

AGREEMENT ON THE CONSERVATION OF BATS IN EUROPE

Report on the implementation of the Agreement in the Czech Republic

A. General information

- *Name of Party:* Czech Republic
- *Date of Report:* 15 December 1999
- *Period covered:* January 1996 - November 1999
- *Competent Authority:* Ministry of the Environment
- *Changes Regarding:*

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B. Status of Bats within the Territory of the Party

1. Summary Details of Resident Species

Situation similar to the last report (1996). 21 bat species occur in the Czech Republic, one more (*Nyctalus lasiopterus*) has been recorded in the country only once. Of these, 17 are considered as regularly breeding species, 3 as rare breeders (*Myotis blythii*, *Myotis dasycneme* and *Pipistrellus nathusii*), while *Rhinolophus ferrumequinum* does not reproduce here. With the newly recognised *Pipistrellus pygmaeus*, the number of resident species will probably increase.

2. Status and Trends

3. Habitats and Roost Sites

Situation similar to the last report.

Status, habitats and roost sites of particular species:

- *Rhinolophus hipposideros*: Islet-like pattern of distribution. Termophilous species, inhabiting mainly the warmer parts of the country (e.g. karstic regions in both Bohemia and Moravia). Summer roosts: mostly in buildings (lofts). Hibernation: underground spaces (caves, old mine galleries, large cellars and basements).
- *Rhinolophus ferrumequinum*: Very rare species, recorded only several times in underground hibernacula (both natural and artificial) in southern and central Moravia and in central Bohemia (one record since the WW2).

- *Myotis bechsteinii*: Rare species, found infrequently in various regions of the country, mainly in woodland habitats. Summer roosts: almost exclusively in tree hollows. Hibernation: sometimes found in underground spaces, but much more individuals probably use tree hollows.
- *Myotis blythii*: Individuals are regularly found in underground hibernacula and transient roosts in Moravia and, less frequently, in the easternmost parts of Bohemia. Single records of males have been made in the summer period (lofts of buildings) and individual pregnant females have been recorded in the colonies of *M. myotis*, but no breeding colony has been found so far.
- *Myotis myotis*: Common species, found throughout the country, mainly at lower altitudes. Summer roosts: numerous nursery colonies, almost exclusively in lofts of buildings. Hibernation: underground spaces (caves and old mine galleries).
- *Myotis nattereri*: Relatively common species. Its summer occurrence is concentrated in fishpond areas at lower altitudes. Summer roosts: various fissures in buildings and in trees. Hibernation: partly in underground spaces, partly in trees and rock fissures.
- *Myotis emarginatus*: Termophilous species, breeding mainly in warm lowland regions of Moravia. Hibernating individuals are occasionally recorded at several sites in Bohemia too. Summer roosts: lofts of buildings. Hibernation: underground spaces (probably also other places).
- *Myotis mystacinus*: Relatively common species, recorded throughout the country (from lowlands to high mountains). It seems to prefer patchy woodland habitats at medium altitudes. Summer roosts: fissures in buildings and lofts. Hibernation: underground spaces (probably also other places).
- *Myotis brandtii*: Less records than in *M. mystacinus* are available. However, this species has been recognised relatively recently and the knowledge of its status in the country is still insufficient. It has been found in many sites throughout the Czech Republic, mainly in woodlands at various altitudes. Only several nursery colonies have been discovered so far. Summer roosts: lofts of isolated buildings. Hibernation: underground spaces (and other places).
- *Myotis daubentonii*: Common species (probably the most common one in the country). Summer roosts: primarily tree hollows, partly synanthropic. Hibernation: underground spaces, tree hollows and other roosts.
- *Myotis dasycneme*: Rare species, recorded only occasionally in underground hibernacula near the northwestern borders of the country and recently also in large Moravian caves. Since 1992, several records of this species have been made during the non-hibernation period in the Moravian Karst. One lactating female was found in 1999.
- *Eptesicus serotinus*: Common species, found throughout the country. It prefers warmer lowland regions, cultural landscape, including human settlements. It avoids woodlands at higher altitudes. Summer roosts: various fissures in buildings. Hibernation: fissures in underground spaces and other habitats.

- *Eptesicus nilssonii*: Islet-like pattern of distribution, locally common. It inhabits woodlands at higher and medium altitudes. Summer roosts: buildings (probably also rock fissures). Hibernation: underground spaces.
- *Vespertilio murinus*: Rare species, found only occasionally in various parts of the country. Summer records (including several male assemblages) have been made mostly in woodlands at higher altitudes. In the winter period, the species was found also at lower altitudes, several times in large towns. Summer roosts: fissures in buildings and rocks. Hibernation: similar sites (including blocks of flats in the city of Prague).
- *Pipistrellus pipistrellus*: The distribution of this species is not homogenous. In some regions (woodlands at higher altitudes in western Bohemia, lowlands of southern Moravia, including large towns) it is one of the most common species. On the contrary, it seems to be almost absent from central and eastern Bohemia. Summer roosts: fissures in buildings, trees and rocks. Hibernation: underground spaces and fissures in rocks.
- *Pipistrellus nathusii*: Very rare species, found only occasionally in various parts of the country. These are mostly records from the migration period (both spring and autumn), a few hibernating individuals have been found. Breeding has been recorded at four sites. The species seems to prefer sites close to water bodies and watercourses. Roost sites: fissures in trees and isolated buildings.
- *Nyctalus noctula*: Common species, abundant especially in the diversified landscape with fishponds at lower altitudes (southern and central Bohemia, southern Moravia). It seems to avoid woodlands at higher altitudes. Summer roosts: tree hollows. Hibernation: fissures in rocks and buildings.
- *Nyctalus leisleri*: Very rare species, found only occasionally in various parts of the country. It seems to prefer woodlands at higher altitudes (substituting *N. noctula*), but may inhabit also lowlands (southern and central Moravia). Roost sites: fissures and hollows in trees and isolated buildings.
- *Nyctalus lasiopterus*: Only one historical record of this species is available.
- *Barbastella barbastellus*: Relatively common species, found throughout the country. Summer records are quite rare, however, numerous individuals are found in hibernacula. It inhabits woodlands mainly at medium and higher altitudes. Summer roosts: fissures in rocks, buildings and trees. Hibernation: underground spaces.
- *Plecotus auritus*: Common species, regularly found in hibernacula. It prefers woodlands at medium and higher altitudes. Summer roosts: tree hollows, isolated buildings in woodlands. Hibernation: tree hollows and underground spaces.
- *Plecotus austriacus*: Relatively common species, inhabiting lowland regions throughout the country (open, cultural landscape) and avoiding higher altitudes. Summer roosts: almost exclusively in the lofts of buildings. Hibernation: cellars in buildings, rock fissures.

Population trends in the most studied species:

- *Rhinolophus hipposideros*: A drastic decline was recorded in the 1950-70s: the numbers in Bohemia were reduced to about 15% of the original state. In Moravia, this decrease was not so much pronounced. Since the mid 80s, there has been a slight increase of abundance. In some Moravian site, irregular fluctuations of numbers have been recorded.
- *Myotis myotis*: An apparent decline from the 50s till the end of 70s. Since the mid 80s, the numbers have been increasing significantly in many sites.
- *Myotis nattereri*: A slight increase of abundance was recorded in the largest Czech hibernaculum of this species in the 80s. Recently there has been probably a slight decline.
- *Myotis emarginatus*: Fluctuations in population numbers in both hibernacula and summer roosts. In the early 70s, numbers of individuals decreased in some Moravian hibernacula. In some sites, a slight increase of abundance has been recorded recently.
- *Myotis daubentonii*: A significant increase in the 70s and 80s, recent numbers seem to be stable.
- *Eptesicus nilssonii*: Both the abundance in hibernacula and the number of summer roosts have been increasing in the last decades, documenting the spreading of this species to central Europe.
- *Barbastella barbastellus*: A significant decline in hibernacula was recorded in the 70s. In general, there are significant fluctuations in numbers of hibernating bats due to climatic conditions.
- *Plecotus auritus* and *austriacus*: These two species are evaluated together, as they are often not distinguished in the hibernacula counts. In the last 20 years, there has been a slight increase of abundance in some sites. In general, population numbers of both species seem to be stable (in *P. austriacus* maybe slightly declining).

According to the 1994 IUCN criteria, a new national Red List was created in 1998:

Critically endangered (CR):	<i>Rhinolophus ferrumequinum</i>
Endangered (EN):	---
Vulnerable (VU):	<i>Rhinolophus hipposideros</i> <i>Myotis myotis</i> <i>Pipistrellus nathusii</i> <i>Nyctalus leisleri</i> <i>Barbastella barbastellus</i>
Lower Risk (LR):	<i>Myotis bechsteinii</i> <i>Myotis nattereri</i> <i>Myotis emarginatus</i>

Myotis mystacinus
Myotis brandtii
Eptesicus nilssonii
Pipistrellus pipistrellus
Plecotus austriacus
Myotis blythii
Myotis dasycneme
Vespertilio murinus
Nyctalus lasiopterus

Data deficient (DD):

4. Threats

The most important threats are:

a) roost loss: restoration of dwelling houses, renovating of lofts in old buildings and churches (threat to nursery colonies of *Rhinolophus hipposideros* and *Myotis myotis*), removal of hollow trees (e.g. on fishpond dikes), improper closure of cave and mine gallery entrances, demolition of old military bunkers

b) loss of feeding grounds: reduction of the abundance of insects, caused by intensive agricultural practices (reduction of pastures and set-aside plots, use of pesticides), water pollution, removal of linear features such as balks and other vegetation structures important for insect hunting, losses of deciduous woodland (intensification of forestry) etc.

c) disturbance: especially in the underground hibernacula (cave tourism, vandalism, mining)

d) use of toxic chemicals (agricultural pesticides, timber treatment) and their accumulation in the body of bats

Since 1989, the loss of roost sites in buildings has become more serious problem due to political and economic changes in the country. On the other hand, the use of pesticides and industrial pollution have been reduced significantly.

5. Data collection and research

Thanks to the tradition of bat research in the country, quite extensive data on some species are available. Both professional researchers and voluntary workers are involved in the surveys. Since 1992, these people have been associated in the Czech Bat Conservation Trust (CBCT, CESON in Czech). Its main aim is to coordinate bat research and conservation activities in the country. Data are collected also by the Czech Union of Nature Conservationists (CSOP in Czech).

The major sources of data are:

A) hibernation site counts: Long-term monitoring of bat populations in selected hibernacula has been being carried out since 1969, using standardised census

method. At present, about 240 sites (mostly caves and mine galleries) are surveyed annually. The data on numbers of particular species are collected and analysed by the CBCT, summary results are published yearly in the CBCT Bulletin.

B) bat banding: This method, aimed at the study of bat ecology and migrations, was used intensively especially in the 1960s and 70s. Considering the fact that ringing may cause damage to bats (especially in the more sensitive species), these activities have been reduced significantly in the last two decades. Since the mid 1950s, almost 100,000 individuals have been ringed. The data on banded individuals and their re-traps are now entered into an electronic database and will be analysed lastly (by the CBCT).

C) survey of nursery colonies in buildings: This is not so extensive as the counts in hibernacula, but some traditional sites have been being surveyed for many years.

Research activities, carried out in the last decade (completed or ongoing):

A) MSc and PhD studies:

- food and feeding ecology of a bat community in the Podyji National Park (southern Moravia)
- food and foraging ecology of *Eptesicus serotinus*
- morphometrical study on *Myotis myotis* and *Myotis blythii*
- morphological study on *Plecotus auritus* and *P. austriacus*
- behaviour in nursery colonies of *Myotis myotis*

B) others:

- long-term study of a bat community in the Podyji National Park
- studies on bat communities in the Moravian Karst, in a cave in southern Bohemia, in an old mine in southwestern Bohemia, in small pseudokarstic caves in eastern Bohemia and at other sites
- habitat use and flight activity of various bat species, studied with the use of bat detectors
- bat fauna of Turkey, Iran, Syria
- ecology of bats in agrocoenoses
- roost ecology of *Myotis brandtii*
- distribution of *Vespertilio murinus* in the country and its life history
- course of cave visitation by bats in the Bohemian Karst
- taxonomic, systematic and zoogeographical studies on Vespertilionidae

C. Measures Taken to Implement Article III of the Agreement

6. Legal measures taken to protect bats, including enforcement action

a) National legislation:

The first legislation to protect bats and other animal species in former Czechoslovakia was the 1956 Act on the State Protection of Nature (No. 40/1956)

and its 1965 Order (No. 80/1965). All Rhinolophidae and Vespertilionidae bats were included in the list of protected species. However, this form of protection of bats was rather passive.

Nowadays, general protection of all bat species is provided by the 1992 Act on the Protection of Nature and Landscape (No. 114/1992): "All plant and animal species must be protected from destruction, damage, collection or catching which leads or could lead to the endangered status of these species or their degeneration, to the impairment of their reproduction ability, to the extinction of a population of the species, or to the destruction of the ecosystem of which they are a part. $\frac{1}{4}$ In the executions of agricultural, forestry and building work, in water management and regulation, transport and power engineering, physical and legal persons must proceed in a manner which will not cause an $\frac{1}{4}$ injury to or death of animals, nor the destruction of their habitats, and which can be prevented with the use of technically or economically accessible means." In addition, all trees and caves (which are or could be used as shelters by bats) are protected in general.

Moreover, 13 of the 21 resident bat species are listed among the Particularly Protected Species, named in the order of the Ministry of the Environment (No. 395/1992). They are "protected in all their stages of development. The natural and artificial sites they use, as well as their habitats, are protected. $\frac{1}{4}$ It is prohibited to intervene harmfully in the natural development of the particularly protected animals, especially to catch them, hold them in captivity, disturb, injure or kill them. It is not permitted to collect, destroy, damage or transfer them or any of their stages of development, nor the habitats they use."

Exceptions (permits) to the Act and its Order are granted by competent authorities.

b) International legislation (in addition to the Bonn Convention and the Agreement on the Conservation of Bats in Europe):

The Czech Republic is also a party to the Bern Convention on the Conservation of European Wildlife and Natural Habitats. Species listed in Appendix II of the Convention (all bat species except for *Pipistrellus pipistrellus*, which appears in Appendix III) are strictly protected (including their breeding and resting sites).

7. Sites identified and protected which are important to the conservation of bats

Most of the sites which are known to be important to bats are either included in National Parks and Protected Landscape Areas or designated as / included in small-size Specially Protected Areas (National Nature Reserves, Nature Reserves, National Natural Monuments, Natural Monuments). These sites are protected under the Act on the Protection of Nature and Landscape (No. 114/1992). The so far designated sites have been mostly roosts (hibernacula, roosts of nursery colonies, transient roosts), while few key foraging sites have been identified. The Czech Bat Conservation Trust is preparing a publication, listing and summarising the knowledge of the most important hibernacula (mainly underground spaces) in the country.

In the future, special areas of conservation (SACs) under the EC Habitats directive should be designated (sites important to *R. hipposideros*, *R. ferrumequinum*, *M. bechsteinii*, *M. blythii*, *M. myotis*, *M. emarginatus*, *M. dasycneme*, *Barbastella barbastellus*).

8. Consideration given to habitats which are important to bats

Underground spaces:

- limitation of public access to the sites (grilling of the entrances of caves and old mine galleries)

Roosts in the trees:

- preservation of old hollow trees
- bat boxes are hung in some sites
- the proportion of deciduous tree species in the forests increases in some areas

Roosts in the buildings:

- in some cases, renovations of lofts are supervised by nature conservation authorities

Feeding habitats:

- reduced use of pesticides, reduced air and water pollution in the last 10 years
- protection of wetlands (many of them are designated as Specially Protected Areas and Ramsar sites)
- regular mowing of meadows is financially supported by the state
- restoration of balks (and other linear features) in some areas

9. Activities to promote the awareness of the importance of the conservation of bats

A) activities targeted to professional and amateur bat researchers:

- journals: CBCT Bulletin, Vespertilio (international journal of chiropterology)
- yearly CBCT excursions and training sessions, including bat-detecting workshops
- the book "Fauna of the Czech Republic – Mammals I and II" (summarising the recent knowledge of all species of mammals recorded in the country, including bats) is prepared to be published in 2000

B) activities targeted to the public:

- European Bat Night – four sites in 1998 (Brno, Olomouc, Liberec, Mikulov) and in 1999 (Brno, Liberec, Mikulov, Vlasim) – see the report on EBN3 in the Czech Republic
- several articles have been published in various newspapers and magazines

- various postcards, brochures and posters on bats and their conservation have been released by both the Czech Bat Conservation Trust and the Czech Union of Nature Conservationists
- exhibitions in museums, caves accessible to the public and other places (in 1999 a specialised exhibition on bats and their conservation was held in a castle close to Liberec)

10. Responsible bodies, in accordance with Article III.5 of the Agreement, nominated for the provision of advice on bat conservation and management

No changes: the Czech Bat Conservation Trust (c/o Agency of Nature Conservation and Landscape Protection, Kalisnicka 4, CZ – 130 23 Prague 3) is the responsible body.

11. Additional action undertaken to safeguard populations of bats

See point 8.

12. Recent and ongoing programmes (including research) relating to the conservation and management of bats

See point 5.

13. Consideration being given to the potential effects of pesticides on bats, and efforts to replace timber treatment chemicals which are highly toxic to bats

The 1992 Act on the Protection of the Environment (No. 17/1992) prohibits any pollution of the environment by chemicals. Moreover, there are several Orders considering the use of pesticides and timber treatment chemicals: e.g., No. 13/1994 which lays down the limits of contamination of soil (including pesticides), No. 101/1996 which restricts the treatment of forests by pesticides, No. 298/1997 which lays down the limits of pesticide residuals in foodstuffs, No. 301/1998 which lists chemicals, the production and use of which is limited or prohibited (including timber treatment chemicals).

A warning article was published in the CBCT Bulletin in 1995, pointing out that one of the timber treatment chemicals which is sometimes used may be quite dangerous to bats, causing damage to mucous membranes. Thus, its use should be avoided at the sites where bats are present, especially the nursery colonies.

D. Functioning of the Agreement

14. Cooperation with other Range States

There is quite a good cooperation with Slovakia: Czech bat researchers participate in hibernacula counts in Slovakia, there are Czech and Slovak expeditions contributing to the knowledge of bat fauna of Turkey, Iran and Syria, etc.