

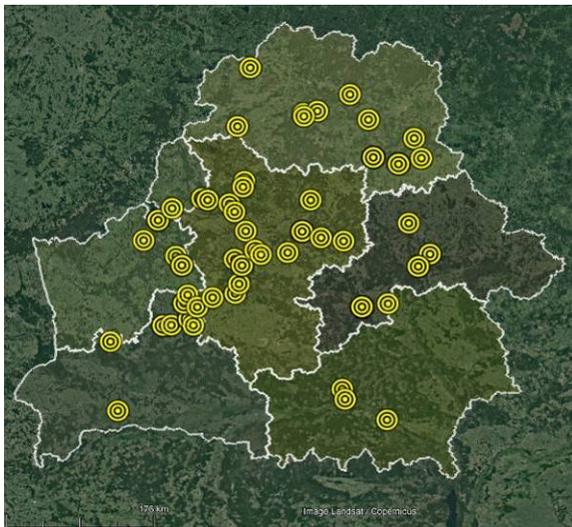
Bats and vaults: search and inventory of underground bat shelters in Belarus, 2019–2020

Summary report

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Results. The first full-scaled inventory of underground bat sites of Belarus was done. In total, 114 underground objects were checked and explored. All objects were examined for bats for the first time. Additionally, in summer, the team collected data on not troglophilous bat fauna. As a result, absolutely new data on occurrence, number, shelters of 10 species (of 19 known for Belarus) were collected. *Eptesicus nilssonii*, *Eptesicus serotinus*, *Barbastella barbastellus*, *Myotis dasycneme*, *Myotis daubentonii*, *Myotis brandtii*, *Nyctalus noctula*, *Pipistrellus nathusii*, *Pipistrellus pygmaeus*, *Plecotus auritus*.

The field work was done during two expeditions, summer and winter.



Study localities in summer, 2019



Study localities in winter, 2020

During the summer expedition, in June–July 2019, the team checked over 70 recognized distantly underground objects (basements of former manor houses and monasteries, cellars, ice cellars, old fortresses, crypts in churches, pillbox systems, etc.) in all six administrative provinces of Belarus (fig.). Each object was described by the common scheme. The standard approach of bat revealing was used. As well, convenience of examined sites for bat hibernation was estimated. All sites were examined for bats for the first time. Almost no bats were found in examined underground sites (only occurrence of *P. auritus* was confirmed for few of them). However, additionally, during the expedition the team did the survey of not troglophilous bat fauna using standard methods (distant observations with bat detectors, passing search of overground bat roosts, mist-netting out of underground sites).





During the winter field expedition, in the late February 2020, the team checked 27 determined to be perspective for bat hibernation objects from the "summer list" and additionally checked and explored 67 objects. Among the objects: basements and cellars of old manors and castles, crypts of abandoned churches, fortification and military buildings of 19th and 20th centuries. Six species were found hibernating in these sites: *Myotis daubentonii*, *Myotis brandtii*, *Plecotus auritus*, *Barbastella barbastellus*, *Eptesicus nillsonii*, and *Eptesicus serotinus*. The total counted (visible) number was over 1050 of specimens. However, the real number may exceed that in three times or even more. Buildings of abandoned Soviet missile bases revealed to be very important bat hibernacula.



Symbolically, the census was done at the beginning of the Barbastelle's Year. The team found the important hibernacula of this species; the records allowed to clarify its range significantly.



The popular leaflet "Underground home of bats" (in two language versions: Belarusian and Ukrainian) was prepared and printed. The leaflet aims to rise awareness of necessity of conservation of underground shelters of bats. Target groups are local authorities, holders / owners of sites, speleologists, tourists etc. The leaflet is illustrated with original pictures of bat species of study area. PDFs of the leaflet are available on-line at <http://kazhan.org.ua/eng/library/buhb.htm>.



Based on results of the work, the primal list of important underground sites of Belarus was compiled; later it will be passed to the Ministry of Natural Resources of Belarus.

Short report about the work were and will be presented in mass-media.

Results of the work were presented during the scientific meetings ("Zoology in contemporary world", Kyiv, 1-3 June 2021; 15th EBRS, Turku, Finland, 4-7 May 2021) and will be published soon.

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