D.T2.2.2 LYNX MONITORING REPORT FOR BBA POPULATION

Bohemian-Bavarian-Austrian lynx population
Lynx year 2017/2018

06 2023
(updated from 2019)

Photos: Lynx female JISKRA with kittens 2017

Lynx Monitoring Report for Bohemian-Bavarian-Austrian lynx population

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3. Šumava National Park, Vimperk
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5. Bavarian Forest National Park, Grafenau
6. Hnutí DUHA Olomouc, Olomouc
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Please note: The version on hand replaces the previous version released in 2019.

1. Introduction

The precise knowledge of the populations' status is a necessary prerequisite for the efficient conservation of lynx in Central Europe. The five countries cooperating in 3Lynx project (Czech Republic, Germany, Austria, Slovenia and Italy) therefore launched two pilot lynx monitoring systems (one for BBA region, one for SE Alps-Dinaric region) which are aimed to harmonize lynx monitoring among countries sharing the same lynx population and produce transnationally comparable, high quality data sets. The implementation of these systems is planned for 30 months.

The results of this monitoring are summarized in four lynx monitoring reports (3Lynx project deliverable T2.2.2). For the Bohemian-Bavarian-Austrian (BBA) lynx population two reports are prepared: report for lynx year 2017 (1.5.2017 – 30.4.2018) and for lynx year 2018 (1.5.2018 – 30.4.2019). The present report has been prepared for lynx year 2017.

The BBA lynx monitoring reports serve as a base for the BBA population status review, an important input for the BBA lynx conservation strategy (3Lynx project output O.T3.3), the strategy being the main result of the 3Lynx project.

Working with stakeholders
To achieve high efficiency of the monitoring and ensure wide acceptance of the data produced by pilot lynx monitoring system, key stakeholders (hunters, foresters, nature conservationists) are actively involved into lynx monitoring. In order to ensure that the monitoring has also a trust-building effect, a huge effort has been put into the personal communication with regional forest services and hunting associations about lynx biology, ecology and monitoring. Common fieldwork of project experts and hunters/foresters, along with transparency of data analysis processes, should help build trust amongst these interest groups.

2. Study Area

The study area (Fig. 1) stretches across the border triangle of Czech Republic (Bohemia), Germany (Bavaria) and Austria. Its boundaries are determined by the Danube River in the South, Krušné hory and Frankenwald in the North, Waldviertel and Vysočina in the East and Fränkische Alb in the West.

The study area was defined for the purpose of lynx monitoring and habitat modelling in 2013 during TransLynx project. It was delineated by experts based on the knowledge of lynx habitat use, large-scale occurrence of signs of lynx presence over the previous 15 years and in accordance to the habitat models of Schadt (1998), Schadt et al. (2002), Rudolph & Fetz (2008), and Romportl in Anděl et al. (2010). Besides core habitat areas, it also includes adjacent suitable habitat patches where lynx is supposed to occur only sporadically. The study area was defined big enough to consider long-distance dispersers, migrants, habitat features and a possible future spreading of the BBA population.

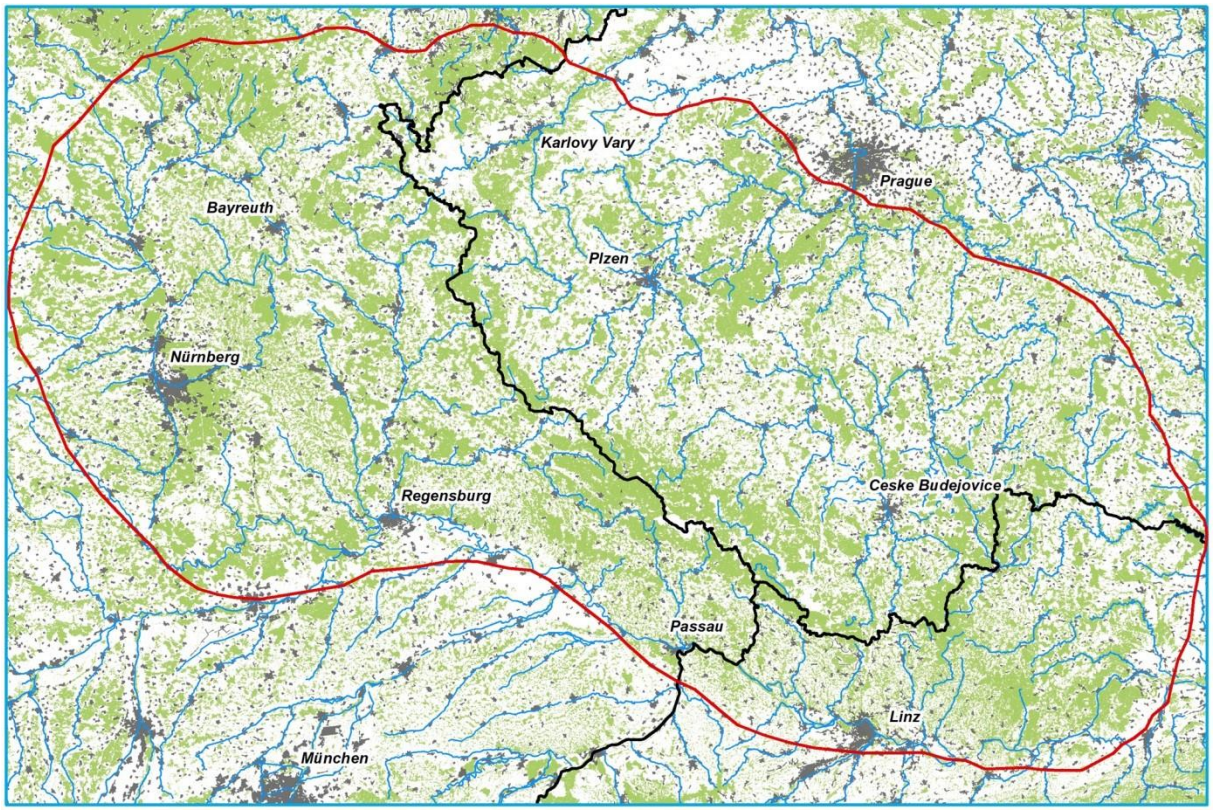

Figure 1: Study area

2.1 Area monitored with camera-traps

Generally, data from public and/or chance findings were gathered from the whole study area. The area monitored with camera-traps consisted of 130 grid cells of size 10 km by 10 km based on European grid (ETRS89 grid, projection ETRS LAEA 5210). Its total size was therefore 13 000 km^2 (Figure 2).

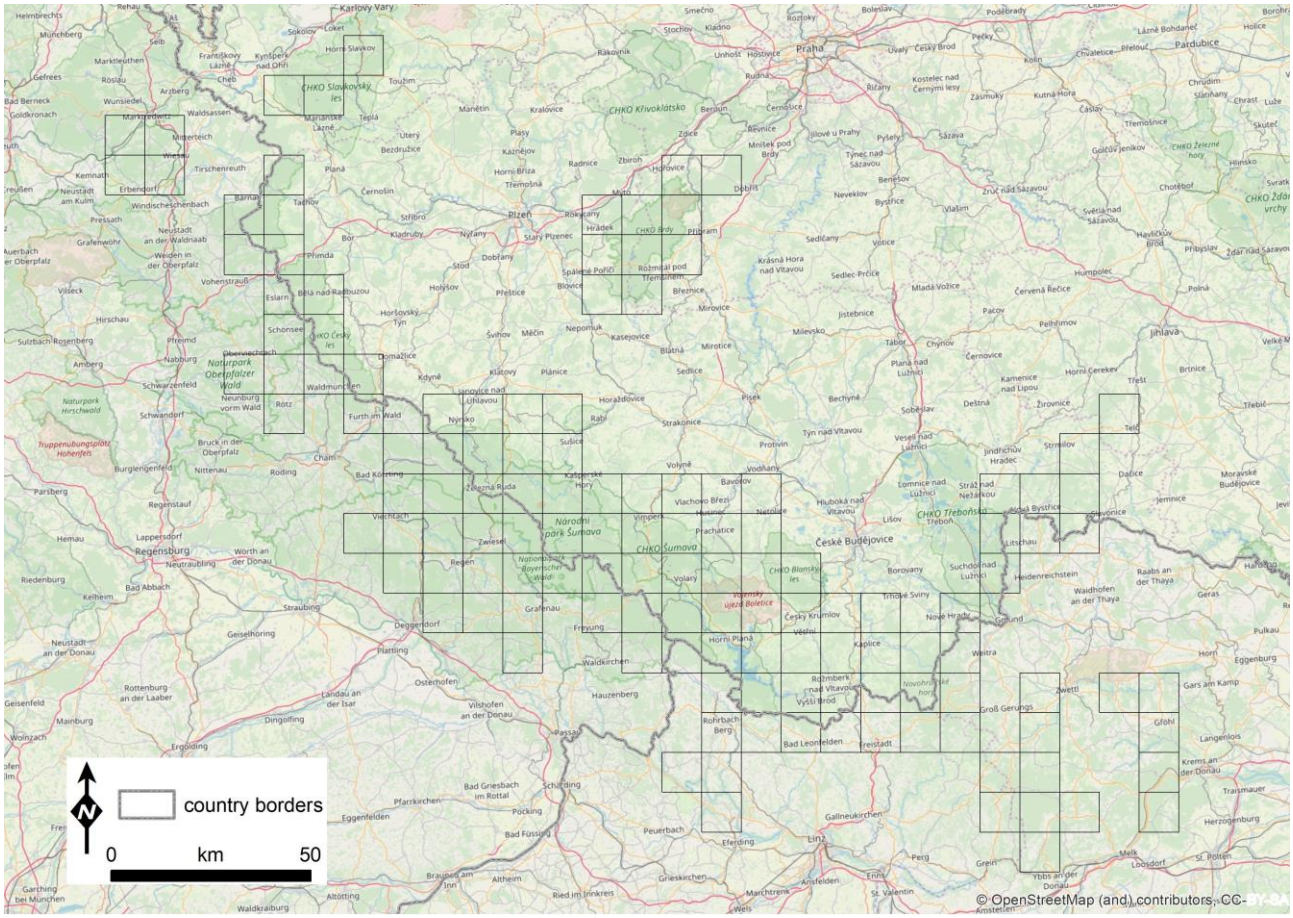

Figure 2: Map of monitored area. Altogether 130 grid cells of European grid (10 km by 10 km) were monitored by 3Lynx project partners (ALKA Wildlife, Green Heart of Europe, Nature Conservation Agency of the Czech Republic, Bavarian Environment Agency, Šumava National Park), in cooperation with Hnutí DUHA and National Park Bavarian Forest. Altogether 2-8 camera-trapping sites were monitored in each grid with one or two cameras installed at one site. Besides that, snow tracking and gathering of DNA samples was conducted in some grid cells as a complementary method of lynx monitoring.

Monitored grid cells were selected according to their habitat quality, protection status of the area (protected landscape area, Natura 2000 site), probability of lynx occurrence in the area (given mainly by distance and connectivity to the core area of the population) and the cooperation of hunters and forest owners. They cover the core of the population with the largest continuous patches of lynx habitat (national parks Šumava and Bavarian Forest, Protected Landscape Area Šumava and Nature Park Bavarian Forest) and also other significant patches of suitable habitat, which are inhabited by lynx or which are characterized by a high chance of lynx occurrence (see Figure 3).

Thus, the protected landscape areas of Blanský les, Česky les, Slavkovský les and Brdy were monitored on the Czech side along with unprotected areas in the Czech-Austrian border region and north from Protected Landscape Area Šumava. In Bavaria, grid cells were chosen based on expert knowledge of lynx habitat use, large-scale occurrence of lynx signs over the previous 15 years and existing habitat models (see Chapter 2 for details). In Austria, the areas adjacent to the population core as well as larger habitat

patches, stepping stones and corridors along Czech-Austrian border, further east and south were monitored.

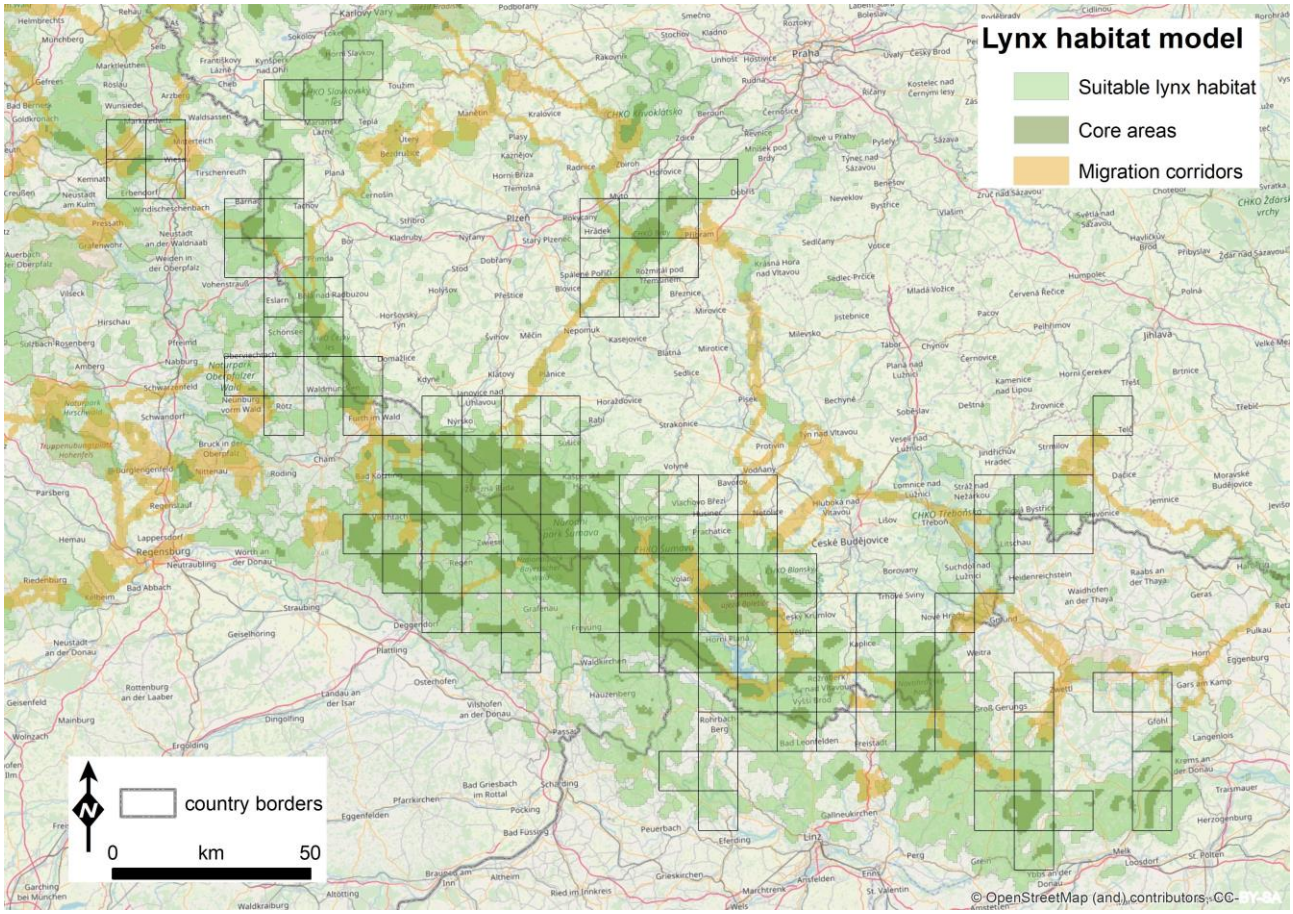

Figure 3: Map of monitored areas based on lynx habitat model (Romportl 2015). Besides population core areas with the largest patches of continuous lynx habitats, significant habitat patches, stepping stones and corridors in the outskirt areas were monitored as well.

3. Monitoring Methods

3.1 Standards for data analysis and evaluation

SCALP criteria data assessment
All data were classified according to criteria described by the SCALP expert group (Molinari-Jobin et al. 2003, Molinari-Jobin et al. 2012) and refined for the large carnivore monitoring in Germany (Reinhardt et al. 2015). The classification is done according to the verifiability of records. This requires the documentation of findings and a verification by an expert with several years of field experience.
Three categories are distinguished: C1 represents 'hard fact' data (e.g. dead lynx, georeferenced lynx photo, genetic proof); C2 includes confirmed data (e.g. kills or tracks, verifiable due to a substantial documentation and verified by an expert); the third category (C3) summarizes unconfirmed data (e.g. direct visual observation and calls; kills, tracks which are not sufficiently documented but seem probable).

Records which were verified and confirmed are more reliable and misidentification is less probable. Therefore, the data analyses were based only on data classified as C1 and C2.

European grid
For scaling of lynx monitoring effort and for spatial data analysis, European grid (10x10km ETRS89 grid, projection ETRS LAEA 5210) is used.

Reporting period: Lynx year
The reporting period in which the data were analysed has been chosen according to the lynx life cycle. By definition the "lynx year" begins on 1st of May (beginning of the period when lynx kittens are born) and ends on 30th of April of the following year (when the kittens complete separation from their mother). This ensures that reproductive units (female lynx with kittens, hereafter referred to as "lynx family") are only assessed once per lynx year.

Terminology
Juvenile lynx: Lynx in the first year of life (also called "kitten"). From birth till 30th of April of the following calendar year (0-1 year of age).
Subadult lynx: Lynx in the second year of life. From 1st May of the year following the birth till 30th April of the next year (1-2 years of age).
Adult lynx: Lynx older than 2 years.
Independent lynx: Lynx older than 1 year, i.e. subadult or adult.
Resident female: Female staying for minimally 12 months in the same area.
Reproducing female: Female who has kitten(s) in the given lynx year.
Family: Reproducing female with juveniles.
Orphaned lynx: Juvenile, whose mother died.

3.2 Data collection

For lynx monitoring the following monitoring methods were used:

- Camera-trapping

- Snow-tracking
- Genetic monitoring
- Collection of observational data and chance findings (dead lynx, kills, tracks, scat, hairs, etc.)

A detailed description of monitoring methods used for lynx monitoring in the BBA area is provided in the 3Lynx project deliverable D.T1.3.3 Toolbox For Lynx Monitoring. Moreover, project deliverables D.T1.4.3 BBA Pilot Lynx Monitoring Implementation Plan and D.T2.2.1 Detailed implementation schedule for this plan provide further details of lynx monitoring implementation.

4. Results

4.1 Distribution and range

In the lynx year 2017, in total 86 grid cells of 10 km x 10 km size were occupied by C1 records and 12 grid cells with C2 records.

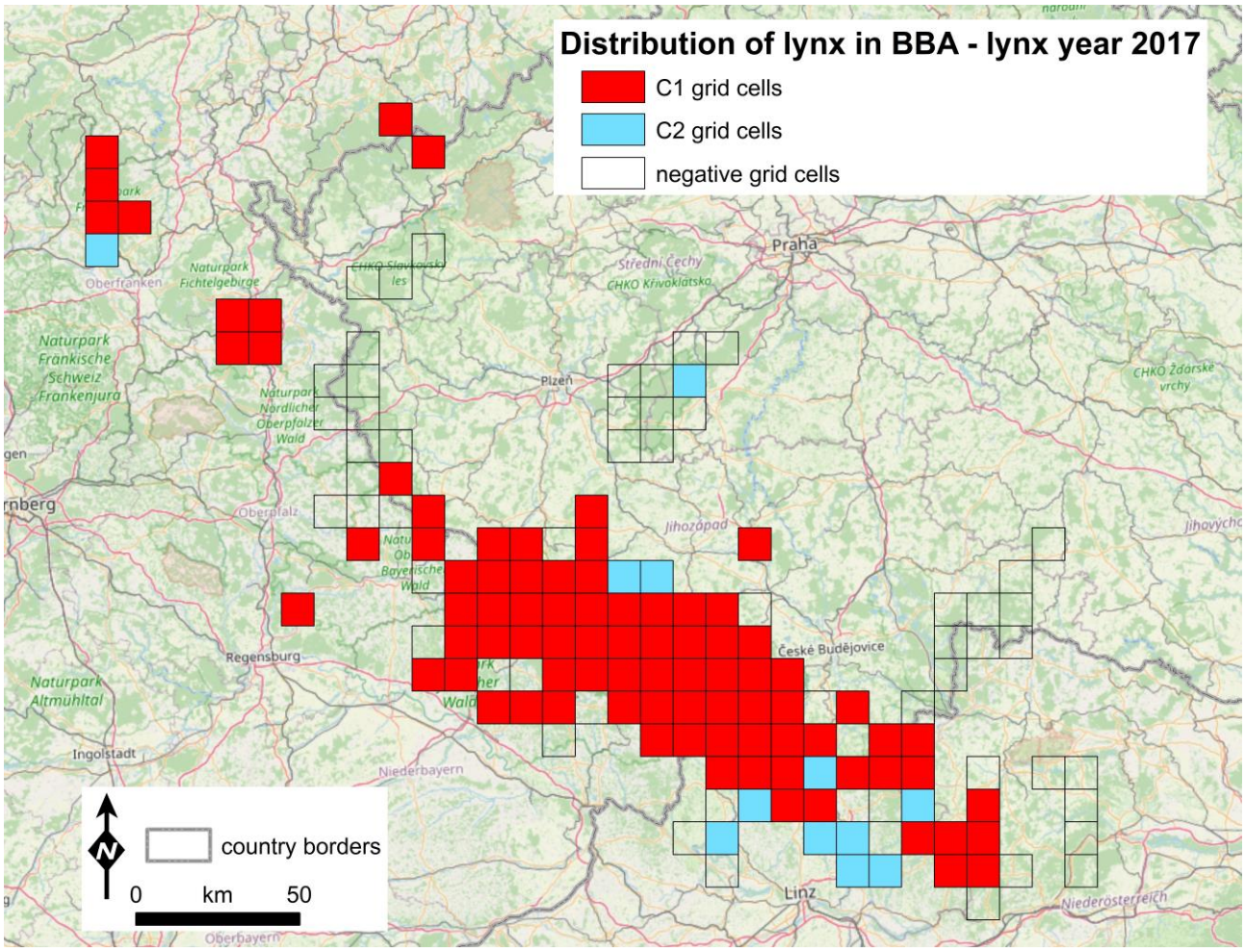

Figure 4: The occupied 10x10 km grid cells projected in ETRS89 show the lynx distribution in the study area in lynx year 2017. Grid cells in red color are occupied by at least one C1 data, grid cells in blue color are occupied exclusively by one or more C2 data.

4.2 Population information

The following population information was updated in 2023 due to new data and the changed consideration of lynx in Steinwald and Erzgebirge/Krusne Hory. Despite isolated from BBA population, these lynx were newly integrated into the population information. Generally, data that are provided later (sometimes up to three or more years later) can cause minor changes in population information.

Lynx occurrence in northern Bavaria - region of Steinwald and Frankenwald

The lynx occurrence in the region of Steinwald was established in 2016 and 2018 by translocation of two lynx who were found orphaned in the Bavarian Forest region. Since 2016 the Steinwald is inhabited by a female lynx, called „Fee“. She was captured as orphaned kitten in 2015 in the Bavarian Forest and released in August 2016 in Steinwald. In 2017 another orphaned male juvenile, called „Hotzenplotz“, was captured in the Bavarian Forest and released in April 2018 in the Steinwald, too.

In the region of Frankenwald several records were registered since lynx year 2017. These records stem from a single roaming unidentifiable male lynx who could be genetically tagged as coming from Harz mountains. The last genetic prove of this lynx was in December 2017.

The situation in the Steinwald differs insofar as the translocated lynx female “Fee” who established a home range there could initialize an occurrence outside the current BBA lynx population by binding the translocated male “Hotzenplotz”. It needs to be stressed that this occurrence is still isolated from the BBA lynx population as up to now a natural dispersal from BBA population has never been documented, i.e., the Steinwald occurrence is not yet connected with BBA population by regular dispersers coming from BBA population. This also leads to specific management implications for the further development of this occurrence.

However, the Steinwald occurrence contributes to the northward expansion of the registered lynx distribution in the study area and despite the Steinwald occurrence is still isolated from the BBA lynx population we considered these lynx in the population information and in the following results about abundance and survival.

Lynx occurrence in Erzgebirge / Krusne Hory

The border region of Saxony and Czech Republic is included in our study area in order to consider long-distance dispersers, migrants (immigrants/emigrants), habitat features and a possible future spreading of the BBA population. In the western part of Erzgebirge / Krusne Hory around Johanngeorgenstadt and Oberwiesenthal lynx is recorded since 2013 (Zschille et al. 2020). Zschille et al. (2020) assume that the records stem from one single lynx. A genetic sample collected in December 2017 on the Czech side revealed the origin of this male lynx to be the Harz mountains, appr. 180 km beeline from Erzgebirge / Krusne Hory (Gajdarová et al. 2021). The combination of the unspotted coat pattern, blurred pictures and/or only single-sided recording suggested to classify this lynx as unidentifiable. Therefore, this lynx – despite most probably the same lynx – was excluded from the minimum count of LY17.

4.2.1 Lynx families

Number of documented lynx families

In Bavaria 11 lynx families (reproducing females with kittens) were documented during lynx year 2017. Six families were cross-border with the Czech Republic.

In Austria 5 lynx families were documented. Another additional probably orphaned single kitten (B720) was documented via camera trap directly at the Czech Austrian border. So, altogether, 6 families were recorded. All these families were cross border with the Czech Republic.

In the Czech Republic 25 lynx families and 5 orphans were documented in lynx year 2017. Due to geographical closeness of orphan cases B708 and B709, and cases B715 and orphan Cejsice it is suspected that the four orphan cases stemmed from two families (see Figure 6, Table 2 and chapter Orphans for details). Therefore, minimally 28 families were recorded in the Czech part of the BBA area. 12 families were cross-border: 6 with Bavaria and 6 with Austria.

Altogether, minimally 32 families and 62 juveniles were recorded in the BBA area based on C1 data (Table 1, Figure 3).

Table 1: Lynx families in lynx year 2017 (1.5.2017-30.4.2018) in the Bohemian-Bavarian-Austrian region (C1 data only).

No.	Reproducing female (code and name)	Number of proven juveniles	Country	Notes
1	B014AT_Marylin	2	CZ/AT	
2	B011AT_Svit	1	AT/CZ	One-year old mother
3	B552_Jiskra	4	CZ/AT	
4	B556_Hvezda	2	CZ	
5	B026AT_Medvedice	2	AT/CZ	
6	B23_Hakerl	2	DE/CZ	
7	B30_Hope	2	DE	
8	B31_Geli	2 (3)	DE/CZ	A third juvenile was found alone in her territory
9	B35_Vroni	2	DE	
10	B41_Hanna	2	DE	
11	B47_Marie	1	DE/CZ	
12	B272_Julia	4	DE	
13	B252_Luna	2	DE/CZ	
14	B271_Nika	2	DE	
15	B273_Alina	2	DE	

16	B255_Hawei	1	DE/CZ	
17	B710_Makini	2	CZ	
18	B742_Eliska	1	CZ	
19	B534_Agata	3	CZ	
20	B013AT_Boure	2	CZ/AT	One-year old mother
21	B585_Iris	3	CZ/DE	
22	B538_Michelle	2	CZ	
23	B541_Majka	1	CZ	
24	B510_Matylda	3	CZ	
25	B525_Misa	1	CZ	
26	R507_Alzbeta	1	CZ	
27	B580_Zofie	2	CZ	
28	B593_Sara	1	CZ	
29	B704	unknown	CZ	Dead breast-feeding female at Malenice
30	B715_orphan and orphan Cejsice	2	CZ	Orphaned juveniles, unknown mother
31	B708_orphan and B709_orphan	2	CZ	Orphaned juveniles, unknown mother
32	B720_orphan?	1	CZ/AT	Probably orphaned single kitten, unknown mother
	B618	1	CZ	Juvenile most probably belonging to one of already registered families – either Alzbeta or Matylda.

Map of lynx families and resident females

The following map shows the approximate location and shape of home ranges of lynx families (reproducing females with kittens), orphans and resident females without proven reproduction, recorded in lynx year 2017 (Figure 5).

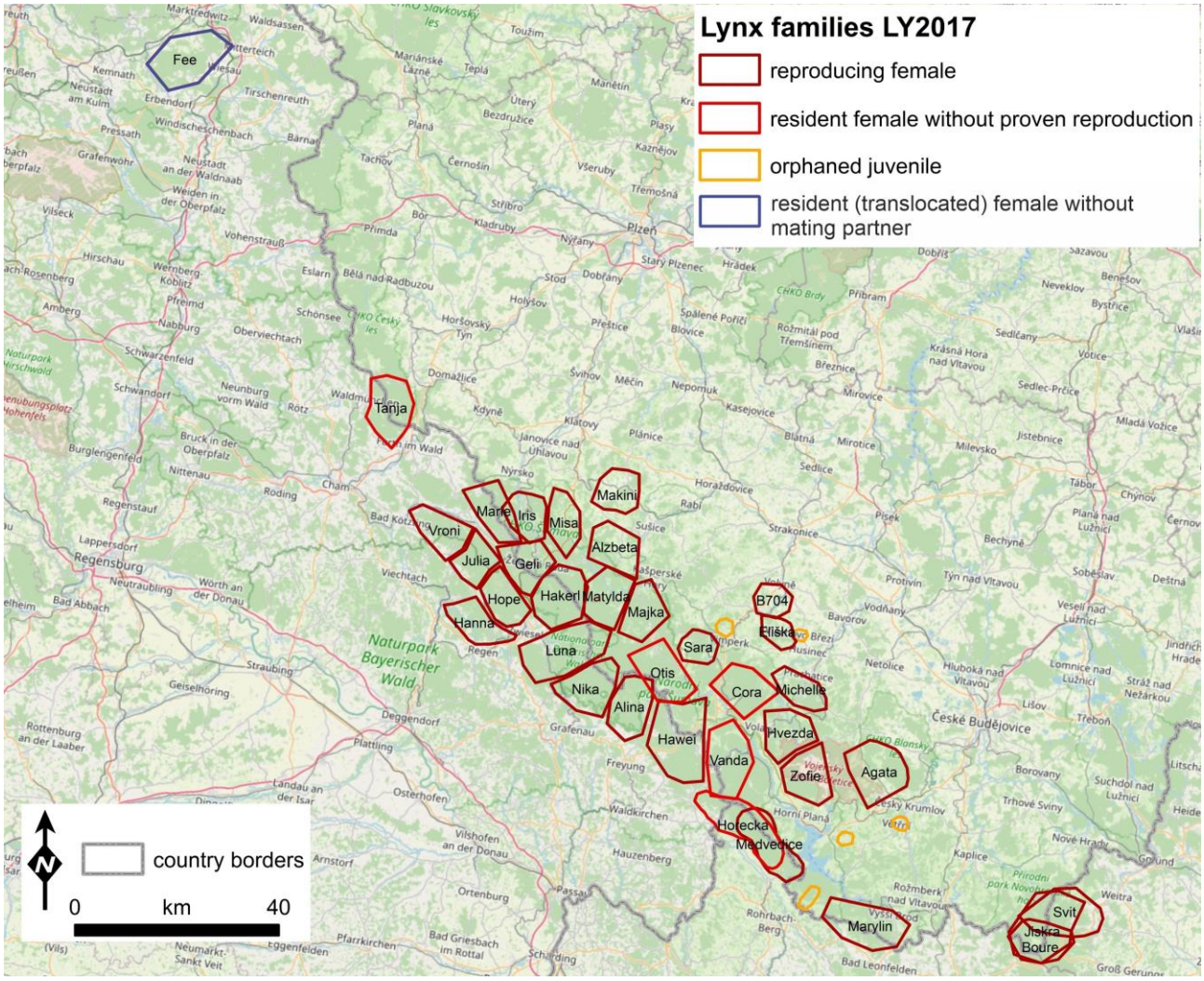

Figure 5: Map of lynx families (reproducing females with kittens), orphans, resident females without proven reproduction and one (translocated) female without mating partner, recorded in lynx year 2017. Note that the size and shape of home ranges is only approximate, based on available camera-trapping and mortality data.

While Eurasian lynx females are known to start reproducing at the age of 2 years, two unusual cases of females reproducing already at 1 year of age were recorded in lynx year 2017 (Engleder et al. 2019). Two young sisters (Svit and Boure), born in 2016 to a female called Jiskra, were repeatedly camera trapped during the 2017 lynx year with one and two kittens, respectively. Since their mother Jiskra also reproduced in 2017, these three families shared one area in lynx year 2017 (see the three unusually overlapping territories in the most easternmost part of the map).

Orphaned juveniles

Altogether five cases of orphaned juveniles were recorded in the lynx year 2017 in the BBA area (see Table 1 and Figure 5).

Three of these orphaned juveniles died (see Table 2 for details).

One orphaned juvenile, female B709, was caught on 11th October 2017 near the Czech village of Muckov and transferred to the animal rescue station by ZOO Hluboká nad Vltavou. Here she lived until 25th July 2018, when she died of stress/anaphylactic shock (M.Jariabková, personal communication, May 3, 2019). The cases of female B709 from Muckov and male B708 from Větřní, both found alone visiting human settlements (a farm in Muckov and a factory in Větřní), show strong spatial and temporal proximity. The beeline distance between these cases was roughly 11 kilometres, suggesting both orphans could come from the same family located in the area in the middle, which was not covered by lynx monitoring at the time. Also, both orphans were recorded with a time distance of only 9 days. For these reasons, these cases are counted as one family, included into the calculated minimum number of families (see Table 1).

Similarly, this could be the case for orphan B715 from Vlachovo Březí, who was found alone in a farm building, and orphan from Cejsice, killed by a guarding dog in a fenced area of an agricultural business company. The beeline distance between these two cases is roughly 15 kilometres, the time distance is about 3 weeks. These two cases are also counted as one family into the calculated minimum number of families (see Table 1).

One possibly orphaned juvenile B720 was repeatedly recorded without mother in the Czech-Austrian CZ-AT border area. Its fate is unknown. It is suspected that this kitten might be an orphan for the following reasons: the beeline distance from B720 sites of occurrence to the centres of the closest neighbouring families of Medvedice and Marylin are roughly 11-12 km and these families had never been recorded in the area of B720. Both these families are well documented and B720 does not match with neither of the kittens recorded. Also, during that year the area where B720 was recorded was occupied by a young dispersing female Viola, who established her territory here, suggesting the territory was not occupied by any resident female. Although the orphan status of B720 is only the most possible explanation of the information we have and cannot be taken as proven, for the above-described reasons we included this case as one additional family in the calculated minimum number of families (see Table 1).

Finally, there is a case of juvenile found alone in the territory of female Geli. This animal was caught on 28th of October 2017 and then released back into the wild on 22th of April 2018. It is most probable that this kitten was the third yet unknown kitten of Geli but could possibly also be an orphan from another unknown reproducing female.

4.2.2 Lynx mortality

Altogether, 9 mortality cases and one case of an orphan removed from wild (record number 4) were documented in lynx year 2017 (Table 2, Figure 6).

Table 2: Registered population losses in lynx year 2017

No	Date	Country	District, Community	Coordinates	Individual	Sex	Age	Cause of death	Notes
1	25 June 2017	CZ	Malenice	49.1232447, 13.8534853	B704	F	adult	road mortality	
2	16 September 2017	DE	Freyung-Hinterschmiding	48.844204, 13.615527		F	juvenile	road mortality	
3	02 October 2017	CZ	Větřní	48.7808189, 14.2982019	B708	M	juvenile	orphaned	Died of undernourishment, dehydratation and injury (broken left collar bone).
4	11 October 2017	CZ	Muckov	48.73798, 14.153886	B709	F	juvenile	orphaned	Caught and transferred to animal rescue station by ZOO Hluboká nad Vltavou. Died one year later.
5	20 October 2017	CZ	Cejsice	49.0736653, 13.7572364		M	juvenile	orphaned	Killed by a guarding dog.
6	13 November 2017	CZ	Vlachovo Březí	49.082554, 13.968061	B715	M	juvenile	orphaned	Died of undernourishment and bacterial infection.
7	12 January 2018	DE	Freyung-Kreuzberg	48.845403, 13.565724		F	juvenile	road mortality	Heavily injured by car accident, later euthanasia.
8	04 March 2018	DE	Arnbruck	49.155096, 13.000139	R72 (Julia-Juv.17-1)	M	juvenile	road mortality	
9	04 March 2018	DE	Freyung-Hinterschmiding	48.839141, 13.609055		F	juvenile	road mortality	
10	04 April 2018	CZ	Skelná	49.1566314, 13.3749425	Míša_juv.16-2	F	subadult	road mortality	

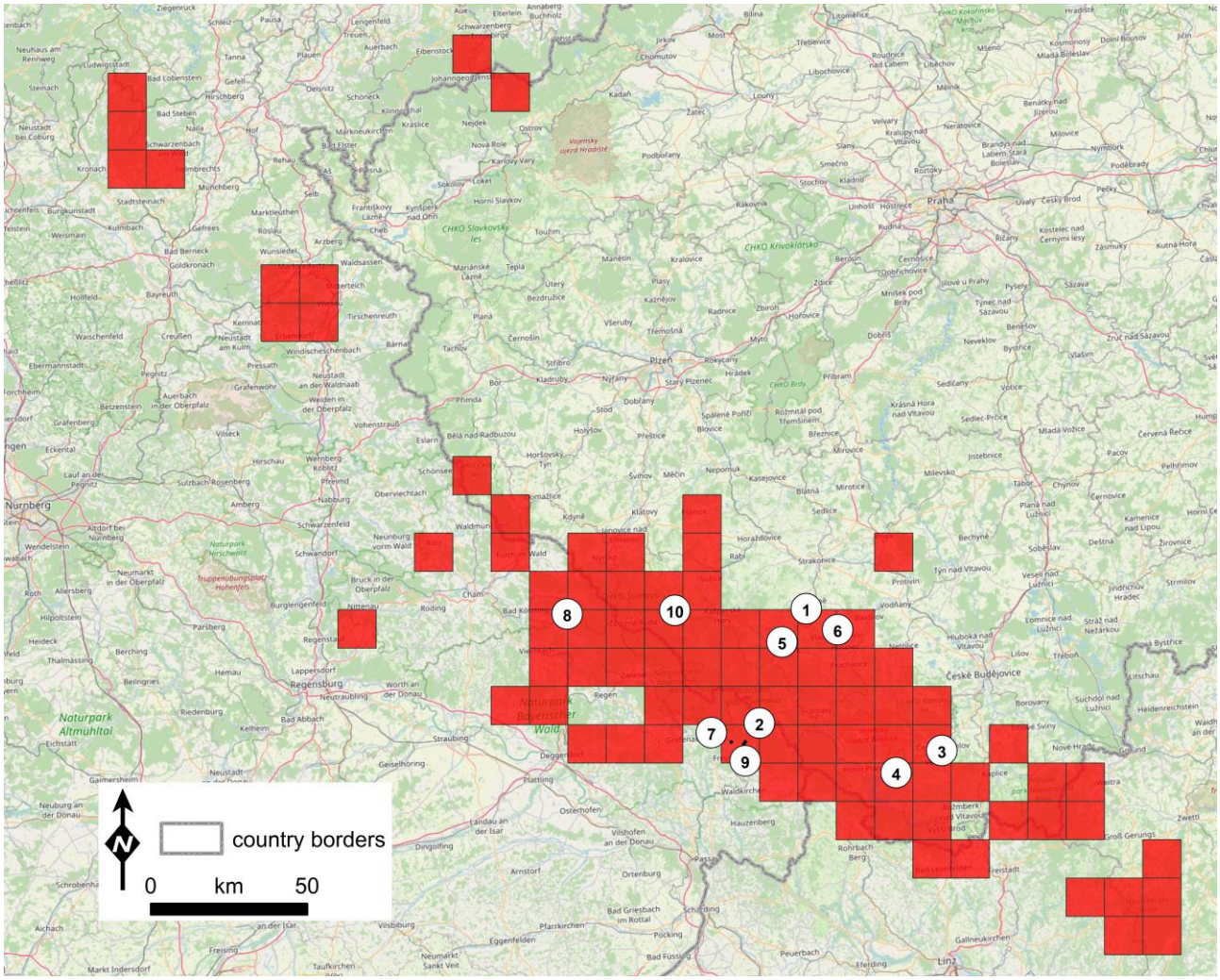

Figure 6: Map of registered population losses in lynx year 2017 plotted on the background of C1 positive grid cells (red). Note that the case No.4 is not a mortality case, but orphan removed from wild.

4.2.3 Documented minimum population size

The minimum population size was assessed by counting all independent individuals that could be individually identified based on their coat pattern. Altogether 104 animals were recorded from both sides, minimally 3 other spotted animals were recorded from left side and minimally 3 other marbled animals were recorded from right side. Therefore, the minimum number of animals has been calculated as 104+3+3=110 independents.

In total 110 independent lynxes and 62 juveniles were documented in the lynx year 2017 in the BBA study area.

Theoretical minimum and maximum population size derived from number of families

The maximum population size was estimated based on the share of reproducing females applying the results of the Population Viability Analysis (hereafter: PVA, Poledníková et al. 2015) performed within the Trans-Lynx Project. The data compilation necessary for the PVA revealed that the long-term share of reproducing females from the whole population is stable over the years, being 17.5 % with 19 % standard deviation. Thus, based on the recorded number of families and calculated age structure of the population within the PVA deterministic model, size of the whole population including all animals of all age categories (adults, subadults, juveniles) can be recalculated. This simple method is used for rough but objective assessment of BBA theoretical population size. It is partly similar to Andrén et al. (2002)'s method used in Scandinavia, where the share of reproducing females out of all independent individuals is used to calculate total number of independent animals.

The calculation of BBA population size based on the share of reproducing females for lynx year 2017 is:

32/17,5 *100 = 183
183 – 62 = 121
121*1.19 = 143.99
121*0.81 = 98.01

Where
32 = number of families recorded in lynx year 2017
62 = number of juveniles recorded in lynx year 2017
17,5 = share [%] of reproducing females out of the whole population
183 = theoretical population size including all individuals (juveniles, subadults, adults)
121 = theoretical population size incl. independent individuals only (subadults, adults)
143.99 = theoretical population size incl. independent individuals only plus standard deviation of 19%
98.01 = theoretical population size incl. independent individuals only minus standard deviation of 19%

Based on the number of families recorded by C1 data in lynx year 2017, the number of independent individuals in the population has been calculated as 121 animals +- 19% [99-145].

5. Conclusions

The Pilot Lynx Monitoring System of the 3Lynx Project, launched in the Bohemian-Bavarian-Austrian lynx population area, covered the historically largest range of lynx habitats with camera traps. The first year of implementation of this large-scale monitoring resulted in the highest numbers of independent lynx, juveniles and families ever recorded in the area. Altogether 110 independent animals and 32 families were recorded in the 13 000 km^2 monitored area. In 2013, when a first large scale camera trapping study was conducted and the lynx population assessed in BBA area, 63 independents and 18 families were recorded in the monitored area, that measured 7700 km^2 (Wölfl et. al. 2015a). Similar numbers (59 independents and 15 families) were also documented in the lynx year 2014 (Wölfl et. al. 2015b). The relative increase of recorded animals in 2017 in comparison to the years 2013-2014 cannot be interpreted as a population trend, since it more or less corresponds to the increase of monitoring effort and size of the monitored area. Despite that, we postulate that a slightly positive population trend was indeed detected for the following reasons: a) some areas, which were previously monitored and negative, were recorded occupied by lynx indicating a local spreading (certain parts of Bavarian Forest), b) the density estimates in National Parks Šumava and Bavarian Forest have been increasing from 1,3 independent lynx per 100km^2 in lynx year 2009 to 1,9 in lynx year 2017 (report of the National parks Šumava and Bavarian forest[1]). However, it is necessary to point out that the number of families recorded in national parks remained the same over the monitoring years, while there was an increase in the number of subadult lynx which roam, disperse or migrate through the area of the national parks. This suggests that minimally in parts of the outskirt areas the number of families increased and/or the survival of the juveniles improved, resulting in this larger number of "floaters". Nonetheless, if there was a strong positive trend of population growth, we expect that this would result in a clear expansion of the entire population range, with young lynx colonizing the still available suitable habitat patches located in the outskirts of the BBA area. Instead, comparing the population distributions for lynx years 2017, 2013 and 2014, no such trend is visible, and many significant habitat patches result to be still uninhabited by lynx (see Figure 4). For these reasons, we conclude that the Bohemian-Bavarian-Austrian lynx population is slightly growing but no major changes have been detected yet. When it comes to population mortality, the six cases of road casualties indicate increasing negative impact of road traffic on lynx population. Despite that, illegal killing remains the most important population threat, causing high turnover and low longevity of animals mainly in the outskirt areas. These conclusions are however preliminary and more accurate assessment of population status and trend can be done after the data from lynx year 2018 have been analysed.

[1] Czech version of the report is available here

6. Summary

The precise knowledge of the populations' status is a necessary prerequisite for the efficient conservation of lynx in Central Europe. The Pilot Lynx Monitoring System of the 3Lynx Project, launched in the Bohemian-Bavarian-Austrian lynx population area for the period of 30 months, covered the historically largest range of 13 000 km^2 of lynx habitats with camera traps. Besides camera trapping, snow tracking, genetic monitoring and collection of observational data and chance findings were organised. The area monitored with camera-traps was selected according to suitable lynx habitat, the probability of lynx occurrence in the area and the willingness of hunters and forest owners to cooperate. It covers the two national parks Šumava and Bavarian Forest, the Protected Landscape Area Šumava and Nature Park Bavarian Forest and also other significant patches of suitable habitat, which are inhabited by lynx or which are characterized by a high chance of lynx occurrence. The first year of implementation of this large-scale monitoring resulted in the highest numbers of independent lynx, juveniles and families ever recorded in the area. Altogether 110 independent animals, 32 families and 62 juveniles were recorded in the lynx year 2017 (1.5.2017-30.4.2018). The relative increase of recorded animals in lynx year 2017 in comparison to the years 2013-2014 (independent lynx: n=59 in lynx year 2013, n=63 in lynx year 2014) cannot be interpreted as a population trend, since it more or less corresponds to the increase of monitoring effort and size of the monitored area. Despite that, we postulate that a slightly positive population trend was indeed detected for the following reasons: a) some areas, which were previously monitored and negative, were recorded occupied by lynx indicating a local spreading (certain parts of Bavarian Forest), b) the density estimates in National Parks Šumava and Bavarian Forest have been increasing from 1,3 independent lynx per 100km^2 in lynx year 2009 to 1,9 in lynx year 2017. While the number of families recorded in national parks remained the same over the monitoring years, an increase was recorded in the number of subadult lynx which roam, disperse or migrate through the area of the national parks. This suggests that minimally in parts of the outskirt areas the number of families increased and/or the survival of the juveniles improved, resulting in the larger number of "floaters". If there was a strong positive trend of population growth, we expect that this would result in a clear expansion of the entire population range, with young lynx colonizing the still available suitable habitat patches located in the outskirts of the BBA area. No such trend is visible, and many significant habitat patches result to be still uninhabited by lynx. For these reasons, we conclude that the Bohemian-Bavarian-Austrian lynx population is slightly growing but no major changes have been detected yet. When it comes to population mortality, the six cases of road casualties indicate increasing negative impact of road traffic on lynx population. Despite that, illegal killing remains the most important population threat, causing high turnover and low longevity of animals mainly in the outskirt areas. These conclusions are however preliminary and more accurate assessment of population status and trend can be done after the data from lynx year 2018 have been analysed.

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