

LOBOSMITTIA, A NEW GENUS OF ORTHOCLADS FROM TANZANIA AND TURKEY (DIPTERA: CHIRONOMIDAE)

Sæther, O. A. & T. Andersen, 1993. *Lobosmittia*, a new genus of orthoclads from Tanzania and Turkey (Diptera: Chironomidae). – Tijdschrift voor Entomologie 136: 283-287, figs. 1-10. [ISSN 0040-7496]. Published 10 December 1993.

The genus *Lobosmittia* is erected for a new species from the West Usambara Mts in NE Tanzania, *L. basilobata* and for *Pseudosmittia invaginata* Caspers & Reiss, 1989 from Turkey. The genus differs from other orthoclads with bare eyes, wings and squama; by completely lacking acrostichals, median microtrichial tuft or less sclerotized median area on scutum; by having costa not or only slightly extended; fine, triangular, strongly pointed anal point bare of microtrichia; and gonostylus with either a basal or preapical lobe. The *Parakiefferiella* group of genera or *Acamptocladius* Brundin and related genera are the most likely closest relatives.

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Key words. – Chironomidae, Orthoclaadiinae, new genus, Tanzania, Turkey.

INTRODUCTION

During an expedition by the Museum of Zoology, University of Bergen, to the montane evergreen forests in the West Usambara Mountains, NE Tanzania in the autumn of 1990, several interesting new genera and species of chironomids were collected together with a few genera new to the African continent (Andersen & Sæther 1993, in press a, b, Sæther & Wang 1992). One of the new genera had what in some specimens looked like a double gonostylus. However, other views showed that it was a basal lobe. Other characteristics made it clear that the species could not be placed in any presently recognized genus. The senior author, together with L. C. Ferrington jr., Lawrence, Kansas, presently is revising the genus *Pseudosmittia* Goetghebuer. Many species in that genus are tentatively placed since the genus has not been well defined. When examining types it was found that *Pseudosmittia invaginata* described by Caspers & Reiss (1989) could be placed in the same genus as the species from Tanzania.

The field work, which included an extensive use of Malaise traps and sweep nets, was mainly conducted in the Mazumbai Forest Reserve in the eastern part of the West Usambara Mts. A thorough description of the vegetation in these mountains is given by Iversen (1991). Our Malaise trap localities along the Kaputu Stream near Mazumbai are described in Andersen & Johanson (in press).

METHODS AND TERMINOLOGY

The material examined was mounted on slides following the procedure outlined by Sæther (1969). The general terminology follows Sæther (1980). The measurements are given as ranges followed by mean and the number measured (n) in parentheses.

The types of *Lobosmittia basilobata* sp. n. are deposited in the Museum of Zoology, University of Bergen, Norway (ZMBN).

Lobosmittia gen. n.

Type species. – *Lobosmittia basilobata* sp. n. by present designation. Other included species: *Lobosmittia invaginata* (Caspers & Reiss, 1989: 123, Figs. 11-13, as *Pseudosmittia invaginata*), **comb. n.**

Diagnostic characters. – The bare eyes, wing membrane and squama, combined with complete lack of acrostichals, microtrichial tuft on median hump or sclerotized area on scutum, not or only moderately extended costa, and pointed, triangular anal point, free of microtrichia will separate the genus from other orthoclads.

Etymology. – From the Greek *lobos*, a lobe, and *Smittia*, a related genus of Orthoclaadiinae and a common ending among orthoclads, referring to the basal or subapical lobes of the gonostyli of the two included species.

Description

Small species with wing length 0.7 - 1.1 mm.

Eyes bare, without dorsomedial elongation. Coronal suture well developed ending in frontal projection. Temporal setae consisting of weak inner verticals and strong outer verticals. Tentorium and stipes normal. Antennae of male with 13 flagellomeres; antennal groove starting on flagellomere 3; sensilla chaetica on flagellomeres 2, 3 and 13; apex without apical setae.

Anteprenotum with median lobes narrowed medially and slightly separated, with 1 lateral seta. Dorsocentrals several; acrostichals, microtrichial tuft, hump or unsclerotized median area of scutum absent; prealars few, in one or two groups; supraalars present or absent. Scutellum with few setae. Humeral pit not distinctive.

Wing membrane bare, with very fine punctuation of microtrichia; veins brown. Anal lobe weak or absent. Costa not to moderately extended; R_{2+3} running in the middle between R_1 and R_{4+5} , ending close to R_{4+5} ; R_{4+5} ending clearly proximally of end of M_{3+4} ; Cu_1 sinuate; FCu far distally of RM; postcubitus extending beyond FCu; anal vein not reaching FCu. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 8-10 on base of brachiolum, 3 below seta, and about 8-10 at apex of brachiolum; 1 at base of subcosta, 1 on FR and 1 at base of R_1 .

Tibial spurs and tibial comb normal. Pulvilli absent, at least in *L. invaginata*.

Tergite IX with few to several setae at base of triangular, sharply pointed anal point which is bare of setae and microtrichia. Sternapodeme with weak or no oral projections. Phallapodeme normal. Virga well developed, consisting of few needle-like spines. Gonocoxite with long, relatively low inferior volsella. Gonostylus either with a basal crista dorsalis appearing as a basal appendage in some views or with a long apically angled crista dorsalis making the gonostylus appear to have a deep apical invagination.

Female, pupae and larvae unknown.

Systematics

In the key to adult males of Orthoclaadiinae by Cranston *et al.* (1989) *Lobosmittia* will key to couplet 98. It will not key further since the pulvilli apparently are absent or vestigial, while the anal point extends from the posterior margin of tergite IX. Caspers & Reiss (1989: 12) discussed the placement of their species as *Pseudosmittia invaginata* on the base of the si-

milarity of *Pseudosmittia* Goetghebuer and *Prosmittia* Brundin. Cranston & Oliver (1988) even synonymized the two genera based on the fact that *Prosmittia nanseni* Kieffer (Kieffer 1926: 82) is a good *Pseudosmittia*. Oliver (1963: 177) first placed *nanseni* in the genus *Prosmittia* apparently based on the similarities in the hypopygia between *nanseni* and *Prosmittia jemtlandica* (Brundin, 1947). Reexamination of the type of *P. nanseni* by Sæther *et al.* (1984: 270) did not change the placement of the species. However, the wing venation could not be discerned on the damaged male. The senior author together with Dr. L. C. Ferrington jr., Lawrence, Kansas, presently is revising the genus *Pseudosmittia* and we have examined *P. jemtlandica* as well as a large amount of *P. nanseni* and most types of *Pseudosmittia*. All species of *Pseudosmittia* have 2 or occasionally 4-11 (as in *P. nanseni*) short, but relatively strong acrostichals, with distinct sockets, in a pale, less sclerotised median area on the scutum. There is never a median microtrichial tuft as in *Parakiefferiella* Thienemann, and no median tubercle, but occasionally there is a hump in some teneral specimens. On the wing, vein R_{4+5} may end slightly distal to end of M_{3+4} , but mostly ends well proximal of the end of M_{3+4} . In *Prosmittia jemtlandica* there is no sign of acrostichals, microtrichial tuft, hump or pale area on scutum, and R_{4+5} ends far distally of the end of M_{3+4} almost reaching the wing apex. The illustration by Brundin (1947: fig. 16) of *Prosmittia jemtlandica* (as *Pseudosmittia jemtlandica*) is correct and not erroneous as previously presumed. The genus *Prosmittia* Brundin (1956: 58, 165) clearly has to be resurrected. The wing venation, however, appears to place it close to *Unniella* Sæther, but not to *Pseudosmittia* nor to *Lobosmittia*.

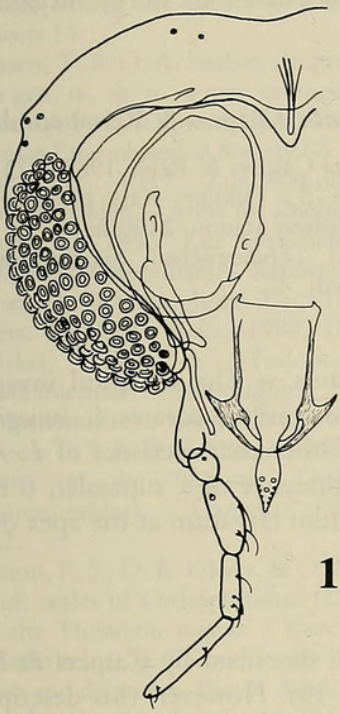
Lobosmittia, however, has an anal point placed on the posterior margin of tergite IX and does not appear closely related to any of the above mentioned genera. *Boreosmittia* Tuiskunen appears to be the most similar genus. However, without knowledge of the immatures a more definite placement is as yet not possible.

Lobosmittia basilobata sp. n.

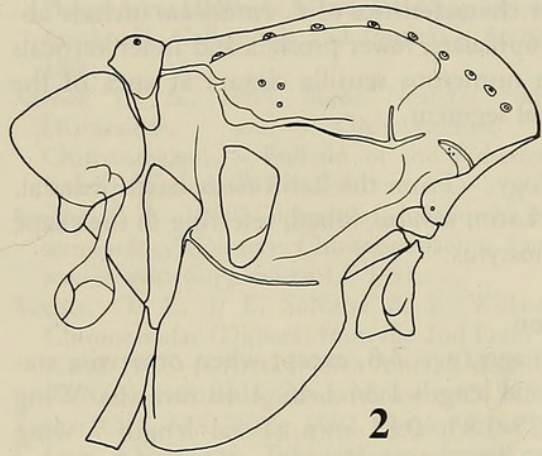
(figs. 1-10)

Type material. – Holotype ♂, TANZANIA, Tanga region, West Usambara Mts, Mazumbai, Kaputu Stream, 1640 m a. s. l., sweep net at waterfall, 28.x.1990, ZMB's Tanzania Expedition (ZMBN No. 156). – Paratypes: 4♂, as holotype; 1♂ as holotype except Malaise trap loc. 2, 1650 m a. s. l., 2.-6.xi.1990; 2♂ as holotype except Malaise trap loc. 10, 1420 m a. s. l., xii.1990.

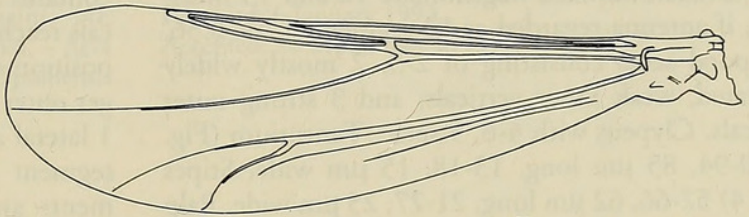
Figs. 1-10. Male imago of *Lobosmittia basilobata* gen. n., sp. n. – 1, head; 2, thorax; 3, third palpal segment; 4, tentorium and stipes; 5, wing; 6, hypopygium, with dorsal aspect to the left, ventral to the right; 7, anal point, lateral view; 8-10, gonostylus, different views.



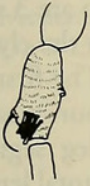
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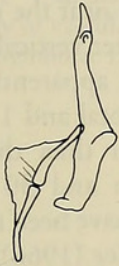
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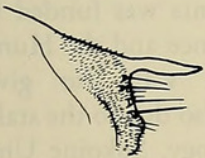
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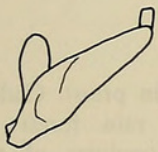
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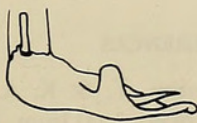
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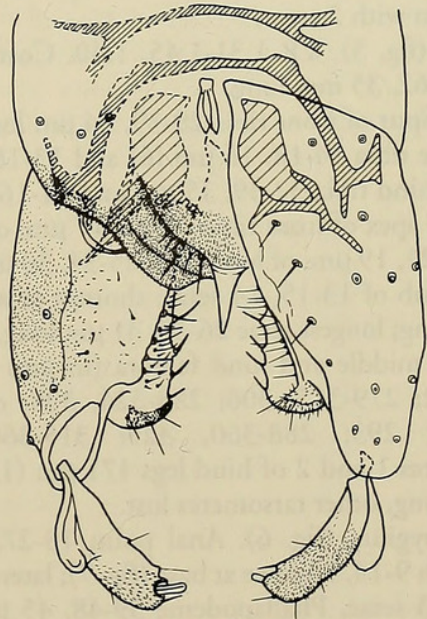
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9



10



6

Diagnostic characters. – The basal lobe of the gonostylus easily separates *L. basilobata* from *L. invaginata*. Other characteristics of *L. basilobata* include absence of supraalars, fewer prealars and inner verticals and more numerous sensilla clavata at apex of the third palpal segment.

Etymology. – From the Latin *basis*, base, pedestal, and New Latin, *lobatus*, lobed, referring to the shape of the gonostylus.

Description

Male imago (n = 7-8, except when otherwise stated). – Total length 1.34-1.46, 1.40 mm (6). Wing length 0.75-0.83, 0.81 mm. Total length / wing length 1.57-1.87, 1.73 (6). Wing length / length of profemur 2.73-3.08, 2.88. Coloration brownish black with yellowish shoulders and anepisternum. Legs yellowish brown.

Head (Fig. 1). AR 0.39-0.49, 0.42. Ultimate flagellomere 123-171, 141 μ m long. One specimen with division between flagellomere 12 and 13 indistinct, if antenna regarded as 12-segmented AR 0.56. Temporal setae consisting of 2-3, 2 mostly widely separated, weak inner verticals; and 3 strong outer verticals. Clypeus with 4-6, 5 setae. Tentorium (Fig. 4) 80-94, 85 μ m long, 13-18, 15 μ m wide. Stipes (Fig. 4) 57-66, 62 μ m long, 21-27, 25 μ m wide. Palp segments lengths in μ m: 14-18, 15; 18-23, 21; 27-39, 34; 32-41, 38; 46-66, 59. Third palpal segment (Fig. 3) with 6-7, 6 (6) sensilla clavata. Coronal suture ending in frontal projection.

Thorax (fig. 2). Anteprenotum with 1 lateral seta. Dorsocentrals 8-11, 9; prealars 3; supraalars absent. Scutellum with 2 setae.

Wing (fig. 5). VR 1.31-1.45, 1.40. Costal extension 23-62, 35 mm long.

Legs. Spur of front tibia 29-39, 34 μ m long; spurs of middle tibia 14-18, 16 μ m (6) and 13-18, 15 μ m long; of hind tibia 32-39, 35 μ m and 11-16, 14 μ m. Width at apex of front tibia 16-18, 17 μ m; of middle tibia 16-21, 19 μ m; of hind tibia 25-34, 30 μ m. Hind tibial comb of 13-15, 14 setae; shortest setae 18-25, 21 μ m long; longest setae 26-34, 31 μ m long. Lengths of front, middle and hind femora (in μ m) as: 252-306, 282; 279-315, 306; 288-324, 308; of tibiae: 266-315, 293; 288-360, 325; 315-360, 339. Tarsomeres 1 and 2 of hind legs 171 μ m (1) and 90 μ m (1) long, other tarsomeres lost.

Hypopygium (fig. 6). Anal point 18-27, 21 μ m long; with 9-14, 10 setae at base (fig. 7); laterosternite IX with 3 setae. Phallapodeme 39-48, 45 μ m long, transverse sternapodeme 34-43, 41 μ m long. Virga 14-19, 16 μ m long. Gonocoxite 91-101, 97 μ m long; with long inferior volsella apically hooked in some views. Gonostylus 39-45, 42 μ m long; basal lobe end-

ing 21-27, 24 μ m from base (figs. 8-10); megaseta 9-14, 10 μ m long.

Lobosmittia invaginata (Caspers & Reiss) comb. n.

Pseudosmittia invaginata Caspers & Reiss, 1989: 123, figs. 11-13. – Holotype ♂, TURKEY: Kars province, W. Sarikamis, Soganli railway station, 2100 m a. s. l., 5.vii. 1985, W. Schacht (Zoologischen Staatssammlung, München). [examined]

Diagnostic characters. – The subapical invagination of the gonostylus easily separates *L. invaginata* from *L. basilobata*. Other characteristics of *L. invaginata* includes the presence of 1 supraalar, 6 inner verticals and 1 sensillum clavatum at the apex of the third palpal segment.

Description

The species is well described by Caspers & Reiss (1989: 123, figs. 11-13). However, this description contains a few mistakes. There are 6 weak inner verticals reaching from near the middle of the head to the position of the outer verticals. There also are 3 stronger outer verticals, apparently 8 setae on the clypeus, 1 lateral anteprenotal and 1 supraalar. The first palp segment is shorter than the second, our measurements are 23 μ m and 30 μ m. The leg segments lengths appear to have been measured as total lengths, not following Schlee (1966), as especially the femora and ta_3 are about 15% too long compared with our measurements, while ta_1 to ta_4 are quite close.

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REFERENCES

- Andersen, T. & K. A. Johanson, (in press). Caddis flies (Trichoptera) from a mountain rain forest in NE Tanzania. – In: Otto, C. Proceedings of the 7th International Symposium on Trichoptera. – Universal Book Services, The Netherlands.
- Andersen, T. & O. A. Sæther, 1993. *Lerheimia*, a new genus of Orthocladiinae from Africa (Diptera, Chironomidae). – Spixiana 16: 105-112.
- Andersen, T. & O. A. Sæther, (in press a). *Usambaromyia*

- nigrala* gen. n., sp. n., and Usambaromyiinae, a new subfamily among the Chironomidae (Diptera). – Aquatic Insects 15.
- Andersen, T. & O. A. Sæther, (in press b). *Colosmittia clavata* gen. n., sp. n., a new orthoclad from the Usambara Mts, Tanzania (Diptera: Chironomidae). – Journal of the Kansas Entomological Society 66.
- Brundin, L., 1947. Zur Kenntnis der schwedischen Chironomiden. – Arkiv för Zoologi 39A (3): 1-95.
- Brundin, L., 1956. Zur Systematik der Orthoclaadiinae (Dipt. Chironomidae). – Report, Institute of Freshwater Research, Drottningholm 37: 5-185.
- Caspers, N. & F. Reiss, 1989. Die Chironomidae der Türkei. Teil I: Podonominae, Diamesinae, Prodiamesinae, Orthoclaadiinae (Diptera, Nematocera, Chironomidae). – Entomofauna 10 (8/1): 105-160.
- Cranston, P. S. & D. R. Oliver, 1988. Additions and corrections to the Nearctic Orthoclaadiinae (Diptera: Chironomidae). – Canadian Entomologist 120: 425-462.
- Cranston, P. S., D. R. Oliver, & O. A. Sæther, 1989. 9. The adult males of Orthoclaadiinae (Diptera: Chironomidae) of the Holarctic region - Keys and diagnoses. – In: Wiederholm, T. Chironomidae of the Holarctic region. Keys and diagnoses. Part 3. Adult males. – Entomologica scandinavica Supplement 34: 165-352.
- Iversen, S. T., 1991. The Usambara Mountains, NE Tanzania: Phytogeography of vascular plant flora. – Acta Universitatis Upsalensis, Symbolae Botanicae Upsaliensis 29 (3): 1-234.
- Kieffer, J. J., 1926. Chironomiden der 2. Fram - Expedition (1898-1902). – Norsk entomologisk Tidsskrift 2: 78-89.
- Oliver, D. R., 1963. Entomological studies in the Lake Hazen Area, Ellesmere Island, including lists of species of Arachnida, Collembola and Insecta. – Arctic 16: 175-180.
- Sæther, O. A., 1969. Some Nearctic Podonominae, Diamesinae, and Orthoclaadiinae (Diptera: Chironomidae). – Bulletin of the Fisheries Research Board of Canada 107: 1-154.
- Sæther, O. A., 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). – Entomologica scandinavica Supplement 14: 1-51.
- Sæther, O. A., J. E. Sublette & E. Willassen, 1984. Chironomidae (Diptera) from the 2nd Fram Expedition (1898-1902) to Arctic North America described by J. J. Kieffer. – Entomologica scandinavica 15: 245-275.
- Sæther, O. A. & X. Wang, 1992. *Euryhapsis fuscipropes* sp. n. from China and *Tokyobrillia anderseni* sp. n. from Tanzania, with a review of genera near *Irisobrillia* Oliver (Diptera: Chironomidae). – Annales de limnologie 28: 209-223.
- Schlee, D., 1966. Präparation und Ermittlung von Messwerten an Chironomiden (Diptera). – Gewässer und Abwässer 41/42: 169-193.

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