

Study of bat communities of the Lesu Water Cave (Piatra Craiului Mountains, Romania)

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SZÁNTÓ L. *Study of bat communities of the Lesu Water Cave (Piatra Craiului Mountains, Romania).* — The study of bats was not continuous in Romania. Our society started the research on bats in the middle of the '90s, and one of the first sites studied was the Lesu Water Cave (Padurea Craiului Mountains). In this paper, I discuss the results of 5-year study. I studied the way in which bats use the cave and the factors that endanger the existence of the colonies. Lesu Water Cave is an important underground refuge in this region, housing 15 bat species in hibernation or as a transitory roost, and needs adequate protection measures to improve the present situation and to maintain this site in the future. The most important endangering factor observed is speleological research during hibernation.

Introduction

In the whole Europe, the size of the bat communities show a decreasing tendency. To maintain these endangered species we must know the specifics of their habitat and the endangering factors. Unfortunately, in Romania, no continuous research was carried out on the distribution of bats and the last data about the whole country was edited in 1963 by Dumitrescu *et al.*

Our society started the research on bats in the middle of the '90s, and one of the first sites studied was the Lesu Water Cave (Padurea Craiului Mountains). The objective of the study was to find out in which way bats use this site and to identify the endangering factors that disturb the existence of the colonies.

Materials and methods

The Lesu Water Cave is situated in the Padurea Craiului Mountains (Western Carpathians) in the valley of Lesu creek, at 700 m a.s.l., has a total length of 1256 m, with 9.8 °C average temperature and has a constant water-course with 0–10 l/sec outcome (Rusu 1988). The first 800 m of the cave is a low, tunnel like corridor and is used preferentially by bats.

My research started in December '95. I investigated the cave with a monthly regularity until April '97, and then only occasional censuses were made. I used the visual census method to identify the bats with minimal disturbance; the bats were taken off only exceptionally for determination. I also used mist nets, but never dur-

ing hibernation, to identify the occasional users of the cave and the crevice dwellers. During my research, I noticed the number of species, individuals and the localization of these in the cave. I also measured the temperature and relative humidity in and outside of the cave. The species were identified using the keys of Topal (1969), Dobrosi (1993) and Ujhelyi (1993).

Results and discussion

No previous data exist concerning the bat populations of the cave. We published some preliminary data in '96 on the 10th European Bat Research Symposium in Eindhoven (Coroiu 1996).

Totally, 15 bat species that use the cave mainly as hibernacula or as a transitory roost were identified. This species were:

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|------------------------------------|--------------------------|-------------------------------------|
| 1. <i>Rhinolopus ferrumequinum</i> | 6. <i>M. emarginatus</i> | 11. <i>Barbastella barbastellus</i> |
| 2. <i>R. hipposideros</i> | 7. <i>M. myotis</i> | 12. <i>Miniopterus schreibersii</i> |
| 3. <i>Myotis bechsteinii</i> | 8. <i>M. blythii</i> | 13. <i>Plecotus auritus</i> |
| 4. <i>M. dasycneme</i> | 9. <i>M. mystacinus</i> | 14. <i>P. austriacus</i> |
| 5. <i>M. daubentoni</i> | 10. <i>M. brandtii</i> | 15. <i>Eptesicus serotinus</i> |

Rhinolophus

The greater horseshoe bat forms here the biggest hibernating colony from this part of Romania, and a connection with a nursery colony from Hungary was proved (Dobrosi 1997). The lesser horseshoe bat is constantly present but in small number and only during hibernation.

Myotis

The mouse-eared bats form here a big hibernating colony and use the cave also for transitory roost in spring. The pond bat was found here for the first time in this part of Romania, and was present only occasionally. Brandt's bat was found here for the first time in Romania here in 1996, was present also occasionally. Bechstein's bat was found here only during mating period and caught with mistnet, was not observed during visual census.

Barbastella

The barbastelle has here a finding site for Romania, present only during hibernation.

Other groups

The other species are present in small number and only occasionally. I observed a decrease in the size of the greater horseshoe bat colony related to the degree of disturbance, speleological research during hibernation. The colony decreased to half of his original size after continuous disturbance by illegal speleological research.

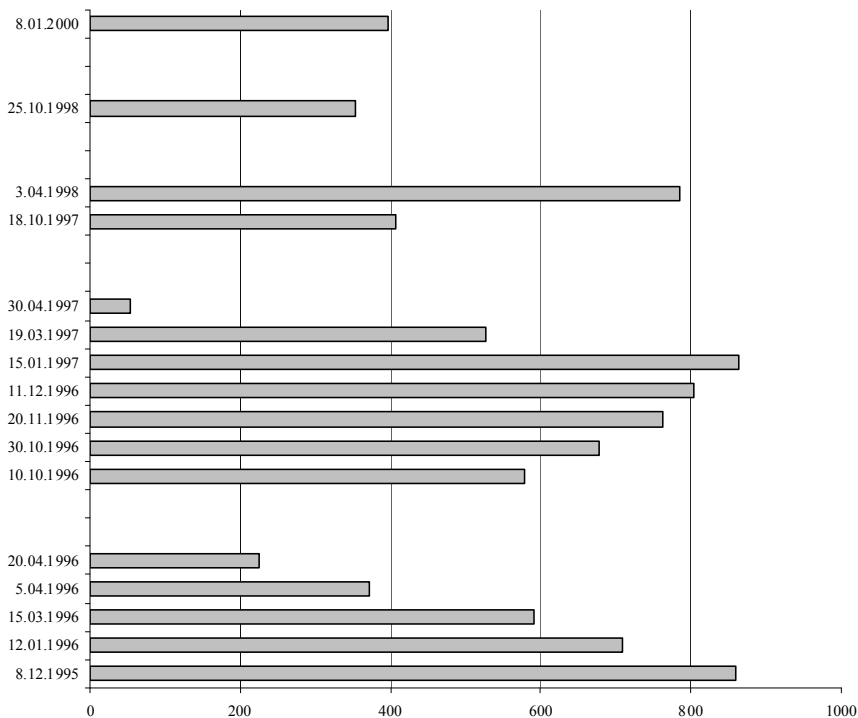


Fig. 1. Occurrence of *Rhinolophus ferrumequinum* in Lesu Water Cave.

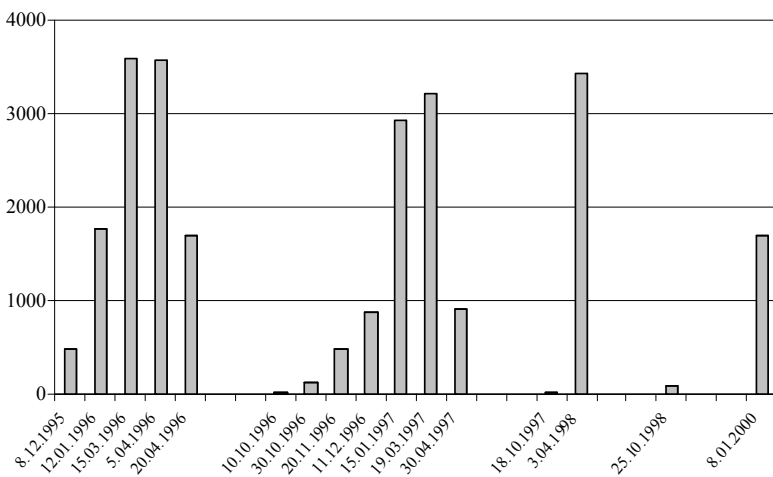


Fig. 2. Occurrence of *Myotis myotis/blythii* in Lesu Water Cave.

Conclusions

Lesu Water Cave is an important underground refuge in this region, housing 15 bat species in hibernation or as a transitory roost, and needs adequate protection measures to improve the present situation and to maintain this site in the future.

For further study, we intend to identify the summer colonies of the mouse-eared bats that hibernate here for a better protection strategy, and to take measures for protecting this important site together with the local authorities.

References

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Резюме

САНТО Л. Вивчення угруповань кажанів водної печери Лешу (гори Пятра-Крайолуй, Румунія). — Вивчення рукокрилих у Румунії не є тривалим. Наше товариство розпочало дослідження рукокрилих у середині 90-х років. Одним із перших об'єктів вивчення стала водна печера Лешу. У цій статті обговорюються результати 5-літнього дослідження. Досліджували спосіб використання печери кажанами та чинники, що загрожують існуванню колоній у ній. Печера Лешу є важливим підземним сховищем для регіону, як під час гібернації кажанів, так і у якості транзитного сховища. Загалом тут знайдено 15 видів кажанів. Печера потребує адекватних засобів охорони для поліпшення ситуації, що спостерігається, а також й для підтримки цього місця в майбутньому. Найбільш загрозливим фактором є спелеологічне вивчення печери під час зимівлі кажанів.