2018 is actually the lowest in the last decade, which is surely influenced also by variations in bear natural habitat (2018 was a rich mast year with high abundance of food in bear natural habitat).

Using modelling tools developed in LIFE DINALP BEAR project, it is estimated that the maximum yearly abundance in 2018, that is springtime, after new reproduction, was 975 (875-1130, 95% CI). However, it should be noticed that previously reported population size in Slovenia corresponded to late autumn, when size is at the annual minima, when estimates are 24% (which is a value of relative natality of Dinaric bear population) lower than "spring" estimates (Jerina et al., 2018). Upward population trend was also indicated by bear counting at permanent counting site, but the results of this method have considerable variance and were not taken at face value.

The last genetic survey in Slovenia in 2015 has shown that while bears in Slovenian Alps are still few (48, 41-57 95% CI), the population there has more than doubled since the last survey in 2007 (Table 8) (Skrbinšek et al, 2019). Even more important, while the sex structure was still male-biased (60%M vs. 40%F), this ratio improved since 2007 (70%M vs. 30%F). Over three times as many females were detected in 2015 compared to 2007 (16 vs. 5), and the reproductive area (where females are present) is slowly expanding, now almost reaching the southern slopes of Julian Alps. However, "Alps proper" are still populated only by males, and (as expected from the biology of the species) females are expanding considerably slower (Skrbinšek et al, 2019).

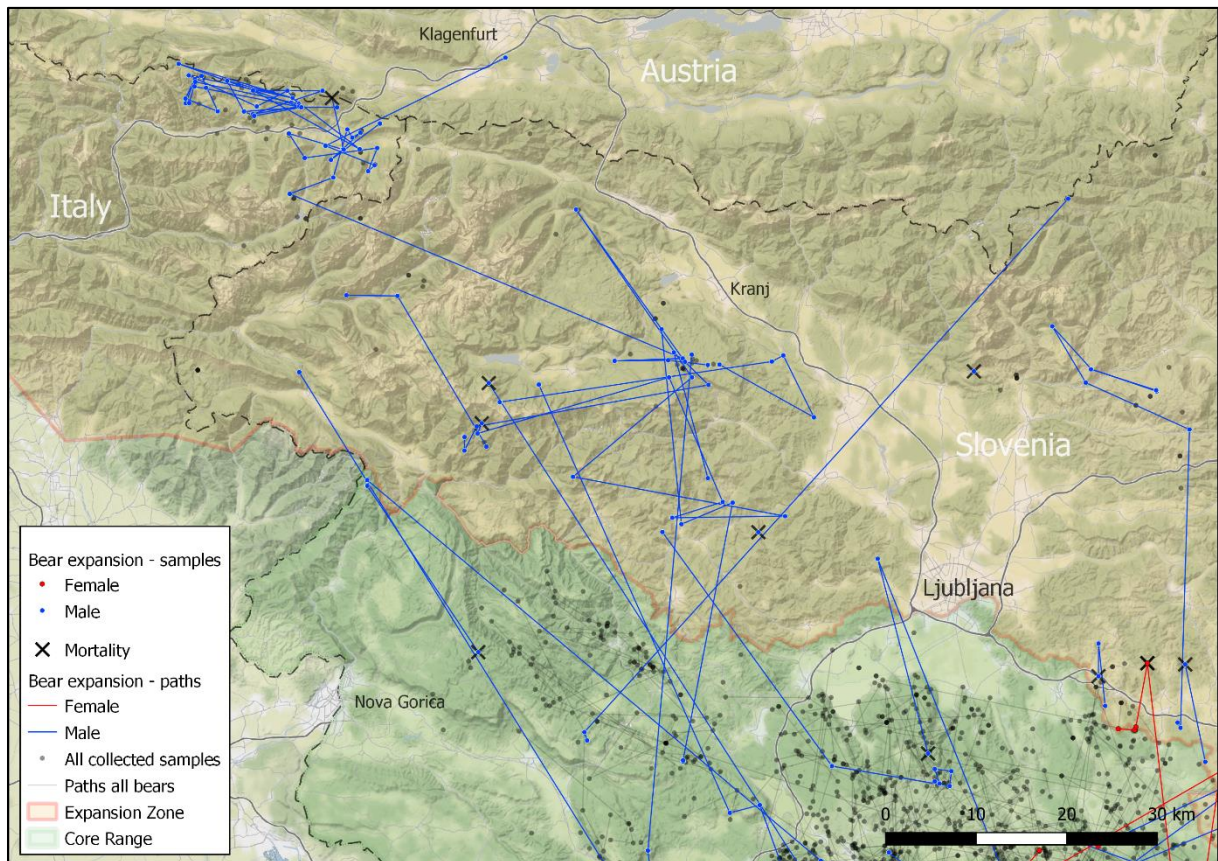
**Table 8: Comparison of results of noninvasive genetic sampling and mark-recapture population size estimates in core area west (west of Ljubljana – Koper highway) between 2007 and 2015.**

Parameter	2007	2015
Population size estimate	21 (19-23)	48 (41-57)
Sex ratio Male   Female	70%   30%	60%   40%
Detected males	12	24
Detected females	5	16
Total captured animals	17	40



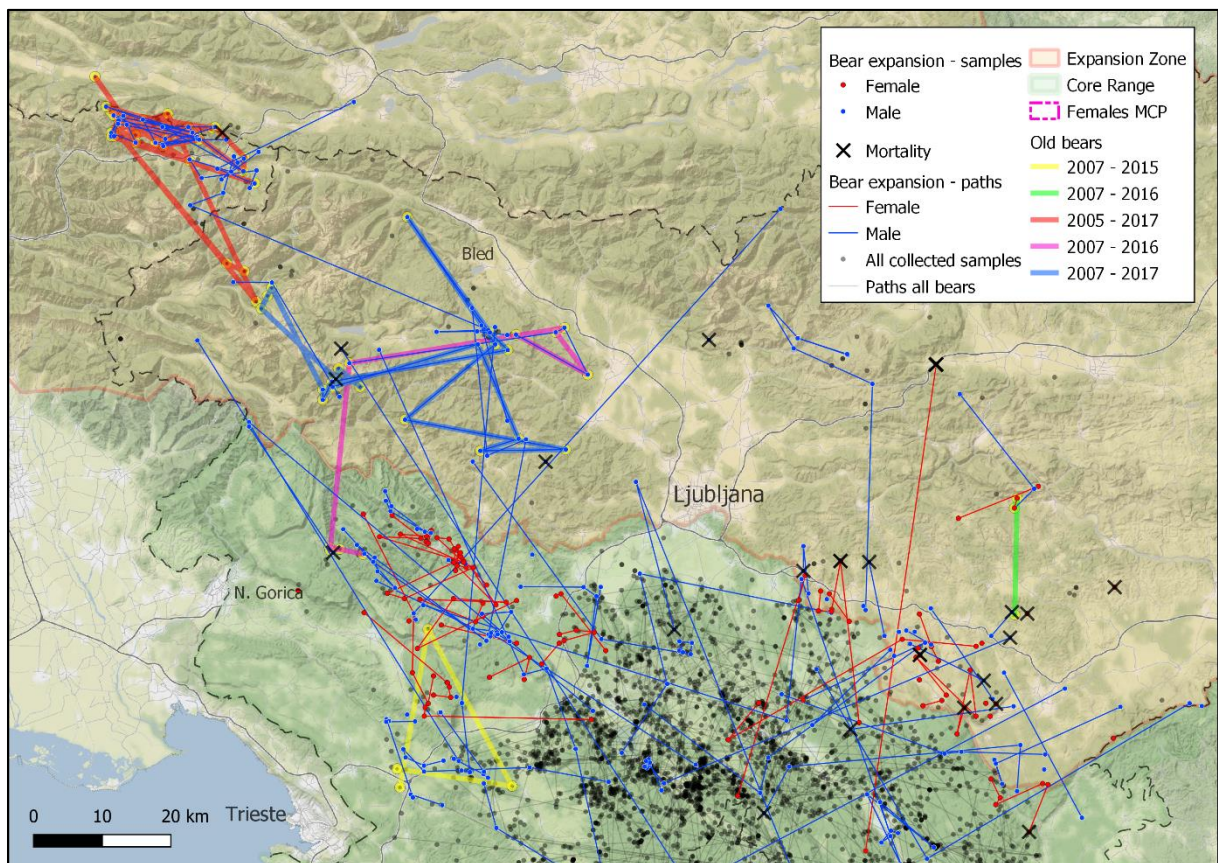
**Figure 6: Increase in the number of animals, proportion of females and female area size (dashed line) from 2007 to 2015.**

Genetic monitoring in the Alps indicates that this situation remains very similar also in 2018 (Figure 7).



**Figure 7: Genetic monitoring in the western part of the expansion zone 2015 - 2018.**

An interesting result was also that we detected four male bears that have been in this area for a very long time – three at least since 2007, and one at least since 2005. We have sampled them genetically in the respective years (Figure 8). It seems that individual bears are able to peacefully coexist also in an area where people are generally not used to presence of brown bears and much more sensitive to bear-human conflicts than in the bear core range in the Dinaric Mountains.



**Figure 8: Long-term present males in the Eastern Alps.**

### Management decisions

In 2018, management and conservation of brown bear was based on setting such culling quota (by a competent Ministry), which would not harm the favourable conservation status of the population and would maintain positive public attitude towards population conservation; on operating Bear Intervention Group; on paying compensations for bear-caused damages to human property; on raising awareness through presentations and workshops for interest groups and through cooperation with the media.

Culling in 2018 was based on two governmental acts, one issued for the period from 1st October 2017 till 30th September 2018, and the other for the period from 1st October 2018 till 30th September 2019. In 2019, the last-mentioned Act was withheld by a temporary Court decision (until further resolution) on the basis of a lawsuit towards the State of the Republic of Slovenia by an environmental non-governmental organisation, which did not agree with the Governmental Act.

## Special events

In 2018, two female bears were live captured in Slovenian bear core area and translocated to the French Pyrenees for population reinforcement. There, both females have successfully integrated in the population.

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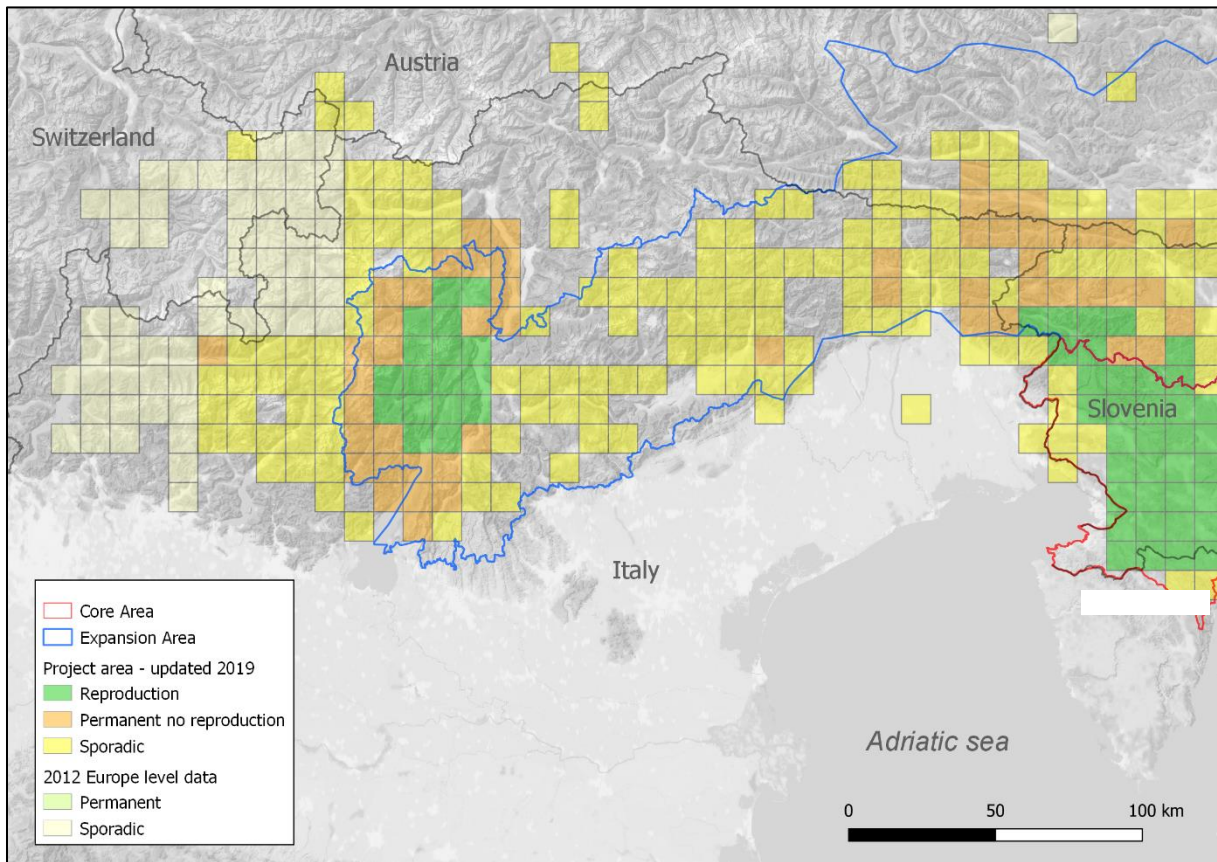
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## Italy



**Figure 9: 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 1160 km<sup>2</sup> (2018) in the western part of the province. The resident range is more or less stable since 2012, while the range of the dispersers grew in 2018 (around 38.700 km<sup>2</sup> compared with 24360 km<sup>2</sup> in 2017). 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 eastern Friuli VG, where a few male bears are permanently present.

In Veneto, yet only sporadic appearances of male individuals from both the Trentino and Slovenian populations are recorded.



## **Population estimates & monitoring**

The minimum estimate for the Trentino bear population is 60 individuals (range 60-78 including cubs of the year (coy)), with a CMR estimate of 58 (52-72 without coy's). The population trend is slightly increasing in the last four years. Monitoring is done and is coordinated by Forestry service of PAT personnel, Park staff, Museum of Science staff, Hunting Association and volunteers.

In Friuli VG in 2018, five different bears (all males) have been detected. The monitoring is done by the Regione Autonoma Friuli Venezia Giulia and Comando Unità Tutela Forestale Ambientale e Agroalimentare Carabinieri, Progetto Lince Italia and the University of Udine.

In Veneto only opportunistic monitoring is done by the provincial Polices and Carabinieri Forestale (former Corpo Forestale dello Stato) 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.

## **Legal status & relevant management agencies**

Bear management in Italy is decentralized at regional and local (i.e. provincial and regional) level. The bear is fully protected in Italy. A national (Italian Alps) management Plan was drafted in 2010 by a team of experts (neither the public, nor stakeholders have been involved) of the PAT, Ministry on Environment, National Wildlife Institute and the Regional governments; it is not really mandatory at the legal level, but in fact it is 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 to reach a MVP of ~50 individuals (accomplished) 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, destruction of beehives and crops harvesting; compensation is paid by the Forestry and Wildlife Department of the PAT after inspection and confirmation by own, specifically trained personnel. 100% of the market value is paid within two months. 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. Three attacks on humans have been recorded in 2014, 2015 and 2017 (two females with cubs involved) reducing even more the positive attitude of people toward bears. Both females involved have been removed (killed) because of safety reasons, with an order of the PAT president. No major conflicts were reported from FVG.

## 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 and females attacking people defending her cubs) 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.

Veneto: Both conflicts and threats, and the overall perception of bears, follow the irregularity of bear presence, changing radically from year to year between “total indifference” and “priority emergency”. These conditions, which are 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 2018

### Population size and trends

The monitoring season 2018 (17th year of successive genetic monitoring) on brown bears in Trentino-Italy pointed out that the population has slightly increased in the last four years, with a minimum population presently estimated to be 60 (max 78 individuals with 21-23 cubs observed in 2018). Trentino is still the only region in the Italian part of the project area where reproduction is reported.

In Friuli VG monitoring confirmed the presence of at least 5 bears, all males.

In Veneto in 2018, there were no damage cases and temporary presence of only two male bears was recorded, concentrated in spring in areas neighbouring to Trentino and Friuli VG (Monte Baldo in Verona province, low Cadore in Belluno province). The presence of bears in Veneto is still a sporadic and irregular event.

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Groff C., Angeli F., Asson D., Bragalanti N., Pedrotti L., Zanghellini P. (editors), 2019

"2018 Large Carnivores Report", Forestry and Wildlife Department of the Autonomous Province of Trento. [\[Link\]](#)

# Austria

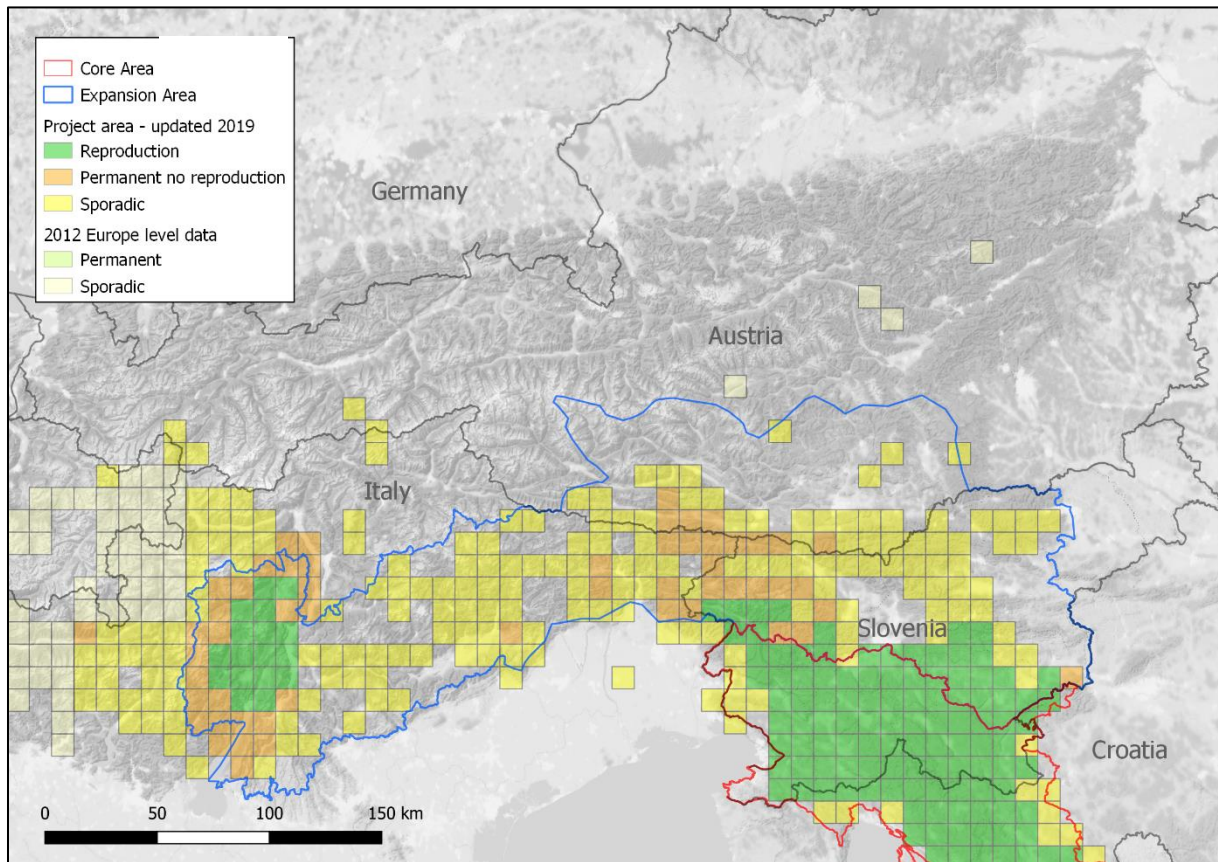


Figure 10: Bear distribution in Austria.

## 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 ca. five 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, 2015, 2016 and 2017 four, three, two, six, three and three 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 favourable 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 and 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 neighbouring 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 neighbouring 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 many provinces they are covered at least partly 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 (two projects have been realized up to now).

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 hunter’s 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 2018

The general situation of bears in Carinthia and in the whole of Austria did not change in 2018. There is no trend visible in the number of bears present and the number of damages recorded. The number of bears individually genotyped (3) was within the range of the number of bears genetically confirmed in the years before (2 – 6) although the contribution of Paolo Molinari nearly doubled the number of samples compared to the years before 2018. In general 2018 was a calm year with no bear acting conspicuously. At the instance of a suspected killing of a new born calf in an area of very sporadic bear presence alpine farmers demanded to revise the management plan and to alleviate the restrictions to kill a bear.

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