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**CHAVE DE IDENTIFICAÇÃO PARA MACHOS DE ORTHOCLADIINAE (INSECTA:
DIPTERA: CHIRONOMIDAE) DO ESTADO DE SÃO PAULO E DESCRIÇÃO DE UMA
NOVA ESPÉCIE DE *Lipuometriocnemus* Sæther, 1981.**

SANTO ANDRÉ – SÃO PAULO

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UMA NOVA ESPÉCIE DE *Lipurometriocnemus* Saether, 1981.**

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Alfenas, 6 de junho de 2016.

Assinatura do autor: _____

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Este trabajo esta dedicado a mis familias.

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“Ay la alegría es la cura más buena mamá
pa' lo que no se puede curar
si razones hay más pa' estar triste
con más fuerza se debe bailar ”

La parranda - 1280 Almas

Antecedentes

Colômbia é um país megadiverso, em grande parte por sua posição geográfica única, encontrando-se com áreas nas regiões Caribe, Andes, Choco, Orinoquia e Amazonia. As pesquisas biológicas só têm sido desenvolvidas para alguns grupos estudados tradicionalmente como plantas, aves, mamíferos, etc. A maioria dos grupos, em especial os invertebrados, são pouco pesquisados, como é o caso da família Chironomidae dentro da ordem Diptera (Insecta).

Os poucos registros de espécies da família na Colômbia foram feitos por estrangeiros na década de 1980. Atualmente não existe nenhum laboratório ou grupo de pesquisas onde se desenvolvam estudos especificamente em esse grupo de insetos. As únicas chaves disponíveis são as de Ospina-Torres (1999) e Ruiz (2000) para larvas da região de Bogotá e são uma das bases dos registros genéricos dos trabalhos limnológicos em diferentes partes do país, foi precisamente um destes estudos que me aproximou definitivamente do estudo desta família de mosquitos. O trabalho de graduação “Estudio de los dípteros (Insecta: Diptera) en la cuenca del rio Opia, Tolima” foi uma pesquisa de limnologia que gerou dados interessantes como os primeiros registros de famílias de insetos aquáticos e de vários gêneros de Diptera para a região do Tolima.

Os vazios no conhecimento, particularmente da família Chironomidae, na Colômbia se tornaram uma motivação especial para participar do “Curso de taxonomia de Chironomidae” proferido pelo Prof. Dr. Humberto F. Mendes durante o “VII Encontro Brasileiro sobre taxonomia e ecologia de Chironomidae; IV Encontro Latino-Americano sobre Simuliidae; I Encontro Latino-Americano sobre Ceratopogonidae. 9-12 de outubro de 2011 no Instituto Nacional de Pesquisas da Amazonia (INPA), Manaus, Brasil”. Depois deste curso mantivemos contato e, embora minha carreira profissional ocorresse em outras áreas da limnologia, meu interesse foi mantido nestes mosquitos e muitas vezes consultava com ele. Eventualmente, fui aceito como estudante do programa de pós graduação em Evolução e Diversidade da UFABC sob a orientação do Prof. Humberto, com o objetivo de formar-me na área de taxonomia e sistemática de Chironomidae e levar esse conhecimento para meu país.

A o local de estudo para este trabalho foi a Estação Biológica de Boracéia onde se tem vários registros de gêneros, talvez a localidade mais bem conhecida no do Estado de São Paulo e o Brasil, quando o assunto é Orthocladiinae. Por esta mesma razão e por ser uma oportunidade ímpar de trabalhar com estes insetos em local onde são bem conhecidos, aceitei o desafio de coletar e identificar animais da reserva. O trabalho prévio de estudo morfológico foi bem extenso e todas as espécies neotropicales conhecidas foram estudadas para que o trabalho fizesse mais sentido do ponto de vista de formação de um novo taxonomista no grupo. Como Orthocladiinae é conhecida por ser uma subfamília muito diversa e de difícil identificação até o nível genérico, este mestrado me capacitaria para fundar um grupo de pesquisas em Chironomidae na Colômbia ou, em igual ou maior importância, me propulsionar para uma tese de doutorado.

Apresento este trabalho que tem uma parte muito importante que está na minha própria formação acadêmica, bem como uma utilidade para trabalhos futuros que envolvam Orthocladiinae de ocorrência no Estado de São Paulo e quiçá, uma amplitude ainda maior e ser utilizado como estímulo para outros estudantes a trabalharem com Chironomidae em outras regiões do Neotrópico, assim como o que me moveu da Colômbia para o Brasil.

RESUMO

Este trabalho tem como foco a diversidade de Orthoclaadiinae (Insecta: Diptera: Chironomidae) na mata atlântica do sudeste brasileiro, onde vários gêneros foram descritos nos últimos anos. Foram compiladas as descrições dos gêneros conhecidos e de provável distribuição, e foi confeccionada uma chave para a identificação de machos de Orthoclaadiinae do Estado de São Paulo. Realizaram-se duas coletas de larvas, pupas e adultos na [Estação Biológica de Boracéia](#) (EBB). Uma nova espécie de *Lipuometricnemus* Sæther, 1981 é descrita.

Palavras chave: Mata [Atlântica](#), Orthoclaadiinae, taxonomia, *Lipuometricnemus*.

ABSTRACT

This work focuses on the diversity of Orthoclaadiinae (Insecta: Diptera: Chironomidae) in the Atlantic Southeast forest in Brazil, where various genera that are described in the last years. The known and expected distribution genera descriptions were compiled, and were made a key for identifying males Orthoclaadiinae of São Paulo. There were two collections of larvae, pupae and adults [Biological Station of Boracéia](#) (EBB). A new species of *Lipuometricnemus* Sæther, 1981 is described.

Keywords: Atlantic forest, Orthoclaadiinae, taxonomy, *Lipuometricnemus*.

SUMARIO

Agradecimentos	6
RESUMO	11
ABSTRACT	11
Introdução.....	13
chironomidae	13
orthoclaadiinae	14
estado de sÃo paulo.....	15
MATERIAL E MÉTODOS.....	18
Confecção da chave	18
Coleta	18
Montagem de lâminas e identificação	18
referencias	19
RESULTADOS	21
Identification key to Orthoclaadiinae (Insecta: Diptera: Chironomidae) from São Paulo State, Brazil	22
Abstract	22
Introduction	22
Key to the male of Orthoclaadiinae (Diptera: Chironomidae) from São Paulo State.....	25
Notes on the key	33
Diagnosis of the genera included in this key	34
REFERENCES	73
New species of <i>Lipurometricnemus</i> Sæther, 1981 from São Paulo State, Brazil (Diptera: Chironomidae: Orthoclaadiinae).....	76
Introduction	76
Material and Methods.....	77
Biology and Distribution	78
Acknowledgements	78
References	79

INTRODUÇÃO

CHIRONOMIDAE

Os insetos aquáticos e são muito diversos, entre eles se destacam as larvas dos mosquitos Chironomidae (Insecta: Diptera), que são organismos presentes na grande maioria dos habitats aquáticos do mundo (Bouchard & Ferrington, 2008). Eles são um dos grupos mais importantes na colonização dos corpos de água. Desempenham um papel fundamental em ecossistemas aquáticos na conformação da cadeia alimentar; eles consomem principalmente matéria orgânica particulada (detritos), algas, fungos e fragmentos de folhas e fibras de madeira, pólen e animais ou seus restos (Henriques-Oliveira *et al*, 2003). Servem de alimento para grande número de outros organismos, como aves, anfíbios, outros macroinvertebrados e em especial fazem parte da dieta de muitos peixes (Orozco *et al*, 2005).

Os Chironomidae são a maior e mais frequente família de insetos aquáticos. As larvas vivem em todos tipos de água doce, ambiente marinho e ambientes terrestres, podendo ser de vida livre, parasitas ou simbiontes (Pinder 1995; Tokeshi 1995). Há espécies registradas para as mais variadas condições de temperatura, pH, salinidade, oxigênio dissolvido e profundidade, o que certamente contribui para o sucesso do grupo. Alguns gêneros ou espécies são considerados indicadores de condições ambientais particulares. Por essas características a composição da comunidade de Chironomidae é frequentemente utilizada como um indicador de vários níveis tróficos de poluição (Wolf-Echeverri, 2006).

Os Chironomidae são uma família de Diptera da infraordem Culicomorpha (juntamente com Culicidae, Ceratopogonidae, Simuliidae, Dixidae, Chaoboridae, Corethrellidae, Nymphomyiidae e Thaumaleidae), as relações de parentesco entre as diversas famílias de Culicomorpha têm sido alvo de varios trabalhos (Pawlowski *et al*. 1996; Sæther 2000a), inclusive as proposta mais recentes indicam que Chironomidae seja a família a se divergir primeiro da linhagem dos Culicomorpha sendo portanto irmã de todas as demais (Cranston *et al*. 2012).

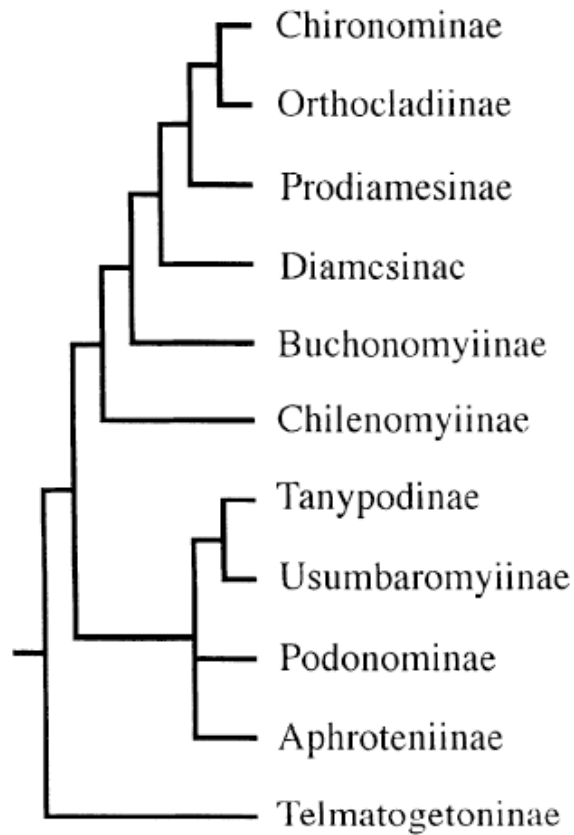


Fig 1. Relações filogenéticas entre subfamílias de Chironomidae segundo Saether 2000b.

Chironomidae é composto por onze subfamílias (Figura 1), sendo que a única região biogeográfica com dez subfamílias é justamente a região Neotropical. As demais regiões, quando muito, têm oito subfamílias representadas (Ashe & O'Connor 2009).

ORTHOCLADIINAE

Os Orthoclaadiinae compõem a subfamília mais diversa de Chironomidae em número de gêneros e a segunda mais diversa em número de espécies. Os Orthoclaadiinae ocorrem em todas as regiões biogeográficas do mundo, incluindo as regiões polares (Spies *et al.* 2009; Ashe & O'Connor, 2012). As larvas podem ser raspadoras, fragmentadoras ou coletoras; algumas podem também ser predadoras ou minadoras. As larvas podem explorar os mais diferentes biótopos dos

sistemas lóticos e lênticos; algumas são terrestres ou semiterrestres, algumas marinas e outras habitam fitotelmatas. (Trivinho-Strixino & Strixino, 2011; Mendes *et al*, 2008).

Embora vários autores tenham, ao longo da taxonomia do grupo, proposto categorizar esta subfamília em tribos, o grau de discordância é tão grande que nenhum sistema é aceito atualmente e os diversos gêneros são postos em grupos de gêneros (exemplo: grupo *Heterotrissocladius* Spärck, com os gêneros: *Heterotrissocladius* Spärck, *Parametriocnemus* Goetghebuer, *Paraphaenocladius* Thienemann, e vários outros). A última proposta (Cranston *et al.* 2012) resgata várias tribos propostas na segunda metade do século XIX por Brundin e embora Orthocladiini, Metriocnemini e Corynoneurini tenham sido resgatadas, os grupos mais basais compostos dentre outros gêneros por *Brillia* Kieffer 1913 e *Stictocladius* Edwards 1931, ainda são denominados respectivamente de “grupo *Brillia*” e “grupo *Stictocladius*”.

ESTADO DE SÃO PAULO

Com repito aos Chironomidae do Estado de São Paulo se conhecem cinco subfamílias e conta com 71 gêneros registrados (Mendes & Pinho, 2008), número que se espera continue crescendo em registros e ainda também em possíveis gêneros novos. O número atual de espécies no Estado de São Paulo chega a 243, número que também esta se incrementando por causa de espécies conhecidas e das recentemente descobertas (Andersen *et al* 2015, 2016).

Para São Paulo existem registros muito antigos de duas espécies feitos por Say 1823; *Chironomus stigmaterus* e *Ablabesmyia annulata*. Um incremento significativo no conhecimento chega durante as primeiras décadas do século XX com os registros de Johansen, Coquillett, Kieffer, Edwards, Meigen entre outros. Para chegar uma nova onda no aumento do conhecimento das espécies de Chironomidae, ainda tinha que passar algumas décadas mais, até as últimas do século XX, desta vez com pesquisas lideradas por Brundin, Roback, Oliveira, Sæther, Andersen, Reiss e Fittkau. O Professor Sebastião José de Oliveira, que trabalhava no Instituto Oswaldo Cruz do Rio de Janeiro foi o pioneiro neste campo do conhecimento no Brasil, com importantes descobertas e formação de alguns seguidores. Logo em seguida, durante o trabalho de tipologia de lagos do Brasil liderados pela USP de São Paulo, o Professor Claudio G. Froehlich, mesmo

não sendo especialista em Chironomidae, orienta trabalhos que serviram de inspiração para muitos outros pesquisadores. Dentre os orientandos do Prof. Claudio, podemos destacar a Profa. Gisela Shimizu que foi por sua vez orientadora de várias dissertações e teses na área. Devemos salientar ainda a orientação do Prof. Giovani Strixino que fundou um dos grupos de pesquisas mais fortes do Brasil, na Universidade Federal de São Carlos. Já neste novo milênio se deram os maiores avanços nos conhecimentos desta família, todos proporcionados pelo esforço sobre-humano dos pesquisadores das décadas anteriores, com as chaves de identificação de larvas do Estado de São Paulo de Trivinho-Strixino & Strixino; e diversas pesquisas taxonômicas, sistemáticas e ecológicas, por uma nova geração de entomólogos formados especificamente nesta área como Mônica Kuhlman, Humberto Mendes, Luiz Pinho, Sofia Wiedenbrug, Mateus Pepinelli, Caroline Neubern, Livia Fusari, Fábio Roque e Fábio Laurindo Silva, em sua maioria, formados pelas duas gerações anteriores.

Grande parte do Estado de São Paulo se encontra na região geográfica coberta pela fisionomia vegetal conhecida como Mata Atlântica. Esta é, segundo dados da Conservation International e Galindo-Leal & Câmara (2003), um dos maiores hotspots de biodiversidade do planeta, sendo apontada pelos autores como uma das florestas mais ameaçadas do globo. Exatamente pelo fato de existir um risco iminente de extinção em massa, a Mata Atlântica merece atenção imediata para sua conservação. Dados recentes mostram que resta menos de 10% da cobertura original, sendo que algumas das áreas com altos índices de endemismo, como é o caso das Florestas Interiores, têm sido ameaçadas pela expansão da agricultura e pecuária (Galeano-Leal & Câmara, 2003), o que reforça a necessidade de trabalhos conservacionistas. A criação e manutenção de unidades de conservação são exemplos de esforços nesse sentido. Este é o caso da Estação Biológica de Boracéia (EBB), que se encontra no sudeste do Estado de São Paulo no município de Salesópolis, estando a poucos quilômetros da capital São Paulo. A posição estratégica e o estado de preservação dos ecossistemas posiciona a EBB como um dos lugares com maior riqueza na região da Mata Atlântica do Sudeste do Brasil. Criada em 16 de março de 1954 (decreto-lei 23.198), sua origem remonta a 1938. Desde antes de sua criação formal existem estudos de fauna e flora desenvolvidos na região, sendo um dos locais melhor amostrados em termos biológicos no país; considerando os Chironomidae, a primeira espécie a ter a região como localidade tipo foi *Cardiocladius travassosi* Oliveira, 1951. Registros de vários gêneros e

espécies foram feitos nos últimos anos, além de sete espécies com localidade tipo na EBB (Andersen, 2007).

Características como essas tornam a EBB uma localidade interessante para o desenvolvimento de projetos sobre a diversidade de grupos taxonômicos. Considerando os Chironomidae, a necessidade de obtenção de informações básicas ainda é grande. Esse é o caso dos Orthoclaadiinae, subfamília para a qual não existe, em toda a América do Sul, uma única ferramenta que permita a identificação dos adultos até nível de gênero. Baseados na ocorrência registrada ou esperada do grupo para o Estado de São Paulo, se propõe a elaboração de uma chave de identificação de machos para 41 gêneros de Orthoclaadiinae, realizando-se coleta de material na EBB

MATERIAL E MÉTODOS

CONFECÇÃO DA CHAVE

A chave apresentada é uma compilação de todos os registros conhecidos do Estado de São Paulo e também é baseado em chaves de identificação anteriores de outras partes do mundo (Cranston *et al* 1989; Mendes & Pinho, 2014; Trivinho-Strixino, 2011; Spies *et al* 2009; Wielderhorm, 1989). As Descrições e informações foram recolhidas diretamente a partir da descrição original dos gêneros, além para alguns gêneros foram tomadas de Wielderhorm (1989). A chave foi elaborada baseada nas diagnoses e testada em alguns holótipos e parátipos, assim como em indivíduos de identidade conhecida e organismos desconhecidos e recém coletados. Há duas nomenclaturas para a morfologia de Chironomidae, uma proposta por Sæther (1980) especificamente para a família e outra por Oliver (1981) com base em estudos morfológicos em muitas famílias diferentes de Diptera presente no Manual de Diptera Nearctic. Na presente chave usamos a primeira proposta; e com o objetivo de facilitar o trabalho de identificação e a comparação, apresentamos uma tabela com equivalências para ambas as nomenclaturas (Spies *et al.* 2009).

COLETA

As coletas se concentraram na Estação Biológica de Boracéia (EBB), município de Salesópolis e foram feitas de 31/10 a 2/11 de 2014 e de 16/05 a 26/05 de 2015. As larvas e pupas aquáticas foram coletadas com amostrador do tipo Surber e a coleta direcionada com rede subaquática tipo 'D' e varredura nas margens. As larvas foram mantidas em laboratório até a emergência dos adultos seguindo os procedimentos propostos por Mendes (2002). Os adultos foram coletados com rede entomológica, atração luminosa e armadilha do tipo Malaise. Os animais foram fixados ainda no campo em álcool 92%, mantidos em refrigeração e transportados em caixas térmicas com gelo, para, posteriormente serem transferidos para álcool 99% e guardados em refrigerador ao abrigo da luz.

MONTAGEM DE LÂMINAS E IDENTIFICAÇÃO

As lâminas foram montadas fazendo algumas modificações dos procedimentos descritos por Pinder (1989). As lâminas foram analisadas, as larvas identificadas usando as chaves de Andersen *et al*, 2012 e de Trivinho-Strixino, 2011; as fêmeas com as chaves de Sæther 1977 e os machos com as chaves elaboradas para esse propósito neste trabalho.

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RESULTADOS

Artigo 1: Identification key to Orthocladiinae (Insecta: Diptera: Chironomidae) from São Paulo State, Brazil.

Artigo 2: Description of a new species of *Lipurometriocnemus* Saether, 1981.

IDENTIFICATION KEY TO ORTHOCLADIINAE (INSECTA: DIPTERA: CHIRONOMIDAE) FROM SÃO
PAULO STATE, BRAZIL

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ABSTRACT

The present key is a compilation of both published and new data focusing on helping other researchers to correct identify the genera of Orthoclaadiinae, one of the most difficult subfamilies when it comes to the correct assignment to genus level. All information available in original descriptions as well as world and Brazil catalogs was gathered in order to compose the data-set in which we based our key. Some genera are known to occur in São Paulo State, but no former species has ever been published, these genera were therefore included in the key presented below.

Key-words: Mata Atlântica, Brazil, Neotropical region, Taxonomy, identification key.

INTRODUCTION

According to Ashe and O'Connor (2009), the Neotropical region is the most diverse biogeographical region when it comes to subfamily level and it should be reflected in the absolute number of genera and species. These authors stress that the Neotropical region is nowadays in third position due to the fact that it is the least known region of all. It is expected that the Neotropical region will surpass both Palaeartic and Nearctic in a few years of study. Even with

this huge amount of work ahead, only a few students and researchers are currently working on this matter.

Brazil is home to some very important biomes, one of them is nearly endemic and composed of a stripe of forest along the Atlantic coast, named Mata Atlântica. This biome is quite endangered especially because it is rather heterogeneous and deforested. However São Paulo State is home to quite a few nature reserves and one of the best in natural resource conservation (Galindo-Leal & Câmara 2003).

Orthocladiinae occur in all biogeographical regions of the world, including polar regions; it can be considered the most diverse subfamily of Chironomidae in number of genera (174 valid, 36 subgenera valid), and the second most diverse in number of species (2.275 valid, 19 valid subspecies). There are 260 species distributed in 64 genera, 21 of them are considered neotropical endemic (Ashe & O'Connor, 2012). There are 124 species belonging to 37 genera in Brazil, and 73 species in 29 genera in São Paulo State (Mendes & Pinho, 2014).

The following key is proposed to help identifying the genera of male adults of Orthocladiinae expected for the Biological Station of Boracéia (Estação Biológica de Boracéia – EBB) and all species known from São Paulo State where the biological station is located. The inclusion of genera in the key is based on previous and recent records for EBB. Records from the remaining of the State of São Paulo that indicate a possible occurrence in the biological station were included, some have never been collected in São Paulo, but occur in the major biome Mata Atlântica in similar conditions as the reserve were therefore included in the key (*e.g. Miamberea* Andersen *et* Mendes).

Phytotelmatocladus Epler and *Gynocladus* Mendes, Sæther *et* Andrade-Morrays were excluded from the key because both genera are known only from parthenogenetic species, in which only females are known; for their identification the key proposed by Mendes & Andersen (2008) should work fine.

The genera with known species (idiosyncrasy: world - Brazil - São Paulo) included in the key are: *Antillocladius* Sæther, 1981 (28-16-9); *Bryophaenocladus* Thienemann, 1934 (115-1-1); *Cardiocladus* Kieffer, 1912 (19-2-1); *Clunio* Halyday, 1855 (25-1-0); *Colosmittia* Andersen *et* Sæther, 1994 (3-1-1); *Comptosmittia* Sæther, 1981 (12-2-1); *Corynoneura* Winnertz, 1846 (73-

19-17); *Diplosmittia* Sæther, 1981 (9-2-1); *Gravatamberus* Mendes et Andersen, 2008 (5-1-1); *Ichthyocladus* Fittkau, 1974 (3-2-1); *Iporangomberus* Mendes et Andersen, 2012 (1-1-1); *Irisobrillia* Oliver, 1985 (1-1-0); *Jururumberus* Mendes et Andersen, 2013 (2-2-1); *Limnophyes* Eaton, 1875 (90-1-1); *Lipurometriocnemus* Sæther, 1981 (4-2-0); *Litocladus* Mendes, Andersen et Sæther, 2004 (5-5-2); *Lopescladius* Oliveira, 1967 (8-5-1); *Maximberus* Andersen et Mendes, 2012 (1-1-1); *Mesosmittia* Brundin, 1956 (18-1-1); *Nanocladus* Kieffer, 1913 (34-2-2); *Oleia* Andersen et Mendes, 2007 (7-7-1); *Onconeura* Andersen et Sæther, 2005 (7-5-3); *Parakiefferiella* Thienemann, 1936 (43-1-1); *Paraphaenocladus* Thienemann, 1924 (25-1-1); *Pebapomberus* Mendes et Andersen, 2012 (2-2-2); *Pseudosmittia* Edwards, 1932 (93-21-13); *Rheocricotopus* Brundin, 1956 (72-1-0); *Saetherocladius* Andersen et Mendes, 2007 (5-5-3); *Saetherocryptus* Andersen et Mendes, 2007 (2-2-2); *Saetherolabis* Andersen et Mendes, 2007 (3-3-1); *Ubatubaneura* Wiedenbrug et Trivinho-Strixino, 2009 (1-1-1), (Ashe & O'Connor, 2012; Mendes & Pinho, 2014). A new species of *Lipurometriocnemus* Sæther, 1981 was found in this study and is in process of description.

Some genera are recorded from the larval stage by Trivinho-Strixino (2011) and were included tentatively in the key based on the generic diagnosis proposed by Cranston *et al.* (1989): *Cricotopus* van der Wulp, 1874; *Gymnometriocnemus* Goetghebuer, 1932; *Metriocnemus* van der Wulp, 1874, *Parametriocnemus* Goetghebuer, 1932; *Paracladius* Santos-Abreu, 1918; *Psectrocladius* Kieffer, 1906; *Thienemannia* Kieffer, 1909 and *Thienemaniella* Kieffer, 1911.

Lyrocladius Mendes et Andersen, 2008 and *Irisobrillia* Oliver, 1985 are known to occur north and south of São Paulo State and their occurrence in the biological station was implied. We explain the absence of their records in the station by lacking sampling.

The key below is a compilation of all known records from São Paulo State and it is also based on previous identification keys from various parts of the world (Trivinho-Strixino, 2011; Cranston *et al.* 1989, Spies *et al.* 2009; Ashe & O'Connor, 2012; Mendes & Pinho, 2014). Additional information was gathered directly from the original description of the genera.

There are two nomenclatures for Chironomidae morphology, one proposed by Sæther (1980) and another proposed by Oliver (1981) based on morphological studies across many different families of Diptera and before the Manual of Nearctic Diptera. In the present key we used the first proposal; and aiming on facilitating the work of identifying and the comparison

with other keys, we hereby present a table with equivalencies for both nomenclatures (Spies *et al.* 2009).

Oliver (1981)	Sæther (1980)	Oliver (1981)	Sæther (1980)
Crossvein r-m	RM	Male terminalia	Hypopygium
Vein M	M + M ₁₊₂	Epandrium	Tergite IX
Crossvein bm-cu	MCu	Gonocoxal apodeme	Coxapodeme + sternapodeme
Cubital fork	FCu	Paramere	Phallapodeme + aedeagal lobe
Vein CuA ₁	M ₃₊₄	Dorsomedial lobe	Median volsella (in part)
Vein CuA ₂	Cu ₁	Appendage 1	Superior volsella (in part)
Calypter	Squama	Appendage 1a	Digitus
Gonostylar tooth	Megasetae	Appendage 2	Inferior volsella (in part)
		Appendage 2a	Median volsella (in part)

KEY TO THE MALE OF ORTHOCLADIINAE (DIPTERA: CHIRONOMIDAE) FROM SÃO PAULO STATE

1-. Small sized (except *Ichthyocladius* that possess dark wing membrane); wing length less than 1.3 mm, except *Ichthyocladius*. Wing with clavus where R₁ and R₂₊₃ fused with costa.

..... 2 (*Corynoneura* Group)

1`- Small to large sized; wing clavus absent, with veins R₁, R₂₊₃ (if present) and R₄₊₅ narrow, elongate, separate until their respective meeting with costa beyond midlength of wing. 6

2(1). Scutal tubercle present, wing membrane darkened, strong robust animals that have never been collected in light traps, larvae live on catfish of the families Loricariidae, Astroblepidae and Trichomycteridae..... *Ichthyocladius* Fittkau

2`- Scutal tubercle absent, wing membrane hyaline, small fragile animals that are usually collected in light traps, larvae generally free living, some *Corynoneura* might be collected on other insects, but have never been collected living on catfish. 3

3(2`). Genital segment internally with sternapodeme dilated, inverted V- or U-shaped, with no trace of oral projections; eye bare (microtrichia between ommatidia never as long as ommatidia); foretrochanter with dorsal keel; apex of hind tibia enlarged, sometimes slanted.....
..... *Corynoneura* Winnertz

3`- Sternapodeme narrow, straight or convex; anterolateral corners slightly to strongly projecting orally; eye bare or with microtrichia between ommatidia; dorsal keel of foretrochanter at most moderately developed; apex of hind tibia at most slightly enlarged. 4

4(3`). Eye hairy/pubescent (microtrichia as long as or even longer than ommatidia); foretrochanter without dorsal keel..... *Thienemanniella* Kieffer

4`- Eye bare; foretrochanter with developed dorsal keel 5

5(4`) Sternapodeme usually with strong anteriolateral projections; inferior volsella strong; superior volsella low but distinct; tergites with row of setae. *Onconeura* Andersen *et* Sæther

5`- Sternapodeme without oral projections; inferior volsella broad and low; superior volsella absent head with right-angled dorsolateral region; terminal flagellomere with triangular apex surrounded by sensillachaetica. *Ubatubaneura* Wiedenbrug *et* Trivinho-Strixino

6(1`). Eye hairy (i.e. with microtrichia longer than height of ommatidia). 7

6`- Eye bare or pubescent (microtrichia, if present, at most as long as ommatidia height). 15

7(6). Anal point absent.	8
7`- Anal point present, variably developed.	11
8(7). Eyes protruding; all tarsomeres 4 cordiform; gonocoxite with or without long extension past origin of gonostylus; without megaseta.	<i>Lopescladius</i> Oliveira
8`- Eyes not protruding; tarsomeres 4 cylindrical; gonocoxite not extended past origin of gonostylus; with megasetae.	9
9(8´). Palp reduced to two segments (basal and one free); first antennal flagellomere much longer than the second; tergite IX extending posteriorly to cover gonocoxites; tarsomere 3 about twice longer than tarsomere 2; marine and often collected near rocky shores.	<i>Clunio</i> Halyday
9´- Palp normally developed (five-segmented, four free palpomeres); first antennal flagellomere as long as second; tergite IX never covering gonocoxites; tarsomere 3 either as long as, or smaller than tarsomere 2; most of species are from inland, but some <i>Cricotopus</i> might occur in salt-water.	10
10(9´). Tuft of strong, flattened macrotrichia on low dorsal protuberance of tergite IX; scutellars uniserial; R_{4+5} ending proximal to M_{3+4}	<i>Miambra</i> Andersen <i>et</i> Mendes 2012
10`- Tergite IX with normal setae; scutellars multiserial ; wing membrane with or without dark spots or bands; R_{4+5} ending distal to M_{3+4}	<i>Cricotopus</i> van der Wulp
11(7´). Eyes protruding; Thorax with at most six acrostichal setae concentrated at midscutum; anal point hyaline.	<i>Nanocladius</i> Kieffer 1913
11`- Eyes not protruding; Acrostichals usually more numerous and starting near anteprepronotum; anal point setose with microtrichia.	12

12(11[`]). Abdominal tergites medially with setation reduced, Gonostylus subcuadrangular; Penis lobe suspended between the phallapodemes, with fine spines in apical half, with ventral channel in basal half..... *Iporangomberus* Mendes *et* Andersen 2011

12[`]- Abdominal tergites medially with setation developed; gonostyle fusiform; penis lobe not evident 13

13(12). Abdominal tergites medially with setae in group, and occasionally with anterior and/ or posterior transverse row; scutelars uniserial; Pulvilli well developed.
..... *Rheocricotopus* Thienemann *et* Harnisch 1932

13[`]- Abdominal tergites without setae in group; scutelars uni- to multiserial; pulvili absent.... 14

14(13[`]). Tergites more or less thickly setose with bare longitudinal area; decumbent achrosticals; virga absent..... *Paracladius* Hivernoja

14[`]- Tergites with few setae in irregular rows; long achrosticals; virga consisting in six short spines. *Thienemannia* Kieffer

15(6[`]). Thorax with setae on posterior anepisternum and epimeron, usually also on katepisternum and dorsal parts of antepronotum; often some humeral and/or prescutellar setae lanceolate.
..... *Limnophyes* Eaton

15[`]- Posterior anepisternum, epimeron and dorsal parts of antepronotum bare; no lanceolate setae on Scutum (except for *Saetherocladius* that is considered to have slightly lanceolate dorsocentrals). 16

16(15 [`]). Thoracic acrostichal setae absent, but tuft of microtrichia may be present at midscutum.	17
16 [`] - Acrostichals present, but may be few, short and concentrated at midscutum.	23
17(16). Membrane of some wing cells with setae; genitalia with two clusters of setae on Tergite IX.	<i>Irisobrillia</i> Oliver
17 [`] - Wing with setae only on veins; genitalia never with two clusters of setae on tergite IX. ..	18
18(17 [`]). Tarsomeres 4 more or less cordiform; anal point absent, squama fringed, acrostichals or median tuft of setae absent, wing length up to 3.0 mm.	<i>Cardiocladius</i> Kieffer
18 [`] - Tarsomeres 4 cylindrical; anal point generally present, squama bare, acrostichals absent, wing length up to 1.8 mm.	19
19(18 [`]). R ₄₊₅ ending more or less opposite to M ₃₊₄ , tuft of setae placed medially on scutum.	<i>Parakiefferiella</i> Thienemann
19 [`] - R ₄₊₅ ending proximal to M ₃₊₄ , scutum void of setae.	20
20(19 [`]). U-shaped extended ventrally frons, weak tapering anal point without setae, only microtrichia is present.	<i>Jururumberus</i> Mendes et Andersen
20 [`] - Normal developed, not extended frons, strong large anal point with seta.	21
21(20 [`]). Virga absent or weak.	<i>Psectrocladius</i> Kieffer
21 [`] - Virga present.	22

- 22(21[`]). Virga composed of 4-8 bundles of 1-4 separated flattened spines.
..... *Maximberus* Andersen *et* Mendes
- 22[`] - Virga consisting of two separate strong sclerites..... *Pebapomberus* Mendes *et* Andersen
- 23(16[`]). Thoracic acrostichal setae all scalpellate, or at least some scalpellate acrostichals present near midscutum. 24
- 23[`] - Acrostichals straight or hooked, but all hair-like. 28
- 24(23). Squama bare; costa with long extension beyond R₄₊₅; acrostichal setae present only at some distance from anteprepronotum; virga lacking; megasetae simple or distally dentate. 25
- 24[`] - If squama bare, then some acrostichals positioned near anteprepronotum; costal extension short or long; virga usually present underneath midpoint of gonocoxal apodeme; megaseta simple, not dentate..... 26
- 25(24). Anal point lacking, wing membrane fully setose..... *Gravatamberus* Andersen *et* Mendes
- 25[`] - Anal point present with lateral setae, wing membrane with setae restricted to the distal half.
..... *Comptosmittia* Sæther
- 26(24[`]). Lyre-shaped anal point, megaseta sitting on tubercle..... *Lyrocladius* Mendes *et* Andersen
- 26[`] - Anal point taperin or paralleled side; megaseta sitting dirently on the gonostyle 27

27(26`).	Virga long with lateral lamellae, costal extension short; three types of acrostichals setae present, anterior decumbent strong setae, followed by weak hair-like setae and posterior scalpellate setae near midscutum.....	<i>Litocladius</i> Mendes, Andersen <i>et</i> Sæther
27` -	Virga absent, short or long, but never with lateral lamellae; costal extension short to very long; acrostichal setae might all be scalpellate or anterior hair-like and posterior scalpellate. <i>Antillocladius</i> Sæther
28(23`).	Membrane of some wing cells with setae, at least near wing tip.	29
28` -	Wing without setae or only on veins.....	32
29(28).	R_{4+5} always and C usually ending proximal to CuA_1 <i>Paraphaenocladus</i> Thienemann
29` -	R_{4+5} usually and C always ending at the level of CuA_1 or farther distal.	30
30(29`).	Squama bare; anal point small and setose.	<i>Gymnometriocnemus</i> Goetghebuer
30` -	Squama with setae; anal point either long and with strong lateral setae or small and hyaline.	31
31(30`).	Wing vein CuA_2 straight; head and thorax with numerous strong setae: inner verticals, supraalars and scutellars bi- to multiserial; anal point hyaline.....	<i>Metriocnemus</i> van der Wulp
31` -	CuA_2 distinctly curved; inner vertical, supraalar and scutellar setae usually uniserial; anal point with strong lateral setae.	<i>Parametriocnemus</i> Goetghebuer
32(28`).	Squama with at least 1 seta.....	33

32` – Squama bare.	35
33(32). Tergite IX with medial longitudinal, strongly elevated, sclerotized ridge, without true anal point.	<i>Mesosmittia</i> Brundin
33` – If tergite IX with elevated ridge, then anal point present.	34
34(33`). Anal point absent.	<i>Lipurometriocnemus</i> Sæther
34` – Anal point present.	35
35(32;34`). Anal point weak, broadly triangular, short or absent.	36
35` - Anal point well developed tapering or parallel-sided.	41
36(35). Acrostichal setae decumbent but strong, beginning close to antepnotum.	37
36` – Acrostichals weak, usually few and limited to midscutum.	38
37(36). Superior volsella weakly rounded or absent.	<i>Bryophaenocladus</i> Thienemann
37` – Superior volsella composed of few, strong, subtriangular projection with single curved subapical seta on the ventral side.	<i>Saetherocladius</i> Andersen <i>et</i> Mendes
38(36`). Anal point absent, reduced four-segmented palpomere. <i>Colosmittia</i> Andersen <i>et</i> Saether
38` - Anal point point weak, broadly triangular or short, but present; normally five-segmented.	39

- 39(38`)- Anal point rounded clothed with large microtrichia tergite IX covering anal point; wing membrane with fine punctuation; acrostichals setae decumbent few and weak.
*Saetherocryptus* Andersen *et* Mendes
- 39`- Anal point tapering, variably in size, usually hyaline but never covered by tergite IX; acrostichals usually composed of two setae in mid scutum. 40
- 40(39`)- Gonostyle deeply split into two long branches; anal point distinctly projecting from posterior margin of tergite IX, triangular with broad base and rounded tip, with microtrichia and lateral setae. *Diplosmittia* Sæther
- 40`- Gonostyle simple, or with short to moderately elongate heel; anal point, if present, originating in more dorsal position, rarely extending beyond posterior margin of tergite IX, variously shaped but generally smaller, with microtrichia but without strong setae. *Pseudosmittia* Edwards
- 41(35`)- Gonostyle bi- or tri-lobed, virga well developed and composed of different sclerotized spines in the penis cavity; palpomeres normally developed, inferior volsella unilobed.*Oleia* Andersen *et* Mendes
- 41`- Gonostylus simples, virga reduced, but never composed of spines in the penis cavity, shortened palpomeres; inferior volsella deeply split.*Saetherolabis* Andersen *et* Mendes

NOTES ON THE KEY

The key presented here is the best we could provide after years of work and comparison of slides and material housed in reference collections, most of types were reviewed. However one should always bear in mind that a study becomes outdated as soon as another taxon is discovered

and published. New genera and species should be published in the near future and this key should be reviewed in order to include the new data.

This key should also work fine for most of the known taxa from Mata Atlântica and with a lower level of workability for the Amazon forest. All taxa known to occur along the Brazilian coast are included. All sorts of larval environments should be covered by the present key.

We encourage students that are not familiarized with chironomids to get acquainted with its morphology and study its life-cycle in spite of contacting specialists for checking on identification whenever judged as tentatively identified. Rearing techniques used were described by Mendes (2002) and whenever possible, rear your material and key all life stages. Most of the above genera are known only from the adult stage and much about their evolution and systematics could be learned from the knowledge of both larval and pupal stages. We also hope that this key will come handy and become a stepping stone for those interested in entomology.

DIAGNOSIS OF THE GENERA INCLUDED IN THIS KEY

Antillocladius Sæther, 1981

Generic diagnosis: Small to medium sized species, wing length 0.8–2.3 mm.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Male antennal ratio 0.50–1.70.

Head. Eye naked, with or without minute pubescence between ommatidia, without dorsomedian extension. Temporal setae divided into weak inner verticals, stronger outer verticals, postorbitals absent or few. Third palpomere with about 3 sensilla clavata subapically, longest 8–23 μm long.

Thorax. Anteprenotum well developed, lobes meeting medially along short suture. Acrostichals, short, all scalpellate or anterior few simple, beginning close to anteprenotum, some distance from anteprenotum or in the middle of scutum, situated lateral of median suture; prealars uniserial; supraalar(s) 0–2; scutellars uniserial.

Wing. Anal lobe protruding to absent. Costal extension moderately to strongly developed, $\frac{1}{2}$ to 4 times the length of RM. R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5}

ending opposite or slightly distal to M_{3+4} ; FCu far distal to RM; Cu_1 straight to slightly sinuous; An ending proximal to FCu. Veins bare or with setae on R, R_1 , R_{4+5} , M_{1+2} , M_{3+4} , Cu, Cu_1 and An. Membrane without setae, or with few weak setae apically in cell r_{4+5} , or with numerous setae apically in cells r_{4+5} , m_{1+2} and m_{3+4} . Squama bare or with up to 15 setae.

Legs. Pseudospurs, sensilla chaetica and pulvilli lacking. Comb and tibial spurs normal. Spurs smooth or with small denticles.

Abdomen. Tergites with irregularly arranged setae.

Hypopygium. Anal point long, pointed, with strong lateral setae, with microtrichia only at base or nearly to apex. Phallapodeme and aedeagal lobe well developed. Anterior margin of sternapodeme nearly straight to strongly arcuate, oral projections barely indicated to strongly developed. Virga absent or consisting of 2–6 spines of variable size. Inferior volsella highly variable; simple and rounded or triangular; with anterior dorsal triangular or digitiform part and a more rounded ventral, posterior part; with microtrichia-free, digitiform anterior projection and long rounded, low to prominent posterior lobe; consisting of a posteriomediaally directed, apically simple or bifid lobe; or circular with or without additional rounded posterior extension and conspicuously set off. Gonostylus with or without heel; crista dorsalis absent to rounded and well developed. Megaseta normal.

Bryophaenocladus Thienemann, 1934

Generic diagnosis: Small to medium sized species, wing length up to 3 mm.

Antenna. With 13 flagellomeres; fully plumed to apex; groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Antennal ratio greater than 1.0.

Head. Eye bare, with broad but short dorsomedian extension. Temporal setae uniserial with inners verticals, outer verticals and postorbitals present. Tentorium swollen basally, narrowed apically. Cybarial pump relatively short, parallel-sided, with short cornua. Palp often lacking sensilla clavata, without pit, sometimes with apical, fingerlike projection of palp segment 3.

Thorax. Anteprenotum well developed, lobes meeting at shallow notch anterior to anterior margin of scutum. Acrostichals, strong and decumbent, beginning close to anteprenotum, often

biserial, dorsocentral strong, uni to multiserial; prealars uniserial or biserial; often extending anterior to level of anterior medioanepisternum II; scutellars uniserial.

Wing. Membrane without setae, with coarse punctuation, Anal lobe protruding to reduced. Costal weakly to strongly extended, R_{2+3} running and ending medially between R_1 and R_{4+5} ; R_{4+5} ending distal to M_{3+4} ; Cu_1 gently curved; FCu distal to RM; postcubitus extending to or beyond FCu; anal vein shorter than postcubitus; R and R_1 always with setae, remaining veins bare. Squama with 1 to many setae.

Legs. Spurs strongly developed, with well developed, but not divergent lateral denticles; spur on fore tibia at least 1.5X as width of tibial apex; hind tibial comb well developed or absent. Sensilla chaetica absent; tarsal pseudospurs rarely present; Pulvilli vestigial or absent.

Abdomen. Tergites and sternites with irregularly scattered setae.

Hypopygium. Tergite IX distinctive, with strongly pigmented, semi-circular band running around posterior margin. Anal point projecting from setose area on pigmented band, hyaline, semicircular to subtriangular. Sternapodeme often semicircular, without, or sometimes with, distinct oral projections. Phallapodeme strong and aedeagal lobe well sclerotized with inner lobe projecting strongly beyond gonocoxite margin. Virga usually present, consisting of simple, variable length spines. Superior volsella weakly rounded or absent; inferior volsella quite variable, sometimes with variably developed secondary posterior lobe. Gonostylus often distinctively broadened, with outline varying according to angle of orientation; crista dorsalis apparently absent. Megaseta strong.

Cardiocladius Kieffer, 1912

Generic diagnosis: Medium sized species, wing length up to 3 mm.

Antenna. With 13 flagellomeres, sensilla chaetica absent or weak on basal flagellomeres. Antennal ratio greater than 1.50.

Head. Eye bare, with dorsomedian extension. Temporal setae uni to biserial. Small conical frontal tubercles often present. Palp with segment 3 sometimes enlarged and with numerous strong seta on inner margin, sensilla absent

Thorax. Antepronotum lobes well developed separated medially by wide V-shaped notch; rarely 1 or 2 dorsal antepronotals present; lateral antepronotals strong. Achorstichals absent; prealars uni to multiserial; Scutellars multiserial.

Wing. Membrane without setae, with fine punctation. Anal lobe strongly produced. Costal not extended. R_{2+3} running midway between R_1 and R_{4+5} ; R_{4+5} ending distal to M_{3+4} ; FCu distal to RM; R_{4+5} with out setae. Squama fully fringe with setae, with setae, multiserial on posterior part of margin.

Legs. Hind tibia with outer spur. Mid hind legs with pseudospurs on tarseomeres 1-3. Sensilla chaetica on tarsomere 1 of hind leg. Tarsomere 4 at least slightly cordiform and shorter than tarsomere 5, pulvilli absent.

Abdomen. Tergites with irregularly arranged setae.

Hypopygium. Anal point absent. Virga absent. Gonocoxite with inferior volsella curved distally. Gonostyle with weak crista dorsalis and megaseta small.

Clunio Haliday, 1855

Generic diagnosis: Small to medium sized species, wing length up to 2.5 mm.

Antenna. With 6-9 flagellomeres, groove beginning at flagellomere 2; scape, pedicel and first flagellomere elongate; plume absent; sensilla chaetica on flagellomeres 1 to penultimate. Antennal ratio much less than 1.0.

Head. Eye densely haired, rounded, without dorsomedian extension, with reduced number of omatidia. Only postorbital setae present. Clypeus bare. Palp with 2 segment, short, sensilla clavata absent.

Thorax. Antepronotum poorly developed with lobes widely separated anterior to projecting scutum. Achorstichals few, weak, decumbent, close to antepronotum. Uniserial dorsocentral, and prealars arise from pale areas. Postnotum with distinct medial division.

Wing. Membrane without setae, with moderate to coarse punctation. Broad, somewhat rounded, with broad anal lobe. Costa, at most slightly extended; R_{2+3} absent; Cu_1 strongly curved; R_{4+5} ending opposite or distal to M_{3+4} ; FCu distal to RM; postcubitus and anal vein strong, extending beyond FCu. R and R_1 with setae. Squama bare.

Legs. Stout, with well developed coxae. One strong tibial spurs present on all legs; hind tibial comb absent. On hind leg, tarsomere 2 shorter than tarsomere 3; tarsomere 3 bilobed; tarsomere 5 weakly bilobed. Pulvilli absent, empodium long and highly branched; claws strong and simple.

Abdomen. Tergites with setation often restricted to weak posterior row; sternites often bare.

Hypopygium. Large, up to ½ total length of abdomen, often rotated through 180°. Tergite IX broad, pubescent, with median apical nipple. Anal point absent. Sternapodeme weakly concavate with weak oral projections; phallapodeme narrow; aedeagal lobe not visible. Virga absent. Gonocoxite massive, setose, in contact with opposite gonocoxite for much of the dorsal sternal length, with weakly developed inferior volsella. Gonostylus broad, flattened, arcuate or subtriangular, often with distinct crista dorsalis and without megaseta.

Colosmittia Andersen et Saether, 1993

Description: Small species with wing length about 1.2 mm.

Antenna. Antennae with 12 flagellomeres, antennal groove starting on flagellomere 3; sensilla chaetica on flagellomeres 2 and 12; apex without apical seta.

Head. Eyes bare, without dorsomedian elongation. Temporal setae strongly reduced, only 1 weak inner vertical. Stipes reduced. Palp with 4 reduced segments, third segment without sensilla, fourth segment pointed.

Thorax. Anteprepronotum wide laterally with single setae, strongly reduced medially, lobes widely separated. Few dorsocentrals, prealars and scutellars, no supraalars, 2 weak median acrostichals.

Wing. Wing membrane bare, with fine punctation of microtrichia. Anal lobe weak. Costa slightly extended, but with long false vein. R₂₊₃ in the middle between R and R₄₊₅; R₄₊₅ ends proximal of end of M₃₊₄; Cu₁ down curved, but not sinuate; FCu ending far distal to RM; PCu extending beyond FCu; An not extending beyond FCu. Brachiolum with 1 seta, other veins bare. Squama bare. About 8 sensilla campaniformia on base of brachiolum, 3 below seta, and 8 on apex of brachiolum; 1 at base of subcosta, 1 on FR and 1 on base of R.

Legs. Tibial spurs and hind tibial comb normal. Pseudospurs and sensilla chaetica absent. Pulvilli absent or perhaps vestigial.

Abdomen. Tergites with very few setae in transverse posterior to median row in posterior tergites, more anterior in anterior tergites.

Hypopygium. Tergite IX of male with a few weak setae, no anal point. Sternapodeme with far lateral weak oral projections. Virga apparently single, short and spatulate.

Gonocoxite with superior volsella represented by coarse brush of basal setae, inferior volsella large and rounded. Gonostyle densely setose, without any trace of sharp dorsal inner margins or of a crista dorsalis, megaseta normal.

Comptosmittia Sæther, 1981

Antenna. Antennal ratio less than 1.0.

Head. Temporal setae form a single row, shorter inner verticals and weaker outer verticals; palp five segmented, the last three subequal sized; 1-3 sensilla calvata near the apex of segment 3.

Torax: Anteprenotum well developed, united median lobes along median suture; acrostichals all scalpellated, starting at least one quarter of the distance from the end anteprenotal lobe; scutelars arranged in a single row; anteprenotals absent or few; dorsocentrals normal and uniserials.

Wing. Apical membrane with few setae; normal, undeveloped or absent anal lobe; strongly extended costal vein; squama bare; Cu₁ variably developed;

Legs. Pulvillum present, but poorly developed; comb and tibial spurs normal; pseudospurs absent; sensilla chaetica absent.

Hypopygium. Anal point variably developed; phalopodeme well developed, with aedeagal lobe, usually triangular; sternapodeme straight or convex transverse; virga may be present, can be variably developed, but is usually not well sclerotized; gonocoxite with well developed inferior volsella and might be split into two variably developed lobes; gonostile without crista dorsalis; megaseta striated, toothed or simple.

Corynoneura Winnertz, 1846

Generic diagnosis: Small sized species, wing length 0.7–1.3 mm.

Antenna. With 10-13 flagellomeres, groove beginning at flagellomere 2; apex often with rosette of short hairs. sensilla chaetica on flagellomeres 1, 2 and 3. Antennal ratio 0.4–1.2.

Head. Eye small, bare, without dorsomedian extension. Temporal setae absent; tentorium long and narrow, tapering to blunt point; cibarial pump broad with variable sized cornua. Palp short, each segment longer than that preceding; often with 1 sensilla clavata on segment 3, without pit.

Thorax. Anteprepronotum moderately developed, with lobes narrowing dorsally, narrowly in contact anterior to non-extended scutum. Acrostichals absent; few uniserial dorsocentrals and prealars; scutellars present.

Wing. Membrane without setae, with fine punctuation. Anal lobe absent; wing more or less cuneiform. R_1 and R_{4+5} apically fused with costa, forming thick clavus which terminates between $1/4$ and $1/2$ wing length; weak false vein may continue from RM towards apex wing, beneath and parallel with anterior margin; Cu_1 weakly sinuous or nearly straight; FCu far distal to RM; postcubitus and anal vein scarcely extending beyond FCu. Veins and squama bare.

Legs. Fore leg trochanter with distinct dorsal keel. Hind tibial apex broadened, sometimes with one setae from comb developed as hook. Tarsomere 4 on all legs weakly cordiform, about $1/2$ length of tarsomere 5. Tarsal pseudospurs, sensilla chaetica and pulvilli absent.

Abdomen. All setation strongly reduced. Tergite I bare, tergites II-VIII with 1 or 2 lateral setae and median setae, arising from pale areas. Sternites bare.

Hypopygium. Tergite IX often large, covering much of gonocoxites, with straight or bilobed posterior margin; Anal point absent. Apodemes strongly sclerotized and specifically distinctive. Sternapodeme inverted V or U shaped, medially broadened, without oral projections. Phallopodeme relatively straight to strongly curved, sometimes curved anterior of coxapodeme/stenapodeme junction; aedeagal lobe strong to apparently absent. Virga absent. Superior volsella well developed, tongue-shaped to gently curved or absent; Inferior volsella variably shaped, sometimes absent, Gonostyle boat-shaped to strongly curved, with medial or basomedial rounded crista dorsalis in some species; Megaseta short and broad to long and fine.

Cricotopus Van der Wulp, 1874

Generic diagnosis: Small to large sized species, wing length up to 4 mm. Scutal stripes frequently distinct. Legs and abdomen frequently with light coloured bands or areas.

Antenna. With 13 flagellomeres and well developed plume, rarely with 6, 8, or 10 flagellomeres non-plumose; groove beginning about flagellomere 3, sometimes poorly defined; sensilla chaetica on flagellomeres 2, 5 and 13, or on all flagellomeres except flagellomere 1 if flagellomere number strongly reduced; apex usually without subapical seta. Antennal ratio 0.3–2.1, usually 1.0–2.0.

Head. Eye hairy, without or with slight to moderate dorsomedian extension. Temporal setae uni to multiserial, sometimes inner verticals absent or inner and outer verticals distinctly separated.

Thorax. Anteprenotal lobes separated medially by shallow V-shaped notch; dorsoanteprenotals usually absent. Acrostichals, usually beginning near to anteprenotum, dorsocentral decumbent, usually multiserial and sometimes covering medially behind middle scutum; prealars usually with setae.

Wing. Membrane without setae, usually with fine punctuation, rarely coarse. Anal lobe usually right-angled or rounded, sometimes slightly produced, rarely strongly obtuse. Costal extension slightly to moderately; R_{2+3} running and ending midway between R_1 and R_{4+5} or ending closer to R_1 than to R_{4+5} ; R_{4+5} ending distal to end of M_{3+4} ; FCu distal to RM; Cu_1 straight to slightly sinuous; Cu_1 rarely with setae; Squama with setae.

Legs. Tibiae of many species with whitish or yellowish ring; rarely mid and hind tibiae with only 1 spur. Pseudospurs absent. Sensilla chaetica present or absent on tarsomere 1 mid leg, present on tarsomere 1 of hind leg. Pulvilli small, vestigial or lacking.

Abdomen. Tergites usually with characteristic setal pattern, rarely thickly setose pattern, sometimes medial setae stronger than lateral setae.

Hypopygium. Anal point usually absent; if present, then small, pointed and very rarely extending distal to posterior margin of tergite IX and usually with setae, but sometimes bare. Virga absent or occasionally consisting of microtrichia. Superior volsella usually present, when present, then usually distinct, flattened, rounded or hump shaped. Inferior volsella usually present, varies in shape from simple to clearly bilobed or double with dorsal and ventral parts;

occasionally distomedial lobe present. Gonostyle usually simple, rarely bifurcate, with narrow subapical lobe or with basal appendage carrying 1-4 setae at apex; crista dorsalis absent or absent.

Diplosmittia Sæther, 1981

Generic diagnosis: Small species, wing length 0.8–1.3 mm.

Antenna. Antenna with 9–13 flagellomeres, sometimes flagellomeres partially fused. Antennal ratio < 1.2. Sensilla chaetica always present on flagellomeres 3 and ultimate, sometimes present on flagellomeres 2 to ultimate.

Head. Eye bare, with no trace of pubescence; lacking dorsomedian extension. Temporal setae uniserial, short or weak, consisting of inner verticals (few or absent), outer verticals, and postorbitals (sometimes absent). Palp five-segmented; third palpomere with about three sensilla clavata subapically.

Thorax. Anteprepronotum narrowed medially, median lobes narrowly separated. Dorsocentrals few, acrostichals 2 weak in mid scutum. Scutellum with few setae in single transverse row.

Wing. Wing membrane and veins without setae. Anal lobe weak to absent. Costa not to strongly extended (about three times the length of RM). False costal extension (almost) reaching wing tip. R_{4+5} ending proximal to M_{3+4} . An ending proximal to FCu. Cu_1 distinctly curved. Brachiolum with one seta. Squama bare.

Legs. Pulvilli inconspicuous or absent. Comb and tibial spurs normal. Sensilla chaetica apparently absent. Hind leg with ta_3 of same length or slightly longer than ta_2 .

Hypopygium. Anal point large, triangular with broadly rounded apex, with or without crest; with microtrichia sometimes arranged in patches; with strong lateral setae. Phallapodeme well developed. Transverse sternapodeme semicircular, oral projections weak to absent. Virga short to long, with or without bulbous base or consisting of short, straight spines originating from common base. Gonocoxite generally without inferior volsella, occasionally with weak inferior volsella. Gonostylus double, basal lobe about as long as lobe with megaseta; lobes fused basally to about one-third of their length; lobe with megaseta with small to large, triangular or rounded crista dorsalis.

Gravatamberus Mendes *et* Andersen, 2008

Generic diagnosis: Small, wing length about 1.0 mm.

Antenna. With 12–13 flagellomeres, 12th and 13th flagellomeres may be distinct to completely fused; groove beginning on flagellomere 2; sensilla chaetica on flagellomeres 2, 3 and 13 (12 when fused); apex rounded with stout setae; fully plumed. Antennal ratio about 0.50.

Head. Eye bare, without dorsomedian extension. Temporal setae strong, consisting of inner verticals, outer verticals, and postorbitals. Third palpomere about as long as fourth, with two long, weak lanceolate sensilla clavata subapically.

Thorax. Anteprenotum well developed with lobes meeting medially, with few lateral setae. Acrostichals strong, in mid scutum, apparently all scalpellate, uniserial to irregularly biserial; dorsocentrals beginning close to anteprenotum, anterior uniserial, posterior biserial; prealars few, uniserial; supraalars present. Scutellars uniserial.

Wing. Membrane with setae, with moderately coarse punctuation (visible at 250X magnification). Anal lobe weakly developed. Costa moderately to strongly extended. R₂₊₃ running and ending midway between R₁ and R₄₊₅; R₄₊₅ ending proximal to M₃₊₄; Cu₁ nearly straight; FCu distal to RM. Postcubitus ending distal to FCu, An ending below FCu. Veins with setae except for R₂₊₃. Brachiolum with one seta. Squama bare.

Legs. Pseudospurs, sensilla chaetica, and pulvilli absent.

Abdomen. Tergites and sternites with few setae.

Hypopygium. Tergite IX rounded posteriorly without anal point, covered with microtrichia, without or with few setae. Laterosternite IX setose. Sternapodeme slightly arched, oral projection well developed. Virga absent. Gonocoxite with well developed inferior volsella. Gonostyle with well developed, rounded crista dorsalis.

Gymnometriocnemus Goetghebuer, 1932

Generic diagnosis: Small sized species, wing length up 2.0 mm.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 3 or 4, sensilla chaetica on flagellomeres 2, 3 and 13. Apex with strong subapical setae. Antennal ratio 0.9–1.4.

Head. Eye bare, with dorsomedian extension. Temporal setae uniserial extended to mid line of head. Tentorium narrow, tapering to point. Cibarial pump broadening apically, cornua stout. Palp with 2 sensilla clavata on segment 3.

Thorax. Antepnotum moderately developed, lobes meeting narrowed dorsally and separated medially anterior to weakly extended scutum. Acrostichals small, hooked, beginning in anterior $\frac{1}{3}$ of scutum, often close to anterior margin, dorsocentrals partially biserial, beginning close to anterior margin of scutum, prealars and scutellars uniserial.

Wing. Membrane with setae in at least cells r_{4+5} , m_{1+2} and m_{3+4} , often in more posterior cells, with distinct punctuation. Anal lobe weakly developed. Costa strongly extended, often to wing apex; R_{2+3} weak, running medially between R_1 and R_{4+5} ; often curving parallel to costa and more or less evanescent apically; R_{4+5} ending opposite or slightly distal to the end of M_{3+4} ; Cu_1 moderately curved; FCu distal to RM ; postcubitus and anal vein extending beyond FCu . Veins with setae on R , R_1 , R_{4+5} , M_{1+2} , M_{3+4} . Squama bare.

Legs. Pseudospires, sensilla chaetica and pulvilli lacking.

Abdomen. Tergites and sternites with irregularly arranged setae.

Male hypopygium. Anal point absent or small, developed only as setose, microtrichia protuberance on tegite IX, without hyaline part. Sternapodeme nearly straight to distinctly curved, oral projection distinct. Phallopodeme straight, with anterior semicircular projection; aedeagal lobe well developed. Virga consisting of 2 long spines. Superior volsella scarcely developed; inferior volsella strong, setose, variable developed but broad. Gonostyle with weak to moderately developed crista dorsalis.

Ichthyocladius Fittkau, 1974

Generic diagnosis: Small species, wing length about 1.3mm.

Antenna. Antenna with 12 (or perhaps sometimes fewer, see below) flagellomeres in male, six in female; male antenna sparsely plumed; groove beginning on flagellomere 3; sensilla chaetica minute, present on flagellomeres 2, 3 and 12; apex without straight apical seta; male antennal ratio lower than 0.4.

Head. Eye bare, rounded, no dorsomedian elongation. Only one palpomere, no sensilla clavata. Temporals consisting of a few minute inner and outer verticals (or sometimes absent?).

Tentorium with broad but short base, stipes apparently normal. Cibarial pump broad, but short, with concave anterior margin and well developed, triangular cornua. Clypeus narrow with short lateral setae.

Thorax. Anteprenotal lobes broad, collar-like, not medially narrowed, without setae. Scutal tubercle present and prominent. Acrostichals absent, dorsocentrals uni-triserial, several prealars, supraalar present. Scutellum with setae transversely uniserial.

Wing. Wing broad, with well developed, but not projecting anal lobe; membrane with distinct punctation; costa slightly extended; veins R_1 and R_{2+3} short, thick and fused with costa in thick clavus, ending slightly beyond midpoint of wing; R_{4+5} weak; VR moderately high; Cu_1 slightly sinuous; postcubitus ending distal to cubital fork, anal vein ending below or slightly distal to cubital fork. Brachiolum with one seta, other veins bare. Squama bare. Sensilla campaniformia about eight basally and eight apically on brachiolum, apparently none below setae on brachiolum; one present basally on subcosta, and one on RM.

Legs. Frontleg ratio high, about 0.8. Front tibia with straight, weak spine-like tibial spur; spurs of mid tibia either with thorn-like lateral denticles or entirely consisting of thorn-like spines; hind tibia with well developed spurs covered with thorn-like lateral denticles; hind tibial comb absent or reduced to a few setae. Short tarsal pseudospurs present on metatarsi of mid and hind legs and ta2 of mid leg. Pulvilli absent. No sensilla chaetica observed.

Abdomen. Tergites II–VII in male, II–VIII in female each with group of median setae sometimes on a low protuberance, tergites except for male tergite IX otherwise bare; sternites except for female sternite VIII bare.

Hypopygium. Tergite IX of male large, covering much of gonocoxites, with notched or bilobed posterior margin, with several apical and some apical ventrolateral setae; laterosternite IX bare. Sternapodeme strong, triangular. Phallapodeme and aedeagal lobe normally developed. Virga absent. Gonocoxite well developed, superior volsella apparently absent, inferior volsella low to moderately well developed. Gonostyle broadest near apex, without crista dorsalis and megaseta.

Iporangomberus Mendes *et* Andersen, 2011

Generic diagnosis: Small sized species, wing length 0.98 mm.

Antenna. Antenna lost.

Head. Eye hairy, reniform, without dorsomedian extension. Palpomeres normal, third palpomere with few sensilla clavata subapically. Temporal setae in single row, inner verticals weak, outer verticals and postorbitals strong. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae.

Thorax. Anteprenotum well developed with lobes meeting medially at anterior margin of scutum. Acrostichals decumbent, biserial, starting close to anteprenotum; dorsocentrals simple, uni-to biserial; prealars uniserial, grouped in posterior and anterior prealars; supraalar present. Scutellum with few setae in single row.

Wing. Membrane without setae, with comparatively coarse punctuation, microtrichia visible at 100 times magnification. Anal lobe normal. Costa slightly extended; R₂₊₃ ending at 1/3 of the distance between R₁ and R₄₊₅; R₄₊₅ ending distal to M₃₊₄; FCu distal to RM; Cu₁ curved. Brachiolum with 1 seta, R with few setae, other veins bare. Squama with few setae. Sensilla campaniformia about 9 basally, 7 apically, and 3 above seta on brachiolum; 1 on RM; and basally on R₁.

Legs. Tibial spurs and comb normal. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Abdominal setation reduced. Tergite I with few median setae, tergites II-VI with anterior and posterior row of few setae, tergites VII-VIII with few more scattered setae. Sternite I-III bare, sternite IV-VII with single to few median setae, sternite VIII with few scattered setae in apical half.

Hypopygium. Anal point short, parallel-sided with rounded apex, with microtrichia at base only. Tergite IX with few setae to each side of anal point, laterosternite IX with several setae. Apodemes strongly sclerotized. Phallapodeme curved; aedeagal lobe spoon-shaped. Transverse sternapodeme straight, with strongly developed oral projections; coxapodeme strong, stretching orally beyond transverse sternapodeme. Penis cavity with horse-shoe shaped basal sclerite; virga consisting of two separate sclerites. Penis lobe suspended between the phallapodemes, with fine spines in apical half, with ventral channel in basal half. Gonocoxite with narrowly triangular, pointed inferior volsella with few strong marginal setae. Gonostylus broad, subquadrangular with distinct heel, covered with long, thin macrotrichia and setae; megaseta normal.

Irisobrillia Oliver, 1985

Generic diagnosis: Medium-sized species, with wing length up to 2.75 mm.

Antenna. Scape and pedicel bare. Flagellum with 13 flagellomeres and well-developed plume; groove beginning on flagellomere 3; long sensilla chaetica present on flagellomeres 1-4 and 13; terminal flagellomere without subapical seta. Antennal ratio greater than 1.00.

Head. Eye bare, except microtrichia present medial to ommatida on inner margin and on apex of dorsomedial extension, sometimes microtrichia extend laterally between ommatida on dorsomedial extension; dorsomedial extension long and rectangular. Coronal triangle with 4 short setae; coronal suture distinct. Temporal setae extending from behind and above eye to near coronal suture, consisting of inner and outer verticals and postoculars; frontals and orbitals absent. Frontal tubercles absent. Clypeus trapezoidal in shape, with setae on raised semicircular area. Maxillary palp 5-segmented; sensilla chaetica present on lateral margin of 3rd and 4th segments; no sensilla arising from weak distomedial depression on 3rd segment. Tentorium widest in basal third; microtrichia absent.

Thorax. Anteprenotal lobes widely separated medially; dorsal and ventral anteprenotals present. Anterior margin of scutum rectangular, rising above anteprenotum. Acrostichals absent. Dorsocentrals erect and extending anteriorly to near anteprenotum. Prealars unito bi-serial, not extending anterior to level of anterior margin of median anepisternum 11. Supraalars present or absent. Anepisternals and preepisternals absent. Scutellars uni- to bi-serial.

Wing. Narrow, cuneiform, with anal lobe only slightly developed. Membrane and most veins with macrotrichia; punctation coarse. Costa strongly extending beyond R_{4+5} and ending near wing tip; radial sector located close to anterior margin of wing; R short; R_{2+3} running and ending close to R_1 ; R_{4+5} ending distal to end of M_{3+4} ; RM long, oblique, and running nearly in direction of R; Cu, curved. Squama with few setae on middle third.

Legs. (all tarsi of all specimens except tarsomere 1 of one mid leg lost): Fore tibia with 1 spur; mid tibia with 2 spurs subequal in length; hind tibia with 2 spurs subequal in length and without tibial comb.

Abdomen: Long and narrow with segments I-VII longer than wide; segment VIII wider than long and slightly narrower than preceding segments. Chaetotaxy of tergites sparse, with no distinct pattern.

Hypopygium: Segment IX rectangular, narrower than segment VIII; tergite IX with a group of setae on each side of midline; sternite IX with setae on each side; anal point absent. Virga absent. Gonocoxite parallel-sided and elongate; superior volsella elongate and narrow. Gonostyle simple with a long megaseta and long setae; superior volsella elongate, with setae and macrotrichia on ventral surface; distomedial lobe weakly developed. Sternapodeme U-shaped with oral projection on each side; transverse sternapodeme narrow. Phallapodeme narrow.

Jururumberus Mendes et Andersen, 2013

Generic diagnosis: Small sized species, wing length 0.67-0.87 mm.

Antenna. Antenna with 12 flagellomeres, male antennal ratio ≤ 0.30 ; sparsely plumed; groove beginning on segment 1; sensilla chaetica present on flagellomeres 1-3 and ultimate; without subapical seta.

Head. Eyes bare, reniform, without dorsomedian extension. Palp five-segmented, short; third palpomere with 5-7 sensilla clavata in subapical sensillum coeloconicum. Temporal setae in single row, all comparatively long. Frons U-shaped, extended ventrally; frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly convex. Clypeus with few setae.

Thorax. Anteprenotal lobes widely separated medially, with few, weak lateral anteprenotals. Acrostichals absent; dorsocentrals few, uniserial; prealars few; supraalar absent. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctuation. Anal lobe weakly developed. Costa strongly extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu distal to RM; Cu_1 slightly curved. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 6 apically, 5 basally, and 2 above seta on brachiolum; 1 on RM; and basally on R_1 .

Legs. Tibial spurs normal, comb of hind tibia composed of 9-12 setae. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Abdominal setation reduced. Tergite I bare, tergites II-III bare or with two irregular rows of few setae, tergites IV-VIII with two irregular rows of few setae. Sternites I-II

bare, sternites II-IV bare or with single median setae, sternites V-VIII with single or few setae medially in two irregular rows.

Hypopygium. Anal point narrowly triangular, sitting high on tergite IX, with microtrichia only. Tergite IX with few long setae; laterosternite IX with few setae. Apodemes well sclerotized. Phallapodeme with normal aedeagal lobe. Transverse sternapodeme straight to weakly arched, oral projections distinct. Virga consisting of 2 separate spines. Gonocoxite with well-developed inferior volsella, with posterior, free lobe. Gonostyle club-shaped, covered with microtrichia and with few, weak setae; crista dorsalis present; megaseta normal.

Linnophyes Eaton, 1875

Generic diagnosis: Small sized species, wing length 0.3–2.4 mm.

Antenna. With 10-13 flagellomeres, without plume or fully plumed with long setae inserted to apex of flagellomere; groove absent or beginning in flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and terminal. Antennal ratio 0.1–1.3.

Head. Eye bare, without or with slight dorsomedian extension. Temporal setae uniserial, consisting of 0-3 isolated inner verticals, 1-4 outer verticals and 1-6 postorbitals. Tentorium evenly tapering, parallel-sided in dorsal 1/2; cibarial pump either parallel-sided or slightly broadened dorsally, sometimes with strong cornua. Third palpomere with 1-2 sensilla clavata, without pit.

Thorax. Anteprenotum well developed, lobes variably separated to anterior margin of scutum, nearly at least 1 dorsal, usually several median and up to 17 laterals anteprenotals. Acrostichals usually present, small, curved, in middle 1/3 of scutum; dorsocentrals sparse and uniserial to numerous and multiseriate: often with lanceolate humerals and prescutelars; prealars uniserial, sometimes extending to humeral area; scutellars uniserial; epimeron, posterior anepisternum II and preepisternum usually with short setae. Median anepisternum II and postnotum with lanceolate setae.

Wing. Membrane without setae, with coarse punctation. Anal lobe absent, weakly developed or rarely right-angled. Costal extended; R_{2+3} running medially between R_1 and R_{4+5} , sometime curved towards R_{4+5} near costa; R_{4+5} ending opposite or slightly distal to M_{3+4} ; Cu_1

strongly curved; FCu ending distal to RM; anal vein shorter than poscubitus. R usually, R₁ rarely, with setae. Squama with 0-9 setae.

Legs. Anterior tibial spurs long, often twice as long as width of tibial apex. Pseudospurs and pulvilli absent. Sensilla chaetica absent, present on tarsomere 1 of mid and rarely fore and hind legs; occasionally present on tarsomere 2 of mid and hind legs.

Abdomen. Tergites and sternites with dense, irregularly arranged setae.

Hypopygium. Tergite IX densely setose, with anal point scarcely to strongly developed as posterior protruding setose projection, sometimes with medial indentation, Sternapodeme straight to semi-circular, usually with strong oral projection; Phallapodeme strongly sclerotized, often pivoted to transverse orientation; aedeagal lobe large, often heavily sclerotized. Virga consisting of single spine, 3 fused spines or cluster of 2-5 spines. Gonocoxite widely separated basally, sometimes with globular appendage between bases. Superior volsella scarcely developed; inferior volsella weak to strong, sometimes double, variably shaped. Gonostyle variable in shape, with distinctive crista dorsalis and megaseta, occasionally megaseta absent or hair- or bristle-like.

***Lipurometriocnemus* Saether, 1981**

Generic diagnosis: Small to medium-sized species, with wing length 1.0–2.1 mm.

Antenna. Male antenna with 13 flagellomeres, plumose, groove beginning at flagellomere 3 or 4; sensilla chaetica on flagellomeres 2, 3 and 13; without strong apical seta. Antennal ratio 1.2–1.8.

Head. Eye bare, without or with short wedge-shaped dorsomedial extension. Temporal setae in single row, consisting of inner and outer verticals, postorbitals generally few or absent. Palp with 5 segments, normal. Apex of palpomere 3 with 2-8 sensilla clavata, sometimes with inger-like extension.

Thorax. Anteprenotum well developed, median lobes not narrowed and joined anteriorly at suture, with several lateral anteprenotals. Acrostichals strong to weak, beginning near anteprenotum; dorsocentrals generally numerous, uni- to multiserial at least anteriorly; several prealars present, supraalar present or absent. Scutellum with single or double row of scutellars, posterior setae strongest.

Wing. Anal lobe well developed. Membrane without setae, with strong microtrichia. Costa slightly to moderately extended; R_{2+3} running and ending about midway between R_1 and R_{4+5} ; R_{4+5} ending distal to end of M_{3+4} ; FCu far distal to RM; Cu_1 straight; An ending opposite or proximal to FCu. Brachiolum with 1–3 setae, R with setae, R_1 and R_{4+5} with or without setae. Squama with several setae.

Legs. Tibial spurs and comb normal. Mid and hind legs with pseudospurs on tarsomeres 1–3. Sensilla chaetica and pulvilli absent.

Abdomen. Tergites with evenly scattered setae in about 4-5 irregular transverse rows.

Hypopygium. Anal point absent or represented by more or less pronounced dorsal hump with several setae. Sternapodeme nearly straight to slightly rounded, oral projections vestigial to weak. Virga vestigial or small, nail-shaped. Gonocoxite with vestigial to distinct, rounded inferior volsella. Gonostyle club-shaped, with short crista dorsalis.

Litocladius Mendes, Andersen *et* Sæther, 2004

Generic diagnosis: Small to medium sized species, wing length about 1.4 mm.

Antenna. Female antenna with 5 flagellomeres. Male antenna with 13 flagellomeres, groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Male antennal ratio about 1.5.

Head. Eye naked, without dorsomedian extension. Temporal setae divided into weak inner verticals, stronger outer verticals, postorbitals absent or few. Third palpomere with about 3 sensilla clavata subapically, longest about 20 μ m long; with or without strong apical spines.

Thorax. Anteprenotum well developed lobes meeting medially along short suture. Acrostichals beginning close to anteprenotum, composed of few anterior strong decumbent, weak simple, and posterior scalpellate; dorsocentrals uniserial; prealars uniserial; supraalar 0–1; scutellars uniserial, occasionally biserial.

Wing. Anal lobe developed. Costa at most moderately extended. R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending slightly distal to M_{3+4} ; FCu far distal to RM; Cu_1 straight; PCu ending distal to FCu; An ending proximal to FCu. Veins bare or setose. Membrane with apical setae in female; male without or with setae apically in cells r_{4+5} , m_{1+2} and m_{3+4} . Anal lobe well developed. Squama setose.

Legs. Pseudospurs, sensilla chaetica and pulvilli lacking. Comb and tibial spurs normal; spurs with small denticles.

Abdomen. Tergites with irregularly arranged setae.

Hypopygium. Anal point long, pointed, with few lateral setae, without microtrichia near apex. Phallapodeme and aedeagal lobe well developed. Anterior margin of sternapodeme weakly arcuate, oral projections moderately developed. Virga consisting of two long, strong spines with lateral lamellae. Inferior volsella with anterior dorsal triangular part and a more rounded ventral, posterior part or adpressed to gonocoxite. Gonostyle without heel, crista dorsalis rounded and well developed. Megaseta normal.

Lopescladius Oliveira, 1967

Generic diagnosis: Small sized species, wing length 0.5–1.1 mm.

Antenna. With 11-13 flagellomeres, groove beginning at flagellomeres 4-5, sensilla chaetica on flagellomeres 2, 4 and terminal. Antennal ratio 0.3–1.3.

Head. Eye with microtrichia as long as height of ommatidium, small, strongly protruding. without dorsomedian extension. Temporal setae aparently absent. Third palpomere with 1 sensilla clavata.

Thorax. Antepnotum much or slightly reduced, lobes narrowed medially, separate or in narrow contact, without or with 1 lateral setae. Acrostichals absent; dorsocentrals few, anterior setae stronger than posterior setae: about 2 prealars uniserial; few scutellars uniserial.

Wing. Broad, membrane with fine punctation. Anal lobe weak. Costal not or barely extended. R₂₊₃ weak, running close to or often fused with R₄₊₅; R₄₊₅ ending proximal to end of M₃₊₄; FCu far distal to RM; Cu₁ straight, veins bare except brachonium. Squama bare.

Legs. BV (length of fore femur plus tibia and basitarsus relative to tarsomeres 2-5) and SV (length of fore femur plus tibia reative to metatarsus) high, tarsomere 4 Strongly cordiform. Pseudospurs and sensilla chaetica absent. Pulvilli very small

Abdomen. Tergites with very few setae or only 1 very long seta on each tergite.

Hypopygium. Anal point absent, tergite IX at most with few weak setae. Phallapodeme well developed with triangular or rounded aedeagal lobe. Sternapodeme broadly curved to nearly straight with or without weak oral projection. Virga apparently absent. Inferior volsella absent,

with spine like inferior volsella. Gonostylus with more or less distinct median bend, without crista dorsalis and megaseta.

Lyrocladius Mendes *et* Andersen, 2008

Generic diagnosis: Small species, wing length about 1.0 mm.

Antenna. With 13 flagellomeres; fully plumed; groove beginning on flagellomere 2; sensilla chaetica on flagellomeres 2, 3 and 13. Antennal ratio 0.70–0.90.

Head. Eye bare, without dorsomedian extension. Temporal setae strong, consisting of inner verticals, outer verticals, and few postorbitals. Third and fourth palpomeres of approximately same length, third palpomere with 2–3 weak sensilla clavata subapically.

Thorax. Anteprenotum well developed with lobes meeting medially, without or with few lateral setae. Acrostichals strong, beginning close to anteprenotum, anterior simple, slightly decumbent, posterior scalpellate, uniserial to irregularly biserial; dorsocentrals uniserial beginning at some distance from anteprenotum; prealars few uniserial, extended anteriorly; supraalar present. Scutellars uniserial.

Wing. Membrane bare, with fine punctuation. Anal lobe protruding. Costa moderately extended (about 3 times the length of RM). R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending distal to M_{3+4} ; Cu_1 slightly curved; FCu distal to RM. Postcubitus ending distal to FCu, An ending proximal to FCu. Veins bare, except for R and R_1 which may have single seta. Brachiolum with one seta. Squama with one seta.

Legs. Pseudospurs, sensilla chaetica and pulvilli absent. Comb and tibial spurs normally developed.

Abdomen. Tergites and sternites with few setae.

Hypopygium. Tergite IX covered with microtrichia, anal point posterior on tergite, lyre-shaped with strong lateral setae. Laterosternite IX with setae. Sternapodeme arched, oral projections present. Virga composed of two strong spines, with lateral lamellae. Gonocoxite with well developed inferior volsella. Gonostyle with row of strong marginal setae, crista dorsalis absent, megaseta sitting on tubercle.

Maximberus Andersen *et* Mendes, 2012

Generic diagnosis: Small sized species, wing length 0.70-0.94 mm.

Antenna. Antenna with 12 flagellomeres; sparsely plumed; groove beginning on segment 2; sensilla chaetica present on flagellomeres 2, 3, and ultimate; without subapical seta.

Head. Eyes bare, reniform, without dorsomedian extension. Palpomeres normal, third palpomere with few sensilla clavata subapically. Temporal setae in single row, inner verticals weak, outer verticals and postorbitals strong. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae.

Thorax. Anteprepronotum well developed with lobes meeting medially at anterior margin of scutum. Acrostichals absent; dorsocentrals simple, uniserial; prealars uniserial; supraalar present. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctuation, microtrichia visible at 400 times magnification. Anal lobe weakly developed. Costa extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu distal to RM; Cu_1 slightly sinuous. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 9 apically, 6 basally, and 3 above seta on brachiolum; 1 on RM; and 1 basally on R_1 .

Leg. Tibial spurs normal, comb of hind tibia composed of weak setae. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Abdominal setation reduced. Tergite I bare, tergites II-VIII with two irregular rows of few setae. Sternites I-III bare, sternite IV-VIII with few setae medially.

Hypopygium. Anal point well developed, tapering with rounded apex, with microtrichia and lateral setae. Tergite IX without setae; laterosternite IX with few setae. Apodemes well sclerotized. Phallapodeme with posterior, narrow, curved lobe; aedeagal lobe normal. Transverse sternapodeme arched, oral projections barely indicated. Penis cavity with horse-shoe shaped basal sclerite; virga consisting of 4-8 bundles of 1-4 separate, flattened spines attached to the penis cavity. Gonocoxite with weakly developed inferior volsella. Gonostylus curved, covered with microtrichia and with few setae; megaseta normal; crista dorsalis absent.

Mesosmittia Brundin, 1956

Generic diagnosis: Small species, wing length 1.0–1.8 mm.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13, those on 2 and 3 short and blunt. Antennal ratio 0.8–1.8.

Head. Eye bare, round, without dorsomedian extension. Up to 10 uniserials temporal present, including 1-4 small, fine, separate inner verticals. Tentorium short, cibarial pump broad, with short cornua. Third palpomere with 1-3 sensilla clavata.

Thorax. Anteprenotum moderate to well developed, lobes narrow in contact anterior to non-extended scutum. Acrostichals uniserial decumbent, beginning near to anteprenotum, dorsocentrals, prealars and Scutellars few uniserial; with 1 supraalar setae.

Wing. Membrane without setae, with fine to moderate punctuation. Anal lobe well developed. Costal weakly extended. R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending above or slightly distal to M_{3+4} ; FCu far distal to RM; Cu_1 sinuous; postcubitus ending distal, anal vein ending proximal, to FCu. R with or without few setae. Squama with 1 - 10 setae.

Legs. Pseudospurs, sensilla chaetica and pulvilli lacking.

Abdomen. Tergites and sternites with irregularly arranged setae.

Hypopygium. Tergite IX with median longitudinal ridge, bears few, weak marginal setae, without true anal point. Sternapodeme slightly curved to straight, with distinct oral projections; Phallopodeme strong and triangular aedeagal lobe. Virga with strong base and weak to strong elongate posterior point. Gonocoxite sometimes with extension beyond insertion of Gonostyle superior volsella absent, Inferior volsella weak to strong. Gonostyle with long low crista dorsalis and very short, pale megaseta.

Miamera Andersen *et* Mendes, 2012

Generic diagnosis: Small sized species, wing length 0.74-0.86 mm.

Antenna. Antenna with ten flagellomeres, in some specimens division of ultimate flagellomere is indicated giving an eleven segmented antenna; sensilla chaetica present on flagellomeres 3 and ultimate; groove beginning at flagellomere 2; plume sparse; with strong subapical seta.

Head. Eye hairy, reniform, without dorsomedian extension. Palpomeres normal, third palpomere widened in middle portion, with few sensilla clavata in sensillum coeloconicum. Temporal setae in single row, inner verticals weak, outer verticals strong, postorbitals absent. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae.

Thorax. Anteprenotum reduced, with lobes widely separated at anterior margin of scutum. Acrostichals decumbent, apparently uniserial, in anterior third of scutum; dorsocentrals simple, uniserial; prealars simple; supraalar absent. Scutellum with few setae in a single row.

Wing. Membrane without setae, with fine punctuation, microtrichia visible at 400 times magnification. Anal lobe absent. Costa slightly extended, false vein reaching wing tip; R_{2+3} ending half way between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu distal to RM; Cu_1 sinuous. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 9 basally, 4 apically, and 5 above seta on brachiolum; 1 on RM; and 1 basally on R_1 .

Leg. Tibial spurs and comb normal. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Abdominal setation reduced. Tergite I with few strong median setae, tergites II-VIII with anterior and posterior irregular rows of few strong setae. Sternite I-III bare, sternite IV without or with single strong median seta, sternite V-VII with single to few strong median setae, sternite VIII with few scattered strong setae.

Hypopygium. Anal point lacking; tergite IX with tuft of strong, flattened macrotrichia on low, dorsal protuberance and with few setae to each side of dorsal protuberance; laterosternite IX with few setae. Apodemes strongly sclerotized. Phallapodeme and aedeagal lobe well developed. Transverse sternapodeme curved, with strongly developed oral projections. Virga consisting of single, strong, spine-like sclerite. Gonocoxite with well developed inferior volsella with strongly sclerotized, hook-like projection and posterior rounded lobe with weak marginal setae. Gonostyle narrow, covered with long, thin macrotrichia; megaseta normal.

Nanocladius Kieffer, 1913

Generic diagnosis: Small species, wing length 0.8–1.8 mm. color brown to black with yellow to black abdomen and occasionally only the first segments yellow, the rest dark. Antennal plume often whitish.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Antennal ratio 0.4–1.3.

Head. Eye densely hairy, without dorsomedian extension, more or less strongly protruding, genae moderately to strong excavated, or not to moderate excavated. Temporal setae few outer verticals, occasionally absent. Tentorium slender. Vestigial ocelli absent or present, occasionally present a distinct frontal tubercles. Apex of palp segment 3 with 1 weak sensilla clavata subapically, longest 8–23 μm long.

Thorax. Antepnotum well developed, lobes slightly gaping, meeting in front of scutal projection with few lateral setae. Achorstichals 2 long on midscutum; dorsocentrals uniserial; few prealars present; with 2-13 scutellars.

Wing. Membrane without setae, with very fine punctuation. Anal lobe not protruding. Costal moderately extended; R_{2+3} running parallel, near and ending close to R_{4+5} ; R_{4+5} ending opposite to or slightly proximal or distal of to M_{3+4} ; FCu clearly distal to RM; Cu_1 straight postcubitus and An ending distal to FCu. R with setae, occasionally bare, Veins bare or with setae on R, R_1 , R_{4+5} , M_{1+2} , M_{3+4} , Cu, Cu_1 and An. Membrane without setae, with few weak setae apically in cell r_{4+5} , or with numerous setae apically in cells r_{4+5} , m_{1+2} and m_{3+4} . Squama with few, usually 1-3 setae, occasionally squama bare or with up to 15 setae.

Legs. Pseudospurs absent, but some spiniform setae present on tarsi. Sensilla chaetica usually present in a low number on tarsomere 1 on mid leg and occasionally hind leg. pulvilli well developed.

Abdomen. Tergites with setae in 1-2 regular to irregular transverse rows, usually situated in pale spots.

Hypopygium. Anal point with rounded bases bearing several setae, often appearing and basal plate; true anal point narrow with evenly concaved margins, weakly sclerotized, sharply pointed; Stenapodemo concave; oral projections weakly to moderately strong developed. Virga absent. Gonocoxite with well developed, bare, weakly sclerotized, broadly rounded superior volsella and well developed pointed triangular or square to rounded inferior volsella. Gonostyle without distinct crista dorsalis.

Generic diagnosis: Small to medium sized species, wing length 0.9–1.2 mm.

Antenna. Male antenna with 13 flagellomeres, fully plumed; groove beginning at flagellomere 3; sensilla chaetica on flagellomeres 1–3 and 13; apex clubshaped, subapical seta present; male antennal ratio 0.5–1.3.

Head. Eye bare, reniform, without dorsomedian extension. Palpomeres normal, palpomere 3 with sensilla clavata grouped at apical sensillum coeloconicum. Temporal setae in single row, inner verticals weak, outer verticals and postorbitals strong. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae.

Thorax. Anteprenotal lobes narrowly separated, with few setae. Acrostichals decumbent, uniserial to biserial, starting at some distance from anteprenotum; dorsocentrals simple, uniserial; prealars uniserial, grouped in posterior and anterior prealars; supraalar present or absent. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctation. Anal lobe weak to protruding. Costa not to moderately extended; R_{3+4} ending $\frac{1}{4}$ closer to R_1 than to R_{4+5} ; R_{4+5} ending above or distal to M_{3+4} ; FCu distal to RM; Cu_1 curved. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campani-formia about 6 basally, 8 apically, and 3 above seta on brachiolum; 1 on RM; and 1 basally on R_1 .

Legs. Tibial spurs normal. Hind tibia with welldeveloped comb. Pseudospurs and sensilla chaetica absent. Pulvilli vestigial. Hind leg with tarsomeres 2 and 3 of almost same length.

Abdomen. Tergites and sternites with irregularly arranged setae. Tergite VII tapered basally.

Hypopygium. Anal point long, tapering with blunt to rounded apex, in one species bent ventrad; with strong lateral setae, with sparse microtrichia in basal half or microtrichia only at base. Tergite IX with few to several setae to each side of anal point, laterosternite IX with several setae. Phallapodeme well developed, with curved or sigmoid oral projection. Anterior margin of sternapodeme arched, oral projections absent to barely indicated. Penis cavity with horseshoe shaped basal sclerite; virga consisting of several separate sclerites. Gonocoxite with or without bulge-like superior volsella, with long, rounded to bluntly triangular inferior volsella. Gonostyle bi- to trifid, posterior branch narrow, cylindrical, bearing megaseta; median branch triangular or

split, with row of strong, hook-like setae along margin; a third anterior, hyaline branch present or absent.

Onconeura Andersen *et* Sæther, 2005

Generic diagnosis: Small species, wing length about or less than 1.0 mm.

Antenna. Antenna with 11–12 flagellomeres in male, 5 in female; fully plumed; groove in male beginning on flagellomere 2; sensilla chaetica present on flagellomeres 2, 3, and ultimate; apex strongly clubbed and rounded; male antennal ratio lower than 1.0.

Head. Eye bare, reniform, without dorsomedian elongation. Palpomeres normal; palpomere 3 with 1–2 short lanceolate sensilla clavata. Temporals reduced in number. Tentorium long, narrow, tapering to point. Stipes normally developed. Cibarial pump with anterior margin deeply concave, cornua strongly developed. Clypeus with several setae.

Thorax. Anteprenotal lobes not reduced medially, with several weak lateral anteprenotals. Acrostichals absent; dorsocentrals uniserial, few prealars, single supraalar present or absent. Scutellum with few transversely uniserial setae.

Wing. Wing membrane without setae, with fine punctuation. Anal lobe well developed, but not projecting. Costa apically fused with R₁ and R₂₊₃ forming a thick clavus well proximal to wing midpoint in male, at about mid point in female; R₄ (or R₄₊₅) and R₅ (or M₁) running together from RM to near apex, separated basally, nearly fused and becoming evanescent apically; Cu₁ slightly sinuous; FCu far distal to RM; postcubitus ending far past cubital fork; anal vein ending below or slightly distal to cubital fork. Brachiolum with 1 seta; clavus with apical seta; bare in male; other veins bare. Squama bare. Sensilla campaniformia about 7–8 basally on brachiolum as well as apically on brachiolum, 3 below setae on brachiolum; 1 present on RM. Frontleg ratio about 0.7–0.8.

Legs. Trochanters with dorsal keel, best developed on fore trochanter. Tibial spurs and hind tibial comb normal. Hind margin of tarsomeres 1–3 with double row of shorter, thicker, bluntly tipped setae, best developed on mid and hind tarsomere 1. Tarsomere 4 barely cordiform. Sensilla chaeticae present approximately at basal ¼ to ½ on ta₁ of middle and sometimes hind leg. Pulvilli absent.

Abdomen. Tergites with median transverse band of 4–8 setae. Posterior sternites with 1 median and two very weak posterolateral setae.

Hypopygium. Hypopygium short, without anal point; tergite IX with several weak setae, more or less weakly emarginated with two weak protrusions. Laterosternite IX with few setae. Transverse sternapodeme slightly convex, oral projections strongly developed. Phallapodeme well sclerotized, aedeagal lobe well developed with sclerotized apicomedian margin. Virga absent. Gonocoxite well developed; superior volsellae low but relatively well developed at least sometimes fused basally; inferior volsella well developed. Gonostyle without crista dorsalis, widest near apex, megaseta simple.

Parakiefferiella Tienemann, 1936

Generic diagnosis: Small species, wing length up to 2.5 mm.

Antenna. With 12-13 flagellomeres, groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Apex more or less clubbed, with numerous setae. Antennal ratio usually 0.3–0.4 sometimes up to 1.4.

Head. Eye bare, without dorsomedian extension. Few temporal setae; inner verticals absent. Palp segment 5 not more than 7x as long as maximum width.

Thorax. Anteprepronotum weakly to moderately developed, with lobes either narrowly in contact or separated medially anterior to non-extended scutum. Acrostichals absent but scutum with median tuft of microtrichia, sometime on hump; dorsosentrals, prealars and scutellars uniserial.

Wing. Membrane without setae, with fine punctuation. Anal lobe rounded. Costal distinctly extended. R_{2+3} running close to R_{4+5} ; R_{4+5} ending more or less opposite to M_{3+4} ; FCu distal to RM; Cu_1 sinuose; postcubitus extended well distal to FCu, anal vein scarcely extended beyond FCu. R and R_1 with few setae. Squama bare.

Legs. Pseudospurs weak or absent. Sensilla chaetica absent. Tarsomere 5 on all legs cylindrical.

Pulvilli vestigial or absent.

Abdomen. Tergites and sternites with few scattered setae.

Hypopygium. Anal point short broadly based, rounder or subtriangular, with 2-8 basal setae and microtrichia, bare apically. Sternapodeme gently curved with well developed oral

projection. Virga strongly developed. Superior volsella absent to well produced, triangular; inferior volsella more or less rectangular or triangular often with bare, digitiform projections. Gonstylus with more or less well pronounced curve or bend and slight or absent crista dorsalis

Parametriocnemus Goetghebuer, 1932

Generic diagnosis: Small to medium sized species, wing length 1.1–2.2 mm.

Antenna. With 13 flagellomeres, occasionally 8. groove beginning at flagellomere 3, sensilla chaetica on flagellomeres 2, 3 and 13. Antennal ratio 0.50–1.70.

Head. Eye naked, without dorsomedian extension. Temporal setae divided into weak inner verticals, stronger outer verticals, postorbitals absent or few. Third palpomere with about 3 sensilla clavata subapically, longest 8–23 μm long.

Thorax. Anteprenotum well developed, lobes meeting medially along short suture. Acrostichals, short, all scalpellate, beginning close to anteprenotum, some distance from anteprenotum or in the middle of scutum, situated lateral of median suture; prealars uniserial; supraalar(s) 0–2; scutellars uniserial.

Wing. Anal lobe protruding to absent. Costal extension moderately to strongly developed, $\frac{1}{2}$ to 4 times the length of RM. R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending opposite or slightly distal to M_{3+4} ; FCu far distal to RM; Cu_1 straight to slightly sinuous; An ending proximal to FCu. Veins bare or with setae on R, R_1 , R_{4+5} , M_{1+2} , M_{3+4} , Cu, Cu_1 and An. Membrane without setae, with few weak setae apically in cell r_{4+5} , or with numerous setae apically in cells r_{4+5} , m_{1+2} and m_{3+4} . Squama bare or with up to 15 setae.

Legs. Pseudospurs, sensilla chaetica and pulvilli lacking. Comb and tibial spurs normal. Spurs smooth or with small denticles.

Abdomen. Tergites with irregularly arranged setae.

Male hypopygium. Anal point long, pointed, with strong lateral setae, with microtrichia only at base or nearly to apex. Phallapodeme and aedeagal lobe well developed. Anterior margin of sternapodeme nearly straight to strongly arcuate, oral projections barely indicated to strongly developed. Virga absent or consisting of 2–6 spines of variable size. Inferior volsella highly variable; simple and rounded or triangular; with anterior dorsal triangular or digitiform part and a more rounded ventral, posterior part; with microtrichia-free, digitiform anterior projection and

long rounded, low to prominent posterior lobe; consisting of a posteriomediaally directed, apically simple or bifid lobe; or circular with or without additional rounded posterior extension and conspicuously set off. Gonostyle with or without heel; crista dorsalis absent to rounded and well developed. Megaseta normal.

Paraphaenocladus Thieneman, 1924

Generic diagnosis: Small to medium sized species, wing length 0.8–2.2 mm. Pale yellowish brown with darker vittae and markings to completely brownish black.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 3-4, well developed sensilla chaetica on flagellomeres 2, 3 and 13. Apex without apical or preapical. Antenal ratio 0.4–1.2.

Head. Eye bare, with relatively long dorsomedian extension. Temporal strong, reaching midline of head; inner and outer verticals and postorbitals uniserial. Palp segments long, segment 3 usually equal in length to 4, and slightly shorter than 5, occasionally distinctly shorter than fourth; with 2-5 long, lanceolate sensillia clavata.

Thorax. Anteprenotum moderately developed; lobes somewhat narrowed medially, gaping, with several lateral anteprenotals. Acrostichals very long, beginning close to anteprenotum, forming median row; dorsocentrals, several to many presents, uniserial or usually irregular biserial; prealars often numerous; supraalars absent; scutellars uniserial.

Wing. Membrane with setae covering most of wing membrane to only present in apical ½, with fine punctuation. Anal lobe moderately developed and slightly produced to absent. Costal barely to moderately extended, with apex ending proximal to or opposite end of M_{3+4} ; R_{3+4} running close to and parallel with R_{4+5} or midway between R_1 and R_{4+5} , ending closer to the end R_1 than the end of R_{4+5} ; Squama with 2- 16 setae, rarely absent.

Legs. Pseudospurs and sensilla chaetica absent; pulvilli very small.

Abdomen. with setae in lateral and anterior rows and few median setae.

Hypopygium. Anal point short to well developed; when well developed with triangular base or median swelling, then median area with setae and microtrichia and apex bare, point often spatulate, long, pointed, with strong lateral setae, with microtrichia only at base or nearly to apex. Phallopodeme and aedeagal occasionally tapering or parallel-sided or when rarely short, with setae

and microtrichia extending to the rounder or triangular apex. Laterosternites ofte with relatively numerous setae. Sternapoderme concavely rounded, with weak to well developed oral projections. Phalopodeme usually with anterior hook-shaped sclerotization. Virga absent or consisting of field with several fine spines. Gonocoxite with well developed, rounded, square or tongue-shaped inferior volsella. Gonostyle with preapical long, low and rounded to short and triangular crista dorsalis.

Pebapomberus Mendes et Andersen, 2012

Generic diagnosis: Small sized species, wing length 1.1-1.3 mm.

Antenna. Male antenna with 13 flagellomeres; groove beginning on flagellomere 3; sensilla chaetica present on flagellomeres 2, 3 and ultimate; ultimate flagellomere slightly swollen subapically, tapering, without subapical seta; male antennal ratio 0.7-0.9.

Head. Eye bare, reniform, without dorsomedian extension. Palpomeres normal, third palpomere with few sensilla clavata subapically. Temporal setae in partly double row, inner verticals weak, outer verticals and postorbitals strong. Frontal tubercle absent, but with small, pale scar. Tentorium and stipes normal. Cibarial pump with anterior margin nearly straight. Clypeus with few setae.

Thorax. Anteprenotum well developed with lobes meeting medially at anterior margin of scutum, with few lateral anteprenotal. Acrostichals weak, starting close to anteprenotum, anterior acrostichals simple, posterior acrostichals scalpelate; dorsocentrals simple, uniserial; prealars uniserial, grouped in posterior and anterior prealars; supraalar present. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctuation. Anal lobe normal. Costa extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending opposite to or distal to M_{3+4} ; FCu distal to RM; Cu_1 slightly sinuous. Brachiolum with 1 seta, C without or with few non-marginal setae, other veins bare. Squama with few setae. Sensilla campaniformia about 8 basally, 10 apically, and 3 above seta on brachiolum; 1 on RM; and 1 basally on R_1 .

Legs. Tibial spurs and comb normal. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Tergite I with few lateral setae, tergites II with anterior and posterior row of setae, tergites III-VIII with more scattered setae. Sternites I-III bare, sternites IV-V with single to few median setae, sternites VI-VII with more median setae, sternite VIII with more scattered setae.

Hypopygium. Anal point large, wedge-shaped with rounded apex, reaching below posterior margin of tergite IX, with microtrichia and weak, lateral setae. Tergite IX without seta; laterosternite IX with several setae. Phallapodeme normal; transverse sternapodeme curved, with well developed oral projections. Virga consisting of two separate, strong sclerites. Inferior volsella with anterior small bluntly rounded to larger, narrowly triangular, pointed lobe and posterior broadly rounded lobe with few marginal setae. Superior volsella barely indicated. Gonostyle broad, with large, apical, bluntly triangular to rounded, flattened lobe covered with macrotrichia and with few scattered setae; megaseta normal.

Pseudosmittia Goetghbuer, 1932

Generic diagnosis: Small species, no more than 2.0 mm.

Antenna. With 13 flagellomeres, groove beginning at flagellomere 4; sensilla chaetica on flagellomeres 2, 3 and 13. Apex rounded. Antennal ratio 0.15–2.0.

Head. Eye naked, without dorsomedian extension. Temporal consisting of only 1-5 postorbitals. Tentorium swollen basally, abruptly narrowed apically; cibarial pump elongate, parallel-side. Palp lacking sensilla.

Thorax. Antepnotum either well developed, lobes meeting medially at anterior margin of scutum. Scutum often with median tubercle or hump, although this may be reduced to an oval, paler, roughened area, sometimes with 2-4 weak. Acrostichals scalpellate on site of tubercle; prealars, dorsocentrals and scutellars uniserial.

Wing. Membrane without setae, with fine punctuation. Anal lobe obtuse. Costal scarcely extended in most species, never strongly extended; R_{2+3} variably developed, often running close to R_{4+5} , sometimes running midway between R_1 and R_{4+5} , transverse parallel to meet costa at apex of R_{4+5} or evanescent apically; R_{4+5} usually ending proximal to end of M_{3+4} , rarely ending opposite or distal to the end of M_{3+4} , FCu far distal to RM ; Cu_1 usually curved, rarely straight; postcubitus and anal vein ending close to FCu ; R always, R_1 and R_{4+5} usually with setae. Squama bare.

Legs. Hind tibial inner spur frequently $\frac{1}{2}$ length of outer spurs. P present on tarsomeres 1-4 of all legs. Pulvilli and sensilla chaetica absent

Abdomen. Tergites and sternites with irregularly arranged setae.

Hypopygium. Anal point present or absent, when present sited in middle of tergite, rarely extended beyond posterior margin of tergite IX, without strong seta but covered with microtrichia, of variable shape often parallel-sided, rounded apically; sometimes reduced to hump without posterior elongation. Sternapodeme variable, sometimes semicircular, without oral projections. Phalopodeme strong, aedeagal lobe always broad, often heavily sclerotized. Virga variable often present, very variable in construction. Superior volsella often present, sometimes double; Inferior volsella always present, usually double; both lobes of both volsellae may assume a variety of shapes. Gonostyle often narrow, crista dorsalis infrequently developed.

Rheocricotopus Thieneman & Harnisch, 1932

Generic diagnosis: Small to medium sized species, wing length 1.1-3.3 mm. Coloration yellow to brownish black, when not completely dark with brown to brownish black vittae and markings, often brown with only scutellum pale.

Antenna. Male antenna with 13 flagellomeres, groove beginning on flagellomere 3, sensilla chaetica present on flagellomeres 2 and 3 or 2-4 and ultimate; antennal ratio 0.3-1.9.

Head. Eyes hairy, not extended dorsomedially. Temporals few; inner verticals separate, minute or absent; outer verticals conspicuous, often on tubercles, few; postorbitals usually absent. Tentorium often with distinctive, small wart-like or spine-like tubercles at sieve pore. Coronal suture of female reduced or absent, occasionally complete. Palp 5-segmented, segments progressively longer or occasionally third and fourth segment subequal, third segment with 1-7 lanceolate sensilla clavata at apex.

Thorax. Antepnotum well developed; median lobes scarcely to moderately narrowed, gaping, meeting at point anterior to scutal protection, with several to numerous lateral setae. Humeral pit often large, pale, weakly sclerotized and conspicuous; sometimes small and normal. Acrostichals very small and indistinct to moderately large, starting in front at scutal projection or occasionally in centre of scutum, dorsocentrals few to relatively numerous, uniserial but occasionally partly biserial in front. Scutellars uniserial, few to numerous.

Wing. Wing membrane without setae, punctation of microtrichia visible at 100-300 X . Anal lobe well developed to absent. Costa not to moderately extended; R_{2+3} running close to R_{4+5} , ending midway between ends of R_1 and R_{4+5} or closer to end of R_{4+5} , usually distinct, occasionally vestigial; R_{4+5} ends clearly distal to M_{3+4} ; FCu lies distally of RM; Cu_1 straight to slightly curved; vannal fold ends distally of FCu; An ends proximally or below FCu. Sensilla campaniformia about 9-12 at base of brachiolum, 3 below seta, and about 9-12 at apex of brachiolum; 2-3 on subcosta; 1 on FR; and 1 at base of R_1 . Brachiolum and R with setae. Squama with none to several (0-25) setae.

Legs. Pulvilli well developed (except in *R. capensis* Freeman). Comb and hind tibial spurs normal. Pseudospurs absent. Sensilla chaetica usually present in low numbers in basal third of tarsomere of middle leg; occasionally present also on tarsomere 1 of hind leg.

Abdomen. Setae of tergites with lateral and median groups of setae and occasionally additional anterior and posterior transverse rows.

Hypopygium. Well developed anal point tapering to sharp point, with lateral setae directed obliquely posteriolaterally, without microtrichia at least in apical half of anal point proper, with or without setae at base on tergite IX. Transverse sternapodeme usually strongly curved, oral projections small to large. Virga absent. Gonocoxite with a broad, completely bare, plate-like and sclerotized, rounded or with triangular to tooth-like protection, superior volsella at anterior inner margin; and well developed inferior volsella often divided into 2 small lobes, with the dorsal lobe nearly free of microtrichia. Gonostyle sometimes with outer corner, usually with well developed preapical or occasionally apical, triangularly pointed or low and rounded cristadorsalis, occasionally cristadorsalis reduced. Gonocoxite IX well developed, with several strong and fewer weak setae. Gonapophysis VIII divided; with ventrolateral lobe rounded, large or low; apodeme lobe distinct, visible between principal lobes or partly or fully covered by ventrolateral lobe; dorsomesal lobe narrow but distinct, with long microtrichia. Labia relatively large, apically rounded, occasionally with apical microtrichia. Coxosternapodeme evenly rounded, with more or less pronounced angle at median apex.

Saetherocladius Andersen *et* Mendes, 2007

Generic diagnosis: Small species, wing length about 0.7 mm.

Antenna. Male antenna with 13 flagellomeres, fully plumed; groove beginning on flagellomere 3; sensilla chaetica present on flagellomeres 2, 3 and 13; apex clubbed, without subapical seta; male antennal ratio about 0.3.

Head. Eye bare, reniform, without dorsomedian elongation. Palpomeres normal, palpomere 3 with 5 spatulate sensilla clavata. Temporal setae in single row, inner verticals weaker than outer verticals and postorbitals. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae.

Thorax. Anteprenotum well developed with lobes meeting medially; with few lateral anteprenotals. Acrostichals distinct, decumbent, beginning near anteprenotum; dorsocentrals uniserial, slightly lanceolate; prealars uniserial, slightly lanceolate; supraalar absent. Scutellum with few setae in single row. Humeral pit indicated.

Wing. Membrane without setae, with coarse punctation. Anal lobe reduced. Costa slightly extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu far distal to RM; Cu_1 sinuous; postcubitus ending distal to FCu; An ending proximal to FC. Brachiolum with 1 seta, R with few setae, other veins bare. Squama with one seta. Sensilla campaniformia about 6 basally, 9 apically, and 2 below seta on brachiolum; 1 on FR; and 1 at base of R_1 .

Legs. Tibial spurs normal. Hind tibia with welldeveloped comb. Pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Tergites with distinct anterior and posterior rows of few setae.

Hypopygium. Anal point well developed, with elevated suboval base with few setae, apically parallel-sided with rounded apex. Laterosternite IX with few, strong setae. Phallapodeme and aedeagal lobe well developed. Anterior margin of sternapodeme rounded, with well developed, broadly rounded oral projections. Virga consisting of cluster of few, short spines. Gonocoxite with superior volsella consisting of few, strong, subtriangular projections with single curved subapical seta on ventral side; inferior volsella subtriangular with broadly rounded apex. Gonostyle with strongly developed, triangular crista dorsalis.

Saetherocryptus Andersen *et* Mendes, 2007

Generic diagnosis: Small species, wing length about 1.0 mm.

Antenna. Male antenna with 13 flagellomeres; fully plumed; groove beginning at flagellomere 2; with long sensilla chaetica on flagellomeres 2, 3 and 13; without a strong subapical seta; male antennal ratio about 0.50.

Head. Eye bare, reniform, without dorsomedian elongation, somewhat protruding. Palp 5 segmented, short; third palpomere with few, long sensilla clavata. Temporal setae in single row, inner verticals weaker than outer verticals and postorbitals. Frontal tubercle absent. Tentorium and stipes normal. Cibarial pump with anterior margin weakly concave. Clypeus with few setae. *Thorax.* Anteprenotum well developed with lobes meeting medially at anterior margin of scutum. Acrostichals few, weak, decumbent, at midscutum (difficult to observe in most specimens); dorsocentrals and prealars few, uniserial; supraalar absent. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctation. Wing cuneiform. Costa strongly extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu far distal to RM; Cu_1 strongly sinuous; postcubitus ending proximal to FCu; An ending distal to FCu. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 6 both basally and apically, and 3 below setae on brachiolum; 1 on RM; and 1 basally on R_1 .

Legs. Tibial spurs normal. Hind tibia with welldeveloped comb. Pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Tergites and sternites with few, irregularly arranged setae.

Hypopygium. Tergite IX of male with wide, subrectangular, dorsal projection covering anal point; anal point mushroom-shaped with strong, curved microtrichia apically; posterior margin of tergite IX with subtriangular projections to each side of anal point; laterosternite IX with few setae. Transverse sternapodeme narrow, weakly curved; oral projections absent; lateral sternapodeme deeply split in long, narrow, median projection and wider, lateral coxosternapodeme. Phallapodeme and aedeagal lobe well developed, aedeagal lobe with median margin strongly sclerotized. Virga strongly developed with median spines and lateral lamellae. Gonocoxite well developed; with dorsomedian, triangular projection partly covering gonostylus; inferior volsella well developed, with bluntly rounded apex. Gonostylus straight, without crista dorsalis; megaseta large, club-shaped.

Saetherolabis Andersen *et* Mendes, 2007

Generic diagnosis: Small species, wing length about 0.7 mm.

Antenna. Male antenna with 11 flagellomeres, sparsely plumed; groove beginning on flagellomere 2; sensilla chaetica present on flagellomeres 2, 3 and 13; apex tapering, without subapical seta; male antennal ratio about 1.0. Female antennae with 5 flagellomeres; female antennal ratio about 0.4.

Head. Eye bare, reniform, without dorsomedian elongation. Palp 5 segmented, short; palpomeres 2–4 spherical; palpomere 3 with about 5 sensilla clavata at subapical sensillum coeloconicum. Temporal setae in single row, inner verticals well separated from outer verticals. Frontal tubercle absent. Tentorium long, narrow; stipes normal.

Cibarial pump subtriangular, with well developed cornua and straight anterior margin. Clypeus with few setae.

Thorax. Anteprenotal lobes not reduced medially, with few lateral anteprenotals. Acrostichals few, weak, at midscutum (not visible in female); dorsocentrals few, uniserial; prealars few; supraalar absent. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctation. Anal lobe reduced. Costa strongly extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending proximal to M_{3+4} ; FCu distal to RM; Cu_1 slightly sinuous; postcubitus ending distal to FCu; An ending at FCu. In male all veins bare; in female R and R_{3+4} with few setae, other veins bare. Brachiolum with one seta. Squama bare. Sensilla campaniformia about 6 basally, 5 apically, and 3 below seta on brachiolum; 1 on FR; and 1 at base of R_1 .

Legs. Tibial spurs normal; tarsal segments of all legs with row of strong spine-like setae. Hind tibia with well developed comb. Pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Tergites and sternites of both sexes with few, strong setae; tergites of male with two setae anteromedially and 2–4 setae laterally.

Male hypopygium. Anal point with triangular base and long, narrow, parallel-sided apical part with rounded apex; strongly sclerotized and bare. Tergite IX short, with few strong setae to each side of base of anal point; laterosternite IX without setae. Phallapodeme and aedeagal lobe well developed. Sternapodeme well developed, with straight anterior

margin; oral projections barely indicated. Virga small, V- or nail-shaped. Gonocoxite with inferior volsella deeply split in long, narrow, straight caudal branch and narrow, weakly curved oral branch. Gonostyle long, narrow, with low, subapical crista dorsalis.

Tienenmannia Kieffer, 1909

Generic diagnosis: Small sized species, wing length 1.0–2.0 mm. colour yellowish brown to brown with darker markings.

Antenna. With 11-13 flagellomeres, groove beginning at flagellomere 3-4; sensilla chaetica on flagellomeres 2, 3 and terminal; terminal flagellomere extremely short, with or without straight apical setae, preceding flagellomeres relatively long. Antennal ratio 0.25–0.5.

Head. Eye hairy or with very short pubescence, with short wedge-shaped dorsomedial extension. Temporals relatively strong, inner verticals few (or occasionally absent) to numerous; postorbitals few or absent. Palp segment relatively long; segment 3 with 1-4 lanceolate sensilla clavata.

Thorax. Anteprenotum well developed, median lobes gaping, distinctly to barely narrowed medially, inconspicuous at point anterior of scutal projection; with few laterals and occasionally some median anteprenotals. Acrostichals very long, beginning near to anteprenotum; dorsocentrals uni to biserial, when uniserial with a few additional setae on humeral area; prealars in one anterior and one posterior group; 1 supraalar present; scutellars present, few to several, in uni or biserial transverse rows.

Wing. Membrane with distinct punctuation. Either with few scattered setae in cells r_{4+5} , m , m_{1+2} , cu and an including anal lobe or with somewhat more extensive chaetotaxy with setae in nearly all cells. Anal lobe weak; costa strongly extended R_{2+3} running close and parallel with R_1 for much of this length, then curving and running close to and parallel to costa, ending near end of R_{4+5} or occasionally midway between R_1 and R_{4+5} ; R_{4+5} ending distal to or opposite ends of M_{3+4} ; postcubitus ending distal to FCu; An ending distal or proximal to FCu. All veins except R_{2+3} and sometimes subcostal and M with setae. Cu_1 straight; FCu far distal to RM; squama with reduced fringe (2-8 setae).

Legs. Pseudospurs absent, sensilla chaetica absent or occasionally few in apical ½ of tarsomere 1 of hind leg, pulvilli absent.

Abdomen. Tergites with few to numerous setae in irregular uni to multiserial lateral, anterior and posterior rows with 1-2 median setae or rows of setae.

Hypopygium. Anal point long, sharply or bluntly pointed, free of setae and microtrichia at apex, with or without setae and microtrichia at base; with several strong setae at base of tergite IX. Sternapodeme slightly to moderately curved, with pronounced rounded oral projections. Virga distinct, consisting in 6 short spines. Gonocoxite with welldeveloped to strongly reduced inferior volsella Gonostyle with strong to weak crista dorsalis, and short to long megaseta

Thienenmaniella Kieffer, 1911

Generic diagnosis: Small species, wing length 0.8–1.2 mm.

Antenna. Scape large relative to size of head, with 10-13 flagellomeres, groove beginning at flagellomere 2; slender sensilla chaetica on flagellomeres 2 and 3; apex clubbed, without rosette of short hairs. Antennal ratio 0.4–1.2.

Head. Eye small, reniform, pubescent to hairy; without dorsomedian extension. Temporal setae reduced, only 0-3 postorbitals present. Tentorium long and narrow, tapering to blunt point; cibarial pump broad, with variable sized cornua. Palp well developed, terminal segment about 8x as long as wide; 0-1 sensilla clavata on segment 3, without pit.

Thorax. Anteprepronotum moderately developed, with lobes narrowing dorsally, narrowly in contact anterior to non-extended scutum. Acrostichals absent; dorsocentrals, prealar and Scutellars few, uniserial.

Wing. Membrane without setae, with fine punctation. Anal lobe weakly developed. Costal apically fused with R₁ and R₄₊₅, forming tick clavus which terminates between $\frac{1}{3}$ and $\frac{1}{2}$ of wing length; weak false vein may continue from RM towards apex of wing, beneath and parallel with anterior margin; Cu₁ weakly sinuous or nearly straight; FCu far distal to RM; postcubitus and anal vein extending beyond FCu. Veins bare. Squama bare.

Legs. Fore leg trochanter without dorsal keel. Tibial apex not to slightly broadened, rarely with 1 seta from comb developed as hook. Tarsomere 4 on all legs weakly cordiform, about $\frac{1}{2}$ length of tarsomere 5. Tarsal pseudospurs, sensilla chaetica and pulvilli absent

Abdomen. All setation strongly reduced: tergites with 1-8 setae in median row, arising from pale areas; at least some posterior sternites with few setae.

Hypopygium. Tergite IX often large, covering much of gonocoxites, with straight or weakly bilobed posterior margin; anal point absent. Apodemes strongly sclerotized and specifically distinctive. Sternapodeme narrow, straight, weakly convex to strongly curved, with weak junction; aedeagal lobes variably developed. Virga absent, superior volsella well developed, rounded to triangular, inferior volsella often elongate, appressed to inner margin of gonocoxite, Gonostylus narrow, without crista dorsalis, with fine elongate megasetae.

Ubatubaneura Wiedenbrug *et* Trivinho-Strixino, 2009

Generic diagnosis: Small species, wing length about 0.5 mm.

Antenna. Antenna with 10 flagellomeres and well developed plume; male antennal ratio about 0.3; groove beginning on flagellomere 2; terminal flagellomere with distal sensilla chaetica in single, interrupted row surrounding triangular apex; with two sensilla coeloconica subapically.

Head. Dorsolateral region of head right-angled. Eye bare, without dorsomedial extension. Outer verticals and postorbitals few. Tentorium long, narrow, tapering towards apex. Cibarial pump comparatively broad. Clypeus narrow, with setae in single row. Palpomeres short, apparently lacking sensilla.

Thorax. Anteprenotal lobes not narrowed medially, without setae. Acrostichals absent, dorsocentrals uniserial, prealars and scutellars few, supralars absent.

Wing. Membrane bare, with fine punctuation. Anal lobe barely indicated to absent. Costa apically fused with R_1 and R_{2+3} , forming a thick clavus well proximal to mid-length of wing; R_{4+5} thick; “false vein” ending near apex of wing; M_{1+2} diffuse; Cu_1 not sinuous; FCu far distal to RM; postcubitus ending far beyond cubital fork; anal vein ending proximal to FCu. Squama and veins, except costa, bare. Brachiolum with one seta and 10 sensilla campaniformia, five in single group distal to seta and five aligned above setae.

Legs. Foreleg ratio about 1.0. All trochanters with dorsal keel, strongest developed on foretrochanter. Hind tibia with two long spurs, of which one curved; tibial comb normal. Tarsomeres 1–3 of mid- and hind legs with short, curved, strong setae, best developed on ta1. Hind ta1 with row of short, thick setae; ta4 shorter than ta5.

Abdomen. Tergites II–VII and IX each with 1–3 setae, tergite VIII without setae. Sternites without setae.

Hypopygium. Without anal point. Tergite IX with few, weak marginal setae. Laterosternite without setae. Superior volsella absent, inferior volsella broad and low. Virga absent. Gonostyle without crista dorsalis, with simple megaseta. Transverse sternapodeme slightly concave, without oral projections. Phallapodeme with straight distal margin, apically slightly curved posteriad.

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NEW SPECIES OF *LIPUROMETRICNEMUS* SÆTHER, 1981 FROM SÃO PAULO STATE,
BRAZIL (DIPTERA: CHIRONOMIDAE: ORTHOCLADIINAE).

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Abstrac: A new species of *Lipurometriocnemus* Saether 1981 is described and figured based on male adults. The specimens were collected in the “Estação Biológica de Boracéia” (EBB), São Paulo State, Brazil. This species can be separated from the other species in the genus by the combination of the following characters: acrostichals apparently absent; dorsocentral in 2-4 rows, scutelars uniseriales, R₁ with setae and R₄₊₅ without setae.

Keywords: Orthocladiinae, *Lipurometriocnemus*, São Paulo, Neotropical region.

INTRODUCTION

The genus *Lipurometriocnemus* Sæther 1981, with four valid species is known only from the Nearctic and Neotropical regions. The first described species *L. glabalus* Sæther, 1981 was recorded from St. Vincent and Sta. Lucia. Later another species was described, *L. vixlobatus* Sæther, 1982 from Southeastern USA. The most recent records of the genus were made this year, *L. amazonicus* Andersen, Pinho *et* Mendes, 2016 from Manaus in the Amazonas State and *L. biancae* Andersen, Pinho *et* Mendes, 2016 from Urubici in Santa Catarina State (Ashe & O’Connor, 2012; Andersen *et al.*, 2016). The immature stages are unknown, but probably are semiterrestrial (Craston *et al.*, 1989). Andersen *et al.*, 2016 emended the genus diagnosis and provide a key to the four known species.

Here we describe and figure a new species of genus *Lipurometriocnemus* based on males from the Biological Station of Boracéia, in the Atlantic Forest in the State of São Paulo, Brazil.

MATERIAL AND METHODS

The specimens were sampled in a light trap, fixed in 92% ethyl alcohol and then transferred to 99% alcohol. They were kept away from light and refrigerated all the time. The specimen was dissected and slide mounted in euparal following the procedures described by Ekrem (2007) and Sæther (1969). Measurements are given as ranges only. The terminology follows Sæther (1980). The holotype and paratypes will be deposited in Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo, Brazil.

Lipurometriocnemus sp. n.

Type material: Holotype male, Brazil, São Paulo State, Salesópolis, Estação Biológica de Boracéia, sede de pesquisa, 24.V. 2014, light trap, N. Oviedo-Machado leg. (MZUSP). Paratypes, 2 males, same data as the holotype.

Diagnostic characters: The species can be separated from the all other members of genus by having dorsocentral in 2-4 irregular rows, apparently no acrostichals, scutelars uniserials, R_1 with setae and R_{4+5} bare.

Description: Male imago (n = 3). Total length 1.58-1.50mm. Wing length 0.96-1.24 mm. Total length / wing length 1.51- 1.21.

Coloration: Head, thorax and abdomen dark brown.

Head (Figs. 6 & 7) Temporal setae 12-15 including 3-5 inner verticals, 3-6 outer verticals and 4 strong postorbitals. Clypeus with 14-38 setae. Tentorium, stipes, and cibarial pump as in (Figure 1) Tentorium 89-111 μ m long; 18-21 μ m wide. Stipes 76-101 μ m long; 29-32 μ m wide. Palp segment lengths (in μ m): 15-38; 23-56; 73-208; 61-173; 106-188.

Thorax (Figs. 2 & 8). Anteprenotum with 4 setae. Dorsocentrals 28-32 in 2-4 irregular rows, 5 acrostichals apparently absent, 8-11 prealars, supraalar absent. Scutellum with 8-12 setae, uniserials.

Wing (Figs. 4 & 10). Membrane wing with fine punctation. Brachiolum with 5 seta, R with 12 setae R₁ with 8 setae, remaining veins and cells bare. Squama with 17 setae.

Legs. Spur of fore tibia 35-42, 38 µm long, spur of mid tibia 19-27µm long, spur of hind tibia 41-44 µm long. Width at apex of fore tibia 20-36µm, of mid tibia 22-26 µm, of hind tibia 24-33µm. Comb with 12-15 setae, longest 25-35µm long; shortest seta 8-15µm long..

Hypopygium (Figs. 3 & 9). Tergite IX covered with microtrichia, with 10-31 setae; laterosternite IX with 5-6 setae. Transverse sternapodeme 45-60µm long. Phallapodeme 33-39µm long; 5-8µm wide. Virga 8µm long. Gonocoxite 94-115µm long. Inferior volsella 20-33µm long, 9-11µm wide. Gonostylus 41-52µm long, 12-15µm wide medially; megaseta 5-9µm long. HR 1.96-2.74; HV: 3.05-3.60.

Leg	Femur	Tibia	Ta1	Ta2	Ta3	Ta4	Ta5
Fore	298-463	482-635	267-307	176-187	103-134	59-76	57-36
Mid	335-428	388-480	184-227	109-137	78-99	53-76	35-49
Hind	301-446	406-545	286-424	165-222	105-155	76-100	45-52

BIOLOGY AND DISTRIBUTION

The species was collected in a light trap situated near a small stream in Estação Biológica de Boracéia, Salesópolis county, São Paulo State, Brazil. However we have hold field-work in the biological station for some years and have never found any larvae that could eventually belong to *Lipurometriocnemus* Sæther. Based on this, we suggest that the larvae might be found in semi-aquatic environments, the next micro-habitats we shall investigate.

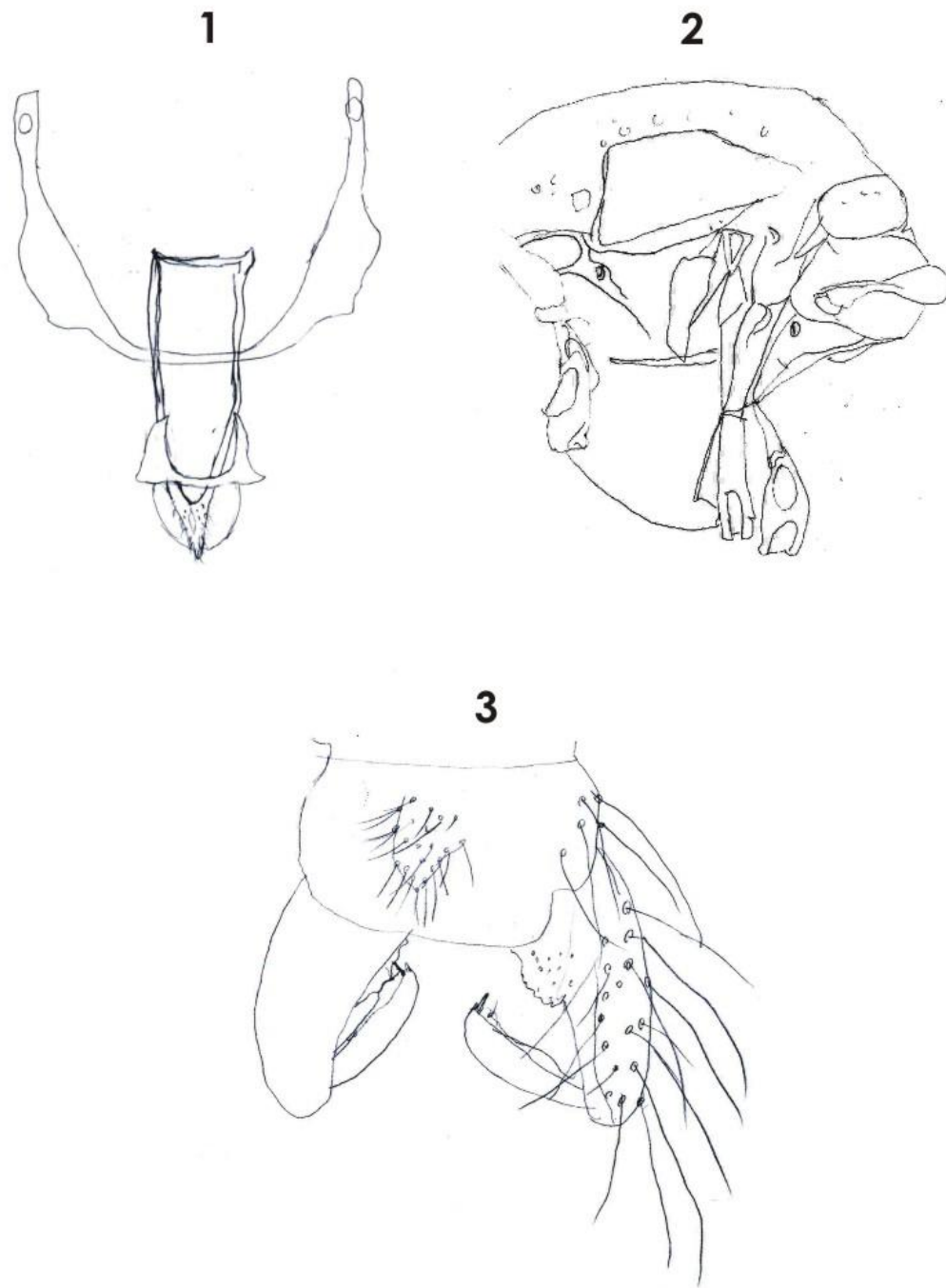
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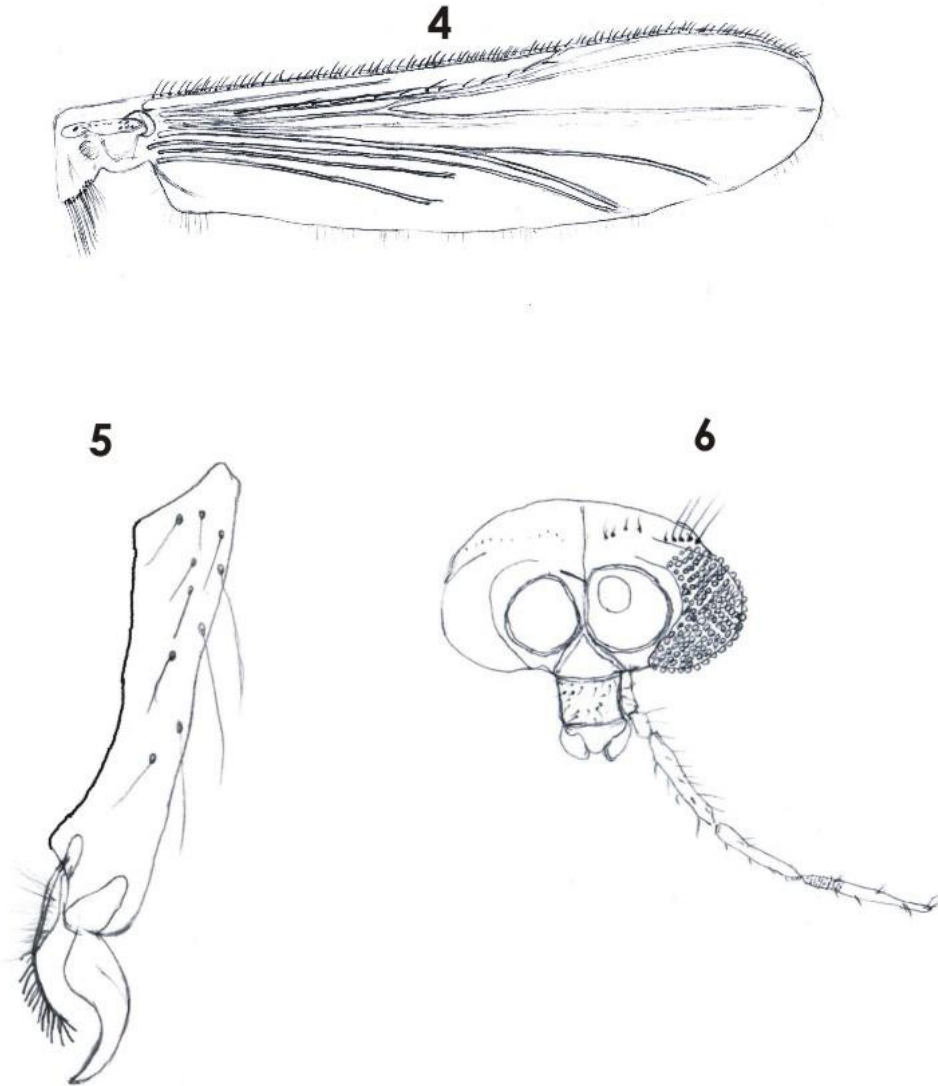
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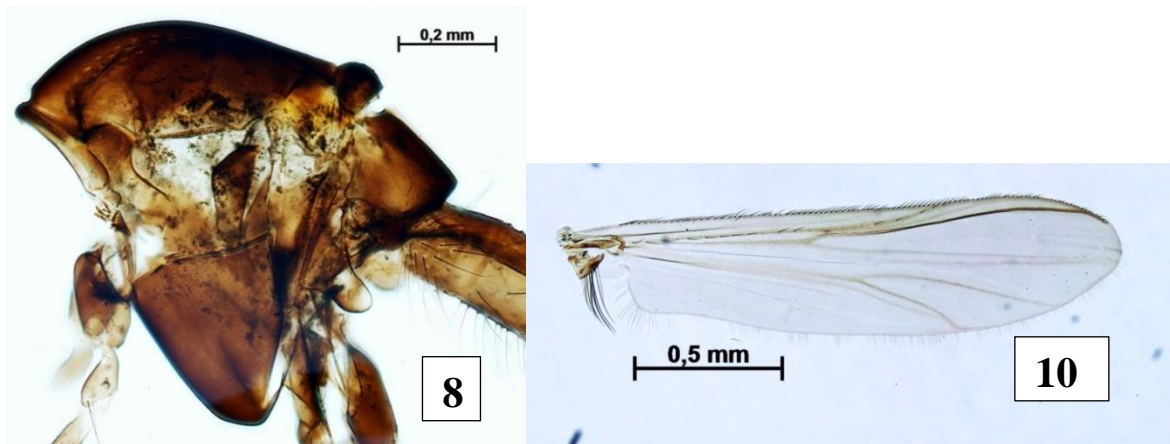
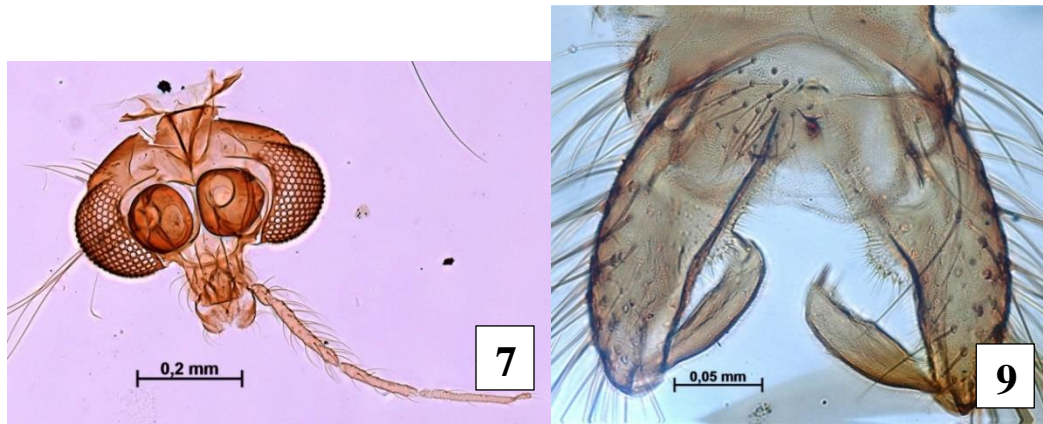
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Figures 1-3. *Lipurometriocnemus anisae* sp. n. 1. Cibarium pump and stypes, general aspect in frontal view. 2. Thorax, lateral view. 3. Hypopygium dorsal aspect to the right and ventral aspect to the left.



Figures 4-6. *Lipurometriocnemus anisae* sp. n. 4. Wing. 5. Ultimate tarsomere, claws and empodium of foreleg, lateral view. 6. Head and left palp, frontal view .



Figures 7-10. *Lipurometriocnemus anisae* sp. n. 7. Head and palps, frontal view. 8. Thorax, lateral view. 9. Hypopygium, dorsal view. 10. Wing overview.