

Abstract

Order *Chiroptera* is characterized by great variability in foraging, roost and social strategies. Polygamy is the most common mating system in this order and *resource-defence polygyny* is a typical strategy used by most of bats. The source which male defends is represented by roost and territory or by females in case of harems. Another strategy is represented by multi-male and multi-female autumn meeting at so-called swarming sites. With relatively non-specialized forms, the genus *Myotis* is widespread all over the world except arctic regions and is found in great number of biotops including tropical mountain forests and subarid regions.

M. myotis and *M. blythii/oxygnathus* are two cryptic species which can be distinguished in morphological, biogeographical and ecological parameters. In central Europe, *M. myotis* uses synantropic roosts and recently started to use a highway bridges, mainly in autumn. Seasonal organization of population represents typical temperate cycle. The organization of maternity colonies reacts on different thermal conditions by changing aggregation in order to stay in thermal optimum. There is an intensive communication between females and juveniles in maternity colonies as well as between males and females in mating sites. Although that *M. myotis* is intensively studied in Europe, the mating system, mating behaviour, and intrasexual communication are poorly known. Also, the situation in sibling species *M. blythii/oxygnathus* remains unclear. Further research is necessary.

Key words: mating systems, behavioural adaptation, energy budget, *Myotis myotis*, male, maternity colonies