

Wolf occurrence in the Czech-Bavarian-Austrian border region – review of the history and current status

Luděk Bufka^{1,*}, Marco Heurich², Thomas Engleder³, Manfred Wölfl⁴,
Jaroslav Červený⁵ & Wolfgang Scherzinger²

¹Šumava National Park Administration, Sušická 399, CZ-34192 Kašperské Hory, Czech Republic

²Bavarian Forest National Park Administration, Freyunger strasse 2, D-94481 Grafenau, Germany

³Graben 7, A-4170 Haslach a.d. Mühl, Austria

⁴Bavarian Forest Nature Park Administration, Infozentrum 3, D-94227 Zwiesel, Germany

⁵Institute of Vertebrate Biology, Academy of Sciences of the Czech Republic, Květná 8, CZ-60365 Brno, Czech Republic

*ludek.bufka@npsumava.cz

Abstract

The native wolf population was exterminated in the area during the second half of the 19th century. There were scarce data on wolf occurrence in the first half of the 20th century. Eight animals escaped from captivity in 1976. Altogether 16 animals were shot during following years 1976–1989. Since 1990 there is increase of findings with different level of reliability. Data indicate the occurrence of only single individuals, most likely males, and not any population. Reproduction could not be confirmed. The origin of the individual wolves is unclear. Some findings indicate animals escaped from captivity, but also a natural immigration from the east (the Carpathians) seems to be possible. The wolf occurrence in the area under study corresponds well with the population increase in Slovakia. The dead animals, which were analysed morphometrically, relate to wolves, but the genetic analysis is still missing. Bohemian Forest is seen as an area with sufficient natural carrying capacity for the permanent occurrence of wolf. The main constraint might be the acceptance by people, mainly hunters and farmers.

Key words: extermination, recent distribution, immigration, captive animals

INTRODUCTION

The wolf as a species with a holarctic type of distribution had occurred to the middle ages in a big part of Europe, Asia and Northern America. In the course of time, it was totally exterminated in the most of the west and central Europe. In Europe, it occurs recently in a part of Scandinavia, Finland, Baltic countries, Russia, Belorussia, Eastern Poland, the Carpathians, partly in Balkan. Isolated small populations survive in Italia, France and Spain.

The Bohemian Forest (=Šumava Mts.) represents a big-forested area within the central Europe at the border between Czech Republic, Bavaria and Austria. Due to the human activities and direct extermination the native populations of large European predators vanished during the second half of the 19th century. The area still offers good conditions for surviving of some large forest vertebrates, including reintroduced population of lynx and, potentially, wolf. During the last decade there is more information about the occurrence of wolf with different level of reliability. The nearest viable population lies about 400 km to the east in the western Carpathians. That is why the registered observations of wolves provoke the questions about the origin of the individual animals as naturally dispersing, escaping from

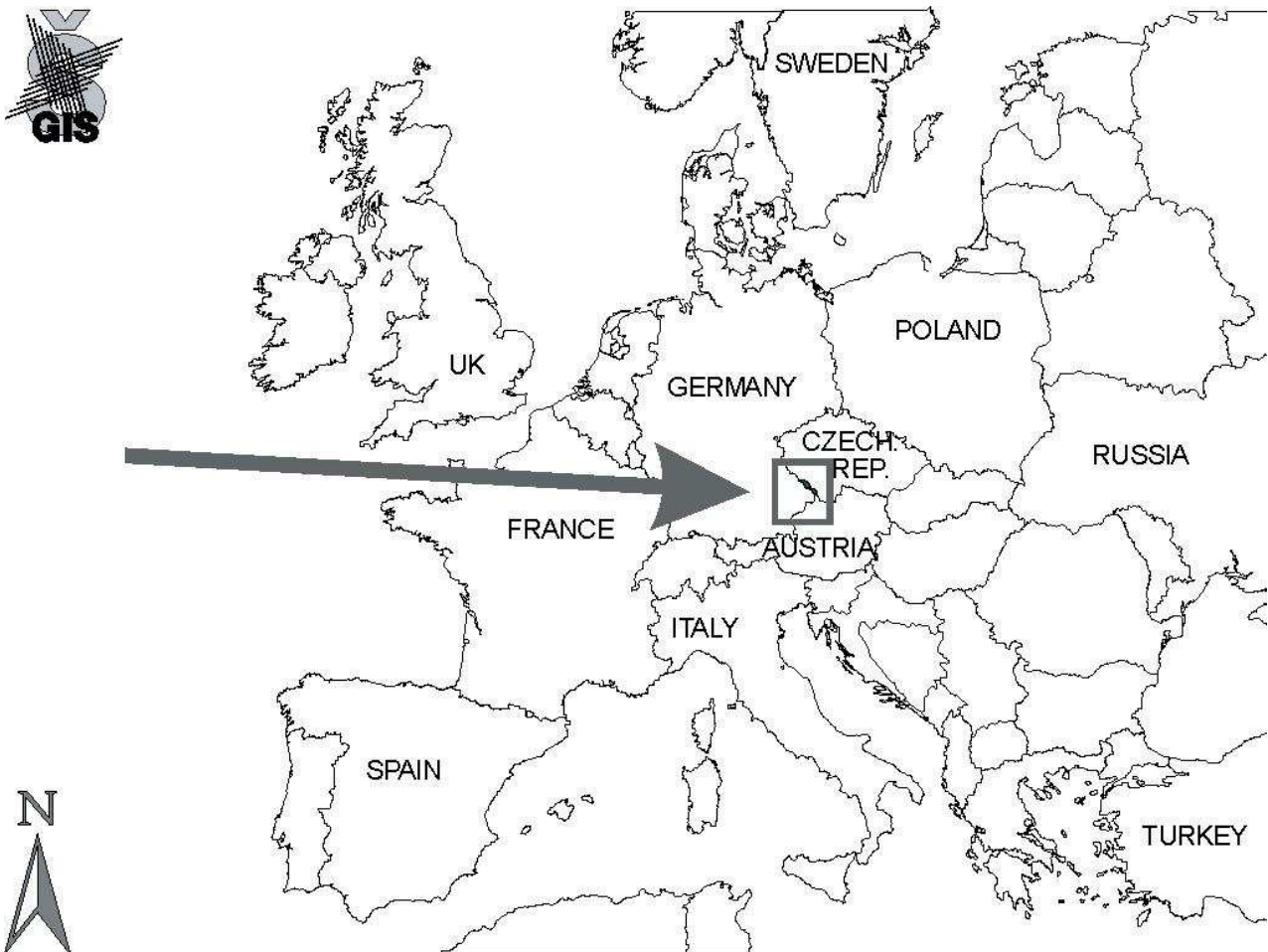


Fig. 1. The area under study.

captivity registered or unregistered, and also about the possibilities of existence of stable population, especially in order to natural carrying capacity and human attitude. The article shortly summarises the history of extermination of the native wolf population, evaluates all registered findings and comments the recent occurrence in the study area.

THE HISTORY OF THE OCCURRENCE

The extermination of the native population

The wolf was a common species on the territory of the today's Czech Republic as well as border regions to Austria and Bavaria till the end of the 17th century. In the middle of the 17th century it was frequently hunted in the Southern Bohemia, as documented in hunting bag lists from the Schwarzenberg's estates Český Krumlov, Hluboká, Vimperk (KOKEŠ 1961, 1970). Since the beginning of the 18th century the numbers of hunted wolves decrease rapidly. It was prosecuted by all possible means including trapping and poisoning. The total elimination of the wolf, considered as an extremely dangerous and harmful animal, was the official goal. This process was also supported by the increase of a new interest in hunting and management of ungulate game (esp. red deer) at the aristocratic estates (ANDRESKA & ANDRESKOVÁ 1993, KOKEŠ 1961). The main decrease of the native wolf population probably took place during the 2nd half of the 18th century. The disappearance of the wolf from western Bohemia is described in HŮRKA (1981). On the basis of the older publications and manuscripts the last shot wolf from the Smrčiny Mts. (Fichtelgebirge) is recorded in 1803 (ALBER-

TI 1934), from the surroundings of the town Tachov (forest district Pavlův Studenec) in 1801 (MINISTR 1967). Since the half of the 18th century the wolf probably does not live in surroundings of the town Plzeň (MINISTR 1962). The last refuge of the wolf in Bohemia was its southern parts, especially the forested mountain ranges. BAŤA (1933) stated the last shot animal from Nové Hradky estate in 1747. Commonly stated date of the last shot wolf in Bohemia is 2 Dec 1874 (Šumava, Lipka near Vimperk – ŠEVĚTÍNSKÝ 1895). ANONYMUS (1875) ex. HŮRKA (1982) stated also occurrence of another 4 wolves in the Bohemian Forest, shot in 1875. During the 19th century, there practically did not exist a viable population in Bohemia any more. The last wolves shot had been probably lonely animals, maybe also immigrants from the neighbouring areas of occurrence. In a similar way, the wolf vanished from the border regions of Bavaria and Austria. For the Bavarian side of the mountains, the last wolf had been shot in 1847 (ZIMEN 1978). In Austria, in the region of Mühlviertel, on the estate Stift-Schlägl, 42 wolves were shot between 1635–1746 (PRÜGL 1983). For the western part of today's Austria the total extermination is dated to the 1930s, for the eastern part, the second half and the end of the 19th century (SPITZENBERGER 2001). The last shot animals are recorded from the year 1854 for Upper and Lower Austria (locality Königswiesen and Gross Gerungs respectively). The very last historic reference to the wolf in Upper Austria north of the Danube is from the year 1870 (SPITZENBERGER 2001).

Table 1. Number of observations of the wolves in the individual periods of time (* incl. 2 wolves escaped from enclosure in Neuschönau).

Period	Czech Rep.		Germany		Austria		Total	
	total	shot/dead	total	shot/dead	total	shot/dead	total	shot/dead
1940–1975	1	–	–	–	6	4	7	4
1976–1989	27	10	13	5	1	1	41	16
1990–2004	66	2	48	4*	10	1	124	7
Total	94	12	61	9	17	6	172	27

Recent history

From the 20th century only few data indicate wolf presence in the area. In total there are 4 shot animals in Austria from 1940 to 1957. In Bohemian part of the area we only found one published report of a shot wolf (southern part of the Český Les Mts. = Oberpfälzerwald) in 1953 (Table 2). There was no information about wolf occurrence on the Bavarian side in this time period.

More observations and shot animals during 1970s and 1980s (Fig. 2) are undoubtedly connected with the dispersal of the eight animals escaped from the enclosure at Altschönau in the Bavarian Forest National Park during the winter 1975–1976. From that time onwards many reports about wolf occurrence in the area were gathered. Some authors (ANDĚRA & HANZAL 1996) do not exclude the possibility of reproduction. During a short period, four wolves were killed (Table 2 – ID 8, 13, 19, 26), and many observations were done in the area of the Bavarian Forest National Park and its surroundings. One wolf was shot in Oberpfalz (Table 2 – ID 12) and there is also one shot animal in Austria from the same period (Table 2 – ID 14). In Bohemia, in total 10 killed were registered in the following period 1977–1983 (Table 1, 2).

CURRENT STATUS

Recently, there is an increase of reports of single individuals appearing regularly within the whole Bohemian Forest Range, especially in the central part of the mountains (Fig. 3). The

increase of number of observations during the 1990s corresponds well with the population peak in Slovakia (e.g. HELL et al. 2001). All available data published and unpublished were collected. The main source are the databases of the administrations of the National Parks Šumava, Bavarian Forest, and the results of questionnaires from the individual hunting grounds in the whole region. From 1990 till July 2004 there were 124 records of wolf occurrence in the area. 66 reports came from the Czech side, 48 from Germany and 10 from Austria. In total there has been 39 direct observations of wolves in the area. Usually, they are observations of only one wolf. In two cases more are reported 2 and 4 respectively). Only once the observation of a pup is registered (ID 78), but the latter three reports are of low value of reliability. Additionally, a lot of wolf – like tracks and scats has been found.

Because of the difficulties to determine wolf presence in the field even in the case of direct observation, the relative scale of reliability of the data were stated with following criteria (Table 2): 1 – verified (dead animal, measured; observation by a skilled person having a field experience with the species), 2 – probable (observation/track described reasonably, observer with high credibility and known to authors), 3 – undecided (uncertain observation/track reported, with no details available, person unknown to authors).

In total, from the period 1990–2004, the occurrence is reported from 30 mapping quadrats (KFME grid system – SLAVÍK 1971) within the area under study (Figs 1, 3). Nine quadrats represent the occurrence with value 1, 13 with value 2, eight with value 3 (Fig. 3).

In total there are 5 known dead animals between 1990 and 2004 (2 found on the Czech side, 1 in Austria and 2 in Bavaria). All animals have been males. On the Czech side, the dead animal was a traffic accident from the localities Polečnice near Horní Planá in 1998, and the second animal was found at the locality Bílý Potok near Kašperské Hory in 1996. On the Austrian side of the Bohemian Forest, at the locality Niederkappel (district Rohrbach), a 46 kg male wolf was shot illegally on 30th January 1996. Unfortunately no detailed survey of the animal was done (no morphometry, genetics) only veterinarian control for rabies. From

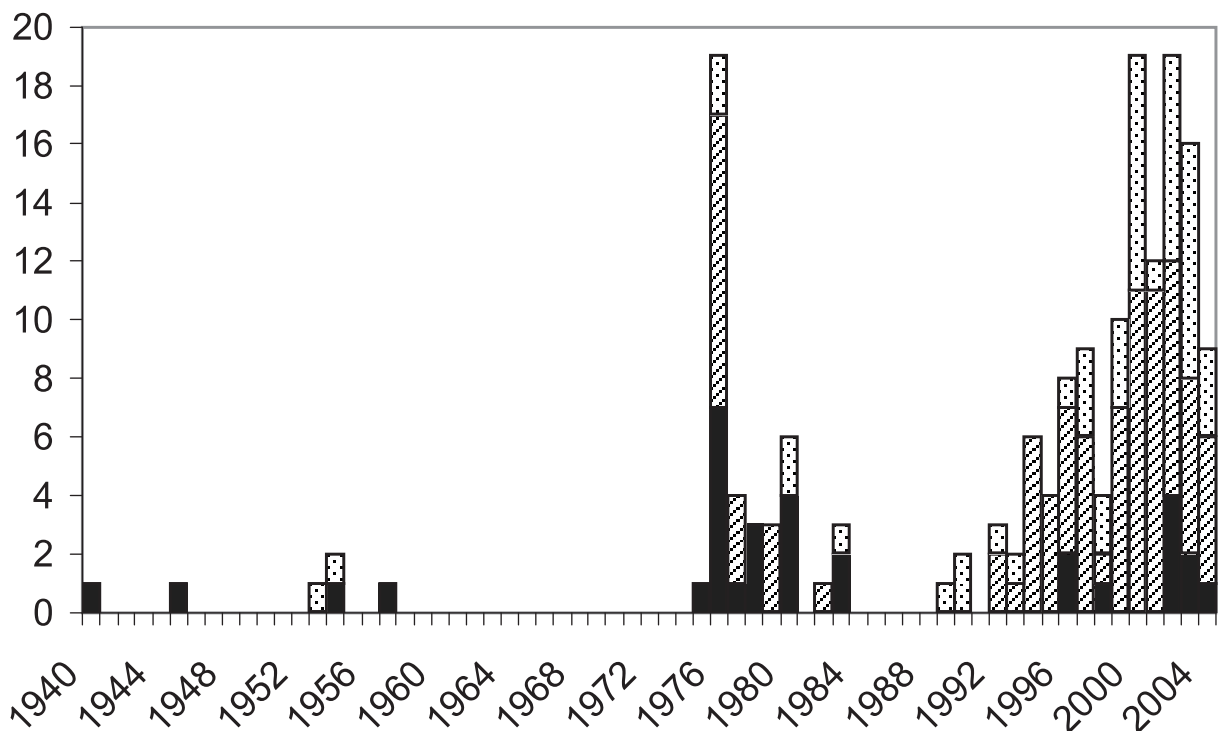


Fig. 2. The number of observations of different value in successive years. Explanations: black column – value 1, hatched column – value 2, dotted column – value 3.

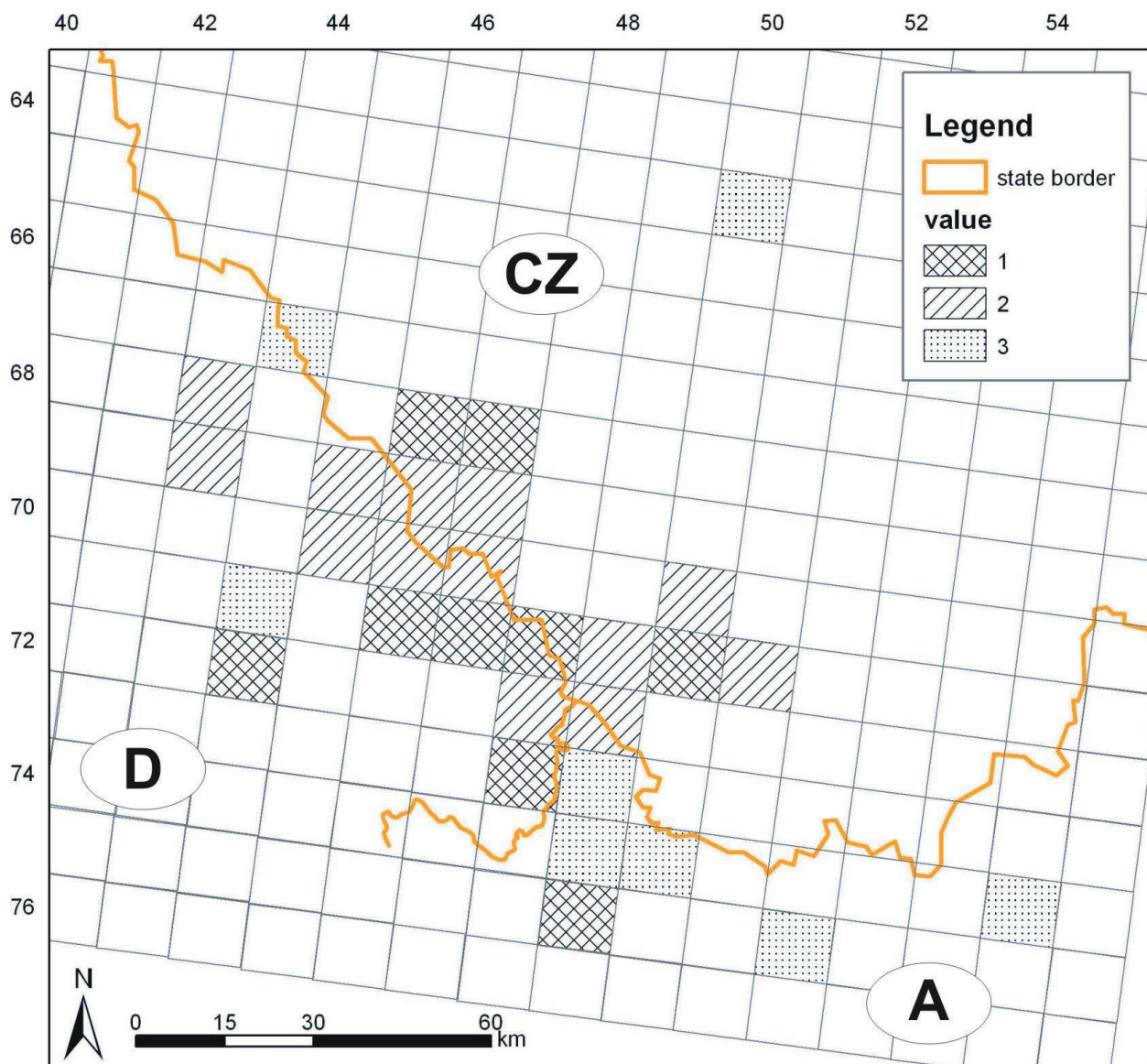


Fig. 3. The grid map of recent (1990–2004) occurrence of wolf in the Bohemian Forest region at the Czech-Bavarian-Austrian border.

the Bavarian territory one animal was shot at the locality Ludwigsthal on the 7th December 1994. The wolf was injured by train and then shot by border police (SCHERZINGER, pers. comm.). Moreover, one male of wolf was shot on the 24th April 2004 at Wegscheid near Passau.

Recently, there are data about two cases of wolves escaped from captivity. 13 Apr 2002 three young wolves escaped from the enclosure in Neuschönau. One of them was recaptured (Table 2 – ID 134) and the national park staff shot the other two (ID 138, 139). On the 5th April 2003 an adult male escaped from the enclosure in Lohberg. Several subsequent observations of a not shy animal were registered, also on the Czech side (surroundings of town Hartmanice – Table 2, ID 148, 150). The presence of animals from captivity could influence the total number of observations but is not the reason for the occurrence of wolf in the area.

DISCUSSION AND CONCLUSIONS

- All available data indicate a recent wolf occurrence in the Bohemian Forest. During the last 14 years there are sporadically findings each year. There are only single individuals, most likely males, and not any population. Reproduction could not be reliably confirmed.
- The origin of the individual wolves is unclear. Some findings indicate that animals escaped from captivity, but also a natural immigration from the east (the Carpathians) seems to be possible. When young wolves become sexual mature they will be ejected and have to disperse out from the pack. These dispersers can travel long distances in search for mating partners and free territories. The average travelling distance in North America is about 100 km. But single animals can travel much longer distances. As reported by FRITTS (1983), a collared wolf travelled 917 km. In Europe it seems that males are travelling farther than females (PULLIAINEN 1965, PROMBERGER et al. 1994), whereas observations in North America showed no differences between males and females (BALLARD et al. 1987, GESE & MECH 1991, BOYD et al. 1994).
- The wolf population in the western Carpathians seems to be the most likely source of dispersal. In Slovakia, the peak of wolf population near to the landscape carrying capacity and social acceptance is described during the 1990s (e.g. HELL et al. 2001). At the same time period the regular occurrence of wolf was registered in the contact area in the northeast of the Czech Republic (the Beskydy Mts. and irregularly also the Jeseníky Mts. – e.g. ANDĚRA & HANZAL 1996, BARTOŠOVÁ, pers. comm.). Another possible source of immigration could be from the North, the area of western Poland and Saxony. However, during the last years a decline of this occurrences has been registered which does not render population pressure very likely to date.
- In southern direction the nearest recent finding is a male wolf shot in January 2002 near Bad Ischl in the alpine part of Upper Austria. Genetic analyses at the University of Lausanne (GERSTL & FUMAGALLI, pers. comm.) suggest that the animal originated from Eastern Europe. It has been revealed a wolf DNA sequence identical to a sequence found in Romania and western Russia and distinctly different from the wolves in Italy. Several domestic dog sequences, considered to be rare among wild wolves and indicating possible hybridisation with dogs, were found. The tests also cannot exclude the possibility that the animal escaped from captivity or was released.
- The dead animals, which were analysed morphometrically relate to wolves (e.g. OKARMA 1997), but the genetic analysis is still missing.
- Two samples of scats collected in February and August 2001 on the territory of Bavarian Forest National Park were studied genetically (methods see FUMAGALLI et al. 1996). Although there has been strong field evidence that the scats were from wolves, the genetic analysis clearly showed that the animals were dogs. This example shows that dogs can survive in the wild and sometimes their field signs can be hardly differentiated from wolves. However, genetic analyses cannot be applied when the animal is a hybrid between male wolf and female dog. Then all offspring possess a dog-like mitochondrial DNA. We cannot exclude the possibility of a temporal presence of some hybrids including dog races as Czechoslovak wolf-dog or Saarloos wolf-dog in the area.
- The area of Bohemian Forest is seen as an area with sufficient natural carrying capacity for the permanent occurrence of wolf. A habitat analysis showed that the maximum potential population could be 100–140 animals (LANGHAMMER 1993). The main problem is seen in the lacking acceptance by people, mainly hunters and farmers.

REFERENCES

- ALBERTI K., 1934: Beiträge zur geschichte der Stadt Asch und des Ascher Bezirkes. *Aš 1934*, I: 256–260.
- ANDĚRA M. & HANZAL V., 1996: *Atlas rozšíření savců v České republice – předběžná verze. II. Šelmy (Carnivora)* [The atlas of the distribution of the mammals in the Czech Republic – preliminary version. II. Carnivores]. Národní muzeum, Praha, 85 pp. (in Czech with a summary in English).
- ANDĚRA M. & ČERVENÝ J., 1994: Atlas of distribution of the mammals of the Šumava Mts. Region (SW Bohemia). *Acta Scientiarum Naturalium Brno*, 28(2–3): 1–111.
- ANDRESKA J. & ANDRESKOVÁ E., 1993: *Tisíc let myslivosti* [Thousands years of the game management]. Tina, Vimperk, 443 pp. (in Czech).
- BALLARD W.B., WHITEMANN J.S. & GARDNER C.L., 1987: Ecology of an exploited wolf population in central Alaska. *Wildlife Monographs*, 98, 54 pp.
- BAŤA L., 1933: *Dosavadní výsledky zoologického výzkumu jižních Čech* [Up to date results of the zoological research in the Southern Bohemia]. Jihočeská společnost vlastivědná, České Budějovice, 67 pp. (in Czech).
- BOYD D.K., REAM R.R., PLETSCHER D.H. & FAIRCHILD M.W., 1994: Prey taken by colonizing wolves and hunters in the Glacier National Park Area. *Journal of Wildlife Management*, 58: 289–295.
- FRITTS S.H., 1983: Record dispersal by a wolf from Minnesota. *Journal of Mammalogy*, 64: 166–167.
- FUMAGALLI L., TABERLET P., FAVRE L. & HAUSSER J., 1996: Origin and evolution of homologous repeated sequences in the mitochondrial DNA control region of shrews. *Molecular Biology and Evolution*, 13: 31–46.
- GESE E.M. & MECH L.D., 1991: Dispersal of Wolves (*Canis lupus*) in northeastern Minnesota, 1969–1989. *Canadian Journal of Zoology*, 69: 2946–2955.
- HELL P., SLAMEČKA J. & GAŠPARÍK J., 2001: *Vlk v slovenských Karpatoch a vo svete* [The wolf in the slovakian Carpathians and in the world]. Parpress, Bratislava, 182 pp. (in Slovak).
- HŮRKA L., 1981: Historie výskytu velkých šelem v západních a jihozápadních Čechách [The history of the occurrence of the big carnivores in the western and the south-western Bohemia]. *Zprávy Muzeí Západočeského kraje, Příroda*, 24: 95–103 (in Czech).
- HŮRKA L., 1982: Zvěř západních Čech, historie a současnost [The game species in the western Bohemia, the history and current status]. *Sborník Západočeského muzea v Plzni, Příroda*, 43: 1–118 (in Czech).
- KOKEŠ O., 1961: Šelmy v jižních Čechách a jejich konec [The carnivores in the southern Bohemia and their extirpation]. *Živa*, 9: 69–72 (in Czech).
- KOKEŠ O., 1970: Historie rozšíření velkých šelem v českých zemích [The history of the distribution of the big carnivores in the Bohemia]. *Lynx*, n.s. 11: 12–13 (in Czech with a summary in German).
- LANGHAMMER P., 1993: Habitatanalyse für den Wolf (*Canis lupus*) im Böhmerwald. Ms., Diplomarbeit, Ludwig Maximilian Universität München, 100 pp. (library of Šumava NP and PLA Administration, Kašperské Hory) (in German).
- OKARMA H., 1997: *Wilk* [The Wolf]. Monografie przyrodnicze, Świebodzin, 80 pp. (in Polish).
- MINISTR J., 1962: Historický průzkum lesů LHC Plzeň I. a III. [The historical survey of the forest unit Plzeň I and III.]. Ms., Lesprojekt Plzeň. (library of Lesprojekt Plzeň) (in Czech).
- MINISTR J., 1967: Historický průzkum lesů LHC Františkovy Lázně I. a II. [The historical survey of the forest unit Františkovy Lázně I. and II.]. Ms., Lesprojekt Plzeň. (library of Lesprojekt Plzeň) (in Czech).
- PROMBERGER CH. & HOFER D., 1994: *Ein Wolfsmanagementplan für Wölfe in Brandenburg*. Wilbiologische Gesellschaft, München e.V., 200 pp.
- PRŮGL S.J., 1983: Einige Kapitel über die Jagd. In: *Die Tierwelt des Böhmerwaldes. Beiträge zur Wirtschaftsgeschichte: Die Glashütten des Stiftes Schlägl sowie Joseph Rosenauer und der Schwarzenberger Schwemmkanal*, PICHLER V. & ISFRIED H. (eds), Schlägler Ausstellungskatalog 7, Schlägl: 58–68.
- PULLIAINEN E., 1965: Studies of the wolf (*Canis lupus* L.) in Finland. *Annales Zoologici Fennici*, 2: 215–259.
- SLAVÍK B., 1971: Metodika síťového mapování k připravovanému fyto geografickému atlasu ČSR [Methods of grid mapping to proposed phytogeographical atlas of Czech Republic]. *Zprávy české botanické společnosti*, 6: 55–62 (in Czech with a summary in German).
- SPITZENBERGER F., 2001: *Die Säugetierfauna Österreichs, Grüne Reihe des Bundesministeriums für Land- und Forstwirtschaft*. Umwelt und Wasserwirtschaft, Wien, Band 13, 895 pp.
- ŠEVĚTÍNSKÝ J., 1895: *Dějiny lesů v Čechách* [The history of forests in Bohemia]. Písek, 120 pp.
- ZIMEN E., 1978: *Der wolf, mythos und verhalten*. Meyster Verlag Wien, München, 332 pp.

Received: 24 September 2004

Accepted: 9 December 2004

Table 2. List of all observations of the wolves in the Bohemian Forest Region in the period 1940–2004. Notes: ID 6 – a male, 38 kg, approx. 4 years old shot by B. Krenslhner; its occurrence registered since 1954; ID 14 – wolf 37 kg, sex?, 3–4 years old, shot by W. Duzendorfer, probably one of escaped individuals from NP Bavarian Forest enclosure; ID 55 – 2 (polar ?!) wolves escaped from private enclosure; ID 67 – a male, 46 kg, illegally shot by a hunter, Manfred Mittermayr; ID 78 – a wolf pup 6–8 weeks old observed by a lumberman?

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
1	7449	Putzleinsdorf	A	1940			shot		1		Spitzenberger 2001	1
2	7652	Steyregg	A	1945			shot		1		Spitzenberger 2001	1
3	6542	Pivoň	CZ	1953	Oct	10					Řehoř 1954, ex. Hůrka 1978	3
4	7654	Pabneukirchen	A	1954			?		1		Spitzenberger 2001	3
5	7656	Gutenbrunn	A	1954			shot		1		Spitzenberger 2001	1
6	7249	Schwarzenberg (Zwieselwiesen)	A	1957			shot	m	1		Prügl 1983, Spitzenberger 2001	1
7	7349	Sonnenwald	A	1975	Jan		tracks, view				Proksch, oral inform.	1
8	7146	Oberfrauenau	D	1976	Jan	30	shot	m	1		Zimen	1
9	7047	Lusen	D	1976	Feb	4	tracks		2		Scherzinger	2
10	7046	Bärenlochriegel	D	1976	Feb	7	tracks		2		Scherzinger	2
11	7046	Rachelkapelle	D	1976	Feb	18	tracks				Scherzinger	2
12	6539	Pfreimd	D	1976	Feb		shot	f			Forstdirektion Niederbayern- Oberpfalz	1
13	7146	Neuschönau	D	1976	Mar	21	shot	f	1		Zimen	1
14	7350	Schlägl (Schachling)	A	1976	Mar	22	shot		1		Spitzenberger 2001	1
15	7046	Schönbrunnerhäuser	D	1976	Apr	29	observation		1			2
16	6846	Filzhaus	CZ	1976	Jun		tracks				Žlábek	2
17	7046	Seebachschlag	D	1976	Jul	13	observation		1		Sesdl	2
18	7046	Kessel	D	1976	Jul	14					Matschina	3
19	7146	Neuschönau	D	1976	Jul	18	shot	f	1		Zimen	1

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
20	7046	Vierhäuser	D	1976	Sep	18					Widmann	3
21	6846	Slunečná	CZ	1976	Sep		tracks, prey			red deer	Žlábek	2
22	6946	Ždanidla Mt.	CZ	1976	Sep		observation		1		Žlábek	2
23	7146	Neuschönau	D	1976	Jan	28	observation		8		Zimen	1
24	6948	Lipka	CZ	1976			observation		1		Anděra et Červený 1994	2
25	7047	Borová Lada	CZ	1976			observation		1		Anděra et Červený 1994	2
26	7146	Neuschönau	D	1976			shot	m	1		Zimen	1
27	6846	Skelná - Šerák	CZ	1977	Feb		tracks, prey		1	female red deer	Žlábek	2
28	7049	Dolní Sněžná	CZ	1977	Jun	17	shot		1		Hůrka 1992	1
29	6752	forests at Týn nad Vltavou	CZ	1977	Oct	12	observation		5		Andreska, Andresková 1993	2
30	7150	Kmet hill	CZ	1977			observation		1		Smutek	2
31	6855	Jemčina	CZ	1978	Jan	1	shot	f, 37 kg	1		Toman 1978, Andreska,	1
32	7053	Vlkovice u Českých Budějovic	CZ	1978	Jan	20	shot		1		Anděra & Červený 1994	1
33	7049	Zbytiny	CZ	1978			shot		1		OkÚ Prachatice	1
34	6947	Kvilda (Šumava)	CZ	1979	May	8			-		Myslivost, 11/79; 256	
35	6946	Vchynice-Tetov	CZ	1979			observation		1		Hůrka 1982	2
36	6947	Kvilda	CZ	1979			observation		1		Schwamberger 1979	2
37	6643	Česká Kubice	CZ	1980	Jan	21	shot		1		Anonymus 1984	1
38	6441	Smolov	CZ	1980	Jan	30	shot		1		Hůrka 1992	1

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
39	6642	Pec pod Čerchovem	CZ	1980	Mar	22	shot		1		Šedo 1981, Hůrka 1992	1
40	6643	Česká Kubice	CZ	1980	Mar	22					Šedo 1981	3
41	6543	Trhanov	CZ	1980							Myslivost 3/ 80; 63	3
42	7050	Zbytiny, Koryto	CZ	1980			shot		1		OkÚ Prachatice	1
43	6847	Kašperské Hory	CZ	1982			observation		1		Langhammer 1993	2
44	6946	Modrava - Hamerský brook	CZ	1983	Jul	17	shot		1		Anděra & Červený 1994	1
45	7049	Zbytiny	CZ	1983	Nov	8	shot		1		Franel 1984	1
46	6947	Filipova Hut'	CZ	1983			observation		1		Langhammer 1993	3
47	6946	Prášily	CZ	1984	Jun	8	observation		1		Langhammer 1993	2
48	6744	Hamry	CZ	1989			observation		1		Anděra & Hanzal 1996	3
49	6744	Zadní Chalupy	CZ	1990			observation		1		Anděra & Červený 1994	3
50	7450	St.Peter/W. (Kasten)	A	1990			observation		1		Hauser, oral inform.	3
51	6946	Zwiesel	D	1992	Sep		roadkill		1		Scherzinger	2
52	6843	Kötzting	D	1992	Nov	7	observation		1		Aschenbrenner fide Scherzinger	2
53	6744	Zadní Chalupy	CZ	1992			observation		1		Anděra & Červený 1994	3
54	6946	Schachtenhaus	D	1993	Oct	5	observation		1		Thorsten Wasser Maassen	3
55	6943	Stammsried	D	1993			observation		2		Radio Regensburg	2
56	7046	Medvědí hora Mt.	CZ	1994	Oct		observation		1		Manda	2
57	6945	Ludwigsthal	D	1994	Dec	7	shot	m	1		Scherzinger	2

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
58	7046	Hüttenriegel	D	1994	Dec	16	tracks		1		Penn	2
59	7046	Totenweg	D	1994	Dec	17	tracks		1		Grossmann	2
60	7046	Bärenau	D	1994	Dec	18	tracks		1		Pöhlmann	2
61	6943	Viechtach	D	1994	Dec	30	observation		1		Aschenbrenner fide Scherzinger	2
62	7047	Buchwald	D	1995	Jan	16	tracks				Grossmann	2
63	7047	Stierweg	D	1995	Jan	31	tracks				Grossmann, Höflinger, Penn	2
64	7047	Buchwald	D	1995	Feb	28	tracks		1		Grossmann	2
65	7047	surr. Buchwald	D	1995	Mar	5	tracks				Pöhlmann	2
66	7450	Auberg	A	1996	Jan	0	observation		1		Mitter, oral inform.	3
67	7549	Niederkappel	A	1996	Jan	30	shot	m?	1		study WWF, Zedrosser, oral comm.	1
68	7046	Flanitzlöcher	D	1996	Feb	6	tracks		1		Strunz,Heurich	2
69	7046	Alte Klause	D	1996	Feb	8	tracks				Simonis	2
70	7046	Grenzstein 25	D	1996	Feb	9	tracks		1		Hopfner	2
71	7046	Dreckiger Filz	D	1996	Feb	9	tracks		1		Simonis	2
72	7046	Schönort	D	1996	Feb	9	tracks		1		Jehl	2
73	6847	Bílý potok, Kašperské Hory	CZ	1996			dead	m	1		Bufka	1
74	7046	Plattenhauser	D	1997	Feb	7	tracks				Scherzinger	2
75	7144	Road to Rusel	D	1997	Feb	25	observation				Urban fide Scherzinger	3
76	7249	Schwarzenberg (Dreiländereck)	A	1997	Feb		tracks				Proksch, oral comm.	2

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
77	7045	Reifkopf	D	1997	Mar		droppings				Zimen fide Scherzinger	3
78	7047	Hinterfirmiansreuth	D	1997	Jun		observation		1		Zimen fide Scherzinger	3
79	7046	Hirschensteig	D	1997	Jul	7	tracks				Scherzinger	2
80	7244	Schwarzenbach	D	1997	Dec	31	tracks		2		Aschenbrenner	2
81	7244	Reischfleck, Enzian	D	1997	Dec	31	tracks		2		Aschenbrenner	2
82	7045	Althütte	D	1997	Dec		tracks		1		Wirsih, Forststudent	2
83	7045	Althütte	D	1998	Jan		tracks		1		Wirsih	2
84	6938?	Regensburg	D	1998	Apr	1	observation		1		Grabovsky fide Scherzinger	3
85	7046	Spiegelau	D	1998	Apr	10	observation		1		3 recreants fide Scherzinger	3
86	7150	Polečnice	CZ	1998	Apr	12	dead	m	1		Červený	1
87	6450	Kozárovice, Otovník forest	CZ	1999	Jan		observation		1	roe deer	OkÚ Příbram	3
88	6846	Hořejší Krušec	CZ	1999	Feb		tracks, prey		1	2 domestic dogs	Červený	2
89	7248	Trojmezná	CZ	1999	Feb		tracks		1		Kloubec	2
90	7249	Trojmezná	CZ	1999	Feb		tracks		1		Kloubec	2
91	6846	Paště - „U Wastla“	CZ	1999	May	5	observation		1		Svoboda	3
92	6846	Stodůlky	CZ	1999	May		observation		1		Červený	2
93	6946	Lindberger Schachten	D	1999	Nov	28	tracks				Krammerer	3
94	7149	Hvězda hill	CZ	1999	Dec	11	observation	m	1		Štrobl	2

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
95	7249	Schwarzenberg (Hufberg)	A	1999	Dec	12	tracks		1		Proksch, oral comm.	2
96	7050	Zbytiny, Koryto	CZ	1999			observation		1		OkÚ Prachatice	2
97	7150	Červený kopeček	CZ	2000	Jan	5	tracks		1		Štrobl	2
98	7150	Veselí	CZ	2000	Jan	7	tracks		1		Flíček	2
99	7149	Uhlíkov, Záhvozdí	CZ	2000	Feb	1	prey		1	sheep, 14 ind.	Štrobl	3
100	7047	Knížecí Pláně	CZ	2000	Feb	11	tracks		1		Kotek	3
101	7047	Bučina	CZ	2000	Feb	23	observation		2		Kalaš	3
102	7151	Břevniště hill	CZ	2000	Feb		tracks		1		VLS Horní Planá	2
103	7150	Květná - Ondřejov	CZ	2000	Mar	29	tracks		1		Štrobl	2
104	7150	Chvalšiny forest district	CZ	2000	Mar		tracks		1		Štrobl	2
105	7149	forest compartments 100,101	CZ	2000	Apr	3	tracks		1		Pouzar, Novák, Henzelín	3
106	7045	Althütte	D	2000	May		tracks				Wirsich	2
107	7047	Černá hora Mt.	CZ	2000	Sep	25	tracks		1		Buřka	3
108	7047	Černá hora Mt.	CZ	2000	Sep	28	tracks		1		LS Kvilda	3
109	7144	Steinberg, Ruselstock	D	2000	Oct	18	observation		2		Loibl	3
110	7148	Stožec Mt.	CZ	2000	Nov	15	tracks		1		Červený	2
111	7150	Kmet hill	CZ	2000	Nov		tracks		1		Smutek	2
112	7150	Chlumany	CZ	2000	Nov		observation		1		VLS Horní Planá	2
113	7144	Rusel, Ruselstock	D	2000	Dec	26	observation		4		Schwenk	3
114	7149	Arnoštov	CZ	2000	Dec		observation		1		Štrobl	2
115	7150	Tyrolka, Arnoštov	CZ	2000	Dec		tracks		1		VLS Horní Planá	2
116	7047	Flanitz	D	2001	Feb	6	tracks		1		Heurich, Selwitschka	2

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
117	7149	Arnoštov	CZ	2001	Feb		tracks		1		VLS Horní Planá	3
118	6946	Prášílské lake	CZ	2001	Mar		tracks, prey		1	female red deer	Bufka	2
119	7046	Neuhüttenwiese	D	2001	May	13	observation		1		Stamm	2
120	7046	Grüben	D	2001	May		tracks		1		Heurich, Zahner	2
121	6946	Verlorener Schachten	D	2001	Jun	4	observation		1		v. Freyberg	2
122	6946	Hochschachten	D	2001	Jun	5	tracks		1		Bäuml	2
123	6946	Stará bavorská, Zelená hora	CZ	2001	Nov	12	tracks		1		Bufka	2
124	6946	Jelení skok	CZ	2001	Dec	3	tracks		1		Bufka	2
125	6946	Švele, Modravský potok brook	CZ	2001	Dec	4	tracks, prey		1	roe deer male	Bufka	2
126	6846	Radkovský vrch, Stimling	CZ	2001	Dec	10	tracks		1		Bufka	2
127	6946	Srní	CZ	2001			tracks		1		Bufka	2
128	6946	Velký Bor	CZ	2002	Feb	13	tracks, prey		1	young red deer	Bufka	2
129	6846	Přední Paště	CZ	2002	Feb	21	tracks		1		Drha, Červený	2
130	6946	Velký Bor	CZ	2002	Feb	21	tracks		1		Bufka, Málková	2
131	7449	Rohrbach	A	2002	Feb		tracks		1		Leitner, oral inform.	3
132	6846	Vysoké Lávky, Šerák	CZ	2002	Mar	26	tracks		1		Kabát	2
133	7146	Neuschönau	G	2002	Apr	13	observation		3		Sinner	1
134	7149	Neuschönau	G	2002	Apr	20	captured		1		Sinner	1
135	7047	Černá hora Mt.	CZ	2002	May	10	observation		1		Kovařík	2
136	7047	Černá hora Mt.	CZ	2002	May	15	tracks		1		Heřman	2
137	7047	Černá hora Mt.	CZ	2002	May	18	observation		1		žlábek	3

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
138	7148	Neuschönau	G	2002	Jun	13	shot		1		Sinner	1
139	7147	Neuschönau	G	2002	Jun	19	shot		1		Sinner	1
140	7046	Blatný vrch - „Im Loch“	CZ	2002	Jul	11	scats		1		Bufka	3
141	6946	Rokytské slatě peatbogs	CZ	2002	Sep	24	tracks		1		Dvořáček	3
142	7047	Gfeichtethöh	G	2002	Oct	9	observation		1		Gahbauer, Knörzner, Fischer	3
143	6946	Rokytské slatě peatbogs	CZ	2002	Nov	13	tracks		1		Bufka	2
144	7047	Borová Lada	CZ	2002	Nov		tracks		1		Šperl	3
145	6946	Předěl - průsek“16“	CZ	2002	Dec	2	tracks		1		Vojtěch, Bufka	2
146	7047	Borová Lada	CZ	2002	Dec		tracks		1		Šperl	3
147	7047	Borová Lada	CZ	2003	Jan	16	tracks		1		Vomáčka	3
148	7244	Lohberg	G	2003	Mar	10	observation	m	1		Aschenbrenner	1
149	6946	Jelení skok	CZ	2003	Mar	15	tracks		1		Němec T.	3
150	6846	Dobrá voda, Hotel Seno	CZ	2003	Mar	18	observation	m	1		Suk	1
151	7046	Studená Hora	CZ	2003	Mar	29	tracks		1		Vondrka	3
152	7047	Rovina	CZ	2003	Mar	30	observation		1		Svoboda	2
153	6946	Soutok	CZ	2003	May	8	tracks		2		LS Modrava	3
154	7047	Rovina	CZ	2003	May	14	observation		1		Vondrka, Valečka	2
155	6946	Latschenfilz	G	2003	May	16	tracks		1		Hartwig	2
156	7046	Na Ztraceném	CZ	2003	May	21	observation		1		Racoča	2
157	6946	Rokytská slat' - „U salaše“	CZ	2003	May	22	observation		1		Ludvar J.	2
158	6945	Rukowitzschachten	G	2003	Jun	2	tracks		1		Pleching, Fuchs	2
159	7047	Borová Lada	CZ	2003	Jun	26	tracks		1		LS Borova Lada	3
160	7047	Borová Lada	CZ	2003	Jun	28	tracks		1		LS Borova Lada	3

Table 2. Continued.

ID	quadrat	locality	country	year	month	day	finding type	sex	number	prey	source/observer	value
161	6946	Jelení skok	CZ	2003	Aug	16	tracks		1		Němec T.	3
162	7046	Studená Hora	CZ	2003	Nov	14	tracks		1		Vondrka	3
163	7349	Ulrichsberg (Schindlau)	A	2003			observation		1		Plöderl, oral inform.	3
164	7249	Ulrichsberg (Pfaffetschlag)	A	2004	Jan	5	tracks		1		Epple, oral inform.	2
165	7046	Taferlruck	G	2004	Jan	16	tracks		1		Strunz	2
166	7455	Großgerungs	A	2004	Feb	16	tracks		1		Zimmerhackl, oral inform.	3
167	6947	Horní Hrádky	CZ	2004	Mar	1	observation		1		Svoboda	2
168	7552	Neumarkt/M.	A	2004	Mar	9	tracks		1		Pömer, oral inform.	3
169	6946	Velký Bor	CZ	2004	Mar	12	tracks		1		Vojtěch O., Bufka L.	3
170	6846	Vysoké Lávký	CZ	2004	Mar	27	observation		1		Štádler	2
171	6846	Žákova cesta	CZ	2004	Apr	10	observation		1		Štádler	2
172	7348	Thalberg	G	2004	Apr	24	shot	m	1		Passauer Neue Presse	1