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Objektyp: **Article**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society**

Band (Jahr): **71 (1998)**

Heft 1-2

PDF erstellt am: **22.07.2024**

Persistenter Link: <https://doi.org/10.5169/seals-402701>

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Pipunculid flies collected in the Forest Reserve Sihlwald ZH (Diptera, Pipunculidae): Three species new to Switzerland

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Pipunculidae (Diptera) were sampled in the Forest Reserve Sihlwald (Kt. Zürich) using trunk-window traps and eclectors. Three species are new to Switzerland, namely *Chalarus basalis* LOEW, 1873, *C. brevicaudis* JERVIS, 1992, and *C. indistinctus* JERVIS, 1992. The records are given in a short list including notes on the distribution of the species.

Keywords: Pipunculidae, Switzerland, faunistics, Diptera

INTRODUCTION

Pipunculidae are rather inconspicuous flies which parasitize leafhoppers (Auchenorrhyncha, Homoptera) during their larval stage. They are known to pupate and hibernate mainly in the soil, leaf litter or their hosts' food plant (WALOFF & JERVIS, 1987), other workers referred to herbage, decaying wood (ACZÉL, 1943) or "interstices in the bark of trees and debris in forks between branches" (PARKER, 1967). Species of the genus *Chalarus* could be reared successfully from abandoned bird nests collected in trees (PÜCHEL, in prep.). The 78 species recorded in Switzerland are listed in DE MEYER (1993) and DE MEYER *et al.* (1996), where also further information about their distribution can be found.

The faunistical records presented in this paper were obtained as a by-product of an extensive ecological investigation on saproxylic Diptera and Coleoptera carried out by the junior author.

METHODS

The study is conducted in the Forest Reserve Sihlwald (Kt. Zürich, 47° 15' N; 8° 33' E), a mixed beech-spruce forest (*Fagus sylvatica* and *Picea abies*) at 400–700 m altitude. Due to its north-eastern exposition, the forest is rather shady and humid. Insects are collected using two trap systems: Trunk-window traps (TWT, KAILA, 1993) to measure flight abundances, and eclectors (emergence traps, ET, modified after FUNKE, 1971), to sample species emerging from trunks. The latter are installed exclusively on lying stems of beech at a medium stage of decay.

The material is deposited in the entomological collection of the Eidgenössische Technische Hochschule (Swiss Federal Institute of Technology) and in the collection of the senior author.

RESULTS

29 specimens of Pipunculidae were sampled belonging to 11 described and at least two undescribed or unidentified species. Three of the former are new to Switzerland, all belonging to the genus *Chalarus*.

Nephrocerus ZETTERSTEDT, 1838

Nephrocerus (subfamily Nephrocerinae) constitutes the most plesiomorphic subgroup of Pipunculidae. The three West Palaearctic species are widespread all over Europe. Using malaise traps they were sampled in various habitats even though in small numbers. Previous observations and speculations about their still unknown bionomics were reviewed by GROOTAERT & DE MEYER (1986).

Nephrocerus flavicornis ZETTERSTEDT, 1844

TWT, 9.VII.–18.VII. 1996, 1 ♂.

Nephrocerus lapponicus ZETTERSTEDT, 1838

TWT, 13.IV.–7.V. 1997, 1 ♂.

Chalarus WALKER, 1834

Species of *Chalarus* (Subfamily Chalarinae) are well characterized by reduced wing venation. They are exclusively parasitoids of typhlocybine leafhoppers (Cicadellidae). Since the leafhoppers of this subfamily occur mainly on trees and shrubs it is not surprising that *Chalarus* was the most frequently collected genus at the locality. Current data on abundance and host records are reviewed in JERVIS (1992). We add some notes if we have further information on the species' abundance.

Chalarus basalis LOEW, 1873 [New to the Swiss fauna]

ET, 24.V.–19.VI. 1996, 1 ♀; ET, 20.VI.–18.VII. 1996, 1 ♀. This species seems to be widespread in northern and central Europe but is usually found in small numbers.

Chalarus brevicaudis JERVIS, 1992 [New to the Swiss fauna]

ET, 24.V.–19.VI. 1996, 1 ♀; ET, 20.VI.–18.VII. 1996, 2 ♀♀. *C. brevicaudis* is also widespread throughout Europe and frequently found in Germany.

Chalarus indistinctus JERVIS, 1992 [New to the Swiss fauna]

TWT, 12.V.–23.V. 1996, 1 ♀; TWT, 6.VI.–19.VI. 1996, 1 ♀. This polyphagous species is one of the most abundant *Chalarus* species in Europe.

Chalarus juliae JERVIS, 1992

TWT, 5.VII.–18.VII.1997, 1 ♀.

Chalarus longicaudis JERVIS, 1992

TWT, 19.VII.–31.VII. 1996, 1 ♀.

Chalarus fimbriatus COE, 1966

ET, 24.V.–19.VI. 1996, 1 ♂. JERVIS (1992) reported the species mainly from northern Europe and Belgium. In Germany it was found rarely.

Chalarus pughi COE, 1966

ET, 24.V.–19.VI. 1996, 1 ♀.

Chalarus spurius (FALLÉN, 1816)

ET, 24.V.–19.VI.1996, 1 ♀. Before JERVIS' revision (1992) several other species were confused with *C. spurius* but nonetheless it seems to be one of the most abundant species in Europe.

Chalarus spec. A

ET, 20.VI.–18.VII. 1996, 2 ♂♂; TWT, 20.VI.–18.VII.1996, 1 ♂; TWT, 5.VII–18.VII.1996, 1 ♂; TWT, 15.VII.–31.VII.1996, 1 ♂; TWT, 1.VIII.–14.VIII.1996, 1 ♂. This species belongs to a group of *Chalarus*, where the males have a short apical process of the aedeagus and lack fronto-orbital setae. This as yet undescribed species is also known in Germany from Leipzig (DEMPEWOLF & PELLMANN, in prep.) and Cologne.

Chalarus spec. B

ET, 24.V.–19.VI.1996, 1 ♀; ET, 20.VI.–18.VII.1996, 1 ♀; TWT, 20.VI.–08.VII.1996, 1 ♀. These unidentified females may belong to *Chalarus* species A, but to clarify their status more material is needed.

Chalarus spec. (conf. *exiguus/holosericeus*)

ET, 19.VII.–14.VIII.1996, 2 ♂♂; ET, 24.V.–19.VI.1996, 2 ♂♂; TWT, 19.VII.–31.VII.1996, 1 ♂. These male specimens could not be clearly attributed to a species. They belong either to *C. exiguus* (HALIDAY, 1833) or to *C. holosericeus* (MEIGEN, 1824) which can be distinguished only by larval or pupal characters (JERVIS, 1992).

Dorylomorpha ACZÉL, 1939*Dorylomorpha extricata* (COLLIN, 1937)

ET, 24.V.–19.VI. 1996, 1 ♂. The only representative of the species-rich subfamily Pipunculinae sampled in this investigation is widespread throughout Europe and is often found in moist habitats.

DISCUSSION

As DE MEYER *et al.* (1996) suggested, additions to the Swiss fauna of pipunculids could be expected. It is remarkable however, that these species were collected within a dark and moist forest such as the Sihlwald, where their hosts are not expected to be very abundant. Additionally, leafhoppers do not show any relations to dead wood. The appearance of pipunculids in eclectors indicates therefore, that

the results gained from this trap type must be handled with care. The life history of the species sampled should not be ignored when conclusions about its habitat requirements are made.

ACKNOWLEDGEMENTS

Many thanks are due to B. MERZ for critical comments on the manuscript. The junior author would like to thank the Swiss National Fonds for the financial support of this study (Grant 31-45911.95).

ZUSAMMENFASSUNG

Pipunculiden aus dem Naturwaldreservat Sihlwald ZH, mit drei Erstfunden für die Schweiz. – Im Rahmen einer Studie über totholzlebende Dipteren und Käfer im Naturwaldreservat Sihlwald (Kt. Zürich) wurden insgesamt 29 Vertreter der Familie Pipunculidae (Diptera) gefangen. Drei Arten wurden zum ersten Mal in der Schweiz nachgewiesen, so dass nun 81 Arten in diesem Land gemeldet sind.

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(received December 17, 1997; accepted January 7, 1998)