

ABSTRACT

The members of the genus *Anguis* are widely but hidden living reptile species in the Czech and Slovak Republic. Due to their slight morphological characters among species of the genus, presence of two out of five species in the study area has only recently been confirmed. However, a detailed knowledge about their distribution, contact zones or potential hybridization is still unknown or very insufficient. In this master thesis, 407 individuals of *Anguis fragilis* and *A. colchica* out of 281 locations were genotyped. 407 sequences of the mitochondrial marker ND2, 170 sequences of PRLR and 156 sequences RAG1 (both nuclear markers) were used for the genetic analyses. The results confirmed the dominant species *A. fragilis* for the Czech Republic and *A. colchica* for the Slovak Republic. The contact and potential hybrid zone has north-south direction from northern Moravia and Silesia, across the Morava River valleys to the Little Carpathians and the Danubian Lowland in Slovakia. The most important information of this thesis is about potential hybridization of these species. My analyses reveal that high number of individuals in the north-south direction zone has hybrid genotype. It allowed detecting the width of the hybrid zone and more accurate genetic structure among species and populations. In addition, demographic analyses show similar population history in both species with recent population expansion from glacial refugia with current stability in their population size.