

Short communication

New records for the Georgian springtail fauna (Collembola)

Shalva Barjadze^{1*}, Hans-Jürgen Schulz², Ulrich Burkhardt², Willi E.R. Xylander², Revaz Djanashvili¹ and Meri Salakaia¹

¹ Entomology and Biocontrol Research centre, Agricultural University of Georgia, 13th km. of David Aghmashenebeli Alley, 0131, Tbilisi, Georgia

² Senckenberg Museum of Natural History Görlitz, Am Museum 1, 02826 Görlitz, Germany

* Corresponding author: Shalva Barjadze (e-mail: shalva.barjadze@yahoo.com)

Abstract

Five species of springtails (Hexapoda: Collembola) new to the Georgian fauna are presented: *Anurida uniformis*, *Entomobrya lanuginosa*, *Isotomurus pseudopalustris*, *Protaphorura meridiata*, and *P. subarmata* from Adjara Autonomous Republic, Samegrelo-Zemo Svaneti and Imereti Regions (Western Georgia) and Kakheti Region (Eastern Georgia) collected between 2010 and 2011. An overview of the investigation of this hexapod class in Georgia is given.

Keywords: Collembola, species list, Georgia

1. Introduction

Investigation of Georgian springtails was performed from the end of the 1940s onwards until about 1980. To that time 84 species of springtails had been recorded from Georgia (Barjadze & Djanashvili 2008). Since then, one genus and 8 species new to science were described from Georgia (Djanashvili & Barjadze 2011, Zhang et al. 2011, Jordana et al. 2012, Vargovitsh 2012), and *Willowsia platani* (Nicolet, 1842) was recorded for the first time for the abovementioned territory (Zhang et al. 2011), while *Tetracanthella caucasica* (Stach, 1947) was recorded by L. Kovac (1993) but was omitted from the check-list of the Georgian collembolans (Barjadze & Djanashvili 2008). On the other hand, 13 species of springtails listed in this checklist (Barjadze & Djanashvili 2008) were later recognised as doubtful records for the Georgian springtail fauna (Barjadze et al. 2012). Hence, at present 86 species of springtails are up to now known from Georgia, including five newly recorded species from Barjadze et al. (2012). Georgian springtail fauna is still poorly studied, and obviously there is a certain probability to record species new for this country or even species new to science. Another five species of springtails are reported here for the first time from Georgia. With these new records, the number of collembolan species known from Georgia increases to a total of 91.

2. Results - Annotated species list

Anurida uniformis Gisin, 1953 (Poduromorpha: Neanuridae)

Material: 1 juvenile, broadleaved forest, Anaklia, Kolkheti Lowland, Samegrelo-Zemo Svaneti Region (42° 23' N, 41° 35' E), 0 m a.s.l., 16.ii.2010.

Biology: Hygrotolerant, found in litter of damp *Alnus* forest along a stream (Fjellberg 1998), fen meadows (Sterzynska & Ehrnsberger 2005) and softwood riparian forest (Marx 2011). Bisexual. – Distribution: Palaearctic (Fjellberg 1998).

Entomobrya lanuginosa (Nicolet, 1842) (Entomobryomorpha: Entomobryidae)

Material: 6 juveniles, broadleaved forest, Mghvimevi village (Chiatura district), Imereti Region (42° 19' N, 43° 17' E), 568 m a.s.l., 29.iii.2011.

Biology: Found along seashore habitats, in rock vegetation and dry sandy meadows. Bisexual (Fjellberg 2007). – Distribution: Cosmopolitan (Fjellberg 2007).

Isotomurus pseudopalustris Carapelli, Frati, Fanciulli & Dallai, 2001 (Entomobryomorpha: Isotomidae)

Material: 2 ♀, broadleaved forest, Mghvimevi village (Chiatura district), Imereti Region (42° 18' N, 43° 17' E), 626 m a.s.l., 28.iii.2011.

Biology: on limestone on freshwater stream banks and in litter. Bisexual (Carapelli et al. 2001). – Distribution: probably cosmopolitan, few reliable data available due to confusion with other species (Potapov 2001).

Protaphorura meridiata (Gisin, 1952) (Poduromorpha: Onychiuridae)

Material: 3 ♀, broadleaved forest, Anaklia, Kolkheti Lowland, Samegrelo-Zemo Svaneti Region (42° 23' N, 41° 35' E), 0 m a.s.l., 16.ii.2010. 1 ♂, oak forest, Darkveti village (Chiatura district), Imereti Region (42° 19' N, 43° 19' E), 614 m a.s.l., 28.iii.2011. 1 ♂, broadleaved forest, Mghvimevi village (Chiatura district), Imereti Region (42°18'N, 43°17'E), 626 m a.s.l., 28.iii.2011. 2 ♂, 3 ♀, hornbeam forest, Lagodekhi Nature Reserve (Lagodekhi district), Kakheti Region (41° 50' N, 46° 16' E), 648 m a.s.l., 21.v.2011;

Biology: Soil and litter of different types of forests, on meadows and steppe biotopes. Bisexual (Kaprus' et al. 2006). – Distribution: Europe (Kaprus' et al. 2006).

Protaphorura subarmata (Gisin, 1957) (Poduromorpha: Onychiuridae)

Material: 1 ♂, 1 ♀, broadleaved forest, Kintrishi Nature Reserve, Adjara Autonomous Republic (41° 44' N, 41° 56' E), 803 m a.s.l., 27.iv.2011.

Biology: Eurytopic species, found in different types of habitats, from dry meadows to wet forests. Bisexual (Kaprus' et al. 2006). – Distribution: Europe (Kaprus' et al. 2006).

3. Acknowledgements

We thank Igor Kaprus' (Lviv, Ukraine) for providing valuable information about habitats and distribution of some newly recorded species, and Maka Murvanidze (Tbilisi, Georgia) for sampling of collembolans.

The first author was supported by DAAD programme: Research Stay for University Academics and Scientists (A/11/05439).

4. References

- Barjadze, Sh. & R. Djanashvili (2008): Checklist of the springtails (Collembola) of Georgia. – Caucasian Entomological Bulletin **4** (2): 187–193.
- Barjadze, Sh., H.-J. Schulz, U. Burkhardt, M. B. Potapov & M. Murvanidze (2012): New records for the Georgian springtail fauna (Collembola). – Zoology in the Middle East **56**: 143–146.
- Carapelli, A., Frati, F., Fanciulli, P. & R. Dallai (2001): Taxonomic revision of 14 south-western European species of *Isotomurus* (Collembola, Isotomidae), with description of four new species and the designation of the neotype for *I. palustris*. – Zoologica Scripta **30**: 115–143.
- Djanashvili, R. & Sh. Barjadze (2011): A new species of the genus *Plutomurus* Yosii, 1956 (Collembola, Tomoceridae) from Georgian caves. – Journal of Cave and Karst Studies **73**: 28–30.
- Fjellberg, A. (1998): The Collembola of Fennoscandia and Denmark. Part I: Poduromorpha. – Fauna Entomologica Scandinavica **35**: 1–184.
- Fjellberg, A. (2007): The Collembola of Fennoscandia and Denmark. Part II: Entomobryomorpha and Symphypleona. – Fauna Entomologica Scandinavica **42**: 1–264.
- Jordana, R., E. Baquero, S. Reboleira & R. Sendra (2012): Reviews of the genera *Schaefferia* Absolon, 1900, *Deuteraphorura* Absolon, 1901, *Plutomurus* Yosii, 1956 and the *Anurida* Laboulbène, 1865 species group without eyes, with the description of four new species of cave springtails (Collembola) from Krubera-Voronya cave, Arabika Massif, Abkhazia. – Terrestrial Arthropod Reviews **5**: 35–85.
- Kaprus', I. J., J. J. Shrubovych & M. V. Tarashchuk (2006): Catalogue of the Collembola and Protura of Ukraine. – State Natural History Museum NASU, Lviv: 164 pp.
- Kovac, L. (1993): Redescription of *Tetracanthella caucasica* Stach, 1947 status nov. (Collembola: Isotomidae). – Acta Zoologica Cracoviensia **35**: 373–379.
- Marx, M. T. (2011): Die Wirkung von Überflutung und Trockenheit auf die Mesofauna (Collembola, Pseudoscorpiones) im Gebiet des Inselrheins bei Mainz. – Thesis, Westarp, Hohenwarsleben: 432 pp.
- Potapov, M. (2001): Synopses on Palaearctic Collembola 3: Isotomidae. – Abhandlungen und Berichte des Naturkundemuseums Görlitz **73**: 1–603.
- Sterzynska, M. & R. Ehrnsberger (2005): Collembola assemblages of fen meadows in the nature reserve Stroomdallandschap Drentsche Aa (Netherlands) – the preliminary study. – Osnabrücker Naturwissenschaftliche Mitteilungen **30/31**: 137–144.
- Vargovitsh, R. S. (2012): New troglomorphic Arrhopalitidae (Collembola: Symphypleona) from the Western Caucasus. – Zootaxa **3174**: 1–21.
- Zhang, F., J. Chen & L. Deharveng (2011): New insight into the systematics of the *Willowsia* complex (Collembola: Entomobryidae). – Annales de la Société Entomologique de France **47**: 1–20.