Agreement on the conservation of bats in Europe
National implementation report from Sweden 2000 - 2003

A. General information

Name of Party: Sverige (Sweden).
Date of Report: 9 September 2003.
Period covered: 2000 - 2003
Competent Authority: Swedish Environmental Protection Agency, S-106 48 Stockholm.
Appointed Member of the Advisory Committee: Ms Marie Nedinge.
Membership of other committees/working groups: Bat Conservation and Forestry.

B. Status of bats in Sweden

Species accounts

Myotis bechsteinii. A rare species in Sweden, never found outside Skåne. For many years only found hibernating in small numbers in some old mines and caves in northeast. A nursery roost in a house was reported in the 1960's. Hunting bats of this species regularly observed in an area in the 1980's. Since then there are no observations in Skåne. More efforts are needed to locate any surviving population in possible habitats in Skåne and Blekinge.

Myotis brandtii. A common species in forest areas from southern Sweden to middle Norrland. Not found on the island Öland but common on Gotland. Is difficult to separate from *Myotis mystacinus* with detector, but all available information indicate stable populations and it is widespread in most areas within its range.

Myotis dasycneme. A rare species in Sweden but regularly observed in some areas in south and east Sweden. A nursery roost with up to 60 adults lived in an area in Skåne during the years 1986 – 1989. In Uppland the pond bat has been observed at many sites, including hibernating in two places. Regular observations are also made on Gotland and Öland. Observations have also been made in some further provinces. Special efforts are needed to confirm breeding populations.

Myotis daubentonii. One of the most common species in southern Sweden with a distribution up to middle Norrland. The species is most often observed at lakes and rivers but is also living in forest areas several kilometres from open water. Is believed to have increased during the last 25 years and has probably also expanded into new habitats.

Myotis mystacinus. Was earlier considered as one of the common species in Sweden up to southern Norrland. Data from surveys and from research projects indicate a serious decline. The population decline in Uppland during 20 years was assessed to about 40%. Surveys on Gotland and in Skåne confirm the decline. The causes are unclear but studied in a research project.

Myotis myotis. A hibernating bat of this species was found in an old iron mine in Skåne (Fyledalen) on 2 February 1985.

Myotis nattereri. A relatively rare species with patchy distribution in southern Sweden, including Öland and Gotland, up to the river Dalälven. A nursery colony was recently found at 63° 24' N, north of Örnsköldsvik, in Ångermanland, which is the northernmost occurrence in the world. This indicates that the species can have a population along the coastland of Norrland. Many sites where this species were found 20 years ago are now empty. On the other hand, many new sites with the species have been found, especially in the highlands of Småland.

Pipistrellus nathusii. A rare species that has increased and probably expanded geographically during the last two decades, with populations established in Skåne, Blekinge, Småland, Öland, Gotland, Södermanland, Uppland and probably Västmanland. Nursery colonies are now found north of 60º N which is probably the northernmost occurrence in the world. Is quite numerous as migrant on Gotland, Öland, Blekinge and Skåne. A number of points where they leave the coasts and cross the sea on the autumn migration have been located. Bats coming in from the sea in spring have been observed, collected and identified, in Skåne, Blekinge, Öland and Gotland.

Pipistrellus pipistrellus. The first observations were made in 2000 on southern Öland when this species was found among migrants passing or accumulating at Ottenby. It is still unclear to what extent it has breeding populations in Sweden. It is now recorded on Öland (regular, 5 sites), Blekinge (killed by wind turbine, 1 site), and Småland (1 site with a probable roost).

Pipistrellus pygmaeus. Common species in southern Sweden with distribution up to the river Dalälven and coastal areas in Gästrikland. Is absent on the island Gotland and in large areas in the highlands of Småland. In south the species occurs in almost all habitats with trees, while in areas north of lake Mälaren only found in deciduous forest at lakes and rivers. Recently observed as numerous migrants from the coasts of southern Sweden.

Nyctalus leisleri. There are at least five observations, two in Skåne, one on Öland, and two on Gotland. Bats hunting insects observed at Kåsehuvud at the south coast of Skåne 30 August 1993 and 3 September 1997. One bat was observed at Ottenby kungsgård, Öland, 30 August 2003. On the west coast of Gotland one bat was passing at Petes 31 August 2000 and one bat was hunting insects at Alsvik 25 August 2002. It is possible that the species has been overlooked. At present it is still unclear whether it is only passing on migration or has a breeding population in south Sweden.

Nyctalus noctula. Relatively common in some areas in southern Sweden with a distribution up to the river Dalälven and along the coastland of Norrland up to Medelpad. The main areas are found in agricultural landscapes with lakes and deciduous woodlands and also in some coastal areas. Migrants are regularly observed along the coasts, especially on Gotland, Öland and Skåne.

Eptesicus nilssonii. The most common bat species in Sweden with a distribution from south, including Gotland and Öland, to the northernmost parts of the country, where it is regularly found in Lapland north of the Arctic Circle. Occurs in most types of habitats and landscapes such as agricultural land, forest land, suburbs, villages, parks, coastal areas etc. In many areas it is more abundant than all other species together. Data from surveys indicate a population increase during the last 25 years.

Eptesicus serotinus. First observation was made 1982 in Skåne, where it today is more or less regular and found on many places all over the province. The species is also observed on Öland (5 sites), Småland (1 site), and Södermanland (1 site). Up to now, no nursery colony has been found in Sweden.

Vespertilio murinus. Has a patchy distribution up to southern Norrland. It is relatively common in some areas but absent in other. Colonies and feeding areas found both in agricultural and forest land. In autumn they come in to towns where territorial song flight is heard at high buildings such as churches, castles, tall hospital buildings etc. This is also where they hibernate. Territorial song is also performed at high mountain cliffs and in open mine shafts. Migrants are observed taking off at Falsterbo (Skåne), Ottenby (Öland), and Hoburgen (Gotland).

Barbastella barbastellus. A rare species in southern Sweden, known from Skåne up to Östergötland and Västergötland. Observations, most often of single individuals, have been made on scattered localities both in winter and summer. There is only one known hibernation site (Karlsborg, Västergötland) that is regularly used by a larger number of barbastelle bats. In a village in the highlands of Småland, where the species was reported in 1901, a nursery roost was discovered in 1988 and has been followed since then. In 1999 a survey project was initiated to map the distribution and habitat choice of the population. Now, the project has expanded and involves the cooperation of 5 county administrations and has resulted in more than 60 sites with observations of the species (out of more than 500 investigated localities). The main occurrence is in the highland forest areas of north Småland and south Östergötland. There, most of the observation sites (about 50) are in or near traditional villages with old buildings, hay meadows, pollarded trees and cattle grazing in pastures and forests. More to the south there are also other habitats such as castle and estate parks and old deciduous woods, especially with oak and beech. In the summer 2003 a number of bats were radiotracked to map their range use and movement pattern. A special species recovery plan will be established to protect and manage the species and its most important foraging habitats.

Plecotus auritus. A common species with a distribution from south to middle Norrland. Roosts found in trees, churches, and houses of all kinds. Feeding in forests, parks and gardens.

Plecotus austriacus. Reported from one site in middle Skåne (a church) two years in 1960's. In the summer 1989 repeatedly observed in the park of Svaneholm in southern Skåne.

Species data compiled 2003-09-07 by I. Ahlén.

Trends and threats

Of the 18 species found in Sweden, 5 species are considered to have increased during the last decades, namely *Myotis daubentonii*, *Pipistrellus nathusii*, *Pipistrellus pygmaeus*, and *Eptesicus nilssonii*, while 5 are thought to have declined, *Myotis bechsteinii*, *Myotis mystacinus*, *Myotis nattereri*, *Vespertilio murinus*, and *Barbastella barbastellus*. This is still mainly based on impressions from surveys and very little on hard population data. According to the official redlisting from 2000 in Sweden, the following are listed: *Myotis bechsteinii* (CR), *Myotis dasycneme* (EN), *Barbastella barbastellus* (EN), *Myotis mystacinus* (VU), *Myotis nattereri* (VU), and *Pipistrellus nathusii* (NT). *Nyctalus noctula*, earlier redlisted, is now removed (LC) and *Eptesicus serotinus* (NE) has an unclear status. Today, there is no strong evidence to change these assessments.

There are potential threats of many kinds. Most important are the large scale landscape changes caused by forestry, agriculture and urbanization. Important feeding habitats are destroyed by draining, cutting, spruce plantation, abandoning of natural pastures and forest grazing. Renovation of old buildings such as churches, castles, manor buildings, stables, etc plays some role. Disturbance or dumping in old mines is also negative in some areas. Interspecies relations are recently discovered as possible factors that might explain the distribution and habitat use of bats, but also recent declines of some species.

Surveys and data collection

Since ultrasound detectors came into use in Sweden in 1978, the knowledge of the bat fauna is now growing rapidly. Some provinces such as Uppland, Gotland, Öland, Skåne and large parts of Småland, Östergötland and Halland are now covered by surveys. In some cases these have been repeated several years. Today these surveys map the occurrence of species and their distribution in the provinces or counties, and try to find all sites with high species richness and sites with rare species. A monitoring program was also started in some of these areas such as the counties of Uppsala, Västmanland, Stockholm, Södermanland, Gotland, and Skåne. However, it is too early to draw any conclusions from these concerning population trends.

Survey of *Barbastella barbastellus* (see under Status of Bats in Sweden above) has been intensified during the last years. This has now become a part of the total county bat surveys where areas with expected populations of *Barbastella* are given priority (chosen before other areas).

Data from these surveys and from some research projects are annually collected to upgrade a site register of all the rare and redlisted species as well as all new data on the distribution limits of the common species. Analyses of population data are published when there is data enough to analyse for trends etc from the different provinces and counties. Upgraded information on status and distribution of the bat fauna in Sweden will be made available internationally, e.g. to a revised European Mammals Atlas or for other needs that arise.

Educating and training bat observers

In June 2003 a three days training course for professional observers working for county governments in Sweden was held on Öland. The theoretical part contained species identification by using ultrasound detectors and sound analysis programs with special emphasis on the difficult cases such as the *Myotis* species, difference between the three *Pipistrellus* species in Sweden, the risk of overlooking *Nyctalus leisleri* etc. Identification of bats on morphology and the need to use nets in addition to sound listening and recording was also dealt with. The two nights were used to visit two nature reserves, one where 13 species have been observed. A follow up during coming years is planned to strengthen the knowledge and to solve problems that arise during work.

In the *Barbastella* project special meetings are held with people working in the actual areas. Methods to identify the species, pitfalls and search image are the topics. Photos from all sites with observations of *Barbastella* are shown and discussed with the workers. Today we know that this a very efficient way to find the species in new areas.

C. Measures taken to implement Article III of the Agreement

Legal measures taken
A new Regulation on Species Protection has recently come into force, but is already under revision. It will strengthen the protection of bats.

Sites identified and protected
There are now a number of important bat sites that are protected as nature reserves, where the bats are not the only reason for the protection. Special protection of bat sites are also being created at a number of hibernation sites, mainly old mines, but also for surroundings of colonies as Natura-2000 areas. Data on these protected areas are not yet available for whole Sweden.

Consideration given to habitats
It is a tradition since the 1970's and now included in laws to consider biodiversity in all land use such as forestry, agriculture, conservation planning of reserves etc. Important habitats for bats have now become a natural part of this.

One example was reported in an earlier National report from Sweden, where the route of the new 4-lane E4-motorroad through Uppland was changed because of the EUROBATS agreement. The route was already decided and planned to cross a lake with very important key habitats for bats on both shores. Since information on the Agreement was given to the responsible authorities, the route was moved 8 km to the west, away from the lake.

Applications for new wind power turbines at coast and offshore sites in important flyways of migrating bats have been rejected by the county administrations before the examination at the Superior Environment Court. The cases are still open.

More general rules for consideration of important bat habitats are now spread in different ways to people in charge of forestry, agriculture, park and reserve management. A booklet with information and recommendations about bats in the landscape was recently produced.

Activities to promote the awareness
European Bat Nights have been arranged in Stockholm, Jönköping, and Malmö, with evening excursions and public information about bats.

Bat excursions open to public are now arranged on many places in Sweden. On Öland it is regularly performed as part of a program run by an ecological research station.

Scientists working with bats in Sweden give every year a number of lectures to inform about bat ecology, current projects and about the Agreement.

Recent and ongoing programs relating to the conservation and management of bats

<u>Action plan for implementation of EUROBATS agreement in Sweden</u>
A group of scientists at univeristies and officials at Swedish Environmental Protection Agency have worked out an Action Plan for Implementation of EUROBATS agreement in Sweden. It is still in draft but not far from complete. It will define the most important undertakings to protect and manage the bat fauna and everything else that follows from the agreement.

Species recovery plan for *Barbastella barbastellus*

Because of the status of this species in Sweden (see above) and its presence in Appendix II of the Habitat Directive of the European Union, there is a need to coordinate the efforts to protecte and manage this species. Knowledge about the distribution, habitat use and other aspects of it ecology is important to enable efficient measures. The results from ongoing surveys and from scientific studies will be summed up in a species recovery plan.

Research projects on conservation problems of importance to the bat fauna

There is one ongoing project that focus the relations between species with similar ecology. It is funded by the Swedish Research Council and includes cooperation with scientists under the Academy of Science in Bulgaria. Some *Myotis* species and *Barbastella barbastellus* have been subject to study by use of radio transmitters. There are not yet any publications.

Another study going on for many years is about bat migration observed at the coasts of south Sweden including Öland and Gotland in the Baltic Sea. A publication was reported earlier. Data from the last years are now analysed for a new publication.

A pilot project on the risk for bats to be killed by wind power turbines has been carried out with grants from the Swedish National Energy Administration. One publication was published last year: Ahlén, I. 2002. Fladdermöss och fåglar dödade av vindkraftverk. Fauna och flora 97:3: 14-22. [Summary: Bats and birds killed by wind power turbines].

Some projects have character of basic research but will still be important for the build-up of knowledge about bat biology. One PhD-dissertation was subject to public defence on 28 May 2003 at University of Göteborg (Gothenburg): Eklöf, J. 2003. Vision in echolocating bats. Göteborg.

D. Functioning of the Agreement

Cooperation with other parties and range states

There is a cooperation with Denmark and the Netherlands about production of a European handbook on field identification of bats, and methods for surveys and monitoring. There is also some cooperation with Finland and the Baltic republics and with Norway. There is also cooperation about a number of questions with scientists in many other European countries, especially Bulgaria, Austria, Germany and Spain.