

# BUILDING DWELLING BATS SURVEY IN SATU MARE COUNTY, ROMANIA

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**Summary.** This paper will provide information about bat survey between 1998 and 2004 in Satu Mare County. During this time we have visited 178 buildings at 78 settlements. The following species were found: *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Eptesicus serotinus*, *Vespertilio murinus*, *Myotis blythi*, *Myotis myotis*, *Myotis emarginatus*, *Pipistrellus pipistrellus*, *Plecotus austriacus* and *Nyctalus noctula*. The biggest number of roost was represented by *Eptesicus serotinus* and *Myotis myotis* had the greatest nursery colony.

**Rezumat.** Acest articol cuprinde informații despre recensămintele efectuate între 1998 – 2004 în județul Satu Mare. De-a lungul acestei perioade am cercetat 178 de clădiri în 78 localități. Au fost găsite următoarele specii: *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Eptesicus serotinus*, *Vespertilio murinus*, *Myotis blythi*, *Myotis myotis*, *Myotis emarginatus*, *Pipistrellus pipistrellus*, *Plecotus austriacus* și *Nyctalus noctula*. Cel mai mare număr de indivizi îl reprezintă specia *Eptesicus serotinus* și *Myotis myotis* care au avut cele mai mari colonii de reproducere.

## Introduction

The survey of house-dwelling bats was started by our work group in 1998 in Satu Mare County. In this region there were no concrete researches, only few sporadic data were available about some of the bat species. Beside the survey of Satu Mare County were made similar researches in Cluj and Harghita counties. In order to assure the protection of house building bats it is important to know about their specific situation. Using this information will be possible to manage the restoration of those buildings which serve as roosts for the colonies. The conservation work will be effective only we can work together with the Environmental Protection Agencies and Local Authorities in the future.

## Material and Methods

The survey has been made between 1998 and 2004 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 diversified meso- and microclimate. This area is situated on the 100-350 m above sea level.

During this work we have surveyed towers and garrets of churches, attics and cellars of castles and old buildings which seem to be possible roosts for bats. The roosts were visited in daytime, the bats were identified by visual counting and by ultrasounds.

We detected the bats with bat detectors in their roost and during their emerging as well as. Torches and heterodyne bat detectors (Petersson D100, Petersson D200, Bat Box Duet) were used. With the help of frequency division detectors (Bat Box Duet) ultrasounds were registered which were later introduced in computer and analysed with Batsound software.

The quantity of guano helped us to estimate the size of bats colonies and also it showed the presence of nursery colonies in the case when the survey was made out of the nursery period. The following parameters were taken into account during the survey:

- the size and the condition of buildings which were checked,
- the place and the size of attic-windows,
- the type and condition of roofs,
- the environment of churches,
- number of individuals of bats, the died bats,
- the quantity of guano,
- the presence of other animals- they could influence the presence and the size of bats colonies
- all these data were registered in data sheet (building dwelling bats survey standard form of Romanian Bat Protection Association)

## Results and discussion

Satu Mare County has 186 villages. The research was done in 178 buildings of 78 settlements the survey period is between 1998-2004.

We found in garrets and church towers the following species: *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Eptesicus serotinus*, *Vespertilio murinus*, *Myotis blythii*, *Myotis myotis*, *Myotis emarginatus*, *Pipistrellus pipistrellus*, *Plecotus austriacus* and *Nyctalus noctula*.

Many times was observed presence of: sparrows, pigeons, martens, barn owls, and jackdaws.

The biggest number of roost was represented by *Eptesicus serotinus* (Fig. 1). This species is relatively insensitive to the human disturbance. In some times they may be found in buildings which were under renovation. The presence of other animals for ex: martens, pigeon, barn owls, sparrows does not seem to disturb them. This species has a successful distribution because its high adaptation ability.

*Myotis blythii*, *M. myotis*. We found this species from 15 roosts. It has a biggest individual number and the greatest breeding colonies. (1238 specimen were found, Fig. 2). Usually they like the undisturbed buildings. Many times we found specimens in old long time ago renovated buildings.

*Plecotus austriacus*. They were found in 21 roosting place, in a small number of colonies. Only 217 individuals were registered.

*Vespertilio murinus*. This species is interested 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 in 1000 m above sea level). It is important to mention that we have never seen both *Vespertilio murinus* and *Eptesicus serotinus* into 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 neighbour settlements.

*Pipistrellus pipistrellus*. Only in two roosts were found in total 300 specimens (Fig. 1,2).

*Myotis emarginatus*. 50 specimens have found from one roost. We saw them just in 2 shelters (Fig. 1,2).

*Rhinolophus hipposideros*. We have seen this species just once from one roost. There was one specimen detecting (Fig. 1,2).

*Rhinolophus ferrumequinum*. They are frequent on the hill area. 52 specimens were found from 10 roosts (Fig. 1,2).

Undetermined species. In many times we could not determinate the species. From 19 roosts were found just tracks of bats.

## Conclusion

The most frequently found species in researched are was the *Eptesicus serotinus* but this species was presented by a small (9.6%) number of specimens (Fig. 3).

The greatest number of specimens had *Myotis myotis* / *Myotis blythii*, they were found in 68.3%. Its frequency was represented only in 23%.

In the 32% of the researched area has been found *Plecotus austriacus*, but its number of specimens was only 6.7%.

*Rhinolophus ferrumequinum* from 10 roosts 52 (only 1.6% of total number of bats) individuals were found.

*Vespertilio murinus* has found in 3 roosts. Building dwelling bat species from Satu Mare County consists of 1.4% *Vespertilio murinus*.

*Rhinolophus hipposideros* and *Myotis emarginatus* were found only once or twice.

The biggest medium size of colony has the *Myotis myotis* / *M. blythii*, it is followed by *Pipistrellus pipistrellus*, *Myotis emarginatus*, *Eptesicus serotinus*. The Pipistrelle bats usually forms big colonies (Fig. 4, 5). (Zavoczky 1997, Papp 1997, Dobrosi 1997, Bihari 1993)

Taking into account the bad condition of most buildings, in same habitats we have bigger bat population than in Hungary. (Papp 1997)

Bats especially those which find shelter in buildings need efficient protection. In the case of restoration of churches or old buildings is never taken into consideration the presence of bats. An

other endangering factor is the people negative attitudes toward bats. From this reason we make complete our researches with educational work too.

Our study is just a beginning. We are going to continue this research in the future using the same methods in order to have a general overview about the present situation of building dwelling bats in the greatest part of Romania.

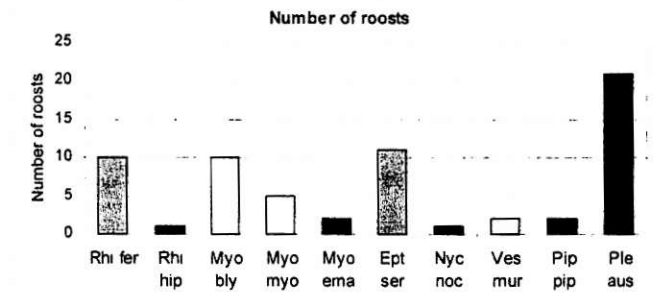


Fig. 1. The total number of roosts of each bat species found in Satu Mare County during the survey

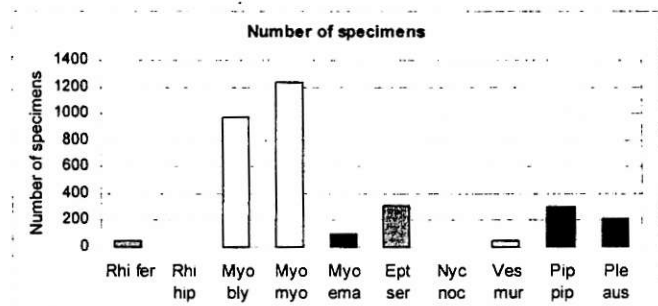


Fig. 2. Total number of specimens of each bat species found in Satu Mare County during the survey.

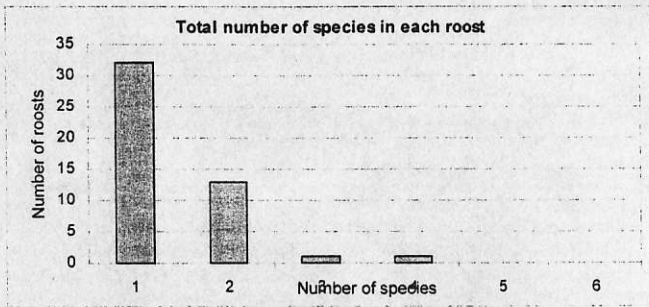


Fig. 3. Total number of bat species found in Satu Mare County during the survey

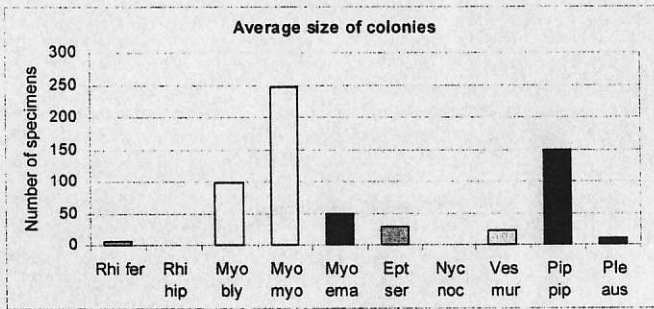


Fig. 4. Average size of bat colonies found in Satu Mare County during the survey

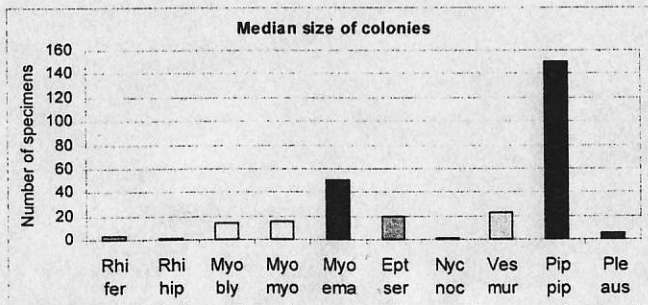


Fig. 5. Median size of bat colonies found in Satu Mare County during the survey

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