

COMMENTS ON THE PROTECTION OF BATS IN CZECHOSLOVAKIA AND SOME SUGGESTIONS ON THE RESEARCH ON BAT POPULATIONS

by

VLADIMÍR HANÁK

Institute of Zoology, Charles University, Praha, Č.S.S.R.

&

JIŘÍ GAISLER

Institute of Zoology, J. E. Purkyně University, Brno, Č.S.S.R.

Czechoslovakia, fortunately enough, belongs to the regions having still numerous habitats resembling the original ones, or at least suitable to the needs of many original species of mammals. This concerns especially the bats while these animals are partly adapted to a synanthropic way of life in a country with many old buildings, parks, woods of different types, etc. Therefore, the protection of bats in Czechoslovakia appears not to be such a

serious problem as in some other central and western European countries. Apart from the region of the South Slovakian Kars, we have no data on the decline of bat populations as a whole.

Considering this, we were interested in the influence of our own activities on the populations in certain localities. This activity concerned banding, recapturing, and also collecting of bats for the purpose of systematic, morphological, parasitolog-

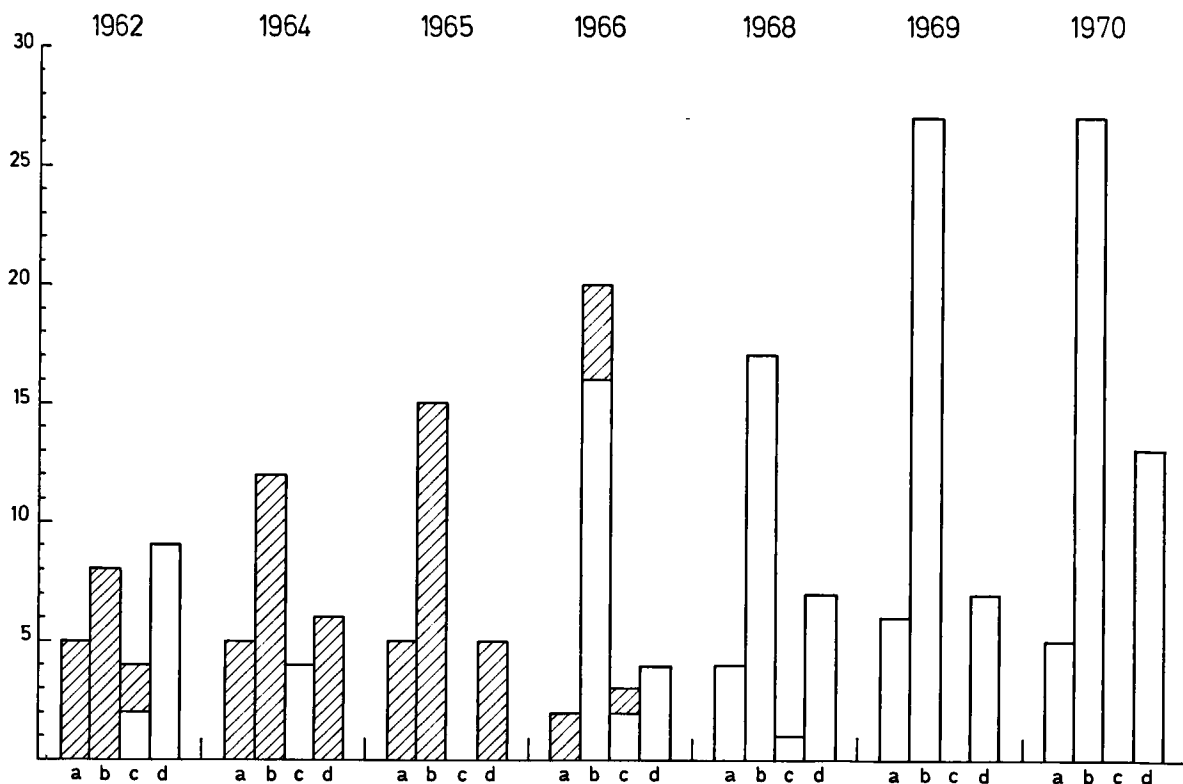


Fig. 1. Number of bats hibernating in a subterranean quarter at Bechyne, southern Bohemia, in 1962 to 1970. a, *Plecotus auritus*; b, *P. austriacus*; c, *Myotis myotis*; d, *Barbastella barbastellus*; hatched, number of individuals removed from the locality.

ical, and physiological investigations. Figs. 1 and 2 show the fluctuations in number of several species of bats recorded in two bat hibernating quarters in Bohemia. Both of these localities are situated in forested areas and populated by such species as *Plecotus*, *Barbastella*, and *Eptesicus nilssoni* — all of them showing preference for cooler hibernating quarters.

Fig. 1 is based on the quantitatively estimated numbers of bats hibernating in a vast complex of cellars of a big castle in southern Bohemia. In 1960 and 1961 some individuals were removed from the quarter to be used in laboratory studies.

In the remaining years, only banding and releasing at the spot was performed. Irrespective of these interferences, the number of *Barbastella* and *Plecotus* remained fairly constant.

Similar was the situation in a hibernating quarter in northern Bohemia, in which *E. nilssoni* was rather common (fig. 2). In 1965 and 1966, nearly all *E. nilssoni* were removed from the locality, an old underground fortress. Again this action did not substantially influence the findings in the subsequent years. In the last winter, the populations were even greater (this seems to be a general phenomenon of the season 1969/70). In this quar-

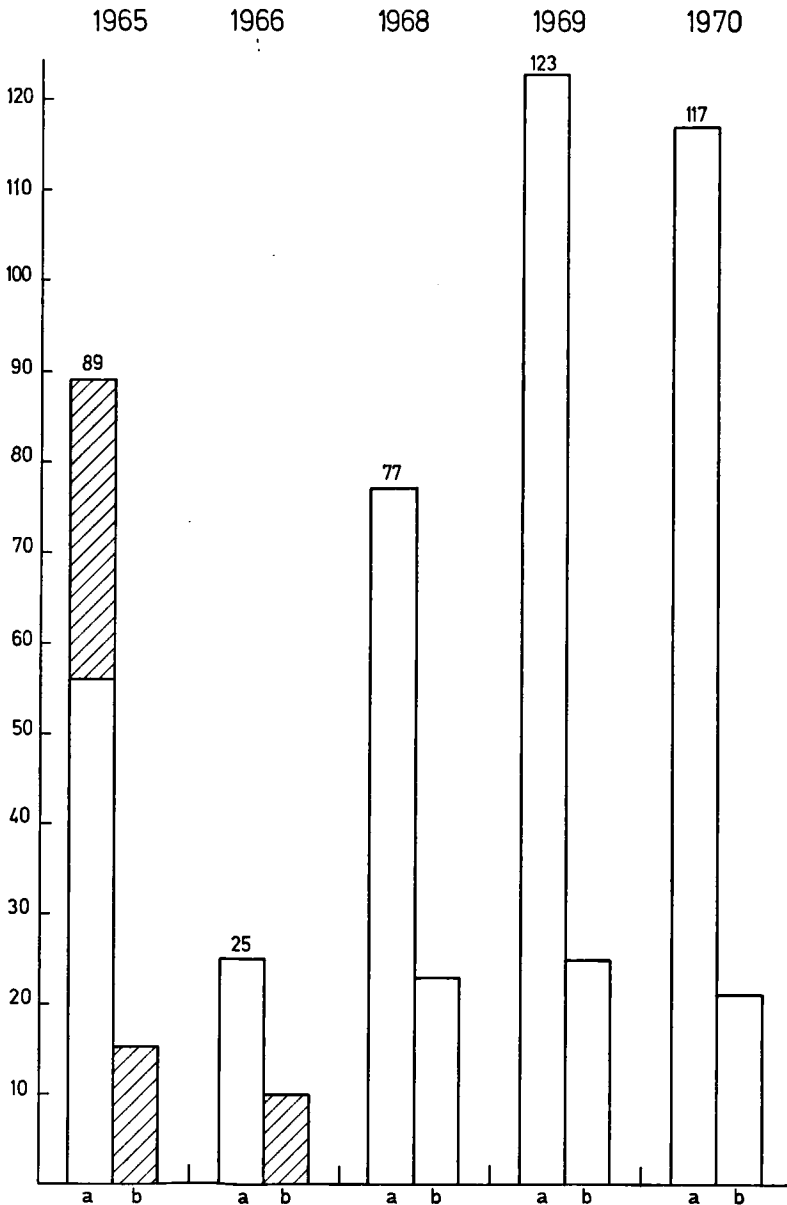


Fig. 2. Number of bats hibernating in a subterranean quarter at Hanička Hill near Rokytnice, northern Bohemia, in 1965 to 1970. a, total number; b, only *Eptesicus nilssoni*; hatched, number of individuals removed from the locality.

ter, all the bats hibernating can easily be seen, thus the checking was quantitatively correct.

These two examples tend to show that populations of original forest-dwelling bats (to which the mentioned species seem to belong) are fairly constant. With regard to the fact that these species — according to the present knowledge — do not form large nursing colonies and, with the exception of *B. barbastellus*, no large winter colonies either, the possible losses in one locality are negligible. The populations are scattered over the area and use many summer as well as winter quarters. Therefore, they are resistant to a local disturbance or collecting activities diminishing their number.

Quite another situation apparently exists in the hibernating quarters of the so-called thermophilous species — first of all the horseshoe bats, *Miniopterus schreibersi*, and some eurytherm but originally cave dwelling members of the genus *Myotis*. From fig. 1 the influence of our activity on the quantity of hibernating *M. myotis* is obvious. Of course, in the two hibernating quarters mentioned, the number of this species was small. Nevertheless, other data, especially those obtained in the vast Kars caves, indicate the decline of *Myotis myotis*, *M. blythi*, *Rhinolophus* species, and *Miniopterus schreibersi* due to banding and other research activities.

Although in such species as *Rhinolophus hipposideros*, no general decline was observed in this country, a local decline may occur in a given hibernating quarter. This holds true even more for *R. ferrumequinum*, *R. euryale*, and *Miniopterus*

schreibersi in the South Slovakian Kars area. It is very likely that many species of the originally cave dwelling bats did not live (did not breed) in our country before man started to construct buildings. These species are now threatened.

There are, however, very few exact data on the population density of bats in general. Much more research is needed to show in how far the populations are constant or diminishing (or increasing) in different areas. As insect-feeders, bats are not unimportant from the point of view of biological productivity. The research on population dynamics and food composition of bats should be incorporated in the International Biological Programme. Similar research on insectivorous birds and mammalian predators is organized on an international scale, but bats, according to our knowledge, escaped notice of the IBP authorities.

Protection of bats should be directed first of all to conservation of subterranean bat roosts. Especially natural caves, though being at the same time under the general protection of the natural conservancy, need further attention. Perhaps, several caves can be chosen where collecting and ecological research on bats has to be allowed; the remaining majority of caves should stand under strict inspection and no handling at all with bats has to be allowed there. For other types of bat roosts, such as old trees, buildings, etc., protection does not seem to be so urgently necessary in Czechoslovakia. However, positive propaganda concerning the preservation of all potential bat roosts is needed.