

THE FIRST RECORD OF THE WEB-SPINNING SAWFLY *CAENOLYDA RETICULATA* (LINNAEUS, 1758) (HYMENOPTERA: SYMPHYTA: PAMPHILIIDAE) FROM THE BALKANS

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Abstract

During project field activities conducted in May 2021 in the territory of the Landscape of Outstanding Features "Dolina Pčinje" at the locality Vogance, one dead and trampled specimen of the web-spinning sawfly *Caenolyda reticulata* (Linnaeus, 1758) was found. The new finding is the first report of the species from Serbia, as well as from the Balkans, and significantly expands its known distribution into southeast Europe. The host plants of this species are pines (*Pinus* spp.), of which black pine (*Pinus nigra* subsp. *nigra*) occurs in the Pčinja River valley.

KEY WORDS: biodiversity, fauna, Pamphilioidea, Pčinja, *Pinus nigra*

Introduction

Pamphiliidae is a small family of symphytan Hymenoptera, with distribution restricted to the Northern Hemisphere and approximately 160 species divided into nine genera. In Europe, 56 species from eight genera and two subfamilies occur: Cephalciinae (*Acantholyda*, *Caenolyda* and *Cephalcia*) and Pamphiliinae (*Kelidoptera*, *Neurotoma*, *Onycholyda*, *Pamphilius* and *Pseudocephaleia*) (van Achterberg & van Aartsen, 1986; Blank & Taeger, 2021). The members of this family are flattened, rather broad, phytophagous, sun-loving and fast-in-flight sawflies. Females deposit eggs on the leaves or needles of the host plants. Larvae are solitary or gregarious in a silk web or in a leaf rolled with silk, and they have no abdominal legs. Pupation takes place in the ground, within an earthen cell (van Achterberg & van Aartsen, 1986).

The web-spinning sawfly *Caenolyda reticulata* (Linnaeus, 1758) is one of the two species of the genus *Caenolyda* that is restricted to the Palaearctic (the second species being a southern Italian endemic *Caenolyda binaghii* Pesarini & Pesarini, 1976, whose taxonomic status remains uncertain). These two

species can be separated using the key, diagnoses and figures provided in van Achterberg & van Aartsen (1986) and Pesarini (2019). Additionally, the most similar species of clear taxonomic status is *Pseudocephaleia praeteritorum* (Semenov, 1934), with which *Caenolyda* can be easily confused. *P. praeteritorum* can be separated from *C. reticulata* using the key provided in van Achterberg & van Aartsen (1986): e.g., tarsal claws bifurcated with inner tooth point to the apex of the claw in *P. praeteritorum*, unlike *C. reticulata*, which has tarsal claws with a minute inner tooth perpendicular to the claw; tibial spurs and spines completely sclerotized in *P. praeteritorum*, unlike *C. reticulata*, which has tibial spurs and spines with soft membranous subhyaline tip etc. Balázs & Haris (2019) provided short descriptions and figures that can be used to distinguish between these two species, especially in the identification of dry and prepared specimens.

Caenolyda reticulata uses the young needles of pines (*Pinus* spp.) as a host plant, especially Scots pine (*Pinus sylvestris* L.) (van Achterberg & van Aartsen, 1986; Gubin & Levchenko, 2019). Gubin & Levchenko (2019) noted that artificial pine plantings contribute to the range expansion of this species, even to urban areas of industrial regions, and that they also facilitate its conservation.

The pamphiliid fauna, and sawfly in general, of Serbia is very poorly investigated, and records are scarce and usually old (e.g. Vasić, 1966; Nikolić & Brajković, 2004a; 2004b). Therefore, as is the case for almost all insect groups of Serbia, new research is needed to gain valid insight into the real diversity and species distribution in the country.

The aim of this article was to contribute to the knowledge of the fauna of symphytan Hymenoptera of Serbia and the Balkans, with the first record of *C. reticulata* in the southeastern part of Europe.

Materials and methods

During the field project activities conducted in the Landscape of Outstanding Features “Dolina Pčinje” (Pčinja River valley) in May 2021, locality Vogance, many specimens of various insect groups were recorded and/or collected, including *C. reticulata*. Identification was done using the key, diagnoses and figures of van Achterberg & van Aartsen (1986) and Pesarini (2019), and also by comparing the specimen with photographs from various articles available online. The record and photographs taken in the field are stored in a database of insects of Serbia, Alciphron (<https://alciphron.habiprot.org.rs/>) (HabiProt, 2021). The specimen was stored in the private collection of the first author.

Results

***Caenolyda reticulata* (Linnaeus, 1758) (Fig. 1B)**

Material examined: Serbia, Pčinja district, Landscape of Outstanding Features “Dolina Pčinje”, Vogance, 42°21'4" N, 21°54'19" E, 18.05.2021, 1 ♀, leg. M. Vujić.

Remarks: A new species for the fauna of Serbia and the first record from the Balkans. One specimen was found dead, trampled on a dirt road, surrounded by xerothermic oak (*Quercus* spp.) forest, various shrubs and xerothermic pasture (Fig. 1C).

Brief description of specimen: Given that the specimen was found trampled and already dead, it is possible that some characters were damaged and are incorrectly described, due to both damage and post-mortem changes. Head broad, black with red lateral sides (around the eyes and back to the occiput), antennae black, clypeus red, mandibles black; mesoscutum and mesoscutellum black, pronotum and tegulae red; abdomen

broad, mainly red (tergites and sternites damaged and darkened due to trampling and post-mortem changes); legs completely black; wings black-red except the hyaline wing apex, stigma red (the wing color pattern corresponds to the appearance of the wings of specimens whose photographs are available in published articles or online).



Figure 1. A – The black pine (*Pinus nigra* subsp. *nigra*) from the locality where *Caenolyda reticulata* (Linnaeus, 1758) was found. The silk web does not belong to the larvae of *C. reticulata*, but to the caterpillars of pine processionary moth (*Thaumetopoea pityocampa* (Denis & Schiffermüller, 1775)) (photo by M. Đurić); B – The specimen of *Caenolyda reticulata* (Linnaeus, 1758) from Vogance, Landscape of Outstanding Features “Dolina Pčinje” (photo by M. Vujić); C – The habitat of species at Vogance, Landscape of Outstanding Features “Dolina Pčinje” (photo by I. Tot).

Discussion

The range of *C. reticulata* includes many European countries, but data are noticeably insufficient for the southeastern part of the continent (the Balkans). The new finding is the first from the Balkans and southeastern Europe. *C. reticulata* was so far registered in Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Hungary, Italy, Germany, Latvia, Luxemburg, the Netherlands, Norway, Poland, Romania, Slovakia, Spain, Sweden, Switzerland, Russia and Ukraine (Nielsen, 1969; Tschartke & Rühm, 1985; van Achterberg & van Aartsen, 1986; Midtgaard *et al.*, 1987; Ermolenko, 2001; Magis, 2005; Bakker &

Bakker, 2007; Martínez de Murguía & Aguado, 2007; Roller & Haris, 2008; Ermolenko & Kotenko, 2009; Beneš & Holuša, 2015; Netzberger, 2017; Gubin & Levchenko, 2019; Pesarini, 2019).

Based on the data from the literature, it can be concluded that *C. reticulata* is in flight in May and June (e.g. Bakker & Bakker, 2007; Martínez de Murguía & Aguado, 2007; Roller & Haris, 2008; Netzberger, 2017; Gubin & Levchenko, 2019), which coincides with the date when the specimen was found in Serbia (18th May). It is known that host plants for *C. reticulata* are various pine species, and at the Serbian locality, the black pine (*Pinus nigra* subsp. *nigra*) is widespread (Fig. 1A).

The area around the Pčinja River is well-known as one of the warmest parts of Serbia, with a prominent Mediterranean influence that is significantly reflected in the diversity of the wildlife. Biodiversity research in this area has often been conducted and many species have been registered that occur exclusively in this region of Serbia. For many of them, this is the northernmost boundary of the range in the continental region. Some of the typically Mediterranean and thermophilic species present in the Pčinja River valley are the butterflies little tiger blue *Tarucus balkanicus* (Freyer, 1844) and sandy grizzled skipper *Pyrgus cinarae* (Rambur, 1839), the mantid *Ameles heldreichi* Brunner von Wattenwyl, 1882, bush crickets *Metrioptera tsirojanni* Harz & Pfau, 1983, *Pholidoptera macedonica* Ramme, 1928 and *Saga natoliae* Serville, 1839, moth *Erannis ankeraria* (Staudinger, 1861), four-lined snake *Elaphe quatuorlineata* (Lacépède, 1789) and Dahl's whip snake *Platyceps najadum* (Eichwald, 1831), Erhard's wall lizard *Podarcis erhardii* (Bedriaga, 1882), Greek tortoise *Testudo graeca* Linnaeus, 1758, as well as numerous plants (Džukić, 1995; Crnobrnja-Isailović & Aleksić, 1999; Crnobrnja-Isailović *et al.*, 2004; Tomović *et al.*, 2004; Ristić *et al.*, 2006; Zlatković *et al.*, 2011; Pavićević *et al.*, 2014; Popović *et al.*, 2014; Ivković & Horvat, 2016; Nahirnić & Beshkov, 2016; Tot *et al.*, 2021).

Although the range of *C. reticulata* includes much of Europe, it is considered rare and not frequently collected. Accordingly, its range appears disjunctive and all the data on its presence are important, especially potential future findings from the Balkans and southeastern Europe. Given that Pčinja River valley is the only place where this species has been recorded in Serbia, and the absence of records from other Balkan countries, we suggest that this species should be considered for protection by the state.

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ПРВИ НАЛАЗ ЛИСНЕ ЗОЉЕ *CAENOLYDA RETICULATA* (LINNAEUS, 1758) (HYMENOPTERA: SYMPHYTA: PAMPHILIIDAE) НА БАЛКАНУ

МИХАИЛО ВУЈИЋ, МИЛАН ЂУРИЋ И ИВАН ТОТ

Извод

Током пројектних теренских активности, спровођених у мају 2021. године, на територији Предела изузетних одлика "Долина Пчиње", на локалитету Воганце, забележена је једна мртва, згажена јединка лисне зоље *Caenolyda reticulata* (Linnaeus, 1758). То је први налаз ове врсте у Србији и на Балканском полуострву и значајно утиче на проширење ареала у југоисточној Европи. Биљке хранитељке ове врсте су борови (*Pinus* spp.), од којих се црни бор (*Pinus nigra* subsp. *nigra*) јавља у долини реке Пчиње.

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