Inf.EUROBATS.StC17.2

17th Meeting of the Standing Committee

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Summary Report on the Outcomes of EPI projects conducted in 2019

1. **Migration in European bat populations: Estimating genetic relationships between French and Spanish populations of the endangered Greater noctule bat.**

   This project is a specific part of a larger project whose aim is to increase knowledge on the French populations of *Nyctalus lasiopterus*, as required by EUROBATS MoP7 Resolution 7.12 on Priority Species for Autecological Studies and by the 3rd French Action Plan for Bats. The discovery of Nyctalus lasiopterus male roosts in the vicinity of maternity roosts in the Massif Central, France, raised the question of transboundary migration. Few females are found in northern Spain and they appear mainly in the autumn. Do males and females from France cross over the Pyrenees?

   To investigate the relationships between the French and the Spanish populations of the Greater Noctule Bat we plan to collect saliva swabs or biopsies from captured individuals (adults and flying juveniles) for DNA analysis. The aim of the present project is to study the gene flow between the different populations in order to establish if the mountain range built a barrier for the Greater Noctule. The DNA extracted could possibly allow to investigate the parentage of the sampled individuals in different population nuclei and confirm migration. The partner Laboratory of Molecular Ecology (LEM-EBD) in Seville enjoys a high reputation within the scientific community for its phylogenetic competencies and its knowledge of *Nyctalus lasiopterus*. Its researchers have already investigated the relationships between the Spanish populations of this species and have the necessary sequences to compare with the French colonies. Their work consisted of teaching and assisting a master student how to extract DNA from the samples, amplify mitochondrial and microsatellite markers, provide sequencing for all samples and analyse the results.

2. Exploring and mitigating the threat of Lloviu virus re-emergence in Central European *Miniopterus schreibersii* populations

Majority of the Schreiber's bats' roosts were visited and surveyed in six Central European and Balkan countries. These surveys included colony counting and the analysis of threatening factors, as well as tissue sampling for population genetic study of the species.

Deaths as the result of Lloviu-virus infection occurred also after the submission of the proposal to EUROBATS. Fortunately, only few dead bats were found in this further case. Our collaborative virology team, together with the Hungarian Defence Forces managed to find the virus on-site with molecular methods and samples from several infected individuals allowed us to isolate the virus. This is the second case of isolation of a Filovirus from bats beside Marburg filovirus.

The preliminary population genetic results show that there is no well-supported structuring between the different Schreiber's bat colonies included into the analysis. This indicates that there is gene-flow between different geographic areas, which is not surprising as the species can cover long distances during migration. According to the virologic results, bats which seem to be healthy can also be infected with the virus, hence they may transport the disease between colonies. This result is alarming as the species is threatened by several different factors throughout its distribution.

3. Bats and vaults: search and inventory of underground bat shelters in Belarus

Underground shelters are important for bat conservation and monitoring in temperate regions. However, little was known about underground bat sites in Belarus. Partly, it might be explained: the country is "not-cave" region (there are no natural caves or appropriate for bats mines), and man-made underground objects were our of attention of researchers. No focused survey of bats in underground sites was conducted before. Only few underground bat shelters were known, in SW Belarus. At the same time, in such not-cave regions bats are known to use underground man-made structures which are, in many cases, are very important for them.

In total, 94 unique objects in six administrative provinces were examined in winter. Among the objects: basements and cellars of old manors and castles, crypts of abandoned churches, fortification and military buildings of 19th and 20th centuries.

Data on 10 bat species were collected: *Barbastella barbastellus, Eptesicus nilssonii, Eptesicus serotinus, Myotis dasycneme, Myotis daubentonii, Myotis brandtii, Nyctalus noctula, Pipistrellus nathusii, Pipistrellus pygmaeus, Plecotus auritus*.

Thus, the project aim was to carry out a survey and inventory of underground bat shelters in Belarus for their further protection and monitoring. The results were submitted to the Ministry of Natural Resources of Belarus.