

The Agreement on the Conservation of Populations of European Bats
EUROBATS
Report on the implementation of the Agreement in Poland
2006–2007

A. GENERAL INFORMATION

Name of Party:	Poland
Date of Report:	August 28, 2008
Period covered:	January 2006 – December 2007
Competent authority:	Ministry of Environment

B. STATUS OF BATS WITHIN THE TERRITORY OF THE PARTY

1. Summary details of resident species

To the year 2005 the permanent residency of 20 bat species has been confirmed in Poland. There are 19 species of vespertilionid bat and 1 horseshoe bat species (the lesser horseshoe bat *Rhinolophus hipposideros*).

Single individuals of greater horseshoe bat *Rh. ferrumequinum*, have been regularly observed, as well as individuals of the greater noctule *Nyctalus lasiopterus* and Kuhl's pipistrelle *Pipistrellus kuhlii* (it might be a separate species – *Pipistrellus lepidus*). However there is so far so evidence for reproduction of these species in Poland.

During the years 2005–2006 in four caves in southern Poland 19 individuals of *Myotis alcatoe* were discovered (Niermann et al., 2007). These specimens were determined on the basis of morphological features and in the case of 10 specimens by means of genetic studies. It means that this species is native for Poland; up till now it was never distinguished from the *Myotis mystacinus* complex of species.

On October 12, 2005 in Czarna Cave in the Tatra Mountains a single male individual of the lesser mouse-eared bat *Myotis blythii* was discovered (it might be a separate species – *Myotis oxygnathus*). It was recognised on the basis of morphological features. Appearance of a representative of this species is most probably incidental (Piksa 2006).

Concluding – according to the current knowledge, the bat fauna of Poland embraces 21 permanent resident species and further 4 species were casually observed.

2. Status and trends

Nine bat species are on the Red List of threatened animals in Poland (Głowaciński, 2002). These are:

species	IUCN category
<i>Rhinolophus ferrumequinum</i>	LC
<i>Rhinolophus hipposideros</i>	EN
<i>Myotis bechsteinii</i>	NT
<i>Myotis dasycneme</i>	EN
<i>Myotis emerginatus</i>	EN
<i>Vespertilio murinus</i>	LC
<i>Eptesicus nilssonii</i>	NT
<i>Nyctalus leisleri</i>	VU
<i>Barbastella barbastellus</i>	DD

Although in some important winter shelters a slow growth in the number of some bat species has been observed (e.g. record number of *B. barbastellus* in Forty Nyskie in January 2006 – 163 individuals), there is still no sufficient scientific proof supported by a statistical analysis that this is a result of a real number increase in populations throughout Poland (however there have appeared first reports indicating increasing tendency of some species).

3. Habitats and roost sites

It has been observed in the recent years that more and more often cracks in apartment buildings are used by common noctules *Nyctalus noctula*. They can be spotted in these shelters not only in the summer (breeding colonies), but more and more frequently also in the winter.

4. Threats

General threats for bats in Poland are similar to menaces typical in many European countries. Among the most significant are:

- habitat fragmentation;
- decrease in the number of proper shelters;
- flushing bats in summer and especially in winter refuges and sometimes also killing these animals by people;
- environmental pollution.

Some of the mentioned threats might have lost their meaning in the recent years, however they can still be a real threat to local bat populations.

During the years 2006–2007 the following new or increasing threats for bats were reported:

- a) Intensive use or transformation of hibernation sites. There is still legal and illegal tourism during autumnal and winter seasons in Nietoperek and Nietoperek II reserves. In this site, which is the biggest hibernaculum in this part of Europe, there is also a full year's tourist path passing through a section where about 200-300 bats hibernate.
- b) Devastation and closing of hibernation sites. High prices of scrap metal have been the cause of damage to many underground roosts of military origin or shelters closed by iron grids.
- c) Light pollution. More frequently churches are illuminated in the night. If their attics are inhabited by bats (especially by the greater mouse-eared bats), such illumination might in short time lead to leaving the roost by a certain colony.
- d) Building wind turbines. In Poland wind farms are starting to grow rapidly and many more are in the stage of planning. During conducting environmental impact assessments bats are often not taken into account what might cause a threat to some bat populations. A guide-book published by EUROBATS might contribute to changing this situation.
- e) Elimination of bat roosts in blocks of flats. The mass-scale thermal modernisation of communistic-era blocks of apartment might cause immuring bats in the cracks in walls while covering them with insulation (the first such large-scale case was recorded in 2006 in Oława). Shelters used by bats for years are vanishing too. Current observations indicate that this might be a large-scale phenomenon and probably every year many bats die this way. In many buildings the presence of bats was never noticed by the residents despite permanent presence of large colonies (PTPP “pro Natura” and PTOP “Salamandra” – unpublished data). This is a threat especially to common noctules, but also to pipistrelles, serotine bats and parti-coloured bats.
- f) Cutting down trees and bushes in the vicinity of breeding colonies. Especially dangerous for the lesser horseshoe bat and some other bat species is cutting down trees around buildings (especially sacred ones) where there are breeding colonies. It

is particularly devastating in connection with the above mentioned illumination. Nowadays this is a frequent phenomenon. Sometimes instead of cutting down trees (especially poplars) only the tree-top is cut and the trunk left. The crown grows back only after a few years. The result of such a tree trimming for bats is as of cutting down whole trees – it breaks the routs of bats flying close to the crowns of trees and bushes. In result of these actions many breeding colonies disappeared (PTPP “pro Natura”, unpublished data).

5. Data collection, analysis, interpretation and dissemination

Although the majority of scientific institutions and NGOs interested in bat protection are engaged in winter monitoring of bat numbers in many important hibernacula, there is no central system of collection and analysis of obtained data. A considerable part of the results was in the monitored period collected by the Polish Agreement for Bat Protection – a union of 8 organisations working with many independent experts. The system of bat research licenses introduced voluntarily by the Agreement helps in data collection. A similar situation concerns the results of the summer monitoring and research results with the use of bats’ ringing, however the scale of these activities is much smaller than the winter bat inventories.

The main Polish forum to exchange information, ideas and experience of research and protection of bats is the Polish Bat Research Conference. In the years 2006-2007 there was the 20th Polish Bat Research Conference (Sękocin, November 9-10, 2007), organized by the Wildlife Society “Stork” and the Forest Research Institute. During the conference there were 37 speeches.

In the years 2006-2007 Polish bat researchers published at least 66 scientific papers on bats (list in the appendix 1).

C. MEASURES TAKEN TO IMPLEMENT ARTICLE III OF THE AGREEMENT

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

All bats are placed under species protection. In the years embraced by the report the changes in national regulations were prepared, implementing the Directive 2004/35/EC of the European Parliament and the Council of April 21, 2004 on environmental liability with regard to the prevention and remedying of environmental damage. These amendments were put into effect in April 2008.

7. IMPORTANT SITES FOR THE CONSERVATION OF BATS IDENTIFIED AND TAKEN UNDER PROTECTION

In the years 2006–2007 several dozen new breeding bat colonies were discovered. Some of them were found during the inventory of the State Forests conducted in 2007.

Especially interesting are the following newly discovered breeding colonies:

city/village	species
Niedzica	- <i>Rhinolophus hipposideros</i>
Gorzanów	- <i>Rhinolophus hipposideros</i>
Nowa Morawa	- <i>Rhinolophus hipposideros</i>
Krzyszowice	- <i>Myotis emarginatus</i>
Bytnica	- <i>Myotis myotis</i>
Grzmiąca	- <i>Myotis myotis</i>
Kiełczyn	- <i>Myotis myotis</i>
Koziczyn	- <i>Myotis myotis</i>
Otyń	- <i>Myotis myotis</i>
Parowa	- <i>Myotis myotis</i>
Sulechów	- <i>Myotis myotis</i>

Sulistrowiczki	- <i>Myotis myotis</i>
Dąbrówka Dolna	- <i>Myotis myotis</i>
Zagwóździe	- <i>Myotis myotis</i>
Jakubowo	- <i>Myotis myotis</i>

These sites are either already included in the Natura 2000 sites or are on the official list proposed for Natura 2000.

In Beskid Śląski (Silesian Beskids) a few new valuable winter roosts were found:

Grabowa Cave	<i>Rhinolophus hipposideros</i>
Malinowska Studnia Cave	<i>Rhinolophus hipposideros</i> , <i>Plecotus auritus</i>
Miecharska Cave	- <i>Rhinolophus hipposideros</i> , <i>Myotis myotis</i> , <i>M. emarginatus</i> , <i>M. mystacicus</i> complex, <i>Myotis daubentonii</i> , <i>Plecotus auritus</i>
Wiślańska I Cave	- <i>Rhinolophus hipposideros</i> , <i>Myotis myotis</i> , <i>M. emarginatus</i> , <i>M. mystacicus</i> complex, <i>M. nattereri</i>
Wiślańska II Cave	- <i>Rhinolophus hipposideros</i> , <i>Myotis myotis</i>

In the Sudetes a winter refuge was discovered:

sztolnia Gustaw, Szczawno Zdrój - *Myotis myotis*, *M. nattereri*, *M. daubentonii*, *M. dasycneme*, *Pl. auritus* (proposed for inclusion into the Natura 2000 site PLH020057 Masyw Chełmca)

In the years covered by the report research on bat swarming was intensified. There is more and more data indicating that some underground sites, which meaning as winter roosts is not necessarily high, play an important role during the autumnal or winter swarming. For instance Jaskinia Niedźwiedzia Cave and Jaskinia Biały Kamień Cave in Kletno (The Śnieżnik Mountains, The Sudetes) turned out to be important swarming sites for some bat species including Bechstein's Bat *Myotis bechsteinii* and Geoffroy's bat *Myotis emarginatus* (Furmankiewicz J. – unpublished data).

8. Consideration given to habitats important to bats

The biggest progress in protection of habitats important to bats in the period covered by the report was there in the sphere of designation of proposed Natura 2000 sites.

In Poland there are eight bat species listed in Annex II to the Habitats Directive. Natura 2000 sites must be designated for six of them (see table). Two remaining species (*Rhinolophus ferrumequinum* and *Myotis blythii*) occur incidentally and Natura 2000 sites are not designated for them.

The majority of Poland's territory (96,2%) is located in the Continental region. Only 3,8% in the South lies in the Alpine region. The assessment, whether a network has been designated properly, is conducted individually for each region and species.

Assessment of completeness of designation of Natura 2000 sites for certain bat species – state for the end of the year 2007 according to the Polish Shadow List 2008

Bat species for which in Poland Natura 2000 sites are being designated	Assessment of completeness of site designation according to the methodology of the Biogeographical Seminars)			
	Continental region		Alpine region	
	Winter shelters	Summer shelters	Winter shelters	Summer shelters
<i>Rhinolophus hipposideros</i>	SUF	IN MOD*	SUF	IN MOD*
<i>Myotis myotis</i>	SUF	IN MOD*	SUF	IN MOD*
<i>Myotis dasycneme</i>	SUF	IN MOD	SUF	SUF
<i>Myotis emarginatus</i>	SUF	IN MOD*	SUF	IN MOD
<i>Myotis bechsteinii</i>	SUF	IN MOD	SUF	SR
<i>Barbastella barbastellus</i>	IN MOD	SR	SUF	SR

SUF – sufficient, IN MIN – insufficient minor, IN MOD – insufficient moderate, IN MAJ – insufficient major, SR – scientific reserve, CD correct data, * – feeding areas should be included

From 2006 year on, the Polish government has been systematically extending the official Natura 2000 network proposal. Initially it embraced 3,7% of the country's territory and included 24 bat protection sites. In February 2006, October 2006, March 2007 and September 2007 the Polish government submitted further supplements to the official proposal. They embraced also chosen summer and winter bat roosts. At the end of the year 2007 the official proposal covered already 8,95% of the country, including 68 bat protection sites, whereas certain sites proposed in 2004 were extended.

The Shadow List was also updated several times in that period. On the one hand certain sites incorporated into the governmental proposal were removed, on the other newly discovered important bat habitats were included. Right now, according to NGOs, at least 31 sites for protection of bat habitats must be added to the Natura 2000 network. Moreover in the case of 18 sites, the areas must be significantly extended, in order to protect important bat feeding areas beside their summer shelters.

With regard to the lack of sufficient analyses, no sites protecting bat feeding areas, migration routes or breeding areas were designated. There exist also two large geographical gaps, where no bat protection site was designated, although these animals can be found there. In 2008 voivodship expert teams were appointed with the task to develop projects of sites filling those gaps on the basis of data acquired in the course of the inventory conducted in 2006–2007 and additional research conducted in 2008.

The current state of designation of Natura 2000 sites for certain bat species illustrates the following map and the table. The Polish government is planning to finish proper designation of Natura 2000 sites by the end of the first quarter of the year 2009.

Natura 2000 sites designated or proposed for designation in Poland for protection of bat habitats – state according to the Shadow List 2008.

No	Natura 2000 site	<i>Rhinolophus hipposideros</i>	<i>Myotis myotis</i>	<i>Myotis dasycneme</i>	<i>Myotis emarginatus</i>	<i>Myotis bechsteinii</i>	<i>Barbastella barbastellus</i>
1.	Refuge near Bóbr		▲				
2.	Church in Konradów		▲				
3.	Bats Refuge of Sowie Mountains		●▲			●	●
4.	Parowa		▲				
5.	Cooler in Cieszków						▲
6.	Sulistrowiczki		▲				
7.	Kaczawskie Mountains and Foothills		●	●			●
8.	Bialskie Mountains and Śnieżnik Massif	●	●	●	●	●	●
9.	Rudawy Janowickie Mountains	●	●			●	●
10.	Mine in Młoty						●
11.	Mines in Leśna		●			●	●
12.	Mines in Złoty Stok	●			●	●	●
13.	Grudziądz Citadel		●				●
14.	Castle in Świecie						●

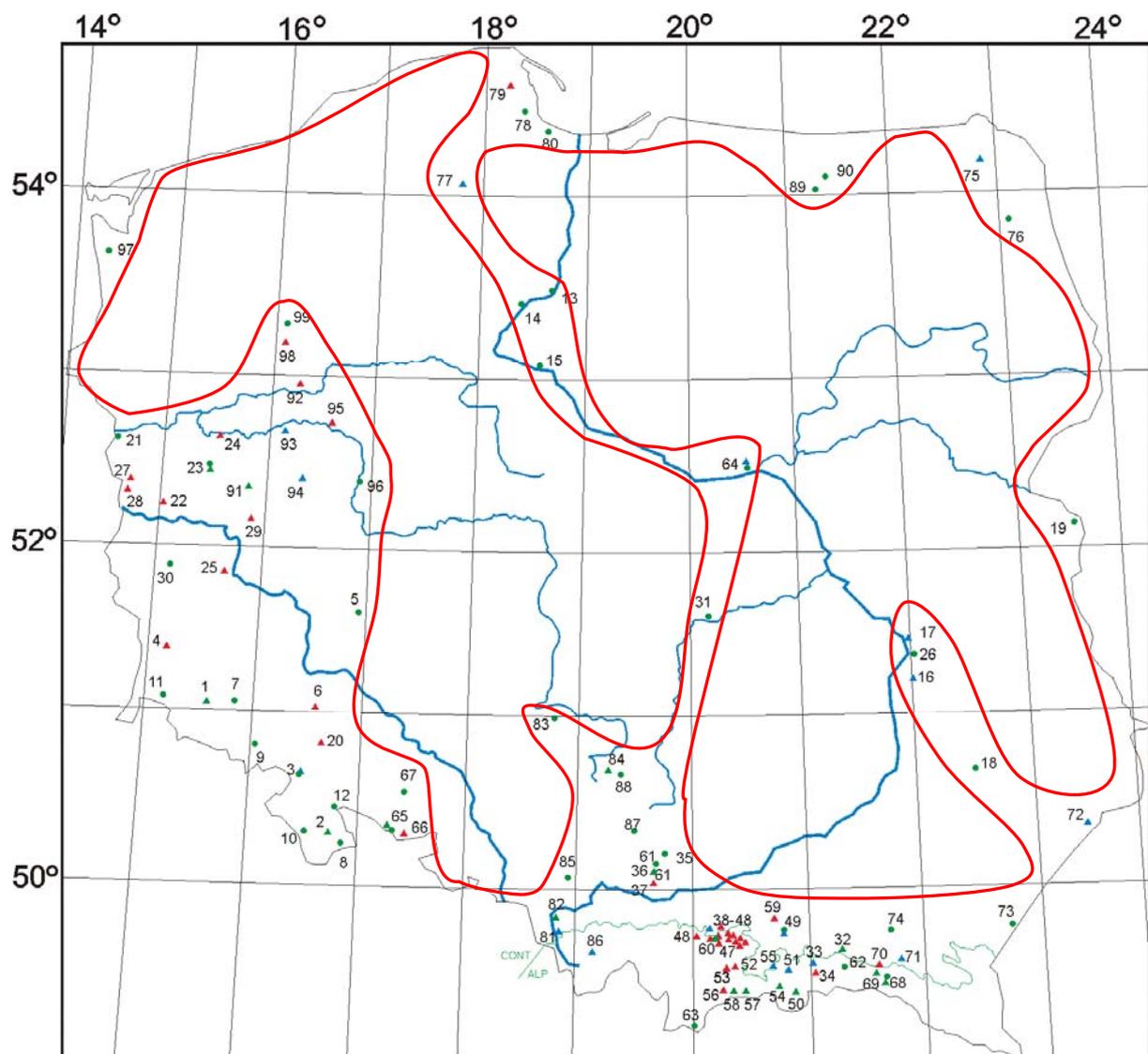
15.	Forts in Toruń		●	●			●
16.	Opole Lubelskie		▲				
17.	Puławy		▲				
18.	Mines in Senderki		●	●		●	●
19.	Terespol						●
20.	Kielczyn		▲				
21.	Warta River Mouth		●				
22.	Bytnica		▲				
23.	Nietoperek		●▲	●		●	●
24.	Skwierzyna		▲				
25.	Otyń		▲				
26.	Nalęczów Plateau		●	●		●	
27.	Koziczyn		▲				
28.	Grzmiąca		▲				
29.	Sulechów		▲				
30.	Barbastelle tunnel near Krzystkowice						●
31.	Spała Forests		●				●
32.	Bednarka	▲					
33.	Orthodox Church in Łosie near Ropa	▲					
34.	Refuge Bats of Gorlice County	▲					
35.	Prądnik Valley	●	●		●		
36.	Czerna	▲					
37.	Krzeszowice				▲		
38.	Skrzydlna	▲					
39.	Cysters Monastery in Szczyrzyc	▲			▲		
40.	Szyk	▲					
41.	Wilkowisko	▲					
42.	Kamionka Mała	▲					
43.	Ujanowice	▲	▲				
44.	Żmiąca	▲					
45.	Łososina Górna	▲					
46.	Nowe Rybie	▲					
47.	Słupnice	▲	▲				
48.	Węglówka	▲	▲				
49.	Bats Refuge around Bukowiec	▲●					
50.	Krynica	▲	▲				
51.	Łabowa	▲					
52.	Jazowsko	▲					
53.	Łącko	▲	▲				
54.	Poprad Refuge	▲					
55.	Nawojowa	▲					
56.	Niedzica	▲					

57.	Małe Pieniny						
58.	Horseshoe in Szczawnica						
59.	Paleśnica						
60.	Zbójnicka Cave in Łopień						
61.	Little Valley in Jura						
62.	Magura Refuge						
63.	Tatry Mountains						
64.	Forts in Modlin						
65.	Mine in Sławniowice-Burgrabice Refuge						
66.	Palace in Jarnołtówek						
67.	Forts in Nysa						
68.	Jaślicka Refuge						
69.	Church in Trzciana						
70.	Monastery in Dukla						
71.	Rymanów						
72.	Monastery in Horyniec						
73.	Fort Salis Soglio						
74.	Mines in Węglówka						
75.	Jeleniewo						
76.	Biebrza Valley						
77.	Lubnia						
78.	Bunker in Oliwa						
79.	Wejherowo						
80.	Wisłoujście						
81.	Church in Górki Wielkie						
82.	Pierściec						
83.	Szachownica						
84.	Olsztyńsko-Mirowska Refuge						
85.	Mine near Tarnowskie Góry - Bytom Region						
86.	Church in Radziechowy						
87.	Środkowojurajska Refuge						
88.	Złotopotocka Refuge						
89.	Gierłoż						
90.	Mamerki						
91.	Pszczew Lakes						

	and Obra Valley					
92.	Zielonowo		▲			
93.	Sieraków		▲			
94.	Kopanki		▲			
95.	Kiszewo		▲			
96.	Fortifications in Poznań		●			●
97.	Tunnel in Police		●			
98.	Jaglice		▲			
99.	Strzaliny near Tuczno		●			

Legend:

- Sites from the governmental list protecting bat winter roosts
- ▲ Sites from the governmental list protecting summer colonies and feeding areas
- ▲ Sites from the governmental list protecting summer colonies requiring correction of borders
- ▲ Sited from the Shadow List to protect breeding colonies
- Borders of geographical gaps where no Natura 2000 sites protecting important bat habitats were designated.



Conclusions:

- With respect to the first official proposal from the year 2004 there was significant progress in the designation of Natura 2000 sites for protection of bat habitats in Poland.
- Still for certain bat species, a sufficient representative number of habitats within their whole natural range was not placed under protection. The current list of potential sites developed with the help of the Ministry of Environmental Protection and NGOs indicates the necessity of adding several dozen sites.
- Among the designated sites protecting summer bat habitats some of them are one-off – they include only shelters of breeding colonies, however they do not include feeding areas. At least 18 sites require extension.
- Still there is no sufficient knowledge of occurrence of important bat habitats in Poland (especially feeding areas and breeding colonies). Further inventory and research work, as well as designation of additional Natura 2000 sites in the coming years will be indispensable.

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

- In 2006 and 2007 many local activities and initiatives were undertaken as part of the International Bat Night. Activities were aimed at increasing society's awareness of bats and their protection and were led mainly by NGOs.
- Educational activities to raise public awareness of bats and their need for protection were carried out, mainly by NGOs (e.g. SdN "Wolf", PTOB "Salamandra", SOP "BIOS", PTPP "pro Natura", TP "Stork"). Several educational programmes were held in schools, universities and even kindergartens in various regions in Poland. The media were often used to publicise these activities.
- Every year several hundred people visit the Bat Observatory "Batmanówka" in Kopanki, a *Myotis myotis* nursery colony in the attic of an old school. The colony can be observed by visitors while the bats remain safe and lectures about bats are provided.
- Within the research programmes and conservation campaigns training for participating volunteers are provided. Sometimes educational campaigns addressed to local communities are combined with surveys and protection projects.
- In 2007 the PTPP "pro Natura" conducted in Szczawnica a training for voluntary guardians of bat shelters (for the Beskid region).
- There appear popular and scientific publications popularising bats and their protection (examples were given in the Appendix 1).

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

The State Council for Nature Conservation (ul. Wawelska 52/54, 00-922 Warszawa)

11. Additional actions undertaken to safeguard populations of bats

In the western Poland the PTPP "pro Natura" and the PTOB "Salamandra" have initiated actions aiming at minimising of the influence of insulation of apartment buildings on bats living there. Before insulation the cracks in the walls are controlled and secured in order to prevent immuring of bats and special boxes to be used by bats as substitute shelters are installed in the insulation. So far these activities have been conducted on the basis of experiments.

During the years 2006–2007 the PTPP "pro Natura" continued the project of conservation of the lesser horseshoe bat in Poland. Within the framework of the project inventory of the localities of the lesser horseshoe bat was conducted in Beskid Wyspowy Mountains and the

Ciezkowicko-Rożnowskie Plateau. Beneficial modernisations and repairs of attics being shelters for breeding bat colonies took place. Among other things, roof covering was changed on 6 buildings and renovated on 2 buildings, on 17 buildings special platforms for guano were mounted and on 18 buildings loft inlets were secured. In the Opawskie Mountains a winter shelter of the lesser horseshoe bat was protected with an iron grid and in the Paczkowskie foreland an artificial hibernaculum was prepared for this species.

In 2007 in the Barycz Valley, in Żmigród, within a natural compensation for adapted basement of an old castle, a winter shelter of barbastelle bat and other bat species, located within a Natura 2000 site, the Town Hall built an artificial hibernaculum. The first winter after the construction was finalised there wintered 60 bats (design and natural supervision – Rafał Szkudlarek, expert supervision over the locality – PTPP “pro Natura”).

Association for Nature “Wolf” developed a resolution draft of The State Ethics Committee for Experiments on Animals concerning the least painful methods of marking of animals including among others marking of bats (the committee provides opinions on permits for invasive research with regard to the well-being of animals). This resolution is consistent with the EUROBATS resolution. The draft was accepted.

NGOs (e.g. PTPP “pro Natura”, PTOPI “Salamandra”, Wildlife Society “Stork”) undertook numerous interventions in order to save endangered bat localities. They allowed for preserving at least a few important bat colonies (e.g. the lesser horseshoe bat in Szczyrzyc and Szyk).

Academic Chiropterological Circle of the PTOPI “Salamandra” in Gdańsk has been realising an ongoing project: “Active bat protection in the Pomorskie Voivodship”.

12. Recent and ongoing programmes relating to the conservation and management of bats

12.1. Examples of finished projects

Adaptive strategies in heterothermic bats, using the greater mouse-eared bat *Myotis myotis* (Borkhausen, 1797) and Daubenton’s bats *Myotis daubentonii* (Kuhl 1817) as examples” (Michał Wojciechowski, Nicolaus Copernicus University in Toruń).

Biology and ecology of bats in the period of inhabitation of artificial roosts in forests of the Milicz Basin (Grzegorz Wojtaszyn, Department of Systematic Zoology, Faculty of Biology, A. Mickiewicz University of Poznań)

The influence of forest fragmentation on bat assemblages in central Poland. Data are collected by using bat nets set up on forest lanes on 13 forest islands of different size near Płońsk (central Poland). (Grzegorz Lesiński, Warsaw University of Life Sciences (SGGW)).

12.2 Examples of ongoing projects

Biology of hibernation of the common noctule (Dariusz Łupicki, Institute of Zoology and Ecology, Wrocław University of Environmental And Life Sciences).

Community structure and dynamics of activity of bats in forest-agricultural landscape of Northern Poland. (Mateusz Ciechanowski, Department of Ecology and Zoology of Vertebrates, University of Gdańsk).

Habitat preferences of bats in coastland and lakeland zones of Northern Poland. (Mateusz Ciechanowski Department of Ecology and Zoology of Vertebrates, University of Gdańsk).

Linear landscape elements and bat road casualties – The study has been conducted on several road sections (20 km in total) in the vicinity of Warsaw (Grzegorz Lesiński, Warsaw University of Life Sciences (SGGW)).

Measuring the refugiolclimate and the settings of underground systems in bat winter shelters. (Grzegorz Kłys, University of Opole).

Morphology of the flight apparatus of Daubenton's bat, greater mouse-eared bat, nathusius' pipistrelle and common noctule (Dariusz Łupicki, Institute of Zoology and Ecology, Wrocław University of Environmental And Life Sciences).

Spatial differentiation of trophic niche of Daubenton's bat in relation to sex and age of animals during the fall (Dariusz Łupicki, Institute of Zoology and Ecology, Wrocław University of Environmental And Life Sciences).

Sustainable bat conservation in Caucasus mountain regions (Zoltan Nagy <leader> Alexandr Bukhnikashvili, Ghazaryan Astghik, Ioseb, Natradze, George Papov, Tomasz Postawa and Eduard Yavruyan).

The analysis of the genetic structure of chosen populations and distribution of twin bat species *Pipistrellus pipistrellus* and *P. pygmaeus* in Poland (Director: W. Bogdanowicz, led by: mgr Anna Sztencel. Museum and Instytut of Zoology, Polish Academy of Sciences).

The importance for bats, particularly barbastelle, of man-made underground shelters, out of hibernation season. (Iwona Gottfried, University of Wrocław).

The influence of foraging and "building" activity of beaver *Castor fiber* on the spatial distribution of bats Chiroptera in small rivers valleys. (Mateusz Ciechanowski Department of Ecology and Zoology of Vertebrates, University of Gdańsk).

The importance of intraspecies vocalization in the communication of swarming bats (Joanna Furmankiewicz, University of Wrocław and Gareth Jones, University of Bristol, UK, grant aid MEN 2007-2009).

The sensory ecology of roost selection in bats – (Ireneusz Ruczyński, Mammal Research Institute PAS, Białowieża, project in collaboration with E. Kalko, Department of Experimental Ecology, University of Ulm, Germany and B. Siemersem, Max-Planck-Institute for Ornithology, Seewiesen, Germany).

The use of the urban environment in Wrocław by bats (Iwona and Tomasz Gottfried, Łukasz Iwaniuk, Dawid Błaszczyk).

12.3. Summary of the use of derogation from bans for the purposes of research actions related to bats.

The Minister of the Environment as the environmental protection body authorized for issuing derogations from bans concerning species placed under species protection, in 2006 granted 20 permits and in the year 2007 – 9 permits for forbidden actions relating to bats.

Below there is a summary of reports concerning forbidden actions taking place in 2006–2007 upon permits granted during these years and in previous years.

12.3.1. Inventories

In regard to inventories of bat shelters data available for analysis are accessible only with reference to licensed chiropterologists within the Chiropterological Licenses System (volunteer system operated by the the Polish Agreement for Bat Protection – a union of NGOs organisations acting for bat protection). Data about others persons inventory activities is incomplete and inadequate.

In the years 2006–2007 licensed chiropterologists within the framework of bat inventory controlled the following:

types of shelters	2006	2007
permanent winter shelters	791	880
permanent summer shelters	191	436
temporary or accidental shelters	235	171
boxes and tree hollows (ca.)	3122	1546
other	45	20
total number of controlled shelters	4504	3053

Bats belonging to the following species were found in these shelters: *Rhinolophus hipposideros*, *Rh. ferrumequinum*, *Myotis myotis*, *M. bechsteinii*, *M. nattereri*, *M. emarginatus*, *M. mystacinus*, *M. brandtii*, *M. dasycneme*, *M. daubentonii*, *Vespertilio murinus*, *Eptesicus nilssonii*, *E. serotinus*, *Pipistrellus pipistrellus*, *P. nathusii*, *P. pygmaeus*, *Nyctalus noctula*, *Plecotus auritus*, *P. austriacus*, *Barbastella barbastellus*.

12.3.2. Capturing bats

In successive years 2006-2007 within research conducted on the basis of permits granted by the Minister of the Environment, the following numbers of bats were captured:

year	type of permits	number of captured specimens	number of captured species
2006	within chiropterologist licenses	2178	19
	beside the license system	1526	20
	total	3704	20
2007	within chiropterologist licenses	1290	16
	beside the license system	879	no data
	total	2169	16 ≤

12.3.3. Bat ringing

In 2006 upon individual derogations 9 persons ringed 561 bats from 16 species: *Barbastella barbastellus*, *Eptesicus serotinus*, *Myotis daubentonii*, *Myotis myotis*, *Myotis nattereri*, *Myotis brandtii*, *Nyctalus noctula*, *Plecotus auritus*, *Nyctalus leisleri*, *Pipistrellus pygmaeus*, *Pipistrellus nathusii*, *Eptesicus nilssonii*, *Myotis bechsteinii*, *Myotis emarginatus*, *Myotis mystacinus*, *Rhinolophus hipposideros*. Some of these actions were conducted by licensed chiropterologists with “bat ringer” degree.

In 2007 there were no reports on the use of permits regarding bat ringing.

12.3.4. Invasive and lethal research

During the years 2006–2007 no permits were granted for killing bats for the purposes of research and other. Upon permits only tissue (patagium) or hair samples were obtained for genetic research from 211 individuals belonging to 8 species.

13. Consideration being given to the potential effects of pesticides on bats or their food sources and efforts to replace timber treatment chemicals highly toxic to bats

No special measures were taken in the period covered by this Report.

D. FUNCTIONING OF THE AGREEMENT

14. Cooperation with other Parties.

During the years 2006-2007 among others the following international actions were undertaken:

“ABC” Project – Map of Carpathian Mountains Bats. International project coordinated by the Center of Chiropterological Information in Cracow. Among its participants are chiropterologists from the Czech Republic, Hungary, Romania, Serbia, Slovakia, Poland and Ukraine.

Bat winter census in the “Nietoperek” and “Nietoperek II” Bat Reserves. In the census in 2006 and 2007 co-ordinated by Tomasz Kokurewicz (Institute of Zoology and Ecology, Wrocław University of Environmental And Life Sciences) together with specialists from different regions of Poland, chiropterologists from Germany, the Czech Republic and the Netherlands took part.

Colaboration in organising of 3rd International Conference „Bats of the Sudety Mts.”. Main organiser: Landesfachausschuß Fledermausschutz und Fachgruppe Fledermausschutz Dresden im NABU, Landesverband Sachsen e.V. Współorganizatorzy: Lusatian Mountains Landscape Reserve, Wrocław Chiropterological Group, Museum of Natural History Jelenia Góra, The Westsudetian Naturalistic Society, Landkreis Löbau-Zittau, Untere Naturschutzbehörde.

15. Measures taken to implement Resolutions adopted by Meetings of Parties

Resolution 3.7. Amendment to the Agreement

Poland has still not ratified the amendment to the Agreement. It started the process of ratification in the year 2008.

Resolution 4.3. Guidelines for the Protection and Management of Important Underground Habitats

Natura 2000 „Nietoperek” site management programme was developed taking into account the EUROBATS guidelines (the most important Polish bats winter shelter). This programme is of no legal status and presents guidelines for the future plan of this site’s protection.

No nation-wide measures for implementing this resolution were undertaken.

Resolution 4.4. Bat Conservation and Sustainable Forest Management

In 2007 within general natural inventory of the State Forests the first comprehensive winter census of bats in the forest territory was conducted. It covered above all shelters in the State Forests’ territory. In some regions limited summer research was performed. In result of this inventory fairly many new bat localities were found. Their protection shall be incorporated into the forest management and in the newly developed nature conservation plans the for forest inspectorate.

Resolution 4.5. Guidelines for the Use of Remedial Timber Treatment

No measures regarded implementing this resolution were undertaken.

Resolutions 4.6. and 5.5. Guidelines for the Issue of Permits for the Capture and Study of Captured Wild Bats

No legal changes aiming at implementing these resolutions were made. However in the years 2006–2007 while granting permits for conducting research on bats regarding their capturing and marking, the Minister of the Environment took into account the competences

and experience of applicants. Obtaining a chiropterological license introduced voluntarily by the the Agreement for Bat Protection (issued upon experience and exams) is informally recognised by the Ministry of Environment as one of the methods of possessing requisite qualifications.

Resolution 5.2. Bat Rabies in Europe

No special measures regarded implementing this resolution were undertaken on the state level.

Some organizations and institutions involved in bat research and protection voluntarily introduced obligatory vaccinations for their employees having contact with bats, however such activities are neither supported nor promoted by state authorities.

In the Museum and Instytut of Zoology of the Polish Academy of Sciences in Warsaw a research programme concerning rabies in serotine bats (research on chosen colonies upon saliva swab) was carried out.

Resolution 5.4. Monitoring Bats across Europe

For the purposes of natural census in the State Forests a methodology of winter shelters census within the forest territory was developed. This methodology was first used in the year 2007.

In 2007 within a programme co-ordinated by the Institute of Nature Protection of the Polish Academy of Sciences in Cracow an initial methodology was developed and the first nationwide counting of the greater mouse-eared bats *Myotis myotis* took place (the counting was co-ordinated by the Polish Society for Nature Protection “Salamandra”).

Resolution 4.7 and 5.6. Wind Turbines and Bat Populations

No measures regarded implementing this resolution were undertaken.

Resolution 5.7. Guidelines for the Protection of Overground Roosts

No measures regarded implementing this resolution were undertaken.

REPORT PREPARED BY:

Andrzej Kepel, Radosław Dzieciolowski, Mateusz Ciechanowski, with significant help of numerous chiropterologists from Poland and the Department of National Forms of Nature Protection at the Ministry of the Environment.

Date of report: August 28, 2008, elaborated at the request of the Ministry of Environment.

Appendix I to Report

EXAMPLES OF POLISH PUBLICATIONS ON BATS, PUBLISHED BY POLISH AUTHORS IN THE YEARS 2006–2007

Scientific publications

- Benda P., Andreas M., Kock D., Lučan R. K., Munclinger P., Nová P., Obuch J., Ochman K., Reiter A., Uhrin M., Weinfurtová D. 2006: Bats (Mammalia: Chiroptera) of the Eastern Mediterranean. Part 4. Bat fauna of Syria: distribution, systematics, ecology. *Acta Societatis Zoologicae Bohemicae*. 70: 1-329.
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- Chmura J., Kłys G., Wójcik A. J. 2007. Ochrona unikatowego ekosystemu oraz ograniczenia w zagospodarowaniu Podziemi Tarnogórsko-Bytomskich. *Górnictwo i Geoinżynieria*. Kwart. AGH, z. 3: 71-78.
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- Cichocki J., Łupicki D. 2007. Występowanie borowca wielkiego *Nyctalus noctula* (Schreber, 1774) w polskich Tatrach. *Chrońmy Przyrodę Ojczystą*. R. LXII 62 (3): 3-12.
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- Dzięciołowski R., Janyszek S., Szubert A., 2006: Fortyfikacje oczami przyrodnika. Jak chronić to, co cenne. (w:) Agnieszka Wilkaniec, Marcin Wichrowski (ed.) *Fortyfikacje w przestrzeni miasta*. Wydawnictwo Akademii Rolniczej im. Augusta Cieszkowskiego w Poznaniu: 113-119.
- Dzięgielewska M. 2007. Pierwsze stwierdzenie kolonii rozrodczej mroczka posrebrzanego *Vespertilio murinus* Linnaeus, 1758 na Pomorzu Zachodnim. *Nietoperze* 8 (1-2): 72-73.
- Dzięgielewska M., Ignaszak K., Bandrowski M. 2007. Fabryka paliw syntetycznych w Policach – największe zimowisko nietoperzy na Pomorzu Zachodnim. *Nietoperze* 8 (1-2): 39-52.
- Furmankiewicz J., Altringham J. 2007. Genetic structure in a swarming brown long-eared bat (*Plecotus auritus*) population: evidence for mating at swarming sites. *Conservation Genetics* 8: 913-923.
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- Kokurewicz T., Speakman J. R. 2006. Age related variation in the energy costs of torpor in Daubenton's bat: effects on fat accumulation prior to hibernation. *Acta Chiropterologica* 8: 509-521.
- Kupryjanowicz, J., Ruprecht A. L. 2006. Beitrag zur Fledermausfauna (*Chiroptera*) des Knyszyn-Waldes (NO-Polen). *Nyctalus* (N.F.) 11: 335-343.
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- Lesiński G. 2007. Bat road casualties and factors determining their numbers. *Mammalia* 71: 168-172.
- Lesiński G., Fuszara M., Fuszara E. 2006. Impact of two kinds of human disturbance in underground roosts on the numbers of hibernating bats. *Nietoperze* 7: 3-9.
- Lesiński G., Gulatowska J., Kowalski M., Fuszara E., Fuszara M., Wojtowicz B. 2006. Bats of the Płońsk Plain. *Nietoperze* 7: 39-55.
- Lesiński G., Kowalski M., Wojtowicz B., Gulatowska J., Lisowska A. 2007. Bats on forest islands of different size in agricultural landscape. *Folia Zoologica* 56: 153-161.
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- Lesiński G., Wojtowicz B., Błachowski G., Kowalski M., Siuchno M., Szarlik A. 2006. The most numerous winter colony of the serotine bat *Eptesicus serotinus* in underground roost in Poland. *Nietoperze* 7: 67-69.
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- Rogowska K., Kokurewicz T. 2007. The longest migrations of three bat species to the "Nietoperek" bat reserve (Western Poland). *Berichte der Naturforschenden Gesellschaft der Oberlausitz*, 15 (Suppl.): 53-60.
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- Ruprecht A. L. 2007. *Myotis nathalinae* Tupinier, 1977, sibling species or just a morphotype of *Myotis daubentonii*? *Nyctalus* (N.F.) 12: 83-89.
- Ruprecht A. L. 2007. Zum Auftreten von Fledermäusen außerhalb ihrer Arealgrenzen - Versuch einer Ursachenanalyse. *Nyctalus* (N.F.) 12: 66-70.

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Popular and educational publications (in Polish):

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- Jaros R. 2007: Mroczny świat mroczków. *Magazyn Przyrodniczy „Salamandra”*, 1 (23): 27-32.
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- Szkudlarek R., Iwaniuk Ł., Paszkiewicz R. 2006. *Nietoperze Karpat*. Wydawnictwo Polskiego Towarzystwa Przyjaciół Przyrody „pro Natura”, Wrocław: 8 pp.
- Wylegała P., Janyszek S., Kepel A., Dzieciółowski R. 2006: *Ostoje przyrody o znaczeniu europejskim w Wielkopolsce*. Wydawnictwo PTO „Salamandra”, Poznań: 186 pp.

Appendix II to the Report

EXEMPLARY REPORTS AND UNPUBLISHED THESES WRITTEN BY POLISH AUTHORS IN THE YEARS 2006–2007

Bachelor theses

Graczykowska K. 2006. Summer bat localities in the Lower Silesia. Department of Zoology of Vertebrates, University of Wrocław.

Moczko A. 2006. Mutual bats recognition. Department of Zoology of Vertebrates, University of Wrocław.

Engineer theses

Zolnik E. 2007. Methods of the small mammals conservation in the Biebrza National Park. Department of Functional Food and Commodity, Warsaw School of Life Sciences.

Master's theses

Durka A. 2007. Bat foraging activity on organic and conventional farms. Department of Functional Food and Commodity, Warsaw School of Life Sciences.

Kurek K. 2006. Factors influencing the activity of bats above mid mountain streams. Faculty of Biology, Warsaw University.

Nalewaja A. 2006. Distribution of bats (Chiroptera) in Gdańsk Pomerania. Department of Ecology and Vertebrate Zoology, Faculty of Biology, Geography and Oceanography, Gdańsk University.

Wybraniec M. 2006. Vertebrate (Vertebrata) fauna of sacred monuments of Stobrawski Landscape Parku. Department of Biosystematics, Opole University.

Zapart A. 2007. Dynamics of departures from breeding colony and food composition of the pond bat *Myotis dasycneme*. Department of Ecology and Vertebrate Zoology, Faculty of Biology, Geography and Oceanography, Gdańsk University.

Defended PhD dissertations

Fuszara E. 2006. Foraging site choice by the Serotine bat *Eptesicus serotinus*. Centrum Badań Ekologicznych PAN.

Schick P. 2007. Winter foraging of three bat species *Myotis daubentonii* (Kuhl, 1817), *Myotis myotis* (Borkhausen, 1797) and *Barbastella barbastellus* (Schreber, 1774) in Miedzyrzecz Fortified Front (Poland). Department of Palaeozoology, Zoological Institute, University of Wrocław.

Wojtaszyn G. 2007. Biology and ecology of bats in the period of inhabitation of artificial roosts in forests of the Milicz Basin. Faculty of Biology, A. Mickiewicz University in Poznań.

Unpublished reports and elaborations

Analysis of distribution and threats to bats from Appendix II in SPAs: Łęgi nad Bystrzycą (Bystrzyca Marshes), Dobromierz, Przeplatki nad Bystrzycą, Ostoja nad Bobrem, the Giant Mountains, Nysa Łużycka River Valley Gorge (Iwona Gottfried).

Analysis of distribution and threats to bats from Appendix II in SPAs: the Table Mountains; Dolna Kwisa Valley; Świętoszów and Ławszów Moorland; Forests, wetlands and meadows around Dębno village (Tomasz Gottfried).

Study of number and composition of bat species in the Czeladź municipality, identification of their habitats and determination of protection methods (Grzegorz Kłys, Czeladź municipality, Regional Fund for Environmental Protection and Water Management in Katowice).

National programme of species management of the lesser horseshoe bat (Rafał Szkuclarek, within the framework of the programme Transition Facility 2004, Development of renaturation plans of natural habitats and species habitats within Natura 2000 sites and management plans for chosen species under the Birds Directive and Habitats Directive).

Protection and possibilities of management of unique in the European scale natural ecosystem – Podziemia Tarnogórsko-Bytomskie. Study of number and composition of wintering bats. Identification of entries. Microclimate analysis. Methods of protection. (Kłys G., Wójcik A., Polonius A., Caputa Z., Adamska B., Kocot J., Stepień A., Regional Fund for Environmental Protection and Water Management in Katowice).

SPA Łęgi Odrzańskie protection plan (Iwona and Tomasz Gottfried, Joanna Furmankiewicz).

Natura 2000 “Nietoperek” site management programme (Andrzej Kepel, Radosław Jaros, Tomasz Kokurewicz, within the framework of the programme Transition Facility 2004, Development of renaturation plans of natural habitats and species habitats within Natura 2000 and management plans for chosen species under the Birds Directive and Habitats Directive).