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New and rare chironomids of the tribe Tanytarsini in Poland (Diptera: Chironomidae)

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ABSTRACT. New data on distribution and biology of rare tanytarsine chironomids in Poland are presented. *Tanytarsus recurvatus* BRUNDIN, 1947 and *Parapsectra mendli* REISS, 1983 are recorded in Poland for the first time and *Stempellina almi* BRUNDIN, 1947, so far known for doubtful record, is confirmed. New records from Bosnia and Herzegovina, Norway, Sweden and Ukraine are also provided.

KEY WORDS: Diptera, Chironomidae, Tanytarsini, new records, biology, Poland, Europe.

INTRODUCTION

The Tanytarsini is one of the largest tribes of the family Chironomidae, including nearly 200 species known from Europe and 103 species recorded in Poland so far (SÆTHER & SPIES 2004, GIŁKA 2006, GIŁKA & DOMINIAK 2007, GIŁKA & JAŻDŻEWSKA, in press; GIŁKA, unpubl.). The Tanytarsini reproduce in almost all types of freshwater habitats, and the high number of species as well as their varying ecological tolerance make the Tanytarsini good indicators in environmental assessment of aquatic habitats.

The present paper comprises data on geographic distribution and biology of several rare tanytarsine chironomids, including two species not recorded in Poland so far. *Parapsectra mendli* REISS, 1983 is an inhabitant of springs, up to now recorded from two sites in Bavaria, and herein reported from the Tuchola Landscape Park in Pomerania. *Tanytarsus recurvatus* BRUNDIN, 1947, a northern/alpine species associated with oligotrophic lakes, is presently recorded in the Kashubian Lakeland. A total number of 105 species demonstrates that the Polish fauna of the tribe is one of the most species-rich in Europe.

MATERIAL AND METHODS

Specimens examined were collected with a sweep net, at light or were reared from immatures using methods given by SICIŃSKI (1982). The material studied is available in the Department of Invertebrate Zoology, University of Gdańsk, Poland. Legators: Patrycja DOMINIAK (PD), Elżbieta KACZOROWSKA (EK), Wiesław KRZEMIŃSKI (WK), Łukasz MAURICZ (ŁM), Stefan NIESIOŁOWSKI (SN), Jacek SICIŃSKI (JS), Jarosław REWERS (JR), Marcelina SADOWSKA (MS), Ryszard SZADZIEWSKI (RSz), author (WG).

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RESULTS

Cladotanytarsus cyrylae GIŁKA, 2001

Material examined

POLAND. New data. Borowiec nr. Gdańsk, gravel mine, netting, 15-17.07.2009, 38 males, WG. Delowo-Śnice nr. Stężyca, gravel pit, netting, 16.09.2009, 1 male, WG. For published data from Poland see GIŁKA (2001). UKRAINE, Crimea, Bakhchisaray, at light, 19.05.2008, 1 male, PD.

Geographical distribution, biology

Cladotanytarsus cyrylae was so far reported from a little clay pit in Masuria (GIŁKA 2001). The present records confirm the species' habitat preferences. Swarming adult males were recently observed in abundance at one of the largest working gravel mines in northern Poland (Fig. 2). The species was also recorded at a small secluded gravel pit (area c. 0.5 ha, depth c. 1m) in the Kashubian Lakeland. Although immatures of *C. cyrylae* are not described, it may be presumed that the species prefers to colonize fertile water bodies, increasing in minerals, silt and organic matter (TITMUS 1979). *C. cyrylae* is known also from Finland (PAASIVIRTA 2009) and presently recorded for the first time in Ukraine.Cladotanytarsus gedanicus GIŁKA, 2001

Cladotanytarsus gedanicus GIŁKA, 2001

Material examined

POLAND. New data. Górki Wschodnie nr. Gdańsk, Wisła Śmiała discharge site, netting, 25.05.2009, 2 males, WG. For published data from Poland see GIŁKA (2001).

NORWAY. Melsegård nr. Karasjok, netting, 03.08.2003, 48 males, WG. SWEDEN. Flåsjön lake nr. Lövberga, netting, 20.07.2003, 1 male, WG.

Geographical distribution, biology

Cladotanytarsus gedanicus is a polivoltine species in Poland. Data on seasonal variability in the species' distribution indicate that *C. gedanicus* starts its season in spring as adult and produces at least three generations per year (GIŁKA 2001, 2002). *C. gedanicus* is known from three sites in Poland, several sites in Finland (PAASIVIRTA 2009; GIŁKA, unpubl.) and from the Russian Far East (MAKARCHENKO et al. 2005). At present recorded in Norway and Sweden for the first time.

Parapsectra mendli REISS, 1983

Material examined

POLAND. Czarna Tama at Spierewnik Lake nr. Tuchola, limnocrene, netting, 20.04.2008, 3 males, 28.04.2009, 39 males, 21.07.2009, 5 males, WG. Wysocki Młyn, helocrene, netting, 28.04.2009, 7 males, WG.

Geographical distribution, biology

Parapsectra mendli (Figs 4, 5) is a cold-adapted stenothermic inhabitant of springs, recorded from two sites in Germany so far (REISS 1983, EKREM et al. 2007). Presently, *P. mendli* is reported from two other sites in northern Poland. The specimens were collected at spring pools and were observed in abundance at a small limnocrene (area c. 0.1 ha) in the Tuchola Landscape Park (Fig. 1). Metric analysis indicates that adult males recorded in April and July belonged to two generations at least (GIŁKA & JAŻDŻEWSKA, in press).

Parapsectra mendli was included in the Red List of Bavaria (SCHNAPPAUF & MÜLLER 2005). This rare species undoubtedly requires protection and should be included in the Red List of Threatened Animals in Poland.

Paratanytarsus natvigi (GOETGHEBUER, 1933)

Material examined

POLAND. New data. Stream Oliwski in Gdańsk, netting: spring zone nr. Złota Karczma: 12.06.2001, 4 males, 14.09.2001, 3 males; upper course in Dolina Radości: 12.06.2001, 2 males, 26.06.2001, 2 males, 14.09.2001, 2 males; lower course in Żabianka: 12.04.2001, 1 male, 12.06.2001, 1 male; discharge site in Jelitkowo: 14.05.2001, 2 males, 26.06.2001, 2 males; JR. Published data. Świętokrzyskie Mts., Lubrzanka stream in

Cedzyna, netting: 19.05.1977, 1 male, JS, 16.06.1977, 1 male, SN, 14.10.1977, 7 males, SN; *ex cult.*: 15.04.1978, 1 male, 24.06.1978, 1 male, JS (GIŁKA 2002).

Geographical distribution, biology

Paratanytarsus natvigi has so far been recorded in British Isles, Scandinavian Peninsula, Spain, Italy, Ukraine, north Russia, China and the Nearctic Region including Greenland. The species is known also from a single site in Poland (GIŁKA 2002). Five generations per year were suggested for *P. natvigi* - the species, which prefers to inhabit lotic habitats in temperate climate (TOKESHI 1995). Data from Poland indicate that adults of *P. natvigi* start their season in early spring and produce at least three generations per year.

Stempellina almi BRUNDIN, 1947

Material examined

POLAND. Borowiec nr. Gdańsk, gravel mine, netting, 15-17.07.2009, 4 males, WG.

Geographical distribution, biology

Stempellina almi is a widely distributed species, recorded in Europe, north Africa, east Palaearctic and the Nearctic region, however, known only for a doubtful record in Poland so far (KOWNACKI 1991). Larvae are known as inhabitants of freshwater reservoirs and brackish marine habitats. Presently examined adult males (Figs 6, 7) have been collected together with *Cladotanytarsus cyrylae* and *Tanytarsus volgensis* MISEIKO, 1967 at the gravel mine in Borowiec (Fig. 2).

Tanytarsus dibranchius KIEFFER, 1926

Material examined

POLAND. New data. Dolina Radości in Gdańsk, at fish ponds, netting, 12.06.2001, 1 male, 14.07.2001, 1 male, 25.09.2001, 1 male, JR. Kałębie lake nr Osiek, netting, 19.07.2005, 2 males, 13.06.2006, 1 male, ŁM. Wysocki Młyn, at fish ponds, netting, 28.04.2009, 1 male, WG. Published data. Tyłowo nr. Rybno at Dobre lake, netting, 14.05.1982, 1 male, RSz. Żakowo nr. Sulęczyno at Śmiertne lake, netting, 23-30.07.1995, 2 males, 26-28.07.1996, 4 males, EK. Maliniec nr. Zaklików, netting, 01-15.08.1980, 1 male, WK (GIŁKA 2002).

Geographical distribution, biology

In Europe *Tanytarsus dibranchius* was so far recorded in the Czech Republic, Germany, Sweden, Finland and Poland (SÆTHER & SPIES 2004, GIŁKA 2002). Immatures of this recently redescribed species inhabit lakes and small standing water bodies; in Germany the species was recorded between May and October (SPIES 1998). Sampling dates in Poland may suggest that *T. dibranchius* produces at least three generations per year. The specimens examined have been collected in a close vicinity of lakes and artificial fish ponds.

Tanytarsus lactescens EDWARDS, 1929

Material examined

POLAND. New data. Delowo-Śnice nr. Stężyca, gravel pit, netting, 18.06.2009, 2 males, 12.08.2009, 1 male, 28.08.2009, 14 males, WG. Bajory Wielkie nr. Srokowo, clay pit, netting, 25.08.1999, 1 male, MS. Published data. Wyskok nr. Srokowo, at light, 23.08.1995, 1 male, WG (Giłka 2002). BOSNIA and HERZEGOVINA. Neum nr. Mostar, at light, 08.06.1974, 3 males, RSz.

Geographical distribution, biology

Tanytarsus lactescens was so far recorded from Austria, Belgium, Britain, Greece (Crete), Denmark, Finland, France, Germany, Italy, Romania, Sweden (SÆTHER & SPIES 2004), as well as from a single site in Poland (Giłka 2002). The species' distribution pattern is presently completed with the first record from the West Balkan peninsula. Immatures of *T. lactescens* inhabit lakes, ponds and fertile artificial water bodies.

Tanytarsus recurvatus BRUNDIN, 1947

Material examined

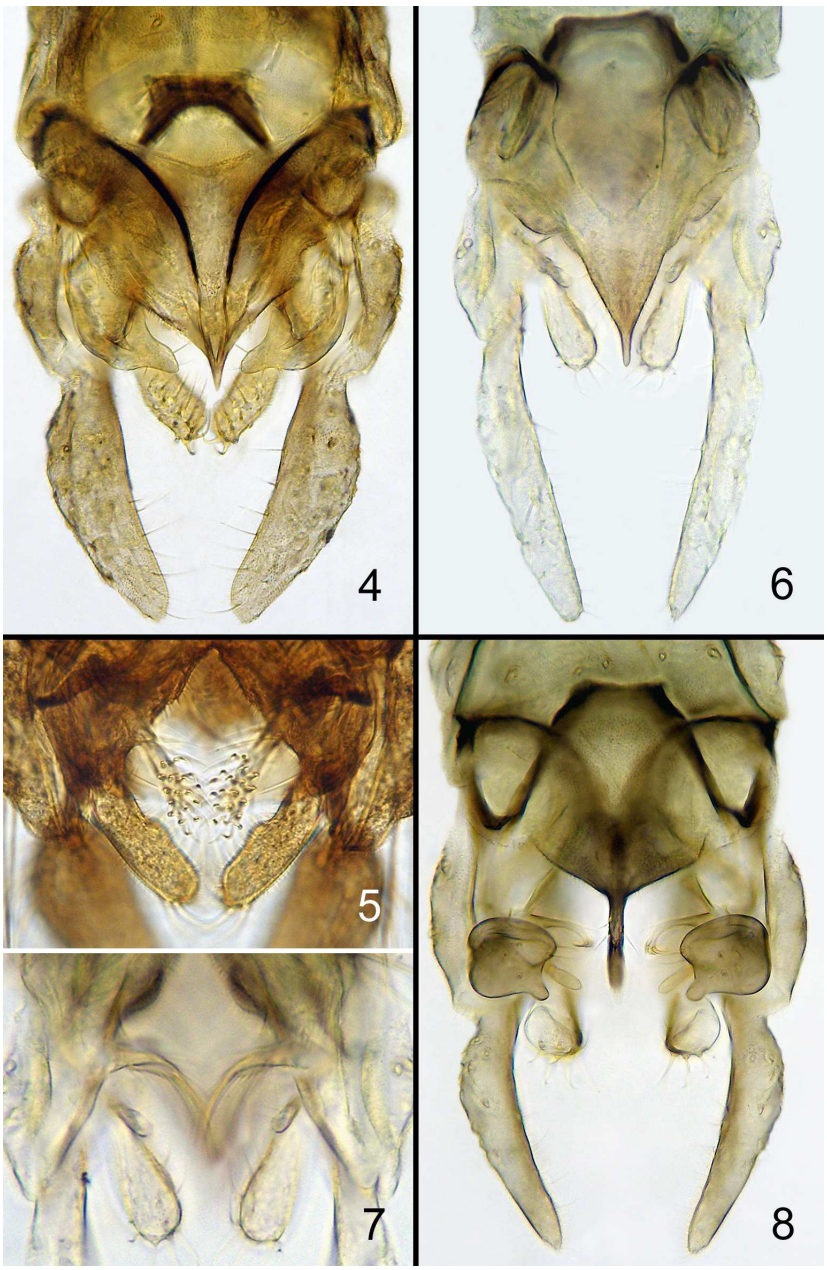
POLAND. Ostrowickie lake nr. Niesiołowice, netting, 15.09.2009, 1 male, WG. NORWAY. Bjerkvik nr. Narvik, 08.07.2006, netting at small lake, 9 males, WG. Heia (viewpoint) nr. Nordkjosbotn, 08.07.2006, netting at small lake, 40 males, WG.

Geographical distribution, biology

In Europe *Tanytarsus recurvatus* was so far reported from Sweden, Finland, British Isles, France, Germany, Italy and Ukraine (SÆTHER & SPIES 2004). The species' distribution is presently completed with first records from Poland and Norway. *T. recurvatus* is one of the most frequent and abundant tanytarsine chironomid in eastern Fennoscandia (PAASIVIRTA 2009, GIŁKA, unpublished) and its immatures inhabit northern and montane

lakes (LANGTON & VISSER 2003). At present, a single specimen (Fig. 8) has been collected at the oligotrophic Lake Ostrowickie in the Kashubian Lakeland (Fig. 3).

Figs 1-3. Sampling sites of new and rare species in Poland. 1 – spring pool in Czarna Tama at Spierewnik Lake near Tuchola, 2 – gravel mine in Borowiec near Gdańsk, 3 – Ostrowickie Lake near Niesiołowice in the Kashubian Lakeland.



Figs 4-8. Diagnostic structures in adult males of new and rare species in Poland. 4,5 – *Parapsectra mendli*, 6,7 – *Stempellina almi*, 8 – *Tanytarsus recurvatus*. 4,6,8 – hypopygium dorsally; 5,7 – hypopygial volsellae ventrally.

REFERENCES

EKREM T., WILLASSEN E., STUR E. 2007. A comprehensive DNA sequence library is essential for identification with DNA barcodes. Molecular Phylogenetics and Evolution **43**: 530-542.

GIŁKA W. 2001. A review of Polish *Cladotanytarsus* KIEFFER (Diptera: Chironomidae) with description of three new species. Polish Journal of Entomology **70**: 307-328.

GIŁKA W. 2002. Tanytarsini (Diptera: Chironomidae) of Poland - a faunistic review. Polish Journal of Entomology **71**: 415-428.

GIŁKA W. 2006. Setny gatunek z plemienia Tanytarsini w polskiej faunie (Diptera: Chironomidae). A hundredth species of the tribe Tanytarsini in the Polish fauna. Dipteron, Bulletin of the Dipterological Section of the Polish Entomological Society **22**: 8-10.

GIŁKA W., DOMINIAK P. 2007. Tanytarsini (Diptera: Chironomidae) of the Kashubian Lakeland. Fragmenta Faunistica **50**: 47-55.

GIŁKA W., JAŻDŻEWSKA N. (in press) A systematic review of the genus *Parapsectra* Reiss (Diptera: Chironomidae: Tanytarsini) with description of a new species from Poland. Zootaxa.

KOWNACKI A. 1991. Chironomidae. [in:] J. RAZOWSKI (ed.) Wykaz zwierząt Polski, Checklist of Animals of Poland, vol. **2**, 90-101.

LANGTON P.H., VISSER H. 2003. Chironomidae exuviae. A key to pupal exuviae of the West Palearctic Region. CD-ROM, ETI, Amsterdam.

MAKARCHENKO E.A., MAKARCHENKO M.A., ZORINA O.V., SERGEEVA L.V. 2005. Preliminary data on fauna and taxonomy of Chironomids (Diptera, Chironomidae) of the Russian Far East. Vladimir Ya. Levanidov's Biennial Memorial Meetings **3**: 394-420 [In Russian].

PAASIVIRTA L. 2009. Chironomidae (Diptera: Nematocera) in the biogoegraphical provinces of Finland. Available on-line: http://www.ymparisto.fi/download.asp?contentid=82649 (update: 20th March 2009, accessed: 10th Nov. 2009).

REISS F. 1983. *Parapsectra mendli* n. sp. (Diptera, Chironomidae) aus dem Allgäu, Bayern. Spixiana **6**: 79-81.

SÆTHER O.A. & SPIES M. 2004. Chironomidae. In: Fauna Europaea Service, Fauna Europaea version 1.1. Available online: www.faunaeur.org (accessed: 10th Nov. 2009).

SCHNAPPAUF W. & MÜLLER E. 2005. Zuckmücken (Diptera: Chironomidae). In: Rote Liste der gefährdeten Tiere und Gefässpflanzen Bayerns. Kurzfassung. Bayerisches Staatsministerium für Umwelt, Gesundheit und Verbraucherschutz, München. Rother Druck, Dachau, 186 pp. Available on-line: http://www.starnberg.bund-naturschutz.de (accessed 10th Nov. 2009).

SICIŃSKI J. 1982. Charakterystyka ochotkowatych (Chironomidae, Diptera) rzeki Lubrzanki na podstawie badań imagines. Acta Universitatis Lodziensis. Folia limnologica **1**: 99-129.

SPIES M. 1998. Resolution of *Tanytarsus mendax* KIEFFER, 1925, *T. dibranchius* KIEFFER in ZAVŘEL, 1926, and associated names (Diptera: Chironomidae). Studia Dipterologica **5**: 195-210.

TITMUS G. 1979. The emergence of midges (Diptera: Chironomidae) from a wet gravel-pit. Freshwater Biology **9**: 165-179.

TOKESHI M. 1995. Life cycles and population dynamics. [in:] P.D. ARMITAGE, P.S. CRANSTON, L.C.V. PINDER (eds) The Chironomidae: Biology and ecology of non-biting midges. Hapman and Hall, London, Glasgow, Weinheim, N.Y., Tokyo, Melbourne, Madras, pp. 225-268.

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