

Épületlakó denevérfajok az Aggteleki Nemzeti Park területén és környékén

House-Dwelling Bat Species in the Area and Surroundings of Aggtelek National Park

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ABSTRACT: The paper is about the results of bat-fauna monitoring work done by the authors in buildings on the area of Aggtelek National Park (North-Hungary) during 1994-95. The research was done in 60 buildings of 48 settlements. The paper presents the presence of 7 bat species: *Rhinolophus hipposideros*, *Rhinolophus ferrumequinum*, *Myotis blythi*, *Myotis emarginatus*, *Myotis dasycneme*, *Eptesicus serotinus*, *Plecotus austriacus*. The situation, composition of species and size of house-dwelling colonies living on the area of Aggtelek National Park is also given. It also displays the endangering factors and protective actions.

Introduction

The general degradation of nature's condition is a world-wide phenomenon and we have to feel urged to gather as much information as possible. Biomonitoring helps us to work out proper nature conservation strategies, but there is a basic requirement to survey the size of populations and the changes of individuals in number.

Bats are endangered in every respect, their populations have gone through serious changes for the worse for the past decades. It means that human interference has become more and more determining in the direction of natural processes. The occurrence of some species in buildings is particularly high, so these populations are even more affected by anthropogenic influences. During our study we were aiming at examining the factors which result in high endangerment due to special features of the habitats. On the other hand, we have surveyed the size of the populations, and the species they consist of.

Material and Methods

The project was completed between 1994 and 1995 relying on the monitoring scheme of previous years [BIHARI, GOMBKÖTŐ, 1993; ifj. BOLDOGH, 1995]. The target area is authorized by Aggtelek National Park. The variety of superficial forms is rich resulting diversified meso- and microclimate.

The plants and animals of northern slopes and basins show a connection with the Carpatians, whereas southern slopes and basins show the characteristics of the Pannon region. Most of the villages surveyed are situated in river valleys, where cultivated fields have mostly replaced the natural vegetation.

The basis of the study was the survey of churches at 48 villages (even more than once a year). Besides this other buildings (manor-houses, gamekeeper's lodges etc.) have been surveyed, so 60 buildings have been inspected.

The two following aims of the work can be defined:

- a, the survey of the populations; b, habitat maintenance and protection

Results

The data of the distribution of bats on the study area are given in the appendix.

Lesser horseshoe bat (*Rhinolophus hipposideros*)

This is the most frequently found species in the buildings of the area. The onethird of the data concerning the presence of bats in buildings in the region authorized by the Aggtelek National Park were about this species. Its presence was borne out in 17 buildings during the last two years. The species had been recorded in four of these buildings during earlier surveys [FÜGEDI, SZENTGYÖRGYI, 1992; ifj. BOLDOGH, 1995], and in three of these four ones was found again. In four cases, a decrease of the number of the individuals was detected, in one case, there was no change, and in yet another three cases even increase was recorded, compared to the data of the previous year data. In one of the latest category a population of ten had increased to thirty or forty and in other from eighty to one hundred and twenty. The species lives in small groups, which rarely count more than ten-fifteen individuals. Besides these smaller populations some, larger colonies can find safe breeding sites.

The colonies strictly stick to their residential places. Securing the existing landing-holes is an important task in their protection. Endangered species.

Greater horseshoe bat (*Rhinolophus ferrumequinum*)

It was recorded in surprisingly few, altogether 9 buildings during the survey, and even here only few (1-5) individuals, probably males were found. They were found in the same building only twice during the study.

It is an extremely endangered species, the number of colonies is on a decrease in the region. To settle down in larger colonies they need to live undisturbedly and the landing-holes have to be secured by all means.

Geoffroy's bat (*Myotis emarginatus*)

Some greater colonies are known in the area. A colony of 90 and another of 1.200 individuals were found in 1994 but they vanished by next year for unknown reason. These colonies had been discovered before that time [FÜGEDI, SZENTGYÖRGYI, 1992; ifj. BOLDOGH, 1995]. In three further habitats populations of 100, 120 and 200 have been found.

In the light of the results of earlier researches the yearly dynamics of the colonies is varied. The unsystematic changes in the number of specimens was experienced in the surroundings of Bükk Mountains as well [BIHARI, GOMBKÖTŐ, 1995]. Unfortunately we do not know the causes of this drastic decrease.

This species is strictly protected and endangered, so it deserve special attention.

Pond bat (*Myotis dasycneme*)

We could find it only twice during the two years. There was a nursery colony consisting of 70-120 specimens in one of the roosts. Next year it was not present there. We found the traces of a perished colony in another roost. The colony presumably disappeared because of the seizure of a barn owl (*Tyto alba*).

According to our results it is very rare and endangered.

Lesser and greater mouse-eared bat (*Myotis blythi* et *M. myotis*)

We suppose that these two species can be found together, although we did not find mixed colonies in the examined churches. Dead specimens and the ones we kept in hand were lesser mouse-eared bats (*M. blythi*).

We happened to find them in 9 buildings during the two years, in 5 buildings large colonies (consisting of 60-350 specimens) lived. There is data of appearance which is absolutely surprising. In case of 2 colonies the number of specimens decreased from 250 to 220 and 200 to 120.

The number of specimens in another colony doubled (it counted 120 animals), though the roof was being renovated then. We did not find colonies in two former roosts mentioned by FÜGEDI, SZENTGYÖRGYI [1992].

There are large nursery colonies living in almost all habitats, so it is less endangered.

Serotine (*Eptesicus serotinus*)

We found colonies in 12 buildings during the two years of the research. We did not experience decrease in the number of specimens. According to the 1995 research in 3 buildings the colonies almost doubled. The average number of specimens is about 20 in nursery colonies.

This species is very flexible so it is not under direct threat. In order to protect it we have to preserve its feeding areas.

Grey long-eared bat (*Plecotus austriacus*)

The species often can be found in buildings but it is very rare in this area. We happened to prove its presence only in 5 roosts during the two years. We found only dead specimens in two of the above mentioned roosts.

There was only one roost where we could find bats twice. Then the number of specimens decreased from 15 to 2. The literature [SZENTGYÖRGYI, FÜGEDI & VIZSLÁN., 1994] mentions other two habitats as well but we did not find colonies there.

This species is regarded as 'vulnerable, weak' by the international degree. This is backed up by the results of our research as well.

Maintenance and protection of habitats

The human-made artificial habitats replace quite a few disappeared natural habitats. The most serious endangering factor is the disappearance of habitats. It is often the result of the closing of landing-holes and attic-windows. The renovations are usually done during their nursing period which means another serious danger.

The suitable attic-windows are essential for the protection and resettling of the colonies. Pigeons also cause serious problems and we can get rid of them by making the attics dark. We clean the attics from the piled guano and this way help to settle the conflict of interests between the nature conservation authorities and the owners of buildings. We can make these habitats safe for long terms with small repairs, for example by insulating the planks.

It is very surprising that many people are still afraid of bats because of superstitions and misbelieves, that is why we do educational work as well.

According to our results the presence of predators exerts influence on the size of colonies but rarely causes their disappearance.

The fact we have up-to-date information about the planned renovations (e.g.: the change of roof, tiling) is regarded as one of our most important achievements and it helps a lot in the protection of colonies.

Summary

It is very important to have exact figures about both the colonies of protectable species and the endangering factors in order to carry out effective nature conservation programmes and to preserve the endangered species.

Certain bat species often live in buildings. They are under serious threat because of human disturbance. To these days the size of most species has decreased seriously, so their effective protection cannot be postponed.

The aim of our biomonitoring programme carried out in 1994-95 on the territory of ANP was to map the distribution of house-dwelling bat species and to found a data base in order to help the realization of protective activities.

The house-dwelling bat species of the area are generally endangered, although there are important and significant nursery colonies in case of some of them. With the help of the proposed methods the buildings can be maintained and can serve as both artificial roosts and safe habitats.

Acknowledgements

We would like to thank the staff of the National Park of Aggtelek for having allowed our research. We also have to thank those clerics who let us in churches and buildings and made it possible for us to get the information for our work. Part of the costs our work was sponsored by the Pro Renovanda Cultura Hungariae Foundation, Hungarian Bat Conservation Foundation and Regional Environmental Center for Central and Eastern Europe.

Appendix

Rhinolophus hipposideros BECHSTEIN, 1800

Aggtelek, ref. temp., 1994.07.18., 5, GP, BS; 1995.07.09., 1, GP, BS - Alsószuha, ref. temp., 1986.05.21., min.1, BS; 1994.07.18., 5, GP, BS - Bódvarákó, vadászház, 1995.07.08., 13, GP, BS - Debréte, kat. temp., 1989.07.07., min.1, BS - Dubicsány, ref. temp., 1988.06.25., min.1, BS - Jósvafő, ref. temp., 1994.07.18., 1, GP, BS - Kelemér, ref. temp., 1995.07.10., 1, GP, BS - Perkupa, kat. temp., 1994.07.18., 1, GP, BS; 1995.07.07., 1, GP, BS - Ragály, kastély1, 1994.07.18., 10, GP, BS - Ragály, kastély2, 1995.07.09., 2, GP, BS - Ragály, kriptá, 1986.05.20., min.1, BS - Rakacaszend, ref. temp., 1989.07.07., min.1, BS; 1994.07.20., 1, GP, BS - Szendrölád, kat. temp., 1989.07.01., min.1, BS; 1995.07.09., 7, GP, BS - Szendrölád, ref. temp., 1989.07.01., min.1, BS - Szin, ref. temp., 1989.07.08., min.1, BS; 1994.07.18., 5, GP, BS; 1995.07.09., 3, GP, BS - Szipettri, ref. temp., 1994.07.18., 6, GP, BS; 1995.07.09., 2, GP, BS - Szögliget, kat. temp., 1994.07.18., 10, GP, BS; 1995.07.07., 30-40, GP, BS - Szuhafő, ref. temp., 1994.07.18., 9, GP, BS; 1995.07.09., 12, GP, BS - Terezstenye, ref. temp., 1994.07.19., 1, GP, BS - Tornakápolna, ref. temp., 1986.06.11., 40, BS; 1994.07.18., 6, GP, BS; 1995.07.07., 3, GP, BS - Viszló, gör.kat. temp., 1995.07.08., 120, GP, BS; 1994.07.19., 80, GP, BS;

Rhinolophus ferrumequinum SCHREBER, 1774

Alsószuha, ref. temp., 1986.05.21., min.1, BS; 1994.07.18., 1, GP, BS; 1995.07.09., 1, GP, BS - Égerszög, ref. temp., 1994.07.19., 1, GP, BS - Imola, ref. temp., 1986.05.22., 1, BS - Perkupa, ref.

temp., 1995.07.07., 1, GP, BS; Ragály, kastély2, 1994.07.18., 1, GP, BS - Ragály, kriptá, 1986.05.20., min.1, BS - Szin, ref. temp., 1994.07.18., 1, GP, BS; 1995.07.09., 2, GP, BS - Szinpetri, ref. temp., 1986.05.20., 10, BS; 1995.07.09., 5, GP, BS - Tornakápolna, ref. temp., 1995.07.07., 1, GP, BS - Trizs, ref. temp., 1988.06.24., min.1, BS; 1995.07.09., 1, GP, BS - Zádorfalva, ref. temp., 1994.07.18., 1, GP, BS.

Myotis emarginatus GEOFFROY, 1806

Ragály, ref. temp., 1994.07.18., 1200, GP, BS - Szinpetri, ref. temp., 1995.07.09., 100, GP, BS - Tornakápolna, ref. temp., 1994.07.18., 90, GP, BS - Trizs, ref. temp., 1995.07.09., 120, GP, BS - Viszló, gör.kat. temp., 1994.07.19., 2000, GP, BS; 1995.07.08., 2000, GP, BS;

Myotis dasycneme BOIE, 1825

Martonyi, ref. temp., 1989.07.07., min.100, BS - Tornabarakony, gör. kat. temp., 1994.07.19., 120, GP, BS.

Myotis myotis BORKHAUSEN, 1797 et Myotis blythi TOMES, 1857

Alsószuha, ref. temp., 1988.03.05., min.1, BS; 1994.07.18., 200, GP, BS; 1995.07.09., 120, GP, BS - Hidvégárdó, kat. temp., 1986.06.11., 300, BS; 1994.07.19., 350, GP, BS; 1995.07.08., 350, GP, BS - Kelemér, ref. temp., 1986.05.21., 150-200, BS; 1994.07.17., 60, GP, BS; 1995.07.10., 120, GP, BS - Komjáti, kat. temp., 1986.16.11., 30, BS - Krasznokvajda, kat. temp., 1995.07.07., 5, GP, BS - Martonyi, ref. temp., 1989.07.07., min.100, BS; 1995.07.07., 60-70, GP, BS - Serényfalva, kat. temp., 1995.07.10., 1, GP, BS - Szin, ref. temp., 1989.07.08., min.1, BS; 1994.07.18., 250, GP, BS; 1995.07.09., 220, GP, BS - Szögliget, kat. temp., 1994.07.18., 1, GP, BS; 1995.07.07., 15-20, GP, BS - Szőlősdárdó, ref. temp., 1986.06.11., 30, BS; 1994.07.19., 250, GP, BS; 1995.07.09., 250, GP, BS - Viszló, gör.kat. temp., 1994.07.19., 1, GP, BS.

Eptesicus serotinus SCHREBER, 1774

Bódvalenke, ref. temp., 1994.07.19., 50, GP, BS; 1995.07.08., 120, GP, BS - Bódvaszilás, ref. temp., 1994.07.19., 15, GP, BS - Dubicsány, ref. temp., 1988.06.25., min.1, BS - Hidvégárdó, kat. temp., 1994.07.19., 15, GP, BS; 1995.07.08., 50, GP, BS - Perecse, gör.kat. temp., 1995.07.07., 20-25, GP, BS - Perkupa, ref. temp., 1994.07.18., 20, GP, BS; 1995.07.07., 15-20, GP, BS - Rakaca, gör. kat. temp., 1994.07.20., 2, GP, BS - Serényfalva, kat. temp., 1994.07.17., 15, GP, BS; 1995.07.10., 20, GP, BS - Szin, ref. temp., 1994.07.18., 20, GP, BS; 1995.07.09., 20, GP, BS - Szögliget, ref. temp., 1994.07.18., 20, GP, BS - Szőlősdárdó, ref. temp., 1994.07.19., 30, GP, BS - Tornabarakony, gör. kat. temp., 1994.07.19., 50, GP, BS; 1995.07.08., 100, GP, BS - Varbóc, ref. temp., 1994.07.18., 7, GP, BS.

Plecotus austriacus FISCHER, 1829

Égerszög, ref. temp., 1986.05.20., 1, BS - Krasznokvajda, kat. temp., 1995.07.07., 1, GP, BS - Rakacszend, ref. temp., 1994.07.20., 2, GP, BS - Sajólászlófalva, ref. temp., 1989.07.06., 2, BS - Serényfalva, kat. temp., 1994.07.17., 15, GP, BS; 1995.07.10., 2, GP, BS - Szuhafő, ref. temp., 1986.05.21., 50, BS - Tornaszentandrás, kat. temp., 1994.07.19., 2, GP, BS - Viszló, kat. temp., 1994.07.19., 1, GP, BS.

Összefoglalás

Az Aggteleki Nemzeti Park hatósági területén és annak környékén 1994-95-ben épületlakó denevérfajok állományainak feltérképezését végeztük egy hatékony védelmi program megalapozásaként.

A vizsgálatok során 48 település 60 épülete került felmérésre. A cikk ismerteti 7 bizonyítottan előforduló denevérfaj (*Rhinolophus hipposideros*, *Rhinolophus ferrumequinum*, *Myotis blythi*, *Myotis emarginatus*, *Myotis dasycneme*, *Eptesicus serotinus*, *Plecotus austriacus*) helyzetét.

A kis patkósorrú denevér (*Rhinolophus hipposideros*) a leggyakrabban előforduló faj a terület épületeiben. A területen az épületekből származó denevérelőfordulási adataink harmadát e faj szolgáltatja. Az elmúlt két év során összesen 17 épületből sikerült előfordulását igazolni. A területen a faj általában kis csoportokban él, ezek egyedszáma ritkán haladja meg a tíz-tizenöt egyedet. A kisebb állományok mellett néhány nagyobb egyedszámú kolónia is biztos szaporodóhelyet talál magának.

A nagy patkósorrú denevér (*Rhinolophus ferrumequinum*) az ellenőrzések során meglepően kevés épületből, összesen 9 helyről vált ismertté, de itt is csak néhány (1-5) példányt találtunk.

Néhány nagyobb kolóniája ismert a területről a csonkafülű denevérnek (*Myotis emarginatus*), melyek közül egy 1994-ben talált 90 pld-os, valamint egy 1200 pld-os kolóniája ismeretlen ok miatt a következő évre eltűnt. További három lelőhelyén jelentős, 100, 120 és egy 2000 példányos kolóniáit találtuk.

A tavi denevér (*Myotis dasycneme*) a két év alatt csupán két helyen figyeltük meg. Az egyik élőhelyen kb. 70-120 egyedet számláló szaporodó kolóniája volt, mely a következő évben már nem tartózkodott előfordulási helyén. Másik lelőhelyén egy elpusztult kolónia maradványait találtuk, ami feltételezhetően gyöngybagoly (*Tyto alba*) betelepülése miatt roppant össze.

Hegyesorrú és közönséges denevér (*Myotis blythi* et *Myotis myotis*) egyedeit a két év alatt összesen 9 épületből sikerült igazolni, öt épületben mindkét évben nagyobb egyedszámú (60-350 példányból álló) kolóniát találtunk. Egy előfordulási adata a korábbiakhoz képest újnak számít. Két kolónia egyedszáma csökkent (250-ről 220-ra illetve 200-ról 120-ra). Egy másiknál kétszeres növekedést tudunk megfigyelni, ekkor a kolónia 120 példányból állt, bár a vizsgálattal egyidőben tetőfelújítást végeztek.

Kései denevér (*Eptesicus serotinus*) 12 épületből került elő a két év során. Állományában egyedszámcsökkenést sehol sem tapasztaltunk. Az 1995. évi ellenőrzés során három épületben közel kétszeresére növekedett állományt találtunk, mint egy évvel korábban (két helyen 50 egyedről 100-ra illetve 120-ra, míg egy helyen 15-ről 50-re emelkedett a kései denevérek száma. A szaporodó kolóniák jellemző egyedszáma 20 körüli.

A szürke hosszűfűlű denevér (*Plecotus austriacus*) példányait a területen csak ritkán találtuk. Összesen öt lelőhelyről tudtuk igazolni a két év során, ebből két helyen csak elpusztult példányokat találtunk. Egyetlen lelőhelyen találtuk meg a faj egyedeit mindkét ellenőrzés alkalmával, de ekkor is a korábbi 15 egyedből álló kolónia 2 egyedre zsugorodott állományát figyelhetjük meg. E faj ritka előfordulásának oka ismeretlen.

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