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Pseudoptilinus fissicollis (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877) (Coleoptera: Ptinidae) – new records from Poland with notes on species biology

Wojciech T. Szczepański, Wiesław Szczepański, Lech Karpiński

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Literature records about the occurrence of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877) in Poland are analysed and supplemented by new data. Information about the species habitat and biology are presented.

Key words: Coleoptera, Ptinidae, *Pseudoptilinus fissicollis*, Poland, Odra River, habitat, endangered species

Wojciech Tomasz Szczepański (corresponding author), Lech Karpiński, Department of Zoology, Faculty of Biology and Environmental Protection, University of Silesia, Bankowa 9, 40-007 Katowice, Poland; e-mail: wszczepanski@us.edu.pl, lkarpinski@us.edu.pl

Wiesław Szczepański, Regional Directorate of State Forests in Katowice, św. Huberta 43/45, 40-543 Katowice, Poland; e-mail: wieslaw.szczepanski@katowice.lasy.gov.pl

INTRODUCTION

Pseudoptilinus fissicollis (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877) belongs to the family Ptinidae, where it is one of two representatives of the genus *Pseudoptilinus* Leiler 1969. Systematics within this family changed in recent years, including the taxonomical position of the presented species.

P. fisscicollis develops in deadwood of linden trees (*Tilia* spp.). According to the Catalogue of Palearctic Coleoptera (Zahradník 2007), the geographic range of this species includes, beginning from the west, countries such as France, Germany, Austria, Czech Republic, Slovakia, Hungary, Poland, Bulgaria, Romania, Ukraine, Russia, Turkey, Kazakhstan, Kyrgyzstan, and Mongolia. Furthermore, it was recorded in Sweden (Lundberg & Gustafsson 1995) and Lithuania (Tamutis et al. 2011). However, the information on the distribution of this species in the eastern part of its range should be verified, because, according to Toskina (2013), the data may refer to a related species – *Pseudoptilinus bernhaueri* (Reitter, 1916). In Europe, this species is a great rarity and probably in danger of extinction, hence its presence in the red lists of many countries, e.g. Germany (Geiser 1998), Poland (Pawłowski et al. 2002), and Sweden (Ljungberg et al. 2010).

This article summarises the current knowledge and presents new data on the occurrence and biology of *P. fissicollis* in Poland.

MATERIAL AND METHODS

P. fissicollis was discovered by the authors of this work during research on saproxylic beetles conducted on Natura-2000 sites located in the Upper-Odra-River valley in the years 2012-2014. Specimens were collected, using a Japanese umbrella, mainly as a result of the analysis of twigs and branches of small-leaved lime (*Tilia cordata* Mill.) and their subsequent rearing in the laboratory. They are now deposited in the collection of the Department of Natural History of the Upper Silesian Museum in Bytom (USMB) and also in the authors', Czesław Greń's, Roman Królik's, and Henryk Szołtys' private collections. Specimens were examined in the laboratory using a PROLAB MSZ stereomicroscope. Photos of habitat and feeding sites were taken using a CANON EOS 550D camera while photos of specimens were taken using a Nikon SMZ 1500 stereomicroscope and a Nikon DS-Fi1 digital camera. The names of physio-geographical mezoregions are given according to Kondracki (2000) and include their universal decimal classification. In addition, literature data were analysed.

RESULTS AND DISCUSSION

P. fissicollis is a small beetle (Fig. 1), whose body length varies from 3 to 7 mm (Dominik 1955, Lohse 1969). The colour is usually dark-brown or black; individuals with light-brown elytra are less frequently encountered. In this species, there is a distinct sexual dimorphism which manifests primarily in the construction of antennae.

In Central Europe, this species can be confused with the similar species *Ptilinus fuscus* (Geoffroy, 1785) and *Ptilinus pectinicornis* (Linnaeus, 1758). Previously, all three species belonged to a single genus – *Ptilinus* Geoffroy, 1762. Nowadays, as a result of systematic changes, these species belong to separate subfamilies – *P. fissicollis* to Xyletininae, and *P. fuscus* and *P. pectinicornis* to Ptilininae (Zahradník 2007). According to Dominik (1995), Lohse (1969), and Zahradník (2013), these species differ in the granulation at the anterior margin of the pronotum and in their head being declined to the prothorax. Moreover, *P. fissicollis* has, in contrast to the other two species, rows of dots on the elytra moulded in distinct longitudinal lines. Differences in the colour and structure of antennae are also noticeable. Features that distinguish *P. fissicolis* from *P. burnhaueri* were described by Toskina (2013). These species differ in the size of antennal segments, form of pronotum, punctures in striae, and pubescence on elytra.

Distribution of *P. fissicollis* in Poland is not sufficiently explored. So far, this species was only known from two localities in the Lower-Silesia region. In Dunino near Legnica (WS76), it was discovered by Schulz (1916) – one female was collected on 27.05.1916, during flight to lime-oak firewood (Schulz 1916). This information was then repeated in other regional work (e.g. Schulz 1927, Horion 1935, 1961). Quite recently, the presence of this species in Poland has been confirmed by Borowski & Śliwiński (1996) Z. Śliwiński reared one female from a dry branch of lime (*Tilia* sp.) collected in Maciejowiec (WS44) on 14.05.1953.

Due to the lack of new information about the occurrence of this species in Poland, and the fact that existing data refer to a period of several decades ago, the status of *P. fissicollis* on the Polish red list of threatened and endangered animals was given as "probably extinct (EX?)" (Pawłowski et al. 2002).

The new sites confirming the presence of this species in Poland are listed below and presented on the map (Fig. 2).

318.52 Wrocław Glacial Valley

- Zwanowice, Special Protection Area "Grądy Odrzańskie" (XS83) – 17.05.2013, 2 females in pupal cells under bark of twigs of *Tilia cordata*,

Fig. 1. Male and female of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877)

Fig. 2. Distribution of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877) in Poland (A – literature data, B – new records)

Fig. 3. Imagines of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877) in pupal cells.

Fig. 4. Small-leaved lime in Zwanowice – habitat of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877)

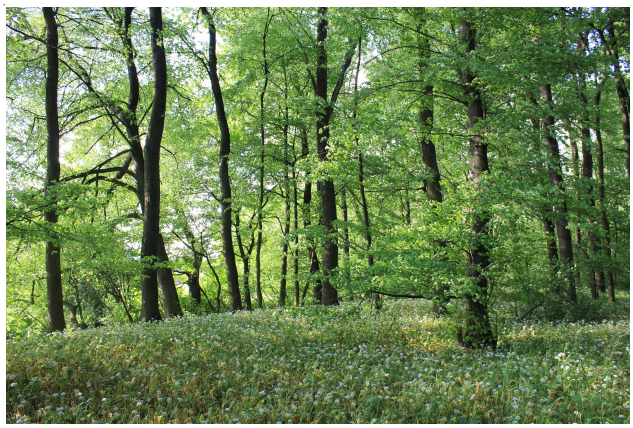

Fig. 5. Oak-hornbeam forest in Tworków – habitat of *Pseudoptilinus fissicollis* (Reitter in Putzeys, Reitter, Saulcy et Weise, 1877)

leg. W. T. Szczepański & W. Szczepański; 17.05.2013 (imago 03.12.2013 - 10.01.2014), 8 males, 4 females leg. et cult. W. T. Szczepański; 15.06.2013, 1female shaken down to Japanese umbrella from twigs of *Tilia cordata*, leg. W. T. Szczepański & W. Szczepański.

318.59 Racibórz Basin

- Kolonia Mechnica, Special Area of Conservation "Łęg Zdzieszowicki" (BA98) - 19.08.2012 (imago 11.02.2013, 23.03.2013), 2 males, leg. et cult. W. T. Szczepański; 24.05.2014, 2 females shaken down to Japanese umbrella from branches of *Tilia cordata*, leg. W. T. Szczepański.

- Tworków, Special Area of Conservation "Las koło Tworkowa" (CA04) – 29.05.2013 (imago ex pupa 10.06.2013), 1 male, leg. et cult. W. T. Szczepański; 29.05.2013, 1 larva, 1 pupa, leg. et coll. W. T. Szczepański; 24.04.2014, 1female in pupal cell, leg. L. Karpiński; 24.04.2014 (imago 01-08.05.2014), 4 males and 1female, leg. et cult. L. Karpiński & W. T. Szczepański.

Records from Kolonia Mechnica and Tworków are the first findings of this species in the faunistic region of Upper Silesia according to the Catalogue of the Fauna of Poland (Burakowski et al. 1986).

There is no detailed information in the literature about the species' habitat requirements (Burakowski et al. 1986).

The authors' observations indicate that the species inhabits branches of relatively small diameter (2-12 cm). Material for laboratory rearing was collected from both recently died out twigs and those lying on the ground. From a died out twig one specimen of *P. fissicollis* was shaken down together with 4 exx. of the longhorn beetle *Exocentrus lusitanus* (Linnaeus, 1767). In addition, on the branches inhabited by *P. fissicollis* we also found larval feeding sites of the bark beetle *Ernoporus tiliae* (Panzer, 1793) and the longhorn beetles *E. lusitanus* and *Stenostola ferrea* (Schrank, 1776).

P. fissicollis feeding sites are clearly marked in the wood. As the larvae feed they back-fill their larval tunnels with sawdust-like waste and excrements. The larval tunnels are usually situated in the deeper layers of wood, but sometimes they are found, as well as occasional pupal cells (Fig. 3), in wood directly under the bark. The circular emergence hole has a diameter of 1-1.5 mm. Also, the density of larvae is quite large; from a fragment of twig with a length of 20 cm and a diameter of 3 cm, 10 specimens were reared.

Presented localities were situated in oak stands with a large share of lime. Specimens from Zwanowice were collected at a poplar-and-lime avenue (Fig. 4) directly adjacent to an oak-hornbeam forest (Galio-Carpinetum). In Tworków, the material was also collected from an oak-hornbeam forest (Fig. 5), whereas twigs in Kolonia Mechnica were collected in riparian mixed forests along the rivers (Ulmenion minoris).

It is difficult to unequivocally define the habitat requirements of this species since it was found both in sunny locations and in those shaded in the middle of the forest stand. However, in the forests of the Odra-River valley, *P. fissicollis* has found favourable conditions and may be expected to occur also in other forest complexes with a similar forest-species composition. To better understand the distribution of *P. fissicollis* in Poland, this species, especially in the south-western part of the country, should be further explored.

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