ABSTRACT

Fitness in ground squirrels is a frequently discussed topic, reported in many publications, although it was rarely the subject of their study. The aim of this study was to determine which factors and find out how they affect the fitness of individuals, and thus the whole population of the European ground squirrel in Czech Republic. For this purpose we collected body mass data at three studied population, which are the main indicator of the fitness in ground squirrels. We also recorded information about injuries, reproduction status, ectoparasites and endoparasites.

Moreover we collected all available data on the body mass of European ground squirrel in the central European region, and we compiled overview of body mass changes during the season. This enables us to compare our data with typical/common body mass value in particular sex, age and season.

Recorded differences in body mass at three studied sites were related to sex, age, locality and season. We found positive correlation between the body mass and injuries from fights/reproduction activity in adult males. The relationship between body mass and reproduction activity of females was not found. Four species of ectoparasites, mostly occurring in adults, were recorded in studied populations. We also found five species of endoparasites, which occurred most frequently in the summer and mostly in juveniles.

Body mass overview clearly shows the trend of increasing body mass during the season, whereas the body mass of adult males was significantly higher than of females. The same trend was also found in juveniles, but there was no significant difference between sexes. Another important factor significantly affecting body mass was location, but the differences between larger geographic units were not reported. A main benefit of our body mass review its potential applications in assessing of ground squirrel fitness, for example in providing conservation of their populations

Key words: European ground squirrel, *Spermophilus citellus*, Sciuridae, fitness, population, body mass.