

Inf.EUROBATS.MoP7.24

AGREEMENT ON THE CONSERVATION OF BATS IN EUROPE
Report on the implementation of the agreement in Latvia
2010-2014

A. General Information

Name of Party: Latvia
Date of Report: May 2014
Period covered: 2010 – 2014
Competent Authority: Ministry of Environmental Protection and Regional Development of the Republic of Latvia.
Appointed member of the Advisory Committee: Dr Gunārs Pētersons, Faculty of Veterinary Medicine, Latvia University of Agriculture
Compiler: Dr Gunārs Pētersons, appointed member of the Advisory Committee

B. Status of Bats within the Territory of the Range State

1. *Summary Details of Resident Species*

There are no new bat species found in Latvia during the reporting period. In all, 16 species are found in Latvia. *Myotis myotis* is classified as a vagrant species and there no confirmed records of this species after 1995. The parti-coloured bat *Vespertilio murinus* is added here to eight hibernating species listed in previous reports. New recent winter records of this species from capital Riga and some other cities both in Latvia and in neighbouring countries suggest that at least part of north-eastern population of this species is either sedentary or short-distance migratory one. In contrast to other hibernating species *V. murinus* don't use underground roosts and most likely hibernate in crevices of tall buildings. On the other hand banding data from Estonia and Russia and regular concentration of parti-coloured bats on the western coast of Latvia in autumn suggest that part of north-eastern population of this species perform long-distance movements. Two species are long-distance migratory species as proved by banding data (Nathusius bat *Pipistrellus nathusii* and noctule *Nyctalus noctula*) and three other species are regarded to belong to this group of bats according to lack of winter records in Latvia and surrounded territories and to their general distribution pattern in Europe (pipistrelle *Pipistrellus pipistrellus*, pygmy bat *P. pygmaeus* and Leisler's bat *Nyctalus leisleri*). The Serotine bat *Eptesicus serotinus* reaches the northern limit of its distribution range probably in southern part of Latvia. First hibernation records were registered in Nathusius bat and in Serotine bat Latvia. In first species an alive male was found behind the window frame in middle of January in a five store building in Riga. It is the most northeastern winter record of this species. The same time an alive individual of Serotine bat with broken forearm was found in the city Daugavpils in southeastern part of country. It is the third record of this species in Latvia.

Species	Distribution in summer	Season of occurrence
<i>Myotis myotis</i>	vagrant	vagrant
<i>Myotis nattereri</i>	probably widespread	all year

<i>Myotis brandti</i>	widespread	all year
<i>Myotis mystacinus</i>	rare	all year
<i>Myotis daubentoni</i>	widespread	all year
<i>Myotis dasycneme</i>	widespread	all year
<i>Eptesicus serotinus</i>	rare	all year
<i>Eptesicus nilssoni</i>	widespread	all year
<i>Vespertilio murinus</i>	widespread	all year
<i>Pipistrellus pipistrellus</i>	rare	summer
<i>Pipistrellus pygmaeus</i>	rare	summer
<i>Pipistrellus nathusii</i>	widespread	summer
<i>Nyctalus noctula</i>	widespread	summer
<i>Nyctalus leisleri</i>	rare	summer
<i>Barbastella barbastellus</i>	rare	all year
<i>Plecotus auritus</i>	widespread	all year

2. Status and Trends

The population trends are calculated for hibernating species from data obtained by long-term monitoring programme (1992-2012) and for one long-distance migrating species *P. nathusii* from long-term monitoring programme carried out on the Baltic Sea coast in SW of Latvia (1993-2012). The data were analysed by program TRIM (Trends and Indices for Monitoring data) developed for statistical analysis of the monitoring data and calculation of population trends. Three species of hibernating bats demonstrate stable 20-years population trends, two species are increasing, but one species – brown long eared bat *Plecotus auritus* is decreasing. The increased yearly activity of the Nathusius's bat during the autumn migration indicates on a possible population increase of this species in the north-eastern part of it's distribution range.

The population assessment used in National Report to European Commission for Article 17 of the Habitat Directive is based mainly on the data of both monitoring schemes. Populations of species with stable or increasing trends are regarded as favourable, *P. auritus* with decreasing trend as inadequate; the other species with no data are not evaluated. The overall conservation assessment is inadequate for five species because on concerns of experts on rapid increase of disafforestation (*M. nattereri*, *N. leisleri*, *N. noctula*, *P. auritus*, *P. nathusii*), threatened by wind turbines during migration (*P. nathusii*, *N. noctula*) and by renovation or lightening of buildings, in particular churches, occupied by maternity colonies of *M. dasycneme*.

Species	Population trend 1992-2012	Population assessment	Overall assessment of conservation status
<i>Myotis nattereri</i>	stable	Favourable	Inadequate
<i>Myotis brandti</i>	strong increase	Favourable	Unknown
<i>Myotis mystacinus</i>	increase?	Favourable	Unknown
<i>Myotis daubentoni</i>	moderate increase	Favourable	Favourable
<i>Myotis dasycneme</i>	stable	Favourable	Inadequate
<i>Eptesicus serotinus</i>		Unknown	Unknown
<i>Eptesicus nilssoni</i>	stable	Favourable	Favourable
<i>Vespertilio murinus</i>	unknown	Unknown	Unknown
<i>Pipistrellus pipistrellus</i>	unknown	Unknown	Unknown

<i>Pipistrellus pygmaeus</i>	unknown	Unknown	Unknown
<i>Pipistrellus nathusii</i>	strong increase*	Favourable	Inadequate
<i>Nyctalus noctula</i>	unknown	Unknown	Inadequate
<i>Nyctalus leisleri</i>	unknown	Unknown	Inadequate
<i>Barbastella barbastellus</i>	unknown	Unknown	Unknown
<i>Plecotus auritus</i>	moderate decrease	Inadequate	Inadequate

*based on acoustic monitoring of migrating bats on the Baltic Sea coast in SW of Latvia in 1993-2012. The data refer to the north-eastern populations of this species including territory of Latvia.

3. Habitats and Roost Sites

Feeding habitats

The most important feeding sites for the common bat species are different kind of woodland and eutrophic lakes and rivers. Considerable changes in land use system occurred in Latvia during the recent 15 years. The total area of the agricultural land decreased leading in growth of fallow land and forested area. At the same time the farming became more intensive in areas, which more favourable for agriculture. An intensive disafforestation took place during the last decade. The influence of the changes in landscape structure on the bat populations is not documented. However it is possible that the loss of old and extensively used forests and semi-natural meadows can negatively influence the food resources of certain bat species.

Roosts

Mainly overground roosts are used as summer roosts by Latvian bats. In late summer during the swarming activities all *Myotis* species, *Plecotus auritus* and *Eptesicus nilssonii* occupy underground roosts as well. *Nyctalus noctula* use mainly tree holes for breeding, maternity colonies of *Myotis brandti*, *Eptesicus nilssoni*, *Vespertilio murinus* and *Pipistrellus pipistrellus* / *P. pygmaeus* have been found only in buildings. Some other species occupy both buildings and tree holes during the summer.

Mainly underground habitats are used by species hibernating in Latvia. However there are some records of hibernating *Eptesicus nilssoni* in wood. Caves, fortifications and large cellars are unevenly distributed in the country affecting the winter distribution pattern of most bat species. Two species – *Plecotus auritus* and *Eptesicus nilssonii* are adopted to hibernate in small cellars, which are traditionally used by rural population for storage of vegetables everywhere in the country. This is probably the most important type of winter roosts used by the first species.

Species	Summer roosts	Hibernation roosts
<i>Myotis nattereri</i>	?	caves, cellars
<i>Myotis brandti</i>	buildings (M)*	caves, cellars
<i>Myotis mystacinus</i>	?	caves, cellars
<i>Myotis daubentoni</i>	hollow trees (M), cellars	caves, cellars
<i>Myotis dasycneme</i>	buildings (M), hollow trees, bird boxes	caves, cellars
<i>Eptesicus serotinus</i>	?	?
<i>Eptesicus nilssoni</i>	buildings (M), bird and bat boxes	caves, cellars
<i>Vespertilio murinus</i>	buildings (M)	buildings

<i>Pipistrellus pygmaeus</i>	<i>pipistrellus/P.</i>	buildings (M)	-
<i>Pipistrellus nathusii</i>		buildings (M), hollow trees (M), bird and bat boxes	-
<i>Nyctalus noctula</i>		hollow trees (M)	-
<i>Nyctalus leisleri</i>		?	-
<i>Barbastella barbastellus</i>		?	cellars, caves
<i>Plecotus auritus</i>		buildings (M), hollow trees (M), bird boxes (M)	cellars, caves

(M)-roost sites of maternity colonies

4. Threats

Main threats to bats within Latvia are:

- Deforestation
- Renovation of buildings
- Lightening of churches and other buildings of cultural heritage
- Disturbance during hibernation in underground roosts
- Mortality caused by wind energy facilities;

5. Data collection, analysis, interpretation and dissemination

Monitoring programme for Natura 2000 sites was introduced in Latvia in 2008 as a part of the program of Monitoring of Biodiversity in Latvia. Data on the occurrence and colony size of *Myotis dasycneme* have been collected between 2008 and 2012 at 10 Natura 2000 sites. The data are collected by Latvian Nature Conservation Agency.

The voluntary based monitoring of bats in underground hibernation sites is coordinated by bat expert Viesturs Vintulis and the data are stored in his private data base. The data cover period between 1992 and 2013. The number of monitoring sites gradually increased from 60 to 150.

Bat expert of the Teichi Nature reserve Alda Stepanova is leading a monitoring programme of brown long eared bats and northern bats in private root cellars. counting them during hibernation period since 2002. The data cover the period between 2002 and 2013 and are stored in her private data base.

Monitoring of migrating bats is a continuous programme carried out at the Pape Ornithological Research Centre since 1993. This programme became as a part of the Latvian Monitoring of Biodiversity and was financed by state in 2008 and 2009. Most of data are stored in the data base by programme's co-ordinator G. Petersons. Data from 2008 and 2009 are submitted to Latvian Nature Conservation Agency.

The data from all monitoring programs were analysed and included in to the National Report to European Commission for Article 17 of the Habitat Directive in 2013

Measures taken in accordance with article III to the agreement

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

All bat species in Latvia are included in the List of Specially Protected and Limitedly Exploitable Specially Protected Species (Nr. 396/14.11.2000) according to the Law on

Conservation of Species and Habitats (2000). The killing, capture, keeping and disturbance of bats in their roosts sites is prohibited according to this law.

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

The pond bat *Myotis dasycneme* is protected by 28 Natura 2000 sites.

8. Consideration given to habitats which are important to bats

The Latvian bat experts have been involved in 2010-2013 in the development of Nature Conservation and management plans for three Natura 2000 sites, in one construction project of electric supply and in eight wind farm projects.

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

Bat night events are organized yearly in July by the National Park Kemeris including the period of this Report. It was started with an introductory lecture and a slide show, and was followed by observation of hunting bats visually and with bat detectors in the old park of Kemeris. The approximate numbers of participants were about 100 persons in 2010, 200 in 2011, 60 in 2012 and 80 in 2013.

Year of bat

In 2011 a bat species the barbastelle was declared by the Museum of Natural History, Riga as the "Mammal of Year". The following events took place in the Museum of Natural History:

January: Official event of the opening of the Mammal of the year with presentations on bats.

October: three evening events for families with children to learn bats in the light of head lamps and one all the night event "Orientation in museum" – learning bats.

All the year: Competition for the best comics "Real or fictional bat stories". 176 stories were submitted by school pupils and an exhibition organized.

The action „Report on bats in your cellar” was initiated in 2010 by Latvian Fund for Nature through the website www.dabasdati.lv. The people were asked to place their observations of hibernating animals in website including pictures of found bats. The website was advertised through radio, newspapers and seminars. Altogether 159 cellars with 371 long-eared bats and 103 northern bats were reported during the winter 2010/2011.

Lectures and excursions for pupils were conducted in 2012 by bat experts Druviena (J. Šuba) and in Straupe (V. Vintulis), Bauska and Mežotne (2013).

A talk on bats was given by bat expert V. Vintulis in the seminar for representatives from tourist agencies in 2012.

A lecture on bats for local population in Bebrene in 2012 in the frame of LIFE project "Dvietes paliene" was given by bat expert G. Pētersons

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

Not yet nominated.

11. Additional action undertaken to safeguard populations of bats

12. Recent and ongoing programs (including research and policy initiatives) relating to the conservation and management of bats. In the case of research, summaries of completed projects should be provided, giving references where possible and acknowledging the sources of funding

The monitoring programmes of pond bat at Natura 2000 sites, monitoring of hibernating bats in underground roosts and monitoring of migrating bats (see point 5).

Research programmes:

1. Physiology of the bat migration in Latvia (2011). Baltic-German University Liaison Office with funds from the German Academic Exchange Service (DAAD). Project was carried out by Latvia University of Agriculture in collaboration with Institute for Zoo and Wildlife Research (Dr. Christian Voigt)
2. Arthropodes in the food of birds and bats (2012). Baltic-German University Liaison Office with funds from the German Academic Exchange Service (DAAD). Project was carried out by Latvia University of Agriculture in collaboration with University Kiel (Dipl. Boil. F. Krüger) and University Greifswald (Dr. F. Tannenberger)
3. The eco-physiology of long distance migration in temperate zone bats Institute for Zoo and Wildlife Research (2012-2014). German Research Foundation. Latvian bat experts are collaborating in this project; part of studies are carried out at the Pape Ornithological Research Centre of the Institute of Biology, University of Latvia
4. Capacity assurance of the rabies laboratory for long-term prevention and surveillance of the disease in region. Latvian Ministry of Agriculture. Research institute „BIOR” (2013-2014). Bat experts are involved in the part of the project aimed to conduct surveillance of bat rabies.

Research papers:

- Pētersons G., Vintulis V., Šuba J. 2010. New data on the distribution of the barbastelle bat *Barbastella barbastellus* in Latvia. Estonian Journal of Ecology, 59, 1, 62-69.
- Šuba J., Vietniece D., Pētersons G. 2010. The parti-coloured bat *Vespertilio murinus* in Rīga (Latvia) during autumn and winter. Env Exp Biol 8: 93–96.
- Vintulis, V. and J. Šuba 2010. Autumn swarming of the Pond bat *Myotis dasycneme* at hibernation sites in Latvia. Estonian Journal of Ecology N. 59/1: 70–80
- Šuba J., Vintulis V., Pētersons G. 2011 Body weight provides insight into the feeding strategy of swarming bats. Hystrix It. J. Mamm. (n.s.), 22(1), 179-187.
- Šuba J., Petersons G., Rydell J. 2012 Fly-and-forage strategy in the bat *Pipistrellus nathusii* during autumn migration. Acta Chiropterologica, 14(2), 379–385.
- Voigt, C.C., Sörgel, K., Šuba, J., Keišs, O., Petersons, G. 2012 The insectivorous bat *Pipistrellus nathusii* uses a mixed-fuel strategy to power autumn migration. Proceedings of the Royal Society B: Biological Sciences, 279 (1743), 3772 - 3778.

Krüger, F., Clare, E.L., Symondson, W.O.C., Keišs O. & Petersons, G. 2013. Diet of the insectivorous bat *Pipistrellus nathusii* during autumn migration and summer residence. *Mol. Ecol.* doi 10.1111/mec.12547

Vintulis, V. and G. Pētersons (2014) Root cellars are important winter roosts for brown long-eared bats (*Plecotus auritus*) and northern bats (*Eptesicus nilssonii*) in Latvia. *Mammalia*, 78(1): 85–91

Doctoral theses

V. Vintulis Importance of bat underground roosts and long-term changes of bat populations in Latvia. Defended in October 2013

J. Šuba Ecology and strategy of resource use of bats during autumn migration and swarming. Proposed time of defence autumn 2014.

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

None

C. Functioning of the Agreement

14. Co-operation with other Range States

Research co-operation with two institutions in Germany: Institute for zoo- and wildlife research Berlin and Albrecht University Kiel (see paragraph 12)

Joint project applications:

Latvian Nature Fund and Baltic Fund for Nature (Russia): Joint activities to protect the highly endangered pond bat *Myotis dasycneme* in Eastern Latvia and in North-Western Russia. Estonia – Latvia – Russia Cross Border Cooperation Programme within European Neighbourhood and Partnership Instrument 2007-2013 (rejected).

Latvia University of Agriculture and State Scientific and Production Amalgamation The scientific and practical centre for bioresources. Programm of Latvian – Belorussian co-operation in research: Distribution and habitat use of the barbastelle *Barbastella barbastellus* (Schreber, 1774) in relation to different land use systems (submitted).

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

Resolution 2.1 Consistent Monitoring Methodologies.

The programme of the Environmental monitoring is conducted in Latvia since 2007. See points 5 and 12.

The hibernating of bats are monitored by volunteers since 1992. See point 5.

New monitoring guidelines are prepared by bat experts to improve the existing Monitoring of Biodiversity. It is proposed to include the monitoring of hibernating bats in underground roosts into the existing state monitoring programme and to start the detector based acoustic monitoring of bats in feeding habitats

Resolution 4.3 Guidelines for the protection and Management of Important Underground Habitats

The bat experts have been involved in the planning of reconstruction project of the fortress Daugavpils, the largest known bat hibernacula in Latvia. The considerations given by bat specialists have been taken into account to safeguard the most important bat roosts in the fortress.

Resolutions 4.7, 6.11 Wind Turbines and Bat populations

The assessment of potential impacts of wind turbines on bats was carried out by bat experts through pre-construction survey in eight areas: Tārgale (2011, 2012), Melnsils, Vidāle (2011), Dunika, Rucava (2012), Briņķi, Tosmare, Rinda (2013).

A survey financed by Latvian Nature conservation agency on bat activity in proposed and existing wind parks in western part of Latvia was carried out in 2013. First searching for bat fatalities in Latvia was done resulting in findings of 40 bats of four species underneath six wind facilities. Recommendations for improvement of assessment of impacts of wind turbines to bats were prepared by experts in the frame of the project

Resolution 5.4: Monitoring Bats across Europe

Latvia took part at the development of Pan European Bat prototype indicator providing the monitoring data from underground sites.

Resolution 5.7: Guidelines for the Protection of Overground Roosts, with Particular Reference to Roosts in Buildings of Cultural Heritage Importance

Guidance how to solve the conflicts between bats and house owners is regularly given by bat experts by phone or e-mail or in some cases through home visits.

Resolution 6.6: Guidelines for the Prevention, Detection and Control of Lethal Fungal Infections in Bats

According to the present knowledge Latvia is outside the distribution range of *Geomyces destructans*. However bat workers involved in monitoring of hibernating bats in underground roosts are informed about this fungal infection.

Resolution 6.7: Conservation and Management of Critical Feeding Areas, Core Areas around Colonies and Commuting Routes

A study on the use of different habitats by Nathusius' bat during the autumn migration has been recently carried out (Suba et al. 2012). See reference in point 12

Resolution 6.8: Monitoring of Daily and Seasonal Movements of Bats

Monitoring of migrating bats is carried out as a part of Monitoring of biodiversity. See point 5.

Resolution 6.9: Year of the Bat

Several activities were organized by Museum of Natural History, Riga. See point 9.

Resolution 6.13: Bats as Indicators for Biodiversity

The bats experts Viesturs Vintulis and Gunārs Pētersons participated in the project "Development of a prototype indicator of European bat population trends" (prepared by Karen Haysom, Jasja Dekker, Jon Russ, Tom van der Meij and Arco van Strien, 2011)

providing monitoring data on the hibernation of bats in underground roosts in 1992-2012 data.