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Bats of the Carpathian Region (Rakhiv)
Кажани Карпатського регіону (Рахів)

Monitoring of building dwelling bats in Satu Mare County (Romania)

Farkas SZODORAY-PARÁDI [1] and Abigél SZODORAY-PARÁDI [2]

Transylvanian Museum Association (Satu Mare, Romania)
e-mail: farkas@ckf.satmar.ro

SZODORAY-PARÁDI A., SZODORAY-PARÁDI A. Monitoring of building dwelling bats in Satu Mare County (Romania). — The submitted material considers the results of the monitoring of bats carried out by the authors in buildings of Satu Mare during 1999–2000. A total of 116 buildings were surveyed and 9 species were found: *Rhinolophus ferrumequinum, R. hipposideros, Eptesicus serotinus, Plecotus austriacus, Vespertilio murinus, Myotis myotis, M. blythii, M. emarginatus*, and *Pipistrellus pipistrellus*. Two species — *Eptesicus serotinus* and *Plecotus austriacus* — are the most common in the buildings over the region. These species were found even in places that had no openings (attic windows). Tiled roofs have a negative impact on the settlement of bat colonies. The conservation and protection of colonies is only possible if the close cooperation between the researchers and the owners of buildings is taking place. In addition, it is our responsibility to clean the houses from the guano, if necessary. Another important point is the educational communication with people in order to prevent the negative attitude towards bats.

Introduction

The monitoring of house-dwelling bats was carried out by our work group for the first time in the country. Up to the present never have made studies on this field in Romania. Besides this monitoring, other members of our group made a similar survey in the county of Ciuc and in the county of Cluj. So we have to get references on this field from Hungary or other countries, which have richer activities and results.

In Romania, there is a law about bat protection but this does not include efficient protection strategies. Our task is to work out them. In our country, many people are still afraid of bats because of superstitions and misbelieve, that is why we can do educational work as well.

Material and methods

The survey was carried out between 1998 and 2000 on the area of Satu Mare County. The target area is situated in the north of Romania. The variety of superficial forms is rich resulting in diversified meso- and microclimate. This area is situated at 100–350 m above sea level.

During this monitoring, we have surveyed garrets, church towers, castles and other buildings, which seem to be possible roosts for bats. We checked the attics or

cellars of buildings. The bats were visited in daytime and they were estimated by counting. We have detected the bats using bat detector.

The quantity of guano can help us to estimate the size of bats colonies.

During data registering, it was very important to take into account the following parameters:

— the size and the condition of buildings that were checked,

— the place and the size of attic-windows,

— the type and condition of roof,

— the environment of churches,

— number of individuals of bats, the died bats,

— the quantity of guano,

— the presence of other animals- they may have an influence on the presence and size of bats colonies,

— all these data are registered in data sheet,

— we used to note the name and the address of building owners or of the priest (pastor).

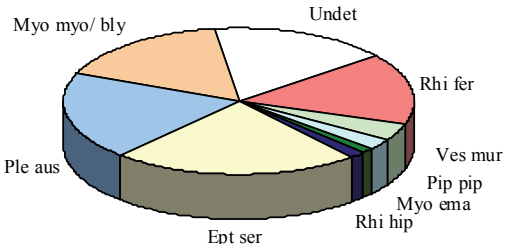

Fig. 1. Distribution of bat colonies in Satu Mare County (number of rosts).

Results and discussion

Satu Mare County has 186 villages. The research was conducted in 153 buildings of 78 settlements in the survey period between 1998–2000. We found in garrets and church towers the following species: *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Eptesicus serotinus, Vestpertilio murinus*, *Myotis blythi, M. myotis, Myotis emarginatus, Pipistrellus pipistrellus,* and *Plecotus austriacus.* Many times, we observed the presence of sparrows, pigeons, martens, barn owls, jackdaws.

Eptesicus serotinus. The biggest number of roost was represented by *E. serotinus*. This species is relatively insensitive to human disturbance. In some times, they may be found in buildings which were under renovation. The presence of other animals such as martens, pigeon, barn owls, sparrows do not seem to disturb them too. This species has a successful distribution because of its high adaptation ability.

Myotis blythi, M. myotis. We have found this species from 13 roosts. It has the highest abundance and the greatest breeding colonies. (1307 specimens were found). Usually they like the undisturbed buildings. Often we found specimens in old buildings renovated long time ago.

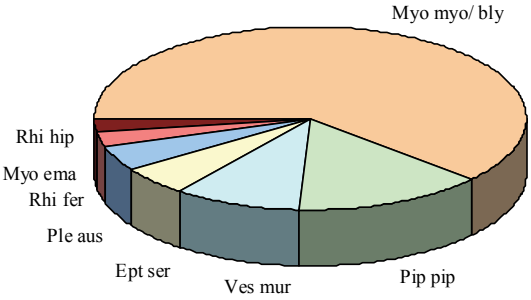

Fig. 2. Distribution of bat colonies by the number of individuals.

Plecotus austriacus. They were found in 15 roosting place, in a small number of colonies. Only 97 individuals were registered.

Vestpertilio murinus. This species is interesting because its breeding colony was found for the first time in Romania by our work group. The greatest part of Satu Mare County is lowland, the females were found here forming nursery colonies but the males were seen in mountain regions far away from this county (in south of Romania at 1000 m above sea level). It is important to mention that we have never seen both *Vespertilio murinus* and *Eptesicus serotinus* in the same roost. Moreover (*and what is more*) we have found this species without serotine bats in large territories. This distribution area should be containing more neighbouring settlements.

Pipistrellus pipistrellus. Only in two roosts were found in total 300 specimens.

Myotis emerginatus. 50 specimens were found from one roost. We saw them just once.

Rhinolophus hipposideros. We have seen this species just once from one roost. There was one specimen detected.

Rhinolophus ferrumequinum. They are frequent on the hill area. 53 specimens were found from 12 roosts.

Undeterminited species. Often we could not determinate the species. From 13 roosts were found just tracks of bats.

Conclusion

The most frequently found species in the studied are was *Eptesicus serotinus* but this species was presented by a small (5%) individual number (Fig. 1, 2, 3).

The greatest individual number had *Myotis myotis/Myotis blythi*, they were found in 62 %. Its frequency was represented only in 17 %.

In the researched area has been found 19 % of *Plecotus austriacus*, but its individual number was only 3 %. *Rhinolophus ferrumequinum* from 12 roosts 53 (only 2 %) individuals were found. *Vestpertilio murinus* was found in 3 roosts. Building dwelling bat species (monitored by our work group) from Satu Mare County consists of 9 % *Vespertilio murinus*. *Rhinolophus hipposideros* and *Myotis emarginatus* were found only once or twice.

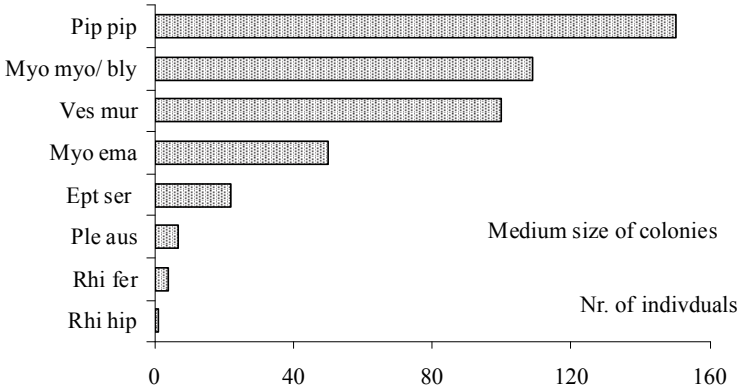

Fig. 3. Distribution of bat colonies by the number of individuals.

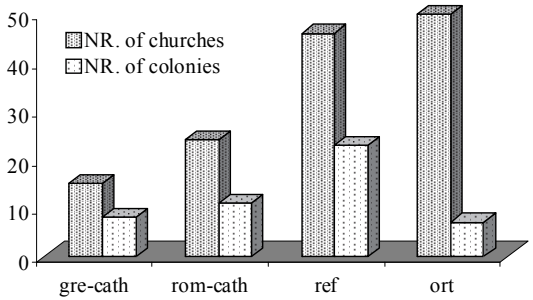

Fig. 4. Distribution of house dwelling bats in Satu Mare County in different churches.

The biggest medium size of colony has *Pipistrellus pipistrellus* followed by *Myotis myotis/ M. blythi, Vespertilio murinus, Myotis emarginatus,* and *P. pipistrellus* usually having big colonies (Závoczky 1997; Papp 1997; Dobrosi 1997; Bihari 1993).

Taking into account the bad condition of most of the buildings, in same habitats we have bigger bat population than Hungary has (Papp 1997). Reformed churches are in the worst condition so most of the bats have found shelter in these kinds of buildings. Orthodox churches usually have been restaurated and thus only few bats were found there (Fig. 4).

Bats, especially those that find shelter in buildings, need efficient protection. These animals are defenceless in the world of ordinary people who usually have many superstitions. That is why we can include in our monitoring program educational work as well.

Our study is just a beginning. We are going to continue this monitoring in the future in order to survey the building dwelling bats in a greatest part of Romania.

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Резюме

Содорай-Параді Ф., Содорай-Параді А. Моніторинг кажанів, що оселяються в будинках в місцевості Суту-Маре, Румунія). — Поданий матеріал розглядає результати моніторингу кажанів, здійсненого авторами в будівлях місцевості Сату Маре протягом 1999–2000 років. Всього обстежено 116 будівель і знайдено 9 видів: *Rhinolophus ferrumequinum, R. hipposideros, Eptesicus serotinus, Plecotus austriacus, Vespertilio murinus, Myotis myotis, M. blythii, M. emarginatus*, та *Pipistrellus pipistrellus*. Два види — *Eptesicus serotinus* та *Plecotus austriacus* — найчастіше зустрічаються в будівлях регіону. Ці види знайдено навіть у місцях, що не мали відповідних отворів (вікон на горище). Черепичні дахи мають негативний вплив на поселення колоній кажанів. Збереження та охорона колоній можливі тільки за умови співпраці дослідників з власниками будівель. Крім цього, в наші обов'язки входить чищення будинків від гуано, якщо це необхідно. Ще одним важливим моментом є навчальне спілкування з людьми з метою упередження негативного ставлення до кажанів.