

PERILAMPUS AENEUS (ROSSIUS, 1790) (HYMENOPTERA: PERILAMPIDAE) CONFIRMED IN LATVIA AND THE BALTIC STATES FOR THE FIRST TIME IN A CENTURY

Aleksandrs Balodis, Dmitry Telnov*

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Abstract

We present the first contemporary Latvian observation of *Perilampus aeneus* (Rossius, 1790), a hyperparasitoid chalcidoid wasp. The discussed observation is the first record of the species in the whole Baltic states of Estonia, Latvia, and Lithuania since 1917. A short discussion on the habitats and occurrence of *P. aeneus* in northern Europe is provided.

Keywords: *Perilampus*, Baltic Region, faunistic, occurrence confirmation.

*Corresponding author: *Dmitry Telnov. Department of Life Sciences, Natural History Museum, SW7 5BD London, United Kingdom. E-mail: anthicus@gmail.com. Coleopterological Research Center, Institute of Life Sciences and Technology, Daugavpils University, Parādes Str. 13, LV-5401 Daugavpils, Latvia. Institute of Biology, University of Latvia, O. Vācieša Str. 4, LV-1004 Rīga, Latvia. ORCID: 0000-0003-3412-0089*

Aleksandrs Balodis. LV-2136, Siguldas Str. 2A-27, Vangāži, Latvia

INTRODUCTION

Perilampus Latreille, 1809 is the most speciose genus of its family with 163 species worldwide (Noyes 2019, Darling & Yoo 2021), among them 47 Palaearctic taxa (Noyes 2019). The most recent overview and key to the Palaearctic *Perilampus* were presented by Mitroiu & Koutsoukos (2023), but the general distribution of *P. aeneus* (Rossius, 1790) as given in this work appears incomplete (consider the country list below for a comprehensive picture). Widely known as parasitoids or hyperparasitoids of various insects (Smith 1912, Zerova & Proschalykin

2021, Mitroiu & Koutsoukos 2023), these small-sized wasps are underrecorded and understudied in Latvia, with no national checklist, database, or specialists available (V. Spuņģis, personal communication, vii.2024). *Perilampus aeneus* is a widespread western Palaearctic species hitherto recorded from Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Croatia, Czechia, Finland, France, Germany, Greece, Hungary, Italy, Latvia (historical records only not counting the new one presented herein), Moldova, Netherlands, Poland, Romania,

central and southern European Russia northwards to Yaroslavl Oblast and eastwards to the Udmurt Republic, Serbia, Slovakia, Spain, Sweden, Turkey, Ukraine, and United Kingdom (Bischoff 1925, Rzaeva 1971, Tryapitsyn 1978, Argaman 1990, Mitroiu & Koutsoukos 2023, GBIF 2024a). In Latvia, this species was first confidently recorded by Bischoff (1925) but was not found since. An unconfirmed earlier record from the present-day territory of Latvia for this species (Kawall 1866b) is discussed herein. There are no known published records available on the occurrence of this species in Estonia and Lithuania (E. Budrys & V. Soon, personal communications, vii.2024).

Known hosts of this hyperparasitoid are named by Rzaeva (1971), Tryapitsyn (1978), and other authors.

The aim of the current paper is to present the first contemporary record of *Perilampus aeneus* from Latvia and therefore confirm the presence of the species in the fauna of the Baltic states.

MATERIAL AND METHODS

The present study is a result of non-systematic entomological investigations in Latvia carried out by the first author in 2022–2024. The field studies were performed manually, searching for specimens in habitats suitable for imagoes (open areas with flowering plants).

The images of the discussed specimen were taken *in situ* by the first author using a Sony A7MIII camera and a Canon EF 100mm f/2.8L IS USM lens with a Metabones adapter and a Kuangren Twin Lite K-909 flash.

The discussed specimen was not captured after the imaging. A modern collection-based material of this species from Latvia is therefore not yet available.

RESULTS

Perilampus aeneus (Rossius, 1790) (Fig. 1)

Material examined. 1 adult female (not captured): Latvia SE, Līvāni county, Rožkalni parish, Augšmuktu kapi (cemetery), 56°15'38"N 26°22'45"E, 13.vii.2024, ~90 m a.s.l., deciduous grove, observed & photographed by A. Balodis (locality map - Fig. 2).

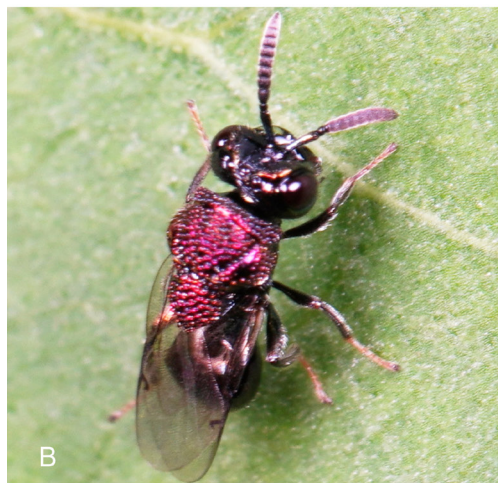


Figure 1. *Perilampus aeneus* (Rossius, 1790) female from Latvia, Augšmukti cemetery. A & B – Same specimen, different angle (dorsolateral view). Images courtesy A. Balodis.

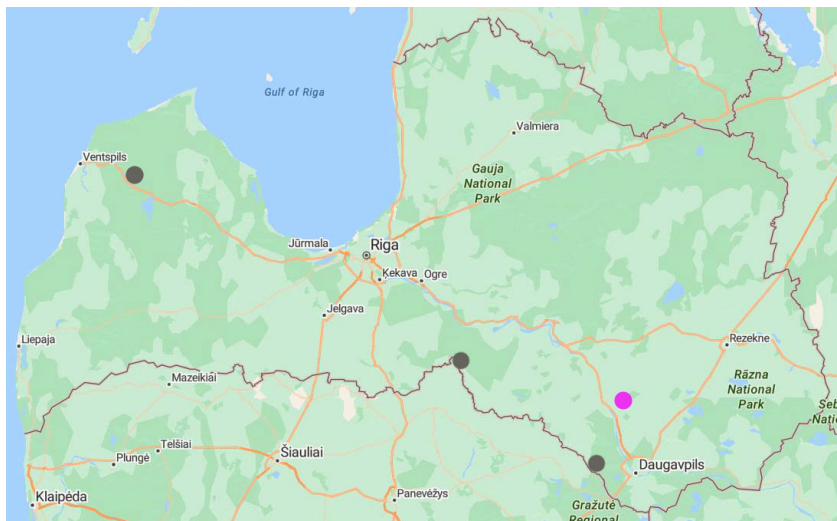


Figure 2. Observation map of *Perilampus aeneus* (Rossius, 1790) in Latvia. Blackish dots – historical observations (West to East: surroundings of Puze (uncertain historical record, see text), ‘Wezkukkul’, Eglaine), purple dot – new observation (Augšmukti surroundings). Modified from Google Maps.

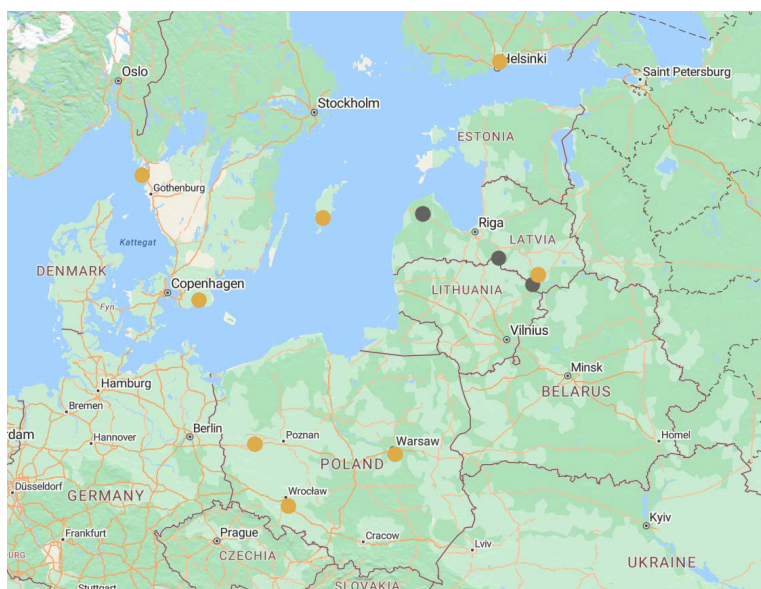


Figure 3. Schematic map of known contemporary localities of *Perilampus aeneus* (Rossius, 1790) in Finland, Latvia, Poland, and Sweden (data source for Finland, Poland and Sweden: GBIF 20204a) – ochre dots. The historical Latvian records – blackish dots, the discussed new Latvian observation – ochre dot. Modified from Google Maps.

The specimen was observed active during the hot afternoon time (around 18:15, +27°C) on leaves of *Syringa* sp. in shady conditions. The specimen was inspecting leaves, slowly flying from one to another.

The specimen, apparently a female, was identified by the authors as *P. aeneus* based on a set of the following features: head with frontal carinae present, carinae glabrous and glossy, ocelli comparatively large, flagellum uniformly blackish, anterior margin of prepectus with a complete row of punctures, head black and thorax brightly metallic purple-red. Not all of these features visible on the fig. 1 but additional images, suboptimal and unsuitable for the publication, are available to confirm the mentioned features.

There is an observation of a female *Perilampus* sp. from southern Latvia close to the boundary with Lithuania (Bauska County, Svitene Parish, 23.viii.2020) published on the Latvian citizen science portal (Ērmāne 2020). The figured female specimen identified by V. Soon in 2021 as *Perilampus* sp. looks similar to *P. aeneus* in general appearance and, particularly, body colouration. However, an insufficient quality of the images prevents confident identification.

DISCUSSION

The rediscovery of *Perilampus aeneus* in Latvia was expected. The species was first confidently recorded from the territory of the present-day Latvia by Bischoff (1925: 306) from 'Wezkukkul' (20–30.vi.1916) and Eglaine ('Jelowka' 28.vi.1917), both in the southern-central and south-eastern Latvia in the historical region of Sēlija (Fig. 2). We are not familiar with the historical German locality name 'Wezkukkul' which can be transliterated to Latvian as 'Veckukulņieki' and was situated (translated from German, supplemented by the authors, present-day Latvian names used) at River Viesīte not far from the confluence of rivers Suseja and Mēmele, about 20 km

south from Jaunjelgava (Bischoff 1925: 'am Wessit, unweit der Mündung des Sussei in den Njemenek, etwa 20 km südlich Friedrichstadt'). It is noteworthy that Kawall (1866b: 159) mentions '*Elampus aeneus*' from what is now Puze in Kurzeme region (formerly Courland, Curonia or Kurland) in western Latvia. An unspecified number of specimens was observed on 06.vi.1853 (Old Style date!) in 'Pussen, Pastorat', ... '57° 20' Br., 19° 38' L.' (Kawall 1866a, b). Kawall (1866b) provides no exact locality data for the record of '*Elampus aeneus*', but the Kawall's paper (1866b) is a continuation of Kawall (1866a) published some pages backwards in the same journal, and the earlier part does provide the surroundings of Puze (Kawall 1866a: 57: 'um Pussen') as the locality for all observations unless stated otherwise. Therefore, we can confidently attribute Kawall's observation of '*Elampus aeneus*' to Puze. However, Kawall's '*Elampus aeneus*' may refer either to the chrysidid wasp *Omalus aeneus* (Fabricius, 1787) or, with some uncertainty, to the chalcidoid *Perilampus aeneus*. Unfortunately, no author name is given by Kawall (1866b) for '*Elampus aeneus*'. *Omalus aeneus* is also listed as a separate species in the same paper few pages before (Kawall 1866b: 156). Having both a chrysidid *Omalus aeneus* (listed in its valid combination in the genus *Omalus* Panzer, 1801) and '*Elampus aeneus*' in the same paper could indirectly imply that Kawall (1866b) used the epithet '*Elampus aeneus*' on p. 159 for *Perilampus aeneus*. He clearly used the currently accepted genus placement for the cuckoo wasp on p. 156, and if he used a different name for the same taxon (as '*Elampus*') on p. 159 in the same publication, it can only have been an error. We therefore, with some caution, consider it likely that '*Elampus aeneus*' in Kawall (1866b: 159) refers to the chalcidoid *Perilampus aeneus*. This requires further confirmation based on Kawall's material, deposited at the University of Tartu Natural History Museum, Estonia. Still, since it is not fully clear which species

the record in Kawall (1866b: 159) refers to, we consider the first confident record of *Perilampus aeneus* from the territory of Latvia and the Baltic states is the one published by Bischoff (1925) but, for reference, we also include the Kawall's (1866b) record from Puze to the maps (Figs. 2–3). Interestingly, two years earlier Kawall (1864: 303) mentioned one of the same taxa, '*Elampus aeneus* Fb.', in his faunistic notes on the Hymenoptera of the Russian Empire (this time without clear reference to the territory of the present-day Latvia) and having Fabricius ('Fb.') given as the author, in this paper he clearly referred to *Omalus aeneus* (Chrysididae Latreille, 1802) and not to *P. aeneus*.

The straight-line distance between the uncertain (see above) historical westernmost (surroundings of Puze) and new (surroundings of Augšmukti) sites is about 292 km (Fig. 2). The discussed new Latvian locality is about 444 km southwards the nearest Finnish, about 502 km eastwards the Swedish, and about 569 km north-eastwards the Polish locality (Fig. 3). Interestingly, in Finland and Poland, the nearest to Latvia observations of *Perilampus aeneus* are from urban areas – the central part of Helsinki and the southern part of Warszawa (GBIF 2024b, c). The species is likely a habitat generalist: it was found in a forest patch in Gotland (SLU Artdatabanken 2024), a private housing area in Warszawa (GBIF 2024c), the Botanical Garden in Helsinki (GBIF 2024b), and in an agriculture landscape bordering the Dubna River wetlands ('Dubnas paliene') nature protected area in SE Latvia.

The occurrence of *Perilampus aeneus* in Latvia appears expected also considering the Finnish (GBIF 2024b) and Polish (GBIF 2024c) records, and the Swedish distribution pattern of this species (SLU Artdatabanken 2024) (Fig. 3). In Finland, *P. aeneus* is yet recorded six times from two nearby sites in Helsinki in the south of the country near the Baltic Sea (GBIF 2024b). In Poland, there are eight records from four sites scattered across the

southern and eastern parts of the country (GBIF 2024c). In Sweden, *P. aeneus* is known only from the south with totally five records from four sites, two of which from Gotland (SLU Artdatabanken 2024).

CONCLUSIONS

We consider the Latvian population native since it was first reported from Latvia long time ago and at least some of the known host taxa of this hyperparasitoid (Rzaeva 1971, Tryapitsyan 1978, Mitroiu & Koutsoukos 2023) - Curculionidae (Coleoptera), Tenthredinidae (Hymenoptera), and Tortricidae (Lepidoptera) - are widespread in Latvia (e.g., Cinovski 1953, Telnov 2004, Savenkov & Šulcs 2010). Taking into account the new Latvian record, occurrence of *Perilampus aeneus* in Estonia, Lithuania and northern and western Belarus is considered very likely.

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