

National Report on Bat Conservation in the Federal Republic of Germany

2003-2006

A. General information

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Period under review: 2003-2006

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This report was compiled by the Federal Agency for Nature Conservation (BfN) (FG I 1.1, Ruth Petermann, with the assistance of Dr. Peter Boye), on the basis of contributions by the German Länder Baden-Württemberg (Mr Kuhn, Ministry for Food and Rural Areas (Ministerium für Ernährung und ländlichen Raum), drawing on a publication by Monika Braun and Fritz Dieterlen, State Museum for Natural History Karlsruhe); Bavaria (Bernd-Ulrich Rudolph, Bavarian State Agency for the Environment (Landesamt für Umwelt), Matthias Hammer, Northern Bavarian Co-ordination Office for Bat Conservation (Koordinationsstelle für Fledermausschutz Nordbayern), University of Erlangen, and Dr. Andreas Zahn, Southern Bavarian Co-ordination Office for Bat Conservation (Koordinationsstelle für Fledermausschutz Südbayern), Waldkraiburg); Berlin (Johannes Schwarz, Senate Department of Urban Development Berlin (Senatsverwaltung für Stadtentwicklung Berlin), with contributions by Carsten Kallasch); Brandenburg (Jana Teubner and Jens Teubner, Brandenburg State Agency for the Environment (Landesumweltamt Brandenburg) Zippelsförde Nature Conservation Station (Naturschutzstation Zippelsförde), under commission to the Ministry for Rural Development, Environment and Consumer Protection (Ministerium für Ländliche Entwicklung, Umwelt und Verbraucherschutz); Hesse (Dr. Klaus Richarz, under commission to the Hesse Ministry for Environment, Rural Areas and Consumer Protection (Ministerium für Umwelt, ländlichen Raum und Verbraucherschutz), along with Karl Kugelschafter and other staff of the Working Party for Bat Conservation in Hesse (Arbeitsgemeinschaft Fledermausschutz in Hessen - AG FH); Mecklenburg – West Pomerania (Bernd Presch, Mecklenburg – West Pomerania State Agency for the Environment, Nature Conservation and Geology, under commission to the Mecklenburg – West Pomeranian Ministry of the Environment, with contributions by the State Committee for Bat Conservation (Landesfachausschuß Fledermausschutz) of the Mecklenburg – West Pomeranian state chapter of the German Nature Conservation Association); Lower Saxony (Bärbel Pott-Dörfer, under commission to the Lower Saxony Agency for Water Resources Management, Coastal Protection and Nature Conservation (Niedersächsischer Landesbetrieb für Wasserwirtschaft, Küsten- und Naturschutz - NLWKN), and with assistance from L. Bach, C. Dense, G. Mäscher and other persons); North Rhine - Westphalia (Dietlind Geiger-Roswora, North Rhine – Westphalia State Institute for Ecology, Land-Use Planning and Forests (Landesanstalt für Ökologie, Bodenordnung und Forsten Nordrhein-Westfalen), under commission to the Ministry for Environment and Nature Conservation, Agriculture and Consumer Protection); Rhineland-Palatinate (Rhineland-Palatinate State Office for the Environment, Water Resources Management and Trade Supervision (Landesamt für Umwelt, Wasserwirtschaft und Gewerbeaufsicht Rheinland-Pfalz – LUWG)) - Ludwig Simon, with contributions from Dr. Michael Altmoos, under commission to the Rhineland-Palatinate Ministry for the Environment, Forests and Consumer Protection (Ministerium für Umwelt, Forsten und Verbraucherschutz Rheinland-Pfalz - MUFV), and with contributions/support from the Structural and Licensing Directorate North (Struktur- und Genehmigungsdirektion Nord - SGD Nord); Manfred Braun, Michael Ehling, the Structural and Licensing Directorate South (Struktur- und Genehmigungsdirektion Süd - SGD Süd); Thomas Schlindwein and the Rhineland-Palatinate Working Group on Bat Conservation (Arbeitskreis Fledermausschutz Rheinland-Pfalz - AKF) - Marco Zimmermann, Manfred Weishaar, René Reifenrath); Saxony (Dr. Ulrich Zöphel, Saxony State

Agency for Environment and Geology (Sächsisches Landesamt für Umwelt und Geologie), under commission to Saxony's State Ministry for Environment and Agriculture, and with contributions from S. Fischer, F. Förster, Dr. U. Heinrich, K. Homann, T. Würflein, A. Hochrein, F. Meisel and C. Schmidt); Saxony-Anhalt (Bernd Ohlendorf, Saxony-Anhalt Bat Reference Centre (Referenzstelle Fledermäuse Sachsen-Anhalt) in the "Karstlandschaft Südharz" biosphere reserve, Dr. Martin Trost, State Office for Nature Conservation, under commission to the Ministry for Agriculture and Environment, with contributions of the Saxony-Anhalt Working Group on Bats (Arbeitskreis Fledermäuse Sachsen-Anhalt e. V.) and of the Saxony-Anhalt State Administrative Office (Landesverwaltungsamt Sachsen-Anhalt)); Schleswig-Holstein (Rüdiger Albrecht, State Agency for Nature and Environment (Landesamt für Natur und Umwelt), under commission to the Ministry for Agriculture, Environment and Rural Areas, with contributions from Matthias Götsche, NABU State Office for Bat Conservation and Research and data of the Working Party on Bat Conservation in Schleswig-Holstein (Arbeitsgemeinschaft Fledermausschutz in Schleswig-Holstein); Thuringia (Hartmut Geiger, State Environmental Agency, Erfurt (Staatliches Umweltamt Erfurt); slightly revised by the Ministry for Agriculture, Nature Conservation and the Environment).

B. Germany's bats

1 Summary of information about species occurring in Germany

Populations commonness estimated / population trends / total size/	<i>Rhinolophus ferrumequinum</i>	<i>Rhinolophus hipposideros</i>	<i>Barbastella barbastellus</i>	<i>Eptesicus nilssonii</i>	<i>Eptesicus serotinus</i>
Baden-Württemberg BW	Lit.	Lit.	Lit.	Lit.	Lit.
Bavaria BY	50-70 / +	300-350 / +	> 10,000 / +	> 10,000, common in part / ?	✓ / ?
Berlin BE			extinct	extremely rare / ?	regular summer populations / o
Brandenburg BB			✓ / +	extremely rare	widespread, common in some areas
Hesse HE		individual finds in winter roosts	Lit.	Lit.	Lit.
Mecklenburg - West Pomerania MV			several thousand	individual find from 1999	several thousand
Lower Saxony NI			✓	at least 150 adult females, only in central uplands	✓
North Rhine - Westphalia NW	extinct	extinct	✓	N. e.	N. e.
Rhineland-Palatinate RP	rare, only regional / +	extinct	✓ / ?	✓ / ?	✓ / ?
Saxony SN		9 maternity roost with about 650 adult individuals / +	✓ / o	sighted only in mountain areas / o	99 maternity roost communities known; regular / ?
Saxony-Anhalt ST	extinct	about 60-70 adult females; about 230 individuals; for periods in rock roosts	✓ / ?	a few maternity roosts	a few maternity roosts
Schleswig-Holstein SH					widespread
Thuringia TH	N. e.	1,457 / +	✓	k.A.	✓ / ?

Trends:

- o = population stable
- = population in decline
- + = positive population trend
- ? = population trend unclear / no assessment possible

Other:

- ✓ = occurring, but no estimate of population size
- x = listed, but not / no longer occurring, population uncertain
- N. e. = no entry, i.e. no (new) information / reference to relevant remarks in previous reports
- Lit. = reference to literature (BW: BRAUN, M. & DIETERLEN, F. (2003): Die Säugetiere Baden-Württembergs Volume 1. Stuttgart; HE: Arbeitsgemeinschaft Fledermausschutz in Hessen (AGFH) (Ed.) (2003): Die Fledermäuse Hessens II. Frankfurt.)

Populations commonness / estimated population / total size / population trends	<i>Myotis alcaethoe</i>	<i>Myotis bechsteinii</i>	<i>Myotis brandtii</i>	<i>Myotis dasycneme</i>	<i>Myotis daubentonii</i>
Baden-Württemberg BW	✓ first sighting for Germany (lactating female)	Lit.	Lit.		Lit.
Bavaria BY		> 25.000 / ?	< 10,000, rare / ?		> 100,000, usually common / +
Berlin BE		rare / ?	rare / ?	extremely rare / ?	regular / +
Brandenburg BB		✓	rare	extremely rare	common in some areas / in winter roosts o to -
Hesse HE		at least 51 maternity roost communities	Lit.	Lit.	Lit.
Mecklenburg - West Pomerania MV			20-50	300-1,000	several thousand
Lower Saxony NI		✓	✓	✓ / ?	✓ / o to +
North Rhine - Westphalia NW		8 known maternity roosts	N. e.	no maternity roost known	N. e.
Rhineland-Palatinate RP		✓ / ?	✓ / ?	✓ / ?	✓ / ?
Saxony SN		✓ / ?	23 maternity roosts known	individual sightings, no proof of reproduction	✓ / ?
Saxony-Anhalt ST		1 maternity roost known	many maternity roosts	extremely rare, no maternity roost	a few maternity roosts known
Schleswig-Holstein SH		✓	✓	rare, 3 maternity roosts known	✓
Thuringia TH		N. e.	N. e.	✓	✓

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In June 2005, in a forest between Offenburg and Kehl (Baden-Württemberg), Robert Brinkmann and Ivo Niermann caught a bat that Frieder Mayer then confirmed, via genetic analysis of a tissue sample, to be an *Alcaethoe's* bat. Since this first sighting involved a lactating female, it may be assumed that *Myotis alcaethoe* is among the species that regularly reproduce in Germany. Special studies are to be carried out of this bat's population and of its forest habitat.

Populations commonness / estimated population / total size / population trends	<i>Myotis emarginatus</i>	<i>Myotis myotis</i>	<i>Myotis mystacinus</i>	<i>Myotis nattereri</i>	<i>Nyctalus lasiopterus</i>
Baden-Württemberg BW	Lit.	Lit.	Lit.	Lit.	
Bavaria BY	3,500-4,000 / +	132,000 / o	> 100,000, common / +	> 50,000 / +	exceptional sighting (last sighted in 2001)
Berlin BE		rare in summer, regular in winter / +	rare / ?	rare in summer, common in winter / +	
Brandenburg BB		1,000 adult females / o	extremely rare	very widespread / +	
Hesse HE		11,000 bats in maternity roosts	Lit.	Lit.	
Mecklenburg - West Pomerania MV		700-800	< 50	> 1,000	
Lower Saxony NI		20,000 / +	✓	✓	
North Rhine - Westphalia NW	sporadically occurring population, no maternity roost	> 5,000 / +	N. e.	widespread in part / +	
Rhineland-Palatinate RP	rare, only regional / +	more widespread / +	✓ / -	✓ / ?	
Saxony SN		4,500 / +	17 maternity roosts known	23 maternity roosts known / ?	
Saxony-Anhalt ST		about 6,000 individuals sighted; 26 maternity roosts / o	very few maternity roosts	few maternity roosts	
Schleswig-Holstein SH		extremely rare / population questionable	✓	maternity roosts present; regularly occurring in winter	
Thuringia TH		✓ / +	N. e.	N. e.	

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Populations commonness / estimated population / total size / population trends	<i>Nyctalus leisleri</i>	<i>Nyctalus noctula</i>	<i>Pipistrellus kuhlii</i>	<i>Pipistrellus nathusii</i>	<i>Pipistrellus pipistrellus</i>
Baden-Württemberg BW	Lit.	Lit.	Lit.	Lit.	Lit.
Bavaria BY	< 5,000, rare / o	✓ / ?	< 5,000 / +	✓ / o	> 150,000, widespread and common / o
Berlin BE	extremely rare / ?	regular / o		regular during migration period / o	regular / - ?
Brandenburg BB	rare	✓ / +		✓	✓
Hesse HE	Lit.	Lit.		Lit.	117,500 in rural district of Marburg-Biedenkopf
Mecklenburg - West Pomerania MV	50-100	several thousand		> 500	several thousand
Lower Saxony NI	✓	✓		✓	widespread throughout the state
North Rhine - Westphalia NW	N. e.	✓ / increasing numbers of maternity-roost sightings		N. e.	N. e.
Rhineland-Palatinate RP	✓ / ?	✓ / regionally strong -		✓ / ?	✓ / ?
Saxony SN	✓ / ?	✓ / ?		✓	61 maternity roosts / ?
Saxony-Anhalt ST	local population concentrations	many maternity roosts in the north-east		maternity roosts	regional population concentrations in the Harz and Altmark areas
Schleswig-Holstein SH	✓	regular		✓	very widespread
Thuringia TH	N. e.	N. e.		N. e.	N. e.

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Populations commonness / estimated population / total size / population trends	<i>Pipistrellus pygmaeus</i>	<i>Plecotus auritus</i>	<i>Plecotus austriacus</i>	<i>Vespertilio murinus</i>
Baden-Württemberg BW	Lit.	Lit.	Lit.	Lit.
Bavaria BY	> 10,000, widespread / ?	> 100,000, common, widespread / -	< 25,000 / ?	< 10,000 / ?
Berlin BE	x	regular / o	rare / ?	rare / o
Brandenburg BB	✓	common, widespread throughout the state / o	locally, rare to widespread	extremely rare
Hesse HE	Lit.	Lit.	Lit.	Lit.
Mecklenburg - West Pomerania MV	several thousands; regular	> 500	3 bats sighted (2004)	< 100
Lower Saxony NI	✓	regular / ?	rather rare	individual sightings throughout the state
North Rhine - Westphalia NW	✓ / ?	N. e.	✓ / primarily in the southern part of the state	no maternity roost
Rhineland-Palatinate RP	✓ / ?	✓ / ?	✓ / regionally -	rare / +
Saxony SN	✓ / ?	common / o	✓ / ?	individual sightings
Saxony-Anhalt ST	currently, 4 maternity roosts known	number of maternity roosts decreasing / -	1 maternity roost	no maternity roosts
Schleswig-Holstein SH	✓	regular		extremely rare
Thuringia TH	✓	✓	N. e.	N. e.

Trends:

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2 General population situation and trends

2.1 Population trends

Bavaria:

Since the monitoring systems differ widely by species, the findings obtained via the various systems also vary widely in terms of conclusiveness.

Fortunately, the population trends for most species have been positive in the 1985 to 2005 period; at least, no species has been reported to have suffered negative population trends during the report period that would give grounds for concern. The populations of the brown long-eared bat and Bechstein's bat do seem to be in slight decline, however (although these findings have been reached on the basis of small samples for both). Monitoring of summer roosts of the lesser horseshoe bat, greater mouse-eared bat and Geoffroy's bat, efforts that have been much more extensive in terms of the numbers of individuals counted, show that these species either have not changed in status or have shown positive trends. The same holds for the small population of the greater horseshoe bat.

The reasons for the predominantly positive trends are seen, firstly, in the good monitoring in place for the roosts of the aforementioned species, monitoring that provides for at least annual contacts to administrators, owners or residents of relevant buildings, thereby fostering awareness for the bat colonies' needs for protection. Such contacts play a lesser role in connection with winter roosts, especially the many beer cellars, mine shafts and caves where such roosts are located. Many of these sites are open to the public, although the most important (most populous) roosts are normally protected: either through public-access restrictions (buildings) or through grates or covers, etc..

In all likelihood, and secondly, the positive population trends for most species are also a result of global warming. Although pertinent concrete figures are lacking, it is assumed that the availability of insect prey is tending to increase and that mortality of young during rearing is tending to decrease. At present, it is still unclear how increased annual average temperatures will affect the suitability of central-European winter roosts.

Hesse:

Not enough data is available to support any conclusions regarding current population trends.

Mecklenburg - West Pomerania:

Neither the available data, which is inadequate overall, nor current progress in assessing the available data permit any assessment of the population situation and, especially, of any changes in it.

Lower Saxony:

No clear changes in the population situation and trends have been found in comparison to the relevant population and trends for the last report period.

North Rhine – Westphalia:

The population situation of no bat species in North Rhine – Westphalia has been found to have worsened in recent years. For the greater mouse-eared bat, the numbers of maternity roost animals and of individuals in winter roosts remained largely stable during the report period. In some cases, the numbers continued to show slight increases. Significant new individual sightings of the barbastelle bat and Geoffroy's bat have been registered. Both of these species are extremely rare in this Land (state). For the other relevant species, the remarks made in previous reports continue to apply.

Saxony:

No new findings over what was reported for the last report period.

Saxony-Anhalt:

For a description of the general population situations and trends for species pursuant to Annex IV of the FFH Directive, the reader is referred to the publication by VOLLMER & OHLENDORF¹.

Schleswig-Holstein:

It continues to remain difficult to assess the population situations of some native bat species during the 2003-2006 period. A systematic means of collecting data for the state's entire territory, using a suitable area-

¹ VOLLMER, A. & OHLENDORF, B. (2004): Die Tier- und Pflanzenarten nach Anhang IV der Fauna-Flora-Habitatrichtlinie im Land Sachsen-Anhalt. Naturschutz im Land Sachsen-Anhalt 41, 1-142.

based mapping method, is still being prepared. The population figures for the few known colonies of the pond bat and Bechstein's bat may be considered stable at present. The overall population data for important overwintering habitats, as obtained via automatic survey systems and without any provisions for breakdowns by bat species, may be considered stable. Similar conclusions may be reached for subterranean winter roosts that are checked only manually.

Thuringia:

Continuing positive trend for the greater mouse-eared bat and the lesser horseshoe bat.

No population decreases have been found for species that have to be surveyed via larger sampling sizes (such as the brown long-eared bat and Daubenton's bat). No conclusions can be derived for species that are difficult to survey or that are rare (such as the serotine bat). The numbers of barbastelle bat sightings in winter roosts have been increasing noticeably over about the past ten years. That bat is now sighted in nearly one out of every two roosts being monitored.

2.2 Red List

The table below shows the Länder that have issued new red lists for bats, or that have been preparing such lists, during the period under review. The table also shows how relevant species are classified in the new lists, and it compares those classifications to those in the current "Red List of Germany's endangered animals" ("Rote Liste gefährdeter Tiere Deutschlands").

Red List status	BY (2003) ²	BE (2005) ³	NI (in prep.) ⁴	NW (2000) ⁵	ST (2004) ⁶	D (1998) ⁷
<i>Rhinolophus ferrumequinum</i>	1			0	0	1
<i>Rhinolophus hipposideros</i>	1			0	1	1
<i>Barbastella barbastellus</i>	2	0	1	1	1	1
<i>Eptesicus nilssonii</i>	3	N	R	R	2	2
<i>Eptesicus serotinus</i>	3	3	2	3	2	V
<i>Hypsugo savii</i>	0					0
<i>Myotis alcathoe</i>						
<i>Myotis bechsteinii</i>	3	R	2	2	1	3
<i>Myotis brandtii</i>	2	R	3	2	2	2
<i>Myotis dasycneme</i>		N	R	I	R	G
<i>Myotis daubentonii</i>	-	2	V	3	3	
<i>Myotis emarginatus</i>	2			R		1
<i>Myotis myotis</i>	V	2	3	2	1	3
<i>Myotis mystacinus</i>	-	R	D	3	1	3
<i>Myotis nattereri</i>	3	3	V	3	2	3
<i>Nyctalus lasiopterus</i>						
<i>Nyctalus leisleri</i>	2	R	G	2	2	G
<i>Nyctalus noctula</i>	3	3	3	I	3	3
<i>Pipistrellus kuhlii</i>	D					
<i>Pipistrellus nathusii</i>	3	3	R	I	2	G
<i>Pipistrellus pipistrellus</i>	-	3	-	*N	2	
<i>Pipistrellus pygmaeus</i>	D		D		G	D
<i>Plecotus auritus</i>	-	3	V	3	2	V
<i>Plecotus austriacus</i>	3	R	R	R	2	2
<i>Vespertilio murinus</i>	2	2	D	I	R	G

Categories of endangerment in Germany	IUCN categories
	Ex = Extinct
0 = extinct or disappeared	EW = Extinct in the wild
1 = threatened with extinction	CR = Critically endangered
2 = highly endangered	EN = Endangered
3 = endangered	VU = Vulnerable
R = extremely rare or subject to geographic restrictions	
G = assumed to be endangered, but status unknown	
I = endangered migratory animal species	
V = in decline: early warning list	NT = Near threatened
D = Data deficient	DD = Data deficient

² Liegl, A., Rudolph, B.-U. & R. Kraft (2003): Rote Liste gefährdeter Säugetiere (Mammalia) Bayerns.- Schr.-R. Bay. Landesamt für Umwelt 166, 33-38.

³ Klawitter, J., Altenkamp, R., Kallasch, C., Köhler, D., Krauss, M., Rosenau, S. & Teige, T. (2005): Rote Liste und Gesamtartenliste der Säugetiere (Mammalia) von Berlin. In: Der Landesbeauftragte für Naturschutz und Landschaftspflege & Senatsverwaltung für Stadtentwicklung (Hg.), CD-ROM, ISBN 3-00-016815-X.

⁴ A new Red List of mammals is being prepared in Lower Saxony. The section on bats is very close to completion. Publication is planned for 2006.

⁵ FELDMANN, R., HUTTERER, R. & VIERHAUS, H. (1999): Rote Liste der gefährdeten Säugetiere in Nordrhein-Westfalen. 3. edition. - LÖBF Schr.-R. 17, 307-324. This list was not mentioned in the last report.

⁶ HEIDECHE, D., HOFMANN, T., JENTZSCH, M., OHLENDORF, B. & WENDT, W. (2004): Rote Liste der Säugetiere (Mammalia) des Landes Sachsen-Anhalt. - Berichte des Landesamtes für Umweltschutz Sachsen-Anhalt H. 39, 132-137.

Due to a lack of conclusive data, the soprano pipistrelle has been placed in classification "G" ("assumed to be endangered"). In all probability, it is not less endangered than the common pipistrelle.

⁷ BOYE, P., HUTTERER, R. & BENKE, H. (1998): Rote Liste der Säugetiere (Mammalia). - Schr.-R. Landschaftspflege und Naturschutz, H. 55, 33-39.

	NE = Not evaluated
	LC = Least concern
Other abbreviations used by Länder:	
N = not classifiable, not suited for threat assessment (BE)	
*N = not endangered, thanks to nature conservation measures (NW)	

3 Habitats and roosts

The following section describes, by way of example, special bat habitats in the various Länder.

3.1 Roosts

Bavaria:

Renovation: Many examples can be cited in which bat-colony roosts in or on buildings have been renovated in accordance with requirements of nature conservation authorities and under the supervision of co-ordination offices for bat conservation. Such measures have primarily affected maternity roosts of greater mouse-eared bats, although measures have also been carried out in roosts of Geoffroy's bat, Brandt's bat, the lesser horseshoe bat, the northern bat (facade roosts), the noctule bat (facades), the serotine bat and the grey long-eared bat, as well as in historic buildings (winter roosts). In the latter, problems occur especially when cracks are sealed. Such renovation, and the success of relevant efforts at protection, are described in the annual reports of the co-ordination offices for bat conservation. In cooperation with the Austrian co-ordination office for bat conservation, a renovation guide has been prepared that sets forth what is known about the various bat species and that provides specific recommendations relative to renovation.

Fumigation: Each year, numerous cases of planned fumigations of church interiors, for protection against anobium woodworms, are reported to co-ordination offices for bat conservation. Normally, such notification is provided by the companies carrying out the work. About 70% of all churches involved are known to harbour bats – usually, individual bats in their summer roosts. Where the fumigation is to affect the entire interior, and is to be carried out during the summer, efforts are made to postpone it until the fall – especially when colonies are known to be present near the roof's framework. When the work cannot be postponed, special care is taken to seal off the area being fumigated, and fume-removal equipment is installed in roof areas.

Mecklenburg - West Pomerania:

From 2003 to 2006, the state's winter roosts were systematically studied. Data was collected for more than 600 winter roosts. For geological reasons – a lack of natural caves – most of Mecklenburg - West Pomerania's winter roosts are located in cellars of buildings. Other winter roosts are located in bunkers and old ice cellars and earth cellars.

Lower Saxony:

Significantly, five new summer roosts of pond bats have been discovered. These include a roost that is also used by serotine bats and a roost in which a male was sighted. Three alternate roosts were found for one of the most important maternity-roost colonies of pond bats. This indicates that formation of complexes of roosts is an important factor.

North Rhine – Westphalia:

In 2004, two new maternity roosts of Bechstein's bats were discovered in the Lower Rhine Bight, which is largely free of forests. The discoveries were made in the Hambacher Forst (Hambach Forest; structurally rich oak-hornbeam forests with some stands over 140 years old) and Nörvenicher Wald (Nörvenich Forest; oak-hornbeam forest rich in lily of the valley, and with *Quercus robur*, on predominantly wet to saturated (poorly drained) soils). The Hambacher Forst area is located largely within the approved expansion of the Hambach open-pit lignite mine, and mining is expected to take place within it by 2040. A detailed conservation concept is to be developed and implemented in order to safeguard the long-term survival of the Bechstein's bat colony and of the other bat species living in the Hambacher Forst area. In 2005, these efforts began with a multi-year study project aimed at collecting basic data about the bat populations in the environs (both immediate and more extensive) of the Hambacher Forst area.

Saxony-Anhalt:

As part of efforts to conserve bat roosts in Saxony-Anhalt, special attention is to be given to the elimination of "ecological traps" and of factors that frighten off bats. Such special attention will include, for example:

- Elimination of vertical rods etc. that block entrance and exit routes of roosts of greater mouse-eared bats (both summer and winter roosts)
- Enlargement of entrance and exit pathways of caves, mine shafts and bunkers, to ensure that greater mouse-eared bats can pass unhindered

- Shifting of bats' entrance and exit pathways to ensure they lie outside of the jumping reach of cats, foxes and raccoons.

In winter 2003/04, the most important rock roost of the lesser horseshoe bat in the Galgenberg (Freyburg/U.) area froze completely when a cave-in with exposure to the surface occurred. In 2004, the collapsed section was filled in by the state's roads administration. Following the repairs, the roost was re-occupied by 110 lesser horseshoe bats (nearly double the number of individuals present there in the winter of 2002/03).

Schleswig-Holstein:

The Kalkberghöhle cave in Bad Segeberg is one of the most important bat winter roosts in central Europe. Between 13,000-18,000 individuals are known to overwinter in it. A number of extensive studies of bats' seasonal use of the Kalkberghöhle cave have been carried out.

The current focus of efforts relative to the Kalkberghöhle cave in Bad Segeberg is on efficient monitoring of bats' use of the cave. In spring 2002, the two entry shelters mounted over the cave entrance and the hole via which the cave was discovered were renewed and modified, in keeping with the latest findings relative to bats' needs and means of protecting bats against lurking cats.

In August 2003, type Liba-4 light barriers were installed at two entryways, to monitor the bats' arrival phase. In December 2003, during the bats' overwintering phase, the Liba-4 systems were replaced with new type Liba-16 light barriers, supplied by the firm of ChiroTEC and developed especially for the Bad Segeberg cave. The results of these efforts have been very promising to date, and the monitoring devices have performed well in long-term operation.

Thuringia:

Meiningen Perladinfabrik: A colony of greater mouse-eared bats, numbering some 300 individuals, lives on the premises of this company, which produces detergents and cleansing agents. In recent years, the animals' roosts have been successfully moved (and confined) to an unused storage room of the company, which is subject to provisions of the Food Act (Lebensmittelgesetz). At the same time, the factory's outdoor areas have repeatedly been soiled with droppings. In spring 2005, in an effort financed by the Suhl state environmental agency (Staatliches Umweltamt), a special flight tunnel, some 10 m in length, with a 1m x 1m cross-section and made of sheet steel, was constructed through one of the firm's storage rooms to give the greater mouse-eared bats a new exit pathway.

3.2 Hunting biotopes

Bavaria:

During the period under review, hunting habitats were studied in the framework of a number of diploma theses and special studies. The bats studied in these projects included Geoffroy's bats, greater mouse-eared bats and Nathusius's pipistrelles.

Currently, studies are underway, in the framework of dissertations, of bats' use of hunting grounds on the Herreninsel in Lake Chiemsee and in the Steigerwald forest. In the Bayerischer Wald and Berchtesgaden national parks, efforts have begun to monitor bats in hunting grounds, by means of detectors.

North Rhine – Westphalia:

Telemetric studies of greater mouse-eared bats carried out in 2004, in the northern section of the Teutoburger Wald forest, revealed that the average distance between the bats' roosts and their core hunting grounds was 8 km. The greatest distance the bats covered in order to reach their hunting grounds was 25 km.⁸ This result is approximately similar to those obtained in 2002 in telemetric studies of three female greater mouse-eared bats from the maternity roost at Schloss Ulenburg castle. Those bats flew in several different directions, and they visited between three and eight hunting grounds (the number varied from individual to individual). Each bat consistently maintained its own individual hunting areas. In one common exception, all the individuals in question hunted in a forest in the vicinity of the building housing the maternity roost. Two of the females showed a preference for deciduous and mixed forests with little undergrowth, including even small "hall"-type beech stands (small groups of trees and shrubs in and along fields, with little or no understories). One female hunted primarily in open land, including areas over stubble fields with neighbouring meadows and typical rivercourse structures.⁹

In another example, four female greater mouse-eared bats in the Hambacher Forst forest area (Düren district) that had been fitted with transmitters in 2004 covered distances ranging up to over 20 km in flying between their roost and their hunting grounds (old oak-hornbeam forests with areas of open ground).¹⁰

⁸ MÜNCH, oral communication.

⁹ TRAPPMANN, oral communication.

¹⁰ DIETZ, M. (2005): Vertiefende fledermausfachliche Untersuchungen im Rahmen der Planfeststellung zur Verlegung der Hambachbahn und der BAB 4. – Gutachten erstellt im Auftrag von Planungsgesellsch. Smeets + Damaschek, Erfstadt u. Ökoplan, Bonn (under commission to RWE Power); unpublished [bat studies relative to the displacement of the Hambach railway and the BAB 4 motorway].

Rhineland-Palatinate:

A maternity roost of the barbastelle bat near Lötzbüren was studied in 2005 with the help of bats fitted with telemetric transmitters. The bats' preferred hunting grounds were found to consist of forest periphery and forest pathways – i.e. areas near and along peripheral structures and gaps in forest areas, but also bins for compostable waste.

A comparison of urban and water-body locations found, for the Waldmohr cadastral parcel (Gemarkung), significantly higher activity levels for the common pipistrelle and Daubenton's bat along water bodies.

A study of Bechstein's bat carried out in the Mattheiser Wald forest area near Trier¹¹ documented the great importance of niche-rich old trees (in this case, oak trees approximately 170 years old), for use as roosts, and of structurally rich forest areas, with clearings, for hunting.

Saxony:

Habitat use by a maternity roost colony of lesser horseshoe bats was studied via telemetry with nine females, and a potential map of the entire colony's hunting grounds was prepared.¹² The hunting grounds of bats fitted with transmitters were found to lie an average of 1.3 km, and a maximum of up to 4 km, from the animals' daytime roost. At the same time, half of all finds were within a radius of up to 1,060 m from the roost. The entire colony's territorial requirement is estimated to be about 50 km². Lead structures (such as lines of trees) prove to play extremely important roles as connections between bats' roosts and their hunting grounds. Occasionally, bats were found to bridge gaps of up to 215 m between areas with wood or shrubbery.

Studies of hunting biotopes of a colony of greater mouse-eared bats in Niesky were carried out via telemetry with eight bats fitted with transmitters. The bats' hunting grounds were found to lie at a distance of up to 15 km from the bats' daytime roost. The bats relied extensively on pine forests as hunting grounds, including relatively dense stands.

Schleswig-Holstein:

During the period under review, many new findings were obtained relative to the pond bat. The bat was found to use lakes and watercourse systems as both hunting grounds and transit routes. During the period under review, pond bats were found to use the following watercourse/canals in Schleswig-Holstein: Schwentine, Eider, Trave, Nord-Ostseekanal, Schwartau, Tensfelder Au. Lakes within the pond bat's range in Schleswig-Holstein are especially important hunting habitats for the species.

4 Threats

The Federal Agency for Nature Conservation (BfN) has published a study¹³ of the threats to animal groups relevant to planning. Along with all relevant mammals, the study takes account of all of the bat species occurring in Germany. Surveys of experts, and research in the relevant literature, indicate that the major threats to bats include renovations of buildings, forestry measures and tourist disturbance of underground winter roosts. The impacts on bats of intensified animal husbandry in the agricultural sector¹⁴, of road traffic and of wind turbines¹⁵ have not yet been adequately assessed. More detailed studies relative to these issues are required.

Other threats reported from the various Länder include:

- A lack of suitable roosts (in forests/parks: natural cracks in trees, sufficient numbers of hollows in trees; in settled areas: networks of crack roosts and of accessible attics)
- Losses of roosts via demolition of buildings and via tree surgery / felling for reasons of traffic safety
- Losses of hunting grounds via land development
- Losses in availability of food, via general or targeted measures to combat insects.

5 Data collection

¹¹ ROTH-WALRAF, E. (2005): Integration von FFH-II-Arten im Rahmen der Aufstellung von Managementplänen für FFH-Gebiete, dargestellt am Beispiel der Bechsteinfledermaus (*Myotis bechsteinii* KUHL 1817) im FFH-Gebiet Mattheiser Wald (Trier).

¹² BIEDERMANN, M., MEYER, I., SCHORCHT, W. & BONTADINA, F. (2003). Sonderuntersuchung zur Wochenstube der Kleinen Hufeisennase in Friedrichswalde-Ottendorf / Sachsen. - Studie im Auftrag der DEGES, Berlin.

¹³ GÜNTHER, A., NIGMANN, U., ACHTZIGER, R. & GRUTTKE, H. (ed.) (2005): Analyse der Gefährdungsursachen planungsrelevanter Tiergruppen in Deutschland. Naturschutz und Biologische Vielfalt 21.

¹⁴ In North Rhine – Westphalia, the loss of maternity roosts of Natterer's bat, via changes in agricultural animal production that have caused the disappearance of traditional forms of stabling on farms, has been documented.

¹⁵ In a number of Länder, bats have been known to be struck by wind turbines, and the needs of bats are increasingly being considered in planning of wind farms.

The following table provides an overview of collection of bat data in the various Länder:

Baden-Württemberg BW	As part of the preparation of the basic reference work "Die Säugetiere Baden-Württembergs" ["The mammals of Baden-Württemberg], Volume 1 ¹⁶ , data on all native bat species have been collected and evaluated. The Working Group on Bat Conservation in Baden-Württemberg (AGF) maintains a database that includes data supplied by volunteer bat conservationists . In March 2006, this database was made available to Baden-Württemberg's state institute for the environment, measurements and nature conservation (Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg), and it will soon be evaluated and prepared for further use – including use as a basis for assessing the size of the bat population.
Bavaria BY	As part of work on the Bavarian Bat Atlas (Fledermausatlas Bayern) ¹⁷ , all of the data in " species conservation mapping " (" Artenschutzkartierung ") database of the Bavarian state environmental agency (Bayerisches Landesamt für Umwelt) has been transferred and corrected as necessary and is now being separately managed. Soon, the data will be returned to the "species conservation mapping" database. Currently, the bat database comprises nearly 18,552 sighting locations, with a total of over 74,540 individual sightings. Data are collected and entered by the North and South Bavarian co-ordination agencies for bat conservation , by volunteer bat conservationists and by persons working in the framework of commissioned studies / expert opinions and scientific studies . The state-wide bat-monitoring programme is being carried out by the co-ordination agencies for bat conservation, under commission to the state environmental agency (LfU) . It covers colonies of the greater and lesser horseshoe bats, greater mouse-eared bat, Geoffroy's bat and barbastelle bat, along with a number of winter roosts. The monitoring covers the most important winter roosts.
Berlin BE	Population data are regularly collected in winter roosts in connection with Berlin's species-assistance programme for bats, and under commission to the state of Berlin's supreme nature conservation authority (Senate Administration for Urban Development) . Bat-"box" sites in forests are checked in part by volunteer bat conservationists (for example, members of the German Nature Conservation Association (NABU)) and in part (at larger intervals) within the framework of the species assistance programme .
Brandenburg BB	Collected data are maintained by the State environmental agency / Zippelsförde nature conservation station , working in co-operation with the State committee on mammalian studies (Landesfachausschuss Säugetierkunde) of the German Nature Conservation Association (NABU), Brandenburg state chapter.
Hesse HE	Hessen-Forst FIV Naturschutzdaten , a nature conservation database maintained in Gießen, serves as the central data repository. Collected data includes chance data and results of the greater mouse-eared bat monitoring programme ; in addition, data are collected in connection with basic data surveys in FFH areas and via light-barrier monitoring of selected greater mouse-eared bat roosts in the framework of a project contract issued by Hesse's Ministry for Environment, Rural Areas and Consumer Protection .
Mecklenburg - West Pomerania MV	In recent years, bat-research data have been collected in Mecklenburg – West Pomerania especially by members of the state committee for bat conservation of the German Nature Conservation Association (NABU) and by other volunteer bat conservationists . The Ministry for the Environment and the state's environmental agency have financed state-wide surveys of species of Annex II of the FFH Directive, working via project contracts and financial support for relevant associations . During the period 2003 to 2006, state-wide surveys, with data entering into a unified database , and checks of all important winter roosts , were carried out. Extensive population surveys were also carried out with funding from relevant foundations. In selected forest habitats, regular checks of roost occupation by forest bats were carried out. In 2002 and 2003, these studies were supported by the State Agency for Environment, Nature Conservation and Geology (Landesamt für Umwelt, Naturschutz und Geologie – LUNG) .
Lower Saxony NI	The nature conservation authority within Lower Saxony's Agency for Water Resources Management, Coastal Protection and Nature Conservation (Landesbetrieb für Wasserwirtschaft, Küsten- und Naturschutz - NLWKN) , an authority formerly within the State Agency for Ecology (Landesamt für Ökologie - NLO) , continues to collect data on bats within the framework of Lower Saxony's animal-species-survey programme (since about 1979). In addition, volunteer regional bat managers , working systematically in part, continue to collect data on species populations, roosts, hunting grounds, flight paths and threats to specific roosts and habitats, etc., and to report such data to the specialised authority. Such managers also work in co-operation with the relevant rural districts. Furthermore, the reader's attention is called to the previous report. Monitoring relative to the greater mouse-eared bat, pond bat and serotine bat has been intensified.
North Rhine - Westphalia NW	Bat-population data are collected primarily by volunteer, regionally active bat experts of the state. In part, such data are also collected in the framework of project contracts issued by the State Institute for Ecology, Land-Use Planning and Forests (Landesanstalt für Ökologie, Bodenordnung und Forsten Nordrhein-Westfalen – LÖBF) or of scientific studies of universities . Some of the state's biological stations also collect bat data. In addition, bats are increasingly being studied in the framework of intervention planning . Such data are archived within the state-wide sighting location cadastre (Fundortkataster; FOK) , which is housed within the LÖBF. Some 750 data records are already digitally available.- Since the 1980s, censuses have been carried out regularly by volunteers , with focuses especially on a number of winter roosts and maternity roosts. In addition, since 2000 entrances and exits of bats at the most important swarming site and winter roost have been monitored by means of a light barrier .

¹⁶ BRAUN, M. & DIETERLEN, F. (2003): (2003): Die Säugetiere Baden-Württembergs. Volume 1. Stuttgart.

¹⁷ MESCHÉDE, A. & RUDOLPH, B.-U. (ed.) (2004): Fledermäuse in Bayern. Stuttgart.

	<p>All of the data obtained through such efforts provides a basis for conclusions relative to bats' population trends, in keeping with the purposes of monitoring.</p> <p>Since 2004, and in the framework of FFH-related reporting obligations, the state-wide population-monitoring programme has been carried out throughout NRW, for all bat species, by the LÖBF. The focus of efforts under this programme is on swarming sites and winter roosts and on selected maternity roosts.</p>
Rhineland-Palatinate RP	<p>Data are collected in the framework of financed projects, volunteer efforts, grant-financed research for diploma theses and dissertations, as well as of intervention management and FFH-related impact assessments in connection with planned measures (and with plans themselves). Rhineland-Palatinate's Working Group on Bat Conservation (AK Fledermausschutz) has the best current overview of the situation of relevant species.</p>
Saxony SN	<p>Support for existing bat roosts, and exploration relative to new roosts, is carried out mainly by volunteer bat conservationists, under the auspices of the Saxony chapter of the German Nature Conservation Association (NABU), and/or the Saxony Association for Bat Research and Conservation (Sächsischer Verband für Fledermausforschung und -schutz e. V. - SVF). Such activities are supported by nature conservation authorities and, to some extent, are integrated within official nature conservation services.</p> <p>Current population and threat data for selected species (greater mouse-eared bat, barbastelle bat, Bechstein's bat, lesser horseshoe bat) and for selected important bat roosts are collected in the framework of a support system for endangered animal species, under the auspices of the State Agency for Environment and Geology (Landesamt für Umwelt und Geologie - LfUG). The populations in maternity roosts of the lesser horseshoe bat have been recorded since the early 1970s. Regular checks of some roosts of greater mouse-eared bats and of barbastelle bats have been organised in the framework of the support system for endangered animal species. In addition, regular checks of selected winter roosts take place (1-2x per season). Furthermore, the LfUG has commissioned roost checks and transect studies in the framework of FFH-related species-monitoring (1x per report period).</p> <p>In connection with initial FFH-related surveys, within the framework of management planning, pertinent data surveys are carried out by offices commissioned for that purpose.</p> <p>Further records relative to bat populations are maintained by nature conservation associations (see above).</p> <p>Bat-population information obtained in the framework of the "bat come inside" campaign ("Fledermaus komm ins Haus") is collected by the Nature conservation fund foundation (Stiftung Naturschutzfonds) and also provided to the LfUG for its records.</p> <p>In the framework of the establishment of a bat-marking centre for the five eastern German Länder, the LfUG maintains a database on bat marking and re-finds, on the basis of bilateral agreements with partner institutions in the eastern German Länder.</p>
Saxony-Anhalt ST	<p>Data surveys in the field are carried out by:</p> <ul style="list-style-type: none"> • Saxony-Anhalt's State Reference Agency for Bat Conservation (Landesreferenzstelle für Fledermausschutz Sachsen-Anhalt) (monitoring programmes as well as co-ordination), • volunteer species specialists and banding personnel, primarily under the auspices of the Saxony-Anhalt Working Group on Bats (Arbeitskreis Fledermäuse Sachsen-Anhalt e. V.). Relevant support is provided by the State Reference Agency for Bat Conservation and the State Agency for Environmental Protection (Landesamt für Umweltschutz). • To a lesser extent, by experts preparing reports in the context of planning procedures. <p>Data compilations and evaluations are prepared, on a project-oriented basis, and commissioned as studies, by the State Reference Agency for Bat Conservation and by the State Agency for Environmental Protection.</p>
Schleswig-Holstein SH	<p>All collected data relative to bats are stored centrally at the State Agency for Bat Conservation and Research (Landesstelle für Fledermausschutz und -forschung) in Bad Segeberg and, with the help of the Winart programme, are entered with to-the-point precision into 1:25,000-scale topographical maps.</p> <p>The State Agency for Bat Conservation and Research and volunteers of the Working Group on Bat Conservation (Arbeitsgruppe Fledermausschutz) carry out programmes of systematic net captures. Such efforts are focussed especially on the pond bat (<i>Myotis dasycneme</i>) and Bechstein's bat (<i>Myotis bechsteinii</i>). In addition, when other rare and endangered bat species are discovered (including the parti-coloured bat, Brandt's bat and the whiskered bat), targeted net captures are carried out in the vicinity of finds in an attempt to obtain further data.</p> <p>Five important underground overwintering roosts are being automatically monitored with light-barrier systems. In the winter, automatic counting is supplemented by manual counts.</p> <p>Data surveys relative to the greater noctule bat are carried out by means of both automatic counting systems (light barriers) and banding.</p> <p>In connection with the "bat-friendly house" campaign ("fledermausfreundliches Haus"), all known roosts in houses are being recorded and entered into the aforementioned database.</p>
Thuringia TH	<p>Much of the current data on bat populations in Thuringia is obtained in connection with efforts accompanying interventions. But since the relevant detection methods (automatic detectors, call analyses) are not subject to permitting requirements, the data they produce are seldom entered into either of the species database systems maintained in Thuringia – the THKART system maintained at the Thuringian State Institute for Environment and Geology (Thüringer Landesanstalt für Umwelt und Geologie) in Jena, and the bat database of the Co-ordination Agency for Bat Conservation (Datenspeicher Fledermäuse of the Koordinationsstelle für Fledermausschutz). It is estimated that some 15 bat surveys are carried out each year in Thuringia, using methods not subject to special permitting, in connection with intervention procedures. Observation data obtained at the labour cost of about one man-year, and at a financial cost of about 100,000 euros (€), are thus recorded primarily by public-sector contracting agencies without being added to faunal records that would make them available for further use.</p> <p>The co-ordination agency's database primarily receives reports from volunteer bat conservationists of the Thuringian Bat Association's (Fledermausverein) interest group on bat</p>

C. Measures relative to implementation of Article III of the Regional agreement

6 Legal measures for protection of bats, and enforcement of such measures

All bat species occurring in Germany are strictly protected under the Federal Nature Conservation Act (Bundesnaturschutzgesetz - BNatSchG). Provisions relative to strictly protected species apply directly in the Länder.

Pursuant to Art. 12 (1) letter d) of the FFH Directive, resting places and breeding sites of Annex IV animal species may not be damaged or destroyed. In a current ruling of 10 January 2006, the European Court of Justice has found that the general exception regulations under Art. 43 IV BNatSchG, with regard to actions of the agricultural, forestry and fisheries sectors that are considered to be good and proper practice and that do not *intentionally* damage or destroy animals or their resting places or breeding sites, are not in conformance with Art. 12 of the FFH Directive. Possibilities for adapting the BNatSchG accordingly are currently being discussed by the Federal Government, the Länder and relevant non-governmental organizations.

Changes, new information and additions relative to the previous report from the Länder:

Bavaria:

The amended Bavarian Nature Conservation Act entered into force on 1 August 2005. The amendment has left the Act's species conservation provisions largely unchanged.

Brandenburg:

The framework provided by the Federal Nature Conservation Act and the state's Nature Conservation Act (BNatSchG and BbgNatSchG, amended version of 2004) provides the basis for enforcement of conservation.

Berlin:

Relevant court rulings: A plaintiff had received an exemption authorising him to destroy bat roosts in connection with a façade renovation. Auxiliary provisions to the exemption mandated that artificial bat shelters in the form of tubes would have to be integrated within the façade, as compensation. The plaintiff had applied for the exemption to either be suspended or issued without any compensation requirements in its auxiliary provisions. The complaint was rejected (ruling of Berlin Administrative Court (VG) of 21 Sept. 2004, VG 1 A 21.02), and the application for admission of an appeal was rejected by the Berlin-Brandenburg Higher Administrative Court (OVG; ruling of 12 Dec. 2005, OVG 11 N 8 05).

Mecklenburg - West Pomerania:

The state building code valid as of 1 September 2006, and dated 18 April 2006 (Law and Ordinance Gazette (GVOBl.) of Mecklenburg - West Pomerania p. 102) sets forth that demolition of buildings shall not be subject to permitting or procedures. This hampers preventive review of the impacts of relevant measures on bat fauna.

The Act for establishment of the state forest institute of 11 July 2005 (GVOBl M-V p. 326) transfers the state forest of Mecklenburg - West Pomerania to the state forest institute. Any impacts on management of relevant forest areas, with regard to the quality of bat habitats, will have to be monitored.

North Rhine – Westphalia:

The amended version of NRW's Landscape Act (Landschaftsgesetz) entered into force on 10 January 2006 NRW. It contains no special provisions or regulations relative to bat conservation. Some of its provisions are indirectly significant for bat conservation and assistance, however, such as its Art. 62, which protects certain biotopes that are also of relevance for bats, including caves and mine shafts, natural and semi-natural water-body areas and riparian forests.

Its Art. 2 also imposes a number of new provisions that are also significant in the above sense and that formulate aims of nature conservation and landscape management. These provisions include

- Para. 5 in the Act's new Art. 2c, whereby forest management must pursue the aim of establishing and promoting semi-natural forests and of managing such forests without any use of clear-cutting
- Preservation and development of ecologically important structures in settled areas (Art. 2 (1) 10.).

Saxony:

Relevant court rulings:

- Dresden Administrative Court, administrative case (Verwaltungsrechtssache) 7 K 2583/02 concerning the issuing of a preliminary decision on construction of two wind turbines. The complaint was rejected on grounds that birds and bats would be endangered (2 June 2003)
- Dresden Administrative Court; a complaint relative to the Gnaschwitz site was withdrawn (2004)
- Federal Administrative Court, B 107 (municipal bypass road in the Grimma area, Muldental district); settlement reached, calling for a new review of alternatives and an environmental impact assessment (02/2006).

Saxony-Anhalt:

Acts and amendments of acts:

- Amendment of the Nature Conservation Act of the state of Saxony-Anhalt (NatSchG LSA): Version of 23 July 2004 (Law and Ordinance Gazette (GVBl.) of the state of Saxony-Anhalt (LSA) No. 41/2004, issued on 29 July 2004).
- Third Act on facilitation of investments, Act on the building code of the state of Saxony-Anhalt and for amendment of additional acts (Third Investments-Facilitation Act - Drittes Investitionserleichterungsgesetz), in the version of 20 December 2005 (Law and Ordinance Gazette (GVBl. of the state of Saxony-Anhalt (LSA) No. 67/2005, issued on 27 December 2005). The act complements the NatSchG LSA by empowering the competent ministry to establish special protection areas pursuant to the FFH Directive and to issue ordinances defining habitats and species that are to be protected.

Relevant court rulings:

- In a ruling of 13 January 2006, the Higher Administrative Court of the state of Saxony-Anhalt has decided, in jurisdiction of last instance, that demolition in a vaulted cellar known to be a winter roost of bats (Magdeburg brewery cellar) is permissible (reference number 2 M 177/05, 1 B – 345/05 – MD). The court took the position that overwintering sites are not nesting, breeding, living or refuge sites within the meaning of Art. 42 Federal Nature Conservation Act (BNatSchG) and thus are not subject to the prohibition against destruction and damage pursuant to Art. 42 BNatSchG. In reaching this decision, the Higher Administrative Court cited a ruling of the Federal Administrative Court (ruling of 11 January 2001 – BVerwG 4 C 6.00 -, BVerwGE 112, 321 [325]).
In the aforementioned ruling of the Federal Administrative Court, it was decided that "only the expressly mentioned nesting, breeding, living or refuge sites" fall under the prohibition against damage and destruction of Art. 20 f (1) No. 1 BNatSchG (version of 12 March 1997), but not "feeding areas of animals, and their hunting and overwintering sites".

Thuringia:

An amended version of Thuringia's Nature Conservation Act (ThürNatG) was adopted in March 2006.

In addition, reference is made to Thuringia's "FFH-introduction directive" ("FFH-Einführungserlass") as a subordinate regulation with impacts on bat conservation (Thüringer Staatsanzeiger 05/2004).

During the report period, bat-conservation requirements were twice cited, in arguments in administrative court cases, as a means of preventing construction of wind-turbine systems.

7 Protected areas of special importance with regard to bat conservation

Nationwide, the following numbers of proposed Sites of Community Importance (pSCI) for bat species listed in Annex II of the FFH Directive have been notified (status as of January 2005)¹⁸:

Species	Number of sites
Greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>)	27
Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>)	87
Barbastelle bat (<i>Barbastella barbastellus</i>)	332
Bechstein's bat (<i>Myotis bechsteinii</i>)	466
Pond bat (<i>Myotis dasycneme</i>)	119
Geoffroy's bat (<i>Myotis emarginatus</i>)	38
Greater mouse-eared bat (<i>Myotis myotis</i>)	795

The Annex includes maps showing the spatial distribution of the ranges of the relevant species¹⁸.

¹⁸ BALZER, S. & SSYMAN, A. (ed.) (2005): Natura 2000 in Deutschland. CD-Rom with booklet. Naturschutz und Biologische Vielfalt 14.

Other FFH sites notified by the Länder also include official listings of some bat species. Tabular overviews – for example, of the areas in Hesse, for which bats are listed in the current standard data forms, may be downloaded from http://interweb1.hmulv.hessen.de/natura2000/Sdb/Art_I/artlisteFFH_IV.html.

In 2004, the Eifel National Park, covering an area of about 110 km², was established in North Rhine – Westphalia. This park will further improve the long-term conditions for this region's bats. The planned development of extensive natural beech forests (old-growth beech forests) in forested areas rich in water bodies will greatly increase the availability of natural tree roosts. From 2003-2005, basic population surveys of bat fauna were carried out to provide a basis for future bat monitoring and a key component of concepts for development of national parks. To date, at least 14 species, including four FFH Annex II species, have been sighted in the area of the national park.

From 2003-2005, a total of seven nature conservation areas of special importance for bat conservation were established, or transposed into a federal law framework, in Saxony-Anhalt. These areas represent a total area of 17,069 ha.

8 Taking account of habitats has important bat biotopes

Many important bat habitats enjoy special protection under state nature conservation laws (see the previous reports). Bat habitats have also been taken account of in connection with the following measures:

- Preparation of management plans for FFH sites (Bavaria, Rhineland-Palatinate)
- Immediate-measures concepts, for forests in FFH sites, specifying protection, management and development measures for species listed in the FFH Directive (North Rhine – Westphalia)
- Programmes / agreements for contractual nature conservation in forests that benefit bats by helping to protect/establish trees with hollows (Bavaria, North Rhine – Westphalia)
- Establishment of small water bodies in forest areas (Mecklenburg - West Pomerania)
- Measures to enhance water retention and to raise groundwater levels, in the framework of a bog conservation programme (Mecklenburg - West Pomerania)
- Designation of feeding habitats as landscape or nature conservation areas (Berlin)
- Consideration of bats in intervention planning / environmental impact assessments and FFH-conformance reviews (Bavaria; Mecklenburg - West Pomerania: for example, creation of biotopes that are suitable feeding habitats for bats, as compensation measures; Lower Saxony; North Rhine – Westphalia: for example, making changes in the route of a planned autobahn; Saxony: for example, creation of lead structures and crossing aids, in compensation for losses via roadway construction; Saxony-Anhalt: for example, proposals for design of compensation and substitution measures for creation of bat-friendly hunting areas; Thuringia).
- Protection of landscape elements, in addition to protected biotopes pursuant to Art. 30 Federal Nature Conservation Act (BnatSchG) (Mecklenburg - West Pomerania: Natural depressions in the landscape and field hedges – also via programmes that support relevant new construction and functional improvements)
- Data collection – for example, via telemetric studies and mapping of locations of tree hollows (Bavaria; Rhineland-Palatinate: inter alia, surveys and monitoring in the framework of the "Bienwald" major nature conservation project (Thuringia)
- Protection, development and optimisation of bat roosts (Lower Saxony; Brandenburg: inter alia, via a testing and development project; North Rhine - Westphalia: inter alia, via contractual agreements; Saxony-Anhalt: promotion via support for measures to improve the function of natural systems, as well as for measures for enhancement of biotope networks and for protection of endangered animal species)
- Greater consideration of bats in preparation of new protection ordinances for nature conservation areas (Saxony).

Plans call for placing the "Westwall" structure, in which seven bat species have been sighted, under monument-status protection (Rhineland-Palatinate).

9 Measures to raise public awareness about bat conservation

The Federal Agency for Nature Conservation (BfN) has published German-language translations of the resolutions adopted by the 4th Session of the Meeting of Parties to the EUROBATS Agreement and of

Germany's national reports for the 2000-2003 and 1998-2000 periods..¹⁹ The resulting compilation, which is available free of charge to interested parties, has been prepared especially in order to inform volunteer conservationists, and staff of local nature conservation authorities, about bat conservation and about the EUROBATS Agreement. Only a small minority of the persons in this intended readership are willing and able to read the English-language documents available on the EUROBATS Web site.

The German Länder have listed the following measures – in part, in addition to information provided in the previous report (Lower Saxony has simply referred to that report):

	BW	BY	BE	BB	HE	MV	NW	RP	SN	ST	SH	TH
Seminars / workshops / training courses / conferences	x	x		x		x	x		x		x	x
Lectures/presentations		x				x		x	x			
Excursions / guided tours		x	x		x			x	x		x	
Discussion events						x						
Informational material /brochures				x	x		x		x		x	
Exhibitions		x	x	x		x			x			
Posters		x									x	
Establishment of museums				x								
Bat festivals			x					x			x	
"Bat nights"		x	x	x	x		x		x		x	
Competitions									x			
Press articles / discussions		x	x				x				x	
TV / radio reports		x									x	
Publications		1			2				3	4		
Newsletters		x										
Information systems							x					
Campaigns to create / protect bat roosts in and on buildings		x	x		x				x	(x)	x	x
Other events aimed at raising public awareness					x			x				x

1 MESCHDE, A. & RUDOLPH, B.-U. (ED.) (2004): FLEDERMÄUSE IN BAYERN. STUTTGART.

2 RICHARZ, K. (2004): „FLEDERMÄUSE – BEOBACHTEN, ERKENNEN, SCHÜTZEN“. KOSMOS-VERLAG, STUTTGART.

3 STEFFENS, R., ZÖPHEL, U. & BROCKMANN, D. (2004): 40 JAHRE FLEDERMAUSMARKIERUNGSZENTRALE DRESDEN - METHODISCHE HINWEISE UND ERGEBNISÜBERSICHT. – MATERIALIEN ZU NATURSCHUTZ UND LANDSCHAFTSPFLEGE, DRESDEN.

4 LANDESAMT FÜR UMWELTSCHUTZ SAXONY-ANHALT (ED.) (2004): DIE TIER- UND PFLANZENARTEN NACH ANHANG IV DER FAUNA-FLORA-HABITATRICHTLINIE IM LAND SACHSEN-ANHALT. – NATURSCHUTZ IM LAND SACHSEN-ANHALT 41: 1-142.

10 The body pursuant to Article III.5 of the Agreement

During the report period, the body of experts appointed by the Federal Government and the Länder, pursuant to Article III.5 of the Agreement, met on 25 November 2003 in Frankfurt/M., on 3 March 2004 in Erfurt, on 22 October 2004 in Augsburg, on 12 April 2005 in Frankfurt/M. and on 30 May 2006 in Berlin. Johannes Tress (Thuringia) is the body's chairman. The body's deliberations have focussed especially on the "Recommendations for marking bats with armbands (bat bands) in Germany", which were developed for national implementation of EUROBATS resolution 4.6. The recommendations, which were established in co-operation with experts from the Länder and from relevant associations, were approved on 17 March 2006 in Hamburg by LANA, the Länder ministerial working group for nature conservation issues. As a result, they have become the official nation-wide guidelines for approval and execution of bat marking (banding).

¹⁹ German Federal Agency for Nature Conservation (ed.): (2005): Fledermausschutz in Europa: Beschlüsse der 4. EUROBATS-Vertragsstaatenkonferenz und Berichte zum Fledermausschutz in Deutschland 1998–2003. BfN-Skripten 150.

11 Additional measures for protection of bats

In the framework of a symposium, the Federal Agency for Nature Conservation (BfN) has outlined Germany's responsibility relative to protection of central-European species.²⁰ The results show that Germany has an especially large responsibility for the following bat species: *Barbastella barbastellus*, *Myotis bechsteinii*, *Myotis myotis*, *Myotis dasycneme* and *Rhinolophus hipposideros*. Assessment of *Nyctalus noctula* will not be possible until the status of the population that overwinters in Schleswig-Holstein has been clarified.

The Länder have reported the following additional measures for the period under review:

Baden-Württemberg:

- Various protection measures, especially measures to protect winter roosts.

Bavaria:

During the period under review, and since the previous report, the following research has been carried out in the framework of diploma and state examination theses at the universities of Würzburg, Erlangen and Munich (the most important methods used are listed in parentheses: B = banding, BC = biochemical analysis, D = detector, G = genetic analysis, K = analysis of droppings, N = net captures, Q = checks of roosts, R = analysis of calls, T = telemetry, Tr = transponder, V = observations of behaviour):

- Studies of hunting-habitat selection and roost use by Geoffroy's bat (*Myotis emarginatus*) in Upper Bavaria (T, Q)
- Phenology of, and roost use by, the grey long-eared bat (*Plecotus austriacus*) (Q, V)
- Availability of tree hollows, and use of tree hollows by bats and birds at Herrenchiemsee castle (Upper Bavaria) (Q)
- Impacts of an autobahn on use of space by two threatened bat species: *Myotis bechsteinii* and *Barbastella barbastellus* (T, Q, N, Tr, G)
- Group decisions regarding daytime roosts and colony structures in a maternity-roost group of Bechstein's bat *Myotis bechsteinii* (G, Q, Tr)
- Three-dimensional survey of use of space by bats, as a basis for planning of forestry measures beneficial to bats (D, R)
- Habitat and elevation dependence of hunting activities of sympatrically occurring bats in the Bayerischer Wald National Park (D, R)
- Possibilities for, and limitations to, identification of European bat species (not including the *Myotis* genus) via call analysis (D, R)
- Call structure and computer-aided identification of central European bat species of the genus *Myotis* (D, R)
- Occurrence of alternating call volumes in *Pipistrellus pipistrellus* (Schreber): occurrence, origins and benefits (D, R).

Brandenburg:

- Continuation of activities carried out regularly in recent years.
- Support of studies by the Federal Research Centre for Virus Diseases of Animals relative to bat rabies in the state of Brandenburg, via sampling and provision of dead-bat finds.

Hesse:

- Population-ecological studies of the maternity roost colony of greater mouse-eared bats in Niederzeuzheim.
- Construction-relevant biological studies of the maternity roost colony of greater mouse-eared bats in Ersheim Chapel, in connection with renovation and repair of roof timbers.
- Several completed diploma theses and doctoral dissertations relative to questions of habitat use by Daubenton's bats, brown long-eared bats and Bechstein's bats.

Mecklenburg - West Pomerania:

- Protection and optimisation of six winter roosts of the greater mouse-eared bat, in the framework of the testing and development project "Optimisation of bat winter roosts in eastern Germany", carried out by the EURONATUR environmental foundation, and supported by the Federal Agency for Nature

²⁰ GRUTTKKE, H. (ed.) (2004): Ermittlung der Verantwortlichkeit für die Erhaltung mitteleuropäischer Arten. Naturschutz und Biologische Vielfalt 8.

Conservation (BfN), with funding from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).²¹

Lower Saxony:

- The competent specialised authority has issued contracts / project contracts relative to the following topics / areas:
 - Continuation and further establishment of efforts for monitoring various bat species (greater mouse-eared bat, pond bat, serotine bat)
 - Various studies relative to the pond bat
 - Telemetric studies of female greater mouse-eared bats
 - Studies of mating grounds of the parti-coloured bat
 - Compilation of sightings of the parti-coloured bat in Lower Saxony
 - Study of the population of the soprano pipistrelle (*Pipistrellus pygmaeus*)
 - Study of the population of Bechstein's bat
 - Study of the habitat of the barbastelle bat
 - Study and monitoring of artificial bat winter roosts in south Lower Saxony.
- Additional studies and projects, carried out with the help of volunteers.
- Determination of migratory routes of the greater noctule bat and of Nathusius's pipistrelle, in the framework of the Federal Agency for Nature Conservation's greater noctule bat project (banding project).
- Ongoing execution of measures for establishment and protection of winter roosts, and for repair of closures of winter roosts.
- Regular consultations, and measures for protection of summer roosts (buildings, forest structures, tree hollows).

North Rhine - Westphalia:

Topics about which research projects, diploma theses etc. have been carried out or begun in recent years:

- Improvement of protection for native bats in the core area of the Westphalian Bight²² (supported by North Rhine – Westphalia's Ministry for the Environment and Nature Conservation, Agriculture and Consumer Protection).
- Studies of the ecology of Daubenton's bat in Münster
- Studies of the occurrence of the greater noctule bat in Münster
- Marking / banding projects aimed at illuminating migratory behaviour, roost and location loyalty, winter-roost use and movements between roosts (Natterer's bat, Daubenton's bat, Bechstein's bat, pond bat, Nathusius's pipistrelle, greater noctule bat, greater mouse-eared bat).
- Telemetric studies, of local populations of various species, aimed at locating the bats' roosts and hunting grounds (greater mouse-eared bat, Bechstein's bat, Natterer's bat, Leisler's bat, brown long-eared bat, Brandt's bat).
- Continuation of the "long-term bat-settlement experiment" in the Oberbergisch district.
- Mapping project for surveying and studying maternity roosts and winter roosts at Burg Vogelsang castle.

Rhineland-Palatinate:

During the period under review, the Ministry for the Environment and Forests, using "Biotope and species protection" grants, supported the following examination and diploma theses and doctoral dissertations, carried out at the universities of Mainz, Kaiserslautern and Trier, relative to protection and study of bats:

- Metabolic physiology and thermal regulation in bats
- Studies on activity of bats (Chiroptera) at various locations within settled areas
- Do colonies of the grey long-eared bat (*Plecotus austriacus*, FISCHER 1829) differ in terms of the structure of their social calls?
- Integration of FFH Annex II species in the framework of preparation of management plans for FFH sites, illustrated with the example of Bechstein's bat (*Myotis bechsteinii* KUHL, 1817)
- The space-time system of the barbastelle bat – a radiotelemetric study
- Significance of spring swarming of bats with regard to designation of FFH sites
- Habitat use by the barbastelle bat in the Ahringsbachtal FFH site, as studied with the help of an automatic telemetry system
- Ground beetles in vineyards and forests as food for the greater mouse-eared bat (*Myotis myotis*). Ecological field studies of a maternity roost in Reil (Moselle River)

²¹ MEISSNER, M. & HAGENGUTH, A. (2004): Fledermäuse leiden an Wohnungsnot – ein Projekt der Stiftung Europäisches Naturerbe schafft Abhilfe. *Nyctalus* (N.F.) 9, 331-335.

²² TRAPPMANN, C. (2003): Projekt zur Verbesserung (Optimierung) des Schutzes einheimischer Fledermäuse im Kernbereich der westfälischen Bucht. Abschlussbericht.

In addition, a number of conservation-relevant reports, studies and publications have been prepared – for example, in the framework of development-plan procedures and implementation of the FFH Directive.

Saxony:

- Local measures to create roosts, in the framework of substitution and support measures
- Requirements for appraisals relevant to species protection, in connection with demolitions of buildings
- Installation of bat shelter blocks in connection with insulation of facades in the Dresden municipal area
- Optimisation of seven deactivated bunkers, for bats, in the framework of the testing and development project "Optimisation of bat winter roosts in eastern Germany", also with state and federal funding²¹
- Optimisation of conditions for maternity roosts of the lesser horseshoe bat, in connection with usage changes, via installation of thermal chambers with temporary electrical heating.

Thuringia:

Key activities were carried out especially in preparation for implementation of the FFH Directive:

- Initial surveys of areas in which few or no studies have been carried out
- Preparation for a programme for monitoring Bechstein's bat
- Commencement of studies relative to impacts of wood preservatives in FFH objects.

12 Existing and planned programmes for bat conservation

As part of preparations for regular reporting on the status of species and habitats pursuant to the EU's Fauna-Flora-Habitat Directive, a working group consisting of representatives of specialised Länder authorities and of the Federal Agency for Nature Conservation (BfN) has compiled basic points relative to surveys and monitoring of species. The Federal Agency for Nature Conservation has published resulting recommendations.²³ Markus Dietz and Matthias Simon have focussed on bats and provided special information about 14 bat species.

Bavaria:

- Since 1985, the two co-ordination agencies for bat conservation, representing northern and southern Bavaria, have operated Bavaria's "bats" species assistance programme.
- In 2005, a CD was prepared by the South Bavaria co-ordination agency: "Tools for bat conservation" ("Arbeitshilfen zum Fledermausschutz"), a resource for volunteer bat conservationists. Its contents include aids for species identification; a guide to using bat detectors; a lecture on "biology and protection of bats"; guidelines for dealing with injured and dead bats, and on surveying and protecting roosts; bat-oriented construction instructions; photos of bats and their habitats; information sheets and literature on various relevant topics.
- The co-ordination agencies have been holding regular teaching events at universities, with the aim of enhancing the role of bat conservation in training of biologists, forest rangers and landscape managers – i.e. of persons active in nature conservation by virtue of their occupations. The Bavarian Forest Institute (Landesanstalt für Wald und Forstwirtschaft), working in co-operation with the co-ordination agencies, is preparing a training course for forest rangers on surveying bats in FFH sites.

Berlin:

No changes since the previous report.

Brandenburg:

- Co-ordination and organisation of mammal surveys and conservation, including all bat species, by the Zippelsförde nature conservation station of the Brandenburg state environmental authority; the nature conservation station performs this task with respect to both the lower nature conservation authorities and volunteer conservationists. It also co-ordinates scientific studies in this area, and it is responsible for approving, guiding and advising banding programmes in the state.
- Continuation of the programme for monitoring maternity roosts of the greater mouse-eared bat.
- Continuation of the programme for monitoring important bat winter roosts and selected maternity roosts.
- Continuation of the long-term studies being carried out by bat banders working in the state of Brandenburg (including studies on the population structures of individual bat species, the relationships between summer and winter roosts, roost loyalty in winter roosts, possibilities for using bat boxes to encourage bats to settle in specific areas, age structures of individual bat species, importance of different roost types, interactions between different roosts of individual species, etc.).

²³ DOERPINGHAUS, A., EICHEN, C., GUNNEMANN, H., LEOPOLD, P., NEUKIRCHEN, M., PETERMANN, J. & SCHRÖDER, E. (Ed.) (2005): Methoden zur Erfassung von Arten der Anhänge IV und V der Fauna-Flora-Habitat-Richtlinie. Naturschutz und Biologische Vielfalt 20.

Hesse:

- Establishment of a co-ordination agency under the auspices of the state chapter of the German Nature Conservation Association (NABU), staffed with two specially appointed forest rangers (tasks include: manning a "bat telephone", collection of data from volunteers, co-ordinating the "bat-friendly house" campaign).

Mecklenburg - West Pomerania:

- From 2003 to 2006: study of the some 600 known winter roosts, and entry of relevant data into a database; as of 2006, protection (by structural means) and optimisation of these roosts.
- 2006: Beginning of systematic surveys of summer roosts (supported by the state agency), to provide the basis for necessary protection measures and authorities' decisions on prohibitions pursuant to Art. 34 (1) Federal Nature Conservation Act (BnatSchG). For protection efforts to be successful, all relevant owners and authorised users have to be informed about the rights, obligations and usage restrictions devolving from a location's status as a living or refuge site for a strictly protected species.
- Continuation of state-wide surveys, begun in 2002, of Annex II species, both within and outside of FFH sites.
- In preparation for fulfillment of reporting obligations under Articles 11 and 17 of the FFH Directive, as of the year 2013, monitoring programmes for Annex IV species have to be established and implemented.

Lower Saxony:

Reference is made to the previous report. Additions/changes:

- Monitoring of the populations of the greater mouse-eared bat, pond bat, barbastelle bat, Bechstein's bat, serotine bat.
- Banding programmes: greater noctule bat
- In co-operation with especially experienced bat conservationists, issue of certifications relative to the special knowledge (minimum standards) required for capture of bats (as a survey method).

North Rhine - Westphalia:

- A co-operation agreement on data exchanges between the State Institute for Ecology, Land-Use Planning and Forests (Landesanstalt für Ökologie, Bodenordnung und Forsten North Rhine – Westphalia – LÖBF) and volunteer bat conservationists is currently being sought.

Rhineland-Palatinate:

- Financial support for the Rhineland-Palatinate working group on bats, with state funding, to "promote volunteer work in nature conservation" (primarily in the form of funding to defray travel expenses).

Saxony:

Reference is made to the previous report and to point 9.

Saxony-Anhalt:

- Transfer of function as the State reference agency for bat conservation to the administration of the Karstlandschaft Südharz biosphere reserve, with state-wide effectiveness, via directive of the Ministry for Agriculture and the Environment of 18 September 2002.
- Banding of bats, with the aim of determining age structures, in order to help assess the health of populations.

Schleswig-Holstein:

- NABU State agency for bat conservation and research: Collection of bat data, especially for bat species of Annex II; collection and administration of data on all other bat species (Annex IV); introduction of monitoring measures. Co-ordination of the work of all bat conservationists in the working group on bats, and function as an information clearinghouse and training centre for bat conservation. Active information exchange with the State agency for nature and the environment (Landesamt für Natur und Umwelt).
- Species assistance programme for bats: Execution and development of conservation measures for bats.

Thuringia:

- Co-ordination agency for bat conservation (since 1996); supports bat conservation programmes.

13 Activities relative to the impacts of pesticides and wood preservatives on bats

Changes and additions to known Länder activities, with respect to the previous report:

Bavaria:

In 2004, the State forest administration (Staatsforstverwaltung) in Lower Franconia spread Dimilin on more than 10,000 ha of forest, in an effort to combat the gypsy moth and the oak processionary moth, whose populations had exploded as a result of the extremely dry summer of 2003. In a forest area in the Schweinfurt region, a study was carried out, under commission to the State environmental agency (LfU)²⁴, aimed at analysing bat activity on treated and untreated sites selected for comparison.

Mecklenburg - West Pomerania:

The publication "animals on buildings" ("Tiere an Gebäuden")²⁵ devotes an extensive chapter to protection of "house-dwelling" bats. This publication includes a list of wood preservatives that do not "endanger" bats when applied in accordance with the described precautions.

Rhineland-Palatinate:

Each year, via numerous discussions and appointments, the Working Group on Bats (AKF) advises private persons, churches, municipal representatives and forestry representatives regarding the impacts of the aforementioned measures. In particular, it offers alternatives to use of wood preservatives in buildings occupied by bats.

Saxony:

In one case, it was found that a 20-year-old treatment of a church's roof timbers, with Hylotox, was still affecting bats. Many near-adult dead greater mouse-eared bats were found in that roost. In an initial FFH-related survey, a superficial wood sample was found to be heavily contaminated – with 2 g/kg of DDT and its decomposition products. Analysis of the bats' bodies showed contamination levels of about 380 mg/kg of DDT and its decomposition products, thereby strongly indicating that the bats had died of DDT poisoning. To assist the bats, hanging sites were covered with a layer of untreated wood, and additional sites, on untreated wood, were offered.

Thuringia:

In 2004, a mysteriously high mortality rate in adult bats was observed in a maternity roost of greater mouse-eared bats in a church in Themar (in the Hildburghausen rural district, in south Thuringia). Direct application of pesticides was suspected; this was suggested in that such direct application had been observed several years earlier in a nearby maternity roost of greater mouse-eared bats in Häselrieth. Due to a lack of public interest in the case, however, the state prosecutor saw no opportunity for opening a case, in which toxicological analysis of the cadavers would have been able to confirm the suspicion. Anatomic examination of the cadavers by the competent official veterinarian failed to yield any results. Further toxicological analysis of the cadavers, of which the Higher nature conservation authority took possession, proved to be impossible, due to uncertainties in assignment of responsibilities and costs.

D. Method of function of the Agreement

14 International co-operation

In response to a request of the advisory committee for the EUROBATS Agreement, the Federal Agency for Nature Conservation (BfN) expanded its R&D project "Bat migrations in central Europe" to include all of Europe. In carrying out its part of the project, the Alexander Koenig Zoological Research Museum co-operated closely with a working group of the advisory committee and with many experts on bat migrations in Europe. The results of evaluation of all available banding findings are summarised in the book "Bat Migrations in Europe – A Review of Banding Data and Literature"²⁶. The book also includes a description of current taxonomy of European bats and overviews of bat-migration research carried out in the various European countries. The analysis revealed that some 1 million bats have been banded in Europe to date, and it determined that the longest migrations are carried out by *Pipistrellus pipistrellus*, *Nyctalus leisleri*, *Nyctalus noctula* and *Vespertilio murinus*.

In September 2004, an international workshop on "Modern field techniques in bat work" was held in Bonn and Marburg. This event was sponsored by the Alexander Koenig Zoological Research Museum, the

²⁴ RUNKEL, V. & MARCKMANN, U. (2004): Konzept zur Evaluierung des Einsatzes automatischer Aufzeichnungsgeräte zum Monitoring von Fledermausaktivitäten am Beispiel von Dimilin-Flächen in Unterfranken. Bericht i. A. des Bayerischen Landesamtes für Umwelt.

²⁵ KÖNIGSTEDT, D. G. W. (1997): Tiere an Gebäuden. Schr.-R. des Landesamtes für Umwelt und Natur Mecklenburg-Vorpommern 1997/H. 1.

²⁶ HUTTERER, R., IVANOVA, T., MEYER-CORDS, C. & RODRIGUES, L. (2005): Bat Migrations in Europe – A Review of Banding Data and Literature. Naturschutz und Biologische Vielfalt 28.

Norwegian Zoological Society and the Finnish Natural Historical Museum, with the support of the EUROBATS Secretariat, the SIMON & WIDDIG office for landscape ecology and the Federal Agency for Nature Conservation (BfN). A total of five participants from Norway, and three from Finland, joined with their German hosts in learning about the work of the bat-banding centre in Bonn. In addition, they carried out net captures at swarming sites, checked bat boxes, gained practice in telemetric techniques and received an introduction to consideration of bats in the framework of intervention planning.

Changes, new information and additions relative to the previous report from the Länder:

Bavaria:

- From 2005-2007, the Garmisch-Partenkirchen district group of the Bavarian Society for Bird Conservation (LBV), in co-operation with Tyrol, is carrying out a bat-conservation project, funded by the EU's Interreg IIIA programme, in the Euregio Zugspitze-Wetterstein-Karwendel. The project's aims include improving the roost situation for bats in the Garmisch-Partenkirchen area.
- In co-operation with the Austrian co-ordination agency for bat conservation, the south Bavarian co-ordination agency for bat conservation has prepared a "renovation guide" that summarizes and evaluates all available experience with renovation of buildings with bat roosts; this is also an Interreg IIIA project of Austria, Germany and Italy. The authors discussed the guide with colleagues from other Länder, in the framework of a meeting of the Federal Working Group on Bat Conservation (Bundesarbeitsgemeinschaft Fledermausschutz - BAG) in Tübingen; and with experts from throughout Europe, at a workshop at the "European Bat Research Conference" held in August 2005 in Galway (Ireland). As a result, findings from throughout Europe were able to enter into the work. Yet another Interreg sub-project focussed on continuation of the species-assistance programme for the lesser horseshoe bat, especially with regard to optimisation of roost in the vicinity of the three existing colonies.
- Bat surveys and conservation in the Bavarian-Bohemian Forest: The co-operation partners Sumava National Park and Landscape Conservation Area, Czech Academy of Sciences and the Bayerischer Wald Nature Park are carrying out this Interreg III project until 2007. The project is focussed on population surveys, monitoring, renovation-related advising and support, public awareness measures (nature park bat Web site for the Czech Republic and Bavaria; bilingual brochure, for the German and Czech publics, on practical bat conservation), training of bat conservationists, a station for caring for bats and returning them to the wild and on surveys of forest bats in the Czech Republic and Bavaria.
- The south Bavarian co-ordination agency for bat conservation (Andreas Zahn) is regularly represented at the European bat conference. At the 2005 conference in Galway (Ireland), Dr. Zahn gave a lecture on the Bavarian bat-monitoring programme. At the International Bat Conference held in 2004 in Poland, Eva Kriner and Dr. Andreas Zahn presented the Bavarian telemetric studies of Geoffroy's bats and greater mouse-eared bats. In 2002, at the European bat conference in France, studies were presented on the lesser horseshoe bat (use of roosts and hunting habitats, population trends), Daubenton's bat (use of a cave as a summer roost) and bat parasites.
- The Bavarian State environmental agency has temporarily "loaned" two experts for the "Natura 2000" twinning project being carried out by Germany and Turkey (B.-U. Rudolph, Alois Liegl). Working together with Turkish experts, the two will carry out activities that include reviewing Turkish mammalian species for relevance to the FFH-Directive Annexes. In addition, this project has produced the first proposals for possible Natura 2000 areas in Turkey.²⁷

Berlin:

Berlin's representative in the body of experts, acting in his function as the body's chairman, took part in the 4th Session of the Meeting of Parties held in September 2003 in Sofia.

Brandenburg:

The Euronatur foundation project for protecting potential winter roosts (see the previous report) is being continued in 2006.

Hesse:

In the main, international co-operation is limited to international contacts of individual persons – for example, K. Richarz is a member in the IUCN's Chiroptera Specialist Group.

Mecklenburg - West Pomerania:

²⁷ RUDOLPH, B.-U., LIEGL, A., & Karatas, A. (2005): The bat fauna of the caves near Havran in Western Turkey and their importance for bat conservation.- Zool. Middle East 36, 11-20.

The state of Mecklenburg - West Pomerania has co-operated in the international R+D project "Bat roosts on both sides of the Oder River".²⁸

Rhineland-Palatinate:

Members of the Working Group on Bats (AKF) regularly take part in state-wide events. In the "Pfälzerwald-Nordvogesen" biosphere reserve, close contacts are maintained between the Alsatian side (especially S. Morelle) and staff on the Palatinate side (such as F. Grimm).

Saxony:

The Saxony state chapter of the German Nature Conservation Association (NABU) took part in a trilateral conference (Poland, Czech Republic, Germany) entitled "Bats in the Sudety Mts.". The event took place in 07/2004 in the Czech Republic. Such co-operation is being continued.

Saxony-Anhalt:

Volunteer staff of the Saxony-Anhalt Working Group on Bats (Arbeitskreis Fledermäuse Saxony-Anhalt e. V.) take part in bilateral and international projects. Their efforts include supporting working groups in eastern European countries with literature and resources.

Schleswig-Holstein:

During the report period, two experts' meetings on the topic "Population and distribution of the pond bat" took place. These meetings were organised by Florian Gloza-Rausch and Dorothea Barre and by Anne Jefke Haarsma (Netherlands). The meetings included both national and international participants.

15 Measures for implementation of the resolutions of the Meeting of the Parties

15.1 MOP 2 Resolution No. 2: Consistent monitoring methodologies

Efforts to develop a nation-wide bat-monitoring system were continued in a two-year pilot study involving the greater mouse-eared bat. As part of this study, in 2003 the bats in 441 maternity roosts, in a total of 11 German Länder, were counted. At the same time, only 40 % of these roost censuses were in complete conformance with the agreed methods. The average size of the maternity roost colonies was 283 adult females. Rough population estimates indicate that the total population of *Myotis myotis* in Germany amounts to 300,000 to 400,000 bats. While the pilot study showed the usefulness of the agreed monitoring programme, it also revealed a number of organizational and political deficits.

To support the development of "Guidelines for surveys of bats and monitoring methods", as promoted by the EUROBATS Agreement, the Federal Agency for Nature Conservation (BfN) revised a first draft of such guidelines. In this revision, methods and concepts developed in Germany were added to an existing text that had been prepared largely by the United Kingdom. Further contributions were provided by Christine Harbusch and Peter Boye, whom the British "Bat Conservation Trust" invited to a EUROBATS workshop, in England, aimed at completing the guidelines.

Bavaria:

- *Rhinolophus hipposideros*: Determination of colony sizes via roost inspections and egress counts, in June/July. Otherwise, no changes from the previous report.
- *Myotis myotis*: for counts, see the previous report. About 90 % of the colonies are visited once per year; along with the 130 winter roosts under permanent monitoring, over 200 additional roosts with sightings of the greater mouse-eared bat are checked once annually.
- *Myotis bechsteinii*, *Nyctalus noctula*, *Eptesicus serotinus*, *Eptesicus nilssonii*: No changes from the previous report.

Berlin:

No changes from the previous report.

Brandenburg:

- *Myotis myotis*: Continuation of the state-wide programme, begun in 2003, for monitoring known maternity roosts in accordance with nationally standardised methods.
- *Myotis bechsteinii*: State-wide monitoring of known maternity roosts and winter roosts; systematic recording of all reported sightings.
- *Nyctalus noctula*: Studies aimed at obtaining basic data about this species in bat-box sites in the Uckermark rural district; systematic recording of all reported sightings.
- *Eptesicus serotinus*, *Eptesicus nilssonii*: Systematic recording of all reported sightings.

²⁸ NOWAK, E. (2003): Das F+E-Vorhaben „Fledermausquartiere beiderseits der Oder“. *Nyctalus* (N.F.) 8, 490-495.

Hesse:

- Monitoring of populations of the greater mouse-eared bat using light-barrier systems.
- Searches for roosts of Bechstein's bats, via net captures and telemetry, and also in connection with collection of basic data.
- Serotine bat, northern bat, greater noctule bat: no projects / measures.

Due to the many different other obligations in force, no additional systematic data collection is possible at present.

Mecklenburg - West Pomerania:

To date, a systematic population survey has been carried out only for the greater mouse-eared bat. The lesser horseshoe bat does not occur in Mecklenburg - West Pomerania. Other species are surveyed as part of regular checks of known roosts.

From 1993 to 2006, in a systematic search programme carried out by members of the state committee for bat conservation (Landesfachausschuss Fledermausschutz) of the German Nature Conservation Association (NABU), some 600 objects were inspected for winter roosts. As a result of this work, a total of 43 additional winter roosts were found²⁹ in which the greater mouse-eared bat is present. Known winter roosts of the greater mouse-eared bat are checked at least once annually, in December/January. The only roosts that are not covered by these efforts are a small group of roosts in which only individual bats have been sighted. In the summer months, checks of known maternity roosts have been carried out, via on-site inspection and/or egress counts.

Lower Saxony:

- *Rhinolophus hipposideros*, *Myotis bechsteinii*, *Eptesicus nilssonii*, *Nyctalus noctula*: No changes from the previous report.
- *Myotis myotis*: see the previous report. Monitoring of the most important maternity roosts has been expanded, from 18 to 29 roosts.
- *Eptesicus serotinus*: Currently, this species is being surveyed via the animal-species survey programme and with the help of committed volunteers. While monitoring is costly and time-consuming, monitoring is planned for 2007.

In general, shortages of staffing and funding are making it difficult to carry out systematic data collection programmes, covering several of the aforementioned species and in conformance with nation-wide monitoring standards, in a satisfactory manner.

North Rhine - Westphalia:

- *Rhinolophus hipposideros*: This species does not occur in NRW at present.
- *Myotis myotis*: Monitoring of roosts is being continued. With regard to maternity roosts, the nationally agreed standardised monitoring programme is being applied wherever possible. A number of known winter roosts of this species are checked regularly by volunteer bat conservationists or biological stations (either annually or at intervals of several years). Last winter, as part of data consolidation for FFH-monitoring purposes, a total of 30 underground roosts in the Hochsauerland district were inspected – either for the first time or again after a period of many years. This work was carried out on the basis of a project contract. Additional checks of mine shafts, caves and maternity roosts that have not been checked for some time are to take place in 2006.
- *Myotis bechsteinii*: Two swarming sites of this species have been checked annually for a number of years. Known winter roosts are also checked regularly. To date, no systematic monitoring has been carried out in maternity-roost areas, however, since the relevant methods are too time-consuming, and the relevant costs too high, at present. In 2006, in the framework of FFH-oriented data consolidation, those known reproduction areas are to be inspected in which no data have been collected in recent years (new basic survey). Mapping of selected forest areas with presumed populations is also planned. A guide on monitoring of this species in notified FFH sites is also planned.
- *Eptesicus serotinus*: To date, no state-wide systematic survey has been carried out, due to shortages of time and funding. Surveys are carried out by volunteers, in the framework of general regional mapping programmes. A first overview of the species' state-wide distribution was obtained in 2005, in connection with preparation of grid maps in that year.
- *Eptesicus nilssonii*: The only population in NRW lives in the Sauerland area. It has been observed by volunteers (primarily by means of bat detectors).

²⁹ HERMANN, U., POMMERANZ, H. & KOCH, R. (2005): Unterirdisches Ganzjahresquartier vom Mausohr, *Myotis myotis* (Borkhausen, 1797), in Fürstensee bei Neustrelitz u. Mitteilung weiterer Funddaten dieser Art für Mecklenburg-Vorpommern. *Nyctalus* (N.F.) 10, 130-150.

- *Nyctalus noctula*: No state-wide systematic monitoring programme is in place to date. Surveys, and monitoring of population trends, are carried out by volunteers, in the framework of general regional mapping programmes. Regional banding projects, with monitoring.

Rhineland-Palatinate:

All known species are surveyed throughout the state, in the framework of systematic surveys of winter roosts. Representative maternity roosts of the greater mouse-eared bat are surveyed once per year (recording of ingresses and egresses; in individual cases, recording of losses of young).

The lesser horseshoe bat is considered to be extinct. Species that live in trees can be quantified only via systematic checks of bat boxes and use of detectors. Since 40 % of the state's territory is forested, complete-coverage monitoring of such species is difficult.

Saxony:

Checks of roosts of the greater mouse-eared bat and lesser horseshoe bat are carried out in accordance with the so-called "Vilm criteria"³⁰.

- *Rhinolophus hipposideros*: synchronous roost checks in early July (counts of adults) and end of July / early August (counting of adults and young); data collection maintained by the State Agency for Environment and Geology (Landesamt für Umwelt und Geologie - LfUG) in the framework of species assistance and FFH monitoring.
- *Myotis myotis*: roost checks in mid- / late May (counts of adults) and early July (counts of adults and young); data collection maintained by the State Agency for Environment and Geology (Landesamt für Umwelt und Geologie - LfUG) in the framework of species assistance and FFH monitoring.
- *Eptesicus nilssonii*: two egress counts, carried out at the end of May and beginning of June (counts of adults); data collection maintained by the LfUG, in the framework of FFH monitoring.
- *Myotis bechsteinii*: The State Agency for Environment and Geology (Landesamt für Umwelt und Geologie - LfUG) collects all relevant data, in the framework of species assistance.
- *Eptesicus serotinus* and *Nyctalus noctula*: All data collected for both species is maintained by the German Nature Conservation Association (NABU) and the Saxony Association for Bat Research and Conservation (Sächsischer Verband für Fledermausforschung und -schutz e. V. - SVF); data recording and preliminary methods studies, relative to monitoring of the greater noctule bat, are being carried out in the framework of FFH-related species monitoring.

Saxony-Anhalt:

Saxony-Anhalt has been using standardised monitoring methods since the founding of the Saxony-Anhalt working group on bats (Arbeitskreis Fledermäuse Saxony-Anhalt e. V.). Saxony-Anhalt is involved in the nation-wide programme for monitoring of the greater mouse-eared bat, and it makes its relevant survey data available on an annual basis.

In addition, Saxony-Anhalt's banders are involved in banding aimed at determining age structures, in keeping with the relevant concept of the Dresden bat-banding centre.

Schleswig-Holstein:

Species	Survey method in winter	Survey method in summer
<i>Rhinolophus hipposideros</i>	does not occur	does not occur
<i>Eptesicus nilssonii</i>	does not occur	does not occur
<i>Eptesicus serotinus</i>	No suitable method known, collection of data on reported individual finds, sporadic checks of potential above-ground roosts (such as churches)	Reports provided by the project "bat-friendly house", village mappings using detectors, egress observations / counts for summer colonies
<i>Myotis bechsteinii</i>	Winter checks of underground roosts	Establishment and systematic checks of bat-box sites, net captures in forests
<i>Myotis myotis</i>	Winter checks of underground roosts	No colonies known, disappears in the summer; net captures in forests
<i>Nyctalus noctula</i>	Checks of known tree roosts and, especially, of type 1FW artificial winter shelters (produced by the firm of Schwegler); numerous shelters are fitted with automatic survey systems (K. KUGELSCHAFTER/ H. DIETERICH)	Checks of known tree roosts and, especially, of type 1FW artificial shelters (produced by the firm of Schwegler); numerous shelters are fitted with automatic survey systems (K. KUGELSCHAFTER/ H. DIETERICH)

Thuringia:

³⁰ BIEDERMANN, M., MEYER, I. & BOYE, P. (2003). Nation-wide monitoring of bat populations is to begin with the greater mouse-eared bat. At a scientific conference held at the Island of Vilm, it was agreed that a two-year test phase would be carried out. Natur und Landschaft 78, H. 3, 89-92.

In Thuringia, maternity roosts of the greater mouse-eared bat are checked annually in accordance with the "Vilm criteria"³⁰. Monitoring of maternity roosts of the lesser horseshoe bat is also carried out in accordance with these criteria and with bilateral agreements.

For the species Bechstein's bat, serotine bat, northern bat and greater noctule bat, no agreements on standardised monitoring methods are in place in the Länder.

No nationally valid agreements are in place with regard to initial surveys and regular population monitoring of Annex II bat species; no separate methods for Thuringia have been established.

15.2 MOP 2 Resolution No. 3: transboundary programmes, proposals relevant to species

In the framework of the R&D project "Bat migrations in central Europe", current findings on migrations of the pond bat and of Nathusius's pipistrelle in Europe were summarised and then published in the book "Bat Migrations in Europe – A Review of Banding Data and Literature" (cf. Chap. 14).

Bavaria:

Myotis dasycneme: The pond bat has not yet been reliably sighted in Bavaria.

Pipistrellus nathusii: Occurs in much greater numbers during migration periods than during the breeding period. In late summer and the fall, the number of individuals in Bavaria may range up to several tens of thousands. No reliable information about the winter population is available. Sightings made from spring to fall show a certain affinity for river valleys. In the winter, Nathusius's pipistrelle is sighted primarily in cities – in trees felled in parks and, especially, in stacks of firewood and in residences (individual bats occasionally fly into residences). Sightings of banded bats with links to Bavaria are published in the bat atlas³¹. Recently, a 14-year-old sighting of a bat from a far-off location was reported: on 11 February 1992, in Feldafing (Starnberg rural district), a banded male *Pipistrellus nathusii* (LITHUANIA UV UT 0177, Kintai, Silute, Lithuania (55°25'N, 21°16'E) 24 August 1991, 1076 km) was captured. A total of 13 bats banded outside of Bavaria have been captured in Bavaria to date. Of these, all had been banded in northern Germany except for three (banded in Lausanne (Switzerland), Lithuania and Latvia). This indicates that Nathusius's pipistrelles, whose numbers in Bavaria increase in late summer / fall, migrate to the state primarily from north-eastern central Europe.

Berlin:

No findings are available in Berlin regarding the migratory behaviour of the pond bat (*Myotis dasycneme*) and Nathusius's pipistrelle (*Pipistrellus nathusii*).

Brandenburg:

Myotis dasycneme: A female pond bat that had been banded near Linum (Ostprignitz-Ruppin rural district) in its maternity roost was found in the summer of the following year in the Hermannshöhle cave (Rübeland, Saxony-Anhalt) (for a flight distance of 176.7 km, in a south-westerly direction).

Pipistrellus nathusii: Extensive studies of the migratory behaviour of Nathusius's pipistrelle, studies in which Brandenburgian banders have played a central role, have been evaluated.³²

Lower Saxony:

Myotis dasycneme: no new findings since the previous report.

Barbastella barbastellus: Addition to the previous report: Further review of migratory movements, in the form of telemetric studies of the barbastelle bat in the area east of Brunswick, is planned for 2006/2007.

North Rhine - Westphalia:

The pond bats that overwinter in Westphalian caves and mine shafts come primarily from the West-Frisian summer population in the Netherlands. A stable summer colony of male pond bats is known. A summer population of the species, numbering at least 20 bats, has been observed since 2004 in the Münster area. More detailed studies remain to be carried out. Maternity roosts still remain to be found.

No new findings regarding the distribution of Nathusius's pipistrelle were obtained during the report period.

Saxony:

Previously, reproducing Nathusius's pipistrelle individuals had been sighted only twice in Saxony. Then, in 2004, a maternity roost colony with 12 females and 21 young was discovered.³³ Findings relative to

³¹ MESCHÉDE, A. & RUDOLPH, B.-U. (ed.) (2004): Fledermäuse in Bayern. Stuttgart.

³² STEFFENS, R., ZÖPHEL, U. & BROCKMANN, D. (2004): 40 Jahre Fledermausmarkierungszentrale Dresden - methodische Hinweise und Ergebnisübersicht. Materialien zu Naturschutz und Landschaftspflege, Dresden.

³³ MEISEL, F. & WITTON, A. (2005). Sachsens Erstnachweis einer Reproduktionskolonie der Rauhauffledermaus (*Pipistrellus nathusii*). - Mitt. sächs. Säugetierfreunde: 42-43.

migrations of Nathusius's pipistrelles and pond bats, as obtained from bat banding in eastern Germany, were evaluated during the report period.³¹

Saxony-Anhalt:

A transboundary programme on Leisler's bat has been proposed, since it occurs throughout large parts of Europe, since it is primarily a migratory species in some countries and since further studies regarding its biology are needed. Before threats to the bat from wind turbines can be assessed, its phenology and migratory behaviour must be known. Losses of Leisler's bat from accidents are considered more serious than losses of greater noctule bats.³⁴

Schleswig-Holstein:

- *Myotis dasycneme*: Very little data are available. In 2003, an adult lactating female pond bat was resighted in Preetz that had been banded as a juvenile female in 2001 in Wismar: This gives indications of exchanges between maternity-roost colonies in Mecklenburg - West Pomerania and those in Schleswig-Holstein. In 2003, a male pond bat was recaptured, at the Eider river near Molfsee, that had been banded in 2001 as a juvenile male in the Wismar-Müggendorf pond-bat maternity roost. In an effort that continued until 2005, nearly 100 pond bats were banded in Schleswig-Holstein, for purposes that included tracing migratory movements within Schleswig-Holstein. Summer/winter relationships have been found between the Gr. Nordsee maternity colony roost, an underground winter roost in its vicinity and another underground winter roost in Kiel. While it is very likely that there are relationships between the maternity roosts and the supra-regionally important winter roost at Segeberg cave, it has not yet been possible to demonstrate such relationships on the basis of banding data.
- *Pipistrellus nathusii*: No important new findings during the report period. It is likely that Schleswig-Holstein both harbours non-migrating, reproducing populations and is used intensively as a transit area for migrations.

It is especially significant that even though few studies of bat accidents with wind turbines have been carried out, dead individuals of both species have been found at wind-turbine sites.

Thuringia:

The pond bat appears only sporadically in Thuringia. Three old sightings that are on record must be considered sightings of individuals. The most recent sighting of an individual dates from winter 2005 and was made in the "Alabasterstollen" in the Harzfelder Holz area. In light of the sightings made in the neighbouring state of Lower Saxony, sightings are to be expected in the Werra valley. To date, no systematic studies in that area have been carried out by Thuringian staff, however.

Findings relative to the (reproducing) population of Nathusius's pipistrelle were summarised in 2003 by CLAUSSEN in the journal *Nyctalus*. No additional substantiated sightings of reproducing populations of the species have been made in Thuringia.

15.3 MOP 2 Resolution No. 4: transboundary programmes, proposals relevant to biotopes

Special measures reported by the Länder, and undertaken during the report period, for protecting important reported underground habitats and for preserving forest habitats:

	Underground habitats	Forests
Bavaria BY	Notification of most roosts as FFH sites	
Berlin BE	Notification of an additional FFH site	p. 15.5.
Brandenburg BB	Notification of a large percentage as an FFH site; designation as a nature conservation area	
Hesse HE	Notification as an FFH site	Notification as an FFH site
Mecklenburg - West Pomerania MV	Follow-up search; notification of a large percentage as an FFH site	Notification of a number of forest areas as FFH sites
Lower Saxony NI	Follow-up notification of two cave-area complexes as FFH sites	Follow-up notification of forests as FFH sites
North Rhine - Westphalia NW	Formulation of protection aims for notified FFH sites	Protection of important forest areas as FFH sites
Rhineland-Palatinate RP	Designation of FFH sites	Designation of FFH sites
Saxony SN	Notification of important underground habitats as FFH sites; confirmation as sites of special Community importance (SCI), planning of conservation and development measures in the framework of FFH-management planning	Notification of important forest areas as FFH sites; confirmation as sites of special Community importance (SCI), planning of conservation and development measures in the framework of FFH-management planning

³⁴ OHLENDORF, B. (being printed): Zur Situation des Kleinabendseglers (*Nyctalus leisleri*) in Sachsen-Anhalt. *Nyctalus* (N. F.)

Proposal from Saxony-Anhalt:

The guidelines published in Germany by the Federal Agency for Nature Conservation (BfN) on bat conservation in forests need to be adapted to the situations of forests in other European countries, especially the new EU Member States. Recommendations on bat conservation in forests should thus be broadened in scope. It is likely that intensified forest management in large parts of eastern and south-eastern Europe could damage or even destroy the last large refuges in Europe.

15.4 MOP 4 Resolution No. 4.3: Guidelines for the protection and management of important underground bat habitats

Important underground bat habitats in Germany enjoy legal protection pursuant to Art. 42 Federal Nature Conservation Act (BnatSchG).

Länder information about the protection status of important underground bat habitats, and about relevant conservation measures:

	Protection status	Conservation measures
Bavaria BY	Most roosts notified as FFH sites	Some sites protected with bat-friendly closures; some closed to the public
Berlin BE	Roosts notified as FFH sites	No information
Brandenburg BB	Preparation of an overview comprising 605 winter roosts to date.	Review of sites' importance, and necessary protection measures, have commenced.
Mecklenburg - West Pomerania MV	All roosts notified as FFH sites	Protected against entry by persons; supported by experts; good structural condition
North Rhine - Westphalia NW	18 of 21 have been notified as FFH sites	FFH: protected with bat-friendly closures, optimisation measures; two additional roosts protected via lease and agreement with the owner, and supported by volunteer conservationists
Rhineland-Palatinate RP	FFH sites	No information
Saxony SN	Notification of FFH site/ confirmation as SCI; protection pursuant to Art. 26 Saxony Nature Conservation Act (SächsNatSchG)	Planning of conservation and development measures in the framework of FFH-management planning
Saxony-Anhalt ST	9 FFH sites, 1 landscape conservation area (LSG), 1 nature conservation area (NSG), 1 natural monument, 2 areas not protected	Large part is protected; some protection measures planned
Schleswig-Holstein SH	5 sites are not protected (2 are secured by owners, however), 1 site is an FFH site and a natural monument, 1 site is an FFH site	Supported by bat conservationists; monitoring carried out – in part, with automatic detection equipment; annual manual checks
Thuringia TH	11 of 12 multi-species sites are FFH sites; 41 of 96 single-species sites are FFH sites	Preparation of management plans for the point sites notified in the FFH-Directive framework; for some of these, measures have been specified.

15.5 MOP 4 Resolution No. 4.4: Bat conservation and sustainable forest management

In 2001 and 2002, a second forest survey was carried out in Germany – the Federal Forest Inventory II (Bundeswaldinventur II - BWI II). The first Federal Forest Inventory was carried out in 1987. The BWI II, a nationally standardised, simultaneous (for all areas) data survey, provides basic forest data (such as tree species, wood stocks, growth rates) as well as an improved basis for ecological and conservation-oriented considerations of forests' condition. For example, it now provides information about amounts of dead wood in forests, about forest periphery and about development of shrub-layer and ground vegetation (<http://www.bundeswaldinventur.de>). In many areas, the BWI II data point to improving trends – for example, increases in forest areas with locally native deciduous tree species, in wood stocks and in quantities of dead wood. At the same time, the results point to a continuing need, in German forests, for conservation-oriented improvements.³⁵

The Federal Agency for Nature Conservation (BfN) has commissioned a study on the conservation aims that can be achieved via contractual nature conservation in forests, on the current status of relevant implementation in the various Länder and on useful recommendations.³⁶ Each year, less than 4 million euros are spent in Germany on contractually based nature conservation in forests, an amount equivalent to about 0.5 % of the funding spent annually on agricultural environmental programmes. Since this instrument is now already being applied toward a range of different nature conservation aims (such as preservation of dead

³⁵ REIF, A., WAGNER, U. & BIELING, C. (2006): Analyse und Diskussion der Erhebungsmethoden und Ergebnisse der zweiten Bundeswaldinventur vor dem Hintergrund ihrer ökologischen und naturschutzfachlichen Interpretierbarkeit. BfN-Skripten 158.

³⁶ GÜTHLER, W., MARKET, R., HÄUSLER, A. & DOLEK, M. (2005): Vertragsnaturschutz im Wald. BfN-Skripten 146.

wood, management of coppice-with-standards forests ("Mittelwald" – "middle forest"), species conservation measures), it needs to be developed from its current model-project level to large-scale implementation. In the process, aspects of bat conservation in forests need to be given greater attention.

Other activities reported by the Länder (see also Chap. 7 and 8):

- Management of forests pursuant to FSC and/or Naturland criteria (Berlin, Schleswig-Holstein)
- Protection as FFH site (Bavaria), implementation concept for forests, with special bat-conservation measures / with management principles agreed with the forestry sector (Saxony, Thuringia)
- Handouts, guidelines, information sheets on semi-natural forest management / consideration of bats in forest management (Hesse, Mecklenburg - West Pomerania)
- Training of forest personnel (Bavaria, Rhineland-Palatinate, Thuringia)
- Project for the "Stechlin-Ruppiner Land" nature park, aimed at sustainable forestry (including a study of the role of structural trees) (Brandenburg)
- Basic data survey, structural mapping and/or biotope mapping (Bavaria, Hesse, Mecklenburg - West Pomerania, Saxony, Schleswig-Holstein).

15.6 MOP 4 Resolution No. 4.6: Guidelines for the issue of permits for the capture and study of captured wild bats

Development of the now nationally valid guidelines "Recommendations for bat marking with armbands (bat banding) in Germany" goes a long way toward implementing EUROBATS resolution 4.6 (cf. Chap. 10). The band sizes to be used for the various bat species are determined by the two German banding centres, located in Bonn and Dresden, and are communicated to banders when bands are handed out.

Länder information regarding the competent authorities for permits relative to capture of wild bats and study of captured bats:

	Permits issued by	Conformance with above recommendations
Bavaria BY	Higher nature conservation authority (administrative districts - Regierungsbezirke)	yes
Berlin BE	Highest nature conservation authority	yes
Brandenburg BB	State environmental agency (Landesumweltamt)	yes
Hesse HE	[Procedure currently being prepared]	[Procedure currently being prepared]
Mecklenburg - West Pomerania MV	Higher nature conservation authority	yes
North Rhine - Westphalia NW	Lower landscape authorities	no information available
Rhineland-Palatinate RP	Structure and permit directorate (Struktur- und Genehmigungsdirektion); either "Nord" (north) or "Süd" (south)	No information
Saxony SN	Top level of administrative district (Regierungspräsidien)	yes, for the most part
Saxony-Anhalt ST	State agency for environmental protection (Landesamt für Umweltschutz)	yes
Thuringia TH	Highest nature conservation authority	yes

15.7 MOP 4 Resolution No. 4.7: Wind turbines and bat populations

The fact that wind turbines can pose a threat to bat populations is generally appreciated in Germany. Special studies of impacts on bats have been conducted in connection with a number of wind-turbine systems and in many planning procedures for new windfarms. The German Nature Conservation Association (NABU) has carried out a summary study under commission to the Federal Agency for Nature Conservation (BfN).³⁷ Christine Harbusch and Lothar Bach have incorporated findings and experience gained in Germany in the draft of a EUROBATS guideline for planning processes and environmental impact studies for wind turbines.

15.8 MOP 4 Resolution 4.12: Priority species for autecological studies

Länder information on completed studies of horseshoe bats and Geoffroy's bat:

	Greater horseshoe bat	Lesser horseshoe bat	Geoffroy's bat
Bavaria BY	Species-assistance programme, including monitoring of maternity roost and winter roosts	Species-assistance programme, including monitoring of maternity roost and winter roosts	Monitoring of maternity roosts; research on hunting-habitat selection and on roost use (see Chapter 11)
Rhineland-Palatinate RP	Checking of winter roosts and of maternity roosts near borders		Annual censuses in winter roosts; search for, and protection of, maternity roosts
Saxony SN		Several studies on ecology; see ZÖPHEL et al. 2004/2005	
Thuringia TH		Regular studies of the species, and collection of population data; monitoring activities, mapping in gap areas, telemetric searches for roosts; diploma thesis on use of food resources	

Proposal from Saxony-Anhalt:

The common pipistrelle and the soprano pipistrelle are ideal candidates for autecological studies. With regard to the soprano pipistrelle in Germany, there is a lack of reliable data on its behaviour and of detailed

³⁷ HÖTKER, H., THOMSEN, K.-M. & KÖSTER, H. (2005): Auswirkungen regenerativer Energiegewinnung auf die biologische Vielfalt am Beispiel der Vögel und der Fledermäuse – Fakten, Wissenslücken, Anforderungen an die Forschung, ornithologische Kriterien zum Ausbau von regenerativen Energiegewinnungsformen. BfN-Skripten 142.

data on its distribution. Only taxonomic data are available. Phenological and autecological studies should be carried out with the help of banding. Habitat preferences should be determined – especially in regions in which the two species occur in close proximity to each other.

Annex to the National Report on Bat Conservation in the Federal Republic of Germany 2003-2006

FFH notifications for Annex II bats

(from: Balzer & Ssymank 2005, Naturschutz und Biologische Vielfalt 14)

[Text für alle Karten]

Natura 2000 in Germany
FFH notifications (pSCI)

Last revision: January 2005

[Legende]

Notification of the species

Notified populations

Biogeographical regions

Atlantic

Continental

Alpine

1:100,000 topographical grid

Natural-area boundary

State (Land) boundary

Scale: 1:2,800,000

Source: Federal Agency for Nature Conservation (BfN) I.2.2

[Jetzt die Texte für die einzelnen Karten]

Greater horseshoe bat (EU code 1304)
Rhinolophus ferrumequinum
(Schreber, 1774)

Lesser horseshoe bat (EU code 1303)
Rhinolophus hipposideros
(Bechstein, 1800)

Barbastelle bat (EU code 1308)
Barbastella barbastellus
(Schreber, 1774)

Bechstein's bat (EU code 1323)
Myotis bechsteinii
(Kuhl, 1817)

Pond bat (EU code 1318)
Myotis dasycneme
(Boie, 1825)

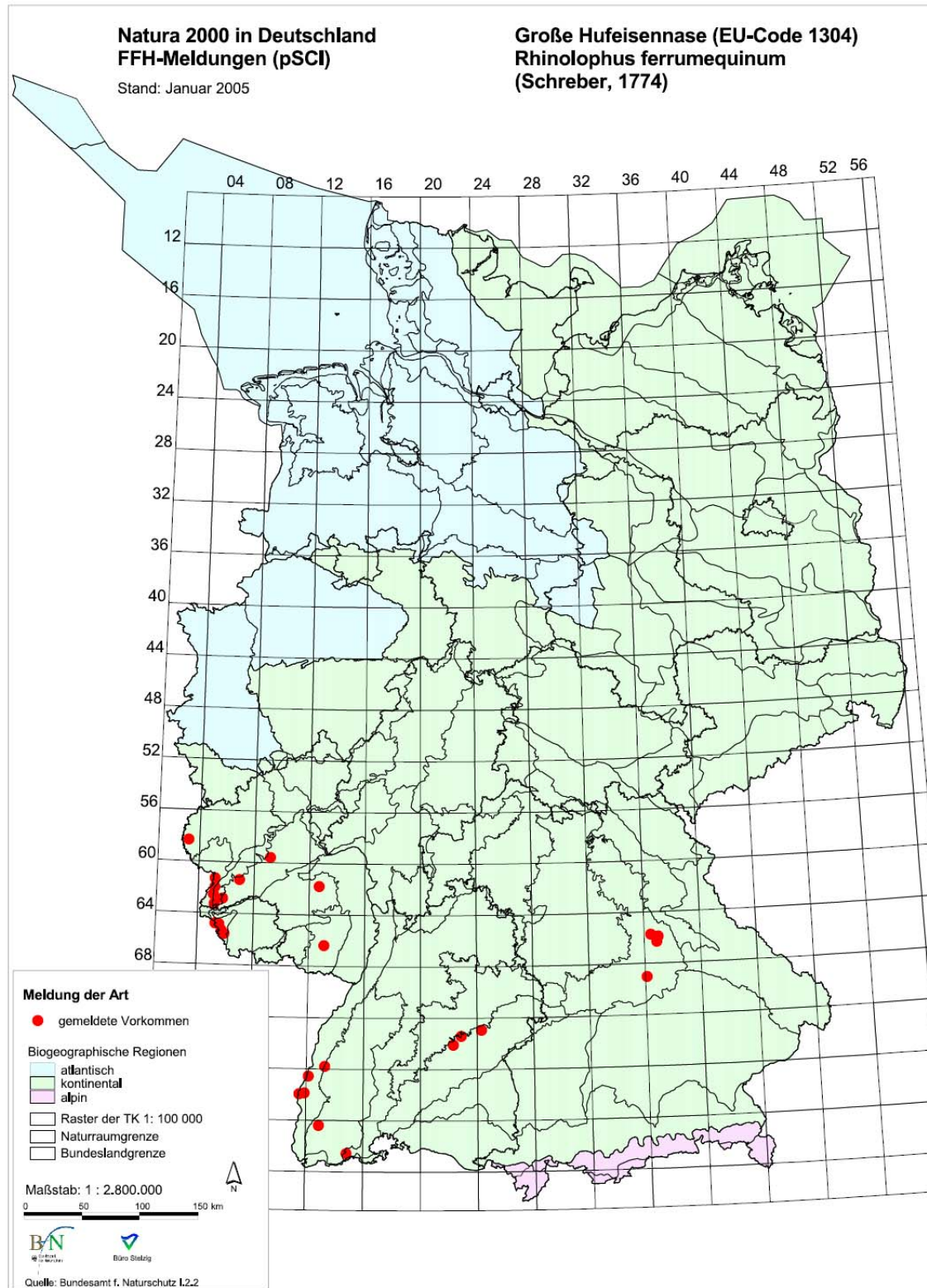
Geoffroy's bat (EU code 1321)
Myotis emarginatus
(E. Geoffroy, 1806)

Greater mouse-eared bat (EU code 1324)
Myotis myotis
(Borkhausen, 1797)

Anhang zum Nationalen Bericht zum Fledermausschutz in der Bundesrepublik Deutschland 2003-2006

FFH-Meldungen für Fledermäuse des Anhangs II

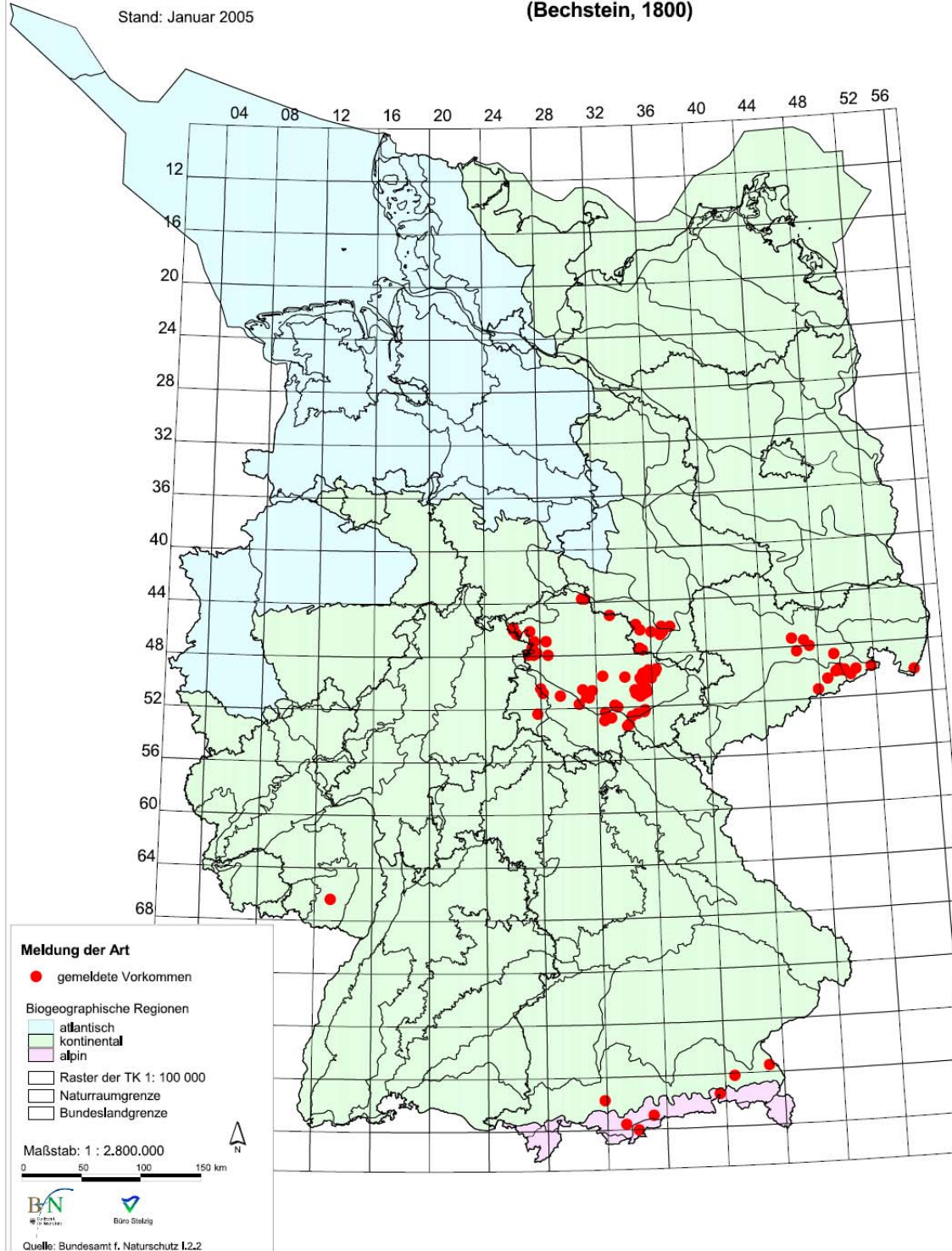
(aus: BALZER & SSYMANK 2005, Naturschutz und Biologische Vielfalt 14)



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

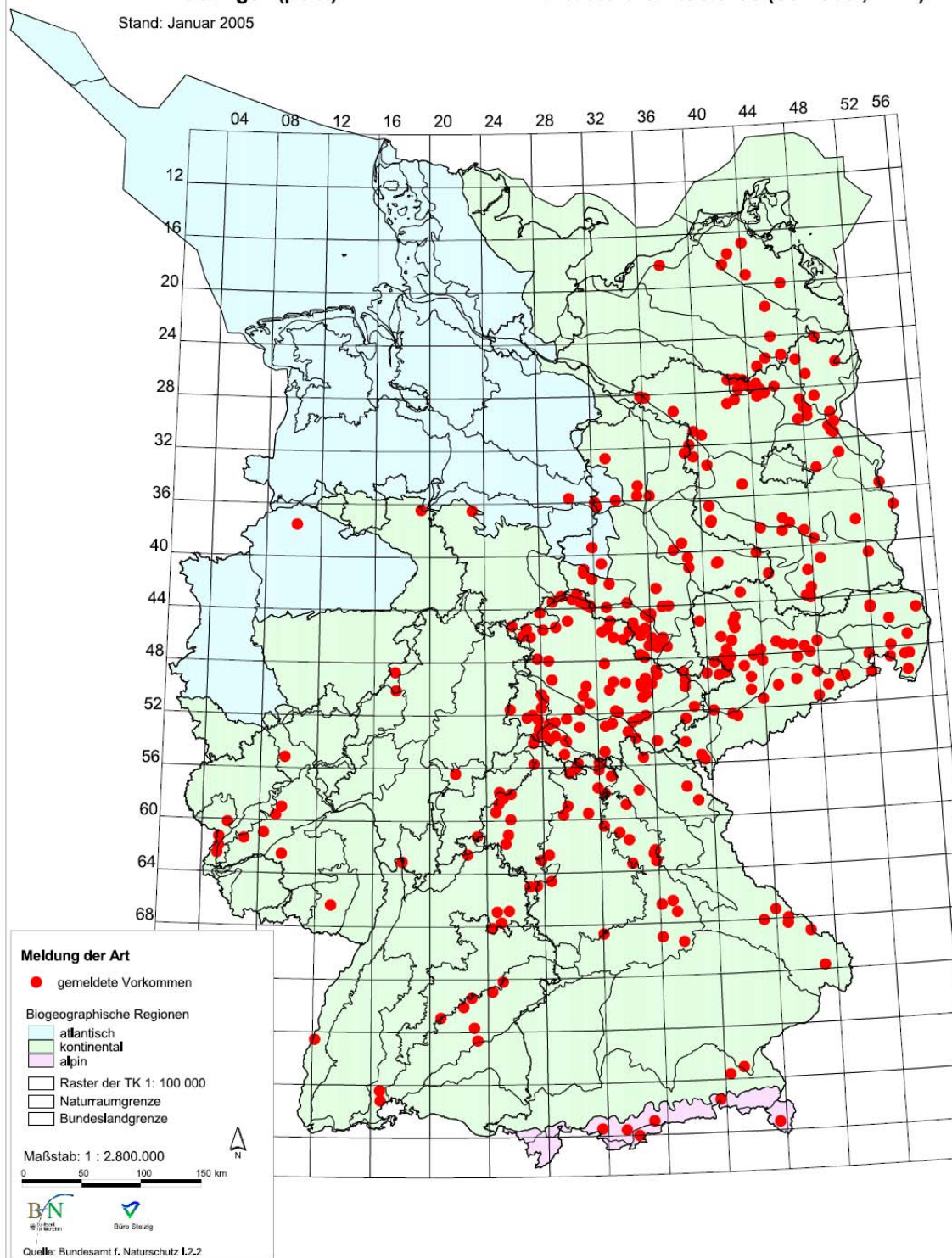
**Kleine Hufeisennase (EU-Code 1303)
Rhinolophus hipposideros
(Bechstein, 1800)**



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

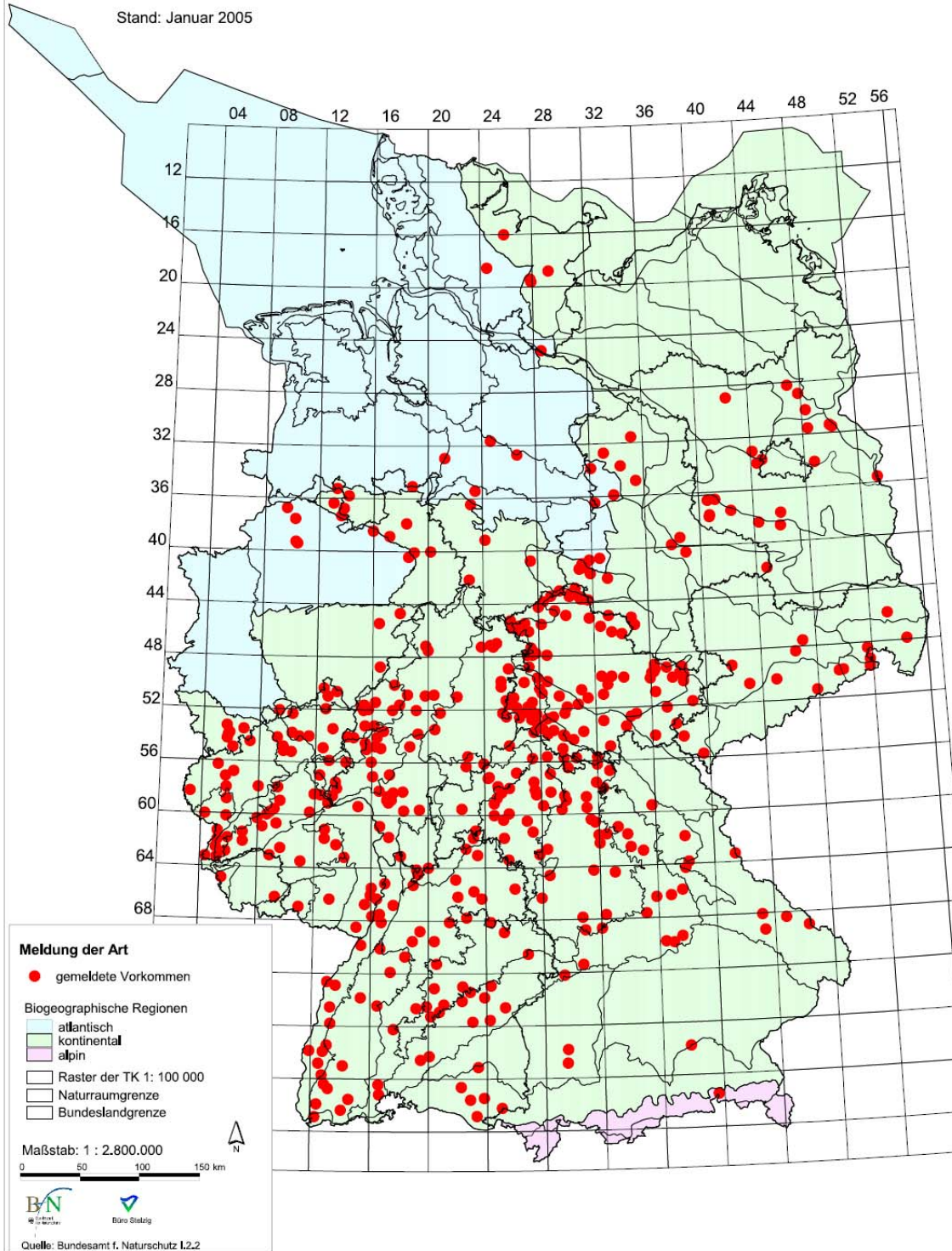
**Mopsfledermaus (EU-Code 1308)
Barbastella barbastellus (Schreber, 1774)**



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

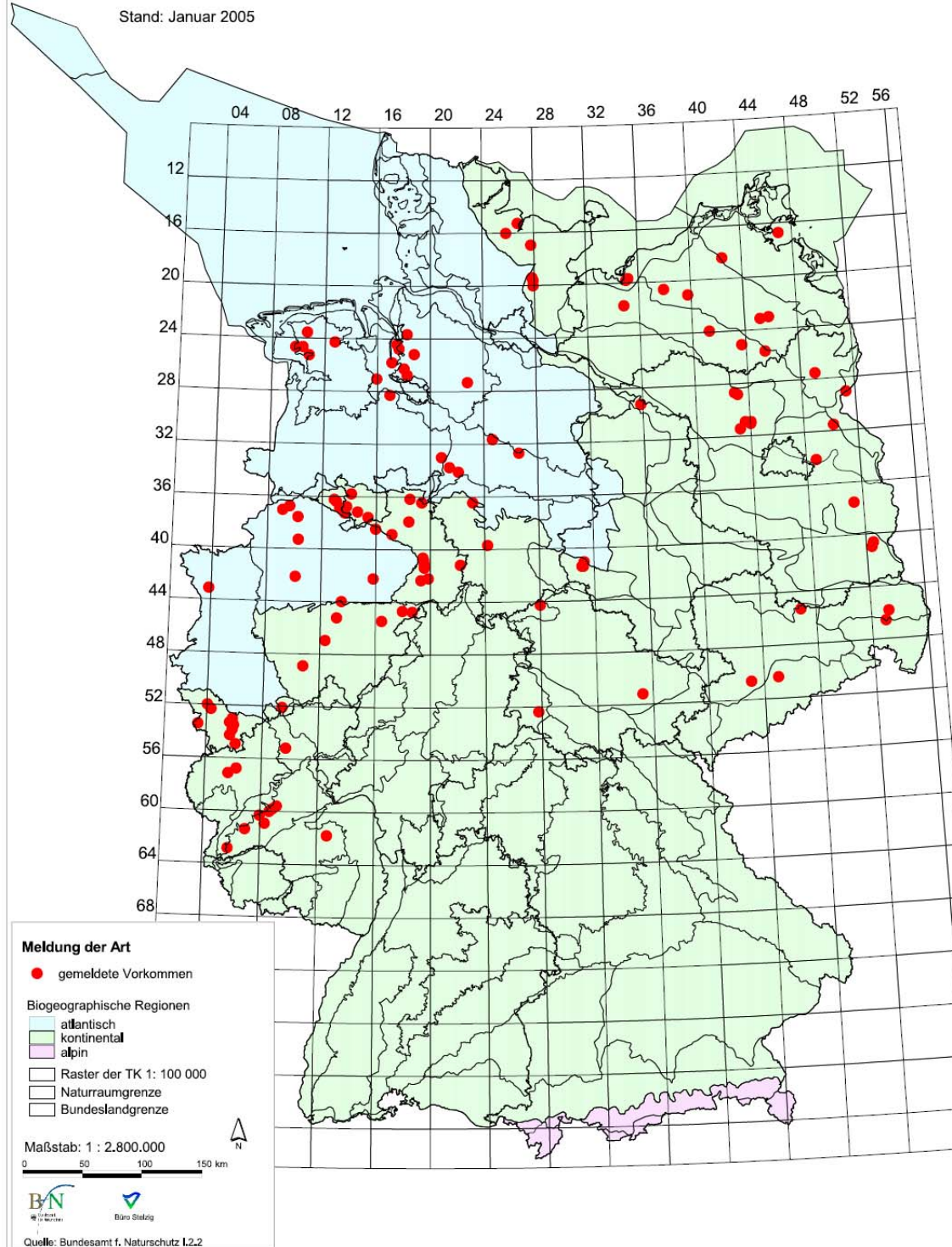
**Bechsteinfledermaus (EU-Code 1323)
Myotis bechsteinii (Kuhl, 1817)**



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

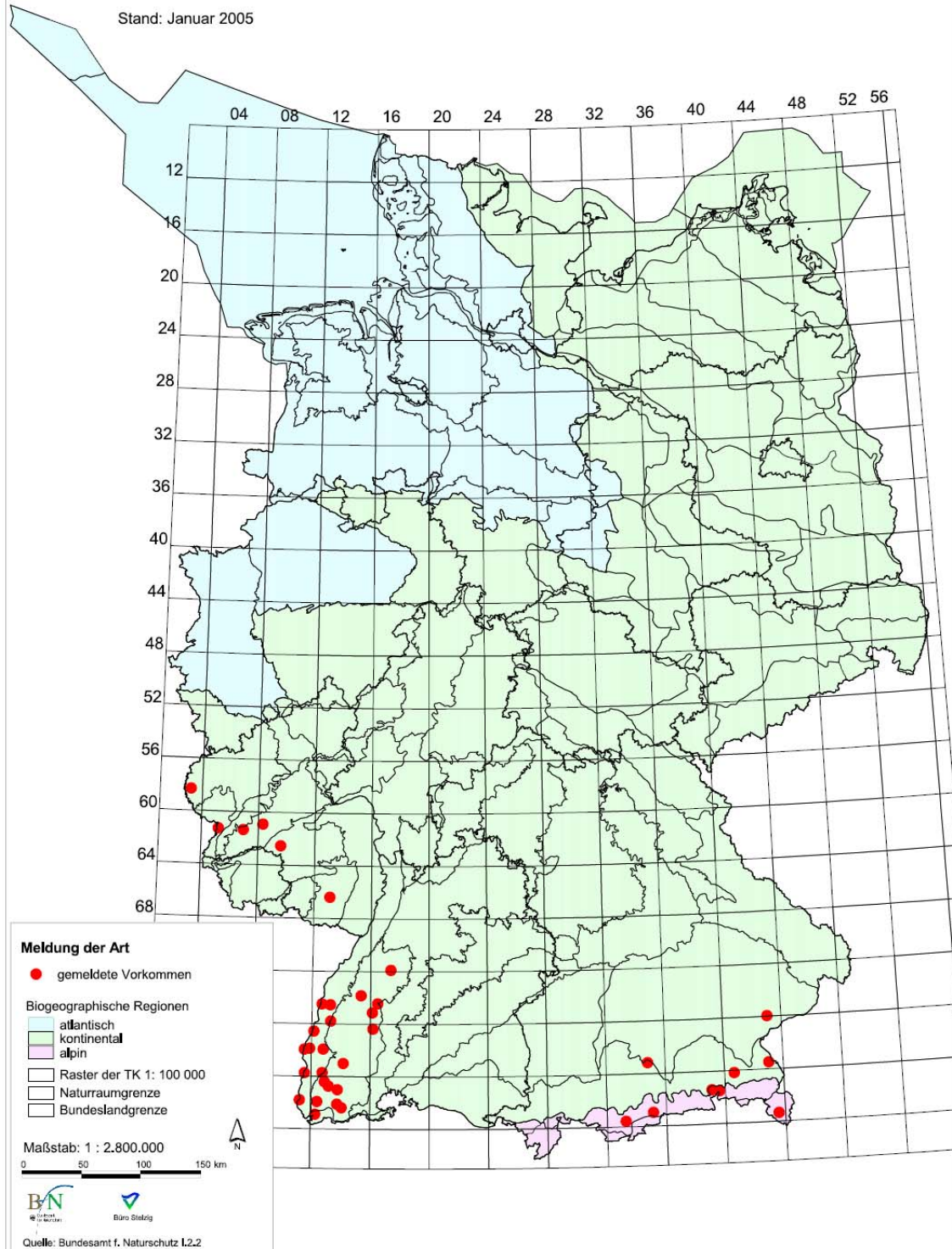
**Teichfledermaus (EU-Code 1318)
Myotis dasycneme (Boie, 1825)**



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

**Wimperfledermaus (EU-Code 1321)
Myotis emarginatus (E. Geoffroy, 1806)**



**Natura 2000 in Deutschland
FFH-Meldungen (pSCI)**

Stand: Januar 2005

**Großes Mausohr (EU-Code 1324)
Myotis myotis (Borkhausen, 1797)**

