

# MONITORING AND EVALUATION OF CAVE-DWELLING BAT COLONIES FOR EUROPEAN BAT LYSSAVIRUSES SCREENING FIRST SURVEY IN BULGARIA

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## INTRODUCTION

Rabies is a global neurological zoonotic disease in mammals and humans which causes acute encephalitis and cerebral damage. The rabies viruses belong to the Rhabdoviridae family, genus Lyssavirus. It was found that bats are reservoirs of all lyssaviruses except Mokola and Ikoma. Five Lyssavirus species have been identified in European bats, as most common are European bat 1 lyssavirus (EBVL-1) and European bat 2 lyssavirus (EBVL-2).

33 bat species out of 35 known in Europe are found in Bulgaria. Among them are all 13 species in which EBVL-1 and EBVL-2 and rarely other viruses, such as Bokeloh bat lyssavirus (BBLV), Kotalahti bat lyssavirus (KBLV) and Lleida (LLEBV) have been detected in other European countries.

14 Bulgarian caves (6 in North and 8 in South Bulgaria) and 3 bats species (*Rhinolophus ferrumequinum*, *Myotis myotis* and *Myotis blythii*) were chosen for the present study. These species form large summer and winter colonies that can trigger the spread of lyssaviruses among their members.



## AIMS

- Winter and summer bat monitoring
- Assessment of prevalence of European bat lyssaviruses among Bulgarian cave-dwelling bat colonies.

## METHODS

Population sizes were estimated for each species. Small cluster of bats were counted directly into the cave. For larger colonies, photos were used. Individuals were captured using mist-nets with different lengths in front of the caves. Caliper were used to take measurements of length of the forearm (FA), and for some species groups, additional measurements like, fifth finger (D5), third finger (D3), and the upper teeth row length (CM3). No voucher specimens were collected during this study. Capture and handling with the bats were carried out under the research permits № № 828/19.03.2020.

## RESULTS

In the first year of the project a winter monitoring was carried out in 4 caves in North Bulgaria (Orlova chuka, Zorovitsa, Emenska, and Magurata) and 1 cave in South Bulgaria (Ruzhishka) and also a summer monitoring was carried out in 2 caves (Orlova chuka and Zorovitsa). Significant winter colonies of *Rh. ferrumequinum* and *Rh. euryale*, *Rh. mehelyi* and *M. schreibersii* were found in the caves Orlova chuka, Magurata and Ruzhishka. For this reason, sampling was carried out in 3 Orlova chuka, Zorovitsa and Ruzhishka.

The forthcoming analyses will aim to confirm or reject the presence of rabies viruses in cave-dwelling bat species in Bulgaria. This will contribute to evaluation of the risk and protection of the health of humans, as well as the health of domestic and wild animals.



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