

Abstract

Earth-boring dung beetles of the genus *Lethrus* Scopoli, 1777 belong to the family Geotrupidae, classified into three subfamilies (Geotrupinae, Lethrinae and Taurocerastinae). The description of about 120 species, divided into nine subgenera, is based on morphology and geographic distribution. Shape of mandibles, ventral mandible processes, pronotum and structure of external male genitalia are used as diagnostic morphological characters for taxa. The richest species diversity is known from Central Asia. The distribution area reaches, in the east, up to Mongolia and China, and in the west, up to Southeast Europe. All species are robust, relatively large flightless beetles with low dispersal ability. They feed on parts of fresh plants instead of feces like other dung beetles.

Master thesis is focused on the species distributed in the Eastern Mediterranean and Central Europe. This area is inhabited only by nominotypical subgenus *Lethrus*. The main goal of thesis is to clear up phylogenetic relationships between species of subgenus and speciation events using molecular genetic methods. We have examined 91 samples of the genus *Lethrus* using two mitochondrial genes – cytochrome b (382 bp, 80 sequences), cytochrome oxidase I (815 bp, 87 sequences) and nuclear gene 28S rDNA (D2-D5) (1100 bp, 11 sequences).

Two major lines have been identified based on phylogenetic analysis. These lines coincide with geographic location of the species. Based on my data, we dated the divergence of the lines into late miocene, the period of the formation of the Rilo-Rhodope massif and the Aegean Sea. These two structures represent natural barrier dividing the two lines. New species has been discovered and one species has been questioned.

Keywords: genus *Lethrus*, mtDNA, phylogeography, phylogeny, speciation, eastern Mediterranean