Zootaxa 3736 (5): 569–586
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3736.5.8
http://zoobank.org/urn:lsid:zoobank.org:pub:D961FDF8-B2FB-4B63-A01A-45A1978FC6D4

Non-biting midges of the tribe Tanytarsini in Eocene amber from the Rovno region (Ukraine): a pioneer systematic study with notes on the phylogeny (Diptera: Chironomidae)

WOJCIECH GIŁKA[1], MARTA ZAKRZEWSKA, PATRYCJA DOMINIAK & ALEKSANDRA URBANEK

Department of Invertebrate Zoology and Parasitology, University of Gdańsk, Wita Stwosza 59, 80–308 Gdańsk, Poland.
[1]Corresponding author. E-mail: wojciech.gilka@biol.ug.edu.pl

Abstract

The first detailed systematic study on the tanytarsine chironomids recorded in the Eocene amber from the Rovno region (Ukraine) revealed seven new taxa. *Archistempellina* **gen. nov.**, represented by *A. bifurca* **sp. nov.** (type for the genus, male) and *A. falcifera* **sp. nov.** (male), displays characters similar to those found in *Stempellina* Thienemann *et* Bause, and is recognized as one of probable basal lineages in the subtribe Stempellinina Shilova. *Corneliola* **gen. nov.**, represented by *C. avia* **sp. nov.** (male, female), combines features known from several genera of the tribe Tanytarsini, and tentatively is regarded as the closest relative of *Constempellina* Brundin. *Rheotanytarsus alliciens* **sp. nov.** (male), featuring a long hypopygial digitus, is considered to be the oldest species of the genus. *Tanytarsus congregabilis* **sp. nov.** (male) is the first known Eocene representative of the *lugens* systematic species group. A complemented description of the male of *Tanytarsus serafini* Giłka is provided as well.

Key words: Diptera, Chironomidae, Tanytarsini, new taxa, systematics, phylogeny, Eocene, amber

Introduction

The tribe Tanytarsini belongs to the relatively young subfamily Chironominae unknown before the Cenozoic except the unspecified record by Kalugina (1974). Representatives of the subfamily account for 23.7% of chironomid inclusions in the French amber of Oise (early Eocene, ~53 Ma), but no Tanytarsini have been reported from these resins (Doitteau & Nel 2007). The oldest known Tanytarsini are thus inclusions found in Baltic amber (Seredszus & Wichard 2007; Giłka 2010, 2011b). However, their advanced diversity in the middle Eocene indicates an earlier origin and may suggest them to have appeared before ~45–40 Ma.

Published data on the Eocene Tanytarsini are scarce. Detailed descriptions concern only four species of the genera *Stempellina* Thienemann *et* Bause, *Stempellinella* Brundin and *Tanytarsus* van der Wulp (Seredszus & Wichard 2007; Giłka 2010, 2011b). Analyses of diagnostic characters found in these taxa clearly indicate their advanced speciation. They are represented by genera of the two subtribes: the Stempellinina Shilova and the Tanytarsina Zavřel, among which two species of *Tanytarsus* are classified in separate systematic groups: the extinct *serafini*, and the *mendax* group, represented by numerous extant species (op. cit).

The specimens examined in the present study are inclusions collected from deposits distributed north of Rovno (Ukraine), in the Pripyat River basin; outside Ukraine, the deposits are found also in Belarus and in south-eastern Poland (Perkovsky *et al.* 2003). The Rovno amber chironomids were first reported recently (Zelentsov *et al*. 2012); they were identified only to the genus level and did not include the Tanytarsini. So far, there have been several attempts at determining the age of the Rovno amber deposits; however, well-documented studies indicate that the Rovno, Gulf of Gdańsk, and Bitterfeld (Germany) amber deposits were formed synchronously (*cf*. Sontag & Szadziewski 2011). Our systematic study comprises detailed descriptions of two new genera and five new species which are thus considered to be the oldest Tanytarsini.

Accepted by B. Rossaro: 14 Oct. 2013; published: 15 Nov. 2013

Remarks. *Tanytarsus serafini* has been known so far from amber collected in the Gulf of Gdańsk (Giłka 2010), and is at present recorded in the Rovno region. Our preliminary data indicate the species to be one of the most frequent tanytarsines in the Eocene Baltic amber (Giłka & Zakrzewska, in prep.), and confirm the hypothesis that resins from Rovno and Gulf of Gdańsk were forming synchronously.

Acknowledgements

We are greatly indebted to Dr Evgeny E. Perkovsky (SIZ) for placing the superb material at our disposal. We thank also Viktor A. Baranov (Karazin Kharkov National University & SIZ) for assistance in handling the inclusions during his visit in Gdańsk, and Professor Alexander G. Radchenko (SIZ) for his kindness and delivering the material.

References

Doitteau, G. & Nel, A. (2007) Chironomid midges from early Eocene amber of France (Diptera: Chironomidae). *Zootaxa*, 1404, 1–66.

Ekrem, T. & Saether, O.A. (2000) *Seppia*, a new Afrotropical tanytarsine genus (Diptera: Chironomidae). *In*: Hoffrichter, O. (Ed.), *Late 20th Century Research on Chironomidae: an Anthology from the 13th International Symposium on Chironomidae*. Shaker Verlag, Aachen, pp. 79–87.

Giłka, W. (2005) A systematic review of European *Stempellina* Thienemann et Bause (Diptera: Chironomidae) with description of a new species from Fennoscandia. *Annales Zoologici*, 55, 413–419.

Giłka, W. (2008) A rapid technique of producing spatial colour illustrations of diagnostic structures in small dipterans. *Dipteron, Bulletin of the Dipterological Section of the Polish Entomological Society*, 24, 8–10.

Giłka, W. (2010) A new species group in the genus *Tanytarsus* van der Wulp (Diptera: Chironomidae) based on a fossil record from Baltic amber. *Acta Geologica Sinica (English Edition)*, 84, 714–719.
http://dx.doi.org/10.1111/j.1755-6724.2010.00249.x

Giłka, W. (2011a) Ochotkowate—Chironomidae, plemię: Tanytarsini, postaci dorosłe, samce. Klucze do oznaczania owadów Polski. [Non-biting midges—Chironomidae, tribe Tanytarsini, adult males. Keys for the Identification of Polish Insects]. Nr 177 serii kluczy. Część XXVIII, Muchówki—Diptera, zeszyt 14b. Polskie Towarzystwo Entomologiczne. *Biologica Silesiae*, 95 pp.

Giłka, W. (2011b) A new fossil *Tanytarsus* from Eocene Baltic amber, with notes on systematics of the genus (Diptera: Chironomidae). *Zootaxa*, 3069, 63–68.

Giłka, W. & Paasivirta, L. (2007) Two new species in the genus *Tanytarsus* van der Wulp (Diptera: Chironomidae) from Fennoscandia. *In*: Andersen, T. (Ed.), *Contributions to the Systematics and Ecology of Aquatic Diptera—A Tribute to Ole A. Sæther*. The Caddis Press, Columbus, Ohio, pp. 107–113.

Kalugina, N.S. (1974) Izmenenie podsemeistvennogo sostava khironomid (Diptera, Chironomidae) kak pokazatel' vozmozhnogo evtrofirovaniya vodoemov v kontse mezozoya. *Byulleten' Moskovskogo Obschestva Ispytatelei Prirody, Otdel Biologii*, 79, 45–56. [in Russian]

Kyerematen, R.A.K. & Sæther, O.A. (2000) A review of Afrotropical *Rheotanytarsus* Thienemann *et* Bause, 1913 (Diptera: Chironomidae). *Tijdschrift voor Entomologie*, 143, 27–69.

Moubayed-Breil, J., Langton, P.H. & Ashe, P. (2012) *Rheotanytarsus dactylophoreus*, a new mountain species from streams in the Eastern Pyrenees and Corsica (Diptera: Chironomidae). *Fauna norvegica*, 31, 167–173.
http://dx.doi.org/10.5324/fn.v31i0.1375

Perkovsky, E.E., Zosimovich, V.Yu. & Vlaskin, A.P. (2003) A Rovno amber fauna: a preliminary report. *Acta Zoologica Cracoviensia*, 46, supplement—Fossil Insects, 423–430.

Reiss, F. & Fittkau, E.J. (1971) Taxonomie und Ökologie europisch verbreiteter *Tanytarsus*-Arten (Chironomidae, Diptera). *Archiv für Hydrobiologie*, supplement 40, 75–200.

Sæther, O.A. (1980) Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Entomologica scandinavica*, supplement 14, 1–51.

Sæther, O.A. & Andersen, T. (1998) *Friederia*, a new Arfotropical tanytarsine genus (Diptera: Chironomidae). *Entomologica scandinavica*, 29, 29–37.
http://dx.doi.org/10.1163/187631298X00177

Sæther, O.A. & Roque, F.O. (2004) New Neotropical species of *Nandeva* (Diptera: Chironomidae), with a phylogeny of the Tanytarsini. *Tijdschrift voor Entomologie*, 147, 63–80.
http://dx.doi.org/10.1163/22119434-900000141

Seredszus, F. & Wichard, W. (2007) Fossil chironomids (Insecta, Diptera) in Baltic amber. *Palaeontographica, Beiträge zur Naturgeschichte der Vorzeit*, Abteilung A: Paläozoologie—Stratigraphie, 279, 49–91.

Sontag, E. & Szadziewski, R. (2011) Biting midges(Diptera: Ceratopogonidae) in Eocene Baltic amber from the Rovno region (Ukraine). *Polish Journal of Entomology*, 80, 779–800. http://dx.doi.org/10.2478/v10200-011-0058-4

Szadziewski, R. (1988). Biting midges (Diptera: Ceratopogonidae) from Baltic amber. *Polish Journal of Entomology*, 58, 3–283.

Zelentsov, N.I., Baranov, V.A., Perkovsky, E.E. & Shobanov, N.A. (2012) First records on non-biting midges (Diptera: Chironomidae) from the Rovno Amber. *Russian Entomological Journal*, 21, 79–87.