

# Sawflies (Hymenoptera: Symphyta) from North Western Georgia (Sakartvelo) (Part II.)

GEORGE JAPOSHVILI<sup>1,2</sup> & ATTILA HARIS<sup>3</sup>

<sup>1</sup>Institute of Entomology, Agricultural University of Georgia, University Campus at Digomi David  
Aghmashenebeli Alley, 13th km, Tbilisi, Georgia email: giorgij70@yahoo.com

<sup>2</sup>Invertebrate Research Center, Tetrtsklebi, Telavi Municipality – 2200, Telavi, Georgia

<sup>3</sup>H-1076 Budapest, Garay u. 19. Hungary

JAPOSHVILI, G. & HARIS, A.: *Sawflies (Hymenoptera: Symphyta) from North-Western Georgia (Sakartvelo) (Part II.)*.

**Abstract:** 302 specimen belonging to 59 sawflies species were collected in North Western Georgia. Characteristic species are: *Monoctenus lechkhumensis* Haris & Japoshvili, 2022, *Birka catellata* (Konow, 1900), *Eutomostethus ephippium* ssp. *vopiscus* (Konow, 1899), *Strongylogaster caucasica* Schaposchnikov, 1885, *Macrophya hamata* ssp. *caucasicola* Muche, 1969, *Tenthredopsis viridis* Zhelochovtsev, 1941 and *Calameuta grombczewskii* (Jakowlew, 1891). Verticalzontal and zoogeographic distributions of sawflies were analyzed and discussed.

**Keywords:** Sawflies, Sakartvelo, Caucasus, Hymenoptera, Symphyta, nature conservation

## Introduction

Our present paper is the fourth part (after JAPOSHVILI & HARIS 2022a, b and c) of a series to investigate the sawfly (Hymenoptera: Symphyta) fauna of Georgia. In the first paper (JAPOSHVILI & HARIS 2022b), we studied the fauna of Kintrishi National Park and in the other papers including this one (JAPOSHVILI & HARIS 2022a,c) we continued the investigation with North Caucasus under the financial support of Caucasus Barcode of Life (CaBOL) project.

Georgia is located between Greater Caucasus and Lesser Caucasus. These two chains of mountains are connected by Likhi (Surami) ridge and divides Georgia into Western Georgia and Eastern Georgia. Geological origin of Greater Caucasus (Fig. 2) is from the same period as origin of the Alps (FISCHER et al. 2018). Caucasus is one of the biodiversity hotspots and represents unique geographic value with its landscape formation and special climatic conditions. More than 6 000 plant species are recorded (GVOZDETSKII 1963, GAGNIDZE 2005) from this hotspot and from this, almost 4 100 species are represented in Georgia (GAGNIDZE 2005) either. Racha-Lechkhumi and Kvemo Svaneti regions belongs to Western Georgia, with about 4 954 km<sup>2</sup>, with its highest peak: the Pasis Mta with 3 779 m altitude above sea level.

In botanical point of view, Georgia is subdivided into 19 regions. One of these regions is Racha-Lechkhumi, with almost 1 200 plant species. Racha and Lechkhumi are divided into two parts by Labechina Ridge (CHICHINADZE 2022). The Western part consists of Lechkhumi and Kvemo Svaneti regions and the Eastern part is Racha itself. Dogurashi

and Khvamli belong to Lechkhumi region (Tsageri municipality), located on the left bank of river Tskhenistskali River Canyon.

Khvamli's landscape is characterised by its significant rock massifs and wrinkled-karstic relief of the northern slope developed by limestones of Lower Cretaceous Urganian facies, on a substrate of marls and sandstones (AKHALKATSI & TARKHNISHVILI 2012, CHICHINADZE 2022).

Shola (Fig. 1) is part of Racha (Oni Municipality) and located on the right slopes of river Jejora canyon. It is an ancient wheat production area which was 20 ha in the past, but since the 30-ies of the last century this area reduced to 10 ha and the other parts, now, are pastures for cattle. It is surrounded with Hornbeam, Beech, Hazelnut and Oak forests.

Its climate is generally moist and characterized by Mediterranean influences. Both Tsageri and Oni characterized with moderately cold winters and with hot and dry summers. Average yearly temperature of these two areas are 11.4 °C and 10 °C and average precipitation are 1 235 and 1 100 mm respectively.

## Material and methods

Samples were collected by using Malaise traps (Fig. 3) from 17th till 25th of May in 2021. Traps were placed in 5 different altitudes, covered by virgin forests containing oak, beech, hornbeam, chestnut and wild pear. Sub-forest level is mostly formed by wild hazelnut, hawthorn and different blackberries.

The following sites were investigated:

1. Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 42.669761° N, 42.785362° E. Meadow surrounded by beech forests. Originally, this meadow was on old dwelling place, where apple, pears and hawthorns were grown mixed wild rose and sweetbriars. Some young sprouts of pines were on the meadow either.
2. Dogurashi: 17-24. 05. 2021, alt. 1 470 m, 42.678243° N, 42.810053° E. Area of stripped beech forest, with decomposing remains of fallen trees, and covered with blackberry bushes.
3. Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 42.528598° N, 42.724312° E. Small open area in the middle of a beech forest with wild hazelnut bushes.
4. Khvamli Mountains, 18-25. 05. 2021, alt. 1 462 m, 42.555768° N, 42.705496° E. Wide pasture surrounded by old virgin beech forest.
5. Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 42.558520° N, 43.519316° E. Wide hay meadow, with small sprouts of beech, pear and wild hazelnut.

For identification, and for host plant data, Zhelochovtsev's work on the sawflies of the European part of the former USSR, the handbook of Lacourt on the identification of the European sawflies, the monograph of Robert Benson on the Turkish sawfly fauna, Gussakovskij's monographs on the Symphyta of the former USSR and the latest Czech and Slovakian monograph (GUSSAKOVSKIJ 1935, 1947, BENSON 1968, ZHELOCHOVTSEV 1988, MACEK et al. 2020, LACOURT 2020) were consulted. We also used some recent revisions and works to confirm the identifications (GYURKOVICS & HARIS 2014, HARIS 2006, PROUS et al. 2017, 2021). To document the distribution of sawflies, we consulted the book of ROLLER & HARIS (2008), the most recent European checklist of species (TAEGER et al. 2006) and the monograph of Sundukov of the sawflies of Russia



**Fig. 1: Ontihevi: Shola sampling site**  
(Photo: G. Japoshvili)



**Fig. 2: North Caucasus landscape**  
(Photo: G. Japoshvili)



**Fig. 3: Malaise trap at Ontihevi: Shola**  
(Photo: G. Japoshvili)

(SUNDUKOV 2017). Further, reference material was studied in the collection of the Hungarian Natural History Museum, Budapest and the collection of Tbilisi University of Agriculture in Tbilisi. The nomenclature used in this paper, follows the latest monograph of European sawflies (LACOURT 2020) with special concern for the subfamily Nematinae to address the conclusions of PROUS et al. (2014). The higher classification of sawflies applied in this work follows the Hymenoptera part of Fauna Europaea (ACHTERBERG 2013).

## Results

### Family **Argidae**

Genus *Aprostema* Konow, 1899

*Aprostema melanurum* (Klug, 1814): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Palearctic species. Sporadic. Host plant: *Lathyrus pratensis* (Fig. 4).



Fig. 4: *Aprostema melanurum* (Klug, 1814)

Genus *Arge* Schrank, 1802

*Arge cyanocrocea* (Forster, 1771) (colour variation: *Arge syriaca* Mocs.): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. West Palearctic species. Common. Host plants: *Rubus idaeus* and *Sanguisorba officinalis*.

Family **Diprionidae**Genus ***Monoctenus*** Dahlbom, 1835

*Monoctenus lechkhumensis* Haris and Japoshvili, 2022: Dogurashi, 17-24. 05. 2021, alt. 1 070 m, 1 female. Newly described species. Probably Caucasian endemism

Family **Tenthredinidae**Subfamily **Dolerinae**Genus ***Dolerus*** Panzer, 1801

*Dolerus (Poodolerus) fumosus* Stephens, 1835: Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 4 females, 7 males; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 4 males. Sporadic. We agree with Macek et. al., 2020, that it is only black colour variation of *Dolerus sanguinicollis* (Klug, 1818), since males with fumosus type of penial valve always found together with *Dolerus sanguinicollis* with red thorax. West Palaearctic, sporadic species. Host plant: *Poaceae*.

Subfamily **Selandrinae**Genus ***Aneugmenus*** Hartig, 1837

*Aneugmenus coronatus* (Klug, 1818): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 females. Palaearctic species. Sporadic. Host plants: *Dryopteris filix-mas*, *Aspidium* sp., *Athyrium filix-femina* and *Pteridium aquilinum*

*Aneugmenus padi* (Linné, 1760): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Holarctic. Sporadic. Host plants: *Asplenium* sp. and *Pteridium aquilinum*

Genus ***Birka*** Malaise, 1944

*Birka (Birka) annulitarsis* (Thomson, 1870): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 1 male. West Palaearctic. Sporadic. Host plant unknown.

*Birka (Birka) catellata* (Konow, 1900): Dogurashi: 17-24. 05. 2021, alt. 1 470 m, 14 males. Ponto-Caspian and Turanian. Common species. Host plant unknown.

Genus ***Nesoselandria*** Rohwer, 1910

*Nesoselandria morio* (Fabricius, 1781): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 1 male. Holarctic. Frequent. Host plants: *Brachytecium reflexum*, *Ceratodon purpureus*, *Chenopodium album*, *Dicranum scoparium*, *Fragaria vesca*, *Hedwigia ciliata*, *Myosotis arvensis*, *Plagiomnium cuspidatum*, *Plagiothecium denticulatum*, *Polygonum aviculare*, *Polytrichum commune*, *Pseudobryum cinclidiodes*, *Sanionia uncinata*, *Stellaria media*, *Veronica chamaedrys* and *V. officinalis*.

Genus ***Strongylogaster*** Dahlbom, 1835

*Strongylogaster caucasica* Schaposchnikov, 1885: Dogurashi: 17-24. 05. 2021, alt. 1 470 m, 4 females. Ponto-caspian sporadic species. Host plant unknown.

*Strongylogaster macula* (Klug, 1817): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Rare Palaearctic species, introduced to North America. Host plants: *Athyrium filix-femina*, *Dryopteris filix-mas*, *Polystichum aculeatum* and *Pteridium aquilinum*

*Strongylogaster multifasciata* (Geoffroy, 1785): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 3 females; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Sporadic Palearctic species. Host plant: *Pteridium aquilinum*

Subfamily **Allantinae**  
Genus **Allantus** Panzer, 1801

*Allantus (Allantus) viennensis* (Schrank, 1781): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Sporadic, West Palearctic species, introduced to North America. Larva on *Rosa* spp.

*Allantus (Emphytus) calceatus* (Klug, 1818): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 1 male. Palearctic. Sporadic, locally frequent. Host plants: *Rubus*, *Sanguisorba*, *Rosa*, *Filipendula*, *Fragaria* and *Alchemilla* spp.

*Allantus (Emphytus) cinctus* (Linné, 1758): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 2 males. Holarctic. Common. Host plants: *Rosa* and *Fragaria* spp.

*Allantus (Emphytus) cingulatus* (Scopoli, 1763): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 4 females, 2 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Frequent, Palearctic species. Larva on *Rosa* and *Fragaria* spp.

*Allantus (Emphytus) didymus* (Klug, 1818): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. West Palearctic. Sporadic. Larva on *Sanguisorba minor*; old records from *Rubus* and *Rosa* spp. need checking.

Genus **Ametastegia** Costa, 1882

*Ametastegia (Protemphytus) carpini* (Hartig, 1837): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 females, 3 males. Frequent, West Palearctic species. Larva on *Geranium* spp.

*Ametastegia (Protemphytus) tenera* (Fallén, 1808): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Holarctic. Frequent. Larva on *Rumex* spp.

Genus **Athalia** Leach, 1817

*Athalia bicolor* Serville, 1823: Dogurashi: 17-24- 05. 2021, alt. 1 070 m, 1 male. Frequent, West-Palearctic species, host plant unknown.

*Athalia liberta* (Klug, 1815): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. West Palearctic species. Frequent. Host plants: *Alliaria petiolata*, *Arabidopsis thaliana*, *Cardamine hirsuta* and *Sisymbrium officinale*.

Genus **Empria** Lepeletier & Serville, 1828

*Empria hungarica* (Konow, 1895): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 1 male. Rare, West Palearctic species. Host plant: *Filipendula vulgaris*.

*Empria longicornis* (Thomson, 1871): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 2 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 5 males. Probably Palearctic species (Europe and Mongolia). Sporadic. Larva on *Rubus idaeus*.

*Empria pumila* (Konow, 1896): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 male; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Sporadic, West Palearctic species. Host plant: *Filipendula ulmaria*.

*Empria sexpunctata* (Serville, 1823): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female, 9 males; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 9 males. Frequent, West Palaearctic species. Host plants: *Geum rivale* and *G. urbanum*.

*Empria tridens* (Konow, 1896) (colour variation *Empria konowi* Dovnar-Zapolskij, 1929): Dogurashi: 17-24. 05. 2021, alt. 1 470 m, 1 female; Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 1 female; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Palaearctic. Frequent. Host plants: *Geum spp.* and *Rubus idaeus*.

Genus *Taxonus* Hartig, 1837

*Taxonus sticticus* (Klug, 1817): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female, 12 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 8 males. West Palaearctic. Sporadic. Host plant unknown.

Subfamily – Heterarthrinae  
Genus *Endelomyia* Ashmead, 1898

*Endelomyia aethiops* (Gmelin, 1790): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 males. Frequent, Holarctic species. Host plant: *Rosa spp.*

Genus *Caliroa* Costa, 1859

*Caliroa annulipes* (Klug, 1816): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Sporadic, Palaearctic species, introduced to Canada. Polyphagous, larva on *Betula*, *Quercus*, *Tilia*, *Salix*, *Rosa spp.* and *Vaccinium myrtillus*.

*Caliroa cothurnata* (Serville, 1823): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. West Palaearctic. Frequent. Host plant: *Quercus spp.*

Genus *Fenusa* Leach, 1817

*Fenusa (Fenusa) dohrnii* (Tischbein, 1846): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Frequent, Palaearctic species introduced into N America and Tropical Africa. Larva makes mines in leaves of *Alnus spp.*

*Fenusa (Fenusa) pumila* Leach, 1817: Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Frequent, Palaearctic species introduced into N America. Host plants: *Betula spp.* and *Alnus alnobetula*.

Genus *Heterarthrus* Stephens, 1835

*Heterarthrus leucomela* (Klug, 1818): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Sporadic, West Palaearctic species. Larva makes mine in leaves of *Acer pseudoplatanus* and *A. campestre*.

Genus *Metallus* Forbes, 1885

*Metallus albipes* (Cameron, 1875): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Sporadic, Palaearctic species. Hostplant: *Rubus idaeus* and other *Rubus spp.*

Subfamily **Blennocampinae**  
Genus *Eurhadinoceraea* Enslin, 1920

*Eurhadinoceraea fulviventris* (Scopoli, 1763): Dogurashi: 17-24. 05. 2021, alt. 1 470 m, 1 male. Southern part of the Palaearctic region. Frequent, locally common. Hostplant unknown.

Genus *Eutomostethus* Enslin, 1914

*Eutomostethus ephippium* ssp. *vopiscus* (Konow, 1899): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 8 females, 25 males. Ponto-Caspian subspecies. Common. Hostplants: *Poaceae*.

Subfamily – **Tenthredininae**  
Genus *Macrophya* Dahlbom, 1835

*Macrophya (Macrophya) alboannulata* Costa, 1859: Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 5 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 5 males; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 male. West Palaearctic species. Frequent. Host plants: *Sambucus nigra*, *S. racemosa* and *S. ebulus*.

*Macrophya (Macrophya) diversipes* (Schrank, 1782): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 2 females. Palaearctic. Frequent. Host plants: *Fragaria* and *Rubus* spp.

*Macrophya (Macrophya) duodecimpunctata* (Linné, 1758): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Palaearctic. Frequent. Host plants: *Graminae*, *Cyperaceae* and *Carex* spp. like *Carex brizoides* and *C. vesicaria*.

*Macrophya (Macrophya) hamata* ssp. *caucasicola* Mucbe, 1969: Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 8 males, Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Frequent, Ponto-Caspian subspecies. Host plant unknown.

*Macrophya (Macrophya) sanguinolenta* (Gmelin, 1790): Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 2 females, 11 males; Khvamli Mountains, 18-25. 05. 2021, alt. 1 462 m, 1 female. Palaearctic species. Frequent. Host plants: *Galenopsis*, *Senecio* and *Veronica* spp.

Genus *Pachyprotasis* Hartig, 1837

*Pachyprotasis rapae* (Linné, 1767): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 4 females, 16 males. Frequent, polyphagous species. Known host plants: *Solanum tuberosum*, *Pedicularis palustris*, *Angelica sylvestris*, *Veronica beccabunga*, *Betonica officinalis*, *Corylus avellana*, *Salix caprea*, *Fraxinus excelsior*, *Tussilago farfara*, *Symphoricarpos albus*, *Scrophularia*, *Solidago*, *Verbascum*, *Origanum*, *Atropa*, *Sarothamnus*, *Senecio*, *Polygonum*, *Aspidium*, *Epilobium*, *Hypericum*, *Galeopsis*, *Mentha*, *Polystichum*, *Plantago*, *Quercus* and *Stachys* spp. Holarctic.

Genus *Tenthredopsis* Costa, 1859

*Tenthredopsis ornatrix* Konow, 1890: Dogurashi: 17-24- 05. 2021, alt. 1 070 m, 12 males; Khvamli Mountains, 18-25. 05. 2021, alt. 1 462 m, 1 male. Frequent, Ponto-Caspian species. Hostplant unknown.



*Tenthredopsis viridis* Zhelochovtsev, 1941: Dogurashi: 17-24. 05. 2021, alt. 1 070 m, 13 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 20 males; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 2 males. Ponto-Caspian species. Frequent. Host plant unknown.

Subfamily **Nematinae**  
Genus *Cladius* Illiger, 1807

*Cladius (Cladius) pectinicornis* (Geoffroy, 1785): Dogurashi: 17-24- 05. 2021, alt. 1 070 m, 1 female, 2 males; Khvamli Mountains, 18-25. 05. 2021, alt. 1 462 m, 1 female. Holarctic. Common. Host plants: *Alchemilla*, *Filipendula*, *Fragaria*, *Potentilla*, *Sanguisorba*, *Rosa* and *Rubus* spp.

Genus *Euura* Newman, 1837

*Euura lanatae* Malaise, 1921: Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 females. Sporadic, West Palaearctic also North America. Probably Holarctic (*S. glauca* native in North America). Host plants: *Salix lanata* and *S. glauca*.

Genus *Nematus* Panzer, 1801

*Nematus lucidus* (Panzer, 1801): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Frequent, Palaearctic species. Larva on *Crataegus* spp. and *Prunus spinosa*.

*Nematus vicinus* Serville, 1823: Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Sporadic, Holarctic species. Larva on *Rumex obtusifolius*.

*Nematus wahlbergi* Thomson, 1871: Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Sporadic, West-Palaearctic species, larva on *Symphoricarpos albus* and *Lonicera* spp.

Genus *Pristiphora* Latreille, 1810

*Pristiphora armata* (Thomson, 1863): Dogurashi: 17-24- 05. 2021, alt. 1 070 m, 5 males; Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 males. Palaearctic species. Frequent. Host plants: *Crataegus* spp.

*Pristiphora leucopus* (Hellén, 1948): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female; Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. West Palaearctic species. Frequent. Host plants: *Tilia* spp.

*Pristiphora monogyniae* (Hartig, 1840): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 male. Frequent, West Palaearctic species. Larva on *Prunus spinosa*, occasionally on *P. domestica*.

*Pristiphora pallidiventris* (Fallén, 1808): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 2 males. Holarctic. Frequent. Host plants: *Geum*, *Potentilla*, *Rubus* and *Filipendula* spp.

*Pristiphora punctifrons* (Thomson, 1871): Khvamli Mountains, 18-25. 05. 2021, alt. 1 462 m, 1 female. Rare, Holarctic species. Larva on *Rosa canina* and *Rosa majalis*.

Genus *Pteronidea* Rohwer, 1911

*Pteronidea miliaris* (Panzer, 1797): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Larva on *Salix aurita* and *S. capreae*. Sporadic, West Palaearctic species.

*Pteronidea myosotidis* (Fabricius, 1804): Dogurashi: 17-24- 05. 2021, alt. 1 070 m, 2 females, 6 males. Palearctic. Common. Host plants: *Onobrychis*, *Vicia*, *Trifolium* spp. also *Lathyrus pratensis*.

Genus *Stauronematus* Benson, 1953

*Stauronematus platycerus* (Hartig, 1840): Khvamli Mountains, 18-25. 05. 2021, alt. 997 m, 1 female. Frequent. Host plants: *Populus* spp.: *Populus tremula*, *P. alba*, *P. nigra*, *P. balsamifera* and *Salix* spp. The only Palearctic sawfly which larva erects a palisade of dried saliva around its feeding place.

Family **Cephidae**

Genus *Calameuta* Konow, 1896

*Calameuta (Calameuta) grombczewskii* (Jakowlew, 1891): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female, 1 male. Ponto-Caspian, Central Asian species. Sporadic. Host plant unknown.

Genus *Cephus* Latreille, 1803

*Cephus spinipes* (Panzer, 1800): Ontihevi: Shola, 20-27. 05. 2021, alt. 1 157 m, 1 female. Common, Palearctic species. Host plants: *Dactylis glomerata*, *Phleum pratense* and other *Poaceae*

## Discussion

### *Sawfly density and species richness in correlation with altitudes*

The density of sawflies and their species richness were measured at 5 different altitudes. The highest diversity was detected in 997 m and highest densities, with 38-38% of the sawflies (115 and 114 individuals) were collected at 997 and 1070 m altitudes. These data confirms our 2020 results, where the highest species diversity and density measured at 1 000 - 1 070 m altitudes (JAPOSHVILI & HARIS 2022c).

**Table 1: Number of sawflies collected at different altitudes**

<b>Altitude</b>	<b>Exemplares</b>	<b>%</b>	<b>Number of species</b>
997 m	115	38%	34
1 070 m	114	38%	19
1 157 m	49	16%	19
1 462 – 1 470 m	24	8%	8
<b>Total</b>	<b>302</b>	<b>100%</b>	<b>59</b>

**Table 2: Zoogeographic distribution of sawflies, North Caucasus, 2021**

<b>Zoogeographical area</b>	<b>Number of species</b>	<b>%</b>
Ponto Caspian Central Asian	1	1.7
Ponto Caspian	6	10.2
Ponto Caspian Turanian	1	1.7
West Palaearctic	19	32.2
Palaearctic	20	33.9
Southern Palaearctic	1	1.7
Holarctic	11	18.6

The zoogeographic origin of the collected sawflies was evaluated (Table 2). Most of the species have wide geographic distribution, i.e. Holarctic, Palaearctic, West Palaearctic, South Palaearctic; their proportion is 86%. The so called characteristic components are the species with limited distribution areas: Ponto-Caspian, Ponto-Caspian-Turanian, Ponto Caspian Central Asian. These species are: *Monoctenus lechkhumensis* Haris & Japoshvili, 2022, *Birka catellata* (Konow, 1900), *Eutomostethus ephippium* ssp. *vopiscus* (Konow, 1899), *Strongylogaster caucasica* Schaposchnikov, 1885, *Macrophya hamata* ssp. *caucasicola* Muche, 1969, *Tenthredopsis viridis* Zhelochovtsev, 1941, *Tenthredopsis ornatrix* Konow, 1890 and *Calameuta grombezewskii* (Jakowlew, 1891). Their proportion is 14%. Similar proportions (13%) were experienced one year before in the other regions of Northern Caucasus (JAPOSHVILI & HARIS 2022c).

### Acknowledgment

We thank to BMBF-funded project Caucasus Barcode of Life (CaBOL), ref. number: 01DK20014A for the financial support.

## References

- ACHTERBERG, C. 2013: Hymenoptera in Fauna Europaea version 2.6.2. - <http://www.faunaeur.org>. Last checked: 03. 10. 2022
- AKHALKATSI, M & TARKHNISHVILI, D. 2012: Habitats of Georgia. - Tbilisi, pp. 1-118.
- BENSON, R. B. 1968: Hymenoptera from Turkey, Symphyta. - Bulletin of the British Museum (Natural History). Entomology series, London 22(4): 111-207. <https://doi.org/10.5962/bhl.part.9952>
- FISCHER, E., GROGER A. & LOBIN W. 2018: Illustrated field guide to the flora of Georgia (South Caucasus). - Koblenz Geographical Colloquia, pp. 830.
- GAGNIDZE, R. 2005: Vascular plants of Georgia, a nomenclatural checklist. - Universal, Tbilisi, pp. 247.
- GVOZDETSKII, N. 1963: Caucasus. - Geographgiz, pp. 264 (in Russian).
- GUSSAKOVSKIJ, V. 1935: Insectes Hyménoptères, Chalastogastra 1. - Fauna SSSR, Moskva, Leningrad, Academie des Sciences de l'URSS, Moscou, Leningrad 2(1): 1-453.
- GUSSAKOVSKIJ, V. 1947: Insectes Hyménoptères, Chalastogastra 2. - Fauna SSSR, Moskva, Leningrad, Academie des Sciences de l'URSS, Moscou, Leningrad 2(2): 1-235.
- GYURKOVICS, H. & HARI, A. 2014: The genus *Tenthredopsis* Costa, 1859 in Hungary (Hymenoptera: Symphyta). - *Natura Somogyiensis* 24: 99-124. <https://doi.org/10.24394/NatSom.2014.24.99>
- HARI, A. 2006: Study on the Palaearctic *Pristiphora* species (Hymenoptera: Tenthredinidae). - *Natura Somogyiensis* 9: 201-277. <https://doi.org/10.24394/NatSom.2006.9.201>
- JAPOSHVILI, G. & HARI, A. 2022a: New *Monoctenus* Dahlbom, 1835 (Hymenoptera: Symphyta) species from Georgia. - *Natura Somogyiensis* 38: 23-28. <https://doi.org/10.24394/NatSom.2022.38.23>
- JAPOSHVILI, G. & HARI, A. 2022b: Sawflies (Hymenoptera: Symphyta) of Kintrishi National Park, south-west Georgia (Sakartvelo). - *Annals of Agrarian Science* 20: 12-27.
- JAPOSHVILI, G. & HARI, A. 2022c: Sawflies (Hymenoptera: Symphyta) from North-Western Georgia (Sakartvelo). - *Caucasiana* 1:x...x. (accepted manuscript, in print) <https://doi.org/10.3897/caucasiana.1.e83640>
- LACOURT, J. 2020: Sawflies of Europe: Hymenoptera of Europe 2 N. A. P. Editions. Verrières-le-Buisson 876 pp.
- MACEK, J. ROLLER, L. BENEŠ, K. HOLÝ, K. & HOLUŠA, J. 2020: Blanokřídlí České a Slovenské republiky II. Širopasí. - Academia Praha. 669 pp.
- PROUS, M, BLANK, S. M, GOULET, H., HEIBO, E., LISTON, A., MALM, T., NYMAN, T., SCHMIDT, S., SMITH, D. R., VÅRDAL, H., VIITASARI, M, VIKBERG, V. & TAEGER., A. 2014: The genera of Nematinae (Hymenoptera, Tenthredinidae). - *Journal of Hymenoptera Research* 40:0-69. <https://doi.org/10.3897/JHR.40.7442>
- PROUS, M, KRAMP, K., VIKBERG, V. & LISTON, A. 2017: North-Western Palaearctic species of *Pristiphora* (Hymenoptera, Tenthredinidae). - *Journal of Hymenoptera Research* 59: 1-190. <https://doi.org/10.3897/jhr.59.12656>
- PROUS M, LISTON, A. & MUTANEN, M 2021: Revision of the West Palaearctic *Euura bergmanni* and *oligospila* groups (Hymenoptera, Tenthredinidae). - *Journal of Hymenoptera Research* 84: 187-269. <https://doi.org/10.3897/jhr.84.68637>
- ROLLER, L. & HARI, A. 2008: Sawflies of the Carpathian Basin, History and Current Research. - *Natura Somogyiensis* 11: 1- 261. <https://doi.org/10.24394/NatSom.2008.11.2>
- SUNDUKOV, Y. 2017: Suborder Symphyta – Sawflies and wood wasps. - In: LELEJ A.S. (ed.). Annotated catalogue of the Hymenoptera of Russia. Volume I. Symphyta and Aculeata. Proceedings of the Zoological Institute RAS. Supplement 6: 20-117. <https://doi.org/10.31610/trudyzin/2017.supl.6.5>
- TAEGER, A., BLANK, S. & LISTON, A. 2006: European Sawflies (Hymenoptera: Symphyta) - A Species Checklist for the Countries. 399-504. - In: BLANK, S. M, SCHMIFT, S. & TAEGER, A. (eds) Recent Sawfly Research: Synthesis and Prospects, Goecke & Evers, Kelter. 701 pp.
- ZHELOCHOVTSEV, A. 1988: Otryad Hymenoptera – Pereponchatokrylye, Podotryad Symphyta – Sidyachebryukhie, 7-234. - In: MEDVEDEV, K. H. (ed.) *Opredelitel nasekomykh evropeiskoi chasti SSSR*, Vol. 3 Hymenoptera, Part 6, Nauka, Leningrad. Details - Keys to the insects of the European USSR. (*Opredelitel nasekomykh Evropeiskoi chasti SSSR*) - Biodiversity Heritage Library Details - Keys to the insects of the European USSR. (*Opredelitel nasekom.*) <https://doi.org/10.5962/bhl.title.46334>