



LYNX MONITORING FACT SHEET

for the Bohemian-Bavarian-Austrian lynx population in 2019/2020 - LY19



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We would like to refer to the monitoring reports from the previous years, prepared within the 3Lynx project, funded by Interreg CENTRAL EUROPE programme.

Available [here for LY18](#) and [here for LY17](#).

Acknowledgements:

We thank all the volunteers, foresters and hunters who helped with data collection in the field.



Cover photo shows the lynx female "Leila". Photographed by © Thomas Engleeder with a Cuddeback C1 phototrap. This female established a home range near Bärnstein mountain in the Austrian-Czech borderland.



Summary of the results

Within the Bohemian-Bavarian-Austrian (BBA) lynx population there has been a cooperation between lynx experts for many years. Especially during the last three years, there was a very intensive cooperation within the 3Lynx project. To continue and develop this collaboration this short report is compiled as a fact sheet to give a recent overview about the status of the trilateral BBA population. To get common lynx numbers we first identify lynx individuals according to their fur pattern on a national level and then compare all individuals trilaterally.

In the lynx year 2019 (1.5.2019 - 30.4.2020) we figured out as a minimum count **130 independent lynx individuals** in the whole BBA population. Out of this we have proven **32 reproducing females**, which had altogether **68 (proven) juveniles**. The amount of family groups and the number of juveniles corresponds very well with the figures from the last two years, while the number of independents is slightly higher than the last years.

The calculation (see below) of the theoretical population size (incl. independent individuals only: this means adults & subadults) results in a lower number than the counted one. So this is a sign that we probably missed some reproducing females in LY19.

All in all 98 grid cells were lynx C1 positive in LY19 (incl. Frankenwald in the very NW, which is not on the map, with 5 positive grid cells caused by one lynxmale). This corresponds with an area of 9.800 km² occupied by lynx. These numbers are again higher than the ones from last years (LY17: 84; LY18: 83) and corresponds well with the also higher number of independent lynx in LY19.

Because lynx occurrence especially at the margins of the BBA population distribution may be more difficult to detect compared to the core area, and thus a given grid cell may result as negative in a single year only due to "misfortune" or accidental camera failures, to give a more reliable overview about the area occupied by lynx in the BBA region, we overlay the C1 grid cells from three consecutive monitoring years into one map. With this method we avoid the mapping of monitoring errors or gaps and give a more continuous and compact picture of lynx occurrence in the BBA region. In this three year period we have 115 occupied C1 grid cells and that corresponds to an area of 11.500 km².

All in all, based on data from LY2019, the size of the BBA lynx population seems to be stable or to show a slightly positive trend, but it is still too small to ensure its long term viability for the next decades.

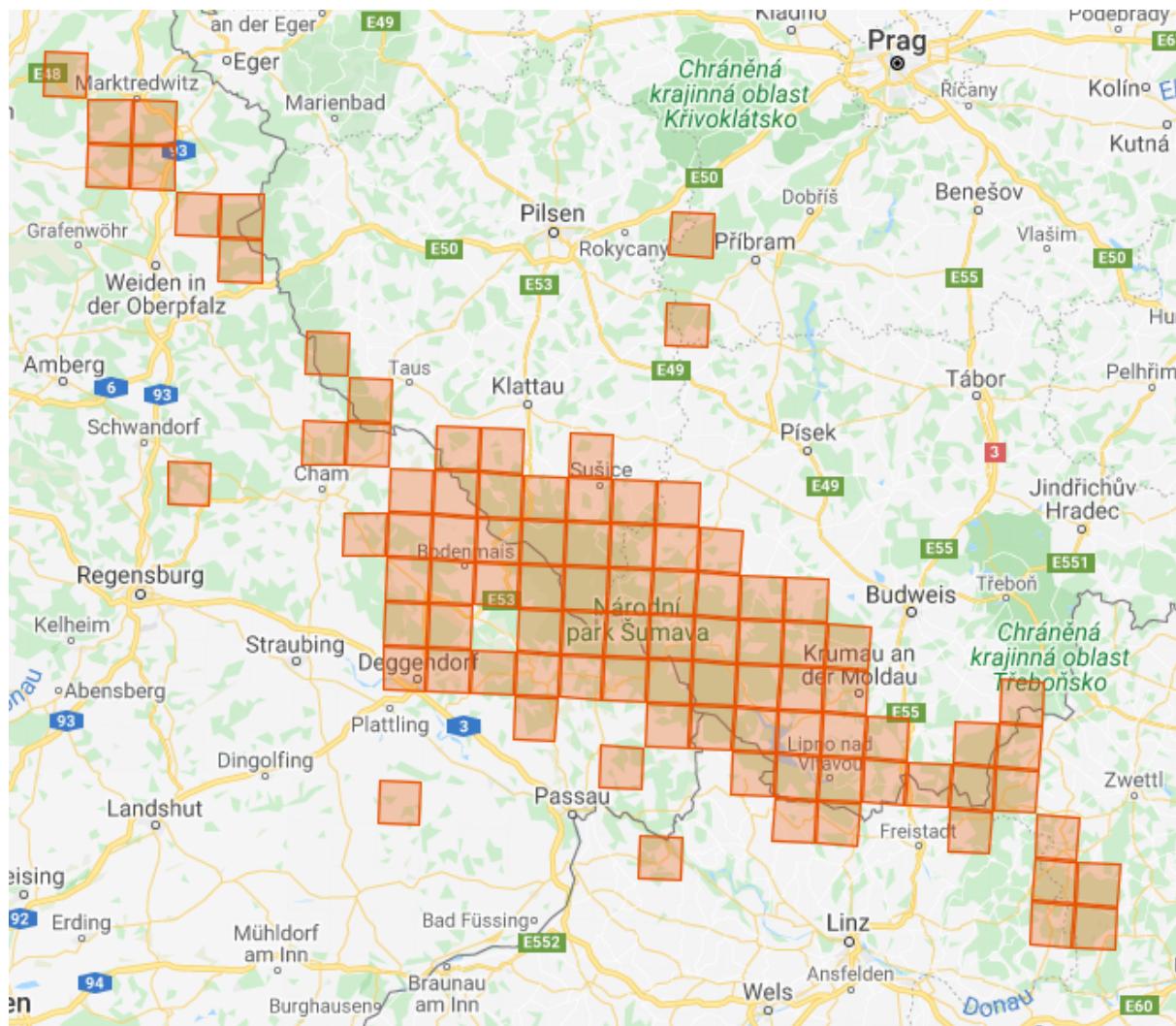
In addition, 7 mortality cases were documented in LY19 in the BBA area.

Remark: Frankenwald in the very NW of the BBA area, at the border of Bavaria and Thuringia, is taken into account in all calculations to keep comparability to previous years, but it is not shown in maps 1 & 2. In the LY19 there was one lynx male which caused 5 positive C1 grid cells there.



Maps - occurrence & family groups

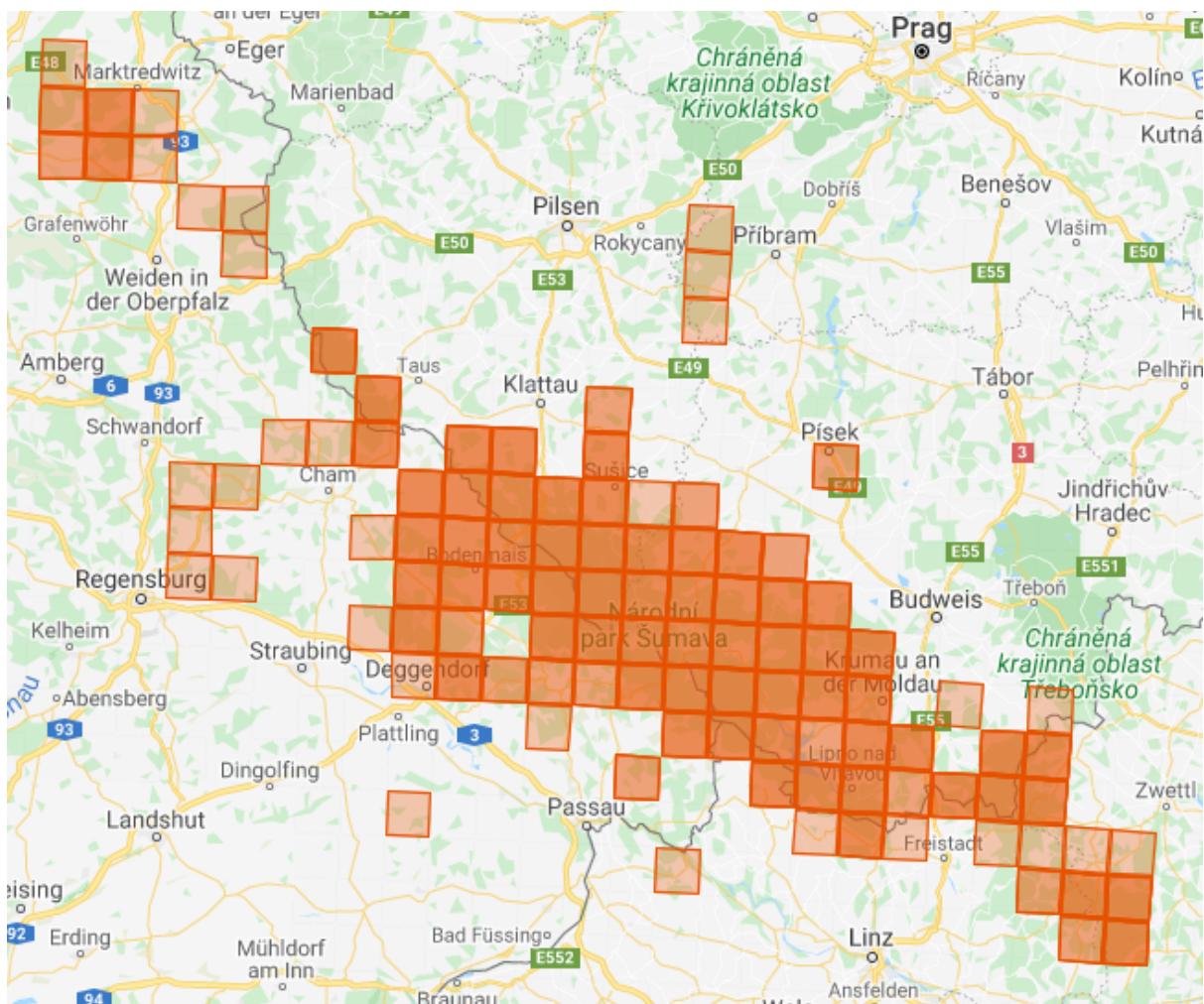
Map 1: Lynx distribution map LY19



Only grid cells with C1 records in lynx year 2019 are shown;
(Frankenwald in the very NW with 5 positive C1 grid cells is not on the map);



Map 2: Lynx occurrence map LY17+LY18+LY19



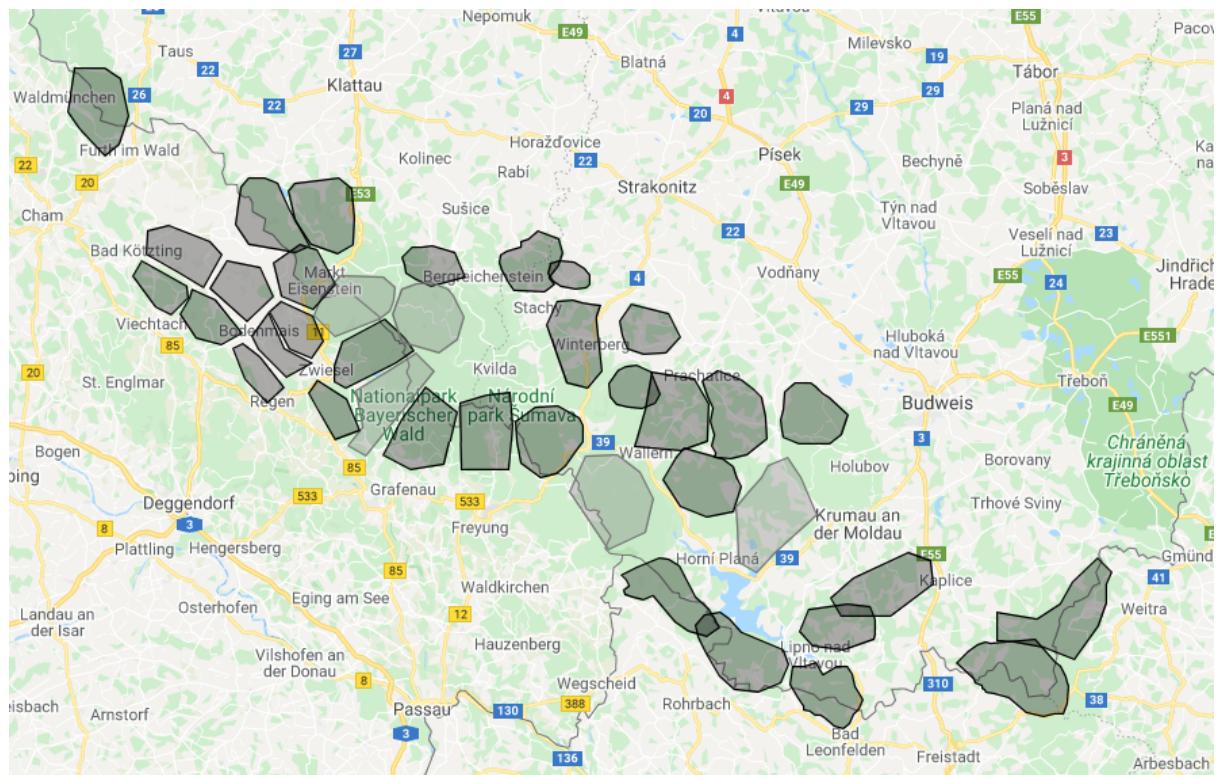
Only grid cells with C1 records are shown summarized for the period of 3 lynx years (LY17+LY18+LY19). The darker the display, the more the years the grid cell is C1 positive - means: dark = all 3 year the grid cell is C1 positiv, middle = 2 years, light = only 1 year; (Frankenwald in the very NW with 5 positive C1 grid cells is not on the map);

Tab.1: Number of C1 positive grid cells in BBA monitoring area according to lynx years (LY) (Frankenwald included)

	Number of C1 positiv grid cells	Corresponding area in km ² and in hectares
LY19	98	9.800 km ² or 980.000 hectares
LY18	83	8.300 km ² or 830.000 hectares
LY17	84	8.400 km ² or 840.000 hectares
LY17+LY18+LY19 summarized	115	11.500 km ² or 1.150.000 hectares



Map 3: Family map - LY19



Approximate position of family groups (dark, females with kittens) and resident females (light, females without proven kittens) in lynx year 2019.

Population size

The documented minimum population size (counted identified independent individuals) for LY19 within the trilateral BBA lynx population is:

130 independents (126 B animals (photographed from both sides), 4 L animals (photographed from left side)), which included **32 reproducing females**. In addition **68 juveniles** belonging to these females could be documented.
Besides these families: 5 territorial females without proven reproduction were recorded.

Tab. 2: Comparison to previous lynx years

	independents	rep.females/families	juveniles
LY19	130	32	68
LY18	119	33	66
LY17	108	32	63

all this are minimum counts



List of known mortality cases in BBA lynx population in LY19

Date	Country	Community	Coordinates	Individual	Sex	Age	Cause of death	Notes
25.1.2020	CZ	Mnichovice	48.5984300N 14.2891069E	B032AT_Sara_ Juv.18-1	M	subadult	illegal killing	only lynx blood found and confirmed by DNA, identity assumed based on the region and time of disappearance of B0032AT
23.9.2019	CZ	Strážný - Dolní Silnice	48.8898100N 13.7218281E	maybe Hawei_juv.19-1	M	juv	road kill	juvenile was totally run over, probably by heavy truck
2.10.2019	CZ	Strážný - Dolní Silnice	48.8898100N 13.7218281E	maybe Hawei_juv.19-2	M	juv	road kill	the collision in the early morning, spotted female mother stayed in close surroundings half a day, but no photo documentation (info from local road maintenance)
16.7.2019	BY	Bischofsmais	48.9152710N 13.0301740E	B79	F	subadult	illegal killing	
2.12.2019	BY	Zwiesel	49.0189910N 13.2500690E	City lynx from Zwiesel	M	juv	road kill	
9.12.2019	BY	Schaufling	48.8743530N 13.0852540E		F	juv	road kill	
31.1.2020	BY	Bodenmais	49.0600820N 13.0600110E		M	juv	road kill	car accident, probably deadly, body not retrieved



Glossary

Lynx

means Eurasian Lynx, (*Lynx lynx*)

SCALP data criteria

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);
C3 summarizes unconfirmed data (e.g. direct visual observation and calls; kills, tracks which are not sufficiently documented but seem probable).

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 (LY)

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.

Appendix

Tab. 3: Theoretical calculation of population size in lynx year 2019

Calculation	Explanation
$32 / 17,5 * 100 = 182,8$	32 = number of lynx families recorded in lynx year 2019 17,5 = long-term share [%] of reproducing females out of the whole population 182,8 = theoretical population size including all individuals (juveniles, subadults, adults)
$182,8 - 68 = 114,8$	68 = number of juveniles recorded in lynx year 2019 114,8 = theoretical population size incl. independent individuals only (subadults, adults)
$114,8 * 1,19 = 136,6$	136,6 theoretical population size including independent individuals only, plus standard deviation of 19 %
$114,8 * 0,81 = 93$	94,6 theoretical population size including independent individuals only, minus standard deviation of 19 %