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ЗАМЕТКИ

Notes on bat hibernation sites from Central Russia. — Bat hibernation sites nearby Moscow have been studied by several authors (e.g. P.P. Strelkov, K.K. Panyutin, etc.). However, during the past decades there have been no works surveying the hibernation of Chiroptera in the considered region. In 1990–1994 we examined some artificial caves in Moscow and Tver regions in order to estimate their use by bats. A total of 8 caves have been investigated, most of which were not occupied, presumably due to the factor of disturbance and/or low humidity. However, hibernating bats were found in two localities not reported previously.

One of these hibernation sites is an abandoned limestone mine located on the right bank of Moskva river, approximately 2 km NW of Tuchkovo, Ruza district, Moscow region. The entrance is some 40 cm in diameter, situated 15 m above the water level. The cave was visited 8 times in 1990–1992. The average temperature was around +8°C and remained high above zero even with the outdoor temperature being -20°C; the humidity was close to 100%. 3 bat species have been found at the locality, predominantly *Plecotus auritus* and occasionally *Myotis brandti* and *M. daubentoni*, the maximal total number of individuals being 47.

A more detailed account was made for the hibernation site in Tver region. Despite the numerous small caverns in the area of study, only two were accessible for conducting observations, one of which was occupied by bats. This hibernation site is an abandoned limestone mine, located some 2 km N of Staritsa, on the right bank of Volga river. The entrance is 130×70 cm., situated in a ravined bank slope, covered with pine forest, approximately 40 m above the water level. The survey was conducted during 5 visits in winter and spring of 1992–1994. During the cold period the average temperature in the cave seldom rises higher than +8°C and the average humidity is 90–100%. The species composition of hibernating bats represented most of the Central Russian non-migrating species: *P. auritus*, *M. brandti*, *M. daubentoni*, *M. dasycneme*, and *M. nattereri*. Their average relative abundance was 4,1%, 78,6, 4,9, 8,6, and 3,8% respectively. The maximal recorded number of individuals was 147.

Comparison of data for subsequent years did not show significant decline in the numbers of hibernating bats at the considered localities. The two caves are characterised by relatively small size, which makes them rather unattractive for caving tourism (the major cause of disturbance). Besides, high humidity, conspicuous entrance, and a certain diversity of microclimatic conditions within the caves may also serve to sustain successful bat hibernation. — A. V. Borissenko, S. V. Kruskop (Zoological Museum of Moscow State University, Moscow, Russia).