

Platyceraphron Kieffer, 1906 (Hymenoptera, Megaspilidae) in the Nordic countries

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The genus *Platyceraphron* Kieffer, 1906 with the species *P. muscidarum* Kieffer, 1906 is reported as new to Norway, caught in traps at two different locations. An old Swedish record which seems to have been forgotten is reviewed and one recent Swedish record added. No records are known from Finland and Denmark. *Platyceraphron* are remarkably dorsoventrally flattened wasps, and have been reported as parasitoids of subcorticeous flies, mainly Lonchaeidae.

Key words: *Platyceraphron muscidarum*, Ceraphronoidea, flattened wasps, saproxylic parasitoid, Lonchaeidae.

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Introduction

Platyceraphron Kieffer, 1906 is a genus of rare and rather spectacular-looking megaspilid wasps. Its occurrence in the Nordic countries has not been clarified. One specimen from Sweden is mentioned in an old paper (Dessart 1971), but the Swedish occurrence was missed in the main online resources (Polaszek 2013, Forshage 2009). Recently, a small number of specimens have turned up in trap materials in Norway. Here, we report *Platyceraphron muscidarum* Kieffer, 1906 as new to Norway and review its biology and status in the Nordic countries. Biogeographical abbreviations for Norway follow Økland (1981). It is important to note that Megaspilidae is a poorly known family, and *Platyceraphron* has not been included in any phylogenetic analyses.

The leading 20th century specialist Paul Dessart emphasises (Dessart 1990) that *Platyceraphron* might perhaps not merit separate generic status, and instead just represent the most flattened species of *Dendrocerus* Ratzeburg, 1852.

Collections (abbreviations). BMNH = Natural History Museum, London; IRSNB = Institut Royal des Sciences Naturelles de Belgique/Koninklij Belgisch Instituut voor Natuurwetenschappen, Brussels; MZH = Luonnontieteellinen museo/Naturhistoriska Museet, Helsinki; MZLU = Zoologiska Museet Lunds Universitet, Lund; NHMO = Naturhistorisk Museum, Oslo; NHRS = Naturhistoriska Riksmuseet, Stockholm; NINA = Norwegian Institute for Nature Research, Trondheim; ZMUC = Zoologisk Museum, Copenhagen

***Platyceraphron muscidarum* in Norway**

A funny-looking wasp was noted and photographed by OH sorting material from flight interception traps at MRI, Nettet: Botnahaugen, N 62.779197 E 7.863476. It could easily be identified as a *Platyceraphron* sp. from the picture alone and as *P. muscidarum* when MF studied the specimen (Figure 1). Two specimens were trapped at this locality in the periods, 21 May–2 June 2010 and 10 May–13 June 2011, respectively, leg. Ingvar Stenberg. The traps were mounted on standing trunks of aspen (*Populus tremula*) in the edge of a corridor for a recently built power line (Figure 2). Botnahaugen is part of Sotnakkvatnet coniferous reserve, and the sampling area at 185 m.a.s.l. is surrounded by old forest of mainly pine, birch and aspen. As a conservation measure the top of some aspens were cut in June 2006, and during the following years the dead trunks decayed to be habitats for a lot of insect species, among others large numbers of bark beetles of the genus *Trypophloeus* Fairmaire, 1869 (Coleoptera: Curculionidae).

Somewhat more directed attention during the normal processing of samples at NINA during the following seasons produced one more specimen from VE, Horten, Mellomøya, N 59.44323 E 10.45823, 06 May – 16. June 2015. One specimen caught in a Malaise trap under large oak *Quercus robur* with some dead wood on the ground (Fig 3), leg. AS.

No specimens are currently known from Norway in the NMHO collection.

***Platyceraphron muscidarum* in Sweden**

One specimen from Sweden was mentioned by Dessart in his revision (Dessart 1971), a reared female from Småland, Ålem, Strömsrum 1958. This specimen was collected by Knud Petersen and stated to be in the collection of his colleague as a dentist and an amateur entomologist both, the microhymenoptera specialist, Arne Sundholm (1907-1972). The Sundholm collection has since then been donated to the MZLU, but the specimen could not be found there.

Instead another Swedish specimen, from

Jämtland, stood as *Platyceraphron* in MZLU. This was however a misidentified specimen, bearing a very ambiguous determination label from Dessart, saying "*Platyceraphron* sp.", but the "det" in "det. P. Dessart" was crossed out and something more or less illegible, possibly "borrows", was handwritten. The Swedish specimen mentioned by Dessart had in fact not been returned to Sundholm and was found in the Dessart collection currently in IRSNB.

Despite this published record, *Platyceraphron* was not mentioned for Sweden, or any other Nordic countries, in the Fauna Europaea catalog (Polaszek 2013), nor several unpublished lists circulating, nor – until recently – the official Swedish list at Dyntaxa (Forshage 2009). Nevertheless, the genus had been included in the Swedish key by Landin with the comment "one or few species in Sweden" ("någon enstaka svensk art") (Landin 1971).

An additional specimen surfaced during these researches as it was returned to NHRS by Peter Neerup Buhl who had identified it. This was part of the Tyresta national park inventory carried out by Bert Viklund, Lars-Ove Wikars and Hans Ahnlund, as it happened, before and after the big forest fire in the park in 1999 (Ahnlund *et al.* 2006). The specimen was caught in a Malaise trap in a severely burnt area (Sweden, Södermanland, Tyresta NP, S Stensjön, RN 1643210 6564632), during the period 26 May–21 July 2001. Originally a semi-open pine forest (*Pinus sylvestris*) with scattered birch, spruce and aspen, this area had been intensely burnt, all trees dead and most fallen, much bedrock exposed.

No further Swedish specimens could be found in NHRS nor MZLU, nor in the Hedqvist collection in BMNH, and none have been noted so far in the Swedish Malaise Trap Project.

***Platyceraphron muscidarum* in other Nordic countries**

No specimens from Finland or Denmark are known. Curators of the Helsinki and København museum as well as active microhymenoptera collectors confirm this.

Biology of *Platyceraphron*

The old Swedish specimen is reared from oak (*Quercus robur*), emerging in february. No host is specified. Since the collector is a coleopterist, the wasp probably emerged from a whole piece of wood brought in for rearing beetles.

More substantial biological information exists for the type specimens of *P. muscidarum* and its synonym *P. corticis* Kieffer, 1906. They were reared from Diptera puparia in *Populus* trees in Amiens, France (Kieffer 1906). Since the trees were referred to by their French name “peuplier”, we cannot be certain what tree species it concerns.



FIGURE 1. *Platyceraphron muscidarum* Kieffer, 1906 from MRI, Nasset, Botnahaugen. Photo: AS.



FIGURE 2. Flying interception traps on aspen trunks at MRI, Nasset, Botnahaugen collected two specimens of *P. muscidarum*. Photo: Ingvar Stenberg.



FIGURE 3. A single specimen of *P. muscidarum* was collected in this Malaise trap at VE, Horten, Mellomøya. Picture taken 6 May 2015. Photo: AS.

Aspen (*Populus tremula*) is most commonly referred to in French as “tremble”, so it is more likely to be a poplar species, perhaps the black poplar (*Populus nigra*) which is common in the area. Kieffer details how collector Léon Carpentier reared the types of *P. muscidarum* from four different kinds of fly puparia. Most specimens were from puparia identified as *Lonchaea tarsata* Fallén, 1820, and *L. laticornis* Meigen, 1826 (both Lonchaeidae), but these identifications should be taken as very tentative since *L. tarsata* is not known as a saproxylic species and *L. laticornis* represents a species complex (McGowan, pers. comm.). Other specimens were from puparia of “*Aricia*, probablement *A. laeta*”, which corresponds to *Phaonia laeta* (Fallén, 1823) (Muscidae), and an unidentified fly. Kieffer’s phrase “Muscide non déterminée” does not necessarily imply Muscidae, since he refers to the lonchaeids as “Muscidés” too. Dessart (1971) studied the type material, selected lectotypes and synonymised the two species, which were differentiated by size and an inconsequential minor difference in the antenna. Identifications of the host puparia have not been confirmed. If the *Phaonia* record is correct, *Platyceraphron* is obviously capable of utilising as host different muscomorph flies in the subcorticeous environment.

Norwegian specimens as well as the recent Swedish one are all caught in traps, which unfortunately give little details about the biology of the species. The three trapping sites had a dominance of aspen, oak and pine, respectively, but aspen was present in the immediate vicinity of the two latter as well. Dead *Populus* with their deep subcambial layer is particularly favored by *Lonchaea* species but also oaks and pines provide suitable habitats, while several other lonchaeid genera are more generalised saprophages not connected with tree species (Smith 1989, MacGowan & Rotheray 2008, MacGowan pers. comm.).

The scarcity of specimens indicate that it is indeed a rare species. But, with the four presently known localities widely separated over the Scandinavian peninsula, all with rich and very nice forest habitats with natural dynamics and notable biological diversity, but far from unique,

we would assume that it can be found in other places in between as well.

The flatness is odd. In other wasps of the North European fauna, we see something similar in at least four other groups. Many Bethylinidae are flat, parasitoids of Coleoptera and Lepidoptera larvae, both in saproxylic environments and human storage and other concealed places. The platygastriid wasps of the genus *Platystasius* are very flat, associated with Coleoptera eggs in both saproxylic and other concealed locations. While the genus *Spalangia*, constituting the subfamily Spalangiinae of Pteromalidae, parasitises Brachycera larvae in various concealed locations, not particularly saproxylic, and the scelionid *Telenomus danubialis* Széleányi, 1939 attacks flattened Lepidoptera eggs in grasses. Elsewhere, at least many Agaonidae and some Mymaridae are as flat. Spontaneously it is possible to make a tentative association between flatness and a subcorticeous lifestyle, which is definitely true in a large number of Coleoptera, but it is more difficult to find analogous cases in Hymenoptera, and indeed the known Hymenoptera parasitoids of subcorticeous and saproxylic Brachycera and Coleoptera are usually not flat.

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