Metriocnemus van der Wulp : Seven new species, revision of species, and new records (Diptera : Chironomidae)

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Keywords : Diptera, Chironomidae, systematics, *Metriocnemus* van der Wulp, keys, new species, type revisions.

The congenerity of *Arctomyia* Lundström, 1915, with *Metriocnemus* van der Wulp, 1874, is confirmed. Types of *Arctomyia sibirica* Lundström ; *Chironomus picipes* Meigen, 1818 : *Metriocnemus longipalpus* Sinharay et Chaudhuri, 1978 ; and *Apometriocnemus beringiensis* Cranston et Oliver, 1988 ; are examined.

Metriocnemus sibiricus is close to *M. longipennis* (Holmgren), *M. picipes* is separate from *M. atriclava* Kieffer, *M. longipalpus* is a junior synonym of *M. picipes*, and *M. beringiensis* is close to *M. fuscipes* (Meigen). *M. obscuripes* (Holmgren) is a junior homonym and replaced by *M. eurynotus* (Holmgren).

Metriocnemus wangi sp. n., *M. acutus* sp. n., *M. dentipalpus* sp. n., *M. calvescens* sp. n., *M. sibiricus*, *M. caudigus* sp. n., *M. intergerivus* sp. n., *M. aculeatus* Chaudhuri et Bhattacharyay, *M. unilinearis* Chaudhuri et Bhattacharyay, *M. exilacies* sp. n., *M. beringiensis* and *M. picipes* are described as male imagines. The females of *M. longipennis*, *M. sibiricus*, *M. intergerivus*, *M. picipes* and *M. atriclava* are described. Keys to both sexes are presented.

New records from Norway and China are given for *M. eurynotus*, *M. brusti* Sæther, *M. ursinus* (Holmgren), *M. fuscipes*, *M. aculeatus*, *M. unilinearis*, *M. beringiensis*, and *M. picipes*.

Metriocnemus van der Wulp : sept espèces nouvelles, révision des espèces et nouvelles récoltes (Diptera : Chironomidae)

Mots clés : Diptera, Chironomidae, taxonomie, *Metriocnemus* van der Wulp, clés, nouvelles espèces, révisions de type.

La synonymie de *Arctomyia* Lundström, 1915, avec *Metriocnemus* van der Wulp 1874 est confirmée. Les types de *Arctomyia sibirica* Lundström, *Chironomus picipes* Meigen, 1818, *Metriocnemus longipalpus* Sinharay et Chaudhuri, 1978, et *Apometriocnemus beringiensis* Cranston et Oliver, 1988, sont examinés.

Metriocnemus sibiricus est proche de *M. longipennis* (Holmgren), *M. picipes* est séparé de *M. atriclava* Kieffer, *M. longipalpus* est un junior synonyme de *M. picipes* et *M. beringiensis* est proche de *M. fuscipes* (Meigen). *M. obscuripes* est un junior synonyme et remplacé par *M. eurynotus* (Holmgren).

Les images mâles de *Metriocnemus wangi* n. sp., *M. acutus* n. sp., *M. dentipalpus* n. sp., *M. calvescens* n. sp., *M. sibiricus*, *M. caudigus* n. sp., *M. intergerivus* n. sp., *M. aculeatus* Chaudhuri et Bhattacharyay, *M. unilinearis* Chaudhuri et Bhattacharyay, *M. exilacies* n. sp., *M. beringiensis* et *M. picipes* sont décrits. Les femelles de *M. longipennis*, *M. sibiricus*, *M. intergerivus*, *M. picipes* et *M. atriclava* sont décrites. Des clés des deux sexes sont présentées.

De nouvelles récoltes de Norvège et Chine sont données pour *M. eurynotus*, *M. brusti* Sæther, *M. ursinus* (Holmgren), *M. fuscipes*, *M. aculeatus*, *M. unilinearis*, *M. beringiensis* et *M. picipes*.

1. Introduction

The genus *Metriocnemus* van der Wulp occurs in biotopes ranging from mosses and higher vegetation, pitcher plants and hollow trees to margins of springs, ditches, streams, damp soils and

hygropetric biotopes, and occasionally in lakes and rock pools (Cranston & Judd 1987, Sæther 1989a).

A substantial number of species have been described in *Metriocnemus*, but many have been allocated to the genus solely based upon having « hairy » wings and simple male gonostyli. Thus a reexamination of types and other material has been necessary. The more important types, including that of the type species for the genus, *M. albolineatus* (Meigen), were examined and redescribed by Sæther

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(1989a). However, that study raised two unanswered questions concerning the status of *Arctomyia sibirica* Lundström, 1915, and whether *M. picipes* (Meigen, 1818) was conspecific with *M. atriclava* Kieffer, 1921 sensu Edwards, 1929. In this paper the types of *M. sibirica* and *M. picipes* are examined and redescribed. *M. longipalpus* Sinharay et Chaudhuri, 1978, is shown to be a junior synonym of *M. picipes*.

In part based upon material from the collection of Kaare Aagaard, Norwegian Institute for Nature research, Trondheim, *Apometriocnemus beringiensis* Cranston et Oliver (1988 : 428) was shown to belong in *Metriocnemus* (Cranston, Oliver & Sæther 1989a : 178, 213). The type of *M. beringiensis* is redescribed here together with additional specimens from Norway. The collection of Kaare Aagaard also contained three new species of *Metriocnemus* and several new records. Xinhua Wang, Nankai University, Tianjin, China, gave me material of *Metriocnemus* from China to describe. It contained three new species and several new records. In light trap material from Lake Winnipeg, Manitoba, Canada, one new species of *Metriocnemus* was present.

This is the second in a series of paper revising types and describing new species of the genus *Metriocnemus*. What remains is a reexamination primarily of Afrotropical and some other type material and an attempt at a phylogenetic treatment. However, the so far unexamined species are described in sufficient detail to allow for a possible placement and inclusion of some of them in the key presented in this paper.

2. Methods and terminology

All the material was mounted on slides following the procedure outlined by Sæther (1969 : 1).

The general terminology follows Sæther (1980) with the additions and corrections given in Sæther (1989a). The counts of setae on the wing veins include both dorsal and ventral setae, setae which stand at the margin of a vein are regarded as belonging to the vein.

In the figures of the male genitalia the dorsal view is shown to the left, the ventral aspect and the apodemes to the right. The measurements are given as ranges followed by a mean when four or more measurements are made, followed by the numbers in parentheses (n). (In the figures of the lobes of

gonapophysis VIII in Sæther (1989, p. 414, Fig. 8C, 8D) the lettering of the dorsomesal and ventrolateral lobes are switched. The dorsomesal lobes are lettered VII, the ventrolateral lobes DmL).

The types examined are from the Meigen collection, Museum National d'Histoire Naturelle, Paris, France (MNHN) ; the Lundström collection, Zoological Institute, St. Petersburg, Russia (ZIS) ; the Canadian National Collection, Ottawa, Canada (CNC), and the collection of the Museum of Zoology, Bergen, Norway (ZMB). Other material belongs to the collections of Kaare Aagaard (KA), Xinhua Wang (XW), and the Freshwater Institute, Winnipeg, Canada (FWI).

3. *Metriocnemus* van der Wulp

Metriocnemus van der Wulp, 1874 : 136

Wulpiella Kieffer, 1899 : 66

Arctomyia Lundström, 1915 : 18

Dolichoprymna Lundström, 1915 : 21

Gripekovenia Kieffer, 1918 : 134, nomen dubium

Chasmatocladus Kieffer in Kieffer & Thienemann, 1919 : 47.

Type species : *Chironomus albolineatus* Meigen, 1818 : 39.

Nomenclatorial notes

According to Sæther (1989a) all the generic synonyms with the possible exception of *Arctomyia* belong to the *eurynotus* (as *obscuripes*) group. *Arctomyia sibirica* is here shown to be closely related to *M. longipennis* and thus also a member of the *M. eurynotus* group. Should a subgeneric division of the genus be deemed desirable there thus is no available name for the *fuscipes* group.

Diagnosis

As in Coffman et al. (1986 : 186) and Cranston & Judd (1987) for the pupa ; and Cranston & Judd (1987) for the larva. The diagnosis in Sæther (1989a) for the imagines can be emended as follows :

Female antenna with 5 flagellomeres or occasionally 4 flagellomeres in species with reduced wings and reduced male antenna. Third palpal segment with 1-7 lanceolate sensilla clavata at apex, occasionally with an apical spiniform seta or with a small, sclerotized apical tooth. First axillary sclerite with setae. Male anal point occasionally absent. More or less sclerotized plate present basally between

gonocoxites. Female tergite IX undivided or occasionally with two large, parallelsided, setose posterolateral projections.

3.1. Systematics

Sæther (1977 : 81-82) placed *Metriocnemus* together with *Thienemannia* Kieffer at the base (fig. 36) of the *Metriocnemiini* sensu Sæther (1977). Sæther & Sublette (1983 : 4) showed that the *Pseudorthocladius* group apparently formed the sister group of the *Metriocnemus* group. However, this placement could not be confirmed by any method of quantitative phyletics (Sæther 1989b, figs 8-10). Apparently the most realistic evaluation (Sæther 1989b, Fig. 10) gave *Metriocnemus* as one of the most plesiomorphic genera of the Orthocladiinae.

The genus *Metriocnemus* is quite homogeneous in the adult and pupal stages. The female genitalia, especially the shape of tergite IX, however, is quite variable. This tergite ranges in shape from large and sharply triangular to rounded ; completely undivided, with indication of division or consisting of two large caudolateral projections. The range of variation in larval characters is high. However, the shape and placement of the labral lamellae ; and the sclerotized normally well developed procercus with the short anal setae make the genus easily recognizable.

The genus has been divided into two main groups, the *eurynotus* (= *obscuripes* = *hygropetricus*) group and the *fuscipes* group. As presently defined all males of the *eurynotus* group possess well developed virga consisting of a cluster of 6-14 distinct spines, while the virga is lacking in the *fuscipes* group. However, one of the new species, *M. intergerivus*, possesses relatively short virgal spines, but otherwise resembles the *fuscipes* group. In *M. aculeatus* Chaudhuri et Bhattacharyay the virgal spines are not clustered, but separate and parallel and unlike other members of the group the crista dorsalis is vestigial. *M. yaquina* Cranston et Judd lacks virgal spines as in the *fuscipes* group, but has a weak, rounded, preapical crista dorsalis and no apical hump on the inferior volsella, i.e. more like some members of the *eurynotus* group. Also *M. caudigus* sp. n., *M. aculeatus*, *M. longipennis* (Holmgren) and *M. sibiricus* (Lundström) are intermediate since they have a long and low crista dorsalis as in the *fuscipes* group or a long crista dorsalis with a large median projection (in *M. sibiricus*). In the other species of the *eurynotus* group the crista dorsalis

is small, preapical and triangular to rounded. In *M. eurynotus*, *M. ursinus* (Holmgren), *M. calvescens* sp. n. and *M. acutus* sp. n. the crista dorsalis is sharply pointed.

In the *eurynotus* group (excluding *M. intergerivus* sp. n.) there are two main types of inferior volsellae. *M. martini* Thienemann, *M. edwardsi* Jones, *M. tamaokui* Sasa, *M. toganiger* (Sasa et Okazawa) and *M. virgatus* Sublette et Sasa have a strongly projecting, rectangular basal volsella occupying less than basal half. In the other species the volsella is less projecting, but occupies the basal 0.58-0.80 of the gonocoxite. It is widest in the basal half and slightly wider in *M. eurynotus* (Holmgren), *M. brusti* Sæther, *M. dentipalpus* sp. n., *M. togaminor* Sasa et Okazawa and *M. acutus* sp. n. than in the remaining species. The anal point in the *eurynotus* group is generally strong, 30-70 μ m long, parallel-sided or tapering to a usually blunt apex, but is lacking in *M. toganiger*, *M. togaminor* and *M. virgatus* Sublette et Sasa.

The male imagines of the *fuscipes* group (excluding *M. yaquina*, *M. unilinearis* Chaudhuri et Bhattacharyay, *M. costatus* Sublette et Sasa and *M. lautus* Sublette et Sasa) are quite similar to each other. The inferior volsella occupies basal 0.73-0.89 of the gonocoxite, but is low and weakly developed with an apical hump making the volsellae widest near apex. The crista dorsalis is long and low. The anal point is weak, 0-56 μ m long, and usually tapers to a sharply pointed apex, but may have a parallel-sided apex (in *M. exilacies* sp. n.).

Among the species not yet examined *M. tristellus* Edwards (Edwards 1929 : 312, fig. 3b ; Pinder 1978, fig. 132c) appears to belong in the *fuscipes* group, however, apparently lacking the apical hump of the inferior volsella. The Japanese species *M. tamaokui* Sasa, *M. shouclarius* Sasa, *M. amanianomalis* Sasa, *M. togapullus*, *M. togaminor* and *M. toganiger* are included in the key below. The first species is close to *M. martinii*, the next three belong in the *fuscipes* group, while the last two are close to *M. virgatus* in the *eurynotus* group. *M. ryutanus* Sasa et Hasegawa (1988) clearly is a *Paraphaenocladius* Thienemann. *P. ryutanus* comb. n. probably is a synonym of *P. exagitans* (Johannsen). The African species *M. canus* Freeman, *M. conicus* Freeman, *M. lobelliae* Freeman, and *M. wittei* Freeman (Freeman 1956 : 295-298) apparently all belong in the

fuscipes group. *M. canus* may be a synonym of *M. fuscipes* (Meigen), *M. lobeliae* a synonym of *M. atriclava* and *M. wittei* a synonym of *M. picipes*.

According to Sinharay & Chaudhuri (1978 : 28) and Chaudhuri et al. (1989 : 308) there are eight valid Oriental species. However, *M. discretus* Johannsen belongs in *Paraphaenocladus* judged on the description of the hypopygium and the wing by Johannsen (1932 : 717), while *M. nigrescens* Johannsen is probably a *Parametriocnemus* Goetghebuer. *M. longipalpus* Sinharay et Chaudhuri is shown here to be a junior synonym of *M. picipes*. The type of *M. callinotus* Kieffer is fragmentary and the name should be regarded as a nomen dubium. The species erected by Chaudhuri et al. (1989) are included in the key below. However, what is named the virga in *M. amplispinus* Chaudhuri et Bhattacharyay is part of the sclerotized basal connection or plate between gonocoxites apparent in probably all species of *Metriocnemus*. There are also discrepancies between the description of this species and the drawings of the species. According to the descriptions vein M is bare and tergite IX has 62-65 setae, while according to the drawing there are 12 setae on M and much less than 60 setae on tergite IX. The species is very close to *M. picipes* and, if there are more errors in their counts, could be a junior synonym of *M. picipes*. In *M. pseudorostratus* Chaudhuri et Bhattacharyay the virga is said to be single lobed. If that is the case the species is unlikely to be a *Metriocnemus*. However, with insufficient clearing the tight cluster of spines may look like a single lobe.

Of the species mentioned by Edwards (1931) from South America as belonging to *Metriocnemus* only *M. griseovittatus* Edwards is likely to belong to that genus.

Sublette & Sasa (1994) describe three new species of *Metriocnemus* from Guatemala. Of these *M. virgatus* Sublette et Sasa is a typical member of the *eurynotus* group. *M. costatus* Sublette et Sasa and *M. lautus* Sublette et Sasa both are said to lack virgal spines as in the *fuscipes* group. However, both the pupa and the larva of *M. costatus* are typical of the *eurynotus* group and the genitalia of both species are more similar to those of members of the *eurynotus* group. Most likely the virga (which in some species is quite transparent), at least of *M. costatus*, has been overlooked. The male imagines of

the three species from Guatemala are included in the key below. Unfortunately, Sublette & Sasa overlooked Sæther (1989) and thus their descriptions are too incomplete to allow the inclusion of the female imagines in the key.

Among unexamined Nearctic species (Oliver, Dillon & Cranston 1989 : 30) *M. equalis* Johannsen (Sublette 1967 : 535) should be placed as *Heterotrissocladius equalis* (Johannsen) comb. n. since the costa is not produced, the wing membrane haired only in the apical fourth, and the shape of the hypopygium conforms to *Heterotrissocladius* Spärck and not to *Metriocnemus*. It may be a senior synonym of *H. changi* Sæther or *H. hirtapex* Sæther. *M. polaris* Kieffer (1926 : 87) was redescribed by Sæther, Sublette & Willassen (1984 : 266) who suggested that it might be a junior synonym of *M. eurynotus* (as *obcuripes*). This synonymy can now be confirmed.

3.2. Key to sufficiently known male imagines of *Metriocnemus* van der Wulp

1. Basal half of wing membrane bare or at most with scattered setae in anal cell 2
Entire wing membrane, except sometimes cell m basally of RM, densely clothed with setae 5
2. Anal point weak, tapering to a point, a few setae present in anal cell of wing ; crista dorsalis low or absent 3
Anal point robust, rounded apically ; basal half of wing membrane bare ; crista dorsalis triangular, pointed 4
3. Inferior volsella very low (Edwards 1929, Fig. 3b ; Pinder 1978, Fig. 132c) ; Holarctic
..... *M. tristellus* Edwards
Inferior volsella distinct (Chaudhuri et al. 1989, Fig. 1d ; Fig. 7A) ; India, China
..... *M. aculeatus* Chaudhuri et Bhattacharyay
4. Squama with 60-73 setae, cell r_{4+5} with 112-120 setae (Pinder 1978, Fig. 132D ; Sæther 1989a, Fig. 11) ; Palaearctic *M. ursinus* (Holmgren)
Squama with about 27 setae, cell r_{4+5} with about 27 setae (Fig. 1 E) ; China . *M. calvescens* sp. n.
5. Antenna with 12-13 flagellomeres and AR of 0.1-0.3, squama with 5-12 setae 6
When antenna with 12-13 flagellomeres AR higher than 0.4 or antennal plume reduced, squama usually with more than 12 setae 8
6. Anal point absent, 12 flagellomeres or when 13 AR 0.13-0.15, squama with about 5-8 setae 7

- Anal point present, AR about 0.3, squama with about 12 setae (Sasa 1989, Fig. 19); Japan *M. shouclarius* Sasa
7. Third palpomere with apical spiniform seta, 12 flagellomeres, AR 0.3 (Sublette & Sasa 1994, Figs 103-105); Guatemala *M. lautus* Sublette et Sasa
- Third palpomere without spiniform seta, 13 flagellomeres, AR 0.13-0.15 (Sasa 1990, Fig. 18); Japan *M. amamianomalus* Sasa
8. Virga consisting of 6-14 spines; crista dorsalis preapical and triangular or occasionally long and low or gonostylus with strong preapical projection 9
- Virga absent (possibly present but overlooked in *M. costatus* Sublette et Sasa, with LR₁ of 0.82-0.86, well developed inferior volsella, and 21-34 setae on squama); crista dorsalis long and low or, when rounded and preapical, antenna with 7 flagellomeres 26
9. Wings shortened, antennal plume reduced 10
- Wings normal, antennal plume well developed 11
10. Antenna with 7 flagellomeres, crista dorsalis long and low (Sæther 1989a, Fig. 13); Holarctic *M. longipennis* (Holmgren)
- Antenna with 12-13 flagellomeres, gonostylus with large median projection (Fig. 4); Siberia *M. sibiricus* (Lundström)
11. Anal point absent 12
- Anal point present 14
12. Inferior volsella in basal half of gonocoxite, strongly projecting, rectangular 13
- Inferior volsella in basal 3/4 of gonocoxite, relatively low (Sasa & Okazawa 1992, Fig. 52), Japan *M. togaminor* Sasa et Okazawa
13. AR 0.7-0.9, 59-70 dorsocentrals (Sublette & Sasa 1994, Figs 106, 107); Guatemala *M. virgatus* Sublette et Sasa
- AR 1.2-1.7, 30-46 dorsocentrals (Sasa & Okazawa 1992, Fig. 48 as *Gymnometriocnemus toganiger*) *M. toganiger* (Sasa et Okazawa) comb. n.
14. Crista dorsalis long and low 15
- Crista dorsalis preapical, triangular, pointed to rounded 16
15. Anal point robust, rounded at apex, 49-68 μm long; AR about 1.3; squama with 18-23 setae (Fig. 5 A); Norway *M. caudigus* sp. n.
- Anal point weak, pointed, 15-26 μm long; AR 2.0-2.4; squama with 43-64 setae (Fig. 5 B); Holarctic *M. intergerivus* sp. n.
16. Inferior volsella in basal half of gonocoxite, strongly projecting, rectangular 17
- Inferior volsella in basal 0.58-0.80 of gonocoxite, widest in basal half, weak to pronounced 19
17. AR 1.7-1.8, anal point more than half as long as gonostylus (Sublette 1966, Fig. 11); Nearctic *M. edwardsi* Jones
- AR about 0.8-1.2, anal point less than half as long as gonostylus 18
18. Anal point robust, partly parallel-sided with rounded apex (Sasa 1983, Figs 26B-D, 27); Japan *M. tamaokui* Sasa
- Anal point tapering to point (Pinder 1978, Fig. 130c, as *M. cavicola* Kieffer; Chaudhuri et al. 1989, Fig. 3) *M. martini* Thienemann (Palearctic) and *M. pseudostratus* Chaudhuri et Bhattacharyay (India, possible synonym)
19. Subcosta with 0.8 setae, cell m basally of RM with 0-29 setae 20
- Subcosta with 10-55 setae, cell m basally of RM with 40-144 setae 22
20. AR about 2.2, crista dorsalis sharply pointed (Fig. 1 B); Norway *M. acutus* sp. n.
- AR 1.4-1.7, crista dorsalis rounded to bluntly triangular 21
21. Cell m with about 1 seta, squama with about 13 setae, crista dorsalis rounded (Sæther 1989a, Fig. 4); Germany *M. corticalis* Strenzke
- Cell m with 7-29 setae, squama with 27-34 setae, crista dorsalis bluntly triangular 22
22. Vein M with 0-11 setae; third and fourth palpomere without small, sclerotized apical tooth; anal point triangular (Sæther 1989, Fig. 5); Holarctic *M. brusti* Sæther
- Vein M with about 20 setae; third and fourth palpomere each with small, sclerotized apical tooth; anal point with concave margins (Fig. 1 C, D); China *M. dentipalpus* sp. n.
23. Spines of virga 23-26 μm long, crista dorsalis rounded to bluntly triangular 24
- Spines of virga 34-68 μm long, crista dorsalis either sharply triangular or rounded 25
24. AR 0.5-0.6, anal point 24-28 μm long (Fig. 1 A); China *M. wangi* sp. n.
- AR 1.2-1.5, anal point 51-64 μm long (Sæther 1989a, Fig. 1); Palearctic *M. albolineatus* Meigen
25. AR 1.4-2.1; crista dorsalis usually sharply, occasionally bluntly triangular; anal point variable, but usually robust and parallel-sided (Sæther 1989a, Fig. 7, as *M. obscuripes*); Holarctic *M. eurynotus* (Holmgren)
- AR 1.0-1.1 (1.55 in Sublette 1966); crista dorsalis rounded, anal point tapering to blunt apex (Sublette 1966, Fig. 12); Nearctic *M. knabi* Coquillett
26. Antenna with 7 flagellomeres, front tibia without spur (Cranston & Judd 1987, Figs 1-2); Nearctic *M. yaquina* Cranston et Judd
- Antenna with 13 flagellomeres, front tibia with spur 27

27. Anal point parallel-sided in apical half ; M with 0-3 setae, subcosta with 23-40 setae (Fig. 6 C) ; Norway *M. exilacies* sp. n.
Anal point tapering to pointed apex ; when M with less than 10 setae, subcosta also with less than 10 setae 28
28. LR₁ about 0.82-0.87, LR₃ about 0.51-0.55, squama with about 7 or with 21-34 setae 29
LR₁ 0.52-0.67, LR₃ 0.36-0.46, squama with 18-58 setae 30
29. Squama with 7 setae, LR₁ 0.86-0.87 (Chaudhuri et al. 1989, Fig. 4 ; Fig. 6 B) ; India, Tibet
..... *M. unilinearis* Chaudhuri et Bhattacharyay
Squama with 21-34 setae, LR₁ 0.82-0.86 (Sublette & Sasa 1994, Figs 88-90) ; Guatemala
..... *M. costatus* Sublette et Sasa
30. AR 0.8-1.2, LR₃ 0.36-0.41, pseudospurs often absent on ta₂ of hind leg 31
AR 1.5-3.0, LR₃ 0.43-0.46, pseudospurs always present on ta₂ of hind leg 32
31. Anal point absent or at most 15 µm long, wing length 1.5-1.7 mm, squama with 18-26 setae (Cranston & Oliver 1988, Fig. 2, as *Apometriocnemus beringiensis* ; Fig. 6 D, E) ; Holarctic
..... *M. beringiensis* (Cranston et Oliver)
Anal point 23-53 µm long, wing length 1.8-2.5 µm, squama with 28-40 setae (Sæther 1989a, Fig. 14) ; Holarctic, including Madeira, the Canary Islands and the Azores *M. fuscipes* (Meigen)
32. AR 1.8(?) - 3.0, subcosta and M each with less than 13 setae, spur of front tibia 2.0-2.7 times as long as apical width of tibia 33
AR 1.5-1.6, subcosta with 36-39 setae, M with 23-39 setae, spur of front tibia about 1.6 times as long as apical width of tibia (Sæther 1989a, Fig. 16) ; Palaearctic *M. atriclava* Kieffer
33. Anal point absent, squama with 28-42 setae (Sasa & Okazawa 1992, Fig. 53) ; Japan
..... *M. togapullus* Sasa et Okazawa
Anal point present, squama either with 22-23 or 42-58 setae 34
34. Squama with 22-23 setae, tergite IX with 62-65 setae, only about 12 temporals (Chaudhuri et al. 1989, Fig. 2) ; India
..... *M. amplispinus* Chaudhuri et Bhattacharyay
Squama with 42-58 setae, tergite IX with 30-40 setae, 23-25 temporals (Fig. 7 A) ; Holarctic and Oriental
..... *M. picipes* (Meigen)

3.3. Key to some female imagines of *Metriocnemus* van der Wulp

1. Squama with 3-10 setae, legs robust with spur of front tibia shorter than apical width of tibia and BR of all legs lower than 2.3 2

- Squama with 13-73 setae except for 4-7 setae in *M. unilinearis*, legs more slender with spur of front tibia longer than apical width of tibia and BR at least of hind leg higher than 2.2 3
2. Tergite IX consisting of two large, parallel-sided caudolateral projections with narrow basal connection ; antenna with 4 flagellomeres ; setae on wing spine-like (Fig. 2, 3 A-C) ; Holarctic
..... *M. longipennis* (Holmgren)
Tergite IX large, rounded, occasionally with indication of division ; antenna with 5 flagellomeres ; setae on wing bristle-like (Fig. 3 D-F, 4 E) ; Siberia ...
..... *M. sibiricus* (Lundström)
3. Tergite IX large, sharply triangular ; segment X with sharply pointed corners (Sæther 1977, Fig. 52 A-D) ; Nearctic *M. knabi* Coquillett
Tergite IX bluntly triangular to rounded or square ; segment X with rounded, angular or bluntly triangular corners 4
4. Front tibia without spur, gonocoxite IX swollen laterally (Cranston & Judd, Fig. 2 c-e) ; Nearctic ...
..... *M. yaquina* Cranston et Judd
Front tibia with spur, gonocoxite IX with broad apicomedian projection or relatively small without projection 5
5. Gonocoxite IX relatively large, with broad apicomedian projection 6
Gonocoxite IX relatively small, without apicomedian projection 8
6. Subcosta with 0-2 setae, cell m basally of RM with 0-9 setae ; apicomedian projection of gonocoxite IX low (Sæther 1989a, Fig. 11 E-G) ; Palaearctic ...
..... *M. ursinus* (Holmgren)
Subcosta with 43-118 setae, cell m basally of RM with 80-330 setae ; apicomedian projection of gonocoxite IX well developed 7
7. Gonocoxite IX with about 10 setae, spermathecal duct with well developed bulbs ; Palaearctic
..... *M. albolineatus* (Meigen)
Gonocoxite IX with 23-36 setae, spermathecal ducts with weak bulbs (Sæther 1989a, Fig. 8) as *M. obscuripes* ; Holarctic *M. eurynotus* (Holmgren)
8. Gonocoxite IX with about 24 setae, cercus slightly shorter than notum (Fig. 7 E) ; Palaearctic
..... *M. atriclava* Kieffer
Gonocoxite IX with 5-12 setae, cercus shorter than or distinctly longer than notum 9
9. Squama with 7 setae (Chaudhuri et al. 1989, Fig. 4e) ; India, China
..... *M. unilinearis* Chaudhuri et Bhattacharyay
Squama with more than 20 setae 10
10. Gonocoxite IX with 4-5 setae (Chaudhuri et al. 1989, Fig. 2e) ; India
..... *M. amplispinus* Chaudhuri et Bhattacharyay
Gonocoxite IX with 9-12 setae 11

11. Sternite VIII forming distinct floor, cercus shorter than notum (Fig. 5 C-F) ; Holarctic *M. intergerivus* sp. n.
Sternite VIII do not form distinct floor, cercus clearly longer than notum (Fig. 7 B-D) ; Holarctic and Oriental *M. picipes* Meigen

Note : *M. albolineatus*, *M. atriclava*, *M. intergerivus* and *M. picipes* all are tentatively associated.

3.4. The eurynotus group

Metriocnemus wangi sp. n. (Fig. 1 A)

Type material : Holotype ♂ China : Sichuan, Mt. Jinfo, 10.V.1986, X. Wang (ZMB No. 143). Paratypes 2 ♂, as holotype (XW).

Diagnostic characters : The male imago is separable from all other members of the *eurynotus* group except *M. albolineatus* by the short virgal spines (about 26 μm long), subcosta with 42-70 setae and cell m with 113-144 setae. It differs from *M. albolineatus* by having an AR of 0.5-0.6 and a much shorter anal point.

Male imago (n = 3, except when otherwise stated).

Total length 2.57-2.78 mm. Wing length 1.49-1.66 mm. Total length/wing length 1.67-1.72. Wing length/length of profemur 2.16-2.26. Coloration brownish black.

Head. AR 0.54-0.59. Ultimate flagellomere 244-263 μm long. Temporal setae 24-31, including

17-21 inner verticals, 4-6 outer verticals, and 2-4 postorbitals. Tentorium 135-148 μm long, 34-38 μm wide. Stipes 131-143 μm (2) long, 56-60 μm (2) wide. Palp segments lengths (in μm) : 32-34, 41-45, 173-186, 154-161, 173-184. Third palpal segment with 1 lanceolate apical sensillum clavatum.

Thorax. Anteprenotum with 10 setae. Dorsocentrals 34-47, including 12-19 on humeral area ; acrostichals about 21-32, prealars 25-32 ; supraalars 2-3. Scutellum with 30-42 setae.

Wing. VR 1.25-1.26. C extension 113-158 μm long. Axillary sclerite with 2-4 setae, brachiolium with 7-8, C extension with 13-24 non-marginal setae, Sc with 42-70, R with 62-68, R₁ with 40-63, R₄₊₅ with 57-115, RM with 5, M with 19-28, M₁₊₂ with 70-82, M₃₊₄ with 45-61, Cu with 36-49, Cu₁ with 33-39. Pcu with 76-118, and An with 50-58 setae. Wing membrane with setae covering most cells, with 113-144 setae in cell m basally of RM. Squama with 20-23 (2) up to 146 μm long setae.

Legs. Spur of front tibia 45-40 μm long, spurs of middle tibia 36-41 μm and 32-36 μm long, of hind tibia 56-64 μm (2) and 32-39 μm (2) long. Width at apex of front tibia 39-41 μm , of middle tibia 39-45 μm , of hind tibia 51-53 μm . Comb of 10 setae, 23-56 μm long. Tarsomere 1 of middle and hind legs each with 2 pseudospurs 23-32 μm long, tarsomere 2 of middle leg with 1 pseudospur 23 μm (2) long, tarsomere 2 of hind leg without pseudospur. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	690- 757	803- 907	524-576	288-331	217-246	146-180	80-90	0.63-0.65	2.63-2.75	2.85-2.91	2.7-3.3
p ₂	728- 860	775- 860	331-359	194-217	151-180	104-132	66-80	0.40-0.43	3.41-3.56	4.54-4.94	3.1-3.3
p ₃	794-1002	973-1087	454-501	255-298	208-241	142-161	76-90	0.46-0.47	3.21-3.28	3.90-4.17	3.8-4.4

Hypopygium (Fig. 1A). Anal point proper 24-28 μm long, tapering to pointed apex ; with 20-24 setae at base on tergite IX ; laterosternite IX with 6-8 setae.

Phallapodeme 79-94 μm long, transverse sternapodeme 75-98 μm long. Virga 26 μm (1) long, consisting of about 7 spines. Gonocoxite 219-225 μm long, inferior volsella relatively low ending at 0.58-0.60 gonocoxite length. Gonostylus

113-116 μm long, crista dorsalis bluntly triangular, megaseta 8 μm long. HR 1.93-1.97, HV 2.27-2.43.

Remarks

The species is close to *M. albolineatus* sharing the short virga and general wing chaetotaxy. However, it has a much shorter AR, more hairy wing and quite different anal point.

Metriocnemus brusti* SætherMetriocnemus brusti* Sæther, 1989a : 407

New material examined : China : Inner Mongolia, Alax, 1 ♂, 31.VIII. 1987, X. Wang (XW No. 1046) ; Qinghai, Menyuan, 1 ♂, 14.VII.1989, X. Wang (XW No. 1047).

These specimens are slightly smaller than those mentioned in Sæther (1989a), with a wing length of 1.85-1.95 mm, an AR of 1.66-1.78 ; R with only 28-35 setae, R_1 with 19-24, R_{4+5} with 21-45, Cu with 19-35, M_{3+4} with 21-44 and An with 26 setae. Other details are in accordance with the previous description.

The species was previously known from Northern Manitoba, Canada.

***Metriocnemus acutus* sp. n. (Fig. 1 B)**

Type material : Holotype ♂, Norway : Nord-Trøndelag, Høylandet, Skiftesåa, 18.VI.1988, K. Aagaard (ZMB No. 144).

Diagnostic characters : The male imago is separable from other members of the *eurynotus* group by the sharply pointed crista dorsalis ; an AR of about 2.2 ; and relatively sparsely haired wing with about 1 seta on Sc, none on M, 24 on Pcu, 6 setae in cell m, and 27 setae on squama.

Male imago (n = 1)

Total length 3.54 mm. Wing length 2.24 mm. Total length/wing length 1.58. Wing length/length

of profemur 2.52. Coloration brownish black including scutellum, haltere brown.

Head. AR 2.20. Ultimate flagellomere 728 μ m long. Temporal setae 19, including 8 inner verticals, 8 outer verticals, and 3 postorbitals. Clypeus with 39 setae. Tentorium 58 μ m long, 39 μ m wide. Stipes 150 μ m long, 101 μ m wide. Palp segments lengths (in μ m) : 38, 62, 236, 165, 156. Third palpal segment with 1 long, lanceolate apical sensillum clavatum.

Thorax : Anteprenotum with 7 setae. Dorsocentrals 67, including about 20 on humeral area ; acrostichals 38 ; prealars 43 ; supraalars 3. Scutellum with 39 setae.

Wing. VR 1.21. C extension 131 μ m long. C extension with 10 non-marginal setae, Sc with 1, R with 39, R_1 with 22, R_{4+5} with 51, RM with none, M with none, M_{1+2} with 64, M_{3+4} with 43, Cu with 20, Cu_1 with 28, Pcu with 24, and An with 26 setae. Wing membrane with setae covering most cells, but sparsely haired basally with 6 setae in cell m basally of RM. Squama with 27 setae.

Legs. Spur of front tibia 79 μ m long, spurs of middle tibia 41 μ m and 30 μ m long, of hind tibia about 80 μ m and 30 μ m long. Width at apex of front tibia 45 μ m, of middle tibia 49 μ m, of hind tibia 64 μ m. Comb with 13 setae, 38-68 μ m long. Tarsomeres 1 and 2 of middle leg each with 2 pseudospurs, 30 μ m long. Hind tarsomeres lost. Lengths (in μ m) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV
p ₁	888	1068	376	383	—	—	—	0.54	—	3.39
p ₂	926	1030	416	236	170	118	95	0.40	3.83	4.70
p ₃	1021	1276	—	—	—	—	—	—	—	—

Hypopygium (Fig. 1 B). Anal point proper 45 μ m long, tapering to narrow blunt apex ; with 44 setae at base on tergite IX ; laterosternite IX with 9 setae.

Phallapodeme 105 μ m long ; transverse sternapodeme 135 μ m long, with well developed oral projections. Virga 53 μ m long, consisting of about 10 spines.

Gonocoxite 240 μ m long, inferior volsella relatively low, ending at 0.73 of gonocoxite length. Gonostylus

109 μ m long, crista dorsalis sharply triangular, megaseta 11 μ m long. HR 2.21, HV 3.25.

Remarks

This species together with *M. dentipalpus* sp. n. and *M. brusti* apparently form a monophyletic group. It differs from the other two species in having a sharply pointed crista dorsalis, higher antennal ratio, longer costal extension, generally fewer setae on the wing, but more numerous acrostichals and dorsocentrals (especially on the humeral area).

Fig. 1. *Metriocnemus* spp., male imagines : A. *M. wangi* sp. n., hypopygium ; B. *M. acutus* sp. n., hypopygium ; C-D. *M. dentipalpus* sp. n., palp (C) and hypopygium (D) ; E. *M. calvescens* sp. n., hypopygium.

Fig. 1. *Metriocnemus* spp., imagos mâles : A. *M. wangi* n. sp., hypopyge ; B. *M. acutus* n. sp., hypopyge ; C-D. *M. dentipalpus*, n. sp., palpe (C) et hypopyge (D) ; E. *M. calvescens* n. sp., hypopyge.

***Metriocnemus dentipalpus* sp. n (Fig. 1 C, D)**

Type material : Holotype ♂, China : Xizang (Tibet), Dingri, 16.IX.1987, C. Deng. (ZMB No. 145).

Diagnostic characters : The male imago can be separated from the similar *M. brusti* and *M. acutus* by having 20 setae on vein M, an AR of 1.43, palp with a small apical tooth on each of palpomeres 3 and 4, and anal point with concave margins.

Male imago (n = 1)

Wing length 2.12 mm. Wing length/length of pro-femur 2.57. Coloration dark brown including scutellum, halteres brown.

Head. AR 1.43. Ultimate flagellomere 510 μm long. Temporal setae 20, including 8 inner verticals, 6 outer verticals, and 6 orbitals. Clypeus with 29 setae. Tentorium 161 μm long, 47 μm wide. Stipes 161 μm long, 60 μm wide. Palp segments lengths (in μm) : 38, 64, 165, 169, 150. Third palpomere (Fig. 1 C) with 2 preapical lanceolate sensilla clavata and

small sclerotized apical tooth, fourth flagellomere with similar apical tooth.

Thorax. Antepronotum with 9 setae. Dorsocentrals about 30, including 8 on humeral area ; acrostichals about 15 ; prealars 29 ; supraalars 2. Scutellum with about 34 setae.

Wing. VR 1.11. C extension 94 μm long. Brachiolum with 6 setae, extension with 11, Sc with 3, R with 29, R₁ with 34, R₄₊₅ with 32, RM with 4, M with 20, M₁₊₂ with 48, M₃₊₄ with 33, Cu with 38, Cu₁ with 25, Pcu with 8, and An with 40 setae. Wing membrane with setae covering most cells, but sparsely haired basally with 27 setae in cell m basad of RM. Squama with 27 setae, 41-109 μm long.

Legs. Spur of front tibia 68 μm long, spurs of middle tibia 47 μm and 38 μm long, of hind tibia 98 μm and 38 μm long. Width at apex of front tibia 49 μm , of middle tibia 49 μm , of hind tibia 60 μm long. Comb of 10 setae, 26-60 μm long. Tarsomere 1 of middle and hind legs each with 2 pseudospurs 26-34 μm long, tarsomeres 2 without pseudospurs. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	822	907	510	321	236	151	113	0.56	2.72	3.39	3.1
p ₂	851	879	350	208	161	123	95	0.40	3.49	4.95	2.7
p ₃	931	1106	539	312	236	151	113	0.49	3.17	3.78	5.0

Hypopygium (Fig. 1 D). Anal point proper 43 μm long, tapering to blunt apex ; with 29 setae at base on tergite IX ; laterosternite IX with 7 setae. Phal-lapodeme 88 μm long, transverse sternapodeme 126 μm long. Virga 49 μm long, consisting of about 10 spines. Gonocoxite 248 μm long ; inferior volsella low, ending at 0.72 gonocoxite length, but with a distinct angle at 0.60. Gonostylus 116 μm long ; crista dorsalis small, bluntly triangular, megaseta 11 μm long. HR 2.13.

Remarks

This species is very close to *M. brusti* differing primarily in the more numerous setae on M, the teeth on the palp and possibly in details of the hypopygium.

***Metriocnemus eurynotus* (Holmgren)**

Chironomus eurynotus Holmgren, 1883 : 179

Chironomus obscuripes Holmgren, 1869 : 38, preoccupied by *Chironomus obscuripes* Meigen, 1830 : 244 (= *Glyptotendipes glaucus* Meigen, 1818) Nomenclatorial note : The junior homonymy was overlooked by Sæther (1989a : 410) as well as by Ashe & Cranston (1990 : 199, 282), but is mentioned by Sublette & Sublette (1965 : 161). A more complete list of synonyms is given in Sæther (1989a).

New material examined : China : Ghasu, Hezo, 1 ♂, 16.VII.1986, X. Wang, Sichuan, Mt. Jinpo, 1 ♂, 9.V.1986, X. Wang (XW). Burma : Kambaiti, 2 000 m.a.s.l., 5 ♂, 1 ♀, 1934, Malaise (No. 230b) (ZMB). Norway : Hedmark, Storelvdal, Storbekken, Malaise trap at stream, 2 ♂, 29.VIII.1988,

K. Aagaard (KA) ; Oppland, Dovre, Atna river, Skranglehaugan, Malaise traps, 6 ♂, 18.VI.-8.VIII.1986, K. Aagaard (KA) ; Oppland, Dovre, Atna river, Dørålseter, Malaise traps, 4 ♂, 25.VI.-16.VIII.1986, K. Aagaard (KA) ; Nord Trøndelag, Høylandet, Skiftesåa, trap no.2, 3 ♂, 18.VI.-30.VII.1986, K. Aagaard (KA).

Remarks

Sasa et al. (1988 : 53) mentions *M. eurynotus* (as *hygropeticus*) from Japan. According to their figures of the wing and the hypopygium their species, however, most likely is *M. brusti*. The present record from China thus is the most easterly Palaearctic record.

Metriocnemus ursinus (Holmgren)

Chironomus ursinus Holmgren, 1869 : 30.

New material examined : Norway : Svalbard, Spitzbergen, on *Deschampsia*, 1 ♂, 9.VII.1975, KFNI (KA).

Metriocnemus calvescens sp. n. (Fig. 1 E)

Type material. Holotype ♂, China : Quinghai, Menyuan, 13.VII.1989, W. Wei (ZMB No. 145).

Diagnostic characters : The male imago can be separated from similar *M. ursinus* by its smaller size (wing length about 2.5 mm), only 27 setae in cell r_{4+5} , only 27 setae on squama, only 26 setae on scutellum, and presence of pseudospurs on front metatarsus.

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	879	1058	633	387	246	151	113	0.60	2.86	3.06	3.1
p ₂	964	1068	397	250	180	128	109	0.37	3.65	5.12	2.5
p ₃	1040	1304	643	369	284	161	123	0.49	3.19	3.65	5.0

Hypopygium (Fig. 1 E). Anal point proper 41 µm long, nearly parallel-sided with rounded apex ; with 39 setae at base on tergite IX ; laterosternite IX with 10 setae. Phallapodeme 113 µm long, transverse sternapodeme 116 µm long. Virga 45 µm long, consisting of about 10 spines. Gonocoxite 263 µm long ; inferior volsella very low, ending at 0.79 gonocoxite length. Gonostylus 124 µm long, crista dorsalis bluntly triangular, megaseta 11 µm long. HR 2.12, HV 3.23.

Male imago (n = 1)

Total length 4.00 mm. Wing length 2.51 mm. Total length/wing length 1.59. Wing length/length of profemur 2.86. Coloration brownish black including scutellum, haltere brown.

Head. AR 2.60. Ultimate flagellomere 829 µm long. Temporal setae 26, including 12 inner verticals, 8 outer verticals, and 6 postorbitals. Clypeus with 30 setae. Tentorium 191 µm long, 56 µm wide. Stipes 165 µm long, 94 µm wide. Palp segments lengths (in µm) : 49, 75, 248, 184, 191. Third palpal segment with 1 lanceolate sensillum clavatum.

Thorax. Anteprenotum with 9 setae. Dorsocentrals 48, including 11 on humeral area ; acrostichals apparently few in number ; prealars 41 ; supraalars 4. Scutellum with 26 setae.

Wing. VR 1.20. C extension 116 µm long. Brachiolium with 6 setae, C extension with 4, R with 17, R₁ with 5, R₄₊₅ with 6, M₁₊₂ with 5, M₃₊₄ with 13, Cu with 1, Cu₁ with 4, An with 9 setae, other veins bare. Wing membrane with 27 setae in cell r_{4+5} , other cells bare. Squama with 27 setae, 79-210 µm long.

Legs. Spur of front tibia 94 µm long, spurs of middle tibia 41 µm long and 34 µm long, of hind tibia 90 µm and broken. Width at apex of front tibia 56 µm, of middle tibia 53 µm, of hind tibia 64 µm. Tarsomeres 1 and 2 on middle and hind legs each with 2 pseudospurs 30-38 µm long. Lengths (in µm) and proportions of legs :

Remarks

This species apparently forms the sister species of *M. ursinus*.

Metriocnemus longipennis (Holmgren) (Figs 2, 3 A-C)

Smittia longipennis (Holmgren), 1883 : 18.

Dolichoprymna longipennis (Holmgren) ; Lundström 1915 : 22.

Metriocnemus longipennis (Holmgren) ; Edwards 1929 : 357 ; Sæther 1986 : 215, 1989a : 421.

New material examined : Russia : Siberia, New Siberian Islands, Holzgebirge, 1 ♂, 2 ♀, 16-19.VI.1903, M.I. Brussnew ; Chara Ullach Mts, at Chara-Ullach river, 1 ♀, 27.VI.1902, M.I. Brussnew (ZIS).

The male imago was described by Sæther 1989a : 421. The male examined here is slightly larger (gonostylus length 221 μm) and has generally higher chaetotaxy with 13 setae on squama, 52 dorsocentrals, 38 acrostichals, 7 preepisternals and 37 setae on scutellum. In other details it is nearly identical with the Nearctic specimens.

Diagnostic characters for the female imago : The two, large, parallel-sided, caudolateral projections with relatively narrow basal connection constituting tergite IX will separate the species from all other known species of the genus. The spine-like setae on the wing as well as the antenna with only 4 flagellomeres also are unique within the genus.

Female imago ($n = 3$, except when otherwise stated)

Total length 5.23-5.43 mm. Wing length 1.73-2.12 mm. Total length/wing length 2.47-3.09. Wing length/length of profemur 1.69-2.04. Coloration brown including wing and haltere.

Head (Fig. 2 A). AR 0.65-1.10. Lengths (in μm) of flagellomeres (Fig. 2 B) : 101-150, 56-71, 43-75, 143-255. Longest sensilla chaetica on flagellomeres 23-26 μm long. Pedicel with 1-7 setae. Temporal setae 48-57, including 23-32 inner verticals, 12-13 outer verticals, and 10-14 postorbitals. Clypeus with

35-38 setae. Tentorium 169-244 μm long, 26-38 μm wide. Stipes 169 μm (1) long, 101 μm (1) wide. Palp segments length/width (in μm) : 45-49/41-45, 56-73/64, 113-135/60-71, 83-98/60-73, 86-105/41-58. Coronal suture absent.

Thorax (Fig. 2 C). Anteprenotum with 16-23 lateral setae. Dorsocentrals 67-72, acrostichals 38-39 (2), prealars 30-39, supraalars 5-6, preepisternals 0-1. Scutellum with 46-50 setae.

Wing (Fig. 2 D-E). VR 1.04-1.08. Shape quite variable, anal lobe absent to relatively well developed. C extension 38-79 μm (2) long. Brachiolum with 10-11 setae, C extension with 4-6 (2) non-marginal setae, Sc with 1-6, R with 58-67, R_1 with 38-50, R_{4+5} with 60-95, RM with 0-3, M with 11-20, M_{1+2} with 33-49, M_{3+4} with 51-66, Cu with 36-50, Cu_1 with 38-40, Pcu with 0-2, An with 48-70 setae. Wing membrane with 1-5 setae in cell c, cell m basally of RM with 36 setae, cell m_{1+2} with 44-94, cell m_{3+4} with 4-35, cell cu_1 with 6-56, and cell an with 46-190 setae. Axillary sclerite with 2-3 (2) setae. Squama with 4-10 setae.

Legs. Spur of front tibia 60-64 μm long, spurs of middle tibia 49-60 μm and 53 μm long, of hind tibia 113 μm and 23-49 μm long. Width at apex of front tibia 83-90 μm , of middle tibia 94 μm , of hind tibia 90-113 μm . Comb with 13-17 setae, longest seta 71-75 μm long, shortest seta 41-49 μm long. Tarsomeres of middle leg with 3 pseudospurs, ta_2 of middle leg with 1-2, ta_1 of hind leg with 3-6 (2), ta_2 of hind leg with 24, ta_3 with 1-2 pseudospurs ; pseudospurs 34-53 μm long. Lengths (in μm) and proportions of legs ($n = 2-3$) :

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5	LR	BV	SV	BR
p_1	945-1040	1068-1106	520-567	288-293	217	170 (1)	161 (1)	0.49-0.52	3.22 (1)	3.78-4.05	1.0-1.1
p_2	1081-1229	1096-1229	406-501	246-274	180-198	104-161	142-161	0.37-0.41	3.70-3.86	4.78-5.57	1.2 (1)
p_3	1295-1323	1427-1607	690-784	359-454	331-378	189	151-170	0.48-0.50	3.12-3.31	3.33-3.95	1.0-1.4

Genitalia (Figs 2 F, 3 A-C). Sternite VIII with 52-65 setae. Gonocoxite large, digitiform projection, with rounded apex, with 28-36 setae. Tergite IX (Fig. 3 E) deeply divided into two large, parallel-sided, digitiform projections, with basal connection, shorter than projections, altogether with 46-50 setae. Cercus 169-206 μm long. Seminal capsule

199-255 μm long, including neck, stronger sclerotized in apical 128-143 μm , 150-165 μm wide. Notum 225-248 μm (2) long.

Remarks

The peculiar shape of tergite IX of the female taken together with the other aberrant features of

Fig. 2. *Metriocnemus longipennis* (Holmgren), female imago : A. Head ; B. Antenna ; C. Thorax ; D-E. Variation in wings ; F. Genitalia, lateral view.

Fig. 2. *Metriocnemus longipennis* (Holmgren), imago femelle : A. Tête ; B. Antenne ; C. Thorax ; D-E. Variation des ailes ; F. Genitalia, vue latérale.

this species appears to warrant a separate genus for the species. However, *M. sibiricus* described below has female genitalia quite normal for *Metriocnemus*, and the male is clearly close to *M. longipennis*.

***Metriocnemus sibiricus* (Lundström)**

(Figs 3 D-G, 4)

Arctomyia sibirica Lundström, 1915 : 19.

Metriocnemus sibiricus (Lundström), Edwards 1929 : 357, Sæther 1989a : 398.

Metriocnemus (Arctomyia) sibiricus (Lundström) ; Goetghebuer 1940-50 : 8, 25.

Type material : Lectotype ♂, here designated, Russia : New Siberian Island, south coast, « Holzgebirge », 16.VI.1903, M. I. Brussnew (ZIS). Paralectotypes 6 ♂, 3 ♀, as lectotype except 16-23.V.1903 ; New Siberian Islands, Kotelnij Island, 1 ♂, 5.VIII.1901, K. A. Wollosowitsch (ZIS).

Diagnostic characters. The flattened scutum, compressed and triangular preepisternum, short and thick palps etc. will separate the imagines from other *Metriocnemus* except *M. longipennis*. The male imago has shortened wings and reduced antennal plume as in *M. longipennis*, but 12-13 flagellomeres, normal setae on wing membrane and gonostylus with large median projection. The female imago can be separated from *M. longipennis* by having a large, rounded tergite IX with only indication of a division and 5 flagellomeres.

Male imago (n = 6-8)

Total length 3.49-4.25, 3.84 mm. Wing length 1.35-1.78, 1.60 mm. Total length/wing length 2.16-2.58, 2.38. Wing length/length of profemur 1.38-1.63, 1.53. Coloration brown, haltere and wing included.

Head (Fig. 4 C). AR 0.47-0.51, 0.49. 11-12, 12 flagellomeres ; flagellomere 1-5 and ultimate with sensilla chaetica ; ultimate flagellomere 229-266, 244 μm long. Temporal setae 22-48, 32 ; including 16-40, 24 inner verticals ; 3-6, 4 outer verticals ; and 3-4, 4 outer verticals. Clypeus with 10-29, 20 setae.

Tentorium (Fig. 4 B) 150-206, 177 μm long ; 26-38, 33 μm wide ; with microtrichia in anterior half. Stipes 131-173, 160 μm long ; 60-105, 80 μm wide. Palp segments length/width in μm : 34-49, 41/38-53, 45 ; 45-71, 60/45-60, 46 ; 120-146, 131/41-56, 51 ; 83-109, 99/49-53, 51 ; 94-120, 102/38-47, 42. Coronal suture complete in 3 specimens ; 56-150, 107 μm long in 5 specimens.

Thorax (Fig. 4 A). Anteprepronotum with 2-12, 8 setae. Scutum flattened ; preepisternum compressed and triangular ; dorsocentrals 26-46, 35 ; acrostichals 8-21, 15 ; prealars 15-25, 21 ; supraalars 1-3, 2 ; preepisternum occasionally with indication of single seta (2 of 8 specimens). Scutellum with 25-40, 32 setae.

Wing (Fig. 4 D). VR 1.06-1.15, 1.12. C extension 64-98, 84 μm long. Wing narrow with weak anal lobe. Brachiolium with 3-6, 5 setae ; C extension with 3-12, 6 non-marginal setae ; Sc with 4-20, 11 setae ; R with 22-38, 30 ; R₁ with 20-32, 25 ; R₄₊₅ with 18-42, 31 ; M with 0-2, 0 ; RM without ; M₁₊₂ with 0-22, 9 ; M₃₊₄ with 48-70, 61 ; Cu with 31-42, 36 ; Cu₁ with 30-38, 33 ; Pcu with 0-4, 1 ; and An with 38-50, 42 setae. Wing membrane with 3-15, 7 setae in cell basally of RM ; cells c, r, and sc occasionally each with 1 seta ; cell r₄₊₅ with about 63-215, 150 setae ; m₁₊₂ with about 32-200, 110 setae ; m₃₊₄ with 11-39 setae ; and cell an with about 85-220, 170 setae. Axillary sclerite with 1-2, 1 seta. Squama with 3-10, 7 setae ; shortest seta 38-56, 50 μm long ; longest seta 94-135, 111 μm long.

Legs. Spur of front tibia 41-64, 54 μm long ; spurs of middle tibia 41-53, 44 μm and 34-49, 40 μm long ; of hind tibia 64-83, 79 μm and 30-45, 38 μm long. Width at apex of front tibia 56-75, 68 μm ; of middle tibia 58-98, 73 μm ; of hind tibia 75-94, 87 μm . Comb of 12-14, 15 setae ; shortest seta 26-38, 52 μm ; longest seta 56-68, 61 μm long. Tarsomeres 1 and 2 of middle and hind leg each with 2 pseudospurs 19-38, 28 μm long ; or tarsomere 1 of middle leg occasionally with 3 pseudospurs. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	832-1134, 1050	907-1200, 1070	506-652, 587	302-406, 345	232-302, 225	170-224, 162	123-161, 140	0.54-0.57, 0.55	2.67-5.07, 2.89	3.44-3.71, 3.59	1.5-1.9, 1.7
p ₂	851-1125, 1025	907-1162, 1067	350-444, 409	217-284, 256	180-208, 197	142-170, 152	104-151, 128	0.37-0.40, 0.39	3.23-3.58, 3.31	4.90-5.42, 5.09	1.3-2.0, 1.7
p ₃	936-1210, 1101	1057-1433, 1290	567-747, 666	331-406, 364	255-340, 296	161-227, 188	123-161, 142	0.49-0.53, 0.52	2.90-3.34, 3.10	3.51-3.70, 3.59	1.6-2.0, 1.9

Fig. 3. *Metriocnemus* spp., female genitalia : A-C. *M. longipennis* (Holmgren), ventral view (A), dorsal view (D), and lobes of gonapophyses (C) ; D-G. *M. sibiricus* (Lundström), ventral view (D), dorsal views (E-F), and lobes of gonapophyses (G). (DmL, dorso-mesal lobe ; VIL, ventrolateral lobe ; ApL, apodeme lobe).

Fig. 3. *Metriocnemus* spp., genitalia femelle : A-C. *M. longipennis* (Holmgren), vue ventrale (A), vue dorsale (D), et lobes des gonapophyses (C) ; D-G. *M. sibiricus* (Lundström), vue ventrale (D), vues dorsales (E-F), et lobes des gonapophyses (G). (DmL, lobe dorsomésal ; VIL, lobe ventrolatéral ; ApL, lobe apodème).

Hypopygium (Fig. 4 F). Anal point proper 45-64, 51 μm long; tapering to blunt apex; tergum IX with 18-31, 24 setae; laterosternite IX with 5-12, 8 setae. Virga consisting of cluster of about 12 spines; 53-64, 59 μm long. Gonocoxite 330-431, 380 μm long; inferior volsella very low; ending at 0.730.82, 0.77 of gonocoxite length. Gonostylus 139-173, 158 μm long; with large median projection, narrow apex and long and relatively low crista dorsalis; megaseta 13-15, 15 μm long. HR 2.33-2.50, 2.40; HV 2.08-2.69, 2.43.

Female imago ($n = 3$, except when otherwise stated)

Total length 3.85-3.92 mm. Wing length 1.91-1.98 mm. Total length/wing length 1.98-2.00. Wing length/length of profemur 2.20-2.39. Coloration as in male or slightly more pale.

Head. AR 0.34-0.53. Lengths (in μm) of flagellomeres: 113-128, 56-71, 68-71, 64-88, 109-150. Longest sensilla chaetica on flagellomeres 30 μm long. Pedicel bare. Temporal setae 34-36, including 27-30 inner verticals, 2-4 outer verticals, and 3 postorbitals. Clypeus with 20-23 setae. Tentorium 150-191 μm long, 26-34 μm wide. Stipes 134-165 μm long, 75-83 μm wide. Palp segments lengths (in μm): 38-41, 45-49, 90-101, 83-86 (2), 105-113 (2). Coronal suture absent or divided into two sutures 53-75 μm (2) and 9-38 (2) μm long.

Thorax. Antepronotum with 9-10 lateral setae. Dorsocentrals 36-47, acrostichals 24-27, prealars 20-24, supraalars 2-3, preepisternals absent. Scutellum with 32-36 setae.

Wing (Fig. 4 E). VR 1.01-1.17. C extension 98-109 μm long. Brachiolum with 7-9 setae, C extension with 5-8 non-marginal setae, Sc with 9-12, R with 31-35, R_1 with 24-30, R_{4+5} with 22-31, RM and M without, M_{1+2} with 3-8, M_{3+4} with 56-69, Cu with 32-44, Cu_1 with 33-39 (2), Pcu with 0-6, and An with 51-62 setae. Wing membrane with 9-36 setae in cell m basally of RM, cell r_{4+5} with about 180-215, cell m_{1+2} with about 160-200, cell m_{3+4} with 56-77 (2), cell cu_1 with 6-44 (2), cell m_{3+4} with 56-77 (2), cell pcu with 0-4, and cell an with about 200-250 setae. Setae on axillary sclerite not observable. Squama with 7-10 setae.

Legs. Spur of front tibia 56 μm long, spurs of middle tibia 41-45 μm and 38 μm long, of hind tibia 75-83 μm and 34-38 μm long. Width at apex of front tibia 64-68 μm , of middle tibia 47-68 μm , of hind tibia 60-83 μm . Comb of 11-15 setae, longest seta 45-68 μm long, shortest seta 30-38 μm long. Tarsomere 1 of middle and hind leg with 2 pseudospurs each; Tarsomere 2 of middle leg with 1-2 pseudospurs, of hind leg with 0-2 pseudospurs; pseudospurs 26-38 μm long. Lengths (in μm) and proportions of legs:

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	803-888	856-926	468-520	284-293	208-227	156-170	113-132	0.55-0.57	2.77-2.92	3.36-3.54	1.5-2.0
p ₂	882-936	898-992	350-378	208-222	161-170	123-142	113-118	0.36-0.39	3.31-3.64	4.95-5.28	1.5-1.8
p ₃	940-1030	1162-1257	567-624	321-350	274-284	151-170	113-128	0.49-0.50	3.07-3.21	3.66-3.71	2.0-2.2

Genitalia (Figs 3 D-G). Sternite VIII with 32-49 setae. Gonocoxite with knoblike, rounded apical projection, with 20-25 setae. Tergite IX (Figs 3 E, F), undivided to slightly divided, sometimes unsymmetrical with 29-43 setae. Segment X with caudolateral, rounded projections. Cercus 143-146 μm long. Seminal capsule 165-188 μm , stronger sclerotized in apical 105-160 μm (2), 135-150 μm (2) long. Spermathecal ducts with small bulbs before partially common opening. Notum 139-173 μm long.

Remarks

The wing chaetotaxy, especially the number of setae in cells r_{4+5} , m_{1+2} and m_{3+4} is very variable in the species. Also the thoracic chaetotaxy is quite variable with for instance 2-12 antepronotal setae. However, this can be expected in an aberrant species with adaptations to ground mating.

Fig. 4. *Metriocnemus sibiricus* (Lundström), imago : A. Male thorax ; B. Tentorium, stipes and cibarial pump of male ; C. Head of male ; D. Wing of male ; E. Wing of female ; F. Male hypopygium.

Fig. 4. *Metriocnemus sibiricus* (Lundström), imago : A. Thorax mâle ; B. Tentorium, stipes et pompe cibariale de mâle ; C. Tête de mâle ; D. Aile de mâle ; E. Aile de femelle ; F. Hypopyge mâle.

***Metriocnemus caudigus* sp. n.** (Fig. 5 A, B)

Type material : Holotype ♂, Norway : Nord Trøndelag, Høylandet, Skiftesåa, 18.VI.1986, K. Aagaard (ZMB No. 147). Paratype ♂ as holotype (KA) ; Hordaland, Bergen, at Skomakerdiket, 1 ♂, 17.VI.1987, A. Fjeldså (ZMB).

Diagnostic characters : The male imago is easily separable from other members of the *eurynotus* group by means of the slender gonostylus with the long and low crista dorsalis, the robust and long anal point, and an AR of 1.3-1.5.

Male imago (n = 3 except when otherwise stated)

Total length 2.51-3.13 mm. Wing length 1.50-1.77 m. Total length/wing length 1.67-1.78. Wing length/length of profemur 2.43-2.53. Coloration brown, haltere pale brown, squama brown, rest of wing nearly transparent.

Head. AR 1.29-1.53. Ultimate flagellomere 425-520 μm long. Temporal setae 21-27, including 11-17 inner verticals, 4-5 outer verticals, and 5-6 post-orbitals. Clypeus with 25 setae. Tentorium 154-161 μm long, 34-47 μm wide. Stipes 131-150 μm

long, 68-75 μm wide. Palp segments lengths (in μm , n = 23) : 34-41, 41-64, 135-169, 113-116, 128-129.

Thorax. Anteprenotum with 9-19 setae. Dorso-centrals 54-61, acrostichals 38-40, prealars 34-38, supraalars 3. Scutellum with 29-40 setae.

Wing. VR 1.19-1.25. C extension 75-106 μm long. Brachiolium with 5-7 setae, C extension with 12-21 non-marginal setae, Sc with 22-39, R with 48-56, R₁ with 38-55, R₄₊₅ with 63-92, RM with 4-7, M with 8-24, M₁₊₂ with 78-82, M₃₊₄ with 35-53, Cu with 42-54, Cu₁ with 25-34, Pcu with 58-77, An with 40-52 setae. Wing membrane with setae covering most cells, with 33-56 setae in cell m basally of RM. Axillary sclerite with 4 setae. Squama with 18-23 setae, 45-176 μm long.

Legs. Spur of front tibia 64-83 μm long, spurs of middle tibia 34-41 μm and 30-39 μm long ; of hind tibia 64-84 μm and 30-36 μm long. Width at apex of front tibia 38-49 μm , of middle tibia 45-49 μm , of hind tibia 56-64 μm . Comb of 10-12 setae, 30-64 μm long. Tarsomere 1 of middle and hind leg and ta₂ of middle leg each with 2 pseudospurs, 23-38 μm long. Lengths (in μm) and proportions of legs (n = 2-3 on ta₁-ta₅) :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR (n = 1)
p ₁	614-699	756- 926	387-435	246-279	175-189	113-128	76	0.51-0.52	2.86-2.88	3.41-3.54	2.5
p ₂	662-779	756- 851	293-340	161-198	125-156	76-109	66-85	0.39-0.40	3.59-4.02	4.74-4.84	2.5
p ₃	662-803	936-1153	406-491	217-246	184-198	99-113	71-76	0.43-0.45	3.46-3.50	3.82-3.98	4.1

Hypopygium (Fig. 5 A, B). Anal point proper 49-68 μm long, 38-60 μm wide at base, 8-11 μm wide at apex ; with 21-28 setae at base on tergite IX ; laterosternite IX with 3-6 setae. Phallapodeme 98-116 μm long, transverse sternapodeme 105 μm long. Virga 53-56 μm long, consisting of cluster of about 10 spines. Gonocoxite 214-236 μm long, inferior volsella low, ending at 0.70-0.75 gonocoxites length. Gonostylus 116-120 μm long, parallel-sided, with long and low crista dorsalis ; megaseta 11-17 μm long. HR 1.84-1.97, HV 2.17-2.74.

***Metriocnemus intergerivus* sp. n.** (Fig. 5 C-F)

Type material : Holotype ♂, Canada : Manitoba, Lake Winnipeg, 2 mi. off Grand Rapids, 13.VII.1969, S.S. Chang (ZMB No. 148). Para-

types : 1 ♂ as holotype ; 2 ♂ as holotype except Pine Dock 10.VIII.1969 ; 1 ♂ as holotype except 6 1/2 mi. off Sturgeonskin Pt. 14.VIII.1969 ; 5 ♂, 2 ♀, as holotype except 1 1/4 mi. off McCreary Island 15.VIII.1969 ; 1 ♂ as holotype except Gull Harbour 15.VIII.1969 ; 1 ♂ as holotype except Government Dock, Victoria Beach 25.VIII.1969 ; 1 ♂ as holotype except 2 1/2 mi. offshore Horse Island 29.VIII.1969 ; 1 ♂ except 20 mile Creek 26.VIII.1971, E. Johnson and M. Roberts. Other material : Norway, Nordland, Bodø, Isvik, 1 ♂, 8.VII.1982, A. Fjeldså (ZMB).

Diagnostic characters : The male imago combines the well developed virga of the *eurynotus* group with the low crista dorsalis, weak anal point, and

Fig. 5. *Metriocnemus* spp., imagines : A-B. *M. caudigus* sp. n., male ; hypopygium of holotype (A), anal point of paratype (B) ; C-G. *M. intergerivus* sp. n. ; C. male hypopygium ; D-G. Female genitalia, ventral view (D), dorsal view (E), ventrolateral view of floor (F), lobes of gonapophyses (G). (Dml, dorsomesal lobe ; VIL, ventrolateral lobe ; Apl, apodeme lobe).

Fig. 5. *Metriocnemus* spp., imagos : A-B. *M. caudigus* n. sp., mâle : hypopyge de l'holotype (A), pointe anale du paratype (B) ; C-G. *M. intergerivus* n. sp. : C. hypopyge mâle ; D-G. Genitalia femelle, vue ventrale (D), vue dorsale (E), vue ventrolatérale du plancher (F), lobes des gonapophyses (G). (Dml, lobe dorsomésal ; VIL, lobe ventrolatéral ; Apl, lobe apodème).

low inferior volsella with apical low bulge typical of the *fuscipes* group. The AR is 2.0-2.4. The female imago has rounded tergite IX ; small gonocoxite IX without apicomedian projection, with 9-10 setae ; sternite VIII forming floor under vagina and cercus shorter than notum.

Male imago (n = 10-13)

Total length 2.91-3.75, 3.46 mm. Wing length 1.85-2.19, 2.00. Total length/wing length 1.57-1.85, 1.74. Wing length/length of profemur 2.41-2.64, 2.48. Coloration brownish black including scutellum, haltere brown.

Head. AR 2.04-2.38, 2.17. Ultimate flagellomere 643-747, 692 μm long. Temporal setae 29-47, 37 ; including 8-22, 14 inner verticals ; 9-21, 14 outer verticals ; and 6-16, 9 postorbitals. Clypeus with 29-52, 42 setae. Tentorium 134-170, 150 μm long ; 41-49, 44 μm wide. Palp segments lengths (in μm) : 28-37, 32 ; 48-63, 53 ; 196-243, 226 ; 133-167, 150 ; 167-196, 182. Third palpal segment with 2 lanceolate sensilla clavata.

Thorax. Antepronotum with 14-22, 18 setae. Dorsocentrals 59-78, 66 ; acrostichals 21-30, 25 ; prealars

54-73, 62 ; supraalars 3-5, 4. Scutellum with 39-45, 42 setae.

Wing. VR 1.18-1.24, 1.21. C extension 48-82, 68 μm long. Brachiolium with 10-15, 13 setae ; C extension with 12-18, 15 non-marginal setae ; Sc with 7-24, 14 ; R with 52-73, 63 ; R_1 with 42-58, 50 ; R_{4+5} with 56-80, 66 ; RM With 1-7, 4 ; M with 20-31, 23 ; M_{1+2} with 53-106, 71 ; M_{3+4} with 37-52, 44 ; Cu with 36-51, 40 ; Cu_1 with 20-33, 26 ; Pcu with 24-72, 44 ; and An with 24-72, 44 setae. Wing membrane with setae covering most cells ; with 24-65, 40 setae in cell m basally of RM. Axillary sclerite with 4-7, 6 setae. Squama with 43-64, 53 setae ; longest seta 173-244, 214 μm long ; shortest seta 49-94, 58 μm long.

Legs. Spur of front tibia 78-92, 85 μm long ; spurs of middle tibia 35-43, 39 μm and 32-41, 37 μm long ; of hind tibia 78-94, 84 μm and 32-43, 37 μm long. Width at apex of front and middle tibia 46-53, 50 μm ; of hind tibia 57-68, 62 μm . Comb with 9-12, 11 setae ; longest seta 45-63, 55 μm ; shortest seta 22-32, 27 μm long. Tarsomeres 1 and 2 of middle and hind legs each with 2 pseudospurs ; 22-49, 29 μm long. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	756-866, 803	857-1009, 950	524-605, 568	330-334, 350	213-253, 230	133-160, 146	87-107, 97	0.59-0.61, 0.60	2.72-2.95, 2.83	3.03-3.13, 3.08	3.0-3.5, 3.2
p ₂	807-908, 865	840-1067, 943	326-401, 361	196-231, 214	146-173, 159	103-127, 114	85-103, 93	0.37-0.40, 0.38	3.56-3.96, 3.75	4.88-5.18, 5.02	3.5-4.8, 4.1
p ₃	857-992, 923	1148-1294, 1204	469-585, 523	283-367, 306	220-256, 237	130-160, 145	90-120, 107	0.41-0.46, 0.44	3.06-3.46, 3.54	3.90-4.26, 4.07	5.3-8.7, 6.9

Hypopygium (Fig. 5 C). Anal point proper 15-26, 22 μm long ; weak and tapering ; with 44-65, 56 strong setae at base on tergite IX ; lateros-ternite IX with 7-12, 10 setae. Phallapodeme 100-117, 107 μm long ; apodeme lobe well sclerotized ; transverse sternapodeme 102-129, 111 μm long with well developed, knob-like oral projections. Virga 19-26, 23 μm long ; consisting of about 14 spines. Gonocoxite 193-250, 228 μm long ; intergonocoxal plate conspicuous, well sclerotized ; inferior volsella low ; ending at 0.78-0.89, 0.81 of gonocoxite length, with slight apical hump. Gonostylus 95-112, 103 μm long ; narrow with low and long crista dorsalis ; megaseta 8-15, 12 μm long. HR 1.93-2.38, 2.21 ; HV 3.06-3.69, 3.31.

Female imago (n = 2)

Total length 2.64-3.23 mm. Wing length 1.36-1.78 mm. Total length/wing length 1.81-1.91. Wing length/length of profemur 2.65-2.82. Coloration slightly more pale than in male.

Head. AR 0.24-0.27. Lengths (in μm) of flagellomeres : 96-113, 60-75, 56-75, 60-71, 71-94. Longest sensilla chaetica on flagellomeres 60-66 μm long. Temporal setae 40-49, including 28-36 inner verticals, 12 outer verticals, and 1-2 postorbitals. Clypeus with 29-34 setae. Tentorium 143 μm long, 24-26 μm wide. Stipes 139-153 μm long, 45-56 μm wide. Palp segments lengths (in μm) : 96-113, 60-75, 56-75, 60-71, 71-94. Coronal suture absent.

Thorax. Antepronotum with 10-23 setae. Dorsocentrals 72 including 30-40 on humeral area, acrostichals 28, prealars 44-107, supraalars 3-4. Scutellum with 35 setae.

Wing. VR 1.21-1.23. C extension 67-83 μm long. Brachiolum with 8-12 setae, C extension with 16-19 non-marginal setae, Sc with 20-46, R with 65-72, R_1 with 67-80, R_{2+3} with 4-10, R_{4+5} with 111-117,

RM with 8, M with 25-43, M_{1+2} with 80-99, M_{3+4} with 40-42, Cu with 36-45, Cu_1 with 23-37, Pcu with 53-81, An with 31-71 setae. Wing membrane with setae in most cells, with 56-113 setae in cell m basally of RM. Squama with 21-32 setae.

Legs. Spurs, tibia width, comb and pseudospurs as in male. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	483-672	592-773	350-483	243-306	157-190	93-123	70-90	0.59-0.62	2.53-2.72	2.99-3.07	2.8-2.9
p ₂	592-773	639-857	240-326	147-190	103-143	65-97	57-80	0.38-0.39	3.84-3.95	5.03-5.13	2.8-3.6
p ₃	632-866	798-1059	377-483	216-279	183-240	89-133	75-97	0.46-0.47	3.21	3.79-3.99	5.1

Genitalia (Figs 5 D-G). Sternite VIII forming small to large floor under vagina (Fig. 5 F) with about 80-110 setae. Gonocoxite relatively small, without projection, with 9-10 setae. Tergite IX (Fig. 5 E) rounded, undivided, with 58 setae. Cercus 133-143 μm long. Seminal capsule 71-75 μm long inclusive neck and equally wide. Notum 153-167 μm long.

Remarks

Apart from the presence of a well developed virga this species looks similar to species of the *fuscipes* group. The specimen from Norway is not included in the type material as the antenna is broken and there are only 29 setae on tergite IX. In other details, however, the specimen fits the description.

Metriocnemus aculeatus Chaudhuri et Bhattacharyay (Fig. 6 A)

Metriocnemus aculeatus Chaudhuri et Bhattacharyay, in Chaudhuri, Bhattacharyay & Dutta 1989 : 309.

Material examined : China : Sichuan, Mt Jinpo, 1 ♂, 9.V.1986, X. Wang (XW). Since the Chinese specimen in several aspects differs from the description by Chaudhuri et al. (1989) it is described below.

Male imago (n = 1)

Total length 3.37 mm. Wing length 2.07 mm.

Total length/wing length 1.63. Wing length/length of profemur 2.29. Coloration blackish brown.

Head. AR 1.62. Ultimate flagellomere 643 μm long. Temporal setae 13, including 5 inner verticals, 6 outer verticals and 2 postorbitals. Clypeus with 12 setae. Tentorium 150 μm long, 38 μm wide. Stipes 135 μm long, 64 μm wide. Palp segments lengths (in μm) : 38, 41, 161, 128, 161. Third palpal segment with 1 apical lanceolate sensillum clavatum.

Thorax. Antepronotum with 4 setae. Dorsocentrals 22, acrostichals about 20, prealars 13, supraalar 1. Scutellum with 12 setae.

Wing. VR 1.17. C extension 128 μm long. Brachiolum with 5 setae ; C extension with 20 non-marginal setae ; Sc, RM, M and Pcu without setae ; R with 26 setae ; R_1 with 20 ; R_{4+5} with 37 ; M_{1+2} with 56 ; M_{4+5} with 38 ; Cu with 11 ; Cu_1 with 21 ; and An with 25 setae. Wing membrane with about 80 setae in cell an ; without setae in cell m basally of RM and on anal lobe. Squama with 9 setae.

Legs. Spur of front tibia 86 μm long, spurs of middle tibia 34 μm and 30 μm long, of hind tibia 64 μm and 34 μm long. Comb of 13 setae, 23-56 μm long. Tarsomeres 1-3 of middle and hind legs each with apparently only 1 pseudospur, 21-26 μm long. Lengths (in μm) and proportions of legs :

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
P ₁	902	992	—	—	—	—	—	—	—	—	—
P ₂	907	879	501	232	175	104	71	0.57	3.94	3.57	3.0
P ₃	973	1096	647	312	236	123	80	0.59	3.59	3.20	3.7

Hypopygium (Fig. 6 A ; Chaudhuri et al. 1989, Fig. 1 d). Anal point proper 58 μm long, tapering to sharp point, with 15 setae at base on tergite IX ; laterosternite IX with 7 setae. Phallapodeme 98 μm long, transverse sternapodeme 113 μm long. Virga very weak, consisting of 10 about 11 μm long, parallel and not clustered spines. Gonocoxite 218 μm long, inferior volsella low ending at 0.80 of gonocoxite length, but with a distinct notch at 0.56. Gonostylus 103 μm long, crista dorsalis apparently absent, megaseta 11 μm long. HR 2.11, HV 3.28.

Remarks

The Chinese specimen has a much higher antennal ratio (1.62) than the Indian specimens (1.09). Most of the other differences most likely are due to measurements on not well cleared specimens or miscalculations on the Indian specimens. There are for instance no species of *Metriocnemus* where the fourth palpal segment is not twice as long as the third, no species without anteprenotal setae and no species with a comb of 3-15 μm long setae, all said to be characteristics of the Indian specimens. The SV of the Indian specimens are wrongly calculated. The corrected ones are similar to those of the Chinese specimen. Tergite IX is said to have 48-50 setae while the drawing shows 13. The spines of the virga are easily overlooked. They were observed in the Chinese specimen first when the specimen was better cleared and remounted.

The wing chaetotaxy, the very high leg ratio of the middle leg compared to the hind leg, and the characteristic hypopygium with a very long, sharply pointed anal point and lacking crista dorsalis make a conspecificity of the Indian and Chinese specimens almost certain. However, *M. aculeatus* differs from all other *Metriocnemus* in the shape of the virga and in the apparent total absence of a crista dorsalis and may conceivably not belong in the genus.

3.5. The fuscipes group

Metriocnemus unilinearis Chaudhuri et Bhattacharyay (Fig. 6 B)

Metriocnemus unilinearis Chaudhuri et Bhattacharyay, in Chaudhuri, Bhattacharyay & Dutta 1989 : 312.

Material examined : China : Tibet, Zhangmu, 1 σ , 7.IX.1987, C. Deng (XW).

Male imago (n = 1)

As in Chaudhuri et al. (1989 : 312) with the following exceptions and additions : Size slightly smaller (total length 2.40 mm, wing length 1.42 mm).

Head. AR. 0.68. Ultimate flagellomere 274 μm long, pointed, with stiff preapical seta and unusually weak sensilla chaetica at apex.

Thorax. Anteprenotum with 1 seta. Dorsocentrals 12, acrostichals about 15, 1 supraalar.

Wing. Brachiolium with 2 setae, C extension with 14 non-marginal setae, Sc with 9 setae, R with 23, R_1 with 28, R_{4+5} with 36 setae, RM bare, M with 1 seta, M_{1+2} with 54 setae, M_{3+4} with 28, Cu with 23, Cu_1 with 19, Pcu with 31, and An with 34 setae. Wing membrane with relatively sparse setae in most cells, with 20 setae in cell m basally of RM.

Legs. Tarsomeres 1 and 2 of middle and hind leg each with apparently only 1 pseudospur, 19-23 μm long.

Hypopygium (Fig. 6 B ; Chaudhuri et al. 1989, Fig. 4 d). Anal point proper 56 μm long, sharply pointed, with 13 setae at base on tergite IX, laterosternite IX with 5 setae. Phallapodeme 86 μm long, transverse sternapodeme 83 μm long. Virga absent. Gonocoxite 188 μm long, inferior volsella low ending at 0.59 gonocoxite length. Gonostylus 94 μm long, with long and low crista dorsalis, megaseta 13 μm long. HR 2.00, HV 2.55.

Remarks

The Tibetan specimen has a lower antennal ratio (0.68) than the Indian specimens (1.03). As for *M. aculeatus* there are some mistakes in the description by Chaudhuri et al. ; the SV are wrongly calculated and should be SV_1 2.33, SV_2 4.11 and SV_3 3.58 which are only slightly higher than in the Chinese specimen ; tergite IX has about 11 setae according to Fig. 4 d in Chaudhuri et al. while the text states 75-80 setae ; and only the basal, well sclerotized part of the phallapodeme apparently is measured.

Metriocnemus exilacies sp. n. (Fig. 6 C)

Type material : Holotype σ , Norway : Nord-Trøndelag, Høylandet, Skiftesåa, 15.VIII.1988, K. Aagaard (ZMB No. 149). Paratype 1 σ , as holotype (KA).

Diagnostic characters : The male imago can be separated from other species of the *fuscipes* group

Fig. 6. *Metriocnemus* spp., male imagines, hypopygia : A. *M. aculeatus* Chaudhuri et Bhattacharyay ; B. *M. unilinearis* Chaudhuri et Bhattacharyay ; C. *M. exilacies* sp. n. ; D, E. *M. beringiensis* (Cranston et Oliver), holotype (D), variations in anal point of specimens from Høylandet, Norway (E).

Fig. 6. *Metriocnemus* spp., imagos mâle, hypopyge : A. *M. aculeatus* Chaudhuri et Bhattacharyay ; B. *M. unilinearis* Chaudhuri et Bhattacharyay ; C. *M. exilacies* n. sp. ; D, E. *M. beringiensis* (Cranston et Oliver), holotype (D), variations de la pointe anale de spécimens d'Høylandet, Norvège (E).

by the parallel-sided apical portion of the anal point and by having 0-3 setae on vein M combined with 23-40 setae on subcosta.

Male imago (n = 1-2)

Total length 3.82-3.95 mm. Wing length 2.53-2.64 mm. Total length/wing length 1.50-1.51. Wing length/length of profemur 2.38-2.48. Coloration brown with darker vittae and markings, scutellum more pale, haltere pale brown.

Head. Antenna lost. Temporal setae 31, including 17 inner verticals, 9-11 outer verticals and 1-3 postorbitals. Clypeus with 16-18 setae. Tentorium 158-176 μm long, 53-60 μm wide. Stipes 150-154 μm long, 53 μm wide. Palp segments lengths (in μm): 38-45, 49-60, 221-236, 150-165, 191-206. Third palpal segment with 2 lanceolate sensilla clavata.

Thorax. Antepronotum with 8-10 setae. Dorso-centrals 33, acrostichals 33-42, prealars 18-26, supraalars 2-3. Scutellum with 24-25 setae.

Wing. VR 1.24-1.27. C extension 173 μm long. Brachiolum with 8 setae, C extension with 24-26 non-marginal setae, Sc with 23-40, R with 55-65, R_1 32-42, R_{4+5} with 58-72, RM with 0-3, M with 0-3, M_{1+2} with 56, M_{3+4} with 39-50, Cu with 31-36, Cu_1 with 26-34, Pcu with 50-53, and An with 56-74 setae. Wing membrane with setae covering most cells, with 36-42 setae in cell m basally of RM. Axillary sclerite with 6-7 setae. Squama with 24-26 setae, longest seta 244-263 μm long, shortest seta 64-83 μm long.

Legs. Spur of front tibia 75 μm long, spurs of middle tibia 41-45 μm and 39-41 μm long, of hind tibia 79-86 μm and 47-49 μm . Width at apex of front and middle tibia 53-55 μm , of hind tibia 64 μm . Comb with 12-14 setae, 28-60 μm long. Tarsomeres 1 and 2 of middle and hind tibia each with 2 pseudospurs 26-39 μm long. Lengths (in μm) and proportions of legs:

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	1058-1063	1266-1285	794	491	331	208	123	0.63	2.71	2.93	3.1
p ₂	1068-1087	1162-1200	501-510	307-321	227	142-151	113	0.43	3.36-3.54	4.45-4.48	3.5-4.1
p ₃	1195-1200	1512-1531	680	425	321	198	113	0.45	3.20	3.98	4.0

Hypopygium (Fig. 6 C). Anal point proper 53-56 μm long, tapering in basal half, nearly parallel-sided in apical half, with 34-42 at base on tergite IX; laterosternite IX with 12 setae. Phallapodeme 131-135 μm long; transverse sternapodeme 120-135 μm long, with low oral projections. Virga absent. Gonocoxite 285-289 μm long; inferior volsella low, ending at 0.81-0.82 of gonocoxite length. Gonostylus 129-143 μm long, with low crista dorsalis; megaseta 13-15 μm long. HR 2.03-2.20, HV 2.67-3.06.

Remarks

Although the antennae are lost in the described specimens, the anal point and the unusual combination of few or no setae on M with numerous setae on the subcosta makes the species easily recognizable.

Metriocnemus fuscipes (Meigen)

New material examined: Norway: Oppland, Dovre, Atnaelv, Skranglehaugane, Malaise trap, 2 σ , 8 & 18.VII.1986, K. Aagaard (KA); Hedmark, Storelvdal, Atnaelv, Solbakken, Malaise trap, 1 σ , 2.VIII.1986, K. Aagaard (KA), Møre & Romsdal, Volda, Litlebøvatn, 1 σ , 26.VII.1986, Ø. A. Schnell (ZMB). China: Ningxia, Liupan Mt, 1 σ , 4.VIII.1987, W. Wang (XW).

One of the Norwegian specimens has a slightly lower AR of 0.81 than that reported in Sæther (1989a, AR 0.86-1.17), and the Chinese specimen has a slightly higher AR of about 1.28. Another Norwegian specimen has slightly more numerous setae on the veins with 70 setae on Sc, 47 on M and 63 on Cu.

The species was previously known from all over Europe, and the Nearctic Region, from East Siberia,

Canary Islands, the Azores and Madeira. Although most *Metriocnemus* identifications are in need of confirmation, the low leg ratio of the hind leg make this species easily recognizable.

***Metriocnemus beringiensis* (Cranston et Oliver)**
(Fig. 6 D, E)

Apometriocnemus beringiensis Cranston & Oliver 1988 : 428.

Metriocnemus beringiensis (Cranston & Oliver) ; Sæther in Cranston et al. 1989 : 178, 213.

Type material : Holotype ♂ : Canada : Yukon Territory, Trout Lake, 9.VIII.1984, D.R. Oliver (CNC No. 19684).

New material examined : Norway : Nord-Trøndelag, Høylandet, Skiftesåa, 6 ♂, 18.VI-16.VII.1986, 2-9.VII.1988, K. Aagaard (KA, ZMB) ; Hedmark, Storelvdal, Storbekken, Malaise trap, 1 ♂, 26.VI.1988, K. Aagaard (KA).

Male imago (n = 8 except when otherwise stated)

The male imago was described by Cranston & Oliver 1988 : 428. Their description, however, should be extended concerning the wing chaetotaxy and the hypopygium.

Wing. VR 1.23-1.33, 1.29. C extension 79-105,92 μm long. Brachiolium with 7-11 setae ; C extension with 9-20, 14 non-marginal setae ; Sc with 21-48,35 ; R with 39-69,55 ; R₁ with 27-47,36 ; R₄₊₅ with 37-81,59 ; RM with 3-9,5 ; M with 18-32,24 ; M₁₊₂ with 60-80,67 ; M₃₊₄ with 37-51,45 ; Cu with 30-49,38 ; Cu₁ with 18-27,24 ; Pcu with 36-42,45 ; and An with 31-48,35 setae. Axillary sclerite with 5-6,6 setae. Wing membrane with setae covering most cells, with 33-75,54 setae in cell m basally of RM. Squama with 18-26,21 setae ; longest seta 124-210,171 μm (4) long ; shortest seta 38-83,56 μm (7) long.

Hypopygium (Fig. 6 D,E). Anal point proper 0-15,3 μm long (present in 2 out of 8 specimens) ; with 23-40,30 setae at base on tergite IX ; latero-stermite IX with 6-10,8 setae. Phallapodeme 79-109,93 μm long ; transverse sternapodeme 77-105,97 μm long. Virga absent. Gonocoxite 210-236,227 μm long ; inferior volsella low, usually with indication of apical swelling, ending at 0.73-0.79,0.76 of gonocoxite length. Gonostylus 94-105,99 μm long ; crista dorsalis low ; megaseta

11-19,14 μm long. HR 2.19-2.39,2.27 ; HV 2.59-2.94,2.83.

Remarks

M. beringiensis may be no more than a small form of *M. fuscipes* differing in having strongly reduced or absent anal point and in slightly fewer setae on squama. The species was previously known only from the Yukon Territory in Canada.

***Metriocnemus picipes* (Meigen) (Fig. 7 A-D)**

Chironomus picipes (Meigen), van der Wulp 1974 : 136 ; Edwards 1929 : 311 ; Pinder 1978 : 90, Fig. 131 B.

Metriocnemus hirtipalpis Kieffer, 1915 : 478.

Metriocnemus longipalpus Sinharay et Chaudhuri, 1978 : 281, syn. n.

Chironomus paganicus Walker, 1856 : 183.

Type material : Lectotype ♂, here designated, type locality (?Aachen) and date not given (MNHN). Paralectotypes : 2, as holotype ; 1 ♂, as holotype, misidentified = *Rheocricotopus effusus* (Walker) ; 1 ♂, 1 ♀, as holotype, misidentified = *Mitriocnemus atriclava* Kieffer (MNHN).

Other material examined : China : Sichuan, Mt. Emy 1 ♂, 18.V.1986, X. Wang ; Jilin, Mt. Changbai 1 ♂, 7.VII.1986, X. Wang (XW). India : West Bengal, Tung, 1 ♂, 10.V.1973, S. Basak, paratype of *Metriocnemus longipalpus* (ZMB). Norway : Hedmark, Storelvdal, Atnaelv, Solbakken, Malaise Trap, 2 ♂, 17.VI & 2.VIII.1986, K. Aagaard (KA, ZMB) ; Nord Trøndelag, Høylandet, Skiftesåa, 1 ♂, 11.VI.1986, K. Aagaard (KA).

Diagnostic characters : The low number of setae (less than 10) on each of subcosta and M, combined with a high AR (1.8(?)-2.9) and LR₃ (0.44-0.46), and a conspicuously long spur of the front tibia (2.0-2.4 times as long as apical width of tibia) will serve to distinguish the species from other members of the *fuscipes* group. The female has a relatively small gonocoxite with no apicomedian projection and 10-12 setae, sternite VIII does not form a floor under vagina, and the cercus is longer than the notum.

Male imago (n = 6-7 except when otherwise stated)

Total length 3.41-4.30,3.71 mm. Wing length 1.98-2.51,2.19 mm. Total length/wing length 1.61-1.74,1.70. Wing length/length of profemur

2.18-2.55, 2.31. Coloration brownish black with brown halteres.

Head. AR 2.21-2.86, 2.53. Ultimate flagellomere 709-784, 756 μm long. Temporal setae 23-28, 25 including 10-16, 13 inner verticals; 5-8, 6 outer verticals; and 5-9, 6 postorbitals. Clypeus with 32-35, 34 setae. Tentorium 161-176, 169 μm (4) long; 45-53, 48 μm (4) wide. Palp segments lengths (in μm); 41-49, 45; 62-83, 72; 248-315, 279; 143-236, 207; 191-255, 217. Third palpal segment with 2 median and 1 lateral apical lanceolate sensilla clavata.

Thorax. Anteprenotum with 12-14, 13 (5) setae. Dorsocentrals 47-74, 58; acrostichals 28-38, 32 (5); prealars 46-58, 54 (5); supraalars 2-4, 3 (5). Scutellum with 42-54, 48 setae.

Wing. VR 1.15-1.24, 1.19. C extension 79-109, 93 μm long. Brachiolum with 9-12, 10 setae; C extension with 11-22, 13 non-marginal setae;

Sc with 0-7, 2; R with 38-72, 52; R_1 with 35-47, 42; R_{4+5} with 33-80, 55; RM with 2-4, 3; M with 3-11, 6; M_{1+2} with 68-94, 79; M_{3+4} with 33-60, 48; Cu with 30-54, 44; Cu_1 with 24-40, 30; Pcu with 18-60, 42; and An with 42-55, 49 setae. Wing membrane covered with setae; with 15-65, 39 setae in cell m basally of RM. Axillary sclerite with 5-7 (3) setae. Squama with 42-58, 51 setae; longest setae 274-300, 283 μm (5) long; shortest seta 49-83, 68 μm long.

Legs. Spur of front tibia 90-120, 106 μm long; spurs of middle tibia 41-56, 52 μm and 39-53, 49 μm long. Width at apex of front and middle tibia 45-56, 51 μm ; of hind tibia 58-75, 67 μm . Comb with 10-12, 12 setae; longest seta 60-75, 67 μm long; shortest seta 32-38, 35 μm long. Tarsomeres 1 and 2 of middle and hind leg each with 2 pseudospurs; 23-38, 30 μm long on ta_2 of middle leg; 30-60, 39 μm long on other tarsomeres. Lengths (in μm) and proportions of legs:

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5	LR	BV	SV	BR (n = 4)
p_1	860-1068, 948	1030-1285, 1115	624-860, 690	369-491, 407	227-312, 255	151-184, 160	85-109, 97	0.61-0.67, 0.63	2.77-3.17, 2.86	2.74-5.03, 2.95	3.1-5.3, 3.9
p_2	936-1200, 1004	985-1247, 1061	397-539, 434	236-331, 259	161-208, 182	113-137, 123	80-104, 92	0.38-0.42, 0.41	3.70-3.95, 3.83	4.54-5.05, 4.75	3.3-4.1, 3.9
p_3	1002-1276, 1062	1257-1663, 1373	570-728, 628	331-435, 364	246-312, 270	142-180, 159	95-113, 104	0.44-0.50, 0.46	3.22-3.51, 3.44	3.55-4.06, 3.91	5.0-8.8, 6.9

Hypopygium (Fig. 7 A). Anal point proper 19-38, 38 μm long; with 30-40, 37 setae at base on tergite IX; laterosternite IX with 9-12, 10 setae. Phallapodeme 109-120, 114 μm long; transverse sternapodeme 86-113, 103 μm long. Virga absent. Gonocoxite 244-278, 259 μm long; inferior volsella low with apical swelling, ending at 0.75-0.78, 0.77 of gonocoxite length. Gonostylus 101-126, 113 μm long; with low and long crista dorsalis; megaseta 12-15, 14 μm long. HR 2.16-2.45, 2.28; HV 2.94-3.50, 3.22.

Female imago (n = 2 except when otherwise stated)

Total length 3.10-3.97 mm. Wing length 1.78-2.97 mm. Total length/wing length 1.74-1.92. Wing length/length of profemur 2.39-2.58. Coloration as in male.

Head. Antenna lost. Temporal setae 38-59, including 22-37 inner verticals, 12 outer verticals, and

4-10 postorbitals. Clypeus with 28 setae. Tentorium 158-169 μm long, 21-23 μm wide. Stipes 165-173 μm long, 75-79 μm wide. Palp segments lengths (in μm): 41-45, 56, 158-165, 163-169, 244 (1). Coronal suture absent.

Thorax. Anteprenotum with 17-18 setae. Dorsocentrals 88-93, acrostichals 29 (1), prealars 45-50, supraalars 2. Scutellum with 50-60 setae.

Wing. VR 1.18-1.22. C extension 105-113 μm long. Brachiolum with 8-11. C extension with 11-16 non-marginal setae, R with 49-65, R_1 with 57-60, R_{4+5} with 93-111, RM with 4-9, M with 13-27, M_{1+2} with 61-69, M_{3+4} with 45, Cu with 29-47, Cu_1 with 30-35, Pcu with 58-80, and An with 39-54 setae. Wing membrane with setae covering most cells, with 51-110 setae in cell m basally of RM. Axillary sclerite with 5(1) setae. Squama with 27-28 setae.

Legs. Spur of front tibia 75-79 μm long, spurs of middle tibia 49 μm and 45-40 μm long, of hind

Fig. 7. *Metriocnemus* spp., imagines : A. *M. picipes* (Meigen), male hypopygium ; B-D, *M. picipes*, female genitalia, ventral view (B), dorsal view (C), and lobes of gonapophyses (D) ; E. *M. atriclava* Kieffer, female genitalia, lateral view. (DmL, dorsomesal lobe ; VIL, ventrolateral lobe ; ApL, apodeme lobe).

Fig. 7. *Metriocnemus* spp., imagos : A. *M. picipes* (Meigen), hypopyge mâle ; B-D, *M. picipes*, genitalia femelle, vue ventrale (B), vue dorsale (C), et lobes de gonapophyses (D) ; E. *M. atriclava* Kieffer, genitalia femelle, vue latérale. (DmL, lobe dorsomésal ; VIL, lobe ventrolatéral ; ApL, lobe apodème).

tibia 94-98 μm and 36 μm (1) long. Width at apex of front and middle tibia 45-49 μm , of hind tibia 56-71 μm . Comb of 11 setae, 23-60 μm long. Tarsomeres 1 and 2 of middle and hind leg each with

2 pseudospurs, 30-34 μm long on ta_2 of middle leg, 34-49 μm long on other tarsomeres. Lengths (in μm) and proportions of legs :

	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5	LR	BV	SV	BR
p_1	742-803	836-954	558-591	311-378	217-236	132-142	85-99	0.62-0.65	2.75-2.78	2.89-2.98	1.6-2.6
p_2	813-879	860-964	369-383	217-241	170	113	85-90	0.40-0.43	3.48-3.62	4.54-4.81	2.4-2.5
p_3	879-992	1143-1276	558-624	321-359	255-284	132-146	95	0.49	3.21-3.27	3.63-3.64	2.9

Genitalia (Fig. 7 B-D). Sternite VIII with 92-114 setae. Gonoxoxite IX relatively small, without apical projection, with 10-12 setae. Tergite IX rounded, undivided, with 48 setae. Cercus 206 μm (1) long. Seminal capsule 49 μm (1) long, 49-53 μm wide. Notum 128-131 μm long.

Remarks

The Indian specimen is about 15 per cent longer than the largest European specimens and its antennal ratio is 2.21. (Sinharay and Chaudhuri gives 1.8). However, there appear to be no other differences except for a slightly higher chaetotaxy in the Indian specimen related to size. The Chinese specimens have a LR_3 of 0.50, but are otherwise typical. The females are only tentatively associated. There are two species of females in the Meigen collection under the name *M. picipes*. The one described here conforms best with the male in the wing chaetotaxy.

The species previously was known from Greenland and widespread in Europe, but previous findings need reconfirmation, and *M. wittei* from Africa (see introduction) could be a synonym.

Metriocnemus atriclava Kieffer (Fig. 7 E)

Metriocnemus atriclava Kieffer, 1921 : 83 ; Sæther 1989a : 427.

Metriocnemus atriclava var. *rivicola* Kieffer, 1925 : 563.

Metriocnemus atriclava Kieffer ; Edwards 1939 : 311, Pinder 1978 : 90, fig. 13D.

Nomenclatorial note : Sæther (1989a : 427) regarded the synonymy of *M. atriclava* Kieffer with *M. atriclava* sensu Edwards as questionable, suggesting that latter might be a synonym of the *M. picipes*. The present material shows that this is clearly

not the case and as the type material of Kieffer probably is lost, *M. atriclava* in the sense of Edwards should be regarded as the valid species.

New material examined : The Meigen collection, no locality (?Aachen) and no date, 1 σ , 1 φ , misidentified paralectotypes of *M. picipes* (see above) (NNHN).

Although the hypopygium and the hind legs are missing the male imago fits very closely with the description in Sæther (1989a : 427). The wing chaetotaxy are slightly, but not significantly, higher, with 39 setae on subcosta, 29 on M and 110 setae in cell m basally of RM.

Diagnostic characters for the female imago : The female can be separated from other described species by having 4 flagellomeres, a relatively small gonocoxite without apical projection and with numerous (about 24) setae, and cercus apparently slightly shorter than notum.

Female imago (n = 1, tentatively associated)

Length 3.76 mm. Wing length 2.04 mm. Total length/wing length 1.84. Wing length/length of profemur 2.27. Coloration blackish brown, with slightly darker markings and posterior third of scutellum slightly more pale. Haltere brown.

Head. AR. 0.24. Lengths (in μm) of flagellomeres : 135, 83, 116, 79. Longest sensilla chaetica 73 μm long. Temporal setae 62, including 42 inner verticals, 15 outer verticals, and 5 postorbitals. Clypeus with 43 setae. Tentorium 165 μm long, 21 μm wide. Stipes 191 μm long, 79 μm wide. Palp segments lengths (in μm) : 45, 60, 203, 199, 257. Coronal suture reduced, 28 μm long.

Thorax. Anteprenotum with 25 setae. Dorsocentrals 127, acrostichals 45, prealars 31, supraalars 4. Scutellum with 56 setae.

Wing. VR 1.21. C. extension 98 μm long. Brachiolum with 12 setae. C. extension with 26 non-marginal setae, Sc with 55, R with 74, R_1 with 80, R_{4+5} with 105, RM with 7, M with 33, M_{1+2} with about 140, M_{3+4} with 63, Cu with 45, Cu_1 with 45, Pcu with about 105, and An with 63 setae. Wing

membrane covered with setae, with about 135 setae in cell m basally of RM. Squama with at least 22 setae.

Legs. Spurs, tibia width, combs and pseudospurs as in male. Tarsi of front and middle legs lost. Front femur 898 μm , front tibia 1058 μm , middle femur 992 μm , middle tibia 1 058 μm long. Lengths (in μm) and proportions of hind leg :

fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
1106	1503	624	359	284	161	104	0.42	3.56	4.18	3.7

Genitalia (Fig. 7 E). Sternite VIII with about 120 setae. Gonocoxite relatively small without projection, with 24 setae. Tergite IX undivided, with 48 setae. Cercus 184 μm long. Seminal capsule 64 μm long, 53 μm wide. Notum apparently 199 μm long. (Caudal end obscured since lateral view).

Remarks

The female may well belong to another species. However, it does not fit any of the other described species and even if the male is lacking the hypopygium its identity appears relatively certain.

M. atriclava is known from Germany, Great Britain, Ireland and Norway.

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