Available online at www.worldscientificnews.com

World Scientific News

An International Scientific Journal

WSN 136 (2019) 241-246 EISSN 2392-2192

SHORT COMMUNICATION

New data on the occurence of horntails in Poland (Hymenoptera, Symphyta: Siricidae)

Borowski Jerzy[1,*], Marczak Dawid[2], Szawaryn Karol[3], Kwiatkowski Adam[4], Cieślak Rafał[1], Buchholz Lech[5]

[1]Department of Forest Protection and Ecology, Warsaw University of Life Sciences, ul. Nowoursynowska 159/34, 02-776 Warsaw, Poland

[2]Kampinos National Park, ul. Tetmajera 38, 05-080 Izabelin, Poland
University of Ecology and Management in Warsaw, ul. Olszewska 12, 00-792 Warsaw, Poland

[3]Museum and Institute of Zoology, Polish Academy of Sciences, ul. Wilcza 64, 00-679 Warsaw, Poland

[4]Regional Directorate of the State Forests in Białystok, ul. Lipowa 51, 15-424 Białystok, Poland
Bialystok University of Technology, ul. Wiejska 54A, 15-351 Białystok, Poland

[5]Świętokrzyski National Park, ul. Suchedniowska 4, 26-010 Bodzentyn, Poland

*E-mail address: jerzy_borowski@sggw.pl

ABSTRACT

The paper presents new data on the occurrence of 6 sawflies species of the Siricidae family, on the territory of Poland. New faunistic data was supplemented with elements of bionomics and information on geographical distribution of particular species.

Keywords: Hymenoptera, Symphyta, sawflies, Siricidae, funistic data, Poland

(Received 28 September 2019; Accepted 10 October 2019; Date of Publication 15 October 2019)

INTRODUCTION

Horntails (Siricidae) is one of Symphyta families rather poor in species number, represented in Poland by 10 species (Borowski & *al*. 2019). Most of them are trophically connected with coniferous trees, while only the species of *Tremex* Jurine genus live on deciduous trees. Horntails are classified as xylophages, i.e. the insects whose total development, from egg laying to the occurrence of imagines, takes place in wood. Imagines are recorded on host material. Males are much less mobile than females and they are caught almost solely on the wood they hatched on, where they wait for the emerging virgin females. After copulation females can be found on freshly cut or dead wood of trees, and there they lay eggs. As larvae feed on wood with fungi, females lay eggs only in the wood of particular moisture and sun exposure.

Below new faunistic data from Poland is presented about several species which belong to the family Siricidae. The information has been also supplemented with the data on horntails distribution in Poland, as well as general geographical distribution of particular species.

1. *Urocerus augur* (Klug, 1803)

Małopolska Upland

- Rogów, UTM: DC24, 1-30 VIII 2008, Arboretum, 2♀♀, a trap with mycelium of *Hericium alpestre* and woodchips of *Abies alba*, leg. J. Borowski, A. Byk & J. Piętka;
- Łuszczanowice Reserve, UTM: CB87, 1-30 IX 2016, 1♀, a trap on *Abies alba*, leg. M. Skowronek.

Świętokrzyskie Mountains

- Świętokrzyski National Park, Święty Krzyż, UTM: EB03, div. 202c, 16-31 VIII 2016, 1♀, pheromone trap „Curodor", leg. L. Buchholz; Dębno UTM: DB93, div. 94ax, 1-15 IX 2016, 1♀, pheromone trap „Curodor", leg. L. Buchholz; Podgórze, UTM: DB94, div. 17f, 1-15 VIII 2017, 1♀ and div. 24f, 1-15 IX 2017, 1♀, pheromone trap „Curodor", leg. L. Buchholz; Chełmowa Góra, UTM: EB03, div. 2c, 1-15 VIII 2017, 1♀, pheromone trap „Curodor", leg. L. Buchholz; Dąbrowa, UTM: DB94, div. 39i, 1-15 VIII 2016, 1♀, pheromone trap „Curodor", leg. L. Buchholz.

An indicator species for fir forests, seen mostly in the compact range of fir trees. Due to a significant similarity of all species of the *Urocerus* Geoffr. genus, previous data, particularly the one concerning their occurrence on trees other than firs, may be misleading and should be revised.

Geographical distribution: a Western-Palaearctic species, occurring mainly in European mountainous areas with fir trees. Sometimes it is brought with fir tree wood to the countries where firs do not occur naturally, e.g. England, but is has not adapted to any of them.

2. *Urocerus gigas* (Linnaeus, 1758)

Mazowiecka Lowland

- Kampinos National Park, Stara Dąbrowa, UTM: DD70, 10 VI 2012, 1♀, on firewood of *Pinus sylvestris*, leg. T. Sekutowicz.

Podlasie Region

- Dojlidy Forest Inspectorate, Krasny Las Forest District, UTM: FD59, div. 61a, 6 VII 2017, 1♀, leg. K. Urban.

Małopolska Upland

- Rogów, UTM: DC24, 21 VI 2013, Arboretum, 1♀, on firewood of *Abies alba*, leg. J. Borowski; 18 VI 2014, Arboretum, 1♀, on firewood of *Larix decidua*, leg. J. Borowski; 6 VII 2013, 1♂, on the village road, leg. J. Borowski;
- Głuchów, UTM: DC33, 11 VI 2014, 1♀, on dead Norway spruce, leg. J. Borowski; 4 VII 2015, 1♀, on dead Norway spruce, leg. J. Borowski.

Lublin Upland

- Krzczonów, UTM: FB15, 26 V 2019, 3♀♀, ex. cult. of Norway spruce wood, leg. R. Cieślak.

Roztocze Region

- Obrocz, UTM: FB40, 4 VII 2016, 1♀, leg. T. Gazurek.

Pieniny Mountains

- Pieniny Mts., Krościenko Forest Inspectorate, Czarna Woda Forest District, Jaworki, UTM: DV67, 15 IV 2016, ex cult. of *Picea abies*, 1♂, leg. R. Plewa & T. Jaworski.

Due to the fact that it can develop on various coniferous species, *U. gigas* is the most common *Urocerus* species in our country. This horntail prefers spruces (*Picea* spp.) and fir trees (*Abies* spp.) to develop, and much more seldom it chooses larches (*Larix* spp.), pines (*Pinus* spp.) or Douglas trees (*Psudotsuga menziesii*).

Geographical distribution: *S. gigas gigas*, the nominative subspecies, occurs in Europe, north Africa and western Siberia. In the eastern part of the Palaearctic 3 other subspecies occur, namely *U. gigas flavicornis* (F.), *U. gigas orientalis* Maa and *U. gigas tibetanus* Benson (Taeger & *al*. 2010).

3. *Sirex juvencus* (Linnaeus, 1758)

Małopolska Upland

- Rogów, UTM: DC24, 1-10 VII 2010, Arboretum, 10♀♀, 6♂♂, ex cult. of *Picea abies*, leg. J. Borowski;
- Głuchów, UTM: DC33, 17 VII 2013, 2♂♂, on dead Norway spruce, leg. J. Borowski; 4 VII 2015, 1♀, on dead Norway spruce, leg. J. Borowski.

Świętokrzyskie Mountains

- Świętokrzyski National Park, Klonów, UTM: DB84, div. 249a, 1-15 VIII 2017, 2♀♀, pheromone trap „Ipsodor", leg. L. Buchholz.

Lublin Upland

- Krzczonów, UTM: FB15, 19 V 2019, 1♂, 26 V 2019, 1♀, ex. cult. of Norway spruce wood, leg. R. Cieślak.

The species typical of spruce forest stands and deciduous ones with a high share of the spruce. Due to a significant similarity of all the species of the *Sirex* L. genus, previous data concerning particularly their occurrence on trees other than the spruce may be misleading and needs revision.

Geographical distribution: the nominative subspecies *S. juvencus juvencus* is widely spread throughout the Palaearctic, and is sometimes brought with wood to Oriental, Nearctic and Australia regions. In the western part of North America another subspecies *S. juvencus californicus* (Ashm.) can be found (Taeger & *al*. 2010).

4. *Sirex noctilio* Fabricius, 1793

Baltic Coast

- Chałupy, UTM: CF37, 16 VIII 2019, 1♂, in filght, leg. T. Gazurek.

Mazowiecka Lowland

- Dobieszyn, UTM: EC11, 3 VII 2011, pine cutting area, 1♀, leg. Ł. Kasprzyk;
- Kampinos National Park, Wiersze, UTM:DC79, 1-31 VII 2018, 2♀♀, an old pine forest, leg. D. Marczak.

Małopolska Upland

- Wola Łokotowa, UTM: DC23, 15 VII 2000, 18♀♀, pine forest, leg. J. Borowski.

Lublin Upland

- Świdnik Forest Inspectorate, Niedrzwia Forest District, UTM: EB96, 19 VII 2017, 1♀, leg. R Cieślak.

The species typical of pine forest and mixed ones with a high share of pine trees. Due to a significant similarity of all the species of the *Sirex* L. genus, previous data concerning particularly their occurrence on trees other than pines may be misleading and needs revision.

Geographical distribution: *S. noctilio* is a widespread Palaearctic species of horntail. Due to common use of pine wood it has been brought to almost all continents (Taeger & *al*. 2010).

5. *Xeris spectrum* (Linnaeus, 1758)

Mazowiecka Lowland

- Kampinos National Park, Grabina, UTM:DC79, 1-30 VI 2018, 2♀♀, pine forest, leg. D. Marczak;
- Ponty Reserve of T. Zieliński's, UTM: EC20, 15 V - 9 VI 2016, 1♀, inside a trap, leg. M. Miłkowski.

Podlasie Region

- Budzisk Reserve, UTM: FE50, 1-30 VI 2019, 3♀♀, leg. A. Kwiatkowski, D. Marczak & K. Szawaryn;
- Czarna Białostocka Forest Inspectorate, Buksztel Forest District, UTM: FE50, div. 117c, 1-30 VI 2019, 3♀♀, leg. A. Kwiatkowski, D. Marczak & K. Szawaryn.

Małopolska Upland

- Rogów, UTM: DC24, Arboretum, 21 VI 2013, 2♂♂, 21 VI 2013, 1♀, 18 VI 2014, 1♀, 24 VI 2014, 1♀, on firewood of *Abies alba*, leg. J. Borowski; Zimna Woda Range, 18 VI 2014, 4♂♂, on firewood of *Abies alba,* leg. J. Borowski;
- Głuchów, UTM: DC33, 13 VI 2013, 2♂♂, 20 VI 2013, 9♂♂, 11 VI 2014, 2♂♂, 30 VI 2014, 2♂♂, 4 VII 2015, 3♀♀, on dead Norway spruce, leg. J. Borowski;
- Łuszczanowice Reserve, UTM: CB87, 1-30 VI 2016, 1♀, a trap on *Abies alba,* leg. M. Skowronek.

Roztocze Region

- Obrocz, UTM: FB40, 4 VII 2016, 2♂♂, leg. T. Gazurek.

West Beskidy Mountains

- Bielsko Biała, UTM: CA51, 20 V 2018, 6♀♀, 62♂♂, on firewood of *Abies alba*, leg. J. Borowski.

The most common species of horntails in the country. It develops on various species of coniferous trees, however, it prefers pines (*Pinus* spp.), firs (*Abies* spp.) and spruces (*Picea* spp.). It is also one of the earliest species which occur in their natural habitat in season. First specimens can be caught at the end of May, and the peak of swarm usually happens when other horntails only begin to occur, i.e. the second half of June.

Geographical distribution: the species of Holarctic distribution, which in Asia reaches mountainous areas of its oriental parts. In all its range the species forms 4, quite dubious subspecies and so: the nominative subspecies *X. spectrum spectrum* occurs in Europe, northern Asia and North America; the subspecies *X. spectrum townesi* Maa occurs in the USA, the subspecies *X. spectrum malaisei* Maa occurs in Taiwan and the *X. spectrum cobosi* Viedma & Suárez is found in Morocco (Maa 1949, Viedma & Suarez 1961, Taeger & *al*. 2010).

6. *Tremex fuscicornis* (Fabricius, 1787)

Mazurian Lakeland

- Piecki, UTM: EE25, 15 IX 2012, 1♀, on wood of *Populus* sp., leg. J. Grossmann.

Mazowiecka Lowland

- Warsaw, Ursynów, UTM: EC07, 30 VIII 1998, 8♀♀, on lying *Populus* sp., leg. J. Borowski;
- Kampinos National Park, Granica, UTM: DC69, 20 VIII 2018, 1♀; Kampinos, UTM: DC69, 20 VIII 2018, 5♀♀; Zaborów, UTM: DC79, 21 VIII 2018, 2♀♀; Mariew, UTM: DC79, 29 VIII 2018, 6♀♀; Leoncin, UTM: DD60, 23 VIII 2018, 1♀; Leoncin, UTM: DD70, 23 VIII 2018, 2♀♀; Stara Dąbrowa, UTM: DD70, 23 VIII 2018, 1♀; Palmiry, UTM: DD80, 28 VIII 2018, 4♀♀; Truskaw, UTM: DC89, 29 VIII 2018, 2♀♀.All specimens from the Kampinos National Park were collected on dead and standing birch-trees by D. Marczak.

Małopolska Upland

- Gutkowice, UTM: DC33, 28 VIII 2014, 3♀♀, 16 VIII 2018, 12♀♀, on dead *Betula* sp., leg. J. Borowski.

- Żeromin, UTM: DC01, 10 IX 2012, 1♀, on dead *Betula* sp., leg. R. Perek.

Sandomierska Lowland

- Tarnobrzeg, UTM: EB40, 10 VIII 2002, 1♀, leg. R. Cieślak.

Literature provides various deciduous species as its hosts (Głowacki 1956; Dominik & Starzyk 1989). However, in reality the insects are collected almost entirely from birch trees and poplars. This species swarms as the last of our horntails. In our conditions the peak swarm falls in the second half of August and the first half of September.

Geographical distribution: a widely spread species, which occurs throughout the Palaearctic, particularly in its northern and central part. It was brought to North America. In Poland it is considered rare (Głowacki 1956), which probably results from late swarming and poor species mobility. In reality it is a common species, typical of exposed, well insulated, dying and dead birches and poplars.

Acknowledgements

The authors would like to thank the following for providing access to materials used to write the paper: Adam Byk, Tomasz Gazurek, Tomasz Jaworski, Marek Miłkowski, Jacek Piętka, Radosław Plewa and Tomasz Sekutowicz.

Studies in Kampinos National Park have been supported by Forest Fund of the State Forest Farm „Lasy Państwowe" in 2018, in frames of the program „Hymenoptera: Symphyta of the Kampinos National Park. Stage III".
Research in Budzisk Reserve was conducted at the consent granted by the Regional Director for Environment Protection in Białystok, thanks to which we could depart from prohibitions applied in nature reserves.

References

[1] Borowski J., Plewa R., Jaworski T., Hilszczański J., Sławski M. 2019. New data on the occurrence of Sirex carinthiacus Konow, 1892 (Hymenoptera, Symphyta, Siricidae) in Poland. *World Scientific News* 119: 238-242.

[2] Dominik J. & Starzyk J.R. 1989. Wood protection. The Wood destroying insects. Second ed. PWRiL, Warsaw, 524 pp. [in Polish].

[3] Głowacki J. 1956. Trzpiennikowate – Siricidae. Keys for determination of Polish insects. Part XXIV, Błonkówki – Hymenoptera, fasc. 2, Polish Scientific Publishers, Warsaw, 27 pp. [in Polish].

[4] Maa T. 1949. A synopsis of Asiatic Siricoidea with notes on certain exotic and fossil forms. *Notes d'Entomologie Chinoise,* 13(2): 11-189.

[5] Taeger A., Blank S.M. & Liston A.D. 2010. World Catalog of Symphyta (Hymenoptera). *Zootaxa,* 2580: 1-1064.

[6] Viedma M.G. & Suarez F.J. 1961. Un nuevo Xeris de Marruecos (Hym. Siricidae). *Graellsia,* 19: 19-27.