

First records for Czechia of *Forcipomyia paludis* (Diptera: Ceratopogonidae), a midge parasitizing dragonfly imagines (Odonata: Coenagrionidae, Aeshnidae)

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Abstract

Three findings of *Forcipomyia paludis* are reported, representing the first records of this biting midge for Czechia. On 23 June 2013 one female attached to the wings of a female *Coenagrion puella* was photographically documented near Lysá nad Labem ca 30 km northeast of Prague. Two further specimens were discovered in the author's photographic archive, both attached to wings of male *Aeshna isoceles*. These records originated from West and South Bohemia on 3 June and 6 June 2011, respectively.

Zusammenfassung

Erstnachweise der an Libellen parasitierenden Gnitze *Forcipomyia paludis* (Diptera: Ceratopogonidae) in Tschechien (Odonata: Coenagrionidae, Aeshnidae) – Am 23. Juni 2013 wurde bei Lysá nad Labem ca. 30 km nordöstlich von Prag ein Weibchen von *Coenagrion puella* mit einer Gnitze an einem Flügel fotografiert. Im Fotoarchiv des Autors fanden sich zwei weitere dokumentierte Nachweise von *F. paludis*, in beiden Fällen an Männchen von *Aeshna isoceles*. Die Aufnahmen stammten aus West- und Südböhmen vom 03. bzw. 06. Juni 2011.

Abstrakt

V příspěvku jsou uvedeny tři nálezy pakomárce *Forcipomyia paludis* (Diptera: Ceratopogonidae), parazitujícího na imágách vážek (Odonata), první pro Českou republiku. 6. června 2013 v NPP Hrabanovská černava u Lysé na Labem byla nalezena a fotograficky zdokumentována samice pakomárce sající na křídle samice šidélka páskovaného (*Coenagrion puella*), další dvě samice pak byly objeveny při pečlivé prohlídce autorova fotografického archivu, obě z června 2011 na šídlu červeném (*Aeshna isoceles*), přičemž jeden záznam pochází z Karlovarska, druhý z Jindřichohradecka.

Introduction

Females of *Forcipomyia (Pterobosca) paludis* (Macfie, 1936), a biting midge only 1.8 mm in size, suck haemolymph from the veins of odonate wings (WILDERMUTH & MARTENS 2007). It is the only ceratopogonid species known to parasitize adult dragonflies in Europe and more than 65 species of Odonata have so far been recorded as hosts (MARTENS et al. 2008, 2012). Most records are known from France, Germany, and Switzerland (MARTENS et al. 2008, 2012; WILDERMUTH 2012). From all the other countries mainly single records exist. New findings from Czechia augment the knowledge regarding the distribution of this dragonfly parasite.

Records

On 23 June 2013 a female of *Forcipomyia paludis* was recorded in the Natural Monument Hrabanovská Černava (50°12'54"N, 14°49'41"E, altitude 187 m a.s.l.) near Lysá nad Labem, ca 30 km northeast of Prague. The biting midge was attached to the base of a forewing of a female *Coenagrion puella* (Fig. 1). The damselfly was able to fly over short distances within wet sedge (*Carex* sp.) vegetation with the parasite attached without any apparent handicap.



Figure 1. *Forcipomyia paludis* on *Coenagrion puella*. Near Lysá nad Labem Central Bohemia CZ (23-vi-2013). – Abbildung 1: *Forcipomyia paludis* an *Coenagrion puella*. Bei Lysá nad Labem (Lissa an der Elbe), Mittelböhmen (23.06.2013).

Two additional findings of this parasite were achieved by intensive and rigorous searching through the author's large photographic archive. The second specimen of biting midge was found attached near the base of the right hindwing of a patrolling male of *Aeshna isoceles* (Fig. 2) on a photo from 03-vi-2011, taken ca 10 km southeast of Karlovy Vary in West Bohemia (50°10'19"N, 13°2'12"E, altitude 690 m a.s.l., Fig. 2). The dragonfly patrolled a small shallow pond with well developed littoral vegetation comprising mainly *Typha* sp. It was observed for at least an hour, all the time with the midge on the wing. The third specimen of *F. paludis* was also found on a male *A. isoceles* (Fig. 3), similarly to the previous one, but attached to the left hindwing. The dragonfly with the midge was photographed on 06-vi-2011 at a pond in the nature reserve Skalák, ca 13 km southeast of Jindřichův Hradec (49°03'52"N, 15°09'25"E, altitude 665 m a.s.l.). The pond was shallow, overgrown with lush aquatic vegetation (*Nymphaea candida*, *Phragmites australis*, *Potamogeton* sp., *Typha* sp.).



Figure 2. *Forcipomyia paludis* on the median vein of the right hindwing of a flying male *Aeshna isoceles*. Near Karlovy Vary, West Bohemia (03-vi-2011). – Abbildung 2: *Forcipomyia paludis* an der Medianader des rechten Hinterflügels eines Männchens von *Aeshna isoceles* im Flug. Bei Karlovy Vary (Karlsbad), Westböhmen (03.06.2011).

Discussion

The knowledge regarding the distribution of *Forcipomyia paludis* in Europe is still rather fragmentary, with the most records from the region between southern France, Switzerland and West Germany (MARTENS et al. 2008, 2012; WILDERMUTH 2012). In the rest of Europe, the records are scarcer, although they cover a large area extending from Ireland (DONNITHORNE 2010) and England (TELFER 2009) over Belgium (CLAEREBOUT 2013) and The Netherlands (MANGER & MARTENS 2013) northwards to southern Sweden (SANDHALL 2000; BILQUIST 2014) and Lithuania (LEUTHOLD & WILDERMUTH 2014). Among the countries bordering on Czechia there are records from northeastern Germany (MARTENS et al. 2012), southern Poland (DOMINIAK & MICHALCZUK 2009) and Austria (MARTENS et al. 2008). As this species has not been listed for Czechia before (TÓTHOVÁ & KNOZ 2006), the reported records from Czechia fill the gap and complete the picture on the distribution for this part of Europe.

Regarding the observed behaviour of the midges, it perfectly matches the previous findings, i.e. the females were found attached near the bases of wings, being



Figure 3. *Forcipomyia paludis* on the median vein of the left hindwing of *Aeshna isoceles*. Near Jindřichův Hradec, South Bohemia (06-vi-2011). – Abbildung 3: *Forcipomyia paludis* an der Medianader des linken Hinterflügels von *Aeshna isoceles*. Bei Jindřichův Hradec (Neuhaus), Südböhmen (06.06.2011).

head-oriented towards the dragonfly's body (MARTENS et al. 2008). The records all dated from June, thus also fitting well to the known phenology of the *Forcipomyia paludis*, peaking in late spring (MARTENS et al. 2008).

It is also worth noting that two findings were obtained by intensive scanning of the archived photographs, which is obviously a very efficient method for collecting records of such kind of ectoparasite (WILDERMUTH & MARTENS 2012). However, despite the efforts of several other dragonfly photographers in Czechia, the scan of their archives has not produced any other record of this species.

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