

A NEW SPECIES OF *RHEOTANYTARSUS* FROM SUBARCTIC QUEBEC (DIPTERA: CHIRONOMIDAE)¹

Louise Cloutier, P.P. Harper²

ABSTRACT: The adult male and female of *Rheotanytarsus magnini* n.sp. from northwestern Québec are described. The species is closely related to the Palaearctic *R. nigricauda*.

During a preimpoundment study on Rivière Desaulniers, in the drainage of James Bay in northwestern Québec, conducted by the Service Environnement and the Laboratoire d'écologie de la Société d'énergie de la Baie James (S.E.B.J.) (Cloutier and Dufort, 1979), a new species of *Rheotanytarsus* was discovered. Although only the adult stages have been collected in emergence traps, the species is sufficiently distinctive, particularly in the genitalia of the male, to warrant description at this time. The terminology follows Saether (1980).

Rheotanytarsus magnini, new species

Adult Male

Color: (in alcohol): head, antennae, palpi and thorax pale yellowish. Legs, abdomen and hypopygium, except anal point, pale; anal point very dark.

Head: length of antenna: 1.26 - 1.36 mm ($x = 1.31$, $n = 7$); antennal ratio (AR) 1.25 - 1.52 ($x = 1.41$); postoculars 9 - 10, uniserial.

Thorax: pronotals 0; dorsocentrals 9 - 10 uniserial; humerals 3; scutellars 6 - 7, uniserial.

Legs: fore tibia with a short spur; combs of middle and hind tibiae narrowly separated and occupying almost half the apical circumference, but without spurs; pulvilli absent.

Leg measurements (mm)

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ | ta ₅ | LR | n |
|----------------|------|------|-----------------|-----------------|-----------------|-----------------|-----------------|------|---|
| P ₁ | 1.23 | 0.90 | 1.57 | 0.80 | 0.64 | 0.49 | 0.20 | 1.72 | 5 |
| P ₂ | 1.21 | 1.06 | 0.68 | 0.39 | 0.29 | 0.18 | 0.12 | 0.65 | 7 |
| P ₃ | 1.48 | 1.40 | 0.99 | 0.61 | 0.47 | 0.31 | 0.15 | 0.74 | 2 |

Wing: wing length (WL) 2.65 - 2.96 ($x = 2.81$, $n = 8$); densely and uniformly covered with macrotrichia; all veins except A₁ with setae; C not produced beyond R₄₊₅; R₂₊₃ evanescent.

¹Received September 7, 1985. Accepted October 24, 1985.

²Département de sciences biologiques, Université de Montréal, C.P. 6128, Succ. "A," Montréal, QC, Canada, H3C 3J7.

Hypopygium: anal tergite with four small median setae between the anal bands; bands of the V-type slightly diverging at base of anal point (Fig. 1). Anal point with conspicuous dorso-lateral ridges forming a medial trough-like depression, and finely but irregularly scalloped along its interior and exterior margins (Figs. 2-3); two setae at base of the anal point.

Superior volsella (Fig. 4) composed of two lobes. The dorsal part, "flask-shaped," with two apical setae, three median aligned setae, and four basal setae. The ventral process digitate and distally incurved; surface less sclerotized with two small distal setae; its margin crinkly. Digitus absent, or at most, represented by a small knob between the lobes of the superior volsella.

Inferior volsella capitate with a subapical ventral crest. **Median volsella** relatively long, slightly outcurved, and with a series of distal lamellar bristles (Fig. 5) on its outer surface in addition to normal setae.

Gonostylus distally attenuated, but not abruptly.

Adult Female

Same coloration and morphological characters as in the male, except the following peculiarities.

Head: length of antenna 0.59-0.65 mm ($x = 0.61$, $n = 3$). Last antennal segment clavate.

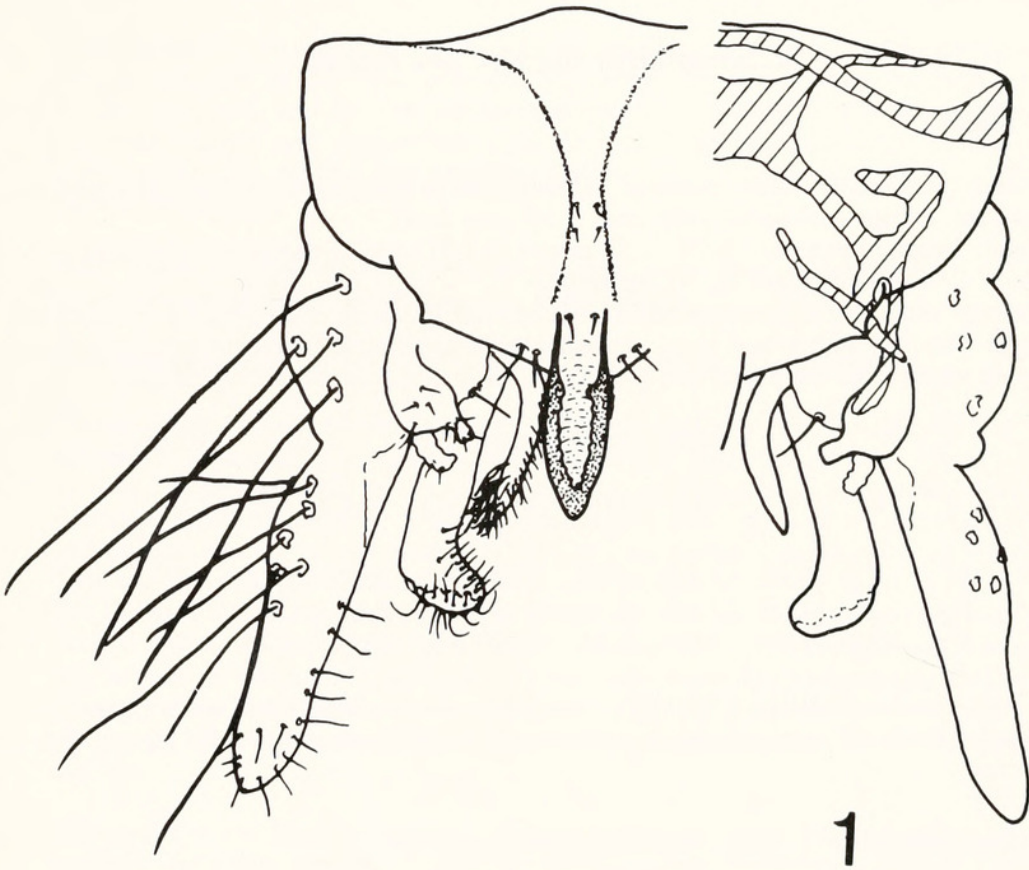
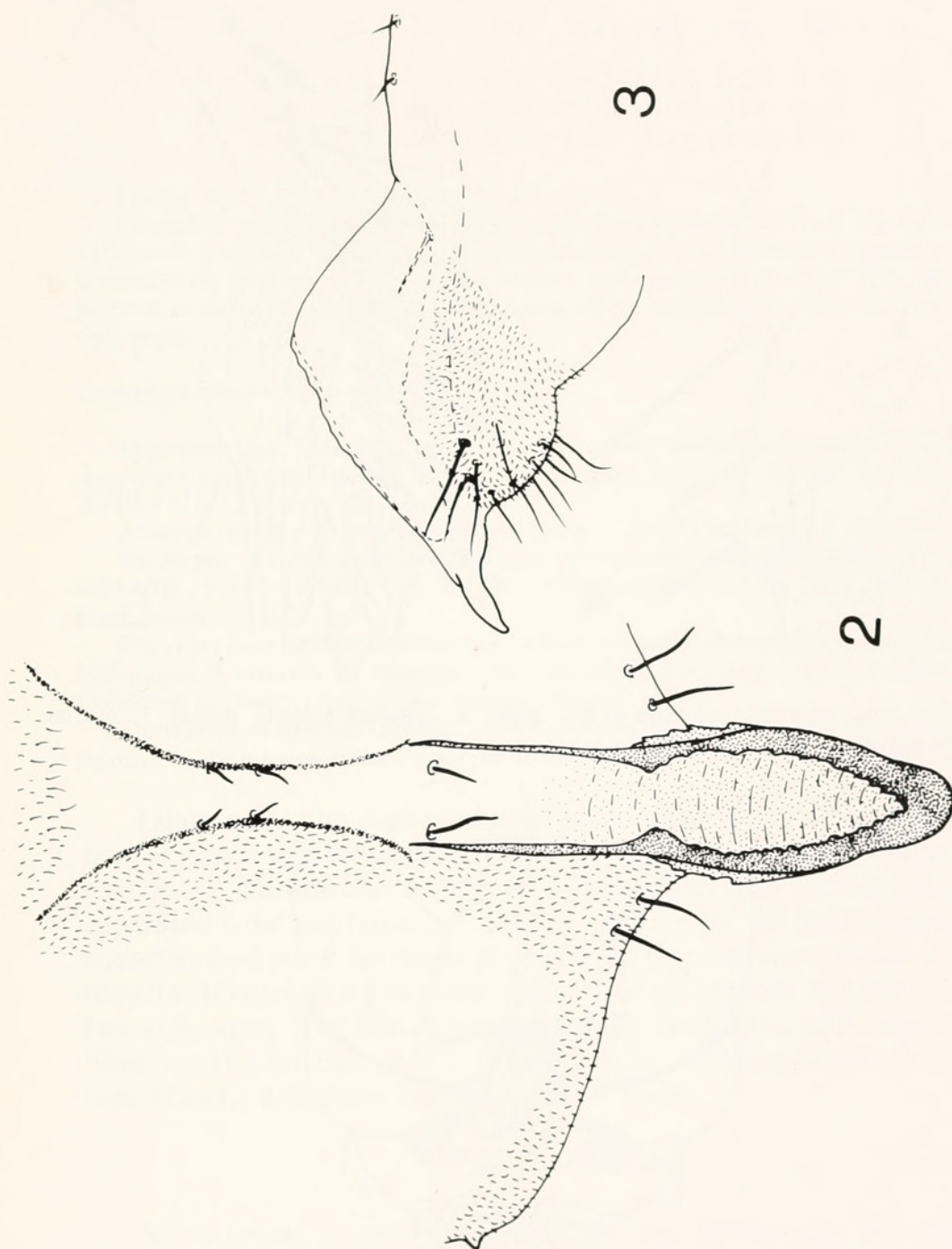
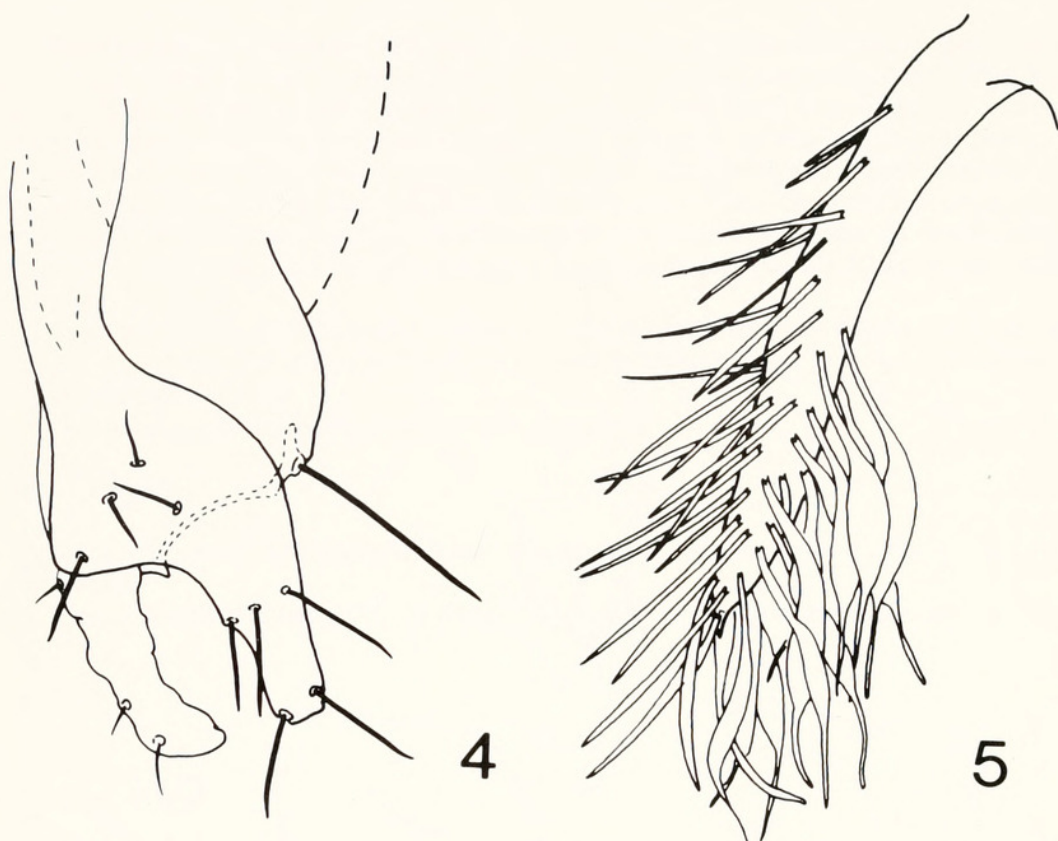


Fig. 1. *Rheotanytarsus magnini* n. sp., male genitalia, dorsal (stippled areas represent inner struts).



Figs. 2-3. *Rheotanytarsus magnini* n. sp., male: 2. Anal point, dorsal, 3. Anal point, lateral.



Figs. 4-5. *Rheoanytarsus magnini* n. sp., male: 4. superior volsella, dorsal, 5. median volsella, dorsal.

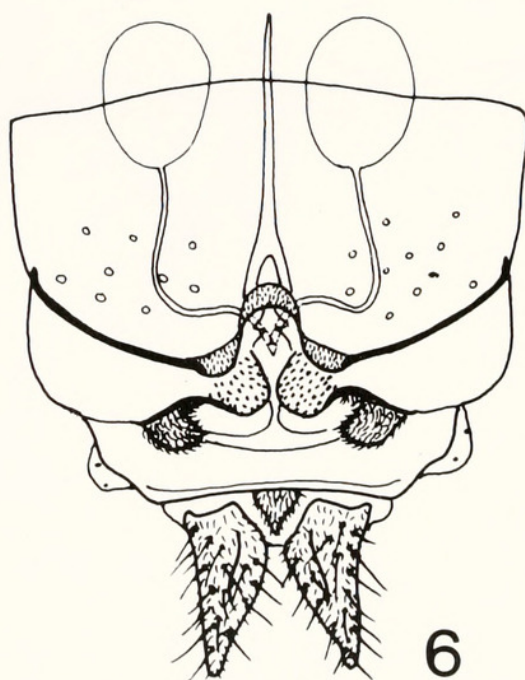


Fig. 6. *Rheoanytarsus magnini* n. sp., female genitalia, ventral.

Leg measurements (mm)

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ | ta ₅ | LR | n |
|----------------|------|------|-----------------|-----------------|-----------------|-----------------|-----------------|------|---|
| P ₁ | 1.28 | 1.03 | 1.60 | 0.75 | 0.65 | 0.51 | 0.20 | 1.55 | 3 |
| P ₂ | 1.30 | 1.12 | 0.71 | 0.40 | 0.32 | 0.19 | 0.14 | 0.63 | 3 |
| P ₃ | 1.35 | 1.38 | 0.97 | 0.52 | 0.41 | 0.23 | 0.12 | 0.70 | 3 |

Wing: WL 3.00 - 3.27 mm (\bar{x} = 3.15, n = 3).

Genitalia: typical of the genus (Fig. 6) as described by Saether (1977). The gonocoxapodeme VIII is nearly straight. Gonopod VIII is divided into a large quadrate dorsomesal lobe (DmL) covered with spinules and a slightly smaller ventrolateral lobe (VL) with macrotrichia. Seminal capsules ovoid, without conspicuous necks; spermathecal ducts broadly curved at right angle.

Immature Stages unknown.

Type material: Holotype: adult male, in alcohol, labelled "Holotype, *Rheotanytarsus magnini* Cloutier & Harper, Rivière Desaulniers (53° 35' N; 77° 35' W), Québec, 2.VIII.1978, C. Harvey (Station G2-117)."

Allotype labelled as holotype, except Station G2-107 and date 15.VII.1977.

Paratypes: 11 males labeled as holotype but with different collection dates: 28.VI.1976, 6-61.VIII.1976, 5-24.VIII.1977, 23.VIII.1978. 2 females, 15.VIII.1977, 28.VIII.1978. All from station G2-107.

The types have been deposited in the Collection Ouellet-Robert, Département de sciences biologiques, Université de Montréal. Two paratypes were sent to the Canadian National Collection of Insects, Agriculture Canada, Ottawa.

Derivation of specific epithet: for Professor Etienne Magnin, our friend and teacher, in recognition for his pioneering studies on the ecology of subarctic lakes and rivers in Québec.

Diagnosis: the darkened anal point with its finely scalloped dorso-lateral ridges will distinguish this species from all other *Rheotanytarsus*, except the Palaearctic *R. nigricauda* Fittkau. The new species can be separated from the latter by the lack of spurs on the tibial combs, by the squattier anal point, by the bilobed and chelate superior volsella, and by the lamellar bristles along the outer margin of the median volsella rather than just at its apex. The female genitalia differ from those of *R. nigricauda* as illustrated by Saether (1977, Fig. 67a-c) by having quadrate (VL) smaller than (DmL) and ducts forming a wider angle.

DISCUSSION

R. magnini is obviously akin to the Palaearctic *R. nigricauda* described by Fittkau (1960) and considered by him as a new type within the genus. However, Lehmann (1970) suggested the existence of affinities between *R. nigricauda* and *R. curtistylus* Goetghebuer and united them both in a distinct group within the Palaearctic *Rheotanytarsus* on the basis of the following characters: (1) the gonostylus is not as abruptly narrowed as is usually the case, (2) the superior volsella is rounded, and (3) the

median volsella is relatively short and carries terminal lamellar bristles. *Rheotanytarsus magnini* can doubtless be inserted into this group despite its rather peculiar superior volsella, but should probably be isolated with *R. nigricauda* in the genus *Rheotanytarsus*.

The lack of spurs on the combs of the middle and hind tibiae is unusual in *Rheotanytarsus*; however, Lehmann (1970) does mention the absence of spurs on the outer combs of a Spanish population of *R. nigricauda*. All other characters of venation and genitalia (of both sexes) are typical.

Ecology: the species was collected from Rivière Desaulniers [station G2-107 (one specimen from G2-117) in the SEBJ station identification scheme], a small meandering river flowing through the Eastmain Lowlands on the eastern shore of James Bay. The river formerly drained into La Grande Rivière, a major tributary of the Bay. Since 1977, dams on the La Grande Rivière have impounded the lower reaches of the Desaulniers River, without however affecting the type locality which lies just upstream (G2-117 is occasionally flooded).

The substrate is composed of silt and sand and is covered with detritus; the surrounding vegetation is open boreal forest (*Picea mariana*) with an understory of mosses and heath. The water temperature reaches 18°C in mid-summer.

The emergence period extends from August 2 to 28, with one exception (June 28).

ACKNOWLEDGMENTS

We are grateful to Professor Etienne Magnin, the former director of the Laboratoire d'écologie de la Société d'énergie de la Baie James, who allowed us to study this material. We thank Guy Boivin, now of Agriculture Canada, and the others who set up studies on the aquatic insects in the Desaulniers Reservoir Project and who collected the material. Bohdan Bilyj from the Freshwater Institute (Winnipeg) and Karl W. Simpson of the New York State Department of Health (Albany) commented on the manuscript. The Université de Montréal has provided financial assistance through its internal research fund (CAFIR).

LITERATURE CITED

- Cloutier, L. and F. Dufort. 1979. Effets de la mise en eau du Réservoir Desaulniers sur les communautés benthiques et les insectes adultes. Programmes SEBJ nos 75 et 84, 1ère partie. Laboratoire d'écologie de la SEBJ, Université de Montréal, Rapport de recherche no 51, 132 pp.
- Fittkau, E.J. 1960. *Rheotanytarsus nigricauda* n.sp., Chironomidenstudien VI. Abh. naturw. Ver. Bremen 35(3): 397-407.
- Lehmann, J. 1970. Revision der europäischen Arten (Imagines ♂♂ und Puppen ♂♂) der Gattung *Rheotanytarsus* Bause (Diptera, Chironomidae). Zool. Anz. 185(5-6): 344-378.
- Saether, O.A. 1977. Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies and keys. Bull. Fish. Res. Board Can. 197: 1-209.
- Saether, O.A. 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). Ent. Scand. Suppl. 14: 1-51.



Cloutier, Louise and Harper, P P. 1986. "A New species Of Rheotanytarsus From Sub arctic Quebec (Diptera, Chironomidae)." *Entomological news* 97, 1-6.

View This Item Online: <https://www.biodiversitylibrary.org/item/20681>

Permalink: <https://www.biodiversitylibrary.org/partpdf/39469>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: American Entomological Society

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.