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Annotated checklist of Georgian oribatid mites

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Abstract

A new updated checklist of Georgian oribatid mites is based on the critical review of existing literature data and new findings. The list includes 534 oribatid species of which 21 species are new for the country recorded from more than 390 locations. For each species information of the global and regional distribution is presented with notes on ecological characteristics. As far as necessary we provide remarks on taxonomic issues to overcome the ambiguities and inconsistencies existing in literature.

Key words. Oribatid mites, catalogue, Caucasus biodiversity

Introduction

Oribatid mites represent one of the dominant arthropod groups in the soil environment, with more than 10000 species described (Norton & Behan-Pelletier 2009; Subías 2004, updated in 2015). They can be found through the soil profile, and inhabit aquatic and arboreal habitats as well (Norton & Behan-Pelletier 2009). Oribatid mites are trophically heterogeneous, with species feeding on various types of fungi, detritus, bacteria, algae and small invertebrate animals. They are characterized by k-style life history traits, such as slow development, poor dispersal ability and strong defensive mechanisms (Norton 1994; Norton & Behan-Pelletier 2009).

The Republic of Georgia is located in Caucasus, a biodiversity hot-spot which shelters the most diverse flora and fauna of the temperate region (Zazanashvili *et al.* 2004). Unlike most other groups of invertebrate animals in Georgia, the oribatid mite fauna is rather well explored. Investigations began with the works of Nadezhda Djaparidze (working period 1963–1990). The first list of Georgian oribatids was published in 1963 (Djaparidze 1963). In this checklist 80 species were recognized, and for each species sampling place and known habitats were ascribed. After this work, several updated checklists appeared dealing with oribatid mites of particular regions of Georgia or the whole country. Darejanashvili (1964) reported 71 morphospecies for Tbilisi and its surroundings, 43 species were registered on Trialeti Range (Djaparidze 1966) and 68 morphospecies were found in Borjom-Bakuriani gorge (Darejanashvili 1967). Reck (1976) provided another complete checklist for whole country with 283 species and Karppinen *et al.* (1987) indicated the presence of 299 oribatid species in Georgia. The most recent checklist of Georgian oribatid mites listed 340 species (Murvanidze & Darejanashvili 2000), and the catalogue of Shtanchaeva & Subías (2010) summarized information for Caucasian oribatid mite fauna in total, reporting 553 morphospecies for Georgia.

Unfortunately, in many cases in early literature detailed information on the geographic position of sampling locations was not provided, which resulted in uncertain distribution knowledge of some species. For example, “Georgia”, “Eastern Georgia”, “Upper Kartli” *etc.* are used as only location data, but these broad geographical units are not sufficient for regional biogeographic and ecological assessment of species. All the more recent checklists repeat many vague indications which make these references less useful.

After the publication of the catalogue of Shtanchaeva & Subías (2010), new species were described for Georgia (Murvanidze & Behan-Pelletier 2011; Murvanidze & Weigmann 2012; Murvanidze 2014; Shtanchaeva *et al.* 2010; Shtanchaeva & Subías 2012, 2012a) and new records for Georgian and Caucasian fauna were added (Mumladze *et al.* 2015; Murvanidze *et al.* 2011, 2015; Murvanidze & Mumladze 2014; Murvanidze & Todria 2015). Niedbała (2015) expressed doubts concerning the taxonomic status of several species described by Shtanchaeva & Subías (2012). Subsequent unpublished work by the authors during 2010–2014 years added many new data on the distribution of certain species in the Georgian territories. These data enrich our knowledge of local and regional oribatid biodiversity including some new and rare oribatid species and their specific habitat preferences (like dead wood, canopy, caves, *etc.*).

The discovery of mistakes concerning species distributions and several disagreements with the systematic placement of certain species provided by Shtanchaeva and Subías (2010), along with the new published and unpublished data on the oribatid diversity in Georgia, led us to prepare this upgraded checklist of Georgian oribatid mites. During preparation of checklist, we encountered problems regarding old type material of Djaparidze and Darejanashvili. Most of original material is lost or badly damaged and we could not check the specimens. (*Lucoppia nicora* Djaparidze, 1986, *Flexa bidens* Djaparidze, 1990, *F. horreo* Djaparidze, 1990, *Oribatula beccus* Djaparidze, 1990, *Eremaeus longiseta* Djaparidze, 1990, *Liacarus curtus* Djaparidze, 1985, *Carabodes egregius*

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