

***Cladotanytarsus teres* in Poland (Diptera: Chironomidae)**

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ABSTRACT. A boreal chironomid - *Cladotanytarsus teres* HIRVENOJA is recorded from Poland for the first time. Diagnostic description of a male and remarks on the biology are included.

KEY WORDS: Diptera, Chironomidae, *Cladotanytarsus*, new record, Poland.

So far 23 species of the genus *Cladotanytarsus* KIEFFER are known from the Holarctic Region. From Europe 12 species are reported, of which 2 are of Holarctic distribution (BILYJ & DAVIES 1989, ASHE & CRANSTON 1991). The most important papers on the genus by BRUNDIN (1947) and HIRVENOJA (1962) comprise mainly descriptions of adults of new species. A detailed and complex study of the Holarctic species based on the pupal stage was provided by BILYJ & DAVIES (1989). They presented a new key for the identification of 21 species and proposed to treat *Cl. dispersopilosus* (GOETGH.) as a junior synonym of *Cl. vanderwulpi* (EDW.). Up to date there is no a comprehensive revision of European *Cladotanytarsus* dealing with all stages.

A total of 62 Tanytarsini and 4 *Cladotanytarsus* species were quoted by KOWNACKI (1991) for the Polish fauna: *Cl. mancus* (WALK.), *Cl. nigrovittatus* (GOETGH.), *Cl. pallidus* KIEFF. and *Cl. vanderwulpi* (EDW.). *Cl. teres* HIRV. is the fifth Polish species in the genus.

The preparation method follows WIRTH & MARSTON (1968) and the terminology of the imago - SAETER (1980). In order to preserve a natural shape and configuration of studied elements, all parts of the dissected specimen were placed under 3 x 3 mm glasses.

Cladotanytarsus teres HIRVENOJA, 1962

Cladotanytarsus teres HIRVENOJA, 1962: 173-177 (♂, ♀, pupa; Sampiojärvi lake, Finland); LINDEBERG 1970: 304-305 (Kilpisjärvi area and Puruvesi lake, Finland); SHILOVA 1976: 26 (♂, in key); TUISKUNEN & LINDEBERG 1986: 372 (Suoppajärvi lake, Finland); BILYJ & DAVIES 1989: 950 (pupa); ASHE & CRANSTON 1991: 321.

Diagnostic description**Male**

Body length: 3.4 mm.

Wing length: 1.9 mm.

Colour: scutal stripes - lateral and median in anterior half, postnotum and pedicellum dark brown; background of thorax, posterior part of median scutal stripes, scutellum and abdomen green; halteres and legs light green, coxa and last tarsal segment of all legs somewhat darker.

Head: frontal tubercles very fine (Fig. 4), almost indistinct; clypeus short and wide (Fig. 3); AR = 0.88; antennal segments (µm): 70: 42: 24: 25: 27: 28: 32: 35: 36: 38: 40: 41: 43: 425; palpal segments (µm): 37: 44: 103: 118: 132.

Thorax chaetotaxy: Ac = 12, Dc = 13, Scts = 8; acrostichals reaching antepnotum, scutellars in one row.

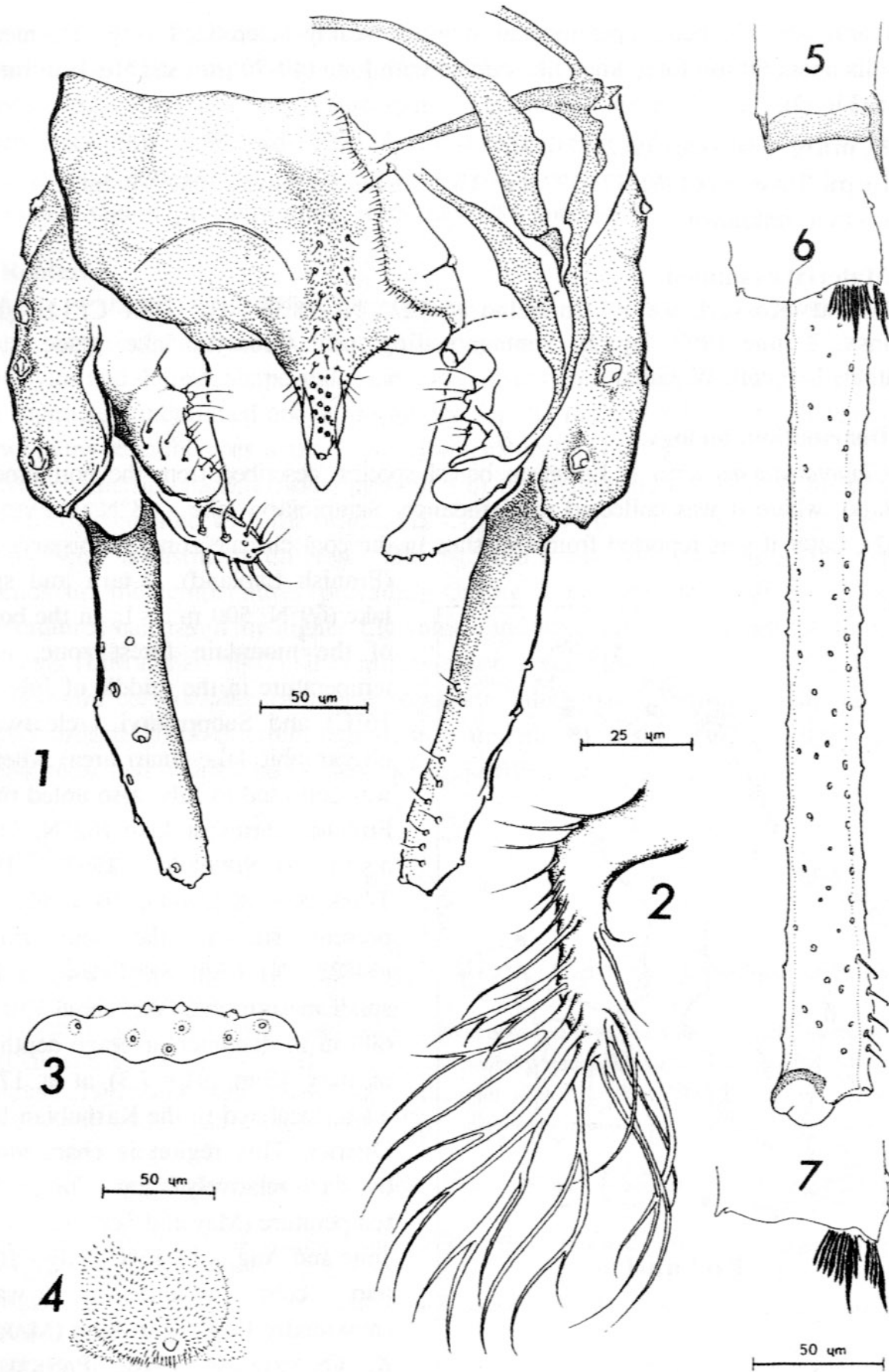
Wing: membrane poorly covered with macrotrichia only on distal 1/7 part; C not projecting beyond R₄₊₅, FCu distinctly distal of RM.

Legs: fore tibia with long single spur slightly bent distally, two times longer than comb, comb fused weakly pigmented; mid and hind tibiae with two black spurs each one, combs distinctly separated, well pigmented, black (Figs. 5-7); claws slender, light brown. Ta₁ of P₂ with 5 sensilla chaetica on 1/7 distal part (Fig. 6). BR₁ = 3.2, BR₂ = 5.0, BR₃ = 4.8. For length of legs segments and leg ratios see table.

Table. Length of leg segments (µm) and leg ratios of *Cladotanytarsus teres* HIRV.

	Fe	Ti	Ta ₁	Ta ₂	Ta ₃	Ta ₄	Ta ₅	LR
P ₁	770	525	755	370	310	210	140	1.44
P ₂	755	630	325	170	140	110	100	0.52
P ₃	820	815	480	290	255	170	140	0.59

Hypopygium: general appearance stout, gonostylus about 180 µm long, cylindrical; anal tergite relatively short and wide; anal point tongue-shaped long with blunt tip, membranous margins broad, about 15 groups of spines dorsally; anal tergite with 2 distinct rows of short median setae running from half of its length to the base of anal point; anal tergite bands thin, weakly sclerotized, separated, V-type; superior volsella broad, tip wide and rounded, 4-5 setae at its base and 9-11 curved setae in dorsal position; digitus very short and straight, not extending (or only finely) over the superior volsella; inferior volsella wide with nearly parallel inner margins, apical



Figs. 1-7. *Cladotanytarsus teres* HRV. 1 - dorsal aspect of hypopygium, 2 - median volsella, 3 - clypeus, 4 - frontal tubercle; 5-7 - tibial spurs and combs of: 5 - fore leg, 6 - mid leg with sensilla chaetica on 1st tarsomere, 7 - hind leg.

part only slightly bent, apicomedian margin weakly sclerotized (Fig. 1); median volsella about 60 μm long, knee-like curved with long (40-70 μm) slightly bent furcate setae (Fig. 2).

Female: HIRVENOJA 1962: 173-174.

Pupa: HIRVENOJA 1962: 175-177 (Fig. 2 a, b, i); BILYI & DAVIES 1989: 950 (in key).

Larva: unknown.

Material examined

Poland: Kożyczkowo n. Chmielno (54°22' N, 18°06' E; UTM CF12), distr. Gdańsk, 1 June 1997, leg. E. Sontag, netting, near Osuszyno lake, glade, sunny weather, 1 ♂, coll. W. Gilka.

Distribution, biology

Cladotanytarsus teres is European boreal species, described from the northernmost Finland, where it was collected in abundance: Sampiojärvi lake - 68°N (HIRVENOJA 1962). Later it was reported from two sites in the cool climate zone: Kilpisjärvi area

(Finnish Lapland): a tarn and small lake (69°N, 500 m a.s.l., in the border of the mountain forest zone, water temperature in the middle of July: 11-16°C) and Suoppajärvi - clearwater, oligotrophic lake (Inari area) where it was collected in July; also noted in SE Finland: Puruvesi lake (62°N, 76 m a.s.l.) (LINDEBERG 1967, 1970; TUISKUNEN & LINDEBERG 1986). The present site is the southernmost (54°22' N) (Fig. 8). Osuszyno is a small mesotrophic lake, about 750 and 600 m in diameter (average depth 6.5 m, max. 18 m; pH = 7.3), at ca. 170 m a.s.l., localized in the Kashubian Lake District. This region is characterized by a relatively low mean air temperature (May and Sept. - 10-11°C, June and Aug. - 14-15°C, July - 16°C) and cold stenothermic waters (maximally 19-20°C in July) (MARTYN & OKOŁOWICZ 1978, PANKAU & PRZEWOŹNIAK 1996).



Fig. 8. General distribution of *Cl. teres* HIRV.

Only one specimen was collected in June. Later in the season

(VI/3, VII/1, VIII/1, IX/1), at the same site it was not found (season of 1997 was about 2 weeks late) - here the species is probably able to produce one generation per year. Considering other data on Tanytarsini (*Tanytarsus niger* AND. from Northern Germany cf. REISS & FITTKAU 1971 or *T. gracilentus* HOLM. from Northern Poland cf. SZADZIEWSKI 1983), it is possible to recognise *Cl. teres* as a boreal relic in the Kashubian region, probably dating from the Baltic Glaciation.

Remarks

Male of the *Cl. teres* differs greatly from all other species of *Cladotanytarsus* in having specific combination of the hypopygium features: length and shape of gonostylus and digitus, shape and orientation of superior inferior and median volsellae. The characters mentioned above are unique for the male of *Cl. teres*, whereas pupa shows many resemblances with *Cl. fusciformis* BILYJ et DAVIES.

Morphometric characteristics, presented in the diagnostic description, show some differences compared with the original description by HIRVENOJA (1962). The size of leg segments is distinctly different. The leg ratio is also relatively high. It probably depends on the temperatures prevailing during a period before hatching. Higher temperatures can result in higher LR values and accordingly in length of some leg segments (LINDEBERG 1967). It confirms observations (PRAT 1985, BILYJ & DAVIES 1989) where considerable variations of metric values within specimens of the same species collected from different regions were underlined. It suggests that morphometry should be treated with a caution in keys for identification.

REFERENCES

- ASHE P., CRANSTON P.S. 1991. Chironomidae. In: SOÓS Á., PAPP L. (eds.). Catalogue of Palaearctic Diptera, 2, pp. 113-355.
- BILYJ B., DAVIES I.J. 1989. Descriptions and ecological notes on seven new species of *Cladotanytarsus* (Chironomidae: Diptera) collected from an experimentally acidified lake. *Can. J. Zool.* **67**: 948-962.
- BRUNDIN L. 1947. Zur Kenntnis der Swedischen Chironomiden. *Ark. Zool.* **39**: 1-95.
- HIRVENOJA M. 1962. *Cladotanytarsus*-Arten (Dipt., Chironomidae) aus Finnisch-Lappland. *Ann. Ent. Fenn.* **28**: 173-181.
- KOWNACKI A. 1991. Chironomidae. In: RAZOWSKI J. (ed.), Wykaz zwierząt Polski. Checklist of animals of Poland **2**: 90-101.
- LINDEBERG B. 1967. Sibling species delimitation in the *Tanytarsus lestagei* aggregate (Diptera, Chironomidae). *Ann. Zool. Fennici* **4**: 45-86.
- LINDEBERG B. 1970. Tanytarsini (Diptera, Chironomidae) from northern Fennoscandia. *Ann. Zool. Fennici* **7**: 303-312.
- MARTYN D., OKOŁOWICZ W. 1978. Temperatury powietrza na poziomie rzeczywistym. Air temperatures on actual level. In: Narodowy atlas Polski. National atlas of Poland. Inst. Geogr., Zakł. Narod. im. Ossolińskich PAN.
- PANKAU F., PRZEWOŹNIAK M. 1996. Plan ochrony Kaszubskiego Parku Krajobrazowego. Plan of protection of the Kashubian Landscape Park II. **1**: 2-45.

- PRAT N. 1985. Variabilidad morfológica de las poblaciones de *Cladotanytarsus manicus* (WALKER, 1856) de los embalses Espanoles (Diptera: Chironomidae). *Graellsia* **41**: 65-88.
- REISS F., FITTKAU E.J. 1971. Taxonomie und Ökologie europäisch verbreiteter *Tanytarsus*-Arten (Chironomidae, Diptera). *Arch. Hydrobiol. Suppl.* **40**: 75-200.
- SAETHER O.A. 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Ent. scand. Suppl.* **14**: 1-51.
- SHILOVA A.I. 1976. Chironomidy Rybinskogo vodochranilišča. Leningrad, Nauka, 250 pp.
- SZADZIEWSKI R. 1983. Flies (Diptera) of the saline habitats of Poland. *Pol. Pismo Entomol.* **53**: 31-76.
- TUISKUNEN J., LINDEBERG B. 1986. Chironomidae (Diptera) from Fennoscandia north of 68°N, with a description of ten new species and two new genera. *Ann. Zool. Fennici* **23**: 361-393.
- WIRTH W.W., MARSTON N. 1968. A method for mounting small insects on microscope slides in Canada balsam. *Ann. Entomol. Soc. America* **61**: 783-784.