



Gray wolf

Photo by Karel Brož

Big Beasts of Prey in the PLA Beskydy

The Protected Landscape Area (PLA) of Beskydy established in 1973 at the area of 1,160 km² was declared a European Important Area of European lynx [*Lynx lynx*], Brown bear [*Ursus arctos*] and Timber wolf [*Canis lupus*] in 2004. All of these three species permanently occur in this part of the Czech Republic. Big beasts of prey are all-year protected in our country according to Act No. 114/1992 Coll. on the protection of nature and landscape. The European lynx is included among highly endangered species; the Brown bear and the Timber wolf belong among critically endangered animal species. According to Act No. 449/2001 Coll. on game management these are animals which must not be hunted.

Chasing big beasts of prey together with deforestation of mountainous landscape during the Walachian colonisation resulted in a complete extinction of the original lynx, bear and wolf populations in the mountains in the northeast Moravia by the end of the 19th century. After introducing stricter species protection in Slovakia and Poland big beasts of prey returned to the area of the Beskydy Mountains and have gradually occupied all suitable territories. Thanks to the connection of



The Zoologist from the PLA Beskydy Administration is documenting wolf track

Photo by Dana Bartošová



The wolf track was found during an occurrence survey in Beskydy on 25 February 2010 Photo by Dana Bartošová

the Beskydy Mountains to Slovak mountain ranges with permanent occurrence of these predators this was a natural and spontaneous return without any active human assistance. The PLA Beskydy Administration has dealt with the protection of big beasts of prey since 1973 and annually since 1985 organized a single mapping of occurrence of beasts of prey in February and March focused on finding signs of their stay.

The European lynx has formed a population of 15-20 pieces since the 1970s. According to the found data all mountains in PLA Beskydy have been occupied by territorial individuals. The Brown bear has permanently returned to the Beskydy Mountains in 1970s. At present at least five bears lives there. They find suitable conditions in remote parts of the Moravian-Silesian Beskydy Mountains and Javorniky Mountains, however their number in PLA is limited due to a lower biotope quality. The Timber wolf appeared in the Beskydy Mountains after several decades of absence in 1990s and there are probably two packs of 5-10 individuals there now. The number of the beasts of prey changes during a year in relation to reproduction and other

factors such as death, illegal hunting, departures to a different area, etc.

Since 1973 the PLA Administration has obtained numerous data on the occurrence of bears, lynxes and wolves. They include direct monitoring of beasts of prey, findings of killed or dead individuals, finding occurrence signs during a single mapping as well as by continuous monitoring (traces, droppings, scratches, kills), damage on agricultural animals, bee colonies and bee keeping equipment, damage on animals of purpose breeds (Fallow deer). The acquired knowledge proves that big beasts of prey has been a permanent part of the Beskydy fauna for many years.

Biotope of Big Beasts of Prey in the Beskydy Mountains

A part of the public believes that big beasts of prey do not have suitable living conditions in the Beskydy Mountains and other Moravian and Czech mountains. This opinion will hardly stand because the occurrence of other big mammals, particularly the Red deer with similar needs for a biotope is not questioned by anybody. Lynxes, bears and wolves have the best prerequisites for existence in the territory of our state in the Beskydy Mountains because they form part of the Carpathians and continue the permanent biotope of beasts of prey in Slovakia, and their area is higher than of many Slovak mountain ranges with permanent occurrence of beasts of prey. The original Carpathian fir-beech primary forests of the Beskydy Mountains which provided ideal conditions for life to beasts of prey in the past have changed significantly. The remains of old fir-beech forests have only been preserved in reservations and at the least accessible locations. Varied wooden species composition of forests and more careful forestry procedures have been



The Moravskoslezské Beskydy. The Smrk Mountain (underlying) with surrounding forests is an important part of big carnivorous animal biotope at PLA Beskydy
Photo by Dana Bartošová

recently introduced. This development and new forests natural preserves declared in 2004–2009 at the total area of hundreds of hectares in the massif of Smrk, Lysá hora, Velký Polom, Makyta and other places means a big benefit especially for bears. Due to its high demands for the biotope quality, this beast of prey belongs to so called “umbrella species”. We can say that where bears prosper, all other forest animals prosper as well.

Dangerousness of Big Beasts of Prey

Under normal circumstances big beasts of prey do not represent any danger to us. They are very shy, afraid of humans and try to avoid them in any case. Rarely, a bear which has lost its natural shyness due to various reasons coming to feed on waste near human settlements can be dangerous. The same applies to bears surprised by a person (especially if he/she rouses a female with young) or disturbed from hibernation (e.g. at joint game hunting). A person can also be attacked by a bear injured by a poacher or hunter. According to bear specialists the attacked person often does not publically confess its part of fault and describes the situation to the detriment of the bear. In summer a bear can meet people during picking up forest fruit, hiking, etc. Such meetings occur in the Beskydy Mountains as well – besides shock, they have done without conflicts.

Protection of Big Beasts of Prey

In addition to preserving a quality biotope, strict protection of individual animals is highly necessary. They are most endangered by hunting, in our country by poaching. It is poaching which contributes to instability of boundary populations and slows down settling in new territories. A part of gamekeepers still consider the lynx and wolf “vermin” and together with the bear they are also very attractive hunting trophies.

Poaches in the Beskydy Mountains benefit from easy accessibility to the terrain by motor vehicles and a lack of hiding places for big mammals in grown-up equal age spruce forests. Reports on poached lynxes, bears and wolves appear every year. Illegal hunting is a substantial obstacle to spreading of big beasts of prey in the Moravian and Czech mountains. If it continues, the natural return of beasts of prey to their original biotopes with suitable natural conditions is difficult or in fact impossible.

Compensations for Damage Caused on Agricultural Animals

Particularly wolves, sometimes bears and rarely lynxes attack insufficiently secured agricultural animals in the area of the Beskydy (approximately 10–50 animals a year). These damages resulted in a hostile attitude of breeders to predators, requests for their shooting and justification of their liquidation by poaches. In this regard Act No. 115/2000 Coll. on compensation of damage caused by selected species of specially protected animals issued by the Ministry of the Environment is of the big benefit. According to the given Act the damage caused by bears, wolves and lynxes on agricultural animals, pastures, agricultural buildings (stables, fences) and damage caused by bears on bee colonies and bee keeping equipment are also compensated for. The investigation to confirm a damage originator (protected species of the beast of prey) is performed and a professional protocol is issued by the PLA Beskydy Administration. At the territory outside the Landscape Protected Area it is performed by authorized town offices. The damage is settled by the relevant Regional Office based on an application of the affected breeder. Despite the possibility to gain compensation for damage, the nature protection recommends breeders that they should use efficient prevention. The best protection is the herd

protection by quality sheepdogs brought up together with agricultural animals.

Although big beasts of prey are protected in our country, their future is not without problems even at PLA Beskydy. The interest in development in the beautiful Beskydy countryside has been growing – in new family and recreational houses, recreational and sport centres. Due to the expanding development and intensive transport the landscape becomes impassable and crossing from one mountain range to another is very difficult for animals. The state nature protection tries to support protected beasts of prey as much as possible. It advocates protecting two last passage territories in the Jablunkovský Mountain Pass which is used for crossing by beasts of prey from Slovakia and Poland to the Beskydy Mountains. If these routes are interrupted by the planned construction of an industrial park and transport increase, big beasts of prey are endangered by extinction in the Beskydy Mountains. The Beskydy populations of lynxes, wolves and bears are too small to exist independently without additions of individuals from the Slovak or Polish Carpathians.

The protection of beasts of prey in the Czech Republic cannot do without international collaboration especially with the Slovak Republic. To ensure the possibility for migration of wolves, the part of the Čadca District adjacent to the Czech and Polish territory has been included to a zone with all-year protection of these beasts of prey. The request of the Czech authorities for extending the territory with all-year protection of the wolf, by the Slovak part of the Javorníky Mountains and the White Carpathians has not been considered. (While the lynx is all-year protected in Slovakia and the bear can only be hunted for an exception, the wolf has a set hunting period. Unfortunately, the Slovak hunting lobby enforced the extension of the wolf hunting period from 2.5 to 4 months at the end of 2009.)

The occurrence of the lynx, bear and wolf in the territory of the Czech Republic must be considered not only for their importance as a natural and cultural monument, but particularly because their predatory effect in nature is a guarantee for ensuring and maintaining quality natural environment. Big beasts of prey form an integral and necessary part of mountainous ecosystems. They rightly belong to our mountainous countryside.

RNDr. Dana Bartošová,
Zoologist of the PLA Beskydy Administration



Lynx track at Radhošťské Beskydy. The lynx track is mostly 7–9 cm long, bigger tracks (10–12 cm long) belong to the robust males Photo by Dana Bartošová

Monitoring the Coenosis of Wintering Bats in the Stříbrnice Adit

The Czech Republic signed and, on 24 February 1994, ratified an agreement on the bat protection in Europe called Eurobats. Article III (Basic Obligations) of this agreement, Clause 2, states: "Every contracting party will determine, within its jurisdiction, such locations which are important for the protection of bats, including locations for winter refuge, and will ensure the protection of these locations from damage and disturbance."

Veronica, our Basic Organisation of the Czech Environmentalists Association (CEA) contributed to the fulfilment of this agreement by securing three bat and horse-shoe bat winter habitats situated in the area of the White Stream Natural Park (Bílý potok) in the west part of the Brno-country district. One of these winter habitats is the Stříbrnice adit, which we have been monitoring and taking care of for 27 years. The adit forms part of the international winter bat monitoring (see, e.g., www.ceson.org). The winter counting has been carried out there for 27 years with two omissions in 1996 and 2005.

The Stříbrnice adit comprises the remains of medieval mining, which was probably used again in the 19th century. Iron ore and lead glance (or galena, which is lead and silver ore) were mined there. The name of the area "Stříbrnice" (Silversmith's) and Stříbrnický Stream, a tributary of the White Stream, is derived from the ore.

The adit is situated in the cadastral area of Lesní Hluboké. During WWII it was a hiding place of a guerrilla group operating in this region. Then it was completely abandoned and only visited by mineral collectors, children, as well as various vandals for a long time.

In the 1970s it was a place of a happening and mystification event organized by two Brno bo-



The Lesser Horseshoe bats

Photo by Mojmír Vlašín

hemians, strongman Franta Kocourek and a conceptualist, Sony Halas. They proclaimed that if the Spanish could have famous wall paintings in the Altamira Cave, we, the Moravians, could have at least paintings in the adit. The event was spitefully observed by the then regime, which considered it an attack against the communist ideology (as it did everything it did not understand). Drawings with very bizarre motifs (gravitation, dragon, cloud, sling-shot) can still be seen in the adit.

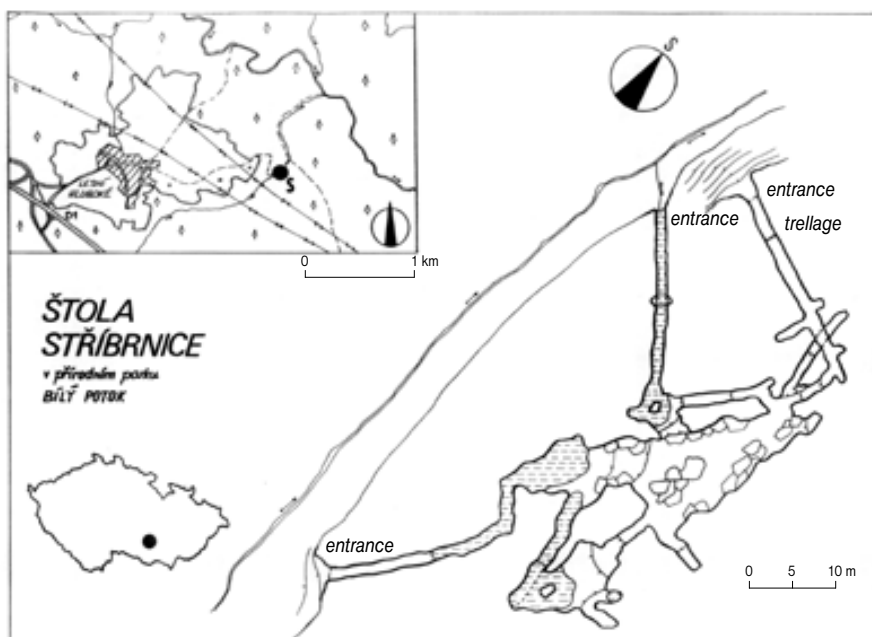
The mine works consist of the longest gallery, which turns right at the end of the heading face into a bigger chamber. At the bottom of the chamber, there is a big lake. From there it is possible to go through a bevelled adit to several small insets. The other parts of the underground system can be reached either in high boots or by boat. These areas have only been rarely occupied by wintering bats. Therefore, their regular monitoring has been cancelled.

I was advised of the adit in 1982. In winter of the following year, I performed the first preliminary survey, but without counting the bats. The first regular monitoring was carried out in 1984. In the 1980s, various bat species wintered there but their numbers were not high due to much animal disturbance. We regularly found traces of camping, fires, and even the use of fireworks. The amateur security system from the end of the 1980s did not survive a single season.

Only in 1999 was the adit fitted with a firm, fixed, but fly-through grate at two side entrances and an opening fly-through grate at the main entrance. Securing the adit was possible thanks to a subsidy of the Ministry of the Environment and the works were carried out professionally by an authorized company with the consent of the Mining Authority. In 2002, an unknown trespasser broke the grate and got through to the underground. In the same year, the wintering grounds were secured again. In 2005 (probably in summer), the locking mechanism was destroyed but the trespasser did not get through. Only in the summer of 2006 was the adit lock repaired again, so the winter counting could be carried out. In the following years the adit entrance was repeatedly attacked and several times successfully overcome. At present we are not able to keep the wintering grounds permanently secured.

Therefore it is less attractive for bats. In 2008–2009, the adit was freely accessible. It has been closed again since January 2010.

The numbers of wintering bats and horse-shoe bats increased immediately after closing the adit. Regularly wintering species include Lesser Horse-Shoe Bats [*Rhinolophus hipposideros*] and Greater Horse-Shoe Bats [*Myotis myotis*]. We noticed the absence of wintering species of the Plecotus family such as Big-Eared Bats [*P. auritus*] and Long-Eared Bats [*P. austriacus*]. Geoffroy's Bats [*Myotis emarginatus*] also stopped wintering there. This phenomenon can be explained by the total drop in the number of individuals of this species at wintering grounds around Brno and by the fact that reducing the size of the adit entrance after the closure installation increased the



Situation scheme of the Stříbrnice adit

Drawing by Pavel Samuel

Numbers of hibernating bats in the Stříbrnice adit in 1984–2010

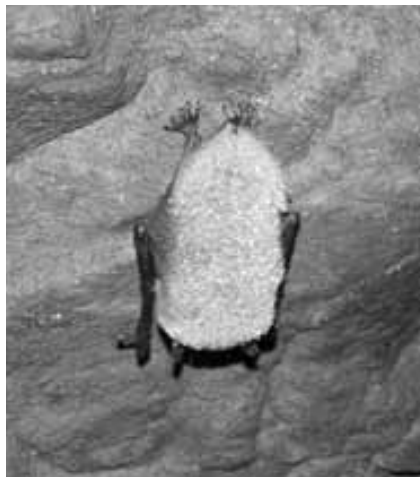
Common Name	Shortcut of Scientific Name	25. 1. 1984	27. 2. 1985	6. 2. 1986	6. 1. 1987	15. 1. 1988	4. 1. 1989	9. 1. 1990	23. 1. 1991	3. 1. 1992	6. 1. 1993	6. 1. 1994	6. 1. 1995	8. 1. 1997	7. 1. 1998	6. 1. 1999	11. 1. 2000	4. 1. 2001	9. 1. 2002	14. 1. 2003	17. 1. 2004	8. 1. 2006	20. 1. 2007	10. 1. 2008	14. 1. 2009	18. 1. 2010	
Brown Big-eared bat	<i>Ple aur</i>			1	1						1					1	1									1	
Grey Long-eared bat	<i>Ple aus</i>		1																								
Lesser Horseshoe bat	<i>Rhi hip</i>	1	1		1	1	1				2	1	1	2	2	4		2	5	5	10	4	5	5	5	6	
Greater Mouse-eared bat	<i>Myo myo</i>	1	3	3		4	7	6	3	8	5	4	8	5	3	4	5	8	5	6	7	1		5		1	
Barbastelle bat	<i>Bar bar</i>	1	1	2	3	2	2	4	1		1	3	4	2	2	5	8	2	2	2	3			1			
Daubenton's bat	<i>Myo dau</i>					2						1	1					5	7	2	1						
Geoffroy's bat	<i>Myo ema</i>	2	1			1	1																				
Natterer's bat	<i>Myo nat</i>		1								1					1											
Bechstein's bat	<i>Myo bech</i>																									1	
Whiskered bat	<i>Myo mys</i>											1							1								
total		5	8	6	5	10	11	10	4	8	10	10	14	9	7	15	14	17	20	15	21	5	5	11	6	8	

** - critically endangered in the Czech Republic

* - endangered in the Czech Republic

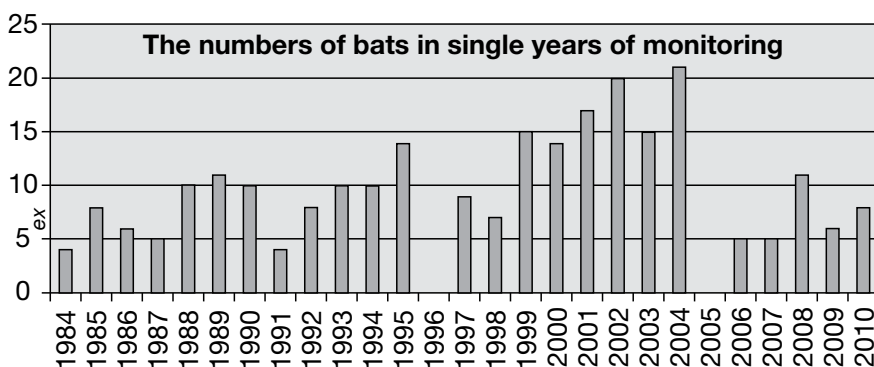
average temperature and humidity in the underground areas, which is not comfortable for these species. By contrast, Daubenton's Bats [*Myotis daubentonii*] have appeared regularly, and their numbers at the wintering grounds have increased in the whole Czech Republic (Horáček et al. 2005).

By closing the adit, which we only visited once a year during the counting of the wintering individuals, we managed to build safe permanent wintering grounds of endangered species which can be easily checked without disturbing the bats. We have performed visual monitoring using accumulator lamps. Most species, such as Lesser Horse-Shoe Bats, Large Mouse-Eared Bats, Large-Eared Bats, Long-Eared Bats, Barbastelle Bats [*Barbastella barbastellus*] and Bechstein's Bats [*Myotis bechsteinii*], can be identified without disturbance. We sometimes have to handle Geoffroy's Bats, Nat-



Daubenton's bat

Photo by Mojmír Vlašín



The counting of bats did not eventuate in the Stříbrnice adit in 1996 and 2005

terer's Bats [*Myotis nattereri*], and Whiskered Bats [*M. mystacinus*] to determine the species precisely, and to measure and weigh them. We did so particularly if an individual wintered at a place with limited visibility so that we could not identify it in any other way. We used manipulation for ringing the bats.

In 1999–2004, when the location was probably visited only once a year during the regular winter check, average numbers of wintering bats of all species were 2.2 times higher than in 1984 and 1998 (an average of 17.0 individuals per check), when the adit was not secured (an average of 7.7 individuals per check). The situation after 2006, when the adit was accessible to the public for most of the year, decreased the attractiveness of the wintering grounds. Bats responded by a significant drop in the number of wintering individuals (an average of 7.0 individuals per check). It was noticeable especially with species whose numbers otherwise permanently increase on a long-term basis at the wintering grounds (Horáček et al. 2005). The numbers of Large Mouse-Eared

Bats and Horse-Shoe Bats became stagnate or fell, and Daubenton's Bat has not appeared at all at Stříbrnice after 2005.

During the whole period of monitoring, ten species of wintering bats appeared in the adit, but never all at the same time. The wintering grounds showed the highest species diversity in 1985 (six species), and the lowest in 1992 and 2007 (one species). Similar monitoring results are shown in Table.

This has proven that closing the wintering grounds with a fly-through grate is an efficient measure which resulted, in this specific case, in an increase of the number of hibernating individuals. Our monitoring also shows that this location needs to be regularly observed, and maintained, and that attacks by vandals must be repaired. If the devastations are frequent and extensive, regular damage removal is beyond the possibilities of a non-governmental organisation.

RNDr. Mojmír Vlašín,
BO CEA Veronica, Panská 9, Brno

Literature:

ANDĚRA, M., a kol., 1997: Atlas rozšíření savců České republiky, pracovní verze. Manuscript. – ANDĚRA, M., ČERVENKA, J., 2003: Červený seznam savců České republiky, Příroda 22: 121–129. – BARTONIČKA, T., et HANZAL, V.: Česká společnost pro ochranu netopýřů, Ochrana přírody: 6/2008. – GAISLER, J., VLAŠÍN, M., 1995: Netopýři. Veronica (2): 24–25. – HORÁČEK, I., HANÁK, V., GAISLER, J., 2005: Dlouhodobé změny biodiverzity netopýřů. In: Vačkář, D.: Ukazatele změny biodiverzity, Academia, Praha 2005. – TAUŠ, Z., MÁLKOVÁ, I., 1999: Uzávěra štoly Valerie, Bulletin ČESON 1998/99. – VLAŠÍN, M., MÁLKOVÁ, I., 2004: Ochrana netopýřů. Metodika Českého svazu ochránců přírody č. 30, Brno 2004, 71 s.

Internet links:

www.ceson.org; www.zsbites.cz/priroda/cz/netopyri.htm; www.veronica.cz/?id=278; www.nyctalus.cz/index.php?pg=monit#scit; www.eurobats.org