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First records from Poland of *Glyptotendipes ospeli* Contreras-Lichtenberg & Kiknadze, 1999 and *G. signatus* (Kieffer, 1909)

(Diptera, Chironomidae)

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Two species of non-biting midges (Diptera, Chironomidae) are reported from Poland for the first time: *Glyptotendipes ospeli* Contreras-Lichtenberg & Kiknadze, 1999 and *G. signatus* (Kieffer, 1909). They have been collected in the Łódź Hills region, near the city of Łódź. For *G. ospeli*, Poland is only the fifth European country from which the species is known. However, the water bodies from which the two species were collected and the landscape of the Łódź Hills are typical for the northern European lowlands. Therefore, these two species may occur in numerous other regions of Poland, north-western and central-eastern Europe.

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Introduction

The chironomid fauna of Poland is relatively well described. Prior to the present study, 461 species and subspecies were recorded (Sæther & Spies 2013). Nevertheless, species new to the country can still be found. During an extensive investigation of the chironomid fauna of Łódź Hills Landscape Park in 2008 and 2009, pupal exuviae of *Glyptotendipes ospeli* Contreras-Lichtenberg & Kiknadze, 1999 and *G. signatus* (Kieffer, 1909) were collected from man-made water bodies (Plóciennik & Klukowska 2010).

Material and results

Glyptotendipes ospeli **Contreras-Lichtenberg & Kiknadze, 1999**

Six pupal exuviae floating on the water surface were collected at two sites: 1. fish pond in Borchówka village (51°50'5.79"N, 19°36'36.88"E), 197 m a.s.l., 14 July 2009 (Fig. 1); – 2. pond in Łagiewniki Forest near the Franciscan Monastery of "Saint Anthony from Padua" (51°50'39.06"N, 19°28'20.11"E), 208 m a.s.l., 6 June 2009 (Fig. 2).

Both sites are located in pond cascades fed and traversed by the small streams Borchówka and Łagiewniczanka, respectively. Site 1 is situated in



Fig. 1. Borchówka pond in 2012; photo: Aleksandra Jakiel.



Fig. 2. Pond in Łagiewniki Forest in 2012; photo: Aleksandra Jakiel.

a village between farms and small meadows. It is characterized by scarce submerged and floating macrophyte vegetation (mainly *Typha* sp.), and by eutrophic conditions. Site 2 is surrounded by deciduous forest. Parts of the shore area are relatively wide and covered with concrete slabs and rocks; only scarce macrophyte vegetation is present. Water trophy is high.

The species was identified using Langton & Visser (2003) and Contreras-Lichtenberg & Kiknadze (2000).

Glyptotendipes signatus (Kieffer, 1909)

One pupal exuviae was collected from the water surface of a pond at Żabieniec bog (51°51'0.56" N, 19°46'37.20" E), 179 m a.s.l., 27 July 2008 (Figs 3, 4).

Elaborate descriptions of Żabieniec bog are given by Lamentowicz et al. (2009), Płóciennik et al. (2011), and in most detail by Twardy et al. (2010). It is a raised bog with a small pond that originated from peat extraction in the early 20th century. The pond is situated between small groups of trees in an agricultural area. It is characterized by ample macrophyte vegetation, mostly *Phragmites communis*, *Typha latifolia*, *Carex* spp., *Menyanthes trifoliata*, *Nymphaea alba*, *Potamogeton natans* and *Polygonum amphibium*. In the annual rainy season, the entire bog is submerged by water (Twardy et al. 2010).

The species was identified using Langton & Visser (2003) and Langton (1991).

Discussion

The larvae of *Glyptotendipes ospeli* live on hard substrate such as submersed wood, including wooden sheeting. In many cases, Bryozoa were found at the same locations, including at the locus typicus (Tempelman 2002). All known localities are permanent, smaller to larger stagnant to slowly flowing waters. The larvae feed on coarse organic material. They are often present in organically enriched, eutrophic habitats (Moller Pillot 2009). This known preferred habitat corresponds well to that in the ponds on the Borchówka and Łagiewniki streams.

Glyptotendipes ospeli was described in 1999 from a pond in a city park in Amsterdam, The Netherlands (Contreras-Lichtenberg & Kiknadze, 1999). Since then, it has been recorded at numerous additional sites relatively close to the type locality. The first record outside of The Netherlands was made in 1999 by Henk Moller Pillot, who found a larva of this species near Pererov, south of Zytkovitshi (Belarus), on *Carex* vegetation at 1 m depth in a river oxbow (Tempelman 2002). Since then, the species has been found also in the Czech Republic (Orendt et al. 2012), Germany (Orendt & Spies 2012), and Poland (present communication). In Germany it was found at sites with slow current and woody debris (C. Orendt, pers. comm.). In the Bilina River in the Czech Republic, the species was found at a site with relatively high water temperature, conductivity and saprobity, and with near-neutral pH (Orendt et al. 2012). From The Netherlands, the number of records has steadily increased; physical and chemical data from 62 such localities can be found on the Limnodata website (STOWA 2012). This habitat overview fits well with the collecting sites in Poland.



Fig. 3. Żabieniec pond in 2008; photo: Mateusz Plóciennik.



Fig. 4. Żabieniec bog during high water level in 2012; photo: Aleksandra Jakiel.

Glyptotendipes signatus larvae are known to occur in Bryozoa colonies (Moller Pillot 2009). Since bryozoans rarely occur in acidic waters, our record of the species from the Żabieniec bog is remarkable. The species is known to be widely distributed from Europe to the eastern Palearctic (Sæther & Spies 2013). In The Netherlands it is relatively scarce, being known only from around 80 out of several thousand localities from which chironomid larvae have been identified. Almost all records are from permanent, standing to slowly flowing waters. Only a single record other than our Polish one comes from acidic water, and another one from a temporary ditch (Moller Pillot 2009, Stowa 2012).

The records published in this communication concern exuviae. Larvae remain to be discovered; their identification among other *Glyptotendipes* species would be possible using Vallenduuk (1999).

The finding of these two species in Poland fills a gap in the data on their distribution in central Europe. Obviously, our knowledge on the distribution of these species is far from complete. Through this communication, the authors wish to encourage faunistic research and corresponding publications of data on this insect group. It would be most interesting to know the distribution limits of these species, for instance, how far east they may reach.

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