EUROBATS.AC23.Record

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Record of the Advisory Committee Meeting

1. Attendance

This is listed as Annex 1 to the Record.

2. Opening remarks

The Chair of the Standing Committee, Mr. Jeroen Panis, opened the meeting and invited the representative of the host government to address the participants.

Ms. Kaja Lotman from the Environmental Board of Estonia welcomed the participants on behalf of the Estonian government. She stated that it was a great honour for her to participate at the joint meeting and to greet EUROBATS delegates. This year was very important for Estonia as it was marking 100 years of the Republic of Estonia. At the same time, this season was also very special, as in May the month of nature conservation started. It presented a good opportunity to raise public awareness on this topic and explain to the general public why nature conservation was so important. Regarding bat work in Estonia, Ms. Lotman stated that also in this regard she could report quite some success. Estonia joined EUROBATS in 2004. Ever since then the number of registered bat species for Estonia had grown significantly, clearly showing the benefits of joining the Agreement. An action plan for bat conservation was also in place, defining what was to be done within which period of time. The next step was to gain more knowledge about bats in Estonia, and to collect more data. Ms. Lotman concluded by wishing all the delegates a successful meeting and a nice stay in Estonia.

The Chair of the Standing Committee also welcomed the participants and thanked the Estonian government for hosting the meeting as well as for having organised a very nice excursion for the EUROBATS delegates. He further mentioned that both committees had quite a work load, and that the Standing Committee had several important issues to deal with, one of them being discussing the return to the UN scale of contributions. It was, therefore, of utmost importance that, in preparation of the next

session of the Meeting of the Parties, all the Parties expressed their views to the discussed topics. He concluded by wishing the delegates a fruitful meeting and an open discussion in line with EUROBATS tradition.

The Chair of the Advisory Committee, Dr. Ferdia Marnell, also welcomed the participants to the joint meeting and thanked the Estonian hosts for organising it. He confirmed that both committees had a very busy agenda, and he explained that the committees would start their work together but split later. He invited the members of the Standing Committee to use the opportunity and take a look at the valuable work the Advisory Committee and its Intersessional Working Groups (IWGs) were doing. He pointed out that the information that was discussed and put together during these meetings was not only important in Europe but also worldwide, as illustrated by the recent translation of the Guidelines for Wind Farm Projects into Japanese. The Chair of the Advisory Committee then addressed the AC delegates and once again encouraged them to actively participate in the work of the Advisory Committee and the IWGs.

Finally, the Executive Secretary, Mr. Andreas Streit, also welcomed the participants of the joint meeting. He was glad to see so many delegates attending the meeting. He also thanked the Estonian government, Estonian bat workers, and the EUROBATS focal points for their engagement in the meeting preparations and the excellent cooperation. It was important that the meetings were organised in different places, as the Secretariat could observe that the meetings gave encouragement and a boost to the bat-workers in the country where they were organised, and it enabled bat experts to share their knowledge and experience with their colleagues from abroad. In conclusion, Mr. Streit thanked also all the delegates for their hard work in preparation of the joint meeting – he could observe that, compared to the previous meeting of this kind in 2014, more documents had been finalised.

3. Adoption of the Agenda

The Chair of the Standing Committee asked whether there were any remarks to the agenda, and there being none, the agenda was adopted unanimously.

4. Adoption of the Rules of Procedure

As there were no remarks or questions regarding the rules of procedure, these were also adopted unanimously.

5. Summary reports by the represented Parties and Non-Party Range States

Representatives of the Parties, Non-Party Range States, and Observers of the meeting gave a short report of their activities since AC22.

Albania reported that there had been changes in the government and that the Ministry of Environment had been rearranged and brought together with the Ministry of Tourism. Another governmental body for nature conservation is the National Agency of Protected Areas which, as its name suggests, deals with the management of protected areas. One of its four offices is located in Shkodër in North Albania. One of the projects it conducted concerned bat fauna and conservation of Shkoder Lake, including surrounding forests, and a cooperation with Montenegro was planned.

Belgium: With respect to the general population status and trends, there are no new figures compared to the 2013 EU Habitats Directive reporting. A new 2017 evaluation in the frame of the European Bat Population trends EEA reporting, analyzing trends of hibernating bats for Belgium since 1992/93 to the winter of 2015/16 (Nyssen et al, in prep) shows a strong increase of hibernating bat numbers of most cave dwelling species or pooled species (some *Myotis*, *Plecotus* and *Pipistrellus*), after correction for census efforts. The increase is particularly high for *M. emarginatus* and *M. bechsteinii* but also increasing numbers in Wallonia of *R. ferrumequinum*.

Regular and yearly winter census efforts continue. Over 1000 sites are monitored for hibernating bats. The efforts of the NGO's Natuurpunt, Natagora and their volunteers remain the crucial factor in bat conservation and monitoring in Belgium.

Major efforts were put into passive tracking with static bat recorders. New developments in automated bat call identification software speeded up this process. Efforts to locate colonies by radio tracking continue on an ad hoc basis.

The IUCN Red List status of the mammals of the Flemish region was reviewed in 2016. A lot of effort was put into environmental assessments of a growing wind turbine sector, as well as in providing policy support for a bird and bat collision guidance framework. The International Bat night remains a key event. The Belgian Bat Research Colloquium, November 18, 2017 was a major success.

Bulgaria: During the last few years the National Program for Energy Efficiency of Multifamily Residential Buildings has started. The implementation of the programme has led to recognising the need for consultations between the Ministry of Regional

Development and Public Works and the Ministry of Environment and Water. After the consultations, a working group was set up with participation of all the stakeholders. Members of the working group are representatives of ministries, as well as, municipalities, building associations, scientific institutes, regional environmental and water inspectorates, and NGOs. The aim was to develop a methodology for assessing buildings planned for insulation, for presence of protected species and to provide some mitigation measures. At this stage the methodology is almost ready. It is necessary to clarify some issues. The objective is for this assessment to become a part of the technical specification of the buildings. Our intention is for this methodology to be included in the technical specification and, along with all the other requirements, to become mandatory.

Bulgaria also intends to prepare an Action plan for nine species of cave bats. This plan will be financed by the Operational Program “Environment”.

The International Bat Night was organized by the Science of Nature Foundation and the Institute of Biodiversity and Ecosystem Research (BAS). The event had two parts – the theoretical one, with two lectures, and the practical - in Rejishka cave.

Croatia: The number of bat species for Croatia is 33, based on the bilingual (croatian/english) ID key published last year by Dr. Tvrtković, so *Myotis auarscens* and *Rhinolophus mehely* are not on the list anymore (TVRTKOVIĆ, Nikola, Šišmiši Hrvatske: kratka povijest istraživanja i priručnik za određivanje = short research history and identification key = Bats of Croatia / Nikola Tvrtković; Rijeka: Prirodoslovni muzej Rijeka; Zagreb: Hrvatski prirodoslovni muzej, 2017. - 104 pages).

The Croatian fauna database as part of the Nature Protection Information System is still under development and its finalisation is planned by the end of 2019. Another project planned is development and testing of bat monitoring programme, which is expected to start in the first half of 2019. Even more public institutions for management of protected areas/natural values are conducting bat monitoring, based on the information from the yearly review of their management programs by the Croatian Agency for Environment and Nature.

Regular winter monitoring at the Veternica Cave did not reveal any new suspected cases of infection by *Pseudogymnoascus destructans* and no mortality was recorded. There is an ongoing scientific project regarding bats and rabies conducted by Croatian Veterinary Institute (BatsRabTrack, http://sismisi.veinst.hr/). During 2016 and 2017

there were 243 blood samples and 277 saliva samples collected from 7 bat species across many roosts. In 16 blood samples of 3 bat species (*Myotis myotis*, *M. blythii* and *Miniopterus schreibersii*) neutralising EBLV-1 antibodies were confirmed, while bat saliva samples proved to be negative.

Mitigation measures for the windfarm Jelinak are still being considered by the Ministry.

International Bat Night is ongoing in more places each year and more public institutions responsible for management of protected areas/nature are including that activity in their yearly management programs.

In **Cyprus** there are, until today, 19 bat species formally known to exist on the island and all of them are being protected through the Cyprus legislation, as well as by the relevant Directive of the European Union. Of course, this number may be amended as the research on the species existing in Cyprus is still being conducted. Many of these species are found in the Natura 2000 sites, which have been declared according to the Habitats Directive and the efforts are focusing on the enhancement of the measures for their protection.

Among the known species found in Cyprus, a very important species is present, the Egyptian fruit bat *Rousettus aegyptiacus*. Cyprus is the only country of the European Union that hosts this specific species and this fact gives Cyprus a great privilege, but at the same time a very big responsibility for its conservation and protection. As the only fruit eating bat in Cyprus, it has suffered continuous victimizations from farmers, since it was believed to be causing damage to their crops. As a result, the population of the species came down to very low numbers, which made the authorities in Cyprus take measures to enhance the protection of bats and recover their population.

Aiming at protection of bats, during the procedure for designation of NATURA 2000 areas in Cyprus, many areas that host bat populations, such as abandoned quarries and natural caves, have been included. Today Cyprus has 33 NATURA 2000 sites.

Nowadays the efforts focus on enhancing the knowledge on the biology of bats through scientific research and on taking concrete measures for the protection of the bats.

Specifically, school education is a major task being targeted, since children are the future and since they are more open to the general environment protection, including bats. Officers from the Ministry as well as representatives from the NGOs involved in this matter visit schools and give lectures to students regarding bats, their positive

contribution to the environment, trying to overcome superstitions that have followed bats for many years.

Also, it is important to note the implementation of the project entitled “Improving the conservation status of fauna species in Cyprus: from microhabitat restoration to landscape connectivity (ICOSTACY)” (reference code: LIFE09 NAT/CY/000247), which was implemented within the framework of the LIFE+ call. The project started in October 2010 and was completed in March 2014 (total duration of 42 months). The total project budget was €1.241.007,00 of which €620.503,00 (50% of total eligible budget) was funded by the EU. The project’s aim was to improve the conservation status of selected species, including the bat species of Cyprus and their habitats, mainly through in situ conservation actions in NATURA 2000 Network sites, in Cyprus. All targeted species are listed in Annexes II and IV of the 92/43/EU Directive. The selected species are mainly threatened by anthropogenic activities in the past and present. Such threats include land use changes which result in habitat and landscape connectivity degradation or loss, fire, increased water demand and use, drought, invasive species, destruction of important roosting sites for the bats. Moreover, climate change causes new threats and problems to the conservation status of the species. From socio-economic point of view, the existing lack of understanding and appreciation of the targeted species by the general public leads to the reduced information about their need for protection and management, since most of them are linked to prejudice and suspiciousness. The project’s aim was reached through the implementation of carefully planned actions, which included amongst others, applied “best practices” for the protection and conservation of the targeted species, the creation and/or improvement of their habitats and the enhancement of the ecological coherence of the protected sites in Cyprus. These actions concerned the creation of artificial ponds, the restoration and protection of old buildings and mine galleries, the construction of dry walls and rock piles, the construction of safe road passages, the planting of selected plant species, the removal of invasive species, the assessment of the genetic diversity and captive breeding of specific species. Additionally, public awareness and dissemination actions were implemented and have been planned, aiming at a long-term effort for changing public opinion to protect and conserve these species of the Cypriot fauna.

The most important conservation actions for bat species are the following:

- Technical studies and environmental impact studies were conducted for all planned constructions (repairs of buildings and galleries, construction of a weir and ponds, construction/reinforcement of safe road passages)
- Maps were prepared containing landscape indicators (habitat suitability in relation to the location) for each target species. By combining these maps with different climate change scenarios, the future prospects of each species were evaluated.
- Thirteen old buildings were repaired, including placing of bat boxes, thermal traps and window panels that allow the entry of bats but not of humans or predators. Five abandoned mine galleries were blocked with special grille barriers, allowing entry only to bats.
- 150 fruit trees were planted, fenced and maintained, in order to provide supplemental food to Egyptian Fruit Bats.
- Genetic material was collected from three reptile species (*Hierophis cypriensis, Natrix natrix cypriaca, Mauremys rivulata*), two invertebrate species (*Callimorpha quadripunctaria, Propomacrus cypriacus*) and one bat species (*Plecotus kolombatovici*). The processing of the material showed that none of these animals has isolated populations that require additional conservation measures.

Czech Republic:

Several bat monitoring and survey programs have been continued or have started:

- Long-term monitoring (737 hibernacula monitoring; 269 maternity colonies);
- Short-term monitoring (occurence of bats in buildings accross the whole country as well as bats in old trees in parks);
- Local surveys (noting, that number of findings or recordings of echolocation calls of *Hypsugo savii* increases).

With regard to conservation, it is worth mentioning that:

- The project „Learn the mysterious world of bats“ has been finalised;
- Scientific project continues, with cooperation of animal rescues centers.

Bats, Buildings and Insulation projects:

- Special consultancy line, taking part in administration procedures, has been established and special workshops focused on bats in buildings and old trees were organised.

Bats and agriculture:

- New dissertation thesis about importance of bats in biological pest control (*Erannis defoliaria, Operophtera brumata*) was published.

Education, public events, promotion:

Most of the promotion work is being done by the NGO „Czech Bat Conservation Trust (ČESON)“, located in Prague, as well as by the NGO „Nyctalus“. It includes mostly:

- New propagation and educational material (leaflets, booklets, postcards, workbooks);
- DVD with bat echolocation and social calls „Follow the Prague Bats“;
- IBN on 54 sites, plenty of public events and programs for schools with bats during the whole year (more than 250);
- Itinerant exhibition „Bats – mysterious and vulnerable“;
- Bat interactive map available on http://napude.sousednetopyr.cz/;
- Online transmission from summer bat colonies, 3 bat observation sites in castles;
- Geocaching game „In bat-world with Dracula“.

This year 8 sites were recognised as bat-firendly sites.

Estonia reported that currently 14 bat species occurred in the country, two of them being occasional visitors. The action plan for the protection of bats had been renewed. One of its results was recognising the protection of underground hibernation sites as a task still to be done. It was further reported that the Estonian Fund for Nature had prepared an application for a Life project, which was successful: The project had started during this year and was dealing with the protection of underground sites. Additionally, the awareness raising and promotion of bat conservation was also an ongoing task in Estonia and the International Bat Night was each year a success.

Finland: The Red List assessment process is finalized and the Red Data Book is to be published in 2019. There are no changes related to bats - 2 species out of the 13 occurring in Finland are on the Red List.

The bat monitoring is continuing by surveying circa 100 hibernacula yearly, mainly in Southern Finland. Also, passive monitoring with detectors is conducted throughout the season in several locations around the country.

Finland will host the 15th European Bat Research Symposium in August 2020. The symposium will take place in Turku, Southwestern Finland. The arrangements are going on well and Finland wishes to warmly welcome all colleagues to the symposium in 2020.

A tentatively novel bat lyssavirus (Kotalahti virus) was detected in Finland in 2017. A dead Brandt's bat found near a vacation home in Eastern Finland was sent to the Food Safety Authority Evira. Though the bat was already a bit autolysed, a virus could be detected. The virus differed from known lyssaviruses but resembled Khujan virus, Aravan virus, Bokeloh bat lyssavirus and European Bat Lyssavirus 2. The finding is reported in Nokireki *et al.* 2018 https://onlinelibrary.wiley.com/doi/full/10.1111/tbed.12833.

Not including the overseas territories, **France** hosts 34 species of bats. A restoration plan of this group of species (1999-2004) has been implemented, followed by a national action plan covering the period 2009 to 2013. These plans enabled France to draw up a state of play of the bats at the national level, to federate and form a network of actors in each region, as well as to protect almost 500 bat roosts.

At the end of the last plan, an assessment of the conservation status of the 34 species of metropolitan chiroptera was conducted. This allowed us to determine trends in populations based on the available knowledge. For some species, a stabilization or even an increase has been observed, even though the present numbers are far from the level of the populations in the years of 1950-60. However, 19 species of bats remain vulnerable at the national level or have a status to be determined.

The objective of the new 2016-2025 action plan (http://www.plan-actions-chiropteres.fr/ and http://www.plan-actions-chiropteres.fr/IMG/pdf_PNA-Chiropteres-2016_2025._pdf) is to restore and maintain populations of these 19 priority species. This plan, whose period of application has been extended to ten years, was elaborated by the Federation of Sites Conservatories with the help of partners involved in bats' conservation (National

Forestry Office, National Office for Hunting and Wildlife, National Agency for Food Safety, Environment and Labor, Center for Studies and Expertise on Risks, Environment, Mobility and Development, National Museum of Natural History, Museums of Natural History of Bourges and Geneva, Ministry of Culture, Ministry of Agriculture, French Society for the Study and Protection of Mammals, National Center of Forest Property).

The inclusion of chiroptera in spatial planning policies, which is a major challenge for the long-term conservation of these species, represents the core of this new draft action plan. The conservation of ecological continuity, the reconciliation of agricultural and forestry practices are actions that will be undertaken as part of this plan. The impact of night lighting, new insulation standards for buildings and wind farms (see below) will be assessed and adapted to the relevant partners.

Finally, the plan provides for the establishment of a national observatory for bats aimed at collecting data on these species and valuing them. The mobilization of actors from various horizons (public authorities, nature protection associations, socio-professional organizations, companies, individuals) is also necessary to carry out these actions and promote a better consideration of these species.

A first assessment of this action plan for 2017 was published in the first quarter of 2018.

In addition, a new version of the environmental monitoring protocol for onshore wind farms was adopted in March 2018. This protocol provides for new actions in favor of bats, including monitoring activity at altitude, continuously and without any duration sampling over the entire period of activity of bats.

From activities carried out in **Georgia** last year, the following should be highlighted:

- The importance of bats for nature is becoming more and more understandable for the private sector and companies working on big development projects. Accordingly, bats are considered as a key group of species and taken into consideration during environmental impact assessments of big infrastructural projects; for example, in 2017 one company developed a special Bat Management Plan for its infrastructural project-area.
- Death of 150-200 individuals of *Rhinolophus ferrumequinum* and *Miniopterus schreibersii* was recorded in one wintering colony. Samples were taken by representatives of NCDC and are still being surveyed.

Germany: Currently, a report according to Art. 17 of the Habitats Directive is being prepared, as well as EUROBATS national report, for which reports from the 16 federal states are collected.

The first edition of the book “Bats and Wind turbines in forests”, containing the results and conclusions as well as recommendations from the R+D project, was sold out and a second edition was printed.

Several research and development projects are on-going, which also include studies dealing with the impact of wind energy; for example, the “Before-After-Study at wind turbines in forests”, focusing on habitat changes that could affect or disturb forest dwelling bats like *Plecotus auritus* or *Myotis bechsteinii*. After the first project on the effects of small wind turbines in northern Germany has been finished, a follow up project started to enlighten the situation for bats at small wind turbines in southern Germany. Furthermore, at an onshore wind test site research for bats and birds concerning technical monitoring and mitigation measures will accompany the technical tests. It is also planned to improve the existing mitigation system based on curtailment algorithms.

The R+D project BATMOVE, which started in 2016 and is aiming at investigating bat migration across the North and Baltic Sea, is already providing interesting results. The funded project “Batcities” of the NABU, which promoted the bat conservation in urban areas and the recruitment of new bat workers, was finished in spring 2017, but the work will be continued.

A very important point the German government is concerned about is the decline of insects and its impact e.g. on bats. In June 2018 milestones for an action programme against insect decline will be announced.

Hungary reported that in the framework of the Hungarian Biodiversity Monitoring System, monitoring takes place in about 150 buildings of more than 100 settlements. Over 10 species can be tracked annually using this method, recording often more than 20,000 individuals. During wintertime, nearly 50 underground localities (caves and mines) are monitored and about 20 species with thousands of individuals are identified. At 25 mating caves, generally more than 20 species are captured, meaning that several thousands of individuals are banded every year. The Hungarian Biodiversity Monitoring System is a national programme operated by the Nature Conservation Department of the ministry responsible for nature conservation. Its mission is the long-term

surveillance of the state and trends of biological diversity in Hungary. Beside this programme, within the framework of a Hungarian-Swiss project about 15 bat species surveys were conducted in the Transdanubia region. A co-operation agreement was written between Aggtelek National Park Directorate and some local churches to protect bat species which live inside these buildings. The main goal is to extend this initiative at the national level. The WildWatcher, launched in 2009 is a net-based, interactive programme for data gathering and environmental education. Through its activities, it aims to involve the public in nature conservation. Within this programme the mammal of the year was chosen. In 2016 the Year of the Bat was celebrated and several awareness raising events were organized.

Ireland: The 9th Irish Bat Conference was held in October 2017. The meeting was organised by Bat Conservation Ireland, the national bat NGO. As well as a large number of Irish speakers, invited speakers included Professor Danilo Russo from Italy and Dr. Christian Voigt from Germany. Over 100 delegates attended, making it the largest bat meeting in Ireland to date.

Ireland's three-year contract to manage the National Bat Monitoring Programme has just finished. A new four-year contract has been advertised and all going well the new contract will be up and running in time for the 2018 season. The Irish programme includes four separate monitoring schemes which between them cover seven of the nine bat species found in Ireland. Reports arising from the monitoring programme are published regularly on the National Parks & Wildlife Service's website: www.npws.ie/publications/

There is no monitoring scheme in Ireland currently for whiskered bat (*Myotis mystacinus*) or Natterer's bat (*M. nattereri*). A pilot project was run in 2016 and 2017 to test a new approach to woodland bat monitoring in the hopes of capturing sufficient data on these two species. The project confirmed that both species are present in woodlands across the country. However, the analysis concluded that over 50 woodlands would need to be monitored twice every year to gather enough data to produce population trends. There are not enough bat surveyors in Ireland to undertake this level of survey-work at present.

Bat Conservation Ireland continues to collect and collate distribution data for all bat species. This data will update our current knowledge on bat distribution in Ireland; it will also be made available for the 2nd edition of the European Mammal Atlas.

Finally, work is underway on Ireland's Article 17 report, as required under the EU's Habitats Directive. Early indications are that the Article 17 conservation assessments for bats will all be favourable. The population trend for the lesser horseshoe bat - our only Annex II species - is significantly up, while the trends for the other species also appear to be up or at least stable.

Israel highlighted the following:

1. The Israel Nature & Parks Authority (INPA) together with the Ministry of Environment were advancing a revision to the current Wildlife Protection Law in order to change the current status of the Egyptian Fruit Bat (*Rousettus aegyptiacus*) in Israel from an unprotected Pest status to a Protected Species, as pledged when Israel joined the EUROBATS Agreement.
2. The Israel Nature & Parks Authority (INPA) together with the Mammal Center of the Society for Protection of Nature in Israel (an NGO) continued expanding the National Monitoring Plan for Israel's Bat Species. During the fifth year of monitoring, almost 100 sites (roost and foraging sites) throughout the country were surveyed. No major changes from last year's monitoring were observed.
3. The INPA was compiling a list of important underground sites for bats which would be submitted to EUROBATS.
4. Wind Farm Planning: The INPA together with the Environmental ministry have submitted to the Israeli National Planning Commission a comprehensive methodology for minimizing risk to both bats and birds, which include sensitivity mapping, proper survey techniques and methodology, mortality thresholds, collision-risk modeling (for birds), requirements for an annual take permit by the INPA, post-construction surveys and commitment for increased monitoring and active measures if mortality thresholds are exceeded. The 2014 EUROBATS Guidelines for wind turbines have been translated to Hebrew for the purpose of establishing guidelines for the Environmental ministry. The EUROBATS guidelines have been implemented for both the planning and operational stages.
5. Major efforts and success to combat light pollution in protected areas and with major infrastructure projects could be reported. Current knowledge of the effects on bats and other nocturnal wildlife is incorporated in addressing the issue.
6. International Bat Night was celebrated in 4 nature reserves throughout the country.

Italy's recent initiatives mostly concern research. Ongoing work is exploring the role of bats in agricultural landscapes and the effects of artificial lighting. An EU COST proposal on the effects of climate change on bats was also submitted, partnered by 15 countries, most of which are EUROBATS Parties or Non-Party Range States, and in cooperation with the EUROBATS Advisory Committee, it was planned in order to achieve common conservation goals. A workshop on zoonotic diseases in bats was also organized to present the state of art at a national scale and raise awareness on the subject among bat workers and rehabilitators.

Latvia reported that three-year-long projects to develop the species conservation plans of the pond bat *Myotis dasycneme* and the barbastelle *Barbastella barbastellus,* financed by Latvian Nature Conservation agency, were currently being conducted.

Recently, a project on establishing a national bat data-base was financed by Latvian Environmental Protection Fund. The aim of this project was to gather the bat observations of 14 bat species in Latvia in a national data-base until the end of 2019.

International collaboration in studies of bat migration has continued with the research group of the Institute for Zoo and Wildlife Research led by Dr. Christian Voigt at the ornithological field station Pape, Institute of Biology, University of Latvia. A part of this work is the banding program of migrating bats, which was restarted in 2014. About 12,000 bats of 15 species have been banded up until now. Two recent recoveries of Nathusius's bats banded in Pape provide new records of migration distance in this species and probably in bats as such. One male was found dead in the south of France, 1,945 kilometres south-west, and another male in the north of Spain, about 2,200 kilometres south-west from the banding site at Pape field station.

Luxembourg highlighted the following points:

1. Research:

- The Ministry of Sustainable Development and Infrastructure (MDDI), the Natural History Museum and the regional Biological Stations launched a biannual study to assess genetic population structure of *Myotis emarginatus* within the 12 known maternity roosts in Luxembourg in relation to neighboring countries. The MDDI also co-financed a study in the Southern region (Gutland) to find further reproduction sites by acoustic surveys and radio-tracking.

- A short note on the discovery of the first maternity roost of around 20 *Myotis alcathoe* for Luxembourg was published and is available on the website of the *Société des naturalistes luxembourgeois* (https://www.snl.lu/publications/bulletin/SNL_2017_119_099_107.pdf).

2. Monitoring:

   The nationwide bat monitoring program was continued and strengthened by simultaneous counts to assess population trends for the upcoming EU Habitats Directive Article 17 reporting to the European Commission.

3. Implementation of protection measures:

- Luxembourg continued its assessment and implementation of management plans for NATURA2000 sites, also updating bat data as target conservation species for the different sites.
- The second National Nature Protection Plan (PNPN2) was updated. *Myotis bechsteinii* and *Myotis emarginatus* were retained as umbrella priority species for species action plans.

4. Public awareness:

   The International Bat Night took place in the vicinity of Bech-Kleinmacher in the Moselle valley and was a huge success, regardless of bad weather.

The situation in **FYR Macedonia** regarding bats was still stable and very bad. Survey work and protection of bats were being completely dependent on EUROBATS small grants as well as international support, which was missing.

The only wind farm was still operating without any bat monitoring, and a few new farms which were before construction seemed to continue with the same practice.

Owing to Batlife Macedonia, as well as some colleagues from abroad, the number of species identified in Macedonia has risen from 26 to 29 since the last AC meeting.

The complete national report for Macedonia would be delivered in time to the Secretariat.

Moldova reported that there had been no significant changes in the field of research and protection of bats since the previous year, however, that the research on bats was currently becoming one of the priorities of the Institute of Zoology, where there were young researchers doing their master's and PhD theses on bats.

The reestablishment of the bat reserve Țiganca had been delayed, partly because of the restructuring of the government and the changes in the priorities of the ministry, and partly due to the absence of one of the main promoters and the main negotiator with the ministry, who was currently not living in Moldova.

The Red Book of Moldova included 16 out of 21 bat species. Though the goal was to have all the species included in the Red Book, this was still a good result. The reasons why the five remaining species were rejected from the final version of the document were not known.

Due to frequent mass media activities about bats (via Facebook, radio broadcasts, etc.), the popularity of bats was slightly increasing. Bat workers started receiving more bat emergency calls, not only from the major cities in Moldova, but also from all around the country, which helped the bat workers to map the occurrence of species in new sites as well as to carry out some rescue and protection activities. Unfortunately, there was still no possibility to promptly respond to all the requests, especially to those in the remote areas. Additionally, bat workers also received requests for the removal of bat colonies, so that they were seeking for the possibilities to establish bat emergency services with a dedicated budget for it and proper equipment.

Monaco reported that in 2015/2016 the Government of Monaco and, particularly, the Environment Office conducted a study of the chiroptera of the Principality of Monaco, which was carried out by the Conservatoire d'Espaces naturels de Provence-Alpes-Côte d'Azur in France. In comparison to 1998/99, when the previous inventory showed the presence of 5 bat species, in 2015 the experts identified 11 species out of the 13 potentially present on Monaco's territory. It is extremely difficult to find colonies as the number of lodgings favourable is important. Indeed, the experts found that the modern habitat offers a multitude of potential breeding grounds for chiroptera.

Regarding conservation plans or measures, there are no specific conservation plans for bats. However, there are precautionary measures in place for urban planning, such as monitoring. Moreover, in December 2017, an environmental framework law was finally adopted in Monaco, having been submitted to the parliament in 2008. This framework law will allow setting up special conservation measures for terrestrial species presents in Monaco, such as bats.

Finally, as there are no aerial power lines and wind turbines in Monaco, the threats for bats there are limited.

The Netherlands highlighted the following points:

- Overground roost counts of *Myotis dasycneme* and *Eptesicus serotinus* are going to be included into the official National Ecological Monitoring scheme (NEM), in addition to *Myotis emarinatus*, *Plecotus auritus* and *Plecotus austriacus*, which are already a part of it;
- Due to automated detectors there are more records of *Pipistrellus pygmaeus*, *Nyctalus leisleri* and *Vespertilio murinus*;
- Recently *Barbastella barbastella* has been rediscovered on the border to Belgium. Additionally, a very young new-born pup of *Pipistrellus pygmaeus* has been recorded in the Netherlands, being an indicator that there is breeding;
- The conservation status of *Myotis mystacinus* is negative. One third of the hibernating population has been lost, and, despite some research being conducted, there is still no answer as to why this is happening;
- Monitoring of *Myotis dasycneme* in summer and targeting N2000 summer sites will be incorporated in NEM, in addition to hibernation monitoring. The first data indicate that there are negative trends and that roosts are being lost;
- Anecdotal information on *Eptesicus serotinus* is indicating a negative trend. Monitoring with car transect method has been ongoing since 2013 – the species is at risk from measures to reduce carbon emission (zero carbon emission renovation and insulation of existing buildings, all electric building/zero carbon emission designing and building);
- Wind turbines at sea are facing mandatory curtailment and are starting to be seriously studied (pilots: monitoring at sea, study behaviour near turbines, first small steps, development of population migration estimations of *Pipistrellus nathusii*, radio tagging migrating bats);
- The ‘Flora and Fauna act’ is an act for nature conservation and provincial authorities, which should increase the focus on bats and proactive policies and action;

- An ‘overall’ management plan for N2000 underground sites is being prepared as well as studies on the relationship between microclimate, visitors and bats in two larger limestone quarries;
- The approach of working with Species Management Plans in the communities and municipalities is taking off and ‘license for e.g. area of municipality’ is spreading –a monitoring scheme is being developed targeting urban bats, and a lot of work is being done on proactive building for bats;
- The Ministry issued a Code of conduct for carbon reduction renovation – bat specialists feel that not all the risks are fully covered;
- The Ministry has also recently completed a study on the vulnerability of species to energy transition;
- Fieldwork for study on bats, viruses and relation between different maternity groups and mass hibernacula of *Pipistrellus pipistrellus* has started;
- A Project on the relation between agronomic dynamics of farmers, cattle, and their stables, and the potential effect on *Myotis emarginatus* is ongoing and includes the study of the role of *Myotis emarginatus* in pest control, and impact of pesticides on *Myotis emarginatus*.

Norway: The Norwegian Environment Agency (Miljødirektoratet) continues to support a number of bat-related activities carried out by the Norwegian Zoological Society (NZF). These include, among others, winter and summer monitoring projects, bat box studies, and bat walks and talks aimed at the general public. The bat rescue centre and the bat help line previously run by the society have, however, terminated its activities this spring.

The research project “ScandBat”, funded by the Environment Agency and run jointly by the Norwegian University of Life Sciences (NMBU) and the NZF, is having its second field season this year. The project focuses on movements and habitat use for hunting, roosting, reproduction and hibernation of seven bat species in south-eastern Norway (five common and two red-listed species).

In 2016, the Norwegian Parliament asked the Norwegian Water Resources and Energy Directorate (NVE) to identify larger areas that may be suitable for wind energy development without compromising other interests. Nine environmental and social issues were stated as being of particular concern, one of these issues being bats. The

Energy Directorate works with the Environment Agency and the Directorate for Cultural Heritage (Riksantikvaren) on this task, drawing also on discussions with the NZF. A report on the knowledge base on bats was presented by the Environment Agency in April 2018. The issue will be further discussed in September where the aim is to identify actual areas that may be suitable and those that are not. However, this will be done based on existing knowledge, without providing for further investigations in the field.

Concerning red-listed species, it is noted that a single *Barbastella barbastellus* (CR) was again present in its normal hibernation site this winter. It is still not known whether there is a population in Norway. More than two individuals in any one season have yet to be recorded.

Poland reported that the 26th Polish Bat Conference took place in November 2017 in Wieżyca. About 40 bat presentations were held and more than 100 people working with bats took part in that event.

Lesser horseshoe bat Information Center was established in southern Poland as part of big conservation project focused on this species.

New books and booklets appeared, such as: Guide to Bat Conservation, Why are Bats Important, Common Life of Bats, Guidelines for the Forest Owners.

Bat research is ongoing in **Portugal**, covering several aspects of bat natural history and conservation biology. In mainland Portugal, the Monitoring Programme of Important Cave-dwelling Roosts has been running for 30 years. Two newborns of *Myotis myotis* were found last February, being the first-time that pups were found during the hibernation season. A documentary on conservation of bats has been prepared and is expected to be shown on television. The calendar of visits to important roosts has been updated and is available online (http://www.fpe-espeleo.org/index.php/quiropteros). A close collaboration with the Portuguese Geocaching Association has allowed the caches placed in important roosts to be managed taking bats into consideration. Guidelines for consideration of bats in monitoring programs of wind turbine projects (first version prepared in 2004) have been updated with some aspects referred to in EUROBATS Publication Series No.6. The draft proposal has been discussed with promoters, companies in charge of monitoring programs, bat experts and environmental authorities, and is available online (http://www.icnf.pt/portal/naturaclas/patrinatur/resource/docs/Mam/morc/morc-recom-p-eolic).

The Nature Conservation Services of the Regional Government of the Azores continue to annually carry out the acoustic monitoring of bat species in all the islands of the archipelago, which began in 2012. The educational services of the Island Natural Parks of the Azores Autonomous Region regularly promote environmental awareness actions on bats on all islands of the archipelago, aimed especially at school audiences, but also frequently at the general public.

In Madeira Islands, bat research and monitoring is ongoing since 1998, hence celebrating 20 years of bat conservation on these Islands. Several education articles published in local newspapers, radio and television programmes focusing on Madeira Island bats and their ecological importance had a strong impact on the archipelago inhabitants. Further, monitoring of bats on wind turbine farms and new water dam is being conducted on a regular basis, collecting important ecological data for their conservation.

San Marino reported that there had been no major changes during the previous year. The new government was still about to address various problems in the field of nature protection, including legislative ones. The general economic crisis also made it even more difficult to finance the activities of the National Natural History Museum, the Centro Naturalistico Sammarinese, which had the responsibility for monitoring the activities of bats, which was in the last two years conducted on a voluntary basis.

In **the Slovak Republic**, the realized monitoring consists of repeated collection of data in the field, using standardized methods on defined areas, so-called permanent monitoring localities. For the purpose of collection, processing, evaluation, and publishing of the data from field monitoring a new IT system has been developed – the Comprehensive Information and Monitoring System (CIMS), which is managed by the professional staff of the State Nature Conservancy of the Slovak Republic. Monitoring is performed by the SNC (including the Slovak Caves Administration) as well as in cooperation with members of non-governmental organisations (e.g. Slovak Bat Conservation Society, Slovak Speleogical Society). All records and reports are presented in the publication “Monitoring of Animal Species of Community Interest in the Slovak Republic – Results and Assessment in the period of 2013 – 2015”. The publication is available on the website of the SNC of SR: www.biomonitoring.sk. In October 2017, the Government of the Slovak Republic approved another update of proposed Sites of Community importance. The total area has increased from 11.9 to

12.6% of the Slovak Republic´s territory and the total number of SCIs (Sites of Community Importance) has increased to 642 SCIs (76 of them are for bats).

Currently, 28 bat species occur in Slovakia and no new species have been recognized. The Red List categorisation for bat species recorded in Slovakia was published in 2001 – National Red List of Mammals – and no new categorisation has been done since then. The scientific research is performed especially in the Institute of Forest Ecology of the Slovak Republic, Academy of Sciences in Zvolen, several universities in cooperation with animal rescue centres.

A lot of management activities have been carried out e.g. reconstruction of the entrance of the mines, cleaning of the church`s attics, clearing of guano from the attic of the churches. A lot of activities have been realized in co-operation with members of the speleological groups, e.g. cleaning and closing of underground sites, elimination of the activities leading to disturbance of bats in its roosts. The promotion work includes mainly organizing International Bat Night events.

Sweden: Recently, a report on bats based upon bio-geographic monitoring programs for different regions in Sweden has been published. Unfortunately, this report is only available in Swedish.
Out of the 19 bat species found in Sweden, more than half of them are currently on the Red Data List of Sweden. There are also worrying records that very commonly occurring species might be declining in areas where this should not be the case. Further monitoring is needed.

As earlier reported, there have been new facts discovered on which bat species in Sweden are likely to be the most vulnerable around wind turbines. There are ongoing projects concerning the impacts on bats around wind turbines and the distribution of insects, of high flying insects and bats and the possibility of reduced mortality of bats around wind turbines using different colours and their intensity. An update of the Swedish recommendations in a synthesis report concerning bats and wind turbines has now been published.

On the International Bat Night 2017, there were many very successful events carried out throughout Sweden. The number of amateur bat scientists in the country are steadily increasing. That means that the amount of bat walks and bat talks in the country also increases significantly, which in turn helps promoting bats. Following this, the positive interest in bats of the public is clearly increasing.

Switzerland:

Bat protection in Switzerland is supported by the Swiss government and the 26 cantons. Protection efforts concerning monitoring, national databases, supervision of renovations of buildings with bat roosts, education and public relations are on the level of the previous years. Several bat species remain under great pressure in densely populated Switzerland, especially the attic using ones and the very light sensitive ones.

Important developments in 2017 to be highlighted are:

- Implementation of the action plan of Swiss Biodiversity Strategy concerning wildlife corridors and bridges;
- Implementation of a GIS-based low-cost method to identify potential flight corridors from settlement into the hunting habitat for 200 very important bat roosts using flight corridors (until 2019);
- Implementation of the validation standards of the Swiss Bat Bioacoustic Group SBBG about bioacoustic evidences;
- Wind energy: National Guidelines to take bats into account may finally be published in 2018;
- Implementation of a new monitoring and protection program for the three species of the genus *Plecotus* occurring in Switzerland involving volunteers;
- Implementation of bats (distribution of species, biology, conservation) in a new Swiss mammalian atlas project (publication expected in 2021);
- Owing to an education initiative there are 900 volunteers working to protect bats in Switzerland (mainly monitoring of important bat roosts and public relations);
- International Bat Night: 36 events with more than 5,000 participants;
- World Bat Library of Geneva: 2,720 new documents have been indexed and made available for the chiropterologists of Switzerland and representatives of the EUROBATS network countries and other regions.

Ukraine:

The law on Environmental Impact Assessment was adopted and came into force in 2017. Additionally, the law on Strategic Environmental Assessment was adopted by the Ukrainian Parliament in March 2018. Both laws represent an important tool to influence the projects which can have a negative impact on fauna and flora species, including bats.

Work on the Emerald network development in Ukraine is ongoing. For now, 271 Emerald sites have been adopted by the Standing Committee of the Bern Convention. To formalize the legal status of the Emerald network sites in Ukraine, a draft law has been elaborated with assistance of the EU experts and is expected to be submitted to the Parliament for consideration this year.

The Ministry is currently preparing a pilot project on biodiversity monitoring in three selected administrative regions of the country which is expected to be focused mostly on water-birds and bats.

United Kingdom:

1. Species Trend Information

Bat Conservation Trust has released the report for the National Bat Monitoring Programme 2017. At present sufficient data are collected to produce population trends for 11 of Great Britain's 17 resident bat species. Of these species, all are considered to have been stable or to have increased since the baseline year of monitoring (1999 for most species).

Species considered to have increased in Great Britain in comparison to the baseline year are greater horseshoe bat, lesser horseshoe bat and common pipistrelle. There is also evidence from the Hibernation Survey that populations of Natterer's bat have increased. Species considered to have been stable in Great Britain in comparison to the baseline year are Daubenton's bat, whiskered/Brandt's bat, soprano pipistrelle, noctule, serotine and brown long-eared bat. No species for which population trends can be produced is considered to have declined significantly since the baseline year.
http://www.bats.org.uk/pages/nbmp_annual_report.html

2. Research projects/Guidance Documents

2.1 Scottish Natural Heritage lead guidance document 'Bats and onshore wind turbines: survey, assessment and mitigation' is in final review and will be published later this summer. It replaces the previous guidance on the subject; notably that published by Natural England (TIN051) and chapter 10 of the Bat Conservation Trust publication *Bat Surveys: Good Practice Guidelines* (2nd edition), (Hundt, 2012) and tailors the EUROBATS guidelines on assessing the impact of wind turbines on European bats to the UK.

2.2 Under contract to Great Britain's statutory bodies the Mammal Society has completed the 'Review of British Mammals'. This project has reviewed the distribution and status of British mammal populations (last undertaken by Harris et al, in 1995). Alongside the review an IUCN Red List assessment for Great Britain for mammal species has been undertaken. Publication is imminent with a public launch by the Mammal Society in June. Information within this publication is being used to inform Article 17 reporting which is currently being undertaken.

2.3 The Chartered Institute of Ecology and Environmental Management (CIEEM) is leading on the production of an updated bat mitigation guidance document. It will use the evidence base collected from CIEEMs and Exeter University's project 'Reviewing the evidence on mitigation strategies for bats in buildings: informing best-practice for policy makers and practitioners' (http://www.cieem.net/bat-mitigation-strategies-research-project) and Bat Conservation Trust's 'Bearing Witness for Wildlife' project (a 3-year project involving visiting sites where mitigation works were undertaken and monitoring the effectiveness, http://www.bats.org.uk/pages/bearing_witness_for_wildlife_bat_roost_mitigation.html). Additional case studies will be incorporated to demonstrate best practice and the publication is intended to be an on-line resource that can be readily updated. Publication is planned for late 2019.

Short reports from the Non-Party Range States

Regarding administrative matters, **Armenia** reported that it had signed and ratified 22 international environmental conventions and protocols, which were essential prerequisites for elaboration of the national environmental policy, strategies, and concepts, in compliance with sustainable development approaches promoting environmental protection and biodiversity conservation. One of the aforementioned conventions was the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

The Ministry of Nature Protection of the Republic of Armenia recognizes the expediency of joining the Agreement on the Conservation of Populations of European Bats (EUROBATS), which is conditioned by the representation of valuable species of bats on the territory of Armenia and the necessity to protect their habitats.

The issue of joining EUROBATS is relevant for the Republic of Armenia, since like all animals, bats also do not recognize geopolitical borders. For the study and preservation of bats, detection and organizing the prevention of diseases spread through them, it is

important to have comprehensive information on the activity of bats, migration routes and endangered species, and to exchange this information with European and regional research groups.

The meeting of the board adjunct to the Minister of Nature Protection of the Republic of Armenia approved the issue of accession of Armenia to EUROBATS and, hopefully, in the near future, Armenia will join the Agreement.

Regarding scientific matters, Armenia reported that a small group of specialists continued to develop bat research and conservation activities in Armenia. The activities included:

- inventory of bat fauna in Armenia, especially in protected areas;
- public education;
- inventory of over-ground roosts;
- specification of bats species distribution;
- phylogeographic research of some species of bats dwelling in Armenia.

Within the field of bat research, several activities started in 2017:

1. Armenian-Belorussian governmental joint project concerning genetic study of bats dwelling in both countries was launched;
2. A mixed colony of *Miniopterus pallidus* and *Myotis oxygnathus* was found in an old mining tunnel in southern part of Armenia;
3. The first wind farm was planned to be built near Sevan Lake. The construction company made a call for bat monitoring research, which was a result of the long-term work with different organisations regarding importance of bat research and conservation.

International conference on bats of eastern Europe will be held in Yerevan in October 2018. This conference was made possible with the help of EUROBATS EPI initiative, and AC experts are welcome to participate at it.

Azerbaijan: In 2017 there was no drastic change towards the ratification of the EUROBATS Agreement as well as the CMS by the Azerbaijani Government. However, the efforts of the scientific community continued to encourage the regulatory body (MENR) and the executive body (MOEA) to speed up the process or to bring this subject as a priority to the agenda of these organizations. A number of meetings with relevant departments of MENR were arranged to track the progress. Since 2016 the focus has been on the CMS rather that the EUROBATS Agreement and it is being

considered as a starting stage to proceed further. In April 2018 fundamental organizational changes took place within MENR and it was hoped that a new and different approach might be demonstrated by the new management.

In the year of 2017 the Institute of Zoology launched a new research programme on the existing and potential habitat range mapping of Red Data Book species. Four bat species with higher protection status are also being covered by the scope of work. Regular field research started within the territory of Gobustan region, which is the only natural and cultural reservation in the republic. The maternity colony of *E. bottae* has been registered here since 2002 and it is the second predominant species (after *P. kuhli*) among another seven bat species here. In 2017 nine individuals of *E. bottae* were mist-netted, banded and released. Two new post-graduate students were involved in the bat research as part of their development as future bat workers.

Also in 2017 a number of educational sessions were organized by the NGO ECOSFERA, and in close cooperation and support of a bat expert, for a dedicated group of people in the Educational Center and in some schools at the provinces.

In **Belarus**, during the previous year (since AC22), the following bat research projects have been conducted:

- research on *N. lasiopterus* on the territory of Belarusian Palesse, supported by the Frankfurt Zoological Society and EUROBATS;
- research on species composition and genetic structure of *Pipistrellus* and *Myotis* species complexes in the National Academy of Sciences, as well as
- the joint Armenian-Belarusian project «Phylogeographic analysis of bat populations of Belarus and Armenia»;
- bat research within the framework of the project «Polesia - Europe's largest wilderness area» by the Frankfurt Zoological Society and its partners.

It should also be noted that the first Belarusian bat rehabilitation centre, called “Kazhanapolis”, has officially been opened in Minsk this year. The possibility to gather funds for this centre was found on the crowdfunding platform “Maesens”.

In addition, the usual public activities have been carried out, such as International Bat Night events and popular bat-lectures, which have been held in several cities of Belarus. The most of IBN events are usually supported by APB-BirdLife Belarus.

Concerning the progress of Belarus joining the Agreement, the Ministry of Natural Resources and Environmental Protection of Belarus continues to study the advisability of joining EUROBATS. According to the National Action Plan for the Conservation and

Sustainable Use of Biological Diversity, the Ministry must prepare and present to the Government the rationale for Belarus joining EUROBATS by the end of 2018.

Bosnia and Herzegovina: In the previous period winter bat monitoring has continued, and has been spread to several caves with significant colonies. There have been two annual bat monitoring schemes, one for the Federation of Bosnia and Herzegovina (one of the state entities) and the other for one protected area near Sarajevo. The number of species of bats in Bosnia and Herzegovina is 30. The Ministry of Environment has been warned that the number of protected species of bats is far below the number of known species in Bosnia and Herzegovina. The publishing of the journal for bat research of the Balkans “Hypsugo” has continued. Together with bat workers from Slovakia, Hungary and Poland the project *Let's be friendly to bats together* has been launched. Finally, good news about Bosnia and Herzegovina’s accession to EUROBATS – the Presidency of Bosnia and Herzegovina has decided to sign the Agreement.

Iran wished to highlight the following activities:

1. Academic bat studies and published articles by two major universities:
    - ARTICLE Distribution and new records of cave dwelling bats from Fars province in south-west of Iran,
    - Distribution and new records of cave dwelling bats from Fars province in south-west of Iran - Species, v. 18, no. 59, p. 91-116;
2. Local DOE activities for protecting caves as bat roosts;
3. Cavers’ activities for bat conservation and education;
4. Gathering bat rehabilitation protocols and starting translation by Dideban wildlife laws society;
5. Introducing wildlife education into school plans by teachers;
6. Several official and unofficial meetings with governmental and non-governmental organisations about bat education projects;
7. Recalling for gathering bat data from any resources;
8. Rufford funded bat educational proposal entitled “Bat caves need cavers to protect them”:
    - Advertisement started,
    - Network core was created from cavers and wildlife fans,
    - Gathering some bat information such as photos, location from cavers,
    - Cavers education online.

Unfortunately, due to some political problems of which Rufford and EUROBATS had already been informed, the project had to be postponed for some time and would be reassumed in Iran once the timing was good.

9. Ongoing work of an article about bat education in Iran;
10. Bat nest selling to people in Iran of which professor Paul Racey as the Convenor of the EUROBATS IWG on Communication, Bat Conservation and Public Health, and Dr. Tigga Kingston as Co-Chair of the Bat Specialist Group of IUCN have been informed.

Jordan: In the past two years, many activities in terms of research and developing strategies for windfarms took place.

1. A document on the cumulative effects assessment on migratory birds was published by the International Finance Corporation. The representative from Jordan, Professor Zuhair Amr, participated in this document by technical input on bats and their habitats. This document can be obtained through: https://www.ifc.org/wps/wcm/connect/8229c744-e1db-48fc-a9cc-7fac3ae4110d/CEA+Report+2-16-17+web_w+new+cover.pdf?MOD=AJPERES.
2. Professor Amr also participated in several consultations and monitoring programs for newly established windfarms in Jordan.

Research:

1. Local and regional studies on bats were conducted, some of which were published. In Jordan two studies were completed:
    - Establishing a library for bat calls in Jordan covering over 20 species. Results will be published within this year.
    - A one-year project on “Seasonal habitat selection and temporal activity patterns determine the structure of Mediterranean bat assemblages” was performed and a manuscript was sent for publication.
2. Blood and nasal swaps were collected from four bat species for screening for viral agents. Results will be obtained this summer.
3. In collaboration with Professor Zihad Bouslama, three manuscripts on the bats of north-eastern Algeria were published – one on the ecology of bats of El Kala Biosphere Reserve and two on the ectoparasites associated with bats:

- Bendjeddou, M. L., Bouslama, Z**.,** Amr, Z.S. & Bani Hani, R. 2016. Infestation and seasonal activity of *Ixodes vespertilionis* (Acari: Ixodidae) on The Maghreb Mouse-eared Bat, *Myotis punicus*, in North eastern Algeria. *Journal of Vector Ecology*, 41:110-113.

- Bendjeddou, M. L., Loumassine, H.A., Scheffler, I., Bouslama, Z. & Amr, Z. 2017. Bat ectoparasites (Nycteribiidae, Streblidae, Siphonaptera, Heteroptera, Mesostigmata, Argasidae, and Ixodidae) from Algeria. *Journal of Vector Ecology*, 42:13-23.

- Farfar, A., Bendjeddou, M.L., Bouslama, Z., Metallaoui, W., Korba, R.A., Amr, Z. & Abu Baker, M.A. 2017. Bats of the El Kala Biosphere Reserve, northeastern Algeria (Chiroptera). *Lynx*, *n. s.* (*Praha*), 48: 79–92.

4. In collaboration with Dr. A. Aloufi from Tabuk University, Saudi Arabia, a study of the bat fauna of the Tabuk Province was conducted. *Barbastella leucomelas* for recorded the first time in Saudi Arabia, along with echolocation data.

- Aloufi, A., Amr, Z. & Nassarat, H. 2016. Bats (Mammalia: Chiroptera) from Tabuk Province, Saudi Arabia. Vertebrate Zoology, 66:207-215.

Intended activity for the coming summer included raising public awareness among forest rangers about bats and their protection. This activity would be coordinated with the Royal Society for the Conservation of Nature and the Ministry of Agriculture.

Lebanon: By now, several projects on renewable energy by means of windmills are in progress in Lebanon. The Lebanese Ministry of Environment requires assessment for bats within the developed areas. The representative from Lebanon, Dr. Mounir Abi-Said, was in charge of conducting several impact assessment studies.

Bat monitoring has continued. Many new caves for bats have been identified and a large colony of *Myotis myotis* has been recorded for the first time in Lebanon.

A monograph on the bats of Lebanon entitled "*Bats (Mammalia: Chiroptera) of the Eastern Mediterranean and Middle East. Part 13. Review of distribution and ectoparasites of bats in Lebanon*" has been published in *Acta Societatis Zoologicae Bohemicae*, in collaboration with the Czech counterparts. Twenty-one bat species were recorded and data on their ecology and distribution were provided. At the regional level joint research with colleagues from Egypt on the identity of coronavirus in bats of Lebanon and Egypt was undertaken. An article entitled "*Surveillance for Coronaviruses*

in bats, Lebanon and Egypt 2013-2015" addressing this issue was published in Emerging Infectious Diseases.

More effort on raising public awareness, especially among school students, has been made through the Animal Encounter Center. A bat night activity in 2017 was very successful. It consisted of a big festival in Aley, Mount Lebanon, with attendance of high ranking officials and thousands of people. This activity was widely covered in the local media.

The bat fauna of **Morocco** consists of about 30 species. At least 18 species are within the range of European bats, such as *Pipistrulls pipistrellus, Eptesicus isabellinus, Rhinolophus ferrumequinum, Rhinolophus hipposideros, Rhinolophus euryale, Myotis capaccinii, Myotis emarginatus, etc.*

Following Morocco's participation in the EUROBATS meeting, since 2013, all Moroccan bats have been protected by a new environmental law n° 29-05 for conservation of wild fauna and flora and the control of their trade in Morocco. All species are included in the local listings of CITES Annex IV. The regulations implementing this law are published and there is a broad program for the extension.

The interest in bats is increasing in Morocco and current research on the Moroccan bats is focusing on their ecology and distribution, including some Masters and students' theses. Further studies are required to update the bat fauna of Morocco, in addition to the urgently required efforts in public/schools and policy-makers awareness raising.

Considering the increased expansion of wind turbine projects in Morocco, impact studies on bats have become mandatory and are applied according to the requirements of the EUROBATS. The monitoring of bats mortalities by collision with turbines is now systematically applied to all the operational wind farms. The implementation of these follow-ups are established on the basis of the EUROBATS guidelines.

A Maghreb awareness workshop for different levels, such as the public, NGOs, and policy makers is going to take place in July 2018. The main objective of this workshop is to promote awareness of bats and the importance of their conservation in the Maghreb countries. It is also an opportunity to bring together stakeholders, researchers, and NGOs for sustainable cooperation through a program and an action plan whose major objectives are to improve knowledge of bats and inventories of sensitive sites for their conservation throughout the Maghreb countries.

Saudi Arabia reported a wide range of ongoing activities. A workshop organized by the Saudi Wildlife Authority was held earlier this year to update the Red List of the Mammals of Saudi Arabia, a draft version of which would be finalized during the following few months. A monitoring program carried out by KSU Mammals Research Chair, King Saud University, continued for the 2nd year in the southwest of Saudi Arabia, a geographical area considered as a hot spot. This program includes species identification based on molecular techniques, current distribution, status, habitat assessment, and threats to colonies, roosts, important feeding grounds. Monitoring efforts will be shifted gradually up-north, throughout Hijaz mountains on the west of Saudi Arabia, then to the north-western mountains. Regarding bat conservation, Saudi Wildlife Authority have expressed a great interest in supporting the efforts to protect important roosting sites, including key underground sites, renovation of man-made buildings inhabited by bats, and building artificial roosts. Updates on this project will be communicated to EUROBATS Working Group on Purpose-built Man-made Roosts.

In **Serbia,** a proposal of the law for bat protection and ratification of the EUROBATS Agreement was put on the list of documents to be approved by the parliament in January 2018. The discussion on the proposal has not yet been scheduled, but it is expected that it would be accepted soon.

The project of bat roost monitoring funded by the Ministry of Environmental Protection has continued for the third year, and a new roost of *R. mehelyi* and the biggest hibernaculum of *R. hipposideros* in Serbia have been discovered. The presence of *Tadarida teniotis* in Serbia has been confirmed and now the national bat fauna counts 31 species.

A group of bat experts together with volunteers continued with bat rescue and rehabilitation activities, and there is an initiative of forming an official bat rescue and rehabilitation centre within the Natural History Museum in Belgrade.

International Bat Night was held in Serbia in 2017, and numerous lectures were organized in schools for bat popularization and general public education. The reviewing procedure for the book “Bat Fauna of Serbia” has been finalised, and the book should be published in 2018 by the Serbian Academy of Science and Arts.

Turkey reported that the increasing number of acoustic surveys are providing information about the distribution of some of the rare bat species in Anatolia. For instance, Barbastelle bats (*Barbastella barbastellus*), which were known from only a few

localities, are now recorded in various sites, some of which are more than 500 km away from the previously known records. These findings will be publicly available soon. Turkey also reported that there is no current news about the ratification of the Agreement.

Short Reports from the Observers

Armenian Association of Mammalogists NGO (AAM NGO):

During 2017 the NGO organised several meetings, seminars, and fieldwork in Armenia.

The target group chosen were the schools in the villages near caves and forests. At least in 20 schools, seminars for pupils were organized. Facts about bats' diversity, their ethology, ecology and importance in the ecosystem were introduced to the pupils.

In two Universities of Armenia (Yerevan State University /YSU/ and Shirak State University /SSU/) seminars were organized for students and researchers.

Every year a summer practice for the first-year students of the Faculty of Biology of the YSU is organised. During the summer practice in 2017 several fieldworks were conducted. Work with ultrathin nets and bat detectors was introduced to the students.

In cooperation with the Zoological Department of the YSU, International Bat Night was celebrated in Karstic region of Armenia, with about 30 students and pupils attending it. During the field work *Vespertilio murinus*, which is a very rare species in Armenia, was captured.

Also during 2017 bat-boxes were placed in different regions of Armenia. Bat-boxes were mostly placed in Aragatsotn, Kotayq and Tavush regions, where forests are located.

Estonian Fund for Nature (Eestimaa Looduse Fond / ELF)

A LIFE-funded project concerned with improving the pond bat situation in Estonia was highlighted as well as the fact that the process of planning the marine areas in Estonia was ongoing. There was very little information about bats on the sea, their migration and feeding over the sea areas. As this information was urgently needed, ELF was trying to find funds to study this interesting topic. So far, at least two automatic recorders were put on the sea.

In 2017, **the French mammal society (Société Française pour l'Ètude et la Protection des Mammifères / SFEPM)** contributed to the update of the national Red List of Mammals and quite a few changes were made for bats.

As there was a new 10-year National Action Plan for Bats, regional bat groups had started incorporating the objectives of this plan in their own action programmes.

Within this framework the SFEPM Chiroptera Coordination (CCN) drafted a specific Action Plan for *Nyctalus lasiopterus* in the southern half of France, which would be implemented from 2018 to 2025.

The SFEPM Working Group on wind turbines had a series of unsuccessful meetings during 2017 with the Ministry of Energy, France Energie Eolienne (union of wind energy developers), and LPO (national bird NGO, but currently a consensus seemed possible regarding new guidelines on post-construction monitoring.

Additionally, SFEPM supplied bat data to the National Natural History Museum for incorporation of French trends into the European indicator.

2017 was also the year of regional meetings as they were organised every second year in between the National bat meetings in Bourges, and a new one was also organised for the Massif Central area.

And lastly, within the framework of the International Bat Night in 2017, 271 events introduced more than 11,000 participants to bats, to which several other events in the overseas territories could be added.

Nature and Biodiversity Conservation Union (Naturschutzbund / NABU), Germany:

NABU continues to intensify its various activities on communication and education on bats. The NABU homepage offers a variety of advice on bats, as well as the so-called “Bat Hotline“, which was established in 2016. Because of the great success of this helpline, with close to 2,000 pieces of advice given in 2017, it will be maintained.

The campaign „Bats welcome“ acknowledges efforts in bat conservation and protection by private house owners and will be continued in most of the Länder.

A project called “Bat cities“, co-funded by the Federal Agency for Nature Conservation by means of the Federal Ministry, started in 2016. It aims at promoting bat protection in urban areas, as well as acquiring and training new bat workers, especially in cities. In 2017 altogether 75 volunteers were trained in bat conservation. Because of the great success of this project it will be continued after the funding period by NABU in the long-term.

In addition to this project, regional NABU groups continue to qualify so-called „Bat ambassadors“ who are supposed to promote bat conservation on a local scale.

The 21st International Bat Night was celebrated in Germany with more than 220 events organized by local NABU groups. Several thousand people could thus be introduced to bat protection.

In 2017 the NABU national bat conference took place in Wetzlar, in Hessia, with about 400 participants. Oral presentations and posters presented new results of scientific studies and discussed problems and solutions in bat conservation.

NABU continues to be a member of BatLife Europe.

In 2017, the **Leibniz Institute for Zoo and Wildlife Research (Leibniz-Institut für Zoo- und Wildtierforschung / IZW), Germany,** has continued its research on migratory bats in collaboration with Prof. Gunārs Pētersons from Latvia and on offshore bat migration with NABU Mecklenburg-Vorpommern (BATMOVE financed by the Federal Agency for Nature Conservation). It also continued investigations related to the infection of hibernating bats with *Pseudogymnoascus*. The IZW offered training workshops in collaboration with the Federal Association for Bat Expertise in Germany. These workshops focused on acoustic analysis, estimation of fatality rates at wind turbines, spatial analysis, rehabilitation and use of Probat software. The IZW organized a conference with about 250 participants on evidence based bat conservation (in German) in collaboration with the Federal Association for Bat Expertise and NABU BFA bat conservation. The Institute has contributed to the preparation of the EUROBATS guidelines for the Consideration of Bats in Outdoor Lighting Projects. Recently, it launched a research project on bat citizen science projects (funded by the German Ministry for Education and Research) in which it teamed up with the Berlin bat-cities project of the NABU. Lastly, members of the IZW presented talks at scientific conferences, institutional seminars, and stakeholder workshops, including outreach programs such as the International Bat Night.

Federal Association for Bat Expertise in Germany (Bundesverband für Fledermauskunde Deutschland e.V. / BVF) highlighted several issues. One result of its ongoing activity was the field of qualification of consultants and BVF published a concentrated paper dealing with the main aspects of this topic.

Another output were detailed guidelines dealing with bioacoustic monitoring, where the Association presented some basic concepts on bioacoustic study designs and how to

deal with the data gained in these projects.

Establishing standards in daily work was another point BVF was focusing on, and there had been a series of workshops as well as the first German conference on evidence based bat conservation, which had already been mentioned in the IZW's report.

Wind energy was still a subject of major interest for BVF and, in addition to the ongoing dialogue with other NGOs and authorities, a position paper was published in this area. The Association also took part in a workshop that supported the development of a study design for wind energy test site in south-west Germany, aiming to develop enhanced monitoring methods for wind turbines.

Bats Working Group in Saxony-Anhalt (Arbeitskreis Fledermäuse Sachsen-Anhalt e.V.), Germany

The group is based in the German federal state Saxony-Anhalt, but it is with a nation-wide and even European outreach. It is conducting a lot of field activities and regional bat conservation projects. It organises around 20 bat meetings, camps, workshops, and bat night events each year, which are open to everyone and have different topics – for beginners as well as experts, always including international guests.

The working group also has two bigger on-going projects: a pilot project on bat migration in Germany, which is a volunteer based and partly open source project; and the Nyctalus journal, of which the group is in charge.

The bat migration project was a four-year pilot-project, which in the current year was to be analysed and evaluated. The project included different parts. There was a web-page with open access map of bat records. Every year there was a telemetry study together with volunteer radio amateurs and there were long-term monitoring stations to investigate migratory species, including catching, ringing, bat boxes, and acoustics. The group had different cooperation partners: volunteers, consultants, authorities, and university institutions.

The Nyctalus journal was a traditional German bat journal, founded in 1978. When the old publisher, Dr. Joachim Hensel, died in 2012, it was his wish that the working group continued publishing the journal. The old series was closed in 2016, and the new series started in 2018. Some novelties had been introduced in the process: more English abstracts and descriptions were included in the journal to make it more understandable for non-German speakers, there was a new editorial board, and a peer review process

was introduced, which had not existed before. The plan was to gradually increase the quality of the journal without changing its character. The journal was intended for practical applied bat conservation for both volunteers and professional bat workers. The journal was made by volunteers and it was independent and non-profit.

Naturalis Biodiversity Center (NBC), the Netherlands

During the EUROBATS Advisory Committee meeting in Zandvoort, the Netherlands, a flowchart about a new procedure of vaccination and titre test of bat handlers regarding rabies was presented. This procedure was now official and adopted by the Ministry of Public Health. The protocol was completely different from the instructions given by the World Health Organisation (WHO), and it presented an obligation for any public health person. Thus, the endless discussion between medical doctors and bat workers about what should be done – vaccination, boostering, or titre testing – had been put to an end. This protocol would also be published in a medical journal and it was hoped that the WHO would accept the new procedure. The flowchart was also available in English, and a leaflet for bat handlers and rehabilitators with all the instructions how to handle bats, how to submit them for tests on rabies, was issued the previous year.

Additionally, as already mentioned by the delegates from the Netherlands, a €0.5M project had started, funded by a public health agency in the Netherlands, aiming at analysing which virus agents might be dangerous for bat workers and other people. The Dutch Mammal Society was recruiting volunteers to collect fresh droppings from *Nathusius' pipistrelle*, *Pipistrellus pipistrellus*, etc. for virus analyses. Additionally, bat rehabilitation centres were submitting quite a lot of dead bats for pathology and other virus studies, so that every year pathology and virus studies on several hundred bats were conducted. This project was intended to last for three years.

Finally, the first project with Ukraine about bat rabies surveillance was supposed to be finished and its results to be published during the year, as well as a study about coronaviruses and hantaviruses in droppings from several countries such as Ukraine, Germany, Luxembourg, and France.

Centre for Bat Research and Conservation / CBRC (Centrul pentru Cercetarea și Conservarea Liliecilor / CCCL), Romania

Romanian bat conservation efforts have continued and diversified since the last meeting of the EUROBATS Advisory Committee in Belgrade, Serbia, with bat researchers from Romania also contributing with exact data and local examples to several IWGs of

EUROBATS, namely on (1) Wind Turbines and Bat Populations, (2) Communication, Bat Conservation and Public Health, and (3) Education. Regional organizations and groups across Romania continue to monitor key bat sites in underground and overground roosts, as well as to increase public knowledge with education activities, presentations, and workshops in various cities and education centres. In August 2017, six members of the Romanian bat research community participated at the European Bat Research Symposium held in the Basque Country, with four oral and five poster presentations.

The Wilderness Research and Conservation Association (WRC), in collaboration with Visul Luanei Foundation, has implemented the project “Bats of the Urban Environment”, financed by IKEA Romania, on mitigating human - bat interactions, mostly in the urban environment of Bucharest. A total of 1,200 bats were rescued from various situations, and more than 1,000 volunteers received basic training in handling and feeding bats in rehab centres. The WRC also organized the Bucharest edition of the International Bat Night, in Văcărești Natural Park. Over 30 bat houses were installed around the city and in the Comana Natural Park and, at the start of 2018, WRC launched a best practice guideline on how to coexist with bats in the urban environment (currently available only in Romanian at http://www.wildernessrc.ro/resurse/ghid2018/). WRC has also developed a new application (Wild Alert – currently available only in Romanian at http://www.wildernessrc.ro/resurse/wildalert/) which offers the general public information regarding the management of sensible situations and a way to interact with ecologists and rehabilitators when they have found a wild animal in distress.

The Centre for Bat Research and Conservation (CBRC), a new bat-themed NGO, was established in 2017. Among other objectives, the CBRC runs the Romanian bat portal at www.lilieci.ro in three languages, and maintains the communication channels of the Romanian bat research community. In partnership with several national parks and Natura 2000 sites, and independent of governmental funding, the CBRC monitors several key bat roosts across Romania, including those of continental importance. In partnership with the Romanian Association for Permaculture, the CBRC cleans the accumulated guano from several buildings occupied by large bat colonies, in order to contribute to their protection. In September 2017, the CBRC, together with the Emil Racoviță Speleological Institute and other NGOs, organized the largest to date public bat event in Romania, the Cluj-Napoca edition of the International Bat Night, with more than 800 visitors attending. Together with the Romanian bat research community, the

CBRC launched the public vote for the “Bat of the year 2018 in Romania” in January 2018. The CBRC received 413 votes for the three finalists, and *Rhinolophus mehelyi* was designated winner, gathering more than 50 percent of the votes. Since then the CBRC has created informative materials (stickers, posters) and has held presentations at scientific conferences, to increase public knowledge about this vulnerable species.

Regarding bat conservation in general, building-dwelling colonies are still threatened by ad-hoc, unplanned renovations (especially in case of churches), and due to the lack of enforcement of legislation. Environment protection agencies usually cannot and will not interfere in renovations, which is reinforced by the lack of a standardized methodology for the conservation of these colonies and buildings. There is no central financial support for protected areas, with a serious delay in starting the national bat monitoring programme, which is needed for reporting under Article 17 of the Habitats Directive. Conservation results of previous years (for example, protection of building-dwelling colonies and sites) are slowly diminishing, due to the unsustainable nature and general lack of vision of finished projects. However, the Romanian bat research community will continue to work for the conservation of local bat populations, to educate the public, to find partners among the many stakeholder groups that come in direct contact with bats, or to inform those structures that can make key decisions for a more durable conservation.

Spanish Bat Association (Asociación Española para la Conservación y el Estudio de los Murciélagos / SECEMU)

The representative of SECEMU, Mr. Adrià López-Baucells, thanked the EUROBATS Secretariat for again facilitating the participation of the Spanish Bat Association at the EUROBATS Advisory Committee meeting. He also thanked Dr. Juste who had attended the previous EUROBATS meetings, but who would no longer be the representative of SECEMU for EUROBATS.

Unfortunately, there were no positive news with regards to Spain joining the EUROBATS Agreement. Despite the active work of the Association to promote the signing of the Agreement, the Spanish Government was not yet taking action in this regard.

Biannual Bat Conferences were organized by SECEMU with the aim of putting in contact bat researchers and bat conservationists in Spain and, since recently, they were also including Portugal, Gibraltar, and Andorra. In 2016 the sixth Bat Conference was

held in Portugal for the first time, and the upcoming conference would take place in Gibraltar in December 2018.

SECEMU was collaborating with the Ministry of Environment in the selection of outstanding bat refuges and in the design of actions to guarantee their conservation (three per year).

During the period of 2017-2018 virus surveillance was very active and was done in close collaboration between regional NGOs, wildlife rescue and rehabilitation centres, and academic institutions. As a result, bat viruses EBLV1 were found in *Eptesicus* and the findings were published recently.

Regarding the educational initiatives, over 50 'bat-night' events were organized across the country, either coordinated by SECEMU or by local groups.

For the first time, the Spanish Bat Association was centralising banding and transponders information from local groups and institutions to compile information across regions and users, and in order to facilitate cross-information. Similarly, bats distribution info was being updated and centralised to eventually produce accurate maps for each species.

Finally, SECEMU was also promoting the change of category for *Rhinolophus mehelyi* from Vulnerable to Endangered in the IUCN Spanish Red List. In this regard, the appropriate documentation had been submitted to the Ministry of Agriculture, Food and Environment.

Dr. Anthony Mitchell-Jones, a EUROBATS senior advisor, reminded the delegates of the presentation held by Dr. Friederike Spitzenberger during the previous EUROBATS Advisory Committee meeting in Serbia. The presentation was about the project to produce a new Atlas of European Mammals. Since that time the network of Atlas coordinators right across geographic Europe had been completed: The new Atlas would cover a huge area, including the European part of Russia, and the number of species that would be covered in it amounted to 264. During the previous month, and owing to a generous grant from the Netherlands Biodiversity Information Facility, and the offer of facilities of the Charles University, all the coordinators were invited to a meeting in Prague. 47 people attended from 28 different countries – as far as Iceland in the west to Russia in the east – covering the whole of Europe. During the meeting, updates from every country were presented and it was encouraging to hear how much work was already going on towards the Atlas, which has a target date for publication in 2024. The

species list of the Atlas was closely in step with the EUROBATS species list and efforts would be made to keep that close link between this project and the EUROBATS interests. A strong link between the interests was also illustrated by the fact that quite a number of country coordinators for the Atlas were also AC delegates.

The core of the **Vincent Wildlife Trust's (VWT)** bat conservation and science programme remains its 40 horseshoe bat reserves in Britain and Ireland. In addition to protecting the colonies in these buildings, they have been used for training, bat conservation advocacy and as a resource for research projects. The expertise that the Trust has gained in adapting and managing these buildings means that it is called upon by third parties for advice on other conservation initiatives. The Trust's Irish staff have been working with the National Parks and Wildlife Service on a pilot project to develop plans to improve farm buildings and farming landscapes for lesser horseshoe bats.

VWT's long-term ringing project on Bechstein's bat has entered its 19th year and the data collected from this study are feeding into the Trust's research work on this species. A parallel study has been started for barbastelle at a separate site, both of the study populations are using bat boxes.

The Trust funded a PhD on Bechstein's bat with Professor Fiona Mathews' research group at the University of Exeter. This used a combination of landscape and molecular approaches to assess the genetic diversity and structure of the British population. It also developed a molecular assay to estimate the age of individual bats. The PhD was successfully completed in March 2018 and a paper on landscape genetics of the species has been published. A second paper on the molecular aging tool is in press. The student is shortly to undertake a six-month post-doctoral research project to develop a molecular monitoring scheme for the species.

A second PhD, also with Professor Mathews, is using spatial ecology to examine how landscape connectivity, habitat suitability and land management influence the distribution and movement of the greater horseshoe bat.

The Trust's staff collaborated on a short radio-telemetry study on the roosting and foraging behaviour of *Plecotus kolombatovici.* This was undertaken with the BatLife Europe partners in the Croatian Biospeleological Society and took place on Lokrum Island near Dubrovnik. The results of this project will be presented at a symposium on the Conservation Status of Bats in Central Europe and Western Balkans in Sarajevo in May 2018.

VWT have worked closely with its Polish partners in the LIFE Podkowiec+ project, which has delivered many conservation gains for lesser horseshoe bats in the south of the country. In April the Trust assisted with the delivery of the final project conference and a workshop in Bochnia near Kraków.

Bat Conservation Trust (BCT), United Kingdom, published The State of the UK Bats in January 2018, based on data from the National Bat Monitoring Programme. The latest trends indicate that populations of the bat species in the UK that BCT is able to monitor are stable or recovering (though a few results need treating with caution at present). Obviously, any improvements must be seen in the context of severe historical declines.

BCT has been working with partners on developing a new survey for the NBMP, the British Bat Survey, using the latest developments in low cost acoustic sensors, acoustic sound recognition, and online feedback. Some aspects of this were piloted in 2017 and further pilots will take place in 2018. Once in place, it is hoped that this new approach will enable BCT to calculate population trends for more bat species than is currently possible and engage a wider range of volunteers than ever before.

BCT has continued to focus on advocacy in the past year, working with other NGO colleagues and supporters to try to ensure that wildlife protection (including the protection of bats) is maintained and ideally strengthened when the UK leaves the EU. As well as potential risks from Brexit, there are efforts by some to introduce legislation that would reduce the protection of bats roosting in churches.

At the last EUROBATS Advisory Committee meeting, BCT mentioned that it had received funding from the Heritage Lottery Fund to undertake a one-year development phase of a project on Bats and Churches. This is in collaboration with Natural England, Historic England, Church of England and The Churches Conservation Trust. BCT is now coming to the end of the development phase and will be submitting a bid in a couple of months for a five-year delivery phase. It is hoped that this project will begin to address issues experienced by a small number of churches in England with large populations of bats.

Another partnership project which is now in its first year of delivery is Back from the Brink. This is a collaboration with other species NGOs. It includes integrated projects which will benefit a number of different species, and single species projects. The bat single species project is focused on the grey long-eared bat, and is showing real

promise with many land owners and farmers in the south west of England keen to take positive action for the grey long-eared bat.

BatLife Europe:

Since the last EUROBATS Advisory Committee meeting, BatLife Europe has registered as a Stichting in the Netherlands. It is in the process of registering trustees for the new organisation and setting up a new bank account in the Netherlands. Once this is in place, it will be invoicing for fees for 2017 and 2018 together.

BatLife is engaged in preparing an update of the European Hibernacula indicator. It has now received trends from more than 30 countries/regions and would like to thank those who have provided their data.

BatLife Europe continued with the noctule as its Bat of the Year in 2017 and it has a new Bat of the Year for 2018 – the lesser horseshoe bat. A press release has been circulated to partners and a fact sheet on the lesser horseshoe bat will soon be made available.

BatLife Europe is an umbrella organisation for the 36 NGOs that are its partners, and is always ready to act on their behalf. For example, BatLife Europe wrote to the Croatian government objecting to the use of a Natura 2000 cave by the general public. While the organisation is not a direct-action group, under its objective of being an international voice for bats, it is able to give advice or support, mention issues through social media and both send and promote others sending protest letters to governments. BatLife Europe invites NGOs to contact it if they could make use of its support.

6. Secretariat report – Part I

The Executive Secretary reported on the following points:

a) Agreement membership – Bosnia and Herzegovina as well as Serbia had already reported that they were in a very advanced stage of accession, and the Executive Secretary was optimistic that at the next Session of the Meeting of the Parties in October 2018 he could welcome those countries as Parties. The Executive Secretary also expressed his hope that some of the Non-Party Range States would also take the necessary steps to join the Agreement, as the representatives of some of the Non-Parties had been participating in the meetings for up to 19 years and there had been no movement with regard to their accession. The Executive Secretary offered the assistance of the Secretariat in case any information or contacts were needed.

b) Referring to the projects, the Executive Secretary drew the delegates' attention to Doc.EUROBATS.StC14-AC23.4, in which more details on the conducted projects were included. Mr. Streit used the opportunity to thank the donor countries – Germany, Luxembourg, and Switzerland – for their annual voluntary contributions, which were mostly used for the EUROBATS Project Initiative (EPI). He was glad to report that these funds would continue to be made available to the Secretariat. Mr. Streit was also glad that the Secretariat kept receiving many project proposals and he thanked the EPI Assessment Group for their excellent work.

c) Regarding publicity matters, 2017 was quite a busy year. A total of 11,000 copies were reprinted (publication series as well as diverse leaflets) and the demand for the publications was very high – 3,673 copies had been shipped starting from the beginning of 2017. The Secretariat was also very much looking forward to receiving new guidelines. Mr. Streit informed the delegates that the funds for publishing these guidelines had already been secured, and that the Secretariat was awaiting the new texts which would then be approved by MoP8 for publication. The Executive Secretary hoped that this was an encouragement for the IWGs in question. He explained that the Secretariat would aim to publish as much as possible still within this year, but that it would also depend on the work capacity of the Secretariat, which in turn was related to the question of the post occupancy level of the Scientific Officer. Mr. Streit concluded this part by referring to the International Bat Night, which continued to grow in importance and was well established not only within the Agreement area but also beyond (USA, for example).

The Executive Secretary also informed the delegates that the online reporting system was in place and fully operational. There had been correspondence with the focal points in order to set up their accounts, and the Secretariat could observe that there was quite some activity on the part of the focal points in preparing the reports and filling in the data.

The Secretariat had contributed to and participated in a number of international bat conservation related conferences and meetings, one of them being the Berlin Bat Meeting, which was extremely successful and with a remarkable level of quality. Further, the Scientific Officer had worked closely with the IUCN Bat Specialist Group and he took part in the 14th European Bat Research Symposium in Spain. Because of the very tight budget, only one of the professional staff members could take part in

diverse meetings, though it would sometimes have been advisable for both of them to participate at an event. At the end of last year, the Executive Secretary took part at the CMS CoP, where he also contributed to a side event on bats and wind turbines. He also gave a presentation in a side event on the same topic at the 23rd COP of the UN FCCC. Another very important event was the Standing Committee meeting of the Bern Convention, which offered a chance for the Executive Secretary to meet and make contact to many Parties' and Non-Party Range State representatives.

7. Report on the preparations for the 8th Session of the Meeting of the Parties

The Chair of the Standing Committee invited the delegate from the Principality of Monaco to inform the meeting participants about the preparations for the next Session of the Meeting of the Parties. Ms. Céline Van Klaveren-Impagliazzo said that she was very much looking forward to welcome EUROBATS delegates in Monaco. She reported that the venue for MoP8 had already been chosen and agreed upon with the Executive Secretary. Mr. Streit then also confirmed that the Principality of Monaco was doing its utmost to host this MoP session, and that everything was developing well. He said that the formal invitations to MoP8, with further logistical details, would be sent out very soon after the joint meeting. He also advised the delegates to register in a timely manner for this meeting, the Principality of Monaco being a small country with many international events, where the hotel situation would not allow the Secretariat to keep the provisional room reservations until shortly before the MoP.

8. Reports from the Intersessional Working Groups

Ad-hoc Working Group on Amendment to the Annex

The Convenor, Mr. Anthony Hutson, reported that following the discussion at AC22, and then wider consultation with specialists, a background document on potential changes to the Annex with recommendations (Doc.EUROBATS.StC14-AC23.12) and a draft resolution (Doc.EUROBATS.StC14-AC23.14) were prepared for discussion at this meeting.

Monitoring of Daily and Seasonal Movements of Bats

The Convenor, Dr. Dino Scaravelli, reported that during the previous AC meeting the IWG decided to concentrate on updating literature about long distance movements, corridors and stop over points on species within the Agreement boundaries, identifying

the main knowledge gaps, and providing a draft resolution. The group would meet during AC23, in particular to finalise the draft resolution.

Bats and Wind Turbines

A progress report on the work of the IWG (Doc.EUROBATS.StC14-AC23.16), including the updated information on several themes, was prepared and was available already before AC23 on the EUROBATS website. The Convenor, Dr. Luisa Rodrigues, requested a meeting to discuss the terms of reference of a draft resolution for MoP8.

Conservation and Management of Important Overground Roosts for Bats

The Convenor, Dr. Stéphane Aulagnier, confirmed that during AC23 the IWG would meet to:

- complete the guidelines to list the important overground roosts used by European bat species all over the year (annex in Doc.EUROBATS.StC14-AC23.17.Rev.1),
- discuss a draft resolution for MoP8 (Doc.EUROBATS.StC14-AC23.17).

Bats and Light Pollution

The Convenor, Dr. Christian Voigt, referred to the report of the IWG that had been submitted to the Secretariat before the meeting and was available on the EUROBATS website as Doc.EUROBATS.StC14-AC23.25. He further requested for the IWG to meet during AC23 to discuss the draft of the guidelines to be published in 2018 and a draft resolution for submission to MoP8.

Bats and Climate Change

The participants' attention was referred to the report the IWG had submitted before AC23, which was available on the EUROBATS website as Doc.EUROBATS.StC14-AC23.29. The IWG planned to meet during AC23 to further discuss the draft resolution that had been prepared by the Convenors, Ms. Daniela Hamidović and Dr. Hugo Rebelo, as well as Dr. Orly Razgour.

Bats Rescue and Rehabilitation

During their last meeting the participants of the IWG agreed to produce draft guidelines. New texts and comments written by Dr. Helena Jahelková (Co-Convenor), Ms. Kit Stoner, Dr. Lena Godlevska (Co-Convenor) and Mr. Peter Lina were added. A draft resolution was circulated among the members of the group. The work on draft guidelines would be continued during AC23.

Bats, Insulation and Lining Materials

During their last meeting the participants of the IWG agreed to produce draft guidelines. New texts and comments written by Dr. Helena Jahelková (Convenor), Mr. Marcel Schillemans, Ms. Kit Stoner, Ms. Jo Fergusson and Ms. Stacey Waring were added. The work on draft guidelines would be continued during AC23. Simplified questionnaires would be distributed during the meeting.

Required Experience and Skills of Experts with regard to Quality of Assessments

The Convenors, Ms. Ruth Petermann and Professor Danilo Russo, confirmed that the IWG would meet during AC23 to discuss and finalise the draft resolution and its annex (Doc.EUROBATS.StC14-AC23.22).

Purpose-built man-made roosts

The Convenor, Dr. Henry Schofield, reported that the IWG had continued its work since AC22 and had collected further case studies of purpose built roosts. A draft of a final review document had been written and would be reviewed during AC23.

Communication, Bat Conservation and Public Health

The Convenor, Professor Paul Racey, reminded the delegates of the report that had been submitted before AC23 and was available on the EUROBATS website as Doc.EUROBATS.StC14-AC23.11. He also confirmed that the IWG would meet during AC23 to further discuss the document.

Education

The Convenor, Professor Hossein Zohoori, referred to the report the IWG submitted to the Secretariat, which was available on the EUROBATS website as Doc.EUROBATS.StC14-AC23.26, and requested the IWG to meet during AC23.

Impact of Roads and Other Traffic Infrastructures

The Convenor, Ms. Jean Matthews, reported that EUROBATS Resolution 7.9 requested the Advisory Committee to publish EUROBATS guidelines highlighting the effects of roads on bats and providing guidance on minimising the impact of transport infrastructure projects on bats so that Parties may use these to develop appropriate national or supranational guidelines.

The IWG would meet during AC23. It was not proposing a new Resolution for MoP8, but would focus on finishing the publication.

Some additional information on bat casualties from aircraft strikes had been obtained for the UK. Focal points were requested to enquire if similar records were available from their country aviation agencies and to submit any information to the Convenor.

Autecological Studies on Priority Species

The Convenor, Dr. Stéphane Aulagnier, informed the meeting that there was no need for the IWG to meet at this point. However, he invited scientific focal points and observers to have a look at the draft synthesis of the main results (papers published since 2014 recorded from Web of Science and Google Scholar, available on EUROBATS website as Doc.EUROBATS.StC14-AC23.30) which was being prepared for the next MoP. He asked the delegates to send him any additional references and, at least, abstracts of projects conducted on autecology (roosts, migration, habitat and spatial use, foraging behaviour and diet) of priority species. These species are (number of papers between brackets):

Rhinolophus blasii (1) - *Eptesicus isabellinus* (9) - *Plecotus kolombatovici* (0) - *Plecotus sardus* (1) - *Plecotus teneriffae* (0) - *Nyctalus azoreum* (0) - *Nyctalus lasiopterus* (13) - *Pipistrellus hanaki* (0) - *Pipistrellus maderensis* (0) - *Myotis escalerai* (4).

Underground sites

The Convenor, Dr. Tony Mitchell-Jones, reminded the delegates of the report that had been submitted to the Secretariat before AC23 and was available as Doc.EUROBATS.StC14-AC23.27, and explained that there was no need for the IWG to meet at this point.

9. Schedule of Working Groups During the Meeting, Establishment of Ad Hoc Working Groups

A schedule for the meetings of the Working Groups during AC23 was provided at the meeting.

10. Joint plenary session with the Standing Committee to mutually report on results and progress achieved

The AC-Chair explained that the joint session would start with the reports of the IWGs that met during AC23 but that would not prepare a resolution for MoP8. These three IWGs were: the IWG on Education (Convenor: Professor Hossein Zohoori), the IWG on Communication, Bat Conservation and Public Health (Convenor: Professor Paul Racey), and the IWG on the Impact of Roads and other Traffic Infrastructures

(Convenor: Ms. Jean Matthews). Following that, the Convenors of the IWGs that planned to produce a draft resolution would report to the Advisory Committee about their meetings and the progress they had made, and the draft resolutions would be presented and discussed. But, beforehand, the Chair of the Standing Committee would inform the participants on the main outcomes of the Standing Committee meeting.

Mr. Panis thanked the StC-delegates for their open and constructive discussion and informed the plenary that there had been three main points on the agenda of the Standing Committee. One point referred to Income and Expenditure in 2017 and the trust fund status. In summary, after quite some losses in 2015 and 2016, the Agreement finally had a surplus again in 2017. The main reasons for the losses in 2015 and 2016 were the negative developments of the exchange rate between Euro and US Dollar. The second point on the agenda was the formulation of the recommendation for the new budget to be presented to MoP8. The budget resolution had still to be prepared, but, beforehand, certain issues had to be addresses. The trust fund had shrunk because of the impact of the exchange rate, but also because of the budget decisions made at MoP7: There had been no adjustments in the contributions for the last 12 years, the budget lines for the meeting costs were underbudgeted, etc. A further point was the wish expressed by many to increase the scientific support for the Secretariat. Finally, a return to the UN scale of contributions had to be prepared as well. Having to consider all these different issues, the deliberation was rather difficult, but in the end the Standing Committee agreed to propose several scenarios to the MoP: the first scenario addressed only the return to the UN scale, the second scenario added to that a more realistic budget for the meetings, and the last added also an increase in the post occupancy of the Scientific Officer. To return to the UN scale, the StC would propose two options for each scenario: either a four-year or a five-year transition period, which would all have a different impact on the status of the trust fund that would need to cover the transition. In total, there would be 6 proposals to be put forward to the MoP.

The final point on the agenda also had to deal with finances. In the past, the Agreement was able to make savings in the first three years of the quadrennium to be used to finance the MoP organisation in the last year. In this quadrennium this was not the case. Due to the generous help of Monaco, a big portion of the costs could be covered, however, not all of the necessary funds for the organisation of MoP8 were secured. For this reason, the Secretariat planned to make a call on the Parties to provide voluntary contributions to help cover the costs of MoP8. Depending on the amount of voluntary

contributions received, the Secretariat would have to act differently. However, at this point it could be said with certainty that: 1. Support for administrative and scientific focal points from the Parties with economies in transition as well as for the experts appointed by the Advisory Committee would be guaranteed; 2. There would be no support for administrative focal points from the Non-Party Range States; 3. The Secretariat would do its best to secure the support for the experts/scientific focal points from the Non-Party Range States, but there was no guarantee for that and it would depend on the availability of funds.

The Netherlands asked the Chair of the Standing Committee what other strategies were planned to be employed to secure the funds for the organisation of the MoP and if there was anything more that could be done. The StC-Chair explained that the call for voluntary contributions was the only strategy that could be employed, and that everything that would not be covered from the voluntary contributions, would have to come from the trust fund. On the other hand, the funds that came out of the trust fund would affect the budget discussions at the following MoP.

The Convenor of the **IWG on the Impact of Roads and other Traffic Infrastructures**, Ms. Jean Matthews, reported that during the IWG meeting she described the structure and outline of the draft publication and asked for comments from the attendees. The scope of the document and the background to it was described in Chapter 1 (Introduction). The guidance dealt with issues and impacts that were specifically related to transport projects. The guidance would be high level and would refer to more detailed information that was available elsewhere, rather than duplicate it. Some sections of the draft publication were well developed, but others still needed to be drafted.

There was discussion about the Literature Review (Chapter 2) and it was noted that the CEDR report had an extensive literature review than could be referred to. It was intended to produce a separate report alongside the publication that would contain more detailed references.

Chapter 2 would also contain a summary of the results of the EUROBATS questionnaires, including the list of species recorded as casualties of different types of traffic infrastructure. The table did not show numbers killed as the data had not been collected in a consistent way, but there would be some interpretation of the data to illustrate the different level of risk to species/species groups from different transport infrastructure types.

Chapter 3 covered general information about the impact of traffic infrastructure on bats, including the construction and operational phases.

Chapter 4 covered the EIA process, bat surveys and reporting. Any case studies were still welcomed, especially for rail and airport schemes. Germany offered to provide rail examples even though these were in the early stages of the process.

Chapter 5 dealt with avoidance, mitigation and compensation measures.

Chapter 6 was about monitoring both of compliance with proposed mitigation measures and of their effectiveness.

Most research and information about the impact of traffic infrastructure on bats related to road schemes. Chapter 7 dealt with information on other types of transport infrastructure (railways, airports and waterways were also suggested for inclusion). More information on impacts on bats from these as well as from roads and railways was welcome (case studies or photographs).

Chapter 8 would be the Conclusions and Recommendations, including research priorities.

The final sections were Literature and Further Reading; Glossary; Acknowledgements and Annexes. Further details and analysis from the EUROBATS questionnaires would be included in Annex 1. Annex 2 was the EUROBATS MoP7 Resolution. Annex 3 would have more detailed Case Studies.

The draft Species Casualty tables were presented to the meeting with a request for any additional information, in particular on casualties associated with air traffic, as there was little available.

Finally, the timetable was discussed. The Secretariat confirmed that they needed two months from receiving the draft to publication. The Convenor would circulate the revised timetable to contributors for agreement so that the draft can be finalised before MoP8.

The Working Group would have completed its tasks when the publication was produced, though there would be a need to review the research information and consider updating the guidelines in the future.

The Convenor of the **IWG on Communication, Bat Conservation and Public Health**, Professor Paul Racey, reported that the meeting of the IWG was very well attended, by three quarters of the entire Advisory Committee. The IWG worked its way through the

report and discussed the more alarming disinformation. The members of the IWG resolved to counter such disinformation when it arose in future in their individual countries.

Before future meetings, requests for feedback about such disinformation and how they had been confronted, would be sent to all members of the Advisory Committee and would not be restricted to members of this working group.

The Convenor of the **IWG on Education**, Professor Hossein Zohoori, reported that the IWG had a long discussion about the concepts and themes in education and about which main resources were important for educating about bats and increasing public awareness.

The IWG decided that no resolution was required for MoP8, and that the future work of the group would be based on:

- Continuing gathering educational material from other countries
- Making a template or open source file for collecting educational material for EUROBATS webpage
- Preparing a first educational concept and putting it on the EUROBATS webpage
- Finding a best way to spread the educational material
- Connecting to important bat events in the world, such as International Bat Night
- Preparing a competition about bats

11. Draft Resolution 8.2 Amendment of the Annex to the Agreement

The Convenor of the **IWG on the Amendment of the Annex to the Agreement**, Mr. Anthony Hutson, reported that the IWG met to discuss Doc.EUROBATS.StC14-AC23.12. Draft Resolution 8.2 remained the same as the one circulated before the meeting. In total, six amendments would be proposed to MoP8 to be included in the Annex of the Agreement. The text of the draft resolution would still have to be finalised before it could be proposed to the MoP, also in order to make sure that the Annex to the Agreement was in congruence with the European Mammal Atlas and other significant literature in the field.

12. Draft Resolution 8.3 Monitoring of Daily and Seasonal Movements on Bats

The Convenor of the **IWG on Monitoring of Daily and Seasonal Movements on Bats,** Dr. Dino Scaravelli, reported that the group met and recalled the considered targets:

- Collect available literature to update species status regarding long distance movement, corridors and stop over points;
- Identify the main knowledge gaps on species or geographical area;
- Provide a draft resolution.

The group discussed the importance of some recent contributions such as the papers of:

- Meschede *et al.* for the German Federal Agency
- Voigt and Pētersons on banding of *P. nathusii* in Latvia migrating along Baltic and Northern Sea;
- Voigt et al. on isotope determination of carcasses from windfarms;
- Ohlendorf and Fritze on *P. nathusii* radio-tagged in Eastern Germany;
- Rydell et al. about migratory bat activity across the Baltic sea;
- Bach et al. about the migration through off shore windfarms;
- Ijäs et al. on evidence of the migratory bat, *Pipistrellus nathusii*, aggregating to the coastlines in the northern Baltic sea;
- Dechmann et al. on the behaviour and movements on noctules starting migration.

The discussion moved to the possibilities of collecting the ID numbers of pit tags used in different projects but recognized also the difficulties due to the lack of centralized register in the countries.

The IWG also discussed how to determine the role of stopover, foraging grounds and relation with maternity colonies as variables conditioning the migratory behaviour.

The group discussed the importance of collecting indirect observations on migration, in particular aggregating the autumnal data from the monitoring of wind farms by acoustic methods.

The IWG then reviewed Draft Resolution 8.3 which was presented in the plenary by the Convenor. Following some discussion, the draft resolution was amended and accepted to be put forward to the MoP.

13. Draft Resolution 8.4: Wind Turbines and Bat Populations

The Convenor of the **IWG on Wind Turbines and Bat Populations**, Dr. Luisa Rodrigues, reported that the IWG had a long meeting and managed to prepare a draft resolution. However, since some of the IWG members could not participate in the meeting, and since a few members were not EUROBATS delegates, she had circulated the draft resolution for comments, and had received some changes. These were then incorporated into a new draft resolution that was put to discussion during the plenary session. After extensive discussion on a number of points and some revision, the amended draft resolution was agreed by the plenary.

14. Draft Resolution 8.5: Conservation and Management of Important Overground Roosts for Bats

The Convenor of the **IWG on the Conservation and Management of Important Overground Roosts for Bats**, Dr. Stéphane Aulagnier, reported that, during the IWG meeting, the participants were presented with the proposed guidance as well as Draft Resolution 8.5. This was made available as Doc.EUROBATS.AC23.17.Rev.1. The aim was to compile a list of the overground roosts which were important for European bat species across the EUROBATS Agreement area.

Most of the discussion on the guidelines dealt with the criteria for identifying these roosts based upon a simple weighted scheme. Contrary to the conclusion of the previous meeting the weight (1 or 2) derived from the European and Mediterranean Red List statuses, and the dependence of the species on overground roosts, was rejected, mainly because the Red List statuses needed revision and the dependence of the species on overground roosts vary across Europe. A new weighting scheme will be proposed before the MoP. Then the draft resolution was reviewed and amended by the participants.

The Convenor proceeded to present the draft resolution to the plenary, which was then accepted for submission to MoP8.

Subsequent to the discussion about the proper wording for the draft resolution, Dr. Anthony Mitchell-Jones suggested that the Secretariat should be asked to provide a

collection of useful phrases and proper wordings to be used for draft resolutions. The Chair of the Advisory Committee, Dr. Ferdia Marnell, supported this suggestion and noted that there had been discussions in several IWG about the correct phrasing and wording for draft resolutions. He asked the Secretariat to prepare a guidance or a template document which AC Convenors could use in future to help them develop draft resolutions in a consistent and effective manner.

15. Draft Resolution 8.6: Bats and Light Pollution

The IWG **Light pollution and bats** met during AC23 and focused on two topics: the draft of the guidelines to be published in 2018 and the draft of the resolution for submission to the MoP. The Convenor, Dr. Christian Voigt, pointed out that the draft guidelines were made available to the IWG members several weeks before the AC meeting. He then presented the content of the guidelines, but pointed out to the participants of the session that the time available for discussing more details was too short. The Convener asked the IWG members with access to the draft to comment on it, yet there was no immediate response during the session. The Convenor announced that the draft guidelines would be made available to the whole EUROBATS community via the EUROBATS Workspace. Accordingly, all members would have the opportunity to comment on the draft by sending suggestions to the Convenor of the IWG. The Convenor set the end of June 2018 as the deadline for sending further comments so that the final editing and formatting could be finished before MoP8. The Convenor presented the draft resolution, which was revised according to the feedback from the participants of the IWG session, to the plenary. The Convenor thanked all who contributed to the discussion during the session. Following some further discussion in the plenary and minor amendments, the draft resolution was agreed by the meeting. The Convenor noted his intention to resume the activities of the IWG after the MoP, focussing on compiling relevant literature and possibly revising the guidelines.

The Chair of the Advisory Committee asked the Secretariat whether it would be possible to have the guidelines ready in time for MoP8. The Executive Secretary responded that if the guidelines were to be published without further endorsement by the MoP and if final comments from delegates were received by the end of June, the Secretariat could in principle agree with this plan.

16. Draft Resolution 8.7: Bats and Climate Change

One of the Co-Convenors of the **IWG on Bats and Climate Change**, Ms. Daniela Hamidović, explained once again the circumstances that led to the creation of this IWG as well as the need for it. She further reported that Dr. Hugo Rebelo, a Co-Convenor of the IWG, had joined the meeting by Skype. The IWG prepared a draft resolution which connected to the last adopted resolution on this topic, and that was the CMS resolution on climate change adopted at the CMS CoP in October 2017. The Convenor then presented the draft resolution to the plenary and it was accepted to be put forward to the MoP. The Chair concluded that the IWG would definitely need to continue its work after MoP8 as well.

17. Draft Resolution 8.8: Bat Rescue and Rehabilitation

One of the Co-Convenors of the **IWG on Bat Rescue and Rehabilitation**, Dr. Lena Godlevska, informed the participants that during its meeting the IWG made small changes in the wording of the draft resolution, which had been available already before the AC meeting. The IWG also worked further on the development of the guidelines for bat rescue and rehabilitation. The members agreed that it was important to have an update on the national data about rescue and rehabilitation. Dr. Godlevska announced that a questionnaire concerning national regulations for bat rescue and rehabilitation would be sent to the Parties, asking them to provide this information as early as possible. Finally, the schedule was prepared for the work still to be done after AC23 in order to finalise the guidelines, hopefully in time for MoP8. In conclusion the draft resolution was presented and accepted to be put forward to the MoP8.

18. Draft Resolution 8.9: Bats, Insulation and Lining Materials

The Convenor of the **IWG on Bats and Insulation**, Dr. Helena Jahelkova, informed the delegates that the IWG met twice during AC23. She thanked all the IWG members for their contributions and was glad to inform the plenary that Mr. Herman Limpens from the Netherlands agreed to be a Co-Convenor of this IWG. During the first meeting of the IWG the chapters of the draft guidelines were discussed and it was agreed that the introduction needed to be re-written. The IWG also decided to suggest repealing Resolution 7.11 and to provide a new draft resolution covering more topics. This draft resolution was then presented by the Convenor to the plenary. After a short discussion on the proper wording, it was also agreed to include the draft guidelines as an annex to the draft resolution, which was still to be developed after AC23. The Chair then asked if

the guidelines would be finished for MoP8 and the Convenor replied that the IWG would do its best to make this possible.

19. Draft Resolution 8.10: Required Experience and Skills of Experts with regard to Quality of Assessments

One of the Co-Convenors of the **IWG on Required Experience and Skills of Experts with regard to Quality of Assessments**, Ms. Ruth Petermann, explained that the IWG met during AC23 and discussed the text of the draft resolution and the annex thoroughly. In the draft resolution the IWG suggested that the AC should repeal Resolution 7.14. The Co-Convenor then presented the rest of the draft resolution and, after some minor changes in the wording, the draft resolution was accepted for submission to the MoP. The Convenor also informed the meeting participants that this IWG had finished its work, but that there would still be a need for a new Working Group to address the new issue mentioned in the resolution: the development of a set of criteria to be used for evaluating the quality of assessment reports.

20. Draft Resolution 8.11: Implementation of the Conservation and Management Plan (2019-2022)

The Chair of the Advisory Committee informed the delegates about the progress made with regard to Draft Resolution 8.11 on the Implementation of the Conservation and Management Plan. He explained that this draft resolution is usually prepared during the MoP itself, as its purpose is to combine the most important points from all resolutions. However, initial drafting had already begun, with the help of the Vice-Chair, Professor Danilo Russo, and the senior advisors. It was still not sufficiently advance to present to the plenary and could not be finalised until MoP8 but a draft would be made available to the delegates through the EUROBATS Workspace for comments.

21. Draft Resolution 8.12: Purpose-built Man-Made Roosts

Finally, the Convenor of the **IWG on Purpose-built Man-Made Roosts**, Dr. Henry Schofield, reported that the IWG met during AC23 and reviewed the text and content of the final report for this group. The following actions were identified to complete this document:

- The document needed proof reading
- References, particularly in the introduction, needed to be added

- Examples of purpose-built roosts from Portugal for *Tadarida teniotis*, and France for *Rhinolophus hipposideros* needed to be added
- Information on lag times in the take up of the roosts needed adding
- Some of the photographs had been copied from PDFs and needed improving
- The concluding sections needed expanding to include some broad recommendations
- A final table with a list of the projects and contact may be useful to add
- The document was high level, so that it may be appropriate to have more detailed case studies on the EUROBATS website. These could be updated as and when new information came to light, such as increases in update of the structures by bats.

The Convenor further reported that the text would be revised following the AC meeting and would be submitted to the Secretariat to consider whether it was appropriate for publication or whether it should be included as an annex to the draft resolution prepared by the IWG. The Convenor then proceeded to present Draft Resolution 8.12, which was accepted to be put forward to the MoP. The Convenor concluded that the IWG had completed its work, but that he might consider collecting further examples of purpose-built man-made roosts on an informal basis.

22. Other Draft Resolutions emerging from the Intersessional Working Groups

The Chair of the Advisory Committee explained that there was one new draft resolution to be introduced, Draft Resolution 8.13: Insect Decline as a Threat to Bat Populations in Europe. The draft resolution was submitted by Luxembourg, and the AC-Chair invited Dr. Laurent Schley to present the draft to the plenary.

Dr. Schley explained that not much information had to be given on the background of this draft resolution and why it was necessary to be put forward to the MoP. The draft resolution was addressing a very pressing issue, as there had been many studies showing a tremendous decline in the biomass of insects, almost up to 70 percent, which was clearly representing a threat for bat populations as well. Following some discussion and minor changes the draft resolution was accepted by the plenary.

23. Joint plenary session with the Standing Committee to mutually report on results and progress achieved (see above under point 10)

24. Draft Guidelines on Impact of Roads and other Infrastructures on Bats

As the guidelines were already presented under point 21, no further discussion was necessary.

25. Any other business

The Chair of the Standing Committee wanted to ask the plenary for their opinion on a possible measure to reduce the costs for future meetings. Though these costs were gladly born, the fact remained that these costs were paid out of the budget and the trust fund, and that both were not in a good state. Thus, he wanted to ask the delegates for their opinion whether it would be acceptable to condense the meetings in time and abolish the traditional excursion on Sunday, or whether there were practical, strategic, or scientific reasons why the excursion should be kept.

Dr. Dino Scaravelli expressed his opinion that the excursions were important not only scientifically but also socially – they allowed the new members to get introduced into the EUROBATS community in a rather informal way. Mr. Herman Limpens, Ms. Ruth Petermann, Ms. Daniela Hamidovic, Mr. Üllar Rammull, and Ms. Marie Nedinge, also supported the view of Dr. Scaravelli. Professor Paul Racey mentioned that the excursions provided an opportunity for the host countries to show case – it would be a pity to lose that opportunity. Dr. Noam Leader added that for this reason the host countries should take care that the excursions were scientifically relevant. Mr. Herman Limpens then added that, if the costs associated with the excursion meant that focal points from Non-Party Range States might not be funded to attend the meetings, he would prefer to see focal points in attendance and drop the extra day associated with the excursion.

The Executive Secretary highlighted the importance of having as many as possible range states present at the meetings, although he was also happy to keep the AC organisation as it was. For this reason, he urged the participants to talk to their governments and ask them for more support to increase the budget line for the organisation of the AC meetings in order to allocate an appropriate, realistic budget to it.

Ms. Hamidović concluded by saying that it was very disappointing that the value of the voluntary work of the AC delegates was not sufficiently recognised. The governments

were benefitting from the work that was done by the Advisory Committee and its Working Groups. If this work would have to be outsourced, most of the governments could not afford to pay for it.

26. Date and Venue of the 24th Meeting of the Advisory Committee

The Executive Secretary asked if there was a Party or a Non-Party Range State that wished to consider inviting the next Advisory Committee meeting. Mr. Aleksandar Nastov, the representative of the Former Yugoslav Republic of Macedonia, informed the committee that Macedonia would like to invite the next AC meeting. It was a preliminary invitation because it was not yet confirmed by the Minister of the Environment, but Mr. Nastov hoped that an official invitation would follow soon.

27. Adoption of the Record of the Meeting

There being no further remarks regarding the record, it was adopted unanimously.

28. Close of Meeting

In his final remarks before the closure of the meeting, the Executive Secretary, Mr. Andreas Streit, thanked all the delegates for their tremendous work. He was particularly glad that the representatives of three countries – Cyprus, Hungary and the Principality of Monaco – that for a long time had not been able to participate at the AC meetings were this time represented. He expressed his hope that those delegates as well as all the other participants who joined the EUROBATS meetings for the first time felt comfortable and welcome in the EUROBATS community.

The Chair of the Standing Committee, Mr. Jeroen Panis, concluded by saying that the Standing Committee had quite a few issues to deal with, but that he was glad the delegates had an open discussion. He thanked all the Standing Committee delegates and his Vice Chair, Mr. François Lamarque, for a transparent and cooperative debate and he was glad that the Standing Committee ended up with decent proposals for the consideration at MOP8.

The Chair of the Advisory Committee, Dr. Ferdia Marnell, said that the practice of conducting a joint meeting of the Advisory and the Standing Committees in the year of the MoP had been introduced quite some years ago and that, in his opinion, it again proved to be a useful process. The work that had been done during the joint meeting would make the next session of the Meeting of the Parties a lot easier and more streamlined. Both the Advisory and the Standing Committees had an opportunity to

review in detail all the draft resolutions, except for the Conservation and Management Plan, and that allowed the delegates to be well prepared for MoP8.

Dr. Marnell also reminded the delegates of the mandatory national reports that were required to be submitted for the MoP. He asked the delegates to check the online national reporting system and to contact the Secretariat in case of any problems in a timely manner. He also informed the participants that the final versions of the draft resolutions would be put online shortly, as well as the record of the meeting.

Finally, Dr. Marnell referred to the IWGs and the fact that several of them had set themselves an ambitious task to be completed before MoP8, particularly those that were hoping to progress towards a publication. It seemed as if a significant number of publications was to be finalised within the next six to twelve months. These publications represented a testament to EUROBATS' work and its output. Therefore, Dr. Marnell asked the delegates to focus on that work, to finish the tasks of the IWGs, to stick to their schedules, so that EUROBATS could stand proud at MoP8 in front of all the observers.

There being no further business, the meeting was closed at 11:50.

14th Meeting of the Standing Committee

23th Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

List of Participants

PARTIES

ALBANIA

Dr. Aurora Dibra
University of Shkodër "Luigj Gurakuqi"
Faculty of Natural Sciences
Department of Biology and Chemistry
Sheshi 2 Prilli
4001-4007 Shkodër

BELGIUM

Mr. Jeroen Panis
Government of Flanders
Agency for Nature and Forests Havenlaan
88 bus 75
1000 Brussels

BULGARIA

Ms. Radostina Galitionova
Ministry of Environment and Water
National Nature Protection Service
Directorate
Maria Luiza Blvd 22
1000 Sofia

CROATIA

Ms. Daniela Hamidović
Croatian Agency for Environment and Nature
Radnička cesta 80/7
10000 Zagreb

CYPRUS

Ms. Elena Erotokritou
Ministry of Agriculture, Rural Development and Environment
Department of Environment
28th Oktovriou ave. 20 – 22
2414 Nicosia

CZECH REPUBLIC

Ms. Libuše Vlasáková
Ministry of the Environment
Vršovická 65
10010 Prague 10

Dr. Helena Jahelková
Charles University
Department of Zoology
Viničná 7
12844 Prague 2

ESTONIA

Ms. Kaja Lotman
Environmental Board of Estonia
Narva Mnt 7a
15172 Tallinn

FINLAND

Ms. Eeva-Maria Kyheröinen
Finnish Museum of Natural History
P.O. Box 17
(Pohjoinen Rautatiekatu 13)
00014 University of Helsinki

FRANCE

Mr. François Lamarque
Ministère de la transition écologique et solidaire
DGALN/DEB/ET3
Tour Séquoia, Place Carpeaux
92055 La Défense Cedex

Dr. Stéphane Aulagnier
Université Paul Sabatier, Toulouse III
Comportement et Ecologie de la Faune Sauvage (CEFS)
INRA
CS 52627
31326 Castanet-Tolosan Cedex

GEORGIA

Ms. Irine Lomashvili
Ministry of Environmental Protection and Agriculture
6 Marshal Gelovani Street
0159 Tbilisi

Mr. Ioseb Natradze
Field Researchers' Union "Campester"
Tamarashvili 2a, Apt 6
0162 Tbilisi

Institute of Zoology of Ilia State University
Kakutsa Cholokashvili Ave 3/5
0162 Tbilisi

GERMANY

Ms. Ruth Petermann
Federal Agency for Nature Conservation (BfN)
Division II 1.1
Konstantinstr. 110
53179 Bonn

Dr. Markus Dietz
Institut für Tierökologie und Naturbildung
Hauptstraße 30
35321 Gonterskirchen

HUNGARY

Dr. Gergő Gábor Nagy
Ministry of Agriculture
Department for Nature Conservation
Kossuth Lajos tér 11
1055 Budapest

IRELAND

Mr. Alan Moore
National Parks and Wildlife Service
Department of Culture, Heritage & the Gaeltacht
90 King Street North
Dublin 7, D07 N7CV

Dr. Ferdia Marnell
National Parks and Wildlife Service
Department of Culture, Heritage and the Gaeltacht
90 King Street North
Dublin 7, D07 N7CV

ISRAEL

Dr. Noam Leader
Israel Nature and Parks Authority
Ecology Department, Science Division
3 Am Ve'Olamo Street
95463 Jerusalem

ITALY

Mr. Vittorio De Cristofaro
Ministry of Environment, Land and Sea
Directorate-General for Nature and Sea Protection
Via Cristoforo Colombo 44
00147 Rome

Prof. Danilo Russo
Università degli Studi di Napoli Federico II
Wildlife Research Unit
Lab di Ecologia Applicata, Dip. Agraria
Via Università 100
80055 Portici (Naples)

LATVIA

Dr. Gunārs Pētersons
Latvia University of Life Sciences and Technologies
Faculty of Veterinary Medicine
K Helmana Street 8
3004 Jelgava

LUXEMBOURG

Dr. Laurent Schley
Ministère du Développement durable et des Infrastructures
Administration de la nature et des forêts
81 avenue de la Gare
9233 Diekirch

Mr. Jacques Pir
Musée national d'histoire naturelle
rue Münster 25
2160 Luxembourg

MACEDONIA, FYR

Mr. Aleksandar Nastov
Ministry of the Environment and Physical Planning
Bul. Goce Delcev 18, MRT XI
1000 Skopje

Prof. Dr. Branko Micevski
Macedonian Bonn Committee
Blvd. Febr. Pohod 24/47
1000 Skopje

MOLDOVA

Mr. Serghei Andreev
WiSDOM
PO Box 409
2004 Chișinău

MONACO

Ms. Céline Van Klaveren-Impagliazzo
Ministry of Foreign Affairs and Cooperation Ministère d'Etat
Place de la Visitation
98000 Monaco

THE NETHERLANDS

Mr. Herman Limpens
Dutch Mammal Society/
Zoogdiervereniging
Natuurplaza (Mercator III),
Toernooiveld 1
6525 ED Nijmegen

NORWAY

Mr. Per Ole Syvertsen
Norwegian Zoological Society (NZF)
c/o Helgeland Museum
Natural History Dept.
PO Box 98
8601 Mo i Rana

POLAND

Ms. Monika Lesz
Ministry of the Environment
Department of Forestry and Nature
Conservation
52/54 Wawelska Str.
00922 Warsaw

Dr. Janusz Hejduk
University of Lodz
Department of Bioeducation and
Biodiversity Studies
Str. Banacha 1/3
93-208 Lodz

PORTUGAL

Dr. Luísa Rodrigues
Institute for the Conservation of Nature and
Forests, ICNF
Avenida da República 16 - 16B
1050-191 Lisbon

SAN MARINO

Dr. Dino Scaravelli
Centro Naturalistico Sammarinese
Via Valdes de Carli 21
47893 Borgo Maggiore

SLOVAK REPUBLIC

Dr. Andrea Lešová
State Nature Conservancy
Tajovského 28B
974 01 Banská Bystrica

SWEDEN

Ms. Marie Nedinge
Swedish Environmental Protection
Agency 10648 Stockholm

SWITZERLAND

Dr. Hubert Krättli
Bat Conservation Switzerland
Zürichbergstrasse 221
8044 Zurich

UKRAINE

Dr. Volodymyr Domashlinets
Ministry of Ecology and
Natural Resources
Mytropolyta Vasylya Lypkivskogo str. 35
03035 Kiev

Dr. Lena Godlevska
NAS of Ukraine
Schmalhausen Institute of Zoology Bohdan
Khmelnitsky Str. 15
01601 Kiev

UNITED KINGDOM

Mr. Simon Dyer
Natural Resources Wales
Evidence, Policy and Permitting Directorate
Maes y Ffynnon, Penrhosgarnedd Bangor,
Gwynedd LL57 2DW, Wales

NON-PARTY RANGE STATES

ARMENIA

Dr. Sevak Baloyan
Ministry of Nature Protection
Division of the Bioresources Management Agency
3 Government Building, Republic Square
0010 Yerevan

Ms. Astghik Ghazaryan
Yerevan State University
A. Manoogian 1
0025 Yerevan

AZERBAIJAN

Dr. Nijat Hasanov
Azerbaijan National Academy of Sciences Institute of Zoology
Block 504, Passage 1128
A. Abbasov Str.
1014 Baku

BELARUS

Mr. Vitali Karenchuk
Ministry of Natural Resources and Environmental Protection
Kollektornaya str. 10
220048 Minsk

Mr. Aliaksei Shpak
State Scientific and Production Amalgamation
“Scientific and Practical Centerfor Bioresources” of the National Academy of Sciences of Belarus
Akademicheskaya Str. 27
220072 Minsk

BOSNIA AND HERZEGOVINA

Dr. Jasminko Mulaomerović
Center for Karst and Speleology
Branilaca Sarajeva 30
71000 Sarajevo

IRAN

Prof. Dr. Hossein Zohoori
South Coast Bat Conservation Society
3390 Creston Close, Coquitlam, BC
Canada V3E 0C5

Islamic Azad University
Natural Sciences Faculty
Environmental Sciences Department
Arak Branch
Arak

JORDAN

Prof. Zuhair Amr
Jordan University of Science & Technology
Department of Biology
P.O. Box 3030
Irbid

LEBANON

Dr. Mounir Abi-Said
Lebanese University
Department of Life and Earth Sciences
Faculty of Sciences II
P.O. Box 90656
Jdeideh, Fanar

MOROCCO

Prof. El Ayachi Sehhar
Institut Agronomique et Vétérinaire
Hassa II
B.P 6202-Instituts
10101 Rabat

Dr. Emrah Çoraman
Museum für Naturkunde
Invalidenstraße 43
10115 Berlin
Germany

SAUDI ARABIA

Dr. Abdulaziz Alagaili
King Saud University
College of Science
Zoology Department
P.O. Box 2455
11451 Riyadh

SERBIA

Ms. Ivana Budinski
Institute for Biological Research
“Siniša Stanković”
Bulevar despota Stefana 142
11060 Belgrade

SPAIN

Mr. Adrià López Baucells
SECEMU (Spanish Bat Association)
Campus Universitario
Ctra. N-II, Km. 33,6.
Universidad de Alcalá
28805, Alcalá de Henares (Madrid)

TURKEY

Dr. Ibrahim Raşit Bilgin
Bogazici University
Institute of Environmental Sciences
Bebek
34342 Istanbul

OBSERVERS

ARMENIA

Mr. Tigran Hayrapetyan
Armenian Association of Mammalogists NGO
Haghtanak str. 3/60
0081 Yerevan

ESTONIA

Mr. Üllar Rammul
Tallinn University of Technology
Akadeemia tee 15
12618 Tallinn

Mr. Lauri Lutsar
Estonian Fund for Nature (ELF)
Lai 29
50002 Tartu

FRANCE

Ms. Marie-José Dubourg-Savage
Société Française pour l' Etude et la Protection des Mammifères (SFEPM)
c/o Museum d'Historie Naturelle de Bourges
Les Rives d'Auron
18000 Bourges

GERMANY

Dr. Christine Harbusch
Naturschutzbund Deutschland (NABU)
c/o Orscholzerstr. 15
66706 Perl-Kesslingen

Dr. Christian Voigt
Leibniz Institute for Zoo and Wildlife Research (IZW)
Alfred-Kowalke-Str. 17
10315 Berlin

Mr. Marcus Fritze
Arbeitskreis Fledermäuse Sachsen-Anhalt e.V.
Zechental 1
06536 Südharz OT Stolberg

Mr. Markus Melber
Bundesverband für Fledermauskunde Deutschland e.V.
c/o Stiftung FLEDERMAUS
Schmidtstedter Str. 30a
99084 Erfurt

LUXEMBOURG

Mr. Laurent Biraschi
8 à la Croix St. Pierre
4804 Rodange

NETHERLANDS

Mr. Peter H. C. Lina
Naturalis Biodiversity Center (NBC)
P.O. Box 9517
2300 RA Leiden

ROMANIA

Dr. Szilárd-Lehel Bücs
Centre for Bat Research and Conservation
Aleea Peana nr. 14, Ap.3
Cluj-Napoca

UNITED KINGDOM

Mr. Anthony Hutson
IUCN/ SSC Bat Specialist Group
c/o Winkfield
Station Road
Plumpton Green, East Sussex
BN7 3BU

Ms. Jean Matthews
2 Preswylfa, Llanddona
Beaumaris, Anglesey
LL58 8TW

Dr. Anthony Mitchell-Jones
Senior Advisor
Taigh a' Ghiuthais
North Connel
Oban
PA37 1QX, Scotland

Prof. Paul Adrian Racey
University of Exeter and
IUCN Bat Specialist Group
c/o Chapel Cottage, Prazegooth Lane
Cadgwith, Helston
Cornwall
TR12 7LA

Dr. Henry Schofield
The Vincent Wildlife Trust
Railsgate Barn
Kinnerton, Presteigne
Powys, LD8 2PD, Wales

Ms. Kit Stoner
Bat Conservation Trust
Quadrant House
250 Kennington Lane
London SE11 5RD

EUROBATS Secretariat

Mr. Andreas Streit
Dr. Suren Gazaryan
Ms.Tine Meyer-Cords
Ms. Ana Thiel

UNEP/EUROBATS Secretariat
United Nations Campus
Platz der Vereinten Nationen 1
53113 Bonn, Germany

Tel: +49 228 815 2420 / 33 / 31 / 32
Fax: +49 228 815 2445
Email: eurobats@eurobats.org

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.2
Amendment of the Annex to the Agreement

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling Resolution No. 7 adopted at its Third Session (Bristol, July 2000), amending the Agreement and incorporating an Annex of bat species occurring in Europe to which the Agreement applies;

Recognising that there will be the need to amend the Annex from time to time in the light of recent research results;

Further recognising that the names of bat species included in the Annex should conform to the rules of nomenclature laid down by the International Commission on Zoological Nomenclature;

Noting that IUCN – The World Conservation Union as well as the Convention on the Conservation of Migratory Species of Wild Animals (CMS) identify *Mammal Species of the World* by Wilson and Reeder (Smithsonian Institution Press, Washington; John Hopkins University Press, Baltimore) as the standard list of mammals;

Acknowledges the establishment of an Advisory Panel of specialists to consider potential changes to the Annex;

Agrees to adopt the following changes to the Annex, on the recommendation of the Advisory Panel; and

Notes other potential changes to the Annex, but which are rejected or deferred pending the availability of further information;

Decides to:

1. [Adopt the following changes to the Annex to the Agreement: to be completed]; and accordingly

Adopts the revised list of species for the Annex to the Agreement as attached to this Resolution.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.3
Monitoring of Daily and Seasonal Movements of Bats

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling that the Agreement was concluded under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979);

Remembering that bats perform seasonal, sometimes long-distance movements, which make them exceptionally susceptible to anthropogenic stressors;

Recalling resolution 7.5 on how migratory species represent a large proportion of fatalities at wind turbines in Europe;

Recalling resolution 8.10 on expert skills that only experienced and authorised specialists are involved in banding migratory bats;

Recalling the encouragements of the Article 18 of the Council Directive 92/43/EEC of 21 May 1992, and the attention to increase of transboundary cooperative research between Member States for studies of listed species, including bats;

Recognize that bats, particularly long-distance migrating species, may cross national borders, which requires international efforts for their protection;

Noting inadequate information on many species and necessity to determine possible commuting routes, migration corridors and stopover sites;

Remembering that understanding migratory movements can also be important for assessing the spread of pathogens which are potentially harmful to bats and humans;

Urges Parties and Non-Party Range States to:

1. Ensure effective protection of migratory species and their habitats;

2. Support research in the area of bat migration;

3. Prioritize studies to identify breeding and hibernation areas, migration routes, stopover sites and population parameters (population sizes and trends) with the use of classical and novel methods, such as banding, radio-tagging, acoustic, genetic and isotope analyses;

4. Stimulate cross-boundary efforts in research and conservation of migratory species;

5. Report information on studies in behaviour and population sizes of migratory bats, including references to published articles;

6. Increase the cooperation with bird banding centres to collect recapture data of bats during bird banding activities;

7. Raise the awareness on the vulnerability of migratory species in the public and among stakeholders.

Requests the AC to collate information on above-mentioned research topics.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.4
Wind Turbines and Bat Populations

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Noting the importance that wind energy has in the implementation of the Kyoto protocol to reduce CO_2 emissions in the context of combatting climate change;

Recalling Resolution 2.2 on Consistent Monitoring Methodologies, which recommends the adoption of consistent monitoring methods for bats across Europe;

Recalling the Conservation and Management Plan of the Agreement, which recognises the importance of international information exchange and cooperation in developing monitoring strategies for bats;

Recalling further the Agreement Conservation and Management Plans, which recognise the conservation of bat habitats in all cases of land management and development especially when foraging areas or commuting routes are affected;

Recalling CMS Resolution 7.5 on Wind Turbines and Migratory Species, which calls upon the Parties of the Convention, to implement proper impact assessments of wind turbines on migratory species, to assess the cumulative environmental impacts of installed wind turbines on these species and to take full account of the precautionary principle in the development of wind turbine plants;

Recalling the Directive No. 2011/92/EU of the European Parliament of the Council of 13 December 2011 on the assessment on the effects of certain public and private projects on the environment and the Directive of the European Parliament and of the Council No. 2001/42/EC of June 27 2001 on the assessment of the effects of certain plans and programmes on the environment, both of which state that the scope of information required for the purposes of impact assessments should be consistent with the current state of knowledge and methods of such assessments;

Recalling the EU guidance document on Wind Energy development and Natura 2000 (2010);

Noting the growing scientific evidence of bat fatalities at wind turbines and the predicted negative consequences for populations of resident and migratory bat species;

Recognising that several bat species forage and migrate offshore and that as a result offshore wind farms may negatively impact bat populations;

Taking into account the cumulative environmental impact of the renewable energy sector through the increasing number and size of wind turbines;

Noting the work of the Advisory Committee in continuing to update the information included in the Guidelines for the planning process, monitoring and evaluation of the impacts of wind turbines on bats;

Recognising the importance of avoiding the risk of differences between the methods used for wind turbines impact assessment and need for harmonized and standardized recording and analysis methods;

Recognising the importance of standardised methods to be able to develop effective avoidance and mitigation measures, as well as statistically robust ways to evaluate mortality rates and their impact on bat populations;

Recalling Resolution 8.10 on required experience and skills of experts with regard to quality of assessments;

Noting that the use of blade feathering[1], higher turbine cut-in wind speed[2] and shutting down turbines are the only mitigation measures which so far proved to be effective in reducing bat mortality at wind turbines;

Recognising also the necessity of implementing research and monitoring;

Recalling the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention);

Urges Parties and non-party Range States, if not already done so, to:

1. Take into account the impacts that onshore and offshore wind turbines have on bat populations at different geographical scales.

[1] Adjusting the angle of the rotor blade parallel to the wind, or turning the whole unit out of the wind, to slow or stop blade rotation.
[2] Minimum wind speed at which the wind turbine will generate usable power.

2. Raise awareness and take into account that some habitats and areas are unsuitable for the operation of wind turbines where a negative impact on bats is predicted.
3. Strongly recommend that areas protected and designated for bat protection are excluded from wind energy developments.
4. Encourage developers of wind energy plants to engage in research on the best methods for impact assessment and mitigating bat mortality at turbines for mutual benefit.
5. Promote continued dialogue and cooperation between all stakeholders in the search for best practice to avoid or minimise the adverse impact of wind energy generation on bat populations.
6. Ensure that appropriate impact assessments are undertaken pre- and post-construction, including mortality rate assessments regardless of the results of the preconstruction assessment.
7. Ensure that post-construction monitoring and mitigation measures continue as long as needed to guarantee effectiveness.
8. Ensure that measures to avoid and mitigate impacts on bats are supervised by authorities.
9. Ensure that impact assessment procedures and post-construction monitoring are undertaken by appropriately experienced bat experts.
10. Ensure that raw data from impact assessment and post-construction monitoring are made available for independent analysis.
11. Ensure that reports from impact assessments and post-construction monitoring are made publicly available.
12. Develop and ensure implementation of national guidance following EUROBATS Publication Series nº 6.
13. Strongly recommends the use of blade feathering, higher turbine cut-in wind speeds and shutting down turbines temporarily to reduce or avoid bat mortality respectively.
14. Ensure that proper mitigation measures are prescribed during the approval procedure and are being implemented and effective.
15. Ensure that information about prescribed mitigation measures are made publicly available.

Requests the Advisory Committee to:

1. Keep the generic guidelines updated;

2. Continue to compile relevant information, including methods to assess the impact of wind power generation on bat populations.

Decides to repeal Resolution 7.5.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.5
Conservation and Management of Important Overground Sites for Bats

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling Resolution No. 4.9, Element 3 (a) on the protection of roost sites other than underground sites;

Further recalling Resolution No. 5.7, Guidelines for the Protection of Overground Roosts, with particular reference to roosts in buildings of cultural heritage importance;

Recognising the importance of overground man-made structures (Annex 1) as roost sites for many species of bats, both for hibernation and breeding in different parts of their ranges;

Recognising that overground roosts, including man-made structures, are threatened by a wide variety of anthropogenic factors and that active management of such sites is often required;

Noting further the work being carried out in the framework of the EU Habitats Directive, in particular the establishment of the Natura 2000 network, and in the framework of the Bern Convention, in particular the establishment of the Emerald network;

1. *Confirms* the importance of a EUROBATS list of overground roosts as a contribution to the maintenance of populations of European bats;
2. *Endorses* the guidance on site selection prepared by the Advisory Committee (Annex 1);
3. *Strongly encourages* Parties and Non-Party Range States to identify their most important overground roosts considering the guidance on site selection referred to above and using the national database established.

4. *Urges* Parties and encourages non-Party Range States to submit information about each selected site before MoP9 and update this information at least before every alternate MoP (according to an 8 year cycle, with the next revisions due before MoP 11), using a data format provided by the Secretariat (Annex 2);
5. *Urges* Parties and encourages non-Party Range States to ensure listed sites are managed so as to maintain their importance for bats following Resolution 5.7;
6. *Urges* Parties and encourages non-Party Range States to inform the Secretariat of listed sites that have been damaged or destroyed and the reasons for this loss;
7. *Instructs* the Secretariat to record and follow up cases of loss or damage to listed sites that are brought to its attention, initially by correspondence with the Party involved. Such cases should be reported by the Secretariat at each MoP;
8. *Instructs* the Secretariat to investigate ways of making the site data more accessible and useful whilst respecting the confidentiality of detailed site information.

Annex 1

Guidance on Site Selection of Overground Roosts of European importance

“As their metabolic and social requirements vary throughout the year, most bats will use a variety of roosts of different types. Some species are particularly closely associated with tree roosts, but the majority use a range of roosts, which includes trees, buildings and underground sites.

Man-made structures regularly used by bats across Europe include bridges, castles, churches, houses, blocks of flats, barns and stables. Some species have come to rely on such structures, e.g. *Eptesicus* and *Pipistrellus* species usually roost in buildings; *Myotis daubentonii* is, in some countries, particularly associated with bridges and will form roosts in suitable cracks in both old and new structures; *Myotis myotis* can be found roosting in churches over much of its range in the northern part of Europe, while *Plecotus* species have come to rely more and more on man-made roost sites in some countries due to the successive loss of suitable natural habitat.

Bats can be found in buildings all year round. In late spring, maternity roosts are formed in the roofs of buildings to take advantage of the heat provided by the sun, as during this phase of their life-cycle breeding females are seeking warm areas to minimise the energy cost of maintaining a high body temperature. Some species, such as *Pipistrellus* spp. show a clear preference for confined roost sites, such as soffit boxes, eaves or under hanging tiles, whereas others, such as the *Rhinolophus* spp. are more typically associated with open roof voids that they can fly in. There are many exceptions and many species have been recorded from a wide variety of situations. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames, under ridge tiles and in cooler areas with stable temperatures such as cellars and basements. These latter are covered by the Eurobats report on underground roosts and are not considered further here.” (Marnell & Presetnik 2010 *Eurobats Publication Series* n°4)

What is an overground habitat?

As in many countries roosts of tree dwelling bats are unknown or often used for few days, the list of overground habitats of European importance will only include man-made structures: churches, castles and fortifications, other buildings, houses/blocks of flats, barns and stables, abandoned buildings and ruins, mills and water towers, bridges, with particular reference to monuments of cultural heritage.

Usage of overground sites

Sites can be classified according to the main season of use by bats or by the use bats make of them. In general, the latter classification is probably more useful as it relates to the biological requirement: A suitable classification, based on the **main** use of the site is: maternity site, hibernation site, swarming site, transient site (a transient site is one that is used only for passage and not one occupied by individuals which are still in their hibernation or their nursery roost). This classification may depend on the species of bat.

Criteria for identifying overground habitats of European importance

The most important overground habitats in a territory may include single-species and multi-species sites, both of which make an important contribution to bat conservation. The national conservation importance of underground sites has often been assessed on two basic criteria: Species present (or number of species present) and Number of bats. These two criteria have been applied in various ways across Europe and several national classification schemes have been developed. However, the conservation status issued from regional IUCN redlists and the dependence of species on overground roosts support to weigh these criteria.

Bats are unevenly distributed across Europe, so there may be species that are rare in a country and/or for which there is an international obligation to identify and protect sites (e.g. EU Habitats Directive Annex II). If all sites were ranked only at the European scale, the result would be a list of sites heavily biased towards those countries that still have the richest bat populations. Then schemes are adapted in order to provide a list of the main sites for each species highly dependent of overground roosts.

1. Species richness schemes

Species richness schemes may be applied to sites used by multiple species. These take into consideration both the number of bats using the site and the number of species recorded there (both recorded in a variety of ways). A simple weighted scheme has been agreed. The weight for each species is 1 or 2 (table 1), without threshold in order to be adapted to each country.

2. Single species schemes

Overground roosts are often occupied by single species. A threshold scheme based on the number of bats using the site can be weighed for species that are considered to be of particularly high conservation value.

3. How many sites in each country?

Setting the number of sites for each country presents a particular challenge. Where the number of sites used by the species is large, either ranking or threshold systems should be applied to select a subset of sites as nationally important (rising up the threshold).

4. Data collecting

Data about species and numbers in overground habitats have been collected by researchers in a variety of formats and at varying intervals. For some sites (rather few) long data series are available over periods of many years, but for the majority of sites data are fragmented and incomplete, consisting of perhaps only a few observations. If the selection of important sites is limited to only those with long runs of data it seems certain that many sites, perhaps even some of the most important, would be excluded from consideration. This suggests that ranking or selecting sites should use as much of the available information as possible and that very simple measures of value should be used. The maximum number of individuals counted at the site within the previous 10 years is a simple measure that has the advantage of including all sites and does not require any complex assessment of numbers. It does not, however, take into account any possible declines in numbers that may have occurred in the 10-year period and we leave it to individual countries to modify their selection if adequate data on declines are available.

Sites for Habitats and Species Directive Annex II species (Natura 2000 sites) should all be included.

5. Implementation

For this project, where there is little prior knowledge of the number of sites across Europe, we propose collecting information about species and numbers in a selection of the best sites in each country.

In order to make progress, data are now required from each Party or Range State wishing to participate. For the initial stage, sites for inclusion in the draft lists should be selected at the national level

The following data are required for each site:

- Name of roost / site (or code number if the national authority considers the name to be confidential)
- Location (latitude, longitude, at least 1 x 1)
- Type of structure / site (church, castle/fortification, etc.)

- Use by bats (all-year, maternity, other summer colony, hibernation, swarming, transient)
- Number of species recorded in the last 10 years
- Maximum number of bats of each species recorded on a single survey in the last 10 years
- Year of the last survey
- Physical protection of the roost / site or other means of preventing unauthorised entry
- Type of the legal protection of the roost / site if relevant (natural reserve, Natura 2000,...)
- Criteria used for listing this roost / site
- Threats to the roost / site (demolition and natural deterioration, renovation of structures, insulation of buildings, change of use of buildings, light pollution, intensification of human habits (e.g. change of land use), disturbance (including tourism), interspecific competition, others.

Table 1. Weight of European bat species for listing overground habitats of importance, based on European / Mediterranean IUCN lists, and dependence on buildings.

	European IUCN red list	Mediterranean IUCN red list	Dependence on overground roosts	Weight
Rousettus aegyptiacus	-	NT	-	0
Taphozous nudiventris	-	LC	-	0
Rhinolophus blasii	VU A4c	NT	-	0
Rhinolophus euryale	VU A2c	VU A2ac	+	1
Rhinolophus ferrumequinum	NT	NT	++	2
Rhinolophus hipposideros	NT	NT	++	2
Rhinolophus mehelyi	VU A4c	VU A4c	-	0
Taphozous nudiventris	LC	LC	-	0
Tadarida teniotis	LC	LC	+	0
Miniopterus schreibersii	NT	NT	+	1
Barbastella barbastellus	VU A3c+4c	NT	++	2
Barbastella darjelingensis	-	NA		
Eptesicus bottae	-	LC	++	1
Eptesicus nilssonii	LC	NA	+	0
Eptesicus serotinus	LC	LC	++	1
Hypsugo savii	LC	LC	+	0
Myotis alcathoe	DD	DD		
Myotis bechsteinii	VU A4c	NT	+++	2

Myotis blythii	NT	NT	++	2
Myotis brandtii	LC	LC	+	0
Myotis capaccinii	VU A4bce	VU A4bce	-	0
Myotis dasycneme	NT	NA	+++	2
Myotis daubentonii	LC	LC	+++	1
Myotis davidii *	LC	LC	+	0
Myotis emarginatus	LC	LC	++	1
Myotis escalerai	-	-		
Myotis myotis	LC	LC	+++	1
Myotis mystacinus	LC	LC	++	1
Myotis nattereri	LC	LC	++	1
Myotis punicus	NT	NT	++	2
Myotis schaubi	DD	DD		
Nyctalus azoreum	EN B1ab(iii)	EN B1ab(iii)		
Nyctalus lasiopterus	DD	NT	++	1
Nyctalus leisleri	LC	LC	++	1
Nyctalus noctula	LC	LC	+++	1
Otonycteris hemprichii	-	LC	-	0
Pipistrellus hanaki	-	DD		
Pipistrellus kuhlii	LC	LC	++	1
Pipistrellus maderensis	EN B1ab(iii, v)	EN B1ab(iii, v)		
Pipistrellus nathusii	LC	LC	++	1
Pipistrellus pipistrellus	LC	LC	++	1
Pipistrellus pygmaeus	LC	LC	++	1
Plecotus auritus	LC	LC	+++	1
Plecotus austriacus	LC	LC	+++	1
Plecotus kolombatovici	NT	LC	+++	1
Plecotus macrobullaris	NT	NT	++	2
Plecotus sardus	VU B2ab(iii)	VU B2ab(iii)	+++	2
Plecotus teneriffae	EN B1ab(iii, v)	EN B1ab(v)		
Vespertilio murinus	LC	NA	++	1

* incl. aurascens & nipalensis

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.6
Bats and Light Pollution

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Acknowledging the value of natural light levels for ecological processes;

Acknowledging the relevance of natural light rhythms for the health of humans and wildlife;

Noting the rapid growth and extent of artificial light at night and its detrimental impact (light pollution);

Noting the importance that innovative lighting schemes have in the implementation of the Kyoto protocol to reduce CO_2 emissions in the context of combatting climate change;

Recalling Resolution 2.2 Consistent Monitoring Methodologies, which recommends the adoption of consistent monitoring methods for bats across Europe;

Recalling Resolution 7.8 Conservation and management of critical feeding areas, core areas around colonies and commuting routes;

Recalling Resolution 7.9 Impact of roads and other traffic infrastructures on bats;

Recalling Resolution 8.10 Required skills of experts with regard to quality of assessments;

Recalling Resolution 8.11 Implementation of the Conservation and Management Plan (2019-2022), which recognises the importance of international information exchange and cooperation in developing monitoring strategies for bats;

Recalling Resolution 8.11 Implementation of the Conservation and Management Plan (2019-2022), which recognises the conservation of bat habitats in

all cases of land management and development especially when foraging areas or commuting routes are affected;

Recalling Resolution 5.7 on Guidelines for the Protection of Overground Roosts, with particular reference to roosts in buildings of cultural heritage importance, which recommends to ensure that overground roosts are managed in accordance with national nature conservation legislation and taking note of any guidelines adopted by the EUROBATS Agreement;

Recalling Resolution 8.5 on Conservation and Management of important Overground Roosts for Bats.

Recalling that the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “Roadmap to a Resource Efficient Europe” (COM/2011/0571) recommends strengthening policies and activities for promoting energy efficiency in the use of artificial light in public areas;

Noting the different sensitivities of bat species towards artificial light;

Noting the growing scientific evidence of the impact of artificial light on bats and the predicted negative consequences for bat populations;

Recognising the importance of harmonizing the methods used for impact assessment related to artificial light;

Recognising the importance of statistically robust ways to evaluate behaviours of bats related to light pollution and their impact on bat populations;

Recognising the importance of developing evidence based effective avoidance and mitigation measures;

Recognising also the necessity of implementing research and effective monitoring;

Urges Parties and non-party Range States, if not already done so, to:

1. Take into account the fact that artificial light in general has negative impacts on bats;
2. Avoid the use of artificial light wherever and whenever possible;
3. Work to ensure that planning of artificial lighting projects are undertaken in compliance with national legislation regarding bat protection and conservation

by implementing appropriate avoidance, mitigation and compensation for habitat losses;

4. Ensure that the impacts of artificial light on bats are included in impact assessment procedures;
5. Work to resolve any conflict between artificial light and bats;
6. Where governance allows ensure that impact assessment procedures and post-installation/development monitoring are undertaken by bat experts with suitable knowledge skills and experience;
7. Recommend that raw data from impact assessment and post-installation/development monitoring are made available for independent scientific analysis;
8. Encourage and support scientific research on the impacts of artificial light on bats;
9. Encourage developers of lighting concepts to engage in research on the best methods for avoiding or mitigating the negative impacts of light pollution on bats;
10. Promote continued cooperation between lighting professionals and other stakeholders in the search for best practice to avoid or minimise the adverse impact of artificial light on bats;
11. Develop and ensure implementation of national guidance following the EUROBATS publication series Number 8.

Requests the Advisory Committee to:

1. Continue to compile relevant information, including efficacy of mitigation measures and methods to assess the impact of artificial light on individual bats and bat populations;
2. Update the guidelines if necessary.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.7
Bats and Climate Change

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Noting the growing amount of scientific evidence of the impact of climate change on bats;

Recalling Resolution 2.2 on Consistent Monitoring Methodologies, which recommends the adoption of consistent monitoring methods for bats across Europe;

Recalling the Conservation and Management Plan of the Agreement, which recognises the importance of international information exchange and cooperation in developing monitoring strategies for bats;

Recalling further the Agreement Conservation and Management Plans, which recognise the conservation of bat habitats in all cases of land management and development especially when foraging areas or commuting routes are affected;

Recalling CMS Resolution 12.21 on Climate Change and migratory species that reaffirms adopted Programme of Work on Climate Change and Migratory Species, which requests the Parties of the Convention to assess necessary steps to help migratory species cope with climate change, to address key gaps in knowledge and future research direction based on the analysis of existing long-term and large-scale datasets and calls on capacity building, knowledge sharing etc,

Recalling the Directive No. 2011/92/EU of the European Parliament of the Council of 13 December 2011 on the assessment on the effects of certain public and private projects on the environment and the Directive of the European Parliament and of the Council No. 2001/42/EC of June 27, 2001 on the assessment of the effects of certain plans and programmes on the environment, both of which state that the scope of information required for the purposes of impact assessments should be consistent with the current state of knowledge and methods of such assessments;

Noting the growing scientific evidence of bat species changing their range, migration, hibernation and reproductive patterns due to impact of climate change, and predicted negative consequences for populations of resident and migratory bat species;

Recognising the importance of protected areas and Natura 2000 network for bat conservation and that often will be necessary to enhance them in order to help bats cope with climate change recognizing the need for landscape connectivity;

Recognising the importance of standardised methods for being able to develop effective monitoring and mitigation measures;

Recognising also the necessity of implementing research and monitoring;

Urges Parties and non-party Range States, if not already done so, to:

1. Seek to identify measures to facilitate species adaptation in response to climate change;
2. Identify, use and promote standardized methodology to evaluate species and populations vulnerability to climate change;
3. Undertake vulnerability assessments of bats to climate change at the EUROBATS range level;
4. Take into account the vulnerability of bat species and populations, if necessary, for most vulnerable prepare national or regional action plans;
5. Encourage and support the identification of research gaps and research priorities across EUROBATS range on impacts of climate change on bats;
6. Identify or develop common monitoring techniques for the evaluation of the impact of climate change on bats;
7. Monitor changes in species migration, hibernation, reproductive and range-shift patterns and species interaction;
8. Ensure habitat availability and connectivity by identifying priority areas experiencing rapid climate impacts now or in the future for appropriate protection and adaptive management;
9. Ensure that climate change impact on bats is taken into account in land-use planning and impact assessment in future projects evaluation;
10. Raise awareness of the impacts of climate change on bats;

11. Promote continued cooperation and collaboration between scientists, professionals, stakeholders and international bodies whose work is related to Climate Change.

Requests the Advisory Committee to:

1. Compile all relevant scientific information in order to assess impact of climate change on bats and, if appropriate, develop guidelines for most urgent or prioritized actions identified.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.8
Bat Rescue and Rehabilitation

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling Resolution No. 7.8;

Recalling Resolution No. 7.10: Bat Rescue and Rehabilitation (Brussels, September 2014) and all resolutions being referenced in it;

Further recalling that the 7th Session of the Meeting of the Parties to the Agreement requested the Advisory Committee to develop guidelines for bat rehabilitators and develop a system for collecting information for international cooperation;

Recalling the importance of bat rescue and rehabilitation for bat conservation, monitoring, raising public awareness of bat conservation, as well as for bat research and surveillance of bat zoonoses;

Decides:

1. The Advisory Committee shall finalize draft Guidelines for Bat Rescue and Rehabilitation, currently available as an Annex to this Resolution.
2. Parties are encouraged to develop appropriate national guidelines, drawing on the general guidance to be finalised by the Advisory Committee;

Annex

Guidelines:
Bat rescue and rehabilitation for bat conservation, research and monitoring

Prepared by members of the IWG on bat rescue and rehabilitation of the Advisory Committee to the EUROBATS Agreement

DRAFT

version
May 14, 2018

Contents

List of case studies

Introduction

During the interviewing the experts from party and non-party ranges of EUROBATS Agreement carried out by the members if the interessional working group on bat rescue and rehabilitation it was revealed that most of European countries deal with those issues.

In some countries there are many bat rehabilitation centres which had worked for many decades. In others, such centres appeared only recently or no centres exist but the bat rehabilitation is done by efforts of separate bat workers in bigger or smaller scales.

It was also revealed that bat rescue and rehabilitation may be considered a separate method for bat monitoring, research and conservation. These recoveries were adopted as the Resolution adopted by EUROBATS parties at the 7th Meeting of parties (see Annex 2). The resolution requested Advisory Committee of the Agreement to develop guidelines for people currently dealing with bat rescue and rehabilitation or those who will do it in future and to develop a system for collecting information for international cooperation.

After the additional work, the currents guidelines were prepared.

The main goal of the guidelines is to review basic of BRR, best practices and techniques for involving BRR for bat conservation, research and monitoring as well as to facilitate the connection and, therefore, the exchange of experience, of bat workers dealing with these issues.

For this,

1. We briefly review the situation with BRR across Europe (based on answers to the questionnaire and publications).

2. We provide a general review of basics for BRR, including:

basics of communication with applying people (finders)

norms and ethics of transportation, keeping and releasing individual bats and colonies.

3. We provide guidelines for involving BRR for bat research, conservation and public education, paying a special attention to bats engaged in education public events.

4. We also consider the health risks for bat rehabilitators

5. To facilitate a connection between experts and, generally, international cooperation, the list of bat workers dealing with BRR in different countries of EUROBATS range is given. The list of web-links to the corresponding sites or pages is given

6. For those, who are interested in details (veterinary etc) of bat rehabilitation itself, the list of references is provided

We also enlist / engage the case studies on all these issues from different range states.

1. Review of bat rescue and rehabilitation in Europe

The questionnaire was prepared and distributed through the EUROBATS Parties and Range States (Annex 1). The aim of the questionnaire was to collect the information and, correspondingly, to estimate the significance of bat rehabilitation throughout Europe, in view of bat conservation, public education and data collection. As well the respondents were asked to give references to manuals or guidelines available in national languages and to provide contacts of bat rehabilitation institutions and / or persons. Answers from 32 EUROBATS Parties and Range States were received: Albania, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Georgia, Hungary, Ireland, Italy, Latvia, Luxembourg, Macedonia, Moldova, Montenegro, the Netherlands, Poland, Portugal (Mainland + Madeira + Azores), Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Switzerland, Ukraine, and the United Kingdom. Additionally, we analysed national reports of the EUROBATS Parties and Range States, scientific publications and made oral interviewing of bat-experts from the Agreement range.

Here, we resume the results of the interviewing.

1.1. Countries

Many European countries deal with bat rehabilitation (fig. *). Generally, the developement of bat rescue and rehabilitation centres differs from country to country. Some countries, according to answers, have many centres; some, one or few. In some countries the rehavilitation centres have the funding support from corresponding ministries, NGOs etc; in others, the rehabilitation is being done only with private resourses.

Fig. *. Countries dealing with bat rehabilitation, based on questionnaires and interviewing of countries' bat workers (grey, no rehabilitation; white, no information). As for May 2015; should be updated..

16 countries have bat rehabilitation databases, and 18 countries use finding data as the source for additional faunistic data (new localities, occurrence of species, sex ratio, etc). 20 countries use died animals for virological, morphological, parasitological, histological and other investigations and for replenishment of museum collections.

7 countries have their national manuals for bat rehabilitation.

1.2. Species

The majority of bats being rehabilitated represented mostly synanthropic species which are more or less common in different regions and typically dwell in buildings, forming there aggregations year around or during certain season.

The species, most commonly rescued and rehabilitated, are: Nyctalus noctula, Vespertilio murinus, Pipistrellus pipistrellus, Pipistrellus pygmaeus, Pipistrellus nathusii, Pipistrellus kuhlii, and Eptesicus serotinus.

However, the list of bats being rehabilitated include at least 11 more species: *Rhinolophus ferrumequinum*, *Myotis mystacinus/brandtii*, *M. daubentonii*, *Plecotus auritus*, *Plecotus austriacus*, *Barbastella barbastellus*, *Pipistrellus maderensis*, *Hypsugo savii*, *Nyctalus leisleri*, *Eptesicus nillsonii*, *Tadarida teniotis* (fig. *).

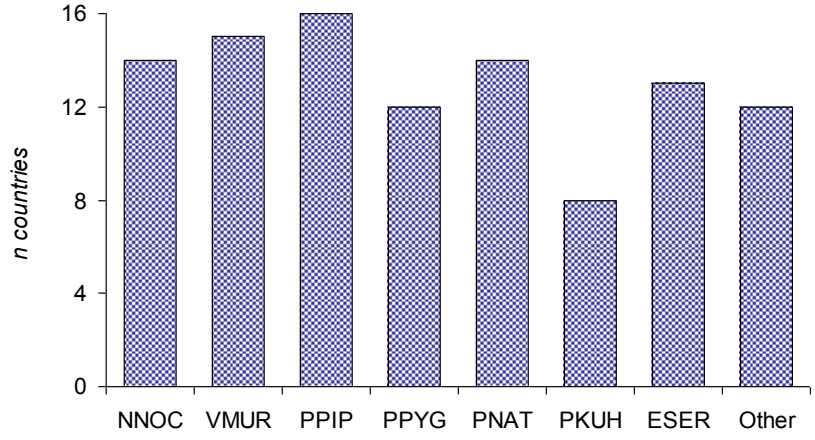


Fig. *. Bat species accepted for rehabilitation in 25 European countries.

Species acronyms:
NNOC – *N. noctula*, VMUR – *V. murinus*, PPIP – *P. pipistrellus*, PPYG – *P. pygmaeus*, PNAT – *P. nathusii*, PKUH – *P. kuhlii*, ESER – *E. serotinus.*

Category "Other" includes:
R. ferrumequinum, *M. mystacinus/brandtii*, *M. daubentonii*, *P. auritus*, *P. austriacus*, *B. barbastellus*, *P. maderensis*, *H. savii*, *N. leisleri*, *E. nillsonii*, *T. teniotis.*

1.3. Numbers

Number of bats received for bat rehabilitation per year differs from country to country. This number may, obviously, be determined by different factors (the severity of winters, availability of contacts of bat carers, the regularity of accidents of demolishing roosts, etc.). However, this number may reach considerable values (>3000 individuals per country / year).

The percentage of bats released successfully after rehabilitation differs throughout countries. It amounts from 50 to 70%.

To estimate the conservation significance of bat rescue and rehabilitation respondents were asked to give a rough number of rehabilitated bats by species (1–10, 10–100, 100–1000, >1000 ind. annually).

Available answers don't allow to give exact total numbers of bats being rehabilitated. However, the rough estimation (if to take 1–10 as 5 ind., 10–100 as 50, 100–1000 as 500, >1000 as 1000) gives the total sum in over 10 000 bat individuals through Europe per year (fig. *).

In reality, the number of bat individuals being rehabilitated through Europe may be even more: not all countries presented information, not all countries-respondents dealing with rehabilitation may provide numerical information etc.

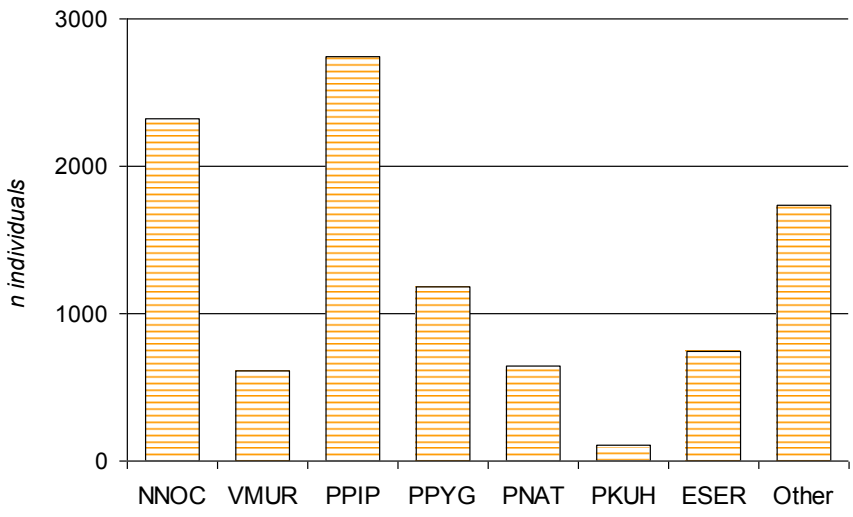


Fig. *. Rough estimation of number of bats being rescued and rehabilitated per year in 25 European countries.

Species acronyms:
NNOC – *N. noctula*, VMUR – *V. murinus*, PPIP – *P. pipistrellus*, PPYG – *P. pygmaeus*, PNAT – *P. nathusii*, PKUH – *P. kuhlii*, ESER – *E. serotinus.*

Category "Other" includes:
R. ferrumequinum, M. mystacinus/brandtii, M. daubentonii, P. auritus, P. austriacus, B. barbastellus, P. maderensis, H. savii, N. leisleri, E. nillsonii, T. teniotis.

Thus, the total number of bats being rescued and successfully released into the wild through Europe is more than 5 000 – 7 000 per year.

1.4. Situations

Fig. * summarises the information on bats being rescued and rehabilitated by situation categories. The category "invasions" includes cases when bats extracted from rooms require some additional help, like watering, shelter, etc. (they can't be released immediately). For example, there are known situations when bats occasionally invade rooms in winter, in periods of frosts. In such cases they can not be released and, correspondingly, need an (artificial) shelter for further hibernation.

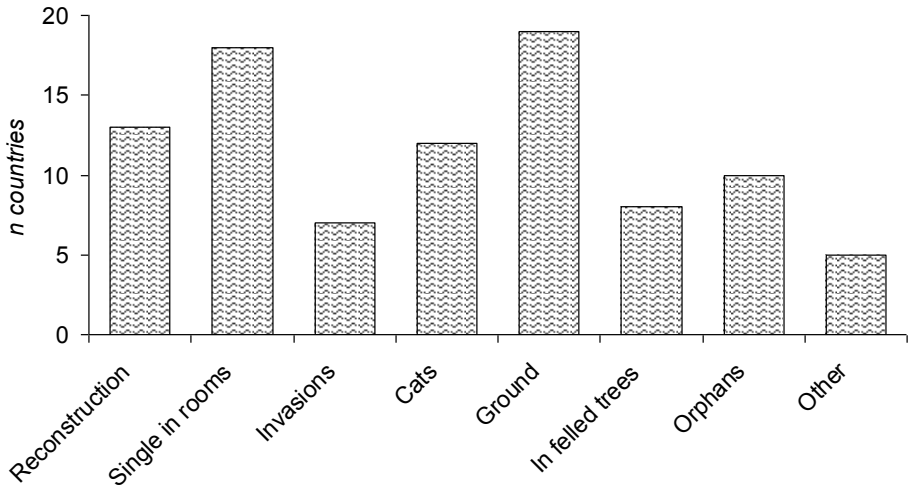


Fig. *. Which bats are being rescued and rehabilitated.

"Reconstruction" – extracted during construction works in buildings, "single in rooms" – single bats found in rooms, "invasions" – seasonal mass invasions into buildings, "cats" – caught by cats, "ground" – grounded adult specimens,

"in felled trees" – bats found in felled trees, "orphans" – orphaned juveniles. Category "Other" includes some other cases, like: bats were trapped in chimney, were hit with a car, were found in piles of firewood, etc.

1.5. Legislation

Only 10 countries have regulations for bat rehabilitation. *****

Case examples

Case study 1.*: Bat Rescue and Rehabilitation in UK

Case study 1.*: Bat Rescue and Rehabilitation in Byelarus

Minsk bat-contact Centre exists as an informal organization since 2007. The work of the Centre is mainly to provide information support to persons, who have applied upon detection of bats. If the animals could not be left in their original roost (finds on the street, on balconies and in living quarters, during construction works, etc.), bats were accepted by the Center for rehabilitation and artificial hibernation with subsequent release into nature. In addition, the indirect result of the work of the Centre is the constant accumulation of scientific information and monitoring of the fauna of bats. Thus, during the operation of the Centre, data on the hibernation of 6 species were obtained from 18 localities of Belarus (Shpak, 2017;). These data have significantly improved our knowledge of hibernating bats in Belarus.

Shpak A. Hibernating bat species of Belarus: results of the work of the Minsk bat-contact Centre // Proceedings of the Theriological School. 16 (2017): 135–141.

Case study 1.*: Bat Rescue and Rehabilitation in Serbia

Bat rescue and rehabilitation procedure in Serbia is not defined by national legislation. However, bats are strictly protected mammals by the Serbian law, and special licence for their handling and capturing is necessary. Permit for capturing and handling bats is given by the Ministry agriculture and environmental protection of Serbia. People who have permit that permit are authorized to do rescue and rehabilitation. There is still no Center for bat rescue and rehabilitation in Serbia, but since 2011 bat experts with permits have been involved in that matter. Main activities are advising people what to do if they find a bat, taking care of juvenile and injured animals and bat popularization to the general public. People call Natural History Museum (NHM) in Belgrade to report that they have found bat on the ground or in their home, and occassionally they bring the animal personally to the NHM. A smaller percent of enquiries are solved by telephone conversation, but in most cases bat experts are going to field, picking up the animal and releasing it afterwards or taking it for rehabilitation. Due to non-existence of facilities, animals are temporarily being kept in houses of authorized bat workers taking care of them. In case of larger numbers of animals rescued at the same time, a group of volunteers (mainly biology students) are involved during feeding sessions. About 10% of rescued animals are juveniles, up to 10% injured animals (most often cat atacks and broken forearms), and majority are healthy adults, sometimes dehydrated and/or underweight. 2 most frequent rescued species are Nyctalus noctula and Pipistrellus kuhlii, and occasionally Hypsugo savii, Vespertilio murinus and Pipistrellus nathusii. Carcases of bats that do not survive are being deposited in NHM mammal collection. All the work is being done on the voluntary basis and with no fundings. There is an initiative for forming an

official Center for bat rescue and rehabilitation, establishing the network of volunteers and providing funding for future activities.

Case study 1.*: Bat Rescue and Rehabilitation in Sweden

Case study 1.*: Czech Republic – animal rescue centres and bat workers in NGOs

Majority of wild animals found by public reach one of 29 animal rescue centres which are coverd by Czech Union of Conservationists and are supported from Ministry of Environments. There are also some private animal rescue centers which must meet legislation requirements. Individual persons can provide to found wild animal only first aid and then should transfer the animal to workers of rescue centre. No center is so far specialized only on bats, nevertheless there are members in NGOs focused on bats (Czech Bat Conservation Trust, Nyctalus) which cooperate with several centres. Rescue centers of CUNC have to send each year list of incoming animals to central database. Database could be shared for scientific purpose. Detailed protocols which can be used for conservational or scientific purpose fill only several centres. Carcasses of bats are provided for scientific purpose only by several centres.

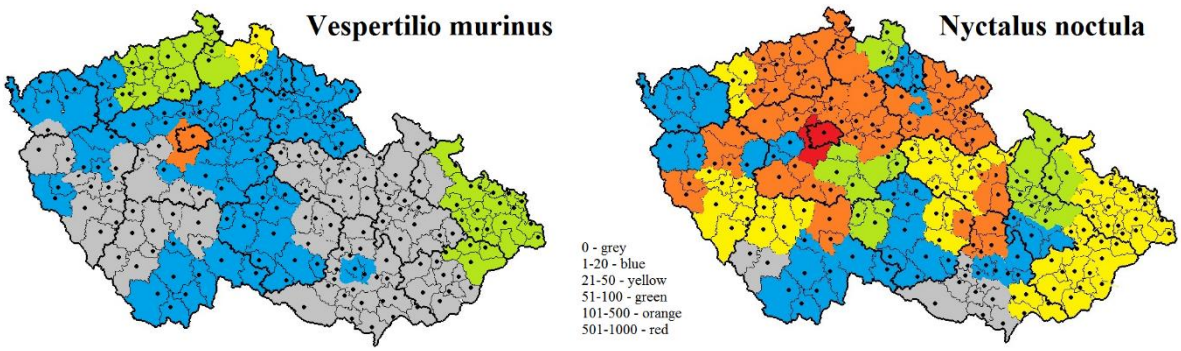


Fig. *. Occurence data of two bat species from 3-year period from 29 rescue centers in the Czech Republic (modified from Hudcová 2013).

2. Communication with public when bats are found

2.1. Basic advices

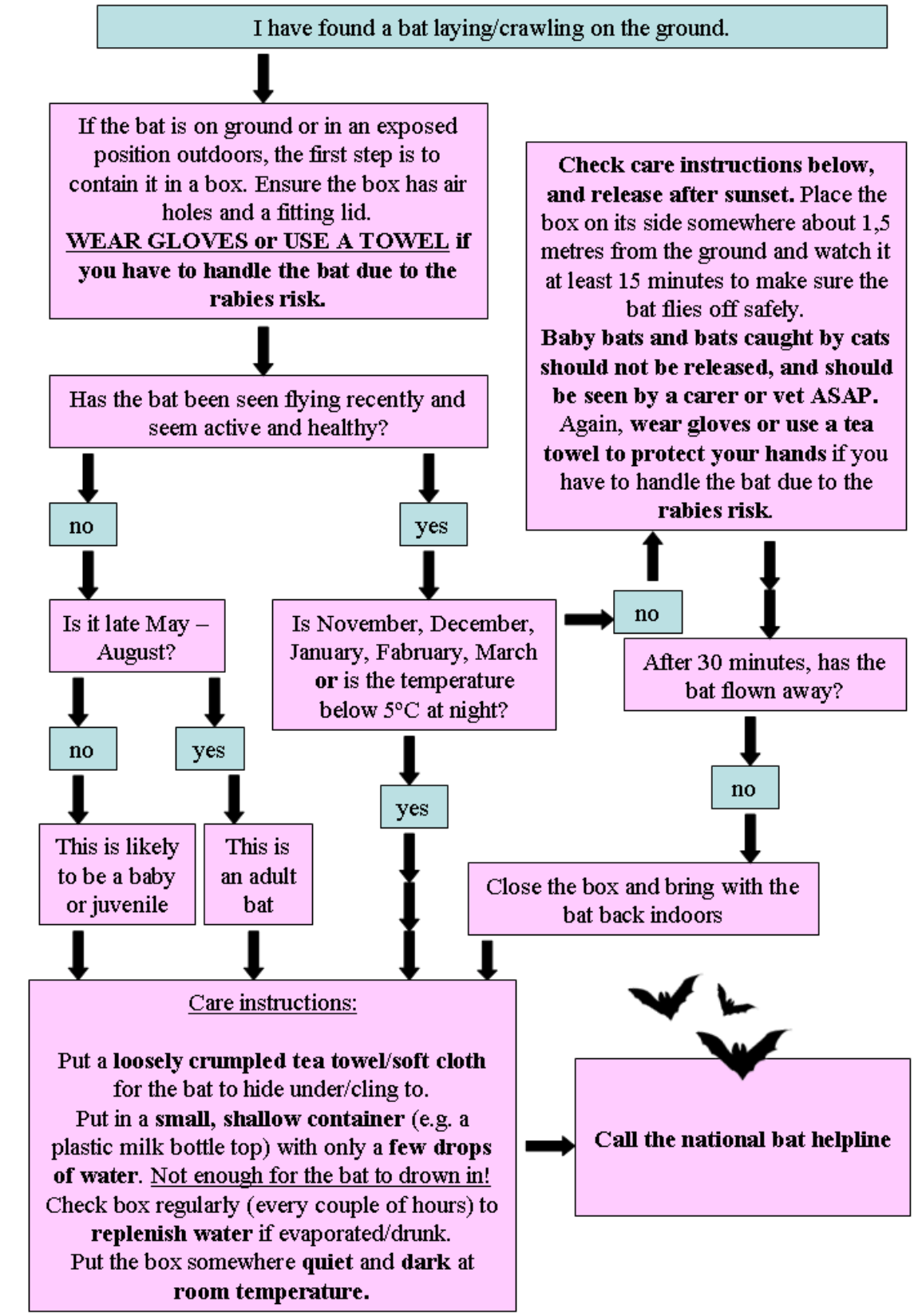
Situations for bat rescue and rehabilitation include not only contact rehabilitation cses but as well calls with questions concerning a bat occasionallly got into a room, about colony in houses, rabies, etc.

- Flight into the room by open window during nights with favourable weather conditions. Advise to enclose the bat into one single room with a window or door to the outside if possible. If it is dark outside, remove any clutter from the room and open the windows and/or external doors as widely as possible, dim or turn off the lights and let it find its own way out
- Hibernation in cellar which has openings allowing bats to leave

If bat worker recognized, that the ***manipulation with bat is necessary***, e.g. bats on ground, bat babies, bat brought by cat, unconvenient weather conditions, than he should with regard to the situation including availability or presence of national rehabilitation centres and national legislation ***recommend the finder following solutions***:

- Do not to touch a bat with bare hands, always use tough gloves or bundled piece of cloth (e.g. towel)
- In case, that there were any biting incidents, ask finder to take contacts of bitten persons or home pets and recommend to contact doctor or vet. Do not advice to release a bat. This bat should be kept separately from other bats and not released until situation is solved.
- To ask finder to put a bat or several few bats with gloves or cloth in a box with a secure fitting lid (e.g. shoe box) by putting a few small air holes into the lid of the box for ventilation. In a corner of the box should be crumpled cloth (no free long sewings, tattered edges or holes) where bat can rest and on the opposite site provide water in bottle cap (fig X). Box should be placed at quite safe room. In winter should be temperature of place cold, but not below zero, in summer the box should not be placed in direct sun. In case bat is injured, crawl, is immobile or in bad weather condition ask finder to stay in touch and wait until bat worker comes.
- If a bat appears healthy and it is adult individual which just landed on improper place, hasn't been involved in a cat attack and the weather conditions are appropriate it may be released. Ask finder to go during sunset to near suitable place (e.g. park, pond with old trees, riverside), put the open box in a place at least 1,5 m from ground and enfold the cloth partly over the top edge of box that the bat can crawl up and start from the fly up form edge of the box. Wait 30 minutes and watch the bat. The bat needs different time for warming its body for functional temperature. If the bat does not fly away within this time, take it back inside and conatct expert. Point out to take torch and gloves in case bat can not fly properly and land on ground.
- In case there is a colony in danger (e.g. felling tree, reconstruction of roost, insulation, invasions, etc.) appropriately large box or boxes should be used tha bats lay on the bottom in one layer. Providing water is not recommanded in huge amount of bats, because stressed bats often crawls and soak themselves. Ask finder to do photodocumentation of the case, especially the place, where the bats where found and take contacts if any person or company was enageged in discovery of colony or in unwanted damage of bat roost (e.g. disinfestation company, construction company, tree felling company). Priority for bat worker is to come as soon as possible.

Case study 2.*: Flowing chart of grounded bat (modified from BCT, UK



2.2. FAQ

Answer to the question are country-specific according to possibilities allowed by legislation and developement of bat or animal rescue centres, level of public interest and participation on nature protection, as well as type of problems concerning bats.

Here, we provide the "average" and possible answers to the most frequently questions which should be added with comments appropriate to the country or region.

Answers for questions are based mostly on Bat Conservation Trust (UK) experience where the bat rescue system is well developed.

Q: I have found a bat on a ground.

A: See chapter 2.1 and case study 2.1.

Q: My cat caught a bat, what o do?

A: Cats do not eat bats but they like to play with them. *If a bat has been caught by a cat it will need expert help and contact vet as soon as possible.* Even a tiny amount of cat saliva in a bat's bloodstream can cause infection and without help they are likely to die. Antibiotics are often administered under the correct supervision if there is a suspicion of a cat related injury and this practice has been found to increase survival rates. If the owner of cat is concerned about transmissions of possible infection from bat to cat, he should speak to their vet. In parts of Europe there are a two recorded cases of a virus EBLV-1, being transmitted by cats.

Advice should also be given on how the cat owner can stop bats being harmed especially if the cat is a repeat offender. Cats will often learn where a bat roost is and catch bats as they leave the roost, putting a whole colony at risk. Possible ways to reduce this risk is for the cat to be brought indoors half an hour before sunset and keep it in for an hour afterwards or all night when bats are most active (April – October). Mid-June to August is especially crucial as mothers will be raising their pups.

Q: What shall I do I have found an injured bat and there is no bat rescue person/organisation nearby?

A: If there are no carers nearby, provide the option of taking the bat to a local vet. Though the vet may not have great knowledge of bats, treating it as any small mammal may allow for a prognosis and further treatment if no one else is available.

When going through the vet advice:

- You could write the number of a bat rescue centre or carer on the box containing the bat, so the vet can seek further advice. If there is no-one available or it is out of hours, then the vet could look online for the BCT Bat Care Guidelines. Add link
- The finder should also make sure that the vet takes a note of where the bat was found and of their own contact details, so that the bat can be released when/if it recovers. Veterinary staff are supposed to record this information anyway, but often don't!
- We can email a copy of the BCT *Bat Care Guidelines* (also easily found on the web to download Add link), put them in touch with closest care contacts if possible, or potentially a bat carer who is happy to give advice remote by phone.

+ Q: It's winter I've found a bat

Legislation and then refer to subchapter 3.

Q: I have a bat roost in my house, what do I do?

A: Having a roost should not present any problems; many home-owners and tenants share their property with bats without being alerted to their presence. Bats are not rodents, and do not nibble or gnaw wood or wires, and will not generally cause any structural damage. They use existing spaces to roost, and will not bring in bedding material or food – they are clean and sociable animals which spend many hours grooming themselves. All bats in the UK are insectivores, and there are no known health risks associated with their droppings. If you need to carry out works or timber treatment, please see FAQ no xx.

Q: I have a bat roost in my house and I am planning maintenance or alterations. What should I do?

A: Bats and their roosts are protected by law whether occupied or not. It is illegal to damage, destroy or disturb any bats or roosts without having taken the necessary precautions. If you need to undertake any works that may affect your roost, it is recommended that you take the necessary precautions by seeking advice on how to do works lawfully. This advice can be provided by the relevant authority for your country. The earlier in the process the bats are taken into account, the less disruption there will be.

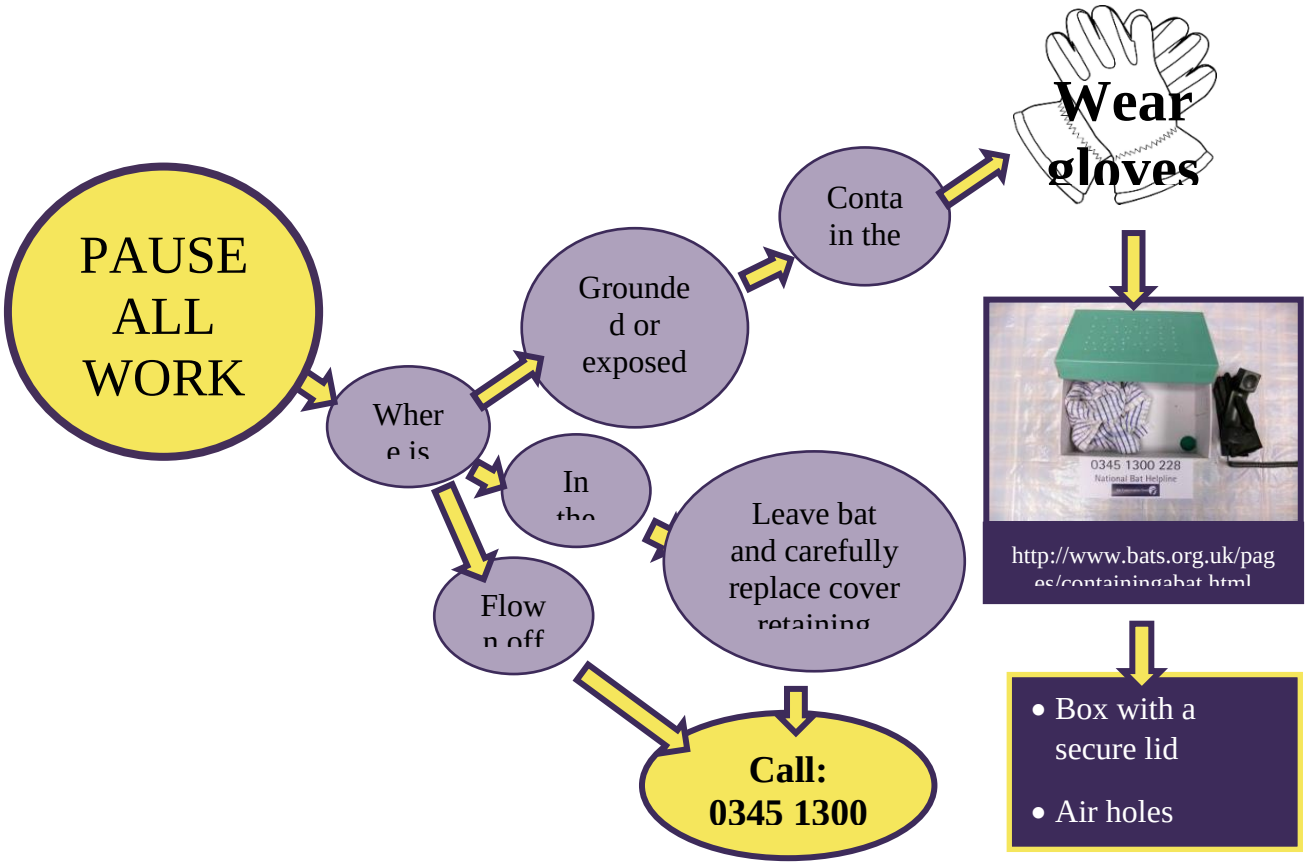
When works are planned where there is a roost, the work will need to be organised so that any risk of harming the bats or their roosts is avoided, for example, by timing operations to fit with the life-cycle of the bats. This is important not only to help protect these scarce species, but also because it will help you get the work done in the most efficient way possible within the constraints of these strict laws.

Natural England provides a free advice service for small scale repair works to dwelling places and churches where bats may be affected, and relies on the generosity of volunteers to be able to run this service. If the scale of the works is outside the remit of the volunteer service e.g. works requiring planning permission or a mitigation licence, it may be necessary to engage the services of an ecological consultant. The ecological consultant will carry out a survey and write a method statement on behalf of the person proposing the work. They will also help apply for a licence if this is necessary.

Q: What to do, if you find a bat or bat colony, during construction or timber treatment procedures?

A: If bats are discovered during work then the **work must stop immediately** until the relevant authority has been contacted and advice given.

Legislation dependent + Marnell and Presentnik 2010: Eurobats publication series no 4.



Q: How do I carry out tree works?

A: Bat populations have suffered significant declines across Europe over the past centry, and are therefore protected under the European Union's Habitats Directive in addition to country specific legislations. Bats and their roosts are protected by law meaning that it is illegal to damage, destroy or disturb bats or their roost sites. A roost is defined as any place that a wild bat uses for shelter or protection, and the roost is protected whether bats are present or not. It is the land owner's responsibility, in addition to those conducting the works, to ensure that protected species, such as bats, have been taken into account before any actions are conducted that could disturb those animals.

If you need to undertake works (pruning/felling/crowning etc.), you will need to consider if the tree has any features that could support bats. Please note that confirming the presence/absence of a roost may require assistance from a specialist with the necessary training and equipment for a full survey. If you are unsure about bat potential it is best to seek advice.

The presence of bats will not stop works, but means that advice needs to be sought on how they are to be done lawfully. If the presence of a bat roost is suspected you will typically need to seek the services of an experienced ecological consultant with knowledge of bats to conduct a survey; establishing any impacts the works are likely to have. The consultant should also be able to assist with any EPS licence application required.

If emergency situations arise where urgent tree works are necessary due to confirmed and overriding public health and safety, and the potential for bats is high or actively present, the relevant authority should be contacted for further advice.

If, after inspection the tree is deemed as low potential for a roost to be present (no potential roost sites visible on the tree), then work may proceed with care. As a precaution, and where possible, we recommend any works are conducted in September/October, to avoid maternity and hibernation seasons when bats are most vulnerable to disturbance. If the tree is to be felled then we recommend

soft felling, where tree limbs are cut and left grounded over night to allow any bats to make their way out.

Q: What to do if find a bat when felling trees?

A: As bats are protected, if you are undertaking tree works, the tree should already have been assessed for the presence/absence of bats (and relevant licences obtained if a roost is present). However, bat roosting sites can change depending on a variety of factors and therefore the presence of bats should never be ruled out completely.

If, in the unlikely event any bats or new evidence are discovered prior to work or whilst work is in progress, we advise pausing work and consulting the relevant authority immediately for further advice. This will help to avoid any harm to bats and offences being committed.

+

Q: I was bitten by bat what should I do?

A small number of bats in Europe have been found to carry a type of rabies. This virus is transmitted via a bite or scratch from an infected animal so the risk is very small and is removed if you do not handle the bat. Bats seldom show any aggression but they are wild animals and may be frightened or in pain. In situations where handling is necessary, i.e. if a grounded or injured bat needs to be contained, wear protective thick gloves or use a tea towel and handle the bat as little as possible. If despite precautions you are bitten or scratched by a bat or if a bite or scratch is suspected:

Wash the area bitten or scratched immediately with soap and water for at least five minutes. Additional cleansing of the area with an alcohol base or other disinfectant is also recommended.

Seek advice from your doctor as soon as possible. (For more detailed on rabies look chapter 3.5)

Other questions:

Q: A bat in a room, what to do?

Q: A bat colony lives in my house. I don't like them. May I move them?

****

+ **Making photo**

3. Basics for handling, transporting and keeping bats

Bat care and rehabilitation is dependent on national legislation, which vary in particular countries, standart of rescue centres, number of bat workers and availability of drugs, sanitary material and possibilities of accomodation needed for proper bat care (see tab X – chapter 1.5).

3.1 Transporting bats

Particular bats can be transported both by finder and bat worker. We strongly recommend to take gloves because of rabies risk in case of escape of bat from box or manipulation by bat worker during shift bat to own transport box. Bat can be transported by finder in box recommended during trapping bat (fig. *, chapter 2.1), but the cap with the water must be removed. For shorter distances is possible to use almost any types of box with small breathing holes and no slits or holes allowing bat to escape, with crumpled cloth inside providing roost for bat.

Colonies are often found during unexpected circumstances and their rescue needs prompt act. Hold generally as described above, and the most important is choose transport box/boxes big enough that bats lay on the bottom of the box maximally in one layer to prevent souring, if possible with crumpled cloth on the bottom. The cloth must not have free long sewings, tattered edges or holes because animals can tangle themselves. Avoid to put intead fo cloth e.g. tree bark in cases of tree felling or soft insulation material when bats are found during reconstruction.

During meeting with finder, bat worker should:

- Write down the contact of finder, place and circumstances of finding and if possible to fill down information included in the protocol agreed during 7th MOP (Annex 2)
- Decide, if situation require another solution and it is necessary to contact other organization (e.g. bat experts at universities, NGOs with experiences with building renovation, officials from National conservation agencies, local authorieties, media)
- Take photodocumentation, if neccessary
- Prior transport of bat remove the water from temporary finder box or put a bat to own transport box (fig. *)

Fig. *. Transport box for one or several few bats can be small, if time of transport is not too long to cause dehydratation or souring of bat.

3.2 Basics of handling with bat and colony

3.2.1 Individual bat or few bats – entry control

After transport of bat to the rescue center or private bat worker keeping it is necessary to decide the next fate of bat. The bat should be examined with gloves. We reccomend not to use grip for forearms of bats if not necessary, because it is for bat very stressful and in case of broken or twisted arm also very painful, as well as grip for tips of wings. Bat should be hold softly, but tightly by one hand and the second hand use for examination (fig. *).

Fig. *. Examination of wings in Nyctalus noctula.

Nutrition condition of a bat

In short-haired bats, such as noctules, the condition is visible at first glance, whereas in other species bat worker must touch the site between shoulder blades and neck, and loin region to check amount of fat.

- Well-fed condition – body has „tube shape“, no depressions in loin region, condition for hibernation; in room temperature bat warm itself from low body temperature to active body temperature till 15 minutes and behave normally
- Normal condition – in loin region are slight depressions; in room temperature bat warm itself from low body temperature to active body temperature till 15 minutes and behave normally
- Lean condition – in loin region, behind neck and between shoulders are apparent depressions; in room temperature bat warm itself from low body temperature to active body temperature till 15 minutes and behave normally
- Emaciated/dehydrated condition – in loin region, behind neck and between shoulders are apparent depressions; in room temperature bat is not able to warm itself in 15 minutes, lay on bottom of box

Parasites

Bats can suffer from plenty of parasites. Bigger of them can be removed manually by pincers from hairs or membrane; tiny mites can be removed by small dought roller from flour and water. Antiparasitic preparations (both internal and external) should be used only in bat in well-fed and normal condition.

Most common injuries are:

- Torn wing membranes – holes in wings usually recover and bat is able to fly after some time, in some case even large vertical cuts healed, but usually bat with split and torn membrane is unable to fly in the future. Bats could be ranked as potentionally unable to return back to the wild, but could live in captivity without special care
- Broken fingers – according to species and range of injury bats could be ranked as usually unable to return back to the wild, but could live in captivity without special care
- Broken one limb or one forearm – according to species and range of injury bats could be ranked as mostly unable to return back to the wild, but could live in captivity if healed, mostly with some special care. Often the limb, when open fracture is identified, must be amputated (consider euthanasia)

- Broken both forearms, limb or forearm and limb – bats could be ranked as both unable to return back to the wild and live in captivity without really special care (euthanasia recommended).
- Blood around anus together with inactivity of bat when was warmed up, supposed inner injury – euthanasia recommended.
- Traces of bites on the body, torn membrane, broken arms, inactivity – euthanasia recommended. Keep the body for rabies inspection

In injured and emaciated bats we recommed to place heating stone for geckos in the box. Treatment and surgery of bats can be found in special literature (see chapter 5).

In spring, summer and early autumn bats in normal condition and slightly injuried animals can be released in suitable environment according to current weather and weatherforcast (no rain, not windy, 5°C at night at least for three days). In the winter, when outside temperature often reach values below zero, hibernate bat with well-fed condition with no visible in suitable cellar in a box with cloths from not-moulded material to hang on and a shallow bowl with water and weekly controlled.

3.2.2. Bat colony– entry control

During renovation, felling trees or autumn/spring invasions could be found numerous colonies. Especially in discovery of colonies should be bat experts and scientists informed and ivolved because both data and material could be important for conservation and public health and contribute to knowledge of species. **In case of acceptance hundereds of bats and small capacity of bat workers, it is preferable to save as many bats in normal condition as possible and in bad-injured and emaciated bats rather choose euthanasia.** It is necessary to realize, that feeding one bat take minimally 5-10 minutes/person, so colony with only 100 animals it takes 8-16 hours. After transport is necessary to separate bats into several groups:

- Dead bats (if possible, keep for scietific purpose deeply frozen)
- Ill-wounded bats – broken legs, forearms, etc. (euthanasia recomennded)
- Emaciated and dehydrated bats (in heavy cases euthanasia recommended)
- Wounded bats – broken fingers, long rupture on wing membrane (consider inclusion to permanently disabled bat if possible or euthanasia recommended)
- Slightly injuried bats – little holes in wing membranes, abrasions
- If small babies are present, let them find and attach to the mother (in abandoned pups consider euthanasia or inclusion to permanently disabled bat)
- Bats in normal condition without visible injuries
- **Females and males should be kept in separated boxes**

In **spring, summer and early autumn** bats in normal condition and slightly injuried animals can be released in suitable environment according to current weather and weatherforcast (no rain, not windy, 5°C at night at least for three days), and try to keep and rehabilitate bats, which could return back into the wild.

In the **winter** is situation in many countries different, because it is a hibernation period and outside temperature often reach values below zero. Bats in normal condition with no visible injury should be as soon as possible hibernated in suitable cellar in a boxes with cloths from not-moulded material to hang on and a shallow bowl with water, and weekly controlled. Due to stress many of

bats do not fall into the winter sleep but actively swarm in the box with following exhaustion. These individuals should be taken back into the care. We do not recommend mixing sexes, because males often harrased sleeping females and mate with them. Never put into hibernation box bats with slight injury, because even small abrasions could be infected with bacteria and inactive hibernating bats do not care about themselves.

3.2.3 Euthanasia

Appropriate methods: two phase chlorophorm inhalation; ether in some cases
Not appropriate mothods: freezing, dissection of cervical vertebrae, injections, etc .

3.3. Basics for keeping bats

The final goal of bat rescue and rehabilitation should be return of bats back into the wild. In some cases bats do not fully recover and stay as permanent disabled individuals dependent on human care. For correct type of arrangement of box interier, food and vitamins requirements, bat species should be recognized. We recommed to keep both sexes separated not to mate (especially in late summer, autumn, winter and early spring).

3.3.1 Temporary care

Plastic fauna boxes are very easily to handle, keep clean, they are available in most pet-shops and they are made in several sizes. Plastic box for temporary care should have proportions at least 40x30x30 cm or similar for 2 active bats of noctule size. In very short care it is possible to add more individuals, bat not more than 10 altogether, because of risk of bite incidents among bats and souring. In injured bats the size of used box depend on vet recommendation, and it is usually smaller. Both sexes should be kept separately. At least two walls of the box should be provided by a soft net with small mesh (1mm) , partly covered with cloth, which enables bats to use safe roost of fissure type. Bedding should not be dusty or toxic, there is good experience with some types of bedding for cats for health bats. In case of injured bats should be used easily changeable soft paper towels. Heating stones or pads placed verically in the box help injured or emaciated bats to recover. Water in shallow bowl (e.g. 1cm height) should be always present, and bowl(s) with food (e.g. live mealworms larvae) according to situation. (Fig. *).

Fig. *. Large plastic box can be used for temporary care. It is easy to handle and kept clean. Heating stone for geckos leans against the wall. From the outside is attached to the wall a plastic envelope, where information about species, care and state of bats can be stored (i will take new photo).

Basic food is reperesented by healthy mealworms (larvae only!!!) fed by various types of food (cereals, fruit, vegetable, non-toxic leaves, vitamine mixture, etc.), soluble vitamines could be added to the water. Some species lives quite well on this diet (pipistrelles, noctules, vespertilio, serotine), in some species it is neccessary to add crickets, beetles, wax-moth larvae, etc.

Species mostly accepted to the rescue centers are ***aerial insectivors*** and they are used to seek their food in the air, so it depends on species and adaptability of each individual, when it learns to look food in the bowl. At the beginnig it is usually neccesary to feed them by hand.

Before feeding, bats must be warmed up to their normal body temperature. The bat should be held in the hand with gloves softly, but tigtly, wrapped by fingers, or soft towel can be used instead a hard gloves. The feeding room should be quiet and not with sharp light. Water should be provided during the first feeding by syringe, when bat is licking the tip of it (not allow the water to spirth

forth). Mealworms should be killed and decapitated, that the bat can lick its guts, until the bat is eager to eat them. It is better to offer melaworms by pincers from below, because bat learns to seek food on the ground. It can speed up the process of feeding from the bowl (fig. *) . When mealworms are too small and bat worker has many bats to feed, it is possible to use hand blender to make smooth mealworm mash with addition of little amount of water and feed bats by syringe. Bats in normal condition should be fed once a day during evening.

Fig. *. Bat can be held during feeding in a glove or in a towel to prevent bite incidents. If the grip is tight, but soft, many bats stay calm and cooperate. (new photo, hand should not be without glove)

In emaciated bats it is important to recognized the current state. At the beginning it is better to provide Ringer solution and Glucose (G5) by infusions, or per mouth slightly sweet solution of glucose and water. If the bat reacts normally, and actively wants water, it is possible to feed him afterwards, but preferably only by guts and only by some few mealworms. Another feeding and providing water with glucose should be done after several hours. Following days the amount of mealworms should be gradually increased according the state of the bat.

Non-volant juveniles are often found during summer. Bare and blind juveniles should be fed several times a day by pup milk formula for cats or dogs and gradually during following days add guts of mealworms and later mixed whole mealworms. Heating pads or stones should be placed in the box. If it is possible to make a group of juveniles or add a juvenile to its own species, they seem to face up the orphanhood much better. If there are not conditions in a rescue center to prepare orphaned bats to return back into the wild, it is recommended not to release them. Care of non-volant juveniles is time-consuming and not always succesfull. If there are not conditions to provide proper car, consider euthanasia.

Hibernation in winter is possible only for health bats without any visible injury. In the box should not be any material, which could mould, but provide water in a shallow dish. Noctules, pipistrelles, parti-coloured bats and serotines tolerate relatively dry air in a cellar with relatively stable temperature – if the cellar is good for storage of potatoes and apples, it is suitable for these species. Never mix sexes in hibernation boxes. During hibernation, when activity is very low, plastic box 40x30x30 cm is sufficient for 10 bats of size of noctule bat. During hibernation bats should be controlled. After awaking in spring, some bats are able to be released the same day, some must be fed for several days to reach correct condicition.

Bat mating season lasts during the autumn, but they can mate also during winter and probably also during early spring. Injured females accepted to the centres can be fertilized or pregnant and can give birth in captivity. Fate of juveniles depends on circumstances (e.g. group of juveniles and

adult bats of the same species, outer bat aviary, mother care of baby), but hand-raised pups should not be released. Also, preterm pregnancy could occur in females, which were not hibernated due different reasons and centres should be get ready for this.

More information about bat care can be found in special literature (see chapter 5)

3.3.2 Keeping permanent disabled bats

Permanent disabled bats could be used in environemental education programs. They should have much bigger boxes (e.g. modified wardrobe) with several roosting possibilities, clothes, curtains, etc., with access to water and food (fig. *). If they are capable of gliding flight, the box should have proportions to enable at least short gliding flights. Also it is recommended to make a couple of the same sex or a small colony in pipistrelles, noctules, vespertilio, because in these species even males make one-sex groups and are very social. It is not necessary to be the same species, but it should be rather similar sized species. Long-term care of bats, housing, food and vitamine requirements, possible diseases, etc. can be found in special literature (see chapter 5).

Fig. *. Example of interior design for permanent disabled bats, which do not need special care

3.4 Relase into the wild

Care of bats is time consuming activity, and thus it is important to consider well all circumstances of succesfull release. Flight ability should be always confirmed, because there are some hidden injuries, which do not allow bat to fully control his wings. The bats should be released on the place of finding and if it is not possible or suitable, than on the biotope prefered by particular species, after sunset. River or water body with older trees on the place of release are favourable for many species. The weatherforcast should be kind at least three days (not windy, no rain, at least 5°C in night). The open transport box should be placed at least 1,5 m from ground and cloth or mesh partly enfolded over the top the edge of box, that the bat can crawl up and take off from the top edge of the box. The bat needs different time for warming its body for functional temperature, so it is necessary wait about 15-30 minutes and watch the bat. Some bats warmed themselves during transport and they fly up immediately, but some can be still in torpor. If the bat does not fly away within this time, it should be checked for inconspicuous injuries. Gloves and powerful torch should be in basic equipement.

Release of colony in favourable conditions is possible to use for public education and medialization.

3.5. Health risks for bat rehabilitators

***

3.5.1. Bat rabies

Rabies is an infectious disease caused by the classical rabies virus and related viruses. These viruses belong to the family of the Rhabdoviruses and to the genus Lyssavirus. So far, 13 genotypes of Lyssavirus has been found in bat species, of which 5 in European bat species.

Genotype 1 includes the classical rabies virus that can occur almost globally in terrestrial mammals, such as foxes and dogs, but is also regularly found in bats on the American continents and surrounding island.

European Bat Lyssavirus-1 (EBLV-1 is, so far, only found in the Serotine Bat, *Eptesicus serotinus.*

European Bat Lyssa Virus-2 (EBLV-2) is found in Daubenton's Bat, *Myotis daubentonii* and in the Pond Bat, *Myotis dasycneme.*

Bokeloh Bat Lysavirus (BBLV) has been found, so far, in 3 cases in Natterer's Bat, *Myotis natereri* in respectively Germany and France.

West Caucasian Bat Virus (WCBV) has been found in South-eastern Europa in the genus *Miniopterus.*

Lleida Bat Lysavirus (LLEBV) has been found in Schreiber's Bent-winged Bat, *Miniopterus schreibersii,* in Spain.

+ Kotalahti bat lyssavirus

The transfer of rabies infection can take place by a bite, but also by contact with saliva or urine of infected animals through mucous membranes or open injuries of the skin. The rabies virus is mainly found in the saliva. Infected saliva can also be transferred on the animal's fur during grooming. After the death of an infected animal, the virus can remain alive for a period of about two weeks at a normal temperature and even many years at freezing temperatures. After an infection, the virus moves subcutaneously through the nervous system at a rate of 3-4 mm per hour to the central nervous system. There, multiplication of the virus takes place in the neurons. From the central nervous system the virus spreads through the nervous system further into the body.

The incubation period varies and depends on the distance between the place where the infection occurred and the central nervous system. The concentration of the inserted virus particles can also play a role in this. The virus is not spread through the blood circulation.

People infected by rabies virus show first some flu-like symptoms that hold for two to four days. Afterwards, the affected nerves feel painful and a distinct fear of swallowing is felt by painful cramps of the swallowing muscles. Subsequently, paralysis of the respiratory muscles occur, and death will usually follow shortly thereafter. There are no tests that can show or exclude an infection with rabies virus at an early stage before the symptoms of rabies are shown.

Bats infected with rabies virus do not show aggressive offensive behaviour. Rabies virus affects the central nervous system. As a result, paralysis symptoms occur and the emitting and receiving of echolocation does not function properly. In the first phase when the disease manifests itself, the animals show by the paralysis an uncoordinated flight behaviour and can thus fly against objects or sometimes also against humans. This is sometimes misinterpreted as an attacking behaviour. Animals can already be contagious before they already show signs of the disease.

In the next phase the animals can no longer fly and are then sometimes found on the ground, so that they can be easily caught by cats and people. When irritated by high sounds, the animals often show long loud screams. This does, however, not necessarily indicates rabies. The Parti-coloured Bat, *Vespertilio murinus,* shows approximately the same persistent screaming behaviour in case

of disturbance during hibernation or lethargy. Also, persisting bite behaviour (Pitbull-terrier-bite behaviour) in an object is a phenomenon that can occur at this stage. After the animals have become completely paralyzed, they die shortly thereafter. However, most of the bats that are found to be depleted or apparently ill are not infected with rabies virus.

Since 1977, five people in Europe have died from bat rabies, two children in the former Soviet Union, a bat researcher in Finland, and an amateur bat conservationist in Scotland. The genotype of the rabies virus from which the first child passed away. The second child was infected with EBLV-1 and the other two fatal cases with EBLV-2. There may also be a fifth case in the Ukraine, but it is not known about the genotype of the virus and the bat species that had inflicted a bite. This number of deaths is remarkably low when realized that many amateur bat workers, students and professional scientists have been dealing with a study of Serotine Bats or other bat species and have often worked with unprotected hands, with regular bite contacts, while these individuals were not vaccinated against rabies. In addition, many others will have been in direct contact with bats and have also suffered from bites, without being vaccinated preventively or curative.

It seems that people are likely to be significantly less susceptible to an infection with one of the EBL-viruses than for an infection with the classical rabies virus. But there is also evidence that the concentrations of EBL-viruses in the salivary glands of infected bats are relatively low, so that at a bite only relatively few virus particles are transferred. Nevertheless, any unnecessary direct contact with bats will have to be avoided. When handling bats, and certainly live and dead Serotine Bats, it is advisable not to handle these with unprotected hands.

Bats, which have inflicted a bite or which otherwise have had direct contact with damaged skin (hands) or mucous membranes and which are still available, should be examined for rabies as soon as possible. Dead bats with direct contact with men or pets should also be made available for rabies testing as soon as possible. A live bat that has caused a bite case should be offered to for euthanasia and should be submitted for rabies examination.

Pets who have been in direct contact with bats should be vaccinated against rabies for safety as soon as possible by a veterinarian. However, most contact cases between bats and pets are not observed and there is usually no vaccination in these animals. A natural transfer of bat rabies to dogs and cats has not yet been demonstrated, although a cat in France showed contamination with EBLV. This can be an indication that dogs and cats and possibly other terrestrial mammals are also not very susceptible to an infection with one of the EBL-viruses.

Cats are also significantly more in direct contact with bats than dogs. Only at a fraction of the cats who have been in contact with (rabid) bats is observed that this contact has taken place.

There is no public health reason to exclude colonies of Serotine Bats or other bats species from roosts such as cavity walls, to prevent the transfer of rabies to humans and pets. In the first place, the bats present do not have to be carriers of rabies, and when eamination shows that infected animals have probably been present in a colony with rabies virus, it is probably better not to take measures. In colonies where rabies infected bats have been found, most of the animals, including the young, are simply surviving. Most likely, the immune system of these animals builds sufficient resistance to rabies, so that such a colony is free of rabies for a long time and therefore does not constitute a nidus of any possible contamination.

Medical treatment

People who may come into contact with bats because of their work should take the necessary precautions. Direct body contact with bats should be avoided as much as possible. Although there is very little chance of being infected with bat rabies virus, preventive vaccination against rabies is highly recommended in a number of cases. If necessary, vaccination may be carried out in consultation with a family or company doctor or with an area health authority.

If a bat has been bitten or has had direct hand contact, the following actions should be carried out as soon as possible:

• Wash the bite spot /or hands well with water and soap in running water for 10 minutes

• Disinfect the bite spot and/or hands with alcohol 70% and if not available with ordinary household methylated spirit or betadine iodine 10%

• Contact immediately the family or company doctor or with an area health authority.

The administering of rabies vaccinations is done on the basis of schemes recommended by the World Health Organisation (WHO). A distinction is made between preventive and treating or curative (post-exposition) vaccinations.

In the case of preventive vaccination, on days 0, 7 and 21 (day 21 may also be day 28) each time 1 ml rabies vaccine is injected into one of the upper arm muscles. Thereafter, in principle, an injection (booster vaccination) of 1 ml of vaccine can suffice every two years. A revaccination can be delayed for an extended period of time when a titre of antibody in the blood reveals that there is still sufficient immunity to rabies. Excessive vaccination can lead to side effects. Should a bite of a rabid bat occurred within two years of vaccination, a post-exposition vaccination will be advised on days 0 and 3, unless the titre is $\geq$ 1.0 IU/ml. This scheme can also be held when the last vaccination occurred between 2 and 10 years ago and the vaccination commences within 24 hours of the bite of a rabid bat.

Anyone who has been bitten by a rabid bat or has had any other direct contact with that animal, or has had such contact with a bat that could not be examined for rabies, and has not previously been vaccinated against rabies, needs a more extensive post-exposition vaccination on days 0, 3, 7, 14, 30 and 90, each with 1 ml of vaccine. When this post exposure vaccination commences within 5 days of contact with a bat, usually, certainly with a serious injury, also human anti-rabies immunoglobulins (HARIG) should be administered when the vaccination on day 0 take place. The dose of HARIG to be administered depends on the body weight of the person concerned.

Rabies vaccine is not cheap and HARIG is even very costly. It is, therefore, very important to let examine a rabies suspected bat, which caused a bit contact, as quickly as possible, so that the treatment can be stopped in case of a negative rabies test. People who, in connection with their work, are likely to come into contact with bats in several occasions, could be considered to be on the schedule of preventive vaccination in such a case.

Persons, who can regularly come into contact with wild animals and therefore can incur injuries by bites or scratch, are advised to also be vaccinated against tetanus. An infection with the tetanus bacterium, *Clostridium tetani,* can have a very serious course and can lead to death. The procedure for preventive vaccination and the post-exposition treatment against tetanus is not discussed here. After a preventive vaccination, a revaccination (booster vaccination) is usually only necessary after 10 years. The symptoms of tetanus are untreatable. (by P. Lina)

3.5.2. Allergy to bat fodder

Some people can develop allergic reaction to fodder for bats in captivity (*Tenebrio molitor*, *Zophobas morio*), specificallly to insects' frass and scales. The symptoms include allergic conjunctivitis, rhinitis, eczema, asthmic problems and in serious cases also anaphylactic shock. It is recomended to keep mealworms outside living space; the type feeding can also reduce amount of microscopic fragments, which are airborne (e.g. oat flakes instead of bread or meal products).

4. Bat rescue and rehabilitation for bat research, conservation and public education

In the rescue centers are yearly accepted thousands of bats of differents species and thus represent a huge store of data. If there is no connection between rescue centers and bat specialists in the country, information about bat species occurence, disease (e.g.rabies), roost biology and related

conservation problems (e.g loss of roost or damage of colony by renovation, insulation, felling old trees) are lost. Often it is very hard to establish cooperation between centres and NGOs or individual bat workers and sometimes it is even impossible. Rescue organization can keep no evidence of findings or they can have own databases, which are not willing to share. Even if they are willing to share their database, if they have no bat expert at the center, identification of species is however often uncorrect (e.g. all small bat species including small Myotis and Hypsugo assigned to genus Pipistrellus, etc.). If the cooperation is possible even in small steps, both conservation organizations or universities and rescue centers can profit (e.g collective grants, collective public events, medialization which can attract donators, etc.).

Cooperation with rescued centers with shared database, where bats are identified by bat expert, can be migthy tool in especially in countries with few bat specialists, and can be used as method for: bat monitoring, bat conservation, bat biology studyings, parasitological, virological reserch, and for public education. Not survived animals are the sourch for the replenishment of museum collections.

4.. Source of new faunistic data*

Case study 1.*: Ukraine: Contact-centres and new descoveries

4.. Bat monitoring*

Every year huge amount of reliable data can be evaluated; evalutaion of IUCN status and EU states conservation status,

4.. Bat conservation*

– protection of particular bat roosts and huge bat colonies, prompt act during reconstruction or felling trees, etc.,

4.. Bat biology studyings*

– roosting preferences, migration behaviour, seasonal pattern of occurence, strucure of hibernating or invasive colonies, etc.,

4.. Bat histopatalogy and parasitology*

– dead bats or bats with suspicious behaviour are valuable material for epidemiology research (e.g rabies) or can be used as bioindicators by chemical analysis (e.g. traces of lead, insecticide), etc.,

4.. Zoonotic deseases*

Case study 1.*: the Netherlands: rehabilitation centres and bat rabies surveillance

****

4.. Public education*

– if the legislation of country permits, disabled bats kept in rescue centers and acumstomed to handling and petting can be used at public events as well as for education training for officials, insulation companies or forestry staff.

Holding annual **International Bat Nights** is good possibility for establishment the cooperation between bat workers and rescue centres. Captive disabled bats represent an important educational tool for their wild counterparts. Only bats that cannot be released back into the wild should be considered for education and the possible use is restricted to natural temperament, species of bat and actual condition. One of the most popular, social and generally easily tamed species is noctule bat. On the other hand, species that are considered high disease risks (such as Daubenton's bats, serotines, pipistrelles) should not be used widely for public engagement events. To reduce the risk of transmission of zoonotic disease any bat to be used for education must be kept isolated from other bats for at least six months. This isolation period is essential to ensure the health and safety of the bat, the handler and the general public.When using a bat for education the following should always be considered:

- where handled, bats should always be shown in gloved hands,
- the general public should not be allowed to handle the bats,
- showing of a bat in the hand should only constitute few minutes of a talk, the bats have to be used for handling and stay calm during manipulation
- the welfare of the bat should always be a priority, and sufficient food and water provided to the bat as required.
- until the bat is needed, it should be kept out of sight and in a secure box where it is comfortable and its welfare needs are met, and covered so that the bat does not undergo any additional stress.

Caution on species used in demonstrations. There is information that representatives of some species are critically stressed because of touching (e. g. *Plecotus auritus*). Such species should not be used for contact demonstation. The most appropriate species (of European fauna) seems to be Nyctalus noctula. It 's comparatively big and stands well touching and stroking.

Case study 4.*. Serbia: bats use for public education

Non-releasable bats and bats in rehabilitation are being used for bat popularization and education of general public. Most commonly we have *Nyctalus noctula* and *Pipistrellus kuhlii*. Those animals are being shown to people during International bat night events. Occassionally we organize lectures in schools and kindergartens, where kids can see and touch them. Few times we organized "feeding" events where children came with their parents, and assisted during feeding sessions. Also, few times we were releasing bats in front of the "audience" – for example, once a girl rescued a grounded bat that she found in the school yard. After one week of rehabilitation, animal was ready to be released back to the nature. That girl came together with her parents and school friends to watch that bat being released and flying away.

4.. Destination of dead bats*

Dead bats should never be thrown away because they still can be used for many scientific purposes. Non well documented bats can be used for educational purposes. Private collections have hardly any scientific value and are usually not accessible to researchers, so that in fact research material is lost.

The purpose of reseacrh on a dead animal determines how it should be kept for the time being. It is important that the information about an animal, such as the finding location and date and its conditions, are recorded as accurately as possible and attached with a label to the animal. Animals of which material should be used for toxicological research (e.g. pesticides), DNA analyses, rabies research, or other disease tests should be kept at-10 to-20 °C. In any case, they should not be kept in alcohol, formalin or other preservatives.

In order to prevent the drying out of the animals in a freezer, small bats, like the Common Pipistrelle Bat, can be stored in, for example, a small plastic or glass medicine jar.

Larger animals can, for example, be kept in larger glass or plastic medicine jars or in a plastic food box. Dead animals can also be wrapped in aluminium foil. For some research, the animals should be delivered deep-frozen.

Consult the concernd researcher how this can be achieved. Animals for toxicological research should be sent to a research institute as soon as possible, as some substances can quickly disappear from a dead animal. Dead animals for scientific museum collections or for research on endoparasites can be stored frozen or in alcohol (preferably ethanol) 70-96%. In case ethanol is not availble, household methylated spirits can also be used.

Preserve the animals never in formalin. Make with a scalpel or a pointed scissors a small, long cut of about 5 mm in the abdominal skin, so that the preservation fluid can penetrate the inner side of the bat as well. When more animals are kept together, each animal should be labeled with the requirede data, so that exchange of such data cannot take place. The data can best be written with a pencil, Indian ink or any other alcohol proof ink on the label which can then be attached with a thin string or cotton thread to one of the hind legs of the bat.

As said before, dead bats of which no proper finding data are known, can be used for educational purposes. Of dead bats which have already been dissolved, the skeleton material can still be used for a scientific museum collection.

Dead bats should be mailed in a sturdy box and not in an envelope, even not in a blister envelope. Animals that are not treated with a preservative are first wrapped in a plastic bag and then wrapped with paper. Never send dead animals just before a weekend or before general public holidays. Send dead animals per priority mail. Both the post(wo)man and the recipient will not appreciate stinky parcels. Dead bats can, of course, also be delivered at the visiting address of the concerning research institutes. (by P. Lina)

Case study 4.*: Czech republic – colony in gas-heaters: cooperation between NGOs Nyctalus, Czech Bat Conservation trust and media

In old estate in Prague many households use gas-heaters. The vents of gas-heaters are covered by various types of metal equipement, which should protect invasion of birds and light waste. Bat rehabilitators were called by neighbour, because owner did not care about bats, and he used gas heater even when bats were present. After strong reproof, he let dismantle the gas heater, and took out 24 dead and dying burned bats and 13 alive bats. We asked other neighbours and discovered that this roost was traditionally inhabited during autumn migration and also during hibernation. The case was medialized, and thus other new cases of bats in gas-heaters were reported including regular occurence of colonies (Zieglerová et al. 2016). This case was also assigned to Czech Bat

Conservation Trust, which suggest and realized acceptable solution of this problem, and to Czech Inspection of Environment.

Fig. *. Noctules squeeze through horizontal fissures in metal protection and invade to gas heater and according the type they can be imprisoned here. Distress calls of bats often lure other bats. Once the heating season starts, bats are burned alive.

Box case study 4.*. zpracovat výsledky těch grafů, co jsem měla v tom boxu; info bats in Prague, Hsav, trendy, aj.

Box case study 4.*
Education – programy pro děti a pro ostatní s captive bats. Česon a Nyctalus.
Dan Horáček!!! (IBN) ČESON
nyctalus (akce o netopýrech s handicapy; bez hednikepů o netopýrech v průběhu let)

5. List of manuals and guidelines on bat rescue and rehabilitation

Based on answers to questionnaires (2015). Should be recirculated and, possibly, updated.

5.1. General

Barnard, S. M. Bats in captivity. Vol. 1. Biological and Medical Aspects. Logos Press, 2009.
Barnard, S. M. Bats in Captivity–Volume 2: Aspects of Rehabilitation. 2010.
Barnard, S. M. (ed.). Bats in Captivity–Volume 3: Diet and Feeding-Environment and Housing. Logos Press, 2011.
Barnard, S. M. Bats in Captivity, Volume 4: Legislation and Public Education. ***.
Lollar, A., & French, B. A. S. (1998). Captive care and medical reference for the rehabilitation of insectivorous bats. Bat Conservation Intl.

5.2. Regional

Country	Language	References
Czech Republic	Czech	Jahelková, H., Hájková, P., Bláhová, A. 2009. Péče o netopýry: Metodika péče o nalezené, zraněné a hendikepované netopýry, č.21. Český svaz ochránců přírody, MŽP.
France	French	There is only one guideline published in France it‘s only restricted to a few people. See the Natury History Museum from Bourges.
Italy	Italian	Dondini G. & Vergari S. (1998). Manuale per la conservazione dei pipistrelli. Mem.Museo, Riserva Nat. Or. Onferno, 1: 1-52 pp. Linee guida per il primo soccorso. PDF by GIRC on www. pipistrelli.org
the UK	English	Bat Care Guidelines and 2013 Update, BCT http://www.bats.org.uk/pages/batcare.html Bat Rescue Manual Maggie and Bryan Brown 2006. Available from the West Yorkshire Bat Hospital Bat Care News, a newsletter published quarterly (mostly) by Maggie Brown, includes new advice and information for bat carers.
Ukraine	Ukrainian, Russian	A general description of the scheme used in Ukraine for rescue of bats in winter may be read at the web-site of Ukrainian Centre of Bat Protection: L. Godlevska. How bats are rescued in winter. 2014. – http://kazhan.org.ua/ukr/library/rehab.htm (in Ukrainian); http://kazhan.org.ua/rus/library/rehab.htm (in Russian).

6. List of national bat rescue and rehabilitation centres

Based on answers to questionnaires (2015). Should be recirculated and, possibly, updated (2018 eurobats and ask all if agree to be here).

Country	Name	City	Organization	Contacts
Bulgaria	Elena Stoeva	Stara Zagora	Green Balkans	etilova@greenbalkans.org
	Antonia Hubancheva	Sofia	BRCC/NMNHS	a.hubancheva@yahoo.com
	Violeta Zhelyazkova	Sofia	BRCC/NMNHS	violet_jl@abv.bg
Czech republic	Helena Jahelková	Prague	Nyctalus	helena.jahelkova@seznam.cz
	Dagmar Zieglerová	Prague	Nyctalus	nyctalus@email.cz
France	Laurent Arthur		Muséum d'histoire naturelle de Bourges	Laurent.arthur@ville-bourges.fr
Hungary	Zoltán Molnár	Budapest	Budapest Zoo	molnar@zoobudapest.com
	Noémi Papp	Budapest	Budapest Zoo	tel: 36 20 3607253
Ireland	Dan Donoher	Kildare	Kildare Animal Foundation	kafwildlife@gmail.com
Italy	Alessandra Tomassini	Rome	Ass Tutela Pipistrelli	Alessandra.tomassini@libero.it
	Gianna Dondini	Pistoia		gianna.dondini@tin.it
	Maria Tiziana Serangeli	Rome		mt.serangeli@alice.it
	Claudia Chini	Pisa	WWF Pisa	hypsugo@gmail.com
	Paola Zintu	Pisa	WWF Pisa	paola_italia@hotmail.com
Luxembourg	Le Centre de Soins pour la faune sauvage	Dudelange	Natur&ëmwelt	info@centredesoins.lu
Montenegro	Marina Djurović		Public enterprice for the National parks of Montenegro	marinadjurovic@nparkovi.me
	Ceda Ivanovic		Natural History Museum of Montenegro	
Norway	Jeroen van der Kooij	Oslo	Norwegian Zoological Society	jevader@online.no
	Keith Redford	Oslo	Norwegian Zoological Society	

Country	Name	City	Organization	Contacts
	Anke Kirkeby	Oslo	Norwegian Zoological Society	
	Magne Flåten	Tønsberg	Norwegian Zoological Society	
	Per Inge Værnesbranden	Trondheim	Norwegian Zoological Society	
Portugal - Mainland	Luisa Rodrigues	Lisboa	ICNF	luisa.rodrigues@icnf.pt
	Ana Rainho	Lisboa	ICNF	Ana.Rainho@icnf.pt
	Pedro Alves	Pombal	Plecotus	pjalves@plecotus.com
	Sílvia Barreiro	Santarém	Plecotus	sbarreiro@plecotus.com
	Gabriel Mendes	Sintra	AES	gabriel.mendes@sapo.pt
Portugal - Madeira	Sérgio Teixeira	Funchal	Madeira Fauna & Flora and Eurobats advisor	sergionictal@gmail.com
Romania	Romanian Bat Protection Association	Satu Mare	Romanian Bat Protection Association	office@aplr.ro
Russia	Eugenia Kozhurina	Moscow	Severtsov Institute of Ecology and Evolution	kefa@orc.ru
Serbia	Branko Karapandža	Belgrade	WCS Mustela	branko.karapandza@gmail.com
	Ivana Budinski	Belgrade	WCS Mustela	barbastella87@gmail.com
	Milan Paunović	Belgrade	NH Museum / WCS Mustela	milan.paunovic@nhmbeo.rs
	Jelena Jovanović	Belgrade	NH Museum	jelenajjovanovic@gmail.com
Slovakia	Martin Ceľuch	Bardejov	Slovak Bat Conservation Society	Info@netopiere.sk
	Denisa Lobbová	Nitra	Slovak Bat Conservation Society	Info@netopiere.sk
	Blanka Lehotská Roman Lehotský	Bratislava	ZO SZOPK Miniopterus	zachranka@miniopterus.sk
	Tibor Schneider	Ratnovce	Spoločnosť na záchranu zranených a osirelých voľne žijúcich zvierat	spolocnost.havran@gmail.com
	Zuzana Mihálovová	Bojnice	Rehabilitation stations ZOO Bojnice	z.mihalovova@zoobojnice.sk

Country	Name	City	Organization	Contacts
	Mária Apfelová	Martin	State Nature Conservancy of SR, Velka Fatra NP Administration	maria.apfelova@sopsr.sk
Slovakia	Marcel Uhrin	Košice	Faculty of Natural Sciences, Pavol Jozef Šafárik University in Košice	marcel.uhrin@upjs.sk
Slovenia	Zlatko Golob	responsible for whole Slovenia	Golob d.o.o., Zatočišče za živali prosto živečih vrst	golob.doo@gmail.com
	Rožle Kaučič	SW Štajerska region & Central Slovenia	SDPVN	rozle.kaucic@gmail.com
	Tea Knapič	Central Slovenia region	SDPVN	tea.knapic@gmail.com
	Jana Mlakar	Central Slovenia region	SDPVN	jana.mlakar@gmail.com
	Alenka Petrinjak	Gorenjska region	SDPVN	alenka.petrinjak@gmail.com
	Monika Podgorelec	NE Štajerska region, Pomurje & Central Slovenia region	SDPVN	monika.podgorelec@gmail.com
	Simon Zidar	Central Slovenia region	SDPVN	simon.zidar@gmail.com
	Maja Zagmajster	Central Slovenia region	SDPVN	Maja.Zagmajster@bf.uni-lj.si
Switzerland	Hans-Peter B. Stutz		Bat Conservation Switzerland	hans-peter.stutz@zoo.ch
UK /England	Maggie Brown	West Yorkshie	West Yorkshire Bat Hospital	batcarenews@phonecoop.coop
	Jan Ragg	Essex	Essex Bat Group	jan.ragg.t21@btinternet.com
	Gail Armstrong	Lancashire	North Lancashire Bat Group	gail@batlady.co.uk

Country	Name	City	Organization	Contacts
	Jenny Clark	Sussex	Sussex Bat Group	Phone best, 01342 823 189
Ukraine	Lena Godlevska	Kiev	Schmalhausen Institute of Zoology	lgodlevska@gmail.com
	Alona Prylutska	Kharkiv	Bat Rehabilitation Center Feldman Ecopark	alenagukasova@gukasov.net

Acknowledgements

We thank all experts filled the questionnaire: Albania: Philippe Théou, Ferdinand Bego; Belarus: Aliaksei Shpak; Belgium: Nico Verwimp; Bosnia & Herzegowina: Jasminko Mulaomerovic; Bulgaria: Boyan Petrov; Estonia: Triinu Tõrv; Croatia: Zrinka Domazetović, Daniela Hamidović; Cyprus: Elena Erotokritou; Czech Republic: Helena Jahelková; France: Laurent Arthur; Georgia: Ioseb Natradze; Hungary: Zoltán Bihari; Ireland: Ferdia Marnell; Italy: Danilo Russo in cooperation with G. Dondini, M.T. Serangeli, A. Tomassini; Latvia: Gunārs Pētersons; Luxembourg: Edmée Engel; Macedonia: Nikola Micevski, Aleksandar Nastov; Montenegro: Marina Djurović; the Netherlands: Peter H.C. Lina; Norway: Jeroen van der Kooij, Per Ole Syvertsen, Øystein Størkersen Poland: Monika Lesz; Portugal: Emanuel Veríssimo, Carla Silva, Sérgio Teixeira, Luísa Rodrigues; Republic of Moldova: Andrei Ursache; Russia: Suren Gazaryan; Romania: Abigel Szodoray-Paradi; San Marino: Dino Scaravelli; Serbia: Branko Karapandža; Slovakia: Denisa Lobbová, Blanka Lehotská, Roman Lehotský, Ján Kadlečík, Andrea Lešová; Slovenia: Primož Presetnik; Switzerland: Hans-Peter B. Stutz; Ukraine: Lena Godlevska, Alona Prylutska; the United Kingdom Jess Barker, Maggie Brown.

***

Literature

A. Summarizing descriptions of bat rehabilitation approaches in different countries

Bulgaria

Translation HJ, probably also comm of Bulg people (elena stoeva info)

Czech Republic

Jahelková, H., Hájková, P., Bláhová, A. 2009. Péče o netopýry: metodika péče o nalezené, zraněné a hendikepované netopýry, Český svaz ochránců přírody, 111 pp. http://www.ceson.org/document/metodikapeceonetopyry.pdf

Norway

van der Kooij, J. 2007. Norsk Zoologisk Forenings flaggermusmottak – fem år har gått [The Norwegian Zoological Society's bat care centre – five years of practise] - Fauna, Oslo 60 (3-4): 183-189 (in Norwegian, English figure texts and English summary).

van der Kooij, J. 2010. Bat Care. What are the benefits? - Powerpoint presentation at the Pre-Symposium Bat Care Workshop at the 2nd International Berlin Bat Meeting.

van der Kooij, J. & Gebhard J. 2010. A practical approach to the successful release of hand-reared bats. - Powerpoint presentation at the Pre-Symposium Bat Care Workshop at the 2nd International Berlin Bat Meeting.

van der Kooij, J. 2013. Fledermauspflege Norwegen – Wie und wieso? - Powerpoint presentation at the Pre-Symposium Bat Care Workshop at the 3rd International Berlin Bat Meeting.

van der Kooij, J. Bat Care in Norway – 12 years of practise. In prep.

[The Norwegian Zoological Society's bat care centre – five years of practice] - Fauna, Oslo 60 (3-4): 183 -189 (in Norwegian, English figure texts and English summary).

Slovenia

General reports summing together work of SDPVN members:

Podgorelec, M., (in press). Odziv na klice javnosti v zvezi z netopirji (2012, 2013). Glej, netopir! Ljubljana 10(1): xxx - Podgorelec, M., 2011. Odziv na klice javnosti v zvezi z netopirji (2010, 2011). Glej, netopir! Ljubljana 8(1): 29–31. (http://www.sdpvn-drustvo.si/FOTKE/PROJEKTI/Publikacije/glej_netopir_8-01.pdf)

Petrinjak, A. & L. Likozar, 2009. Halo, halo, tu netopir, potrebujem pomoč. Glej, netopir! Ljubljana 6(1): 41–43. (http://www.sdpvn-drustvo.si/FOTKE/PROJEKTI/Publikacije/Glej_netopir_09.pdf)

Wildlife shelter apart from early publication (Orehar, 2009) in its publicly available reports (http://www.arso.gov.si/narava/%C5%BEivali/zato%C4%8Di%C5%A1%C4%8De/) doesn't reports specifically on of number/species/ locations/ survival rate ob bats.

Orehar, N., 2009. Pomoč poškodovanim netopirjem. Glej, netopir! Ljubljana 6(1): 44–45.

http://www.sdpvn-drustvo.si/FOTKE/PROJEKTI/Publikacije/Glej_netopir_09.pdf\

Switzerland

Handbuch Fledermaus-Notpflege (Vers. 2014/1 in Überarbeitung) für die fachspezifische berufsunabhängige Ausbildung (Art. 192 Abs. 1 Bst. b TSchV) (Bewilligung-Nr. 13/0028 Stiftung zum Schutze unserer Fledermäuse in der Schweiz, Dr. Hans-Peter B. Stutz).

The United Kingdom

Bat Care Guidelines and 2013 Update, BCT http://www.bats.org.uk/publications_download.php/1114/Bat_Care_Guidelines_Update_2013_May_2013.pdf

Bat Rescue Manual, Maggie and Bryan Brown 2006. Available from the West Yorkshire Bat Hospital http://www.bats.org.uk/pages/batcare.html

B. Estimation of numbers of received and released bats

Hudcová, S. 2013. Analýza nálezových dat výskytu netopýrů na území hlavního města Prahy a v jejím okolí související s lidskou činností. Diploma thesis (in Czech language with English summary). – soon prepared for publication

van der Kooij, J. 2007. Norsk Zoologisk Forenings flaggermusmottak – fem år har gått [The Norwegian Zoological Society's bat care centre – five years of practice] - Fauna, Oslo 60 (3-4): 183 -189 (in Norwegian, English figure texts and English summary).

van der Kooij, J. Bat Care in Norway – 12 years of practice. In prep.

Serangeli M.T., Cistrone L., Ancillotto L., Tomassini A. & Russo D. (2012). The post-release fate of hand-reared orphaned bats: survival and habitat selection. Animal Welfare 21: 9-18.

C. Bat rehabilitation records for collecting additional faunistic data

Ancillotto L., Serangeli M.T. & Russo D. (2013). Curiosity killed the bat: Domestic cats as bat predators. Mammalian Biology. 78: 369-373

Godlevsky L., Tyshchenko V., Negoda V. First records of Pipistrellus kuhlii from Kyiv // Vestnik zoologii. – 2000. – T. 34, № 3. – P. 78.

Godlevska L. V. Results of the work of the bat contact-centre (Ukraine) // Scientific Notes of Taurida V. I. Vernadsky National University. – Series: Biology, chemistry. – 2012. – Vol. 25 (64), No 4. – P. 12-20. (In Russian with English summary.)

Godlevska L. V. New Vespertilio murinus (Chiroptera) winter records. An indication of expansion of the species' winter range? // Vestnik zoologii. – 2013. – T. 47, №3. – C. 239-244.

Hanák V., Neckářová J., Benda P., Hanzal V., Anděra M., Horáček I., Jahelková H., Zieglerová A., Zieglerová D. 2009. Fauna netopýrů Prahy: Přehled nálezů a poznámky k urbánním populacím netopýrů. Natura Pragensis 19, pp. 3-89

Hudcová, S. 2013. Analýza nálezových dat výskytu netopýrů na území hlavního města Prahy a v jejím okolí související s lidskou činností. Diploma thesis (in Czech language with English summary). – soon prepared for publication

Jahelková H, Neckářová J., Zieglerová A., Zieglerová D. 2008. Nové nálezy zimujících netopýrů rodu Pipistrellus sp. v Praze a okolí. Vespertilio 12: 27-32

van der Kooij, J. 2007. Norsk Zoologisk Forenings flaggermusmottak – fem år har gått

Lehotská, B., 2006: netopiere (Chiroptera) urbanizovaného prostredia Bratislavy. In: Acta Environmentalica Universitatis Comenianae. – Vol. 14, No. 2, p. 55-63. http://www.fns.uniba.sk/fileadmin/user_upload/editors/actaenvi/ActaEnvi_2006_2/07_Lehotska.pdf

Likozar, L., 2011. First record of Savi's pipistrelle Hypsugo savii (Bonaparte, 1837) in NW Slovenia. Natura Sloveniae, Ljubljana 13(1): 63–64. (http://web.bf.uni-lj.si/bi/NATURA-SLOVENIAE/pdf/NatSlo_13_1_8.pdf)

Mastrobuoni G., Gaiba G., Ragno R. 2005. Prima segnalazione per il Lazio (Italia Centrale) di Vespertilio di Bechstein, Myotis bechsteinii (Chiroptera: Vespertilionidae). Boll. Mus. reg. Sci. nat. Torino 22: 525-530.

Podgorelec M., Petrinjak A., Mlakar J., Kaučič R., Zidar S., Presetnik S., Zagmajster M., Knapič M., Likozar L. Voluntary helpline provides important data on bats in Slovenia // 13th Bat Research Symposium. – poster & abstract.

Presetnik P., K. Koselj, M. Zagmajster, N. Zupančič, K. Jazbec, U. Žibrat, A. Petrinjak & A. Hudoklin, 2009. Atlas netopirjev (Chiroptera) Slovenije, Atlas of bats (Chiroptera) of Slovenia. Atlas faunae et florae Sloveniae 2. Center za kartografijo favne in flore, Miklavž na Dravskem polju, 152 str.

Presetnik, P., M. Podgorelec & A. Petrinjak, 2013. Is the parti-coloured bat Vespertilio murinus Linnaeus, 1758 a common bat species in Slovenia? Natura Sloveniae, Ljubljana 15(2): 39–50. (http://web.bf.uni-lj.si/bi/NATURA-SLOVENIAE/pdf/NatSlo_15_2_4.pdf)

Shpak A. Bats of Minsk (Belarus): species composition, habitat ecology and features of hibernation // 3rd International Berlin Bat Meeting: Bats in the Anthropocene. – 2013. – P. 83.

SDPVN yearly publication Glej, netopir! (http://www.sdpvn-drustvo.si/zlozenke.html)

Serangeli M.T., Cistrone L., Ancillotto L., Tomassini A. & Russo D. (2012). The post-release fate of hand-reared orphaned bats: survival and habitat selection. Animal Welfare 21: 9-18.

Tyshchenko V. M., Godlevska O. V. First winter records of Vespertilio murinus and Nyctalus noctula (Chiroptera) in Kyiv // Vestnik zoologii. – 2008. – Vol. 42, № 3. – P. 280. (In Ukrainian.)

Vlaschenko A.S. Record of hibernated Nyctalus noctula in Kharkov // Vestnik zoologii. – 1999. - 33 (4-5). - P. 76. (in Russian)

Vlaschenko A. S. Sex ratio in four bat species in north-eastern Ukraine // Journal of V.N. Karazin's National University. Series: biology. — 2008. — № 814, Iss. 7. — P. 65–73. (in Russian)

C. Bat rehabilitation records for science

Zukal, anna nele herdina

Annex 1. Questionnaire

IWG14 – Bat Rehabilitation: Questionnaire

Country	
Completed by	
Organisation	
Contact details	
Date	

Bat rehabilitation is temporary caring for bats which lost their roosts,or were injured or orphaned, folowing to release them back into the wild. ***Please, forward the questionnaire to responsible bat-rehabilitation workers in your country.***

* Circle what is applicable.

General

1) Who is rehabilitating bats in your country? Approximate number?

a) Persons	Y/N*	n =
b) NGOs	Y/N*	n =
c) Governmental organizations	Y/N*	n =
d) Others	Y/N*	n =
e) Nobody	Y/N*	

If others, please, specify:

_____

2) Who is funding bat rehabilitation in your country?

a) Governmental bodies	Y/N*
b) Local authorities	Y/N*
c) NGOs / funds	Y/N*
d) Private contributors	Y/N*
e) Others	Y/N*
e) Nobody	Y/N*

If others, please, specify:

_____

3) Are there any regulations for bat rehabilitation in your country? Y/N*

If yes, please, give detailes:

_____

4) Do bat rehabilitation centres (or people) in your country co-operate with each other? Y/N*

If yes,

a) Bat rehabilitation centres (or people) co-operate closely	X*
b) Bat rehabilitation centres (or people) co-operate more or less	X*

c)	Only some bat rehabilitation centres (or people) co-operate	X*
d)	Bat rehabilitation centres (or people) don't co-operate	X*

5) **Are there summarizing descriptions of bat rehabilitation systems in your country? Y/N***

If yes, please give references to the summarizing publications:
_____

6) Are there databases for bat rehabilitation records available? Y/N*

If yes,

a)	All bat rehabilitation records are inserted in a national database	X
b)	Each rehabilitation centre (or person) has its own database, available for sharing	X
c)	Each rehabilitation centre (or person) has its own database, but they do not share data	X
d)	Only a few rehabilitation centres (or persons) record received bats	X
e)	Others	X

If others, please, specify: _____

Rehabilitation for conservation of bat populations and their roosts

7) **Can you estimate the number of received and released rehabilitated bats per year in your country? Y/N***

If yes, please, give approximate numbers: _____

If available, please, give references to the summarizing publications: _____

8) What species are mostly rehabilitated? In what numbers (per year)?

a)	*Nyctalus noctula*	1–10 / 10–100 / 100–1000/ >1000 ind.*
b)	*Vespertilio murinus*	1–10 / 10–100 / 100–1000/ >1000 ind.*
c)	*Pipistrellus pipistrellus*	1–10 / 10–100 / 100–1000/ >1000 ind.*
d)	*Pipistrellus pygmaeus*	1–10 / 10–100 / 100–1000/ >1000 ind.*
e)	*Pipistrellus nathusii*	1–10 / 10–100 / 100–1000/ >1000 ind.*
f)	*Eptesicus serotinus*	1–10 / 10–100 / 100–1000/ >1000 ind.*
g)	Others	1–10 / 10–100 / 100–1000/ >1000 ind.*

If others, please, specify: _____

If available, please, give references to the summarizing publications: _____

9) Which bats are mostly rehabilitated (choose max 4 points)?

a)	Extracted during renovation works in buildings	X*
b)	Single bats in rooms	X*
c)	Seasonal mass invasions of tens/hundreds of bats in rooms	X*
d)	Caught by cats/dogs	X*
e)	Grounded adult specimens	X*

f)	Found in felled trees	X*
g)	Orphaned juveniles	X*
h)	Others	X*

If others, please, specify: _____

10) Are bat rehabilitation records used to rescue / monitor colonies or to prevent demolishing of roosts during renovation and insulation works?

Y/N*

Rehab data and rehab bats for scientific purposes

11) Are bat rehabilitation records used for collecting additional faunistic data (new localities, occurrence of species, etc, etc,)?

Y/N*

If published, please give references:

_____

12) Are dead animals used for virological, morphological, parasitological, histological etc. research? Or for museum collections?

Y/N*

If yes,

a)	All died bats are stored in a freezer for further research* / museums*	X*
b)	Dead bat bodies are occsionally utilised	X*
c)	Others	X*

If others, please, specify:

_____

13) Do you have national regulations concerning the use of dead animals for different purposes?

Y/N*

If yes, please, specify:

_____

Rehabilitated bats for public education

14) Are bats under rehabiltation used for public education during bat events in your country?

Y/N*

15) Are healthy wild bats used for public education during bat events in your country? Y/N*

16) Are there any regulations and restrictions for using (rehabiliated) bats during bat events in your country?

Y/N*

If yes, please, specify:

_____

If available, please, give references to the summarizing publications:

_____

17) What bat species are used during bat events?

Please, specify:

_____

18) During bat events, in your country, visitors can:

a) See bats in hands of bat-workers	X*
b) See bats only in a box	X*
c) Touch bats by hands in gloves	X*
d) Touch bats by hands without gloves	X*

19) Who is authorized in your country to euthanize bats of which their clinical situation avoids further successful rehabilitation?

Please, specify: _____

Rehabilitation itself: exchange of experience

20) Do you have any manuals or guidelines in your country in national language(s)?

Y/N*

If yes, please, give reference, if possible with an on-line link.

_____

21) Please point few names and contacts of experts involved in bat rehabilitation in your country.

Name	Country	City	Organisation	E-mail

22) Please give references to main bat rehabilitation web-sites, if available:

_____

Other

23) Rabies vaccination is compulsory for all people who works with bats in animal rescue centers
Y/N*

Annex 2. EUROBATS Resolution 7.10 Bat Rescue and Rehabilitation

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),
Recalling Article III of the Agreement, especially paragraphs 1, 2, 4 and 5;
Noting that bat rescue and rehabilitation involves rescuing bats and bat colonies at risk and temporarily caring for bats which have lost their roosts, or those which are diseased, injured or orphaned; then every effort is made to release them back into the wild;
Further noting Resolution 5.2 on Bats Rabies in Europe that recommends rabies surveillance of bats which have died or injured bats which have been euthanized;
Further noting Resolution 5.4 on Monitoring Bats across Europe for the further collection of faunistic data;
Further noting Resolution 5.7 on Guidelines for the Protection of Overground Roosts, with particular reference to roosts in buildings of cultural heritage importance since most bats received by bat rehabilitators are found in or nearby buildings;
Further noting Resolution 6.5 on Guidelines on Ethics for Research and Field Work Practices;
Further noting Resolution 6.8 on Monitoring of Daily and Seasonal Movements of Bats;
Further noting Resolution 6.16 on Implementation of the Conservation and Management plan 2011-2014 that parties should continue efforts to raise public awareness to improve education;
Further noting Resolution 7.11 on Bats and Building Insulation which recommends the collection and sharing of information on bat presence in buildings;
Recognising that Bat rescue and rehabilitation may play an important role in bat conservation;
Further recognising that relevant information obtained from bat rehabilitators can be used for practical bat conservation including roosts;
Further recognising that data collected by bat rehabilitators can provide important information for scientific research such as species distribution and disease monitoring as well as for practical conservation;
Further recognising that the level of bat rehabilitation varies across Parties and Non-Party Range states ranging from countries with no rehabilitators to those with established operating networks;
Further recognising that the recording protocols are not standardised and differ widely across Parties and Non-Party Range states;
Further recognising that public awareness is important for effective bat conservation;

Urges Parties and non-party Range States to:
1. Encourage the establishment and support of effective animal rescue and rehabilitation systems which include bats in their countries;
2. Encourage capacity building and training in order to raise the standards of bat rescue and rehabilitation;
3. Recommend the use of standardised record protocols (Annex 1) by bat rehabilitators and encourage the contribution of data to any existing national database, or if absent, encourage the establishment of such a database;
4. Encourage collaboration between bat rehabilitators and bat scientists for the purposes of data collection, other scientific research and exchange of knowledge;
5. Use only captive disabled bats for public events when national legislation permits it;

Requests the Advisory Committee to develop guidelines for bat rehabilitators and develop a system for collecting information for international cooperation.

Annex for Resolution 7.10

A standard form of bat record protocol applicable for bat conservation should include at least these items:

ID number

Name of finder: C

Name of rehabilitator/organization:

Date of finding:

Location of finding (address if appropriate):

Place of finding: ground bu ng block-of ts facade cellar

tree unknown other

Circumstances of finding: reconstruction in tion fallen tr

brough by cat dog unknown

other

Bite incidents human cat other

Species:

Sex: male fe e **Age:** no plant baby juvenile adult

Individual/colony: Individual Colo Size of colo

Condition of bat: normal s e dehydratation exhaust nd emmaciated

injured dead other

Sent for disease test: Yes No

Final fate: Released Euthanas Captivity Death

Comments:

We also recommend to take photographic documentation if possible.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.9
Bats, Insulation and Lining Materials

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling Article III of the Agreement, especially paragraphs 1 and 2;

Noting that bat colonies are seriously endangered by insulation programmes which do not take adequate account of the presence of bat roosts and that some EU financed schemes to promote the installation of insulation are in conflict with policies to conserve bats;

Further noting that bats use a network of roosts in buildings as breeding, swarming, hibernation and transient roosts;

Recalling Resolution 5.7 on Guidelines for the Protection of Overground Roosts, with particular reference to roosts in buildings of cultural heritage importance, which recommends to ensure that overground roosts are managed in accordance with national nature conservation legislation and taking note of any guidelines adopted by the EUROBATS Agreement;

Recalling Resolution 8.3 on Monitoring of Daily and Seasonal Movements of Bats with regard to ensuring effective protection of migratory species and their habitats and survey on breeding and hibernation areas, migration routes and stopover sites, because species threatened by insulation include distance migratory species;

Recalling Resolution 8.5 on Conservation and Management of Important Overground Sites for Bats with regard to EUROBATS list of important overground roosts;

Recalling previous decisions of the Convention of Migratory Species which also include the protection of migratory bats, their roosts and foraging sites;

Recalling that the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the

Committee of the Regions “Roadmap to a Resource Efficient Europe” (COM/2011/0571) recommends strengthening policies and activities for promoting energy efficiency in buildings, with consideration of the wide range of environmental impacts of buildings;

Recalling Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings promoting the improvement of the energy performance of buildings within the Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost effectiveness, especially the obligation to set and apply minimum requirements for new and existing buildings;

Recalling the EU Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, which obliges EU members to take measures to prevent, mitigate and compensate significant damages to protected species;

Recalling the Kyoto Protocol to reduce CO_2 emissions in context of combatting climate change, that buildings are responsible for more than one third of total energy use and associated greenhouse gas emissions in society, both in developed and developing countries (http://www.unep.org/sbci/pdfs/BuildingsandCDMreporteversion.pdf) hence insulation is important;

Recognising that insulation of buildings can cause bat fatalities and loss of roosts, which can negatively impact bat populations;

Urges Parties and non-party Range States to:

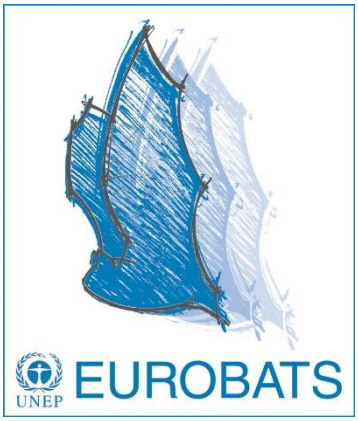
1. Work to ensure that insulation projects are undertaken in compliance with national legislation regarding bat protection and conservation by implementing appropriate pre-insulation survey and assessment, mitigation and compensation to avoid roost loss and bat mortality;
2. Put in place mechanisms for post-insulation monitoring to ensure mitigation and compensation has been implemented, and to assess the efficacy of mitigation measures;
3. Where mitigation and compensation measures are not effective encourage the development of new approaches;
4. Take into account, when assessing the importance of individual losses, that the cumulative impact of fatalities and loss of bat roosts in buildings can lead to detrimental effects on bat populations;

5. Work to resolve any possible conflict between insulation regulations and bat conservation;
6. Include bats in the impact assessment of insulation programs at a strategic level;
7. Recommend appropriate awareness-raising campaigns, training and information materials for public and stakeholders involved in insulation projects about bat protection in buildings;
8. Encourage the sharing of data and good practice in relation to bats and insulation;
9. Encourage the collation of standardised bat records (for example, by setting up a database), so these are easily available to bat experts and officials (see Annex 1);
10. Develop appropriate national guidelines, drawing on the general guidance to be finalised by the Advisory Committee;

Instructs the Advisory Committee:

1. To finalise draft Guidelines for Bats, Insulation and Lining Material, currently available as an Annex 2 to this Resolution.

Decides to repeal Resolution No. 7.11



14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.10
Required Experience and Skills of Experts with regard to Quality of Assessments

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling Article III of the Agreement;

Recalling the Council Directive No. 2011/92/EU on the assessment of the effects of certain public and private projects on the environment and the Directive of the European Parliament and of the Council No. 2001/42/EC of June 27 2001 on the assessment of the effects of certain plans and programmes on the environment, both of which state that the scope of information required for the purposes of impact assessments should be consistent with the current state of knowledge and methods of such assessments;

Referring to the Resolution 8.4 Wind Turbines and Bat Populations and the Resolution 7.9 Impact of Roads and other Traffic infrastructures;

Taking into account the increasing number of plans and projects with possible impact on populations of European Bats that require assessments;

Noting the rising demand for expertise and experts conducting impact assessments on bats;

Recognising the importance of comparable high quality of assessments concerning bats in accordance with the above-mentioned Directives;

Strongly recommends Parties and non-Party Range States

1. To ensure that experts/groups of experts carrying out assessment of projects, plans and programmes on populations of European bats meet the minimum standard of skills, knowledge and experience as described in the Annex to this resolution;

2. To ensure that assessment reports of projects are objective and meet appropriate scientific quality standards;
3. To ensure that relevant authorities dealing with these assessments possess the appropriate resources and capacities to be able to assess and evaluate the results of those studies.

Requests the Advisory Committee to develop a set of criteria for evaluating the quality of assessment reports.

Decides to repeal Res. 7.14.

Annex

Standard skills, knowledge and experience required for doing environmental assessments on bats concerning plan and projects

These skills and capacities listed below can be learnt, maintained or improved by attending specific courses, stages or training sessions. If one single expert does not fulfil the required minimum standard of experience for all the methods that are needed in the course of the studies the necessary criteria can be met by working in a team with other qualified experts. The techniques and methods detailed below do not comprise all research techniques aimed at assessing bat presence or habitat use, but only those more commonly used in environmental impact assessment.

An operator (or a team of operators) in charge of surveying or monitoring bat populations, with special reference to work done to carry out environmental impact assessments or environmental incidence assessments must:

- Know and understand the legislation and the protection (and limits to protection) afforded to bats and how it is administered and comply with it;
- be able to identify bat species;
- know and understand species conservation status, range, and threats at the appropriate geographic levels;
- know and understand the general aspects of physiology of bats including adaptations to flight, echolocation, torpor, hibernation and energetics;
- know and understand the general aspects of ecology of bats – life cycles, local phenology, habitat selection, foraging behaviour and migration behaviour.

For the **analysis of existing information and the planning of surveys**, the operator(s) must be able to:

- Identify the objectives of a survey;
- Plan surveys that are appropriate concerning timing, methods, study effort etc. + define impact area;
- List the types of survey techniques available and when to use them;
- Identify appropriate techniques for surveying.

The operator(s) must also know and understand:

- The available data and where to request them from;
- The range of surveys that can be used to identify and study bats, and their limitations;
- Seasonality and conditions and how these might affect surveys;
- How bats are considered in the planning process, and the level of information required for this.

Searching or inspecting roosts are important activities to plan protection as well as mitigation or compensation actions. In order to carry out these activities successfully, the operator(s) must be able to:

- Locate signs left by bats and use these to locate roosting position and give an indication of likely species of bat, colony size and type of roost;
- Identify safe and appropriate techniques to survey different types of bat roosts.

The operator(s) must also know and understand:

- The life cycle of a bat including breeding and social behaviour;
- The roosting preferences of different species at different times of the year.

Dead bat remains constitute a valuable source of information, and their retrieval and analysis are key to evaluate the level of impact wind turbines exert on bat populations. The operator(s) must be able to:

- Locate dead bat remains;
- Identify dead bat remains to species or species group where relevant.

The operator(s) must also know and understand:

- The legislation regulating possession of dead bats under relevant country and EU law;
- The responsible authorities that have to be informed of the retrieval of bat remains;
- Health and safety issues related to the handling of dead bats;
- Methods for carcass search in wind farm projects;
- The correct techniques for preservation, storage and appropriate labelling of specimens.

In some cases, **capturing and handling bats** is needed to identify bats to species, assess their sex, age class, and reproductive condition, evaluate health state, and collect parasites or biological samples. Capture is invasive and may have detrimental consequences on individual bats or colonies if not properly conducted. A **licence or a permit** issued according to national laws or regulations are needed to **capture and handle bats** (see also EUROBATS Res. 4.6). Capturing bats without the necessary legal authorisations may be considered a criminal offence.
The operator(s) must be able to:

- Appropriately and safely use different capture methods;
- Handle a bat with due regard for a) its welfare and b) the operator's safety (including rabies vaccination);
- Recognise when handling is necessary and have an understanding of the sensitive periods when handling could cause the greatest stress;
- Identify a live bat in the hand to a likely species when this is achievable based on morphology and confidently age, sex and assess a bat's reproductive status.

The operator(s) must also know and understand:

- How to use the range of tools available for the capture of bats (mist nets, harp traps, hand nets, and acoustic lures);
- The licences or permits required to capture bats using appropriate methods approved by the local authorities;
- When capture of a bat is necessary and appropriate;
- The need to catch the minimum number of bats with the minimum disturbance for the purpose, and how to minimize handling time.

Telemetry (radio- or GPS tracking) is a powerful technique allowing the tracking of individual bats to their foraging or roosting sites. Although the kind of information obtained may be of chief importance to plan conservation or develop appropriate mitigation or compensation actions, radiotelemetry implies some invasiveness because bats need to be captured, handled and fitted with a radio or satellite tag. Such operations typically require a licence or a permit in accordance with national laws and regulations, see also EUROBATS Resolution 4.6 "Guidelines for the Issue of Permits for the Capture and Study of Captured Wild Bats" and its Annex. The weight of a tag should not exceed 5 % of the mass of the bat.

To carry out bat telemetry, the operator(s) must be able to:

- Use tracking equipment effectively to pinpoint exact roosting places, estimate distances travelled and bat locations (fixes), and collect data on foraging areas used by tagged bats;
- Judge the minimum number of bats needed for the purpose;
- Use equipment safely and appropriately;
- Apply tags with due consideration for the welfare of the bat and standard tagging guidelines.

The operator(s) must also know and understand:

- What licence or permit are required to radiotracking bats and how to apply for these;
- When bat tracking is necessary and appropriate;
- The need to catch the minimum number of bats with the minimum disturbance for the purpose;
- How to analyse and interpret correctly tracking data.

Light tagging may be occasionally employed to track visually the movement of bats in flight at night, especially to establish the flight paths adopted. The technique implies the application of a small tag emitting light, and requires bat capture, handling and tagging. As such, it is quite invasive and if not conducted appropriately, may have detrimental

consequences for bat welfare. As for capture or radiotracking, licences or permits are normally required to carry out light tagging.
The operator(s) must be able to

- Judge the minimum number of bats needed for the purpose;
- Apply tags with due consideration for the welfare of the bat and standard tagging guidelines;
- Evaluate whether light tagging is indispensable or may be safely replaced with less invasive approaches.

The operator(s) must also know and understand:

- what licence or permit are required to light-tag bats and how to apply for these;
- When this technique is necessary and appropriate;
- The need to catch the minimum number of bats with the minimum disturbance for the purpose;
- How to analyse and interpret correctly observational data obtained through light-tagging.

Bat banding is rarely employed for bat surveys finalized to carry out environmental impact assessments or environmental incidence assessments. Bats are typically banded to analyse their long-range movements, such as those associated with migration or dispersal, establish roost switching patterns, or recognize individual subjects for behavioural studies. Bands used to establish migration routes or assess dispersal typically are made of metal and show unique identification codes to identify the geographic origin and identity of recaptured subjects. In many countries, national or regional databases exist where capture data (species identity, sex, age class, etc.) are recorded along with the identification code of the band used to tag the bat. Coloured plastic rings are sometimes used in behavioural studies to tell individuals apart. If bands are applied incorrectly, they may harm the banded bat seriously or even kill it. Published information shows that the degree of tolerance to banding varies considerably across species, or even among populations of the same species. Banding is an invasive procedure and should only be used if *a)* no alternative exist to reach a specific research goal, and *b)* the conservation value of the information obtained through banding clearly outweighs the risk of affecting bat welfare. Banding typically requires a **licence or a permit** issued by national or regional authorities. See also EUROBATS Res. 4.6 and its Annex 9c for recommended ring sizes for European bat species.
To perform banding, the operator(s) must be able to:

- Judge the minimum number of bats needed for the purpose;
- Apply tags with due consideration for the welfare of the bat and standard tagging guidelines.

The operator(s) must also know and understand:

- What licence or permit are required to band bats and how to apply for these;

- When bat banding is necessary and appropriate;
- The need to catch the minimum number of bats with the minimum disturbance for the purpose;
- How to communicate banding records to the relevant authorities responsible for the management of the national or regional bat banding database;
- How to analyse and interpret correctly banding data.

The **detection and recording of bat ultrasound** is a fast-growing methodological field that over the last few years has gained momentum thanks to the development of real-time bat detectors, including automated detectors that are triggered by bat calls and therefore do not require the presence of an operator. No licence is needed to carry out acoustic surveys.
The operator(s) must be able to:

- Use a range of bat detectors to identify species or groups of species and record their activity;
- Choose and use competently the correct equipment for the survey and recognise its limitations;
- Employ static detectors to complement manual activity survey techniques that identify species or groups of species, relative frequency, timing and type of bat use of a site.

The operator(s) must also know and understand the advantages and limitations of different detector systems.

Bat sound analysis and bat call identification are crucial phases to correctly identify bat echolocation and social calls to species, when possible, and interpret correctly bat occurrence, activity and habitat use.
The operator(s) must be able to:

- Use a sound analysis software package to *a)* analyse field recordings, measure values of call variables, and compare them to published datasets;
- Identify echolocation calls to a likely species group when possible and understand the limits of identification;
- In case automated bat classifiers are used, employ these wisely and prudently, fully comprehending the (still significant) technical limitations of this approach and the necessity of confirming the identity of echolocation calls by manual analysis (vetting) whenever reasonable doubts arise on the reliability of the automated response.

The operator(s) must also know and understand:

- The advantage and limitations of different software;
- The parameters required to identify calls to species or genus where applicable;
- Bat call variation, and its implication for species identification;

- The necessity and the most appropriate way to collect metadata that complement recordings, and for how long recordings should be stored, if relevant.

In **assessing the results** of a survey or a monitoring activity, the operator(s) must be able to:

- Record and understand survey effort and data required when surveying roost structures, underground sites, single roost trees in a wood and flight lines;
- Evaluate the potential role of a building, tree or other structure/feature for use as a bat roost;
- Compile results for each species and determine the extent and pattern of activity for species or groups as required;
- Determine temporal and seasonal changes across a study site;
- Identify areas of importance (such as feeding areas, commuting routes) from the extent or type of activity;
- Estimate the number of bats using roosts;
- Categorize the bat usage of a study site

The operators must be able to **provide management or mitigation/compensation recommendations**, including advice on further surveys or monitoring when needed;
The operator(s) must know and understand best practice in mitigation/compensation strategies and monitoring techniques.

Clear reporting is a final, crucial aspect of delivering the results of any environmental impact study.
The operator(s) must be able to prepare concise reports with clear description of methods used, results and their assessment, uncertainties due to methods or other reasons and recommendations based on the results. Clear and informative graphs, maps etc. are part of a good report.
The operator(s) must also be able to deliver data to appropriate/national databases, when relevant.

14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.12
Purpose-built Man-made Roosts

The Meeting of Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement");

*Referring t*o the commitments by the Parties to the conservation of bats in accordance with the Agreement, especially the fundamental obligations placed upon Parties in Article III;

Recalling Resolution No. 4.9, Element 3 (a) on the protection of roost sites other than underground sites;

Recalling Resolution 5.7 on Guidelines for the Protection of Overground Roosts, which recommends to ensure that overground roosts are managed in accordance with national nature conservation legislation and taking note of any guidelines adopted by the EUROBATS Agreement;

Recalling Resolution 7.13 Implementation of the Conservation and Management Plan (2015 - 2018) that instructs the AC to develop a good practice guidance on Man-made Purpose-built Bat Roosts;

Noting that the loss of suitable roosting sites is one of the causes of declines in bat populations across Europe;

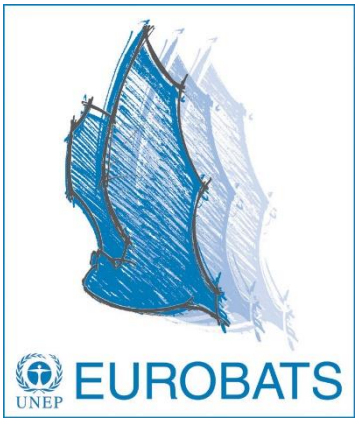
Acknowledging the potential value of purpose build bat roosts for bat conservation;

Urges Parties and Non-Party Range States to:

1. Consider examples provided by the good practice guidance whenever new roosting structures are planned or existing structures are renovated for bats;
2. Monitor existing purpose-built Bat Roosts and promote further studies on their effectiveness;

Requests the Advisory Committee to:

1. Finalise the good practice guidance included as a draft in the Annex 1 and to publish it as soon as possible;
2. Keep the Guidance document updated and available for public;
3. Continue to collate relevant information.



14th Meeting of the Standing Committee
23rd Meeting of the Advisory Committee

Tallinn, Estonia, 14 – 17 May 2018

Draft Resolution 8.13
Insect Decline as a Threat to Bat Populations in Europe

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling paragraph 8 of Article III of the Agreement text ("Each Party shall, wherever appropriate, consider the potential effects of pesticides on bats when assessing pesticides for use");

Recalling the Directive 2009/128/EC of the European Parliament and the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, which aims to achieve a sustainable use of pesticides in the EU by reducing the risks and impacts of pesticide use on human health and the environment;

Pointing to the Resolution 7.8 Conservation and management of critical feeding areas and commuting routes and its guidelines (Publication series no. xy);

Referring to the Resolution 6.15 Impact on Bat Populations of the Use of Antiparasitic Drugs for Livestock and its Annex 1 regarding management recommendations;

Concerned about the published dramatic loss of insect biomass of up to 70 % in open land in various regions in Europe;

Noting the adverse effects of the decline of insect diversity and abundance on bat populations through a decrease in food resources;

Recognising that the use of insecticides leads to direct and indirect impacts on bat populations;

Acknowledging that there are not sufficient scientific data available on the extent of these impacts,

Urges Parties and non-Party Range States to:

1. Encourage and support scientific research on the impact of the insect decline on bat populations;
2. Clarify main factors causing the established loss of insect biomass;
3. Avoid the use of pesticides, particularly those problematic for bats and their food resources, in and around important areas for bat conservation;
4. Ensure that bats are being considered in pesticide risk assessments;
5. In general, take the precautionary approach with respect to the use of pesticides;
6. Promote awareness of the multiple ecological services provided by bats, especially for the agricultural sector, and raise awareness regarding the concerns mentioned above with land managers and other stakeholders.
7. Promote continued cooperation and collaboration between scientists, professionals, stakeholders and international bodies whose work is related to insect decline.

Requests the Advisory Committee to:

1. Collect relevant information on the current insect decline, and to assess its potential effects on bat populations in Europe;
2. If appropriate, develop guidelines or recommendations for the most urgent or prioritised actions identified.