

***Hoplandrothrips famelicus* (PRIESNER, 1926)
(Thysanoptera: Phlaeothripidae) – a thrips new to the Polish fauna**

HALINA KUCHARCZYK¹, DOROTA SAŁAPA, MARIA GROCHOWSKA

Department of Zoology, Maria Curie-Skłodowska University,
Akademicka 19, 20-033 Lublin, Poland,
¹e-mail: halina.kucharczyk@umcs.lublin.pl

ABSTRACT. *Hoplandrothrips famelicus* (PRIESNER, 1926) is recorded for the first time in Poland and the third time in Europe. Adult females and males have been found in galls of *Lipara* MEIGEN, 1830 on *Phragmites australis*. The diagnostic characters, distribution and biology of this species are presented and discussed.

KEY WORDS: *Hoplandrothrips famelicus*, Thysanoptera, Phlaeothripidae, *Phragmites australis*, Poland.

INTRODUCTION

Hoplandrothrips famelicus was described by PRIESNER in 1926 as *Cryptothrips famelicus* on the basis of a wingless female found by F. PILLICH on *Genista* sp. in Kisasszony near Simontornya in Hungary (PRIESNER 1928). The same author proposed the synonymous genus name – *Cryptaplothrips* – in 1927, and this was used by PELIKÁN in his paper on specimens he recorded in nests of birds and mammals in Czechoslovakia in 1985 (PELIKÁN 1992). After PELIKÁN, FEDOR et al. (2001) cited the data and used the same name in their article about thrips fauna observed in nests of birds and mammals in the NPR Jurský Šúr near Bratislava. After taxonomic revision the species was placed in the genus *Hoplandrothrips* HOOD 1912 (ZUR STRASSEN 2007). The Hungarian reference materials were destroyed during the Second World War (Dr József Fail, pers. comm.); a few specimens collected in Hungary in 1931 or earlier are deposited in the Senckenberg Museum in Frankfurt-am-Main (Dr Richard zur Strassen, pers. comm.). The material collected in the vicinity of Lublin is currently the most extensive in Europe.

Acknowledgements

The authors are indebted to Prof. G. Jenser (Plant Protection Institute, Budapest), Dr J. Fail (Corvinus University of Budapest) and Dr P. Fedor (Comenius University, Bratislava) for help with the literature search and information, and to Dr R. zur Strassen (Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt-am-Main) for information. We express our thanks to Dr P. Buczyński (Dept. of Zoology UMCS, Lublin) for the specimen from a coot's (*Fulica atra*) nest.

MATERIAL AND METHODS

Numerous specimens of *Hoplandrothrips famelicus* have been found during qualitative research on *Diptera* fauna in galls of *Phragmites australis* (CAV.) TRIN. ex STEUDE. They were isolated from the apical shoot galls of common reed collected on 26 February 2009 in two localities: Prawiedniki in the valley of the river Bystrzyca (51°8' N, 22°30' E) and Jastków in the valley of the Ciemięga (51°18' N, 22°26' E), both in the vicinity of Lublin. The thrips were most numerous in plants collected at Jastków – 56 females and 21 males from seven apically changed stalk parts. At Prawiedniki four females and one male were found in six galls. Plant material (50 stalks) was collected at Jastków on one further occasion (5 April) but only two females of *Limothrips denticornis* HALIDAY, 1836 and one of *Thrips tabaci* LINDEMAN, 1889 were found. Shoots of common reed were cut at Zemborzyce (51°9' N 22°30' E) near Lublin, too, but only one female of *L. denticornis* was found in that plant material. In addition, one female of *H. famelicus* was found on 18 July 2009 among the plant matter in a coot's (*Fulica atra* L.) nest, which was situated among the common reeds surrounding a pond in Garbów near Lublin (51°21' N 22°19' E).

All the specimens collected were set in 60% ethyl alcohol; microscope slides were prepared according to the recommendations of MOUND & KIBBY (1998). The specimens were identified by KUCHARCZYK using PRIESNER'S key (1964) and his description of this species (PRIESNER 1928). Morphological analysis was carried out and figures were prepared using an OLYMPUS AX microscope (magnifications from 40 to 400x); most of the slides are deposited in the collection of the Department of Zoology, Maria Curie-Skłodowska University in Lublin, while a few have been sent to Prof. Gábor Jenser (Plant Protection Institute in Budapest).

DESCRIPTION OF ADULTS

Apterous. Length of body: females 1700-2250 µm, males 1500-1875 µm, length of antenna: females 375-400 µm, males 350-375 µm. Body dark brown with red pigmentation especially in the abdomen; distal parts of tibia and tarsi yellow (Figs 1, 2). Fore tarsi in females without tooth, in males – with or without tooth (Fig. 9). Segments of antennae dark

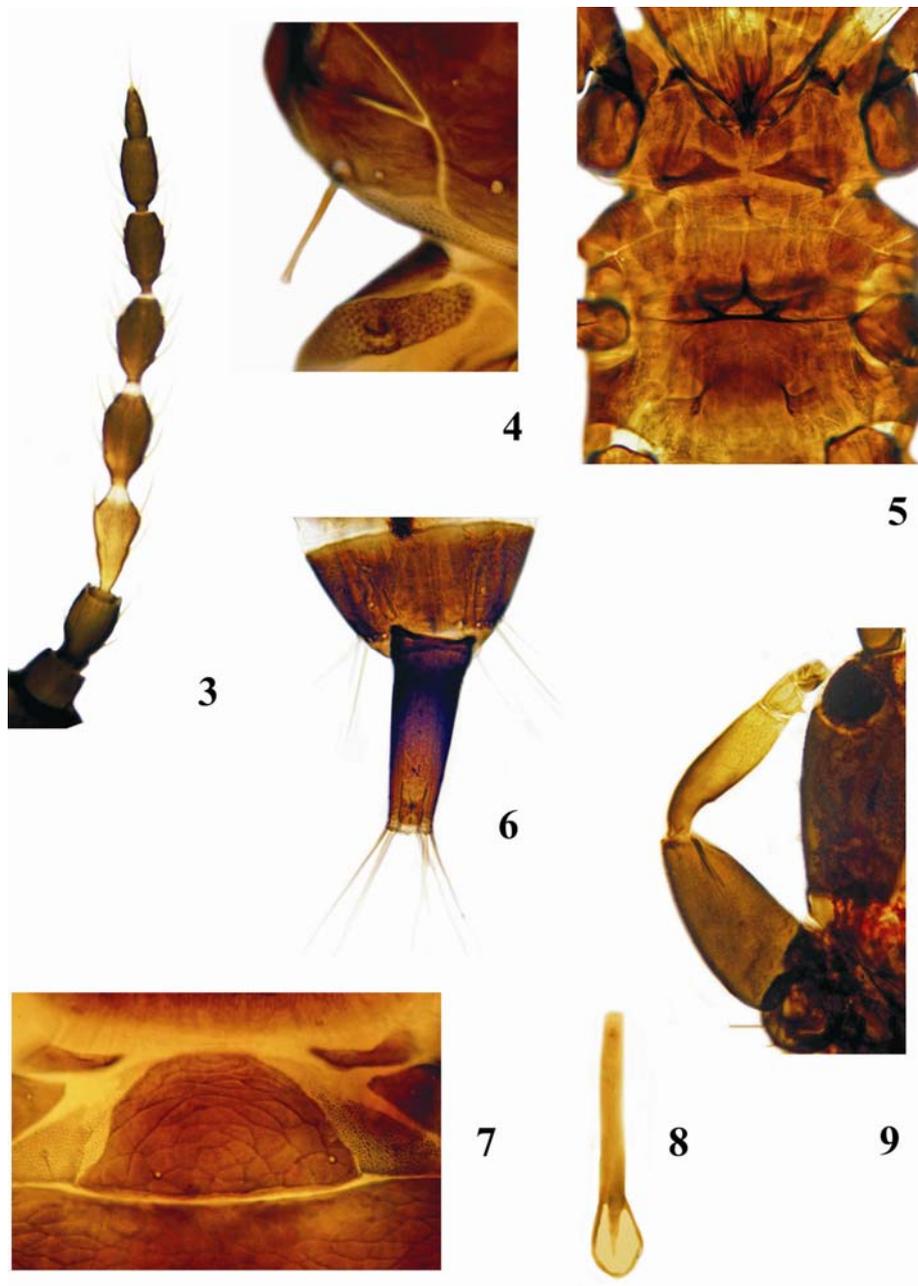
brown, only the third is yellow and weakly asymmetric (Fig. 3). Antennal segment III with two sensoria, IV with four sensoria. Head longer than wide with small eyes about $\frac{1}{4}$ of head length (Figs 1, 2, 9). Maxillary stylets narrow and long; maxillary bridge missing. Postocular setae expanded at apex about 50 μm long. Pronotal setae expanded at apex: aa – 37.5-42.5 μm , am – 6-7.5 μm , epim – 35-40 μm , pa – 35-37.5 μm , pm – 37.5 μm (Fig. 4). Mouthcone extends to half of prosternum (Fig. 5). Pelta D-shaped (Fig. 7). Pseudovirga spoon-shaped (Fig. 8). Abdominal setae rather short – those on segments IX and X shorter than length of tubus (Fig. 6).



Figs 1-2. *Hoplandrothrips famelicus* (PRIES.): 1 – female, 2 – male.

DISCUSSION

Common reed (*P. australis*) is a very widespread plant in the Palaearctic, its plasticity is large; it is found both in wet and dry localities in natural and anthropogenic habitats. More than 140 insect species feed on different parts of the common reed in Europe; for about fifty the plant is the only known host plant (ATHEN & TSCHARNTKE 1999, SCHWARTZLÄNDER & HÄFLIEGER 2000).



Figs 3-9. *Hoplandrothrips famelicus* (PRIES.), female: 3 – antenna, 4 – epimeral seta, 5 – pro-, meso- and metasternum, 6 – abdominal tergites IX-X, 7 – pelta; male: 8 – shape of pseudovirga, 9 – foreleg.

Among the Thysanoptera only one monophagous species – *Stenchaetothrips biformis* (BAGNALL, 1913) – feeding and breeding on common reed, has been noted in Poland to date (ZAWIRSKA 1988); a few other oligophagous species co-existing with *Poaceae* and *Cyperaceae* are occasionally found on this plant, too, for example, *Haplothrips aculeatus* (FABRICIUS, 1803), *Bolothrips dentipes* (REUTER, 1880), *Aptinothrips stylifer* TRYBOM, 1894, *Anaphothrips badius* (WILLIAMS, 1913) (KUCHARCZYK unpublished data). According to PRIESNER'S key (1964), *P. australis* is also a host plant for *H. famelicus*. PRIESNER'S and PELIKAN'S data came from the month of July; the wingless female described by PRIESNER was probably accidentally collected on *Genista* sp. because the region of Kisasszony in the Tisza Basin, where the specimen was found, is a mosaic of different plant communities, including wet meadows (BIRÓ et al. 2008). PELIKÁN (1992) determined the specimens collected in water vole nests (*Arvicola terrestris* L.) (ten females, eight males and twelve larvae) and in a great reed warbler nest (*Acrocephalus arundinaceus* L.) (one female and one male). Both localities were situated in the littoral vegetation of a pond, and common reed was probably the main nest building material. The presence both of adults and larvae in the same place indicated feeding and breeding. However, on the basis of published data we know nothing about food preferences: we cannot state whether the species is phytophagous, fungivorous or predatory. All three hypotheses are possible: the thrips could feed on the green leaves of common reed used for nest building, or prey on the mites that live in it, or consume the fungi that grow there. The present discovery of *H. famelicus* adults (males and females) in shoot galls on *P. australis* tells us something new about the overwintering of this species.

Current research indicates that thrips are found between dry leaves that cover the two-year-old apical cigar-like galls caused by flies of the *Lipara* genus. Many specimens isolated from galls were covered by fungi spores. While looking for thrips a mass of mites *Steneotarsonemus phragmitidis* (VON SCHLECHTENDAL, 1898) forming corkscrew-shaped galls was observed (HÄFLIEGER 2009). Therefore it is possible that the thrips species is either predatory or fungivorous, like the other *Hoplandrothrips* species (*H. bidens* (BAGNALL, 1910) and *H. williamsianus* PRIESNER, 1923) known from Poland.

The absence of thrips in galls collected in April may be due to their migration onto newly developed plants for breeding. It is possible that *H. famelicus* is an inquiline species using galls or nests made by other organisms as a winter habitat. The phenomenon of living in groups is well known in some invertebrates, e.g. Phlaeothripines (Thysanoptera), originating in Australia, which are kleptoparasites or inquilines of species forming galls in *Acacia* trees (MOUND 2004, MOUND & MINAEI 2007), or various species of Diptera which use their hosts for feeding, breeding and phoresy (SIVINSKI et al. 1999).

In Europe nine species of the *Hoplandrothrips* genus are known, among them two hitherto noted in Poland. All of them are fungivorous, live on dead branches and both sexes have wings; their pelta is T-shaped (KUCHARCZYK 2007, SCHLIEPHAKE & KLIMT 1979, ZUR STRASSEN 2007).

The species was included by PRIESNER (1928) into the *Haplothrips* lineage. For this lineage, the presence of a maxillar bridge between the maxillar stylets, wings in both sexes or only in one sex, and triangular pelta are typical; most species are phytophages. However, *Hoplandrothrips famelicus* lacks both structures (the maxillar bridge and wings), while its pelta is D-shaped (Figs. 1, 2, 7). These features indicate that the species is a member of the *Phlaeothrips* not the *Haplothrips* lineage (STANNARD 1957, MOUND & MARULLO 1996).

REFERENCES

- ATHEN O., TSCHARNTKE T. 1999. Insect communities of *Phragmites* habitats used for sewage purification: effect of age and area of habitats on species richness and herbivore-parasitoid interaction. *Limnologica* **29**: 71-74.
- BIRÓ M., RÉVÉSZ A., MOLNÁR ZS., HORVÁTH F., CZÚCZ B. 2008. Regional habitat pattern of the Danube-Tisza interfluvium in Hungary, II. *Acta Botanica Hungarica* **50**: 19-60.
- FEDOR J.P., PELIKÁN J., CYPRICH J., KRUMPÁL M. 2001. Thrips (Thysanoptera) in the nests of birds and mammals of the NPR Jurský Šúr. *Folia Faunistica Slovaca* **6**: 69-73.
- HÄFLIEGER P. 2009. Damage based identification key for endophagous herbivores on Common Reed (*Phragmites australis*). http://www.cabi.org/Phragmites/sten_phr.html
- KUCHARCZYK H. 2007. Wciornastki (Thysanoptera). [In:] BOGDANOWICZ W., CHUDZICKA E., PILIPIUK I., SKIBIŃSKA E. (eds). Fauna Polski. Charakterystyka i wykaz gatunków. Vol. II, pp.: 91-398.
- MOUND L.A. 2004. Australian Thysanoptera – biological diversity and a diversity of studies. *Australian Journal of Entomology* **43**: 248-257.
- MOUND L.A., KIBBY G. 1998. Thysanoptera an Identification Guide. CAB International, 70 pp.
- MOUND L.A., MARULLO R. 1996. The thrips of Central and South America: an introduction (Insecta: Thysanoptera). Associated Publisher, Gainesville (FL), 487 pp.
- MOUND L.A., MINAEI K. 2007. Australian thrips of the *Haplothrips* lineage (Insecta: Thysanoptera). *Journal of Natural History* **41**: 2919-2978.
- PELIKÁN J. 1992. Faunistic records from Czechoslovakia. *Acta Entomologica Bohemoslovakia* **89**: 162.
- PRIESNER H. 1928. Die Thysanopteren Europas (Wien 1928) [In:] NEUDRUCK, A. ASHER and Co. Amsterdam **1963**: 491-493.
- PRIESNER H. 1964. Ordnung Thysanoptera (Fransenflügler, Thripse). Akademie-Verlag, Berlin, 242 pp.
- SCHLIEPHAKE G., KLIMT K. 1979. Thysanoptera, Fransenflügler. *Die Tierwelt Deutschlands* **66**, 477 pp.
- SCHWARTZLÄNDER M., HÄFLIEGER P. 2000. Shoot flies, gall midges, and shoot and rhizome mining moths associated with common reed in Europe and their potential for biological control. [In:] Proceedings of the X International Symposium on Biological Control of Weeds. 4-14 July 1999, Montana State University, Bozeman, Montana USA (SPENCER N. R. ed.), pp.: 397-420.
- SIVINSKI J., MARSHAL S., PETERSSON E. 1999. Kleptoparasitism and phoresy in the Diptera. *Florida Entomologist* **82**: 179-196.
- STANNARD L.J. 1957. The phylogeny and classification of the North American genera of the suborder Tubulifera (Thysanoptera). *Illinois Biological Monographs* **25**, 200 pp.
- STRASSEN ZUR R. 2007. Fauna Europaea (version 1.3) http://www.faunaeur.org/tax_resources.php
- ZAWIRSKA I. 1988. Thysanoptera collected in Poland. *Fragmenta Faunistica* **31**: 361-410.

Received: February 10, 2011

Accepted: July 06, 2011