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ESPÉCIES DE MARUINS DO BRASIL

(DIPTERA: CERATOPOGONIDAE)

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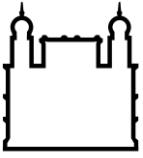
Coleção de Ceratopogonidae (CCER / FIOCRUZ)

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**BRAZILIAN SPECIES OF BITING MIDGES**

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**(DIPTERA: CERATOPOGONIDAE)**

MARIA CLARA ALVES SANTARÉM and MARIA LUIZA FELIPPE-BAUER

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Catalogs and lists of species are important tools in the study of biodiversity of localities, states, countries and zoogeographic regions. Throughout the years, several catalogs as well as lists of Ceratopogonidae tribes and genera have been created in order to update the species lists for family study facilitation. Ceratopogonidae catalogs and lists from different parts of the World are accessible in < <http://campus.belmont.edu/cienews/cie.html>>. From the Neotropical Region, the most recent Ceratopogonidae species catalogs have been elaborated by Borkent & Spinelli (2000, 2007). Nicaraguan, Argentine and Mexican species were published sequentially by Maes & Wirth (1990), Spinelli & Wirth (1993) and Ibanez-Bernal et al. (1996). Ceratopogonidae fauna was also mentioned by Wirth (1952, 1957), Davies & Giglioli (1979) and Borkent (1991) for Juan Fernandez, Grand Cayman and Galápagos Islands, respectively. *Culicoides* species lists from Argentina, Colombia and Costa Rica are available in the publications by Spinelli et al. (2005, 2009) and Spinelli & Borkent (2004). However, from Brazil, no list of species has ever been published despite the big country size and biome diversity. Surveys of species, particularly from *Culicoides*, has been conducted in different Brazilian States due to the medical and veterinary importance as well as the emerging *Culicoides*-borne diseases. Thus, the data of the Ceratopogonidae species records in Brazil are scattered in different manuscripts, which complicates investigation.

The purpose of this list is to provide the described and recorded Ceratopogonidae species to Brazil and the current distribution in the 26 Brazilian States. A table with species number distributed with respect to genera reported in the Neotropical region, Brazil and the Brazilian Amazon Region is included together with a brief history of Brazilian Ceratopogonidae fauna studies. The distribution of Neotropical species out of Brazil can be accessed in Borkent & Spinelli (2000, 2007).

In this list, we follow the species arrangement according to the catalog of “World Ceratopogonidae fauna” and “Subgeneric classification of species of *Culicoides*” by Borkent (2015a, b) and “Catalog of Neotropical Ceratopogonidae” by Borkent & Spinelli (2007). The distribution of species was adopted from specific literature including the most recent records of *Culicoides* from the Brazilian Amazon Region States from Castellón & Felipe-Bauer (2015) in addition to reliable localities with regard to the pertinent species deposited in the entomological collections of the following Institutions: Faculty of Public Health, University of São Paulo, São Paulo, Brazil; Ceratopogonidae Collection of Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; National Museum of Natural History, Washington, DC, United States and British Museum, London, United Kingdom. In doubt of species presence in the cited localities, we chose to maintain them in the distribution until further studies, as revisions of genera, subgenera or species group are carried out to confirm or not their presence.

The species records are included in alphabetical order of Brazilian States after the indication of the locality type, considering the geopolitical regions (North, Northeast, Midwest, Southeast and South). In 1977, the state of Mato Grosso was split into the states of Mato Grosso and Mato Grosso do Sul and in 1989, the state of Goiás divided into the states of Goiás and Tocantins. Localities mentioned in manuscripts prior to these dates had to be updated due to the newly created States. When the collection site of the species is not provided in the original paper, we consider the cited geographic region of the species.

To set the species in the Neotropical Region we relied on the biogeographical regionalisation of the Neotropical Region by Morrone (2014). For inclusion of species in the Brazilian Amazon Region, we considered the political map of the “Amazônia Legal Brasileira”, despite the fragility of geographical borders in the delimitation of the species distribution. Brazilian municipalities and states included here can be accessed in: <http://www.cidades.ibge.gov.br/xtras/home.php>

This list recognizes 1305 extant valid Ceratopogonidae species in the Neotropical Region, 517 in Brazil and 289 in the Brazilian Amazon Region. The Ceratopogoninae subfamily is the most represented according to the studies of the sanitary important *Culicoides* genus. This subfamily is better studied in the North and Southeast Brazilian regions and few species have been reported for the Brazilian northeast region despite containing nine States in an area of 1.558.196 km<sup>2</sup>. Forcipomyinae is the second subfamily with a higher number of species, followed by Dasyheleinae. These two subfamilies are founded in the north, northeast, southeast and south of Brazil, and for Midwest Brazil, only four species have been reported for Forcipomyinae. For Leptoconopinae, only *Leptoconops brasiliensis* (Lutz) and *Leptoconops knowltoni* Clastrier & Wirth have been cited for the northern and southern Brazilian coastal areas. A close look at the number of listed species indicates the need for further studies in the five Brazilian geopolitical regions, especially in the Midwest and Northeast that encompass the natural biomes of Cerrado, Pantanal and Caatinga. In the Northeast, no Ceratopogonidae species has ever been reported for the States of Alagoas and Sergipe. Despite political inclusion in the northern region, Tocantins State presents a Cerrado biome and has no records of Ceratopogonidae as of yet.

We intend to update annually the species reported from Brazil and their records for the Brazilian States. We hope that the cited data and references available online may aid the systematic, biodiversity, biogeographical and epidemiological studies regarding the Ceratopogonidae fauna.

For corrections and additions, please contact the authors through e-mails included in the list cover.

## **Brief historical report of the Brazilian Ceratopogonidae fauna studies.**

**Jean Jacques Kieffer** was one of the most important naturalists who studied the world Ceratopogonidae fauna during the first quarter of the 20<sup>th</sup> Century. He proposed hundreds of taxa, of which several tribe, genera, subgenera and species are still valid. The species from Kieffer later reported for Brazil have been described based on material, particularly, from Paraguay. **Daniel William Coquillett** (1904) described the first Ceratopogonidae species from Brazil, *Ceratopogon guttatus* (*Culicoides guttatus*), based on three specimens collected by Adolpho Lutz in São Paulo State. **Emílio Augusto Goeldi**, from Paraense Museum, later Museu Paraense Emilio Goeldi, described a new genus and species, *Haematomyidium paraense* (*Culicoides paraensis*) in the manuscript “Os moquitos no Pará” published in 1905. Actually, *C. paraensis* is considered the most medical important species, due to Oropouche fever transmission and the possible implication in the transmission of Mansonellose in the Brazilian Amazon region. **Adolpho Lutz** (1913, 1914) described 15 new species belonging to diverse genera of Ceratopogonidae, and **Ângelo Moreira da Costa Lima** (1928, 1937) described four new *Culicoides* and *Forcipomyia* species and designed a key for the identification of the *Culicoides* of the Neotropical Region. **Frederico Simões Barbosa** (1943-1952) described new Neotropical *Culicoides* species, some still valid, his primary focus of study being *Culicoides* from the State of Pernambuco. **John William Scott Macfie** has produced several important manuscripts concerning the world Ceratopogonidae fauna, in which from Brazil, he described from 1935 to 1953 numerous species, especially from Santa Catarina State, based on specimens collected by Fritz Plaumann. In “A report on a collection of Brazilian Ceratopogonidae”, Macfie characterized 40 new species belonging to 13 genera. From 1942 to 1964, **Irving Fox** published a series of papers, primarily on the Caribbean *Culicoides*, also electing *Avaritia*, *Hoffmania* and *Macfiella* as subgenera of *Culicoides*. **John Lane** (1944-1964) and **Oswaldo P. Forattini** (1953-1960) described and redescribed several Neotropical species and published bionomic data about *Culicoides* from the mangrove swamp in São Vicente, São Paulo. In 1957, Forattini published a book intitled “*Culicoides* da Região Neotropical” including a key for identification of species. His life and bibliography, written in Portuguese, can be found in <<http://www.scielosp.org/pdf/rsp/v41n6/03.pdf>>. **Ignacio Ortíz** (1950-1961) in collaboration with Luis A. León and Marie Mirsa, dealing especially with the *Culicoides* from Venezuela and Ecuador, described dozens of species, some of them reported later in Brazil. **Jean Clastrier** carried on his Ceratopogonidae research activities from 1968 to 1995 also in the Neotropical Region, focusing primarily on the Guyana fauna. He also published Brazilian species of *Forcipomyia* with material

from Pará and Santa Catarina States. His life and scientific contributions can be accessed in <<http://campus.belmont.edu/cienews/Clastrier.html>>. From 1953 until his death in 1994, **Willis W. Wirth** motivated the studies of World Ceratopogonidae fauna with descriptions of hundreds of taxa in important and numerous manuscripts, extensive revisions, including handbooks, catalogs and species lists. **Wirth and Blanton** (1973) published “A review of the maruins or biting midges of the genus *Culicoides* (Diptera: Ceratopogonidae) in the Amazon Basin”, the first consolidation of the *Culicoides* species from the Brazilian Amazon Region, with a description of 15 new species. His life and contributions is available in <<http://campus.belmont.edu/cienews/Wirth.html>>. During three years, from 1978 to 1980, **Omar Tavares** and collaborators studying material from Rio de Janeiro, characterized 14 new species, actually belonging to the *Culicoides*, *Monohelea* and *Downshelea* genera. More recently, since 1990, **Eloy G. Castellón** has been publishing papers regarding survey and some bionomic aspects of *Culicoides* from the Amazonas and Pará States. Since 1981, **Gustavo R. Spinelli** and co-authors have been concentrating on Neotropical Ceratopogonidae, publishing studies, including revisions, which contributed with knowledge of the Brazilian biting midges, especially those of the Argentine fauna. Since 1987, **Maria Luiza Felipe-Bauer** and collaborators have been conducting taxonomy studies of Neotropical Ceratopogonidae, mainly of Brazilian *Culicoides*, describing several new species.

Catálogos e listas de espécies são ferramentas importantes no estudo da biodiversidade de localidades, estados, países e regiões zoogeográficas. Ao longo dos anos, vários catálogos e listas de tribos e gêneros de Ceratopogonidae têm sido feitos a fim de atualizar as listas de espécies para facilitar o estudo da família. Catálogos e listas de Ceratopogonidae de diferentes partes do mundo estão disponíveis em <<http://campus.belmont.edu/cienews/cie.html>>. Para a região Neotropical, os mais recentes catálogos das espécies de Ceratopogonidae foram realizados por Borkent & Spinelli (2000, 2007). Espécies de Nicarágua, Argentina e México foram publicadas sequencialmente por Maes & Wirth (1990), Spinelli & Wirth (1993) e Ibanez-Bernal et al. (1996). A fauna de Ceratopogonidae foi também mencionada por Wirth (1952, 1953), Davies & Giglioli (1979) e Borkent (1991) para as Ilhas de Juan Fernandez, Grand Cayman e Galápagos, respectivamente. Listas das espécies de *Culicoides* para a Argentina, Colômbia e Costa Rica são obtidas nas

publicações de Spinelli et al. (2005, 2009) e Spinelli & Borkent (2004). No entanto para o Brasil, nenhuma lista de espécie tem sido publicada, apesar da grande dimensão do país e da diversidade de biomas. Levantamentos de espécies, especialmente de *Culicoides*, têm sido realizados em diferentes estados brasileiros devido a importância médica e veterinária, bem como a transmissão de enfermidades emergentes por *Culicoides*. Assim, dados de registros de espécies de Ceratopogonidae no Brasil estão dispersos em diferentes manuscritos, o que torna a pesquisa trabalhosa.

O propósito dessa lista é fornecer as espécies de Ceratopogonidae descritas e reportadas para o Brasil e sua atual distribuição nos 26 estados brasileiros. Uma tabela com o número das espécies distribuídas por gênero reportadas para a Região Neotropical, Brasil e para a Região Amazônica Brasileira é incluída juntamente com um breve histórico dos estudos da fauna brasileira de Ceratopogonidae. A distribuição das espécies neotropicais fora do território brasileiro pode ser obtida em Borkent & Spinelli (2000, 2007).

Nessa lista, seguimos a ordenação das espécies conforme o catálogo “World Ceratopogonidae fauna” e “Subgeneric classification of species of *Culicoides*” de Borkent (2015a, b) e o “Catalog of Neotropical Ceratopogonidae” de Borkent & Spinelli (2007). A distribuição das espécies foi baseada na literatura específica incluindo os mais recentes registros de *Culicoides* para os estados da Região Amazônica Brasileira de Castellón & Felipe-Bauer (2015) além das localidades fiáveis relacionadas as espécies depositadas nas coleções entomológicas das seguintes instituições: Faculdade de Saúde Pública, Universidade de São Paulo, Brasil; Coleção de Ceratopogonidae da Fundação Oswaldo Cruz, Rio de Janeiro, Brasil; Museu Nacional de História Natural, Washington, DC, Estados Unidos e Museu Britânico, Londres, Inglaterra. Na dúvida da presença de espécies nas localidades citadas, optamos por mantê-las na distribuição até que futuros estudos, como revisões de gênero, subgênero ou grupo de espécies sejam realizados para confirmar ou não a presença das mesmas.

Os registros das espécies estão incluídos em ordem alfabética dos estados brasileiros após a indicação da localidade tipo, considerando as regiões geopolíticas (Norte, Nordeste, Centro-oeste, Sudeste e Sul). Em 1977, o estado de Mato Grosso foi separado nos estados de Mato Grosso e Mato Grosso do Sul e em 1989, o estado de Goiás foi dividido nos estados de Goiás e Tocantins. Localidades mencionadas em manuscritos anteriores a essas datas foram atualizadas devido a criação desses novos estados. Quando a localidade de coleta da espécie não é fornecida no trabalho original, consideramos a região geográfica citada para a espécie.

Para inserir as espécies na Região Neotropical contamos com o trabalho de regionalização biogeográfica da Região Neotropical de Morrone (2014). Para inclusão das espécies na Região Amazônica Brasileira, nós consideramos o mapa político da “Amazônia Legal Brasileira”, apesar da fragilidade das fronteiras geográficas na delimitação da distribuição das espécies. Os municípios e estados brasileiros aqui incluídos podem ser acessados em <http://www.cidades.ibge.gov.br/xtras/home.php>

Essa lista reconhece 1305 espécies de Ceratopogonidae existentes e válidas para a Região Neotropical, 517 para o Brasil e 289 para a Região Amazônica Brasileira. A subfamília Ceratopogoninae é a melhor representada devido aos estudos do gênero *Culicoides*, com importância sanitária. Essa subfamília é bem estudada nas regiões norte e sudeste do Brasil e poucas espécies têm sido reportadas para o nordeste brasileiro, apesar de abranger nove estados em uma área de 1.558.196 km<sup>2</sup>. Forcipomyiinae é a segunda subfamília com maior número de espécies, seguida de Dasyheleinae. Essas duas subfamílias são encontradas nas regiões norte, nordeste, sudeste e sul do Brasil, e para o Centro-oeste, apenas quatro espécies têm sido reportadas para Forcipomyiinae. Para Leptoconopinae, apenas *Leptoconops brasiliensis* (Lutz) e *Leptoconops knowltoni* Clastrier & Wirth têm sido citadas para as áreas costeiras do norte e sul do Brasil. Um olhar atento ao número das espécies listadas indica a necessidade de futuros estudos nas cinco regiões geopolíticas brasileiras, especialmente na Centro-oeste e Nordeste que abriga os biomas



naturais de Cerrado, Pantanal e Caatinga. No Nordeste, nenhuma espécie de Ceratopogonidae tem sido reportada para os estados de Alagoas e Sergipe. Apesar de politicamente incluído na região norte, o estado de Tocantins apresenta um bioma de cerrado e não tem registros de Ceratopogonidae até o presente.

Pretendemos atualizar anualmente as espécies reportadas para o Brasil e seus registros para os estados brasileiros. Esperamos que os dados incluídos e as referências disponíveis possam auxiliar os estudos da Sistemática, Biodiversidade, Biogeografia e Epidemiologia relacionados à fauna de Ceratopogonidae.

Para correções e inclusões, favor contactar os autores através dos e-mails incluídos na primeira página.

### **Breve histórico dos estudos da fauna de Ceratopogonidae do Brasil.**

**Jean Jacques Kieffer** foi um dos mais importantes naturalistas que estudou a fauna mundial de Ceratopogonidae durante o primeiro quartel do Século XX. Ele propôs centenas de taxons, dos quais várias tribos, gêneros, subgêneros e espécies são ainda válidos. As espécies de Kieffer relatadas posteriormente para o Brasil têm sido descritas baseadas em material, especialmente, do Paraguai. **Daniel William Coquillett** (1904) descreveu a primeira espécie de Ceratopogonidae para o Brasil, *Ceratopogon guttatus* (*Culicoides guttatus*), baseada em três exemplares coletados por Adolpho Lutz no estado de São Paulo. **Emílio Augusto Goeldi**, do Museu Paraense, posteriormente, Museu Paraense Emilio Goeldi, descreveu um novo gênero e espécie, *Haematomyidium paraense* (*Culicoides paraensis*) no manuscrito “Os moquitos no Pará” publicado em 1905. Atualmente, *C. paraensis* é considerada a espécie de maior importância médica, devido a transmissão da Febre de Oropouche e a possível implicação na transmissão da

Mansonelose na Região Amazônica Brasileira. **Adolpho Lutz** (1913, 1914) descreveu 15 novas espécies pertencentes a diversos gêneros de Ceratopogonidae, e **Ângelo Moreira da Costa Lima** (1928, 1937) descreveu quatro novas espécies de *Culicoides* e *Forcipomyia* e fez uma chave para a identificação dos *Culicoides* da Região Neotropical. **Frederico Simões Barbosa** (1943-1952) descreveu novas espécies de *Culicoides* neotropicais, algumas ainda válidas, focando seus estudos principalmente nos *Culicoides* do estado de Pernambuco. **John William Scott Macfie** publicou vários manuscritos importantes no que concerne a fauna mundial de Ceratopogonidae, dos quais para o Brasil, ele descreveu de 1935 a 1953 numerosas espécies, especialmente para o estado de Santa Catarina, baseadas em espécimes coletados por Fritz Plaumann. Em “A report on a collection of Brazilian Ceratopogonidae”, Macfie caracterizou 40 novas espécies incluídas em 13 gêneros. De 1942 a 1964, **Irving Fox** publicou uma série de trabalhos, principalmente sobre os *Culicoides* do Caribe, elegendo também *Avaritia*, *Hoffmania* e *Macfiella* como subgênero de *Culicoides*. **John Lane** (1944-1964) e **Oswaldo P. Forattini** (1953-1960) descreveram e redescreveram várias espécies neotropicais e publicaram dados bionômicos sobre *Culicoides* de manguezal em São Vicente, São Paulo. Em 1957, Forattini publicou um livro intitulado “*Culicoides* da Região Neotropical” incluindo uma chave para identificação das espécies. Sua vida e bibliografia, escritas em Português, podem ser encontradas em <<http://www.scielo.org/pdf/rsp/v41n6/03.pdf>>. **Ignacio Ortiz** (1950-1961) em colaboração com Luis A. León e Marie Mirsa, trabalharam especialmente com os *Culicoides* da Venezuela e Equador, descrevendo dezenas de espécies, algumas delas reportadas posteriormente para o Brasil. **Jean Clastrier** exerceu suas atividades de pesquisa em Ceratopogonidae de 1968 a 1995 também na Região Neotropical, focado principalmente na fauna da Guiana. Ele também publicou espécies de *Forcipomyia* do Brasil com material dos estados do Pará e de Santa Catarina. Sua vida e contribuições científicas podem ser acessadas através do site <<http://campus.belmont.edu/cienews/Clastrier.html>>. De 1953 até sua morte em 1994, **Willis W. Wirth** impulsionou os estudos da fauna mundial de Ceratopogonidae

com descrições de centenas de taxons em importantes e numerosos manuscritos, amplas revisões, incluindo livros, catálogos e listas de espécies. **Wirth and Blanton** (1973) publicaram “A review of the maruins or biting midges of the genus *Culicoides* (Diptera: Ceratopogonidae) in the Amazon Basin”, a primeira reunião das espécies de *Culicoides* da Região Amazônica Brasileira, com descrição de 15 novas espécies. Sua vida e contribuições estão disponíveis em <http://campus.belmont.edu/cienews/Wirth.html>. Durante três anos, de 1978 a 1980, **Omar Tavares** e colaboradores estudando material do Rio de Janeiro, caracterizaram 14 novas espécies, atualmente pertencentes aos gêneros *Culicoides*, *Monohalea* e *Downshelea*. Mais recentemente, desde 1990, **Eloy G. Castellón** tem publicado manuscritos relativos ao levantamento e alguns aspectos da bionomia de *Culicoides* dos estados do Amazonas e Pará. Desde 1981, **Gustavo R. Spinelli** e coautores têm se dedicado aos Ceratopogonidae neotropicais, publicando estudos, incluindo revisões, os quais contribuem com o conhecimento dos ceratopogonídeos brasileiros, principalmente os da fauna Argentina. Desde 1987, **Maria Luiza Felipe-Bauer** e colaboradores têm conduzido estudos taxonômicos dos Ceratopogonidae neotropicais, principalmente de *Culicoides* do Brasil, descrevendo várias espécies novas.

**Table 1.** Number of species of Ceratopogonidae genera reported in Neotropical Region, Brazil and in the Brazilian Amazon Region.

Subfamily	Tribe	Genus	Subgenus	Neotropical Region	Brazil	Brazilian Amazon Region
Ceratopogoninae	Ceratopogonini	<i>Allohelea</i>		1	-	-
		<i>Alluaudomyia</i>		18	7	5
		<i>Austrohelea</i>		3	-	-
		<i>Baeodasymyia</i>		5	-	-
		<i>Baeohelea</i>		1	-	-
		<i>Bahiahelea</i>		1	1	-
		<i>Borkenthelea</i>		4	-	-
		<i>Brachypogon</i>	<i>Brachypogon</i>	23	8	6
		<i>Brachypogon</i>	<i>Isohelea</i>	7	1	-
		<i>Bhachypogon</i>	Out of subgenus	2	-	-
		<i>Cacaohelea</i>		1	-	-
		<i>Ceratoculicoides</i>		1	-	-
		<i>Diaphanobezzia</i>		4	-	-
		<i>Downshelea</i>		46	19	9
		<i>Echinohelea</i>	<i>Echinohelea</i>	10	5	4
		<i>Echinohelea</i>	<i>Echinoideshelea</i>	1	1	1
		<i>Fittkauhelea</i>		1	1	1
		<i>Isthmohelea</i>		1	-	-
		<i>Leptohelea</i>		1	-	-
		<i>Macrurohelea</i>		12	-	-
		<i>Monohelea</i>		25	16	11
		<i>Nannohelea</i>		1	-	-
		<i>Notiohelea</i>		2	-	-
		<i>Parabezzia</i>		29	8	2
		<i>Rhynchohelea</i>		1	-	-

**Table 1.** Continued

Subfamily	Tribe	Genus	Subgenus	Neotropical Region	Brazil	Brazilian Amazon Region
		<i>Schizonyxhelea</i>		9	4	2
		<i>Spinellihelea</i>		1	-	-
		<i>Stilobezzia</i>	<i>Acanthohelea</i>	40	3	3
		<i>Stilobezzia</i>	<i>Eukraiohelea</i>	5	5	1
		<i>Stilobezzia</i>	<i>Stilobezzia</i>	44	23	6
		<i>Yungahelea</i>		1	-	-
	Culicoidini	<i>Culicoides</i>	<i>Amosovia</i>	1	-	-
		<i>Culicoides</i>	<i>Anilomyia</i>	20	2	1
		<i>Culicoides</i>	<i>Avaritia</i>	8	3	2
		<i>Culicoides</i>	<i>Beltranmyia</i>	3	-	-
		<i>Culicoides</i>	<i>Cotocripus</i>	6	2	-
		<i>Culicoides</i>	<i>Culicoides</i>	6	-	-
		<i>Culicoides</i>	<i>Diphaomyia</i>	14	3	2
		<i>Culicoides</i>	<i>Drymodesmyia</i>	13	3	1
		<i>Culicoides</i>	<i>Glaphiromyia</i>	2	-	-
		<i>Culicoides</i>	<i>Haematomyidium</i>	37	25	19
		<i>Culicoides</i>	<i>Hoffmania</i>	46	37	35
		<i>Culicoides</i>	<i>Macfiella</i>	2	1	1
		<i>Culicoides</i>	<i>Mataemyia</i>	19	13	10
		<i>Culicoides</i>	<i>Oecacta</i>	5	2	2
		<i>Culicoides</i>	<i>Psychophaena</i>	2	1	-
		<i>Culicoides</i>	Out of subgenus	115	59	50
		<i>Paradasyhelea</i>		3	-	-
	Heteromyiini	<i>Clinohelea</i>	<i>Ceratobezzia</i>	1	1	1
		<i>Clinohelea</i>	<i>Clinohelea</i>	11	9	6
		<i>Heretomyia</i>		11	6	4

**Table 1.** Continued

Subfamily	Tribe	Genus	Subgenus	Neotropical Region	Brazil	Brazilian Amazon Region
		<i>Pellucidomyia</i>		4	1	-
		<i>Physohelea</i>		2	-	-
	Johannsenomyiini	<i>Groganhelea</i>		1	1	1
		<i>Johannsenomyia</i>		2	1	-
		<i>Lanehelea</i>		2	-	-
		<i>Mallochohelea</i>		6	4	2
		<i>Neobezzia</i>		8	6	5
		<i>Nilobezzia</i>		3	3	2
	Palpomyiini	<i>Amerohelea</i>		13	4	3
		<i>Bezzia</i>		49	19	11
		<i>Clastrieromyia</i>		4	1	1
		<i>Pachyhelea</i>		2	1	1
		<i>Palpomyia</i>		53	32	6
		<i>Phaenobezzia</i>		2	2	1
	Sphaeromyiini	<i>Austrosphaeromias</i>		4	-	-
		<i>Sphaerohelea</i>		1	-	-
	Stenoxenini	<i>Paryphoconus</i>		41	29	17
		<i>Stenoxenus</i>		16	7	4
Dasyheleinae		<i>Dasyhelea</i>		103	18	7
Forcipomyiinae		<i>Atrichopogon</i>	<i>Atrichopogon</i>	94	23	2
		<i>Atrichopogon</i>	<i>Lophomyidium</i>	5	2	2
		<i>Atrichopogon</i>	<i>Psilokempia</i>	17	6	3
		<i>Forcipomyia</i>	<i>Blantonia</i>	1	-	-
		<i>Forcipomyia</i>	<i>Caloforcipomyia</i>	11	9	4
		<i>Forcipomyia</i>	<i>Euprojoannisia</i>	16	5	3
		<i>Forcipomyia</i>	<i>Forcipomyia</i>	37	11	4

**Table 1.** Continued

<b>Subfamily</b>	<b>Tribe</b>	<b>Genus</b>	<b>Subgenus</b>	<b>Neotropical Region</b>	<b>Brazil</b>	<b>Brazilian Amazon Region</b>
		<i>Forcipomyia</i>	<i>Lasiohelea</i>	11	5	1
		<i>Forcipomyia</i>	<i>Lepidohelea</i>	23	10	1
		<i>Forcipomyia</i>	<i>Metaforcipomyia</i>	23	1	-
		<i>Forcipomyia</i>	<i>Microhelea</i>	50	22	11
		<i>Forcipomyia</i>	<i>Pedilohelea</i>	5	3	2
		<i>Forcipomyia</i>	<i>Phytohelea</i>	11	5	1
		<i>Forcipomyia</i>	<i>Pterobosca</i>	3	2	-
		<i>Forcipomyia</i>	<i>Rhynchoforcipomyia</i>	7	2	1
		<i>Forcipomyia</i>	<i>Saliohelea</i>	2	1	1
		<i>Forcipomyia</i>	<i>Schizoforcipomyia</i>	2	1	1
		<i>Forcipomyia</i>	<i>Synthyridomyia</i>	4	1	-
		<i>Forcipomyia</i>	<i>Thyridomyia</i>	8	2	-
		<i>Forcipomyia</i>	<i>Trichohelea</i>	13	2	1
		<i>Forcipomyia</i>	<i>Warkea</i>	7	4	4
Leptoconopiinae		<i>Leptoconops</i>	<i>Brachyconops</i>	1	-	-
		<i>Leptoconops</i>	<i>Holoconops</i>	3	1	-
		<i>Leptoconops</i>	<i>Leptoconops</i>	7	1	1
		<i>Leptoconops</i>	<i>Megaconops</i>	1	-	-
Unplaced	Unplaced	<i>Ceratopogon</i>		1	-	-
<b>TOTAL</b>				<b>1305</b>	<b>517</b>	<b>289</b>

SUBFAMILY CERATOPOGONINAE NEWMAN, 1834

TRIBE CERATOPOGONINI

**Genus ALLUAUDOMYIA Kieffer**

**ALLUAUDOMYIA** Kieffer, 1913a: 12. Type species: *Alluaudomyia imparunguis* Kieffer, by monotypy.

**NEOCERATOPOGON** Malloch, 1915a: 310. Type species: *Ceratopogon bellus* Coquillett, by original designation.

**PRIONOGNATHUS** Carter, Ingram & Macfie, 1921: 309 (preoccupied by *Prionognathus* LaFerté-Sénectère, 1851). Type species: *Prionognathus marmoratus* Carter, Ingram & Macfie, by original designation.

**THYSANOGNATHUS** Ingram & Macfie, 1922: 244. New name for *Prionognathus* Carter, Ingram & Macfie. Type species: *Prionognathus marmoratus* Carter, Ingram & Macfie, automatic.

**ISOECACTA** Garrett, 1925: 9. Type species: *Isoecacta poeyi* Garrett (= *Ceratopogon bellus* Coquillett), by original designation.

**amazonica** Spinelli & Wirth, 1984a: 676. Brazil (Amazonas)

**catarinensis** Spinelli & Wirth, 1984a: 681. Brazil (Santa Catarina)

**distispinulosa** Spinelli & Wirth, 1984a: 682. Brazil (Amazonas)

**fittkai** Spinelli & Wirth, 1984a: 686. Brazil (Amazonas). Brazil records – Amazonas, Pará

**nubeculosa** Spinelli & Wirth, 1984a: 689. Brazil (Amazonas). Brazil records – Amazonas, Pará

**plaumanni** Spinelli & Wirth, 1984a: 691. Brazil (Santa Catarina)

**punctivenosa** Wirth & Grogan, 1988: 20. New name for *punctiradialis*.

*punctiradialis* Spinelli & Wirth, 1984a: 692 (preoccupied by *Alluaudomyia punctiradialis* Chaudhuri, Das Gupta & Chaudhuri, 1972). Brazil (Pará)

**Genus BAHIAHELEA Wirth**

**BAHIAHELEA** Wirth, 1992: 276. Type species: *Bahiahelea brasiliensis* Wirth, by original designation.

**brasiliensis** Wirth, 1992: 280. Brazil (Bahia)

**Genus BRACHYPOGON Kieffer**

**BRACHYPOGON** Kieffer, 1899: 69. Type species: *Ceratopogon vitiosus* Winnertz, by original designation.



### Subgenus BRACHYPOGON Kieffer

- apunctipennis** Spinelli & Grogan, 1998: 64. Brazil (Rondônia)
- bimaculatus** Spinelli & Grogan, 1998: 67. Colombia. Brazil records – Mato Grosso
- fuscivenosus** (Lutz), 1914: 94 (*Palpomyia*). Brazil (Rio de Janeiro)
- impar** (Johannsen), 1938: 223 (*Ceratopogon*). Puerto Rico (USA). Brazil records – Santa Catarina
- paraensis** Wirth & Blanton, 1970a: 99 (as *parasensis*). Brazil (Pará)
- pseudoparaensis** Spinelli & Grogan, 1998: 64. Brazil (Pará)
- schmitzi** Spinelli & Grogan, 1998: 65. Brazil (Rondônia)
- spatuliformis** Spinelli & Grogan, 1998: 65. Brazil (Rondônia)

### Subgenus ISOHELEA Kieffer

**ISOHELEA** Kieffer, 1917a: 295. Type species: *Ceratopogon lacteipennis* Zetterstedt (misidentified, = *Psilohelea sociabilis* Goetghebuer), by original designation.

**NILOHELEA** Kieffer, 1921a: 22. Type species: *Nilohela albipennis* Kieffer, by monotypy.

**TRISHELEA** Kieffer, 1925a: 153. Type species: *Trishelea incompleta* Kieffer, by original designation.

**misionensis** Spinelli, 1990: 752. Argentina. Brazil records – Southeast

### Genus DOWNESHELEA Wirth & Grogan

**DOWNESHELEA** Wirth & Grogan, 1988: 50. Type species: *Monohelea stonei* Wirth, by original designation.

**avizi** Santarém, Borkent & Felipe-Bauer, 2020: 15. Brazil (Pará)

**bahiana** Santarém, Borkent & Felipe-Bauer, 2020: 17. Brazil (Bahia)

**bicornis** Felipe-Bauer & Quintelas, 1993a: 185. Brazil (Rio de Janeiro)

**carioca** (Tavares & Silva Pereira), 1978: 157 (*Monohelea*). Brazil (Rio de Janeiro)

**casimirensis** Santarém, Borkent, Spinelli & Felipe-Bauer, 2018: 517. Brazil (Rio de Janeiro)

**castroi** (Tavares & Silva Pereira), 1978: 159 (*Monohelea*). Brazil (Rio de Janeiro)

**divergentis** Santarém, Borkent & Felipe-Bauer, 2020: 46. Brazil (Amazonas)

**eclectica** Santarém, Borkent, Spinelli & Felipe-Bauer, 2018: 521. Costa Rica. Brazil records – Pará

**fluminensis** Felipe-Bauer & Quintelas, 1993b: 33. Brazil (Rio de Janeiro). Brazil records – Mato Grosso do Sul, Espírito Santo, Rio de Janeiro

**fuscipennis** (Lane & Wirth), 1964: 221 (*Monohelea*). Colombia. Brazil records – Acre, Amazonas

**guianae** (Wirth), 1953a: 150 (*Monohelea*). Guyana. Brazil records – Pará

**lanei** Felipe-Bauer & Borkent *in* Felipe-Bauer et al., 2011: 21. Brazil (Pará)

**litorale** Santarém, Borkent, Spinelli & Felipe-Bauer, 2018: 533. Bahamas. Brazil records - Rio de Janeiro

**marambaia** Santarém, Borkent, Spinelli & Felipe-Bauer, 2018: 535. Brazil (Rio de Janeiro)

**multilineata** (Lutz), 1914: 93 (*Palpomyia*). Brazil (Rio de Janeiro). Brazil records – Bahia, Rio de Janeiro, Rio Grande do Sul

**oliveirai** Felipe-Bauer, *in* Felipe-Bauer & Silva, 2008: 400. Brazil (Rondônia). Brazil records – Pará, Rondônia

**quasidentica** Felipe-Bauer & Quintelas, 1993b: 37. Brazil (Rio de Janeiro)

**spatha** Santarém, Borkent & Felipe-Bauer, 2020: 75. Costa Rica. Brazil records – Pará

**venus** Santarém, Borkent & Felipe-Bauer, 2020: 81. Brazil (Amazonas)

#### **Genus ECHINOHELEA Macfie**

**ECHINOHELEA** Macfie, 1940a: 187. Type species: *Echinohelea ornatipennis* Macfie, by original designation.

#### **Subgenus ECHINOHELEA Macfie**

**lanei** Wirth, 1951: 319. USA (Virginia). Brazil records – Pará, Rondônia

**macfiei** Lane, 1947a: 228. Brazil (São Paulo)

**neotropica** Wirth, 1994: 237. Colombia. Brazil records – Amazonas, Pará, Rio de Janeiro

**ornatipennis** Macfie, 1940a: 188. Guyana. Brazil records – Pará

**richardsi** Macfie, 1940a: 189. Guyana. Brazil records – Pará, Rondônia, Rio de Janeiro, São Paulo

#### **Subgenus ECHINOIDESHELEA Wirth**

**ECHINOIDESHELEA** Wirth, 1994: 231 (as subgenus of *Echinohelea*). Type species: *Echinohelea aitkeni* Wirth, by original designation.

**aitkeni** Wirth, 1994: 231. Brazil (Pará)

#### **Genus FITTKAUHELEA Wirth & Blanton**

**FITTKAUHELEA** Wirth & Blanton, 1970b: 7. Type species: *Fittkauhelea amazonica* Wirth and Blanton, by original designation.

**amazonica** Wirth and Blanton, 1970b: 9. Brazil (Amazonas)

### Genus **MONOHELEA** Kieffer

**MONOHELEA** Kieffer, 1917a: 294. Type species: *Monohelea hieroglyphica* Kieffer, by original designation.

**affinis** Felipe-Bauer & Spinelli, 1991: 201. Brazil (Amazonas). Brazil records – Amazonas, Pará

**aguirrei** Tavares & Souza, 1980: 97. Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, Santa Catarina

**archibaldoi** Tavares & Souza, 1980: 98. Brazil (Rio de Janeiro)

**barbara** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 144. Brazil (Pará)

**brasiliensis** Lane, 1947a: 226. Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, São Paulo

**cornuta** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 146. Brazil (Pará)

**ema** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 148. Brazil (Pará)

**forceps** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 149. Brazil (Pará)

**gorayebi** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 151. Brazil (Pará)

**guaimiesi** Lane & Wirth, 1964: 227. Panama. Brazil records – Pará

**hieroglyphica** Kieffer, 1917a: 312. Paraguay. Brazil records – Distrito Federal, Rio de Janeiro

**maculipennis** (Coquillett), 1905: 64. USA (Florida). Brazil records – Pará, Rio de Janeiro.

**patauateua** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 152. Brazil (Pará)

**poncai** Lane & Wirth, 1964: 228. Panama. Brazil records – Rio de Janeiro

**roraimensis** Felipe-Bauer & Spinelli, 1991: 202. Brazil (Roraima). Brazil records - Amazonas, Roraima

**visinensis** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2017: 154. Brazil (Pará)

### Genus **PARABEZZIA** Malloch

**PARABEZZIA** Malloch, 1915b: 358. Type species: *Parabezzia petiolata* Malloch, by original designation.

**balseiroi** Spinelli & Grogan, 1987: 13. Argentina. Brazil records – Rio Grande do Sul

**brasiliensis** Spinelli & Grogan, 1987: 34. Brazil (Mato Grosso)

**casimirensis** Felipe-Bauer & Spinelli, 2015: 396. Brazil (Rio de Janeiro)

**costalis** Wirth, 1965a: 221. Panama. Brazil records – Rio de Janeiro  
**fluminensis** Felipe-Bauer & Spinelli, 2015: 399. Brazil (Rio de Janeiro)  
**inaequalis** Spinelli & Grogan, 1987: 38. Brazil (Amazonas)  
**indistincta** Felipe-Bauer & Spinelli, 2015: 393. Brazil (Rio de Janeiro)  
**unica** Felipe-Bauer & Spinelli, 2015: 391. Brazil (Rio de Janeiro)

### Genus SCHIZONYXHELEA Clastrier

**SCHIZONYXHELEA** Clastrier, 1984: 1. Type species: *Schizonyxhelea guyana* Clastrier, by original designation.

**forattinii** Wirth & Grogan, 1988: 81. Brazil (Santa Catarina)

**guyana** Clastrier, 1984: 2. French Guiana. Brazil records – Mato Grosso

**panamensis** (Lane & Forattini), 1958: 218 (*Stilobezzia*). Panama. Brazil records – Rio de Janeiro, São Paulo

**thomsenae** (Wirth), 1953b: 83 (*Stilobezzia*). USA (Florida). Brazil records – Pará, Bahia  
*scutata* Lane & Forattini, 1961: 92. Panama

### Genus STILOBEZZIA Kieffer

**STILOBEZZIA** Kieffer, 1911a: 118. Type species: *Stilobezzia festiva* Kieffer, by original designation.

**HARTOMYIA** Malloch, 1915b: 339. Type species: *Ceratopogon pictus* Coquillett (= *Stilobezzia coquilletti* Kieffer), by original designation.

### Subgenus ACANTHOHELEA Kieffer

**ACANTHOHELEA** Kieffer, 1917b: 198. Type species: *Acanthohelea pruinosa* Kieffer, by monotypy.

**PALEOTETRAGONEURA** Meunier, 1920: 897 (1920: 1221). Type species: *Tetragoneura veterana* Meunier, by monotypy.

**NEOSTILOBEZZIA** Goetghebuer, 1934a: 53 (as subgenus of *Stilobezzia*). Unavailable name; proposed after 1930 without type species designation.

**NEOSTILOBEZZIA** Wirth, 1953b: 63. Type species: *Ceratopogon ochraceus* Winnertz, by original designation.

**longiradix** Cazorla & Spinelli, 2016: 189. Brazil (Rondônia)

**manaosensis** Lane & Forattini, 1958: 205. Brazil (Amazonas)

**tarsispinosa** Cazorla & Spinelli, 2016: 191. Brazil (Rondônia)

### Subgenus **EUKRAIOHELEA** Ingram & Macfie

**EUKRAIOHELEA** Ingram & Macfie, 1921: 347. Type species: *Eukraiohelea africana* Ingram & Macfie, designation by Macfie, 1940b: 22.

**amnigena** (Macfie), 1935a: 56 (*Eukraiohelea*). Brazil (Maranhão)

**dorsofasciata** (Lutz), 1914: 96 (*Palpomyia*). Brazil (Rio de Janeiro)

**elegantula** (Johannsen), 1907: 109 (*Bezzia*). USA (Kansas). Brazil records – Amazonas, Rio de Janeiro

*maculitibia* Lane & Forattini, 1956: 207. Panama

*subsessilis* Kieffer, 1917a: 311. Paraguay

**proxima** Cazorla & Felipe-Bauer *in* Cazorla et al., 2017: 562. Brazil (Rio de Janeiro)

**quasielegantula** Cazorla & Felipe-Bauer *in* Cazorla et al., 2017: 566. Brazil (Rio de Janeiro)

### Subgenus **STILOBEZZIA** Kieffer

**albocincta** Kieffer, 1917a: 309. Paraguay. Brazil records – Rio de Janeiro

**bicolor** Lane, 1947b: 208. Brazil (São Paulo)

**bimaculata** Lane & Forattini, 1956: 211. Panama. Brazil records – Rio de Janeiro

**bispinosa** Kieffer, 1917a: 310. Paraguay. Brazil records – Rio de Janeiro, São Paulo

**chaconi** Macfie, 1938: 166. Trinidad and Tobago. Brazil records – Goiás, São Paulo

**coquilletti** Kieffer, 1917a: 308. New name for *picta*. Brazil records – Amazonas, São Paulo

*picta* (Coquillett), 1905: 60 (*Ceratopogon*) (preoccupied by *Sphaeromyias pictus* (Meigen), 1818). USA (Virginia)

**coracina** Kieffer, 1917a: 311. Paraguay. Brazil records – São Paulo

**dubitans** Lane, Forattini & Rabello, 1955: 85. Brazil (São Paulo)

**dureti** Lane & Forattini, 1958: 210. Brazil (São Paulo)

**fiebrigi** Kieffer, 1917a: 309. Paraguay. Brazil records – Rio de Janeiro, São Paulo

**glauca** Macfie, 1939a: 204. Brazil (Santa Catarina). Brazil records – Rio de Janeiro, São Paulo, Santa Catarina

*fluminensis* Lane, 1947b: 210. Brazil (Rio de Janeiro)

**kiefferi** Lane, 1947b: 205. Brazil (Minas Gerais). Brazil records – Pará, Minas Gerais

*punctipes* Wirth, 1953b: 79. USA (Florida)

**macfie** Lane, 1947b: 213. Brazil (São Paulo). Brazil records – Rio de Janeiro, São Paulo

**maculata** Lane, 1947b: 207. Brazil (Rio de Janeiro)

**modesta** Lane, 1947b: 206. Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, São Paulo

**pallescens** Lane & Forattini, 1958: 218. Panama. Brazil records – São Paulo

**paulistensis** Lane, 1947b: 200. Brazil (São Paulo). Brazil records – Pará, Rio de Janeiro, São Paulo

**punctulata** Lane, 1947b: 204. Brazil (Rio de Janeiro). Brazil records – Amazonas, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro

**pseudopunctulata** Cazorla & Ronderos, 2012: 400. Argentina. Brazil records – Amazonas

**rabelloi** Lane, 1947b: 203. Brazil (Rio de Janeiro). Brazil records – Amazonas, Mato Grosso do Sul, Rio de Janeiro

**simplex** Lane & Forattini, 1958: 222. Panama. Brazil records – Rio de Janeiro

**travassosi** Lane, 1947b: 210. Brazil (Espírito Santo). Brazil records – Espírito Santo, São Paulo

**wygodzinskyi** Lane, 1947b: 212. Brazil (São Paulo)

#### TRIBE CULICOIDINI KIEFFER, 1911b,1911c

##### Genus **CULICOIDES** Latreille

**CULICOIDES** Latreille, 1809: 251. Type species: *Culicoides punctatus* Latreille (= *Ceratopogon punctatus* Meigen), by monotypy.

**PADROSIA** Rafinesque, 1815: 130 (unnecessary new name for *Culicoides* Latreille). Type species: *Culicoides punctatus* Latreille (= *Ceratopogon punctatus* Meigen), automatic.

**OXYHELEA** Kieffer, 1921a: 14 (as subgenus of *Culicoides*). Type species: *Culicoides dentatus* Kieffer, by monotypy.

**PROSAPELMA** Kieffer, 1925b: 417. Type species: *Prosapelma cinerea* Kieffer, by original designation.

**NEOCULICOIDES** Boorman & Lane, 1979: 327 (preoccupied by *Neoculicoides* Pierce, 1966). Type species: *Neoculicoides taylori* Boorman & Lane, by original designation.

##### Subgenus **ANILOMYIA** Vargas

**ANILOMYIA** Vargas, 1960: 37 (as subgenus of *Culicoides*). Type species: *Culicoides covagarciai* Ortíz, by original designation.

**efferus** Fox, 1952: 365. Peru. Brazil records – Acre, Amazonas, Pará, Rondônia

**trapidoi** Wirth & Barreto, 1978: 554. Colombia. Brazil records - ??

##### Subgenus **AVARITIA** Fox

**AVARITIA** Fox, 1955: 218 (as subgenus of *Culicoides*). Type species: *Ceratopogon obsoletus* Meigen, by original designation.

**impusilloides** Spinelli & Wirth, 1984b: 178. Brazil (Santa Catarina)

**pusilloides** Wirth & Blanton, 1955a: 104. Panama. Brazil records – Acre, Amazonas

**pusillus** Lutz, 1913: 52. Brazil (Rio de Janeiro). Brazil records – Acre, Amapá, Amazonas, Pará, Rondônia, Bahia, Ceará, Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina

### **Subgenus COTOCRIPUS Brèthes**

**COTOCRIPUS** Brèthes, 1912: 451. Type species: *Cotocripus caridei* Brèthes, by monotypy.

**bambusicola** Lutz, 1913: 62. Brazil (Rio de Janeiro). Brazil records – Bahia, Espírito Santo, Rio de Janeiro, São Paulo

*bahiensis* Barbosa, 1947: 11. Brazil (Bahia)

**caridei** (Brèthes), 1912: 451 (*Cotocripus*). Argentina. Brazil records – Rio Grande do Sul  
*setifer* (Lutz), 1913: 64 (*Centrorhynchus*). Brazil (Rio Grande do Sul)

### **Subgenus DIPHAOMYIA Vargas**

**DIPHAOMYIA** Vargas, 1960: 40 (as subgenus of *Culicoides*). Type species: *Culicoides baueri* Hoffman, by original designation.

**freitasi** Wirth & Blanton, 1973: 434. Brazil (Pará). Brazil records – Amazonas, Pará

**iriartei** Fox, 1952: 368. Venezuela. Brazil records – Pará

*vargasi* Wirth & Blanton, 1953a: 74. Panama

**minasensis** Felipe-Bauer, 1987: 147. Brazil (Minas Gerais)

### **Subgenus DRYMODESMYIA Vargas**

**DRYMODESMYIA** Vargas, 1960: 40 (as subgenus of *Culicoides*). Type species: *Culicoides copiosus* Root & Hoffman, by original designation.

**jamaicensis** Edwards, 1922: 165 (as *loughnani* var.). Jamaica. Brazil records – Rio de Janeiro

**pilosus** Wirth & Blanton, 1959: 332. Panama. Brazil records – Pará

**poikilonotus** Macfie, 1948: 82. Mexico. Brazil records – Bahia, Ceará, Rio de Janeiro

*cacozelus* Macfie, 1948: 85. Mexico

*hertigi* Wirth and Blanton, 1953b: 229. Panama

### **Subgenus HAEMATOMYIDIUM Goeldi**

**HAEMATOMYIDIUM** Goeldi, 1905: 137. Type species: *Haematomyidium paraensis* Goeldi, by original designation.

**aragaoi** Tavares & Dias, 1980: 393. Brazil (Rio de Janeiro)

**crucifer** Clastrier, 1968: 85. French Guiana. Brazil records – Amazonas, Pará

**darlingtonae** Wirth & Blanton, 1971: 39. Trinidad and Tobago. Brazil records – Rondônia

**debilipalpis** Lutz, 1913: 60. Brazil (São Paulo). Brazil records – Acre, Amapá, Amazonas, Pará, Roraima, Ceará, Maranhão, Pernambuco, Goiás, Mato Grosso do Sul, Espírito Santo, São Paulo, Santa Catarina

*khalafi* Beck, 1957: 104. USA (Florida)  
*iches* Ronderos & Spinelli, 1995: 77. Argentina

**denisae** Clastrier, 1971: 290. French Guiana. Brazil records – Amazonas, Pará

**espinolai** Felipe-Bauer & Lourenco-de-Oliveira, 1987: 149. Brazil (Minas Gerais)

**flinti** Wirth, 1982a: 251. Argentina. Brazil records – Santa Catarina

**ginesi** Ortíz, 1951a: 586. Venezuela. Brazil records – Pará

**glabrior** Macfie, 1940c: 27 (as variety of *debilipalpis*). Guyana. Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima  
*grahambelli* Forattini, 1956a: 35. Panama

**hoffmani** Fox, 1946: 251. Trinidad and Tobago. Brazil records – Amazonas

**horticola** Lutz, 1913: 61. Brazil (São Paulo). Brazil records – Espírito Santo, Rio de Janeiro, São Paulo  
*bachmanni* Spinelli, in Spinelli et al., 2005: 146. Argentina

**insinuatus** Ortíz & León, 1955: 577. Ecuador. Brazil records – Acre, Amapá, Amazonas, Pará, Roraima, Maranhão, São Paulo

**jurutiensis** Trindade & Felipe-Bauer, 2011a: 61. Brazil (Pará)

**kampa** Felipe-Bauer, Veras & Castellon in Felipe-Bauer et. al, 2000: 35. Brazil (Acre). Brazil records – Acre, Rondônia

**lahillei** (Iches), 1906: 264 (*Ceratopogon*). Argentina. Brazil records – São Paulo

**limonensis** Ortíz & León, 1955: 576. Ecuador. Brazil records – Pará, Bahia, São Paulo, Santa Catarina

**martyrius** Trindade & Felipe-Bauer, 2011a: 62. Brazil (Pará)

**neoparaensis** Tavares & Souza, 1978: 621. Brazil (Rio de Janeiro). Brazil records – Amazonas, Rio de Janeiro, Santa Catarina

**paraensis** (Goeldi), 1905: 137 (*Haematomyidium*). Brazil (Pará). Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Bahia, Ceará, Maranhão, Pernambuco, Mato Grosso do Sul, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina  
*undecimpunctatus* Kieffer, 1917a: 307. Argentina

**peruvianus** Felipe-Bauer, in Felipe-Bauer, et al., 2003: 1054. Peru. Brazil records - Rio de Janeiro, São Paulo

**quasiparaensis** Clastrier, 1971: 286. French Guiana. Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Maranhão

**rachoui** Tavares & Souza, 1978: 622. Brazil (Rio de Janeiro). Brazil records – Minas Gerais, Rio de Janeiro

**spurius** Wirth & Blanton, 1959: 433. Panama. Brazil records – Acre, Amazonas, Roraima

**totatanga** Wirth & Blanton, 1973: 447. Brazil (Pará). Brazil records – Acre, Amapá, Amazonas, Pará, Santa Catarina

**youngi** Wirth & Barreto, 1978: 562. Colombia. Brazil records – Amazonas



### Subgenus **HOFFMANIA** Fox

**HOFFMANIA** Fox, 1948: 21 (as subgenus of *Culicoides*). Type species: *Culicoides inamollae* Fox & Hoffman (= *Culicoides insignis* Lutz), by original designation.

**aitkeni** Wirth & Blanton, 1968a: 214. Trinidad and Tobago. Brazil records – Amazonas, Pará

**baniwa** Felipe-Bauer, in Felipe-Bauer et al., 2009: 852. Brazil (Amazonas). Brazil records - Amazonas, Pará.

**batesi** Wirth & Blanton, 1973: 426. Brazil (Pará). Brazilian records – Amazonas, Pará, Rondônia  
*sanmartini* Wirth & Barreto, 1978: 553. Colombia

**bimaculatus** Floch & Abonnenc, 1942a: 3. French Guiana. Brazil records – Amazonas, Pará

**brasilianum** Forattini, 1956b: 81. Brazil (São Paulo). Brazil records – Amazonas, Pará, Ceará, Pernambuco, Rio de Janeiro, São Paulo, Santa Catarina

**brownei** Spinelli, in Spinelli et al., 1993: 24. Colombia. Brazil records – Amazonas

**contubernalis** Ortíz & León, 1955: 574. (as a variety of *rozemboomi*). Ecuador. Brazil records - Rondônia

**couthoi** Barretto, 1944: 96. Brazil (São Paulo). Brazil records – Amazonas, Pará, Rondônia, São Paulo

**diabolicus** Hoffman, 1925: 294. Panama. Brazil records – Amazonas, Rondônia, Roraima, Maranhão

**diffusus** Spinelli, in Spinelli et al., 1993: 34. Brazil (Espírito Santo)

**fernandoi** Tavares & Souza, 1979: 611. Brazil (Rio de Janeiro). Brazil records –Bahia, Maranhão, Espírito Santo, Minas Gerais, Rio de Janeiro, Santa Catarina

**filariferus** Hoffman, 1939: 172. Mexico. Brazil records – Amazonas, Pará, Maranhão

**flavivenulus** Costa Lima, 1937a: 418. Brazil (Rio de Janeiro). Brazil records – Amazonas, Pará, Bahia, Maranhão, Pernambuco, Mato Grosso do Sul, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina

**foxi** Ortíz, 1950a: 461. Puerto Rico (USA). Brazil records – Amazonas, Pará, Rondônia, Roraima, Bahia, Maranhão, Pernambuco, Piauí, Goiás, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo, Paraná

**franklini** Spinelli, in Spinelli et al., 1993: 45. Panama. Brazil records – Amazonas, Pará

**fusipalpis** Wirth & Blanton, 1973: 435. Brazil (Pará). Brazil records – Acre, Amapá, Amazonas, Pará, Rondônia, Roraima, Bahia, Maranhão, Rio de Janeiro

**guttatus** (Coquillett), 1904a: 35 (*Ceratopogon*). Brazil (São Paulo). Brazil records – Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina

**heliconiae** Fox & Hoffman, 1944: 108. Venezuela. Brazil records – Acre, Amazonas, Pará, Rondônia

**hylas** Macfie, 1940c: 26. Guyana. Brazil records – Amapá, Amazonas, Pará, Rondônia, Roraima, Maranhão

**ignacioi** Forattini, 1957: 215. Brazil (São Paulo). Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Maranhão, Minas Gerais, Rio de Janeiro, São Paulo  
*saintjusti* Tavares & Ruiz, 1980: 27. Brazil (Rio de Janeiro)

**insignis** Lutz, 1913: 51. Brazil (Bahia e Rio de Janeiro). Brazil records Amazonas, Pará, Rondônia, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Goiás, Mato Grosso, Mato Grosso do Sul, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Rio Grande do Sul, Santa Catarina  
*inamollae* Fox & Hoffman, 1944: 110. Puerto Rico (USA)  
*painteri* Fox, 1946: 257. Honduras

**lutzi** Costa Lima, 1937a: 419. Brazil (Pará). Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Maranhão, Goiás, Mato Grosso, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina

**maruim** Lutz, 1913: 48. Brazil (Rio de Janeiro). Brazil records – Pará, Bahia, Ceará, Maranhão, Pernambuco, Espírito Santo, Rio de Janeiro, São Paulo  
*recifei* Barbosa, 1947: 25. Brazil (Pernambuco)

**ocumarensis** Ortíz, 1950b: 455. Venezuela. Brazil records – Amazonas, Pará, Rondônia

**palpalis** Macfie, 1948: 78. Mexico. Brazil records – Amazonas

**paraignacioi** Spinelli, in Spinelli et al., 1993: 66. Colombia. Brazil records – Amazonas, Pará, Rondônia

**paramaruim** Wirth & Blanton, 1973: 443. Brazil (Pará). Brazil records – Amazonas, Pará, Maranhão

**parauapebensis** Trindade & Felipe-Bauer, 2011b: 42. Brazil (Pará)

**plaumanni** Spinelli, in Spinelli et al., 1993: 69. Argentina. Brazil records – Amazonas, Pará, Rondônia, Minas Gerais

**polypori** Wirth & Blanton, 1968a: 212. Panama. Brazil records – Amazonas, Pará

**pseudodiabolicus** Fox, 1946: 256. Trinidad and Tobago. Brazil records – Acre, Amapá, Amazonas, Pará, Rondônia, Roraima, Maranhão

**pseudoheliconiae** Felipe-Bauer, in Felipe-Bauer et al., 2008: 260. Peru. Brazil records – Amazonas, Roraima

**ruizi** Forattini, 1954a: 189. Brazil (Goiás). Brazil records – Amazonas, Pará, Maranhão, Goiás

**tidwelli** Spinelli, in Spinelli et al., 1993: 74. Colombia. Brazil records – Amazonas, Rondônia

**travassosi** Forattini, 1957: 198. Brazil (Pará). Brazil records – Amazonas, Pará, Maranhão, Mato Grosso

**trinidadensis** Hoffman, 1925: 286. Trinidad and Tobago. Brazil records – Roraima  
*oliveri* Fox & Hoffman, 1944: 108. Haiti  
*wokei* Barbosa, 1947: 28 (preoccupied by *Culicoides wokei* Fox, 1947). Panama.  
*diminutus* Barbosa, 1951: 163. New name for *wokei*.

**verecundus** Macfie, 1948: 76. Mexico. Brazil records – Amazonas, Pará, Roraima

### Subgenus MACFIELLA Fox

**MACFIELLA** Fox, 1955: 217 (as subgenus of *Culicoides*). Type species: *Ceratopogon phlebotomus* Williston, by original designation.

**phlebotomus** (Williston), 1896: 281 (*Ceratopogon*). St. Vincent. Brazil records – Pará, Ceará, Maranhão, Pernambuco, Goiás  
*amazonius* Macfie, 1935a: 52. Brazil (Pará)

### Subgenus MATAEMYIA Vargas

**MATAEMYIA** Vargas, 1960: 43 (as subgenus of *Culicoides*). Type species: *Culicoides mojingaensis* Wirth & Blanton, by original designation.

**albuquerquei** Wirth & Blanton, 1973: 424. Brazil (Pará)

**aldomari** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2013:56. Brazil (Pará). Brazil records – Amazonas, Pará.

**barthi** Tavares & Souza, 1978: 619. Brazil (Rio de Janeiro)

**bricenoi** Ortíz, 1951b: 445. Venezuela. Brazil records – Amazonas, Pará, Roraima

**cuiabai** Wirth, 1982a: 250. Brazil (Mato Grosso)

**dalessandroi** Wirth & Barreto, 1978: 556. Colombia. Brazil records – Roraima

**daviesi** Wirth & Blanton, 1968b: 251. Guyana. Brazil records – Pará

**discrepans** Ortíz & Mirsa, 1951: 595. Venezuela. Brazil records – Amazonas

**felipebauerae** Spinelli, *in* Spinelli et al., 2007: 660. Brazil (Amazonas)

**lenti** Tavares & Dias, 1980: 396. Brazil (Rio de Janeiro)

**macieli** Tavares & Ruiz, 1980: 29. Brazil (Rio de Janeiro). Brazil records – Bahia, Rio de Janeiro

**sherlocki** Felipe-Bauer & Trindade, *in* Felipe-Bauer et al., 2013:56. Brazil (Pará)

**wallacei** Wirth & Blanton, 1973: 449. Brazil (Pará). Brazil records – Amazonas, Pará, Maranhão

### Subgenus OECACTA Poey

**OECACTA** Poey, 1853: 238. Type species: *Oecacta furens* Poey, by monotypy.

**DIPLOSELLA** Kieffer, 1921b: 113 (as subgenus of *Culicoides*). Type species: *Culicoides sergenti* Kieffer, by monotypy.

**SENSICULICOIDES** Shevchenko, 1977: 133 (as subgenus of *Culicoides*). Type species: *Ceratopogon pictipennis* Staeger, by original designation.

**alahialinus** Barbosa, 1952: 11 (1953:12). Equador. Brazil records – Amazonas

**furens** (Poey), 1853: 238 (*Oecacta*). Cuba. Brazil records – Pará, Maranhão, Rio de Janeiro, São Paulo

*maculithorax* (Williston), 1896: 277 (*Ceratopogon*). St. Vincent  
*dovei* Hall, 1932: 88. USA (Georgia)

*birabeni* Cavalieri, 1966: 59. Venezuela

### **Subgenus PSYCHOPHAENA Philippi**

**PSYCHOPHAENA** Philippi, 1865: 628. Type species: *Psychophaena pictipennis* Philippi (= *Culicoides venezuelensis* Ortíz & Mirsa), by monotypy.

**venezuelensis** Ortíz & Mirsa, 1950: 137. Venezuela. Brazil records – Ceará, Pernambuco, Minas Gerais, São Paulo, Rio Grande do Sul, Santa Catarina  
*pictipennis* (Philippi), 1865: 628 (*Psychophaena*, preoccupied by *Culicoides pictipennis* (Staeger), 1839). Chile  
*ortizi* Fox, 1952: 366. Venezuela

### **Subgenus unplaced, *acotylus* species group**

**acotylus** Lutz, 1913: 69. Brazil (Mato Grosso). Brazil records – Amazonas, Pará, Roraima, Mato Grosso

*panamericanus* Fox, 1947: 90. Mexico

**atripalpis** Wirth & Blanton, 1973: 325. Brazil (Pará)

**carsiomelas** Wirth & Blanton, 1955a: 100. Panama. Brazil records – Pará

### **Subgenus unplaced, *carpenteri* species group**

**belemensis** Wirth & Blanton, 1973: 427. Brazil (Pará). Brazil records – Amazonas, Pará

**camposi** Ortíz & León, 1955: 569. Ecuador. Brazil records – Amazonas

*fairchildi* Wirth & Blanton, 1955a: 102. Panama

**carpenteri** Wirth & Blanton, 1953a: 72. Panama. Brazil records – Amazonas, Rondônia

### **Subgenus unplaced, *daedalus* species group**

**pseudocrescentis** Tavares & Dias, 1980: 397. Brazil (Rio de Janeiro). Brazil records – Espírito Santo, Rio de Janeiro

### **Subgenus unplaced, *dasyophrus* species group**

**dasyophrus** Macfie, 1940c: 27. Guyana. Brazil records – Amazonas, Pará, Rondônia, Roraima, Mato Grosso

**guerrai** Wirth & Blanton, 1971: 41. Trinidad and Tobago. Brazil records – Pará, Rondônia, Roraima, Bahia

### **Subgenus unplaced, *eublepharus* species group**

**eublepharus** Macfie, 1948: 86. Guyana. Brazil records – Amazonas, Pará, Rondônia, Roraima  
*transferrans* Ortíz, 1953: 801. Venezuela

**propriipennis** Macfie, 1948: 84. Mexico. Brazil records – Amazonas, Pará, Rondônia, Bahia

**rangeli** Ortíz & Mirsa, 1952: 126. Venezuela. Brazil records – Amazonas  
*donajii* Vargas, 1954: 28. Mexico  
*patulipalpis* Wirth & Blanton, 1959: 421. Panama

#### **Subgenus unplaced, *fluvialis* species group**

**balsapambensis** Ortíz & León, 1955: 569 (as variety of *pifanoi*). Ecuador. Brazil records – Rio de Janeiro

**fluvialis** Macfie, 1940c: 25. Guyana. Brazil records – Amazonas, Pará, Rondônia, Roraima

**leopoldoi** Ortíz, 1951a: 579. Venezuela. Brazil records – Amapá, Amazonas, Pará, Rondônia, Roraima, Bahia, Ceará, Maranhão, Pernambuco, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo

**pulchripennis** Macfie, 1939a: 200. Brazil (Santa Catarina)

**tetrathyris** Wirth & Blanton, 1959: 409. Panama. Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Bahia

#### **Subgenus unplaced, *leoni* species group**

**benarrochi** Ortíz & Mirsa, 1952: 126 (as *benarrochei*). Venezuela. Brazil records – Amazonas, Roraima, Rio de Janeiro

**fieldi** Wirth & Blanton, 1956: 50. Honduras. Brazil records – Amazonas, Pará, Rondônia, Rio de Janeiro,

**gabaldoni** Ortíz, 1954: 221. Venezuela. Brazil records – Pará, Rondônia, Roraima, Bahia

**glabellus** Wirth & Blanton, 1956: 47. Panama. Brazil records – Amazonas, Pará, Rondônia, Roraima, Bahia

**leoni** Barbosa, 1952: 17 (1953: 19). Ecuador. Brazil records – Amazonas

#### **Subgenus unplaced, *limai* species group**

**antunesi** Forattini, 1954b: 315. Brazil (Goiás). Brazil records – Amazonas, Goiás, Mato Grosso do Sul, Minas Gerais, São Paulo

**boliviensis** Spinelli & Wirth, 1984b: 172. Bolivia. Brazil records – Maranhão, Goiás, Minas Gerais

**carvalhoi** Wirth & Blanton, 1973: 429. Brazil (Pará)

**duartei** Tavares & Dias, 1980: 395. Brazil (Rio de Janeiro)

**galindoi** Wirth & Blanton, 1953a: 73. Panama. Brazil records – Acre, Amazonas, Rondônia, Roraima, Maranhão

**limai** Barretto, 1944: 99. Brazil (São Paulo). Brazil records – Amapá, Amazonas, Pará, Rondônia, Roraima, Maranhão, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina

**lobatoi** Felipe-Bauer, *in* Felipe-Bauer & Quintelas, 1994: 25. Brazil (Rio de Janeiro)

**lopesi** Barretto, 1944: 102. Brazil (São Paulo). Brazil records – Acre, Amazonas, Rio de Janeiro, São Paulo

**santanderi** Browne, 1980: 536. Colombia. Brazil records – Amazonas, Rondônia

**vernoni** Wirth & Blanton, 1973: 448. Brazil (Pará). Brazil records – Amazonas, Pará

**Subgenus unplaced, *pachymerus* species group**

**caprilesi** Fox, 1952: 364. Venezuela. Brazil records – Amazonas, Pará, Mato Grosso  
*kintzi* Wirth and Blanton, 1953a: 72. Panama

**cylindricornis** Wirth & Blanton, 1973: 430. Brazil (Pará)

**pachymerus** Lutz, 1914: 83. Brazil (Amazonas). Brazil records – Amazonas, Rondônia

**Subgenus unplaced, *reticulatus* species group**

**amazonicus** Santarém, Felipe-Bauer & Trindade *in* Santarém et. al, 2014: 259. Brazil (Pará)

**aureus** Ortíz, 1951a: 585. Venezuela. Brazil records – Amazonas, Goiás  
*miyamotoi* Wirth & Blanton, 1953b: 231. Panama

**castelloni** Santarém & Felipe-Bauer 2015: 959. Brazil (Amazonas)

**fittkai** Wirth & Blanton, 1973: 432. Brazil (Pará). Brazil records – Amazonas, Pará

**fluminensis** Santarém & Felipe-Bauer *in* Santarém et. al, 2014: 263. Brazil (Rio de Janeiro)

**forattinii** Ortíz, 1961: 211. Venezuela. Brazil records – Roraima

**goeldii** Wirth & Blanton, 1973: 437. Brazil (Pará)

**guamai** Wirth & Blanton, 1973: 438. Brazil (Pará). Brazil records – Amazonas, Pará

**guyanensis** Floch & Abonnenc, 1942b: 4. French Guiana. Brazil records – Amapá, Pará, Ceará, Maranhão, Pernambuco, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo  
*recifensis* Barbosa, 1943: 263. Brazil (Pernambuco)  
*stubalensis* Fox, 1946: 254. Trinidad and Tobago

**hildebrandoi** Farias, Pereira Júnior, Felipe-Bauer, Pessoa, Medeiros & Santarém, 2016: 107. Brazil (Rondônia). Brazilian records – Amazonas, Rondônia

**irregularis** Santarém, Felipe-Bauer & Castellón *in* Santarém et. al, 2014: 265. Brazil (Roraima)  
Brazil records – Amazonas, Roraima

**kuripako** Felipe-Bauer, *in* Felipe-Bauer et al., 2010: 863. Brazil (Amazonas). Brazil records – Amazonas, Rondônia

**lanei** Ortíz, 1950c: 431. Panama. Brazil records – Amazonas, Pará, Roraima

**lyrinotatus** Wirth & Blanton, 1955b: 126. Panama. Brazil records – Pará

**paucienfuscatus** Barbosa, 1947: 23. Brazil (Amazonas). Brazil records – Acre, Amazonas, Pará, Rondônia, Roraima, Maranhão, Goiás

**pifanoi** Ortíz, 1951a: 588. Venezuela. Brazil records – Pará, Bahia, Ceará, Rio de Janeiro

*tricoloratus* Wirth & Blanton, 1953b: 233. Panama

**profundus** Santarém, Felipe-Bauer & Trindade *in* Santarém et. al, 2014: 266. Brazil (Pará). Brazil records – Amazonas, Pará

**pseudoreticulatus** Santarém, Felipe-Bauer & Castellón *in* Santarém et. al, 2014: 268. Brazil (Roraima). Brazil records – Amazonas, Roraima

**reticulatus** Lutz, 1913: 49. Brazil (Bahia). Brazil records – Bahia, Pernambuco

**rhombus** Santarém, Felipe-Bauer & Castellón *in* Santarém et. al, 2014: 270. Brazil (Roraima). Brazil records – Amazonas, Rondônia, Roraima

**tavaresi** Felipe-Bauer & Wirth, 1988: 261. Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, Santa Catarina

#### **Subgenus unplaced, *stigmalis* species group**

**deanei** Felipe-Bauer & Wirth, 1987: 416. Brazil (Rio de Janeiro)

**fluviatilis** (Lutz), 1914: 82 (*Johannseniella*). Brazil (Amazonas)  
*scorzai* Ortíz, 1956: 93. Venezuela

#### **Miscellaneous unplaced species**

**wokei** Fox, 1947: 90. Panama. Brazil records - Amazonas  
*aethionotus* Wirth & Blanton, 1955b: 121. Panama

### TRIBE HETEROMYIINI WIRTH, 1962

#### **Genus CLINOHELEA Kieffer**

**CLINOHELEA** Kieffer, 1917a: 295. Type species: *Ceratopogon variegatus* Winnertz (= *Ceratopogon unimaculata* Macquart), by original designation.

#### **Subgenus CERATOBIZZIA Kieffer**

**CERATOBIZZIA** Kieffer, 1917a: 326. Type species: *Ceratobizzia fallax* Kieffer, by original designation.

**fallax** Kieffer, 1917a: 326. Paraguay. Brazil records – Amazonas, Pará, Rondônia, Mato Grosso, Rio de Janeiro, São Paulo  
*barrettoi* Lane & Duret, 1954: 249. Brazil (São Paulo)

#### **Subgenus CLINOHELEA**

**albopennis** Lane, 1944: 259. Brazil (São Paulo). Brazil records – Pará, São Paulo

**damascenoi** Lane & Duret, 1954: 250. Brazil (Pará)

**horacioi** Lane, 1944: 257. Brazil (São Paulo). Brazil records – Amapá, Pará, Rondônia, Bahia, Mato Grosso, Mato Grosso do Sul, Rio de Janeiro, São Paulo, Paraná

**neivai** Lane, 1944: 252. Brazil (São Paulo). Brazil records – Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo, Paraná

**nigripes** Macfie, 1939a: 205. Brazil (Santa Catarina). Brazil records – Rondônia, São Paulo, Santa Catarina

**rubriceps** Kieffer, 1917a: 318. Paraguay. Brazil records – Rio de Janeiro

**saltanensis** Lane & Duret, 1954: 252. Argentina. Brazil records – Rondônia, Paraná, Santa Catarina,

**townsendi** Lane, 1944: 256. Brazil (São Paulo). Brazil records – Amazonas, Pará, Rondônia, Mato Grosso do Sul, Minas Gerais, Rio de Janeiro, São Paulo

*townesi* Lane, 1944: 254. Brazil (Mato Grosso do Sul)

**wygodzinskyi** Lane, 1947a: 231. Brazil (Rio de Janeiro)

### Genus HETEROMYIA Say

**HETEROMYIA** Say, 1825: plate 35. Type species: *Heteromyia fasciata* Say, by monotypy.

**PACHYLEPTUS** Walker, 1856: 426. Type species: *Pachyleptus fasciatus* Walker (= *Heteromyia nigra* Kieffer), by monotypy.

**castanea** Lane, 1946a: 214. Brazil (São Paulo)

**clavata** Williston, 1900: 225. Mexico. Brazil records – Amazonas

*rufa* Kieffer, 1917a: 325. Colombia

*caloptera* Kieffer, 1919a: 192. Unnecessary new name for *H. rufa* Kieffer, not Loew, 1861.

**chaquensis** Duret & Lane, 1955: 37. Argentina. Brazil records – Amazonas, Minas Gerais

**correntina** Duret & Lane, 1955: 39. Argentina. Brazil records – Amazonas, Rondônia

**kiefferi** Lane, 1946a: 213. Brazil (Rio de Janeiro)

**nigra** Kieffer, 1917a: 326. Paraguay. Brazil records – Amapá, Rio Grande do Norte, Rio de Janeiro, São Paulo, Paraná

*fasciatus* (Walker), 1856: 426 (*Pachyleptus*, preoccupied by *Heteromyia fasciata* Say, 1825). South America

### Genus PELLUCIDOMYIA Macfie

**PELLUCIDOMYIA** Macfie, 1939b: 99. Type species: *Pellucidomyia ugandae* Macfie, by original designation.

**MACFIEHELEA** Lane, 1946a: 208. Type species: *Macfiehelea oliveirai* Lane, by original designation.

**oliveirai** (Lane), 1946a: 209 (*Macfiehelea*). Brazil (Minas Gerais). Brazil records – Mato Grosso do Sul, Minas Gerais

### TRIBE JOHANNSENYIINI CRAMPTON, 1925

### Genus GROGANHELEA Spinelli & Dippolito



**GROGANHELEA** Spinelli & Dippolito, *in* Spinelli et al., 1995: 166. Type species: *Groganhelea rondoniensis* Spinelli & Dippolito, by original designation.

**rondoniensis** Spinelli & Dippolito, *in* Spinelli et al., 1995: 167. Brazil (Rondônia)

### **Genus JOHANNSENYMYIA Malloch**

**JOHANNSENYMYIA** Malloch, 1915b: 332. Type species: *Johannsenomyia halteralis* Malloch (= *Ceratopogon argentata* Loew), designation by Wirth, 1952: 211.

**DICROHELEA** Kieffer, 1917a: 363. Type species: *Palpomyia filicornis* Kieffer, designation by Macfie, 1940b: 26.

**lanei** Wirth, 1965b: 4. Brazil (Santa Catarina)

### **Genus MALLOCHOHELEA Wirth**

**MALLOCHOHELEA** Wirth, 1962: 278. Type species: *Johannsenomyia albibasis* Malloch, by original designation.

**aenipes** (Macfie), 1940a: 193 (*Bezzia*). Guyana. Brazil records – Rio de Janeiro

**nigripes** (Macfie), 1939a: 216 (*Johannsenomyia*). Brazil (Santa Catarina)

**pullata** (Wirth), 1952: 213 (*Johannsenomyia*). USA (California). Brazil records – Amapá  
**bicellii** (Lane), 1961a: 449 (*Nilobezzia*). Brazil (Amapá)

**termophila** (Spinelli), 1984: 197 (*Neobezzia*). Argentina. Brazil records – Rondônia

### **Genus NEOBEZZIA Wirth & Ratanaworabhan**

**NEOBEZZIA** Wirth and Ratanaworabhan, 1972: 477. Type species: *Neobezzia clavipes* Wirth & Ratanaworabhan, by original designation.

**albitarsis** Wirth & Ratanaworabhan, 1972: 478. Brazil (Pará)

**annicola** (Macfie), 1940c: 30 (*Bezzia*). Guyana. Brazil records – Amazonas, Pará, Rondônia, Mato Grosso do Sul, Rio de Janeiro, São Paulo

**blantoni** Wirth & Ratanaworabhan, 1972: 482. Panama. Brazil records – Amazonas, Pará, Rondônia

**brasiliae** (Lane), 1961b: 37 (*Macropesza*). Brazil (Distrito Federal)

**clavipes** Wirth & Ratanaworabhan, 1972: 485. Brazil (Amazonas)

**fittkaui** Wirth & Ratanaworabhan, 1972: 489. Brazil (Amazonas)

### **Genus NILOBEZZIA Kieffer**

**NILOBEZZIA** Kieffer, 1921a: 24. Type species: *Nilobezzia armata* Kieffer, by monotypy.

**CRESPINIA** Kieffer, 1923: 141. Type species: *Crespinia brevipalpis* Kieffer, by monotypy.

*PARROTIA* Kieffer, 1923: 140. Type species: *Parrotia flaviventris* Kieffer (= *Nilobezzia kiefferi* Wirth), by original designation.

*SPHAEROBEZZIA* Zilahi-Sebess, 1940: 108 (as subgenus of *Bezzia*). Type species: *Bezzia paradoxa* Zilahi-Sebess (= *Ceratopogon formosa* Loew), by monotypy.

**neotropica** (Macfie), 1940d: 78 (*Bezzia*). Brazil (Northeast). Brazil records – Rondônia, Bahia, Ceará

**paraensis** (Lane), 1958: 33 (*Bezzia*). Brazil (Pará). Brazil records – Amapá, Pará

**schwarzii** (Coquillett), 1901: 605 (*Ceratopogon*). USA (Texas). Brazil records – Rio de Janeiro  
*setipes* (Coquillett), 1905: 59 (*Ceratopogon*). USA (Texas)

*banksi* (Gerry), 1933: 94 (*Bezzia*). Cuba

*brasiliensis* (Lane), 1958: 28 (*Bezzia*). Brazil (Rio de Janeiro)

#### TRIBE PALPOMYIINI ENDERLEIN, 1936

##### Genus AMEROHELEA Grogan & Wirth

**AMEROHELEA** Grogan & Wirth, 1981: 1280. Type species: *Amerohelea galindoi* Grogan & Wirth, by original designation.

**dalcyi** Grogan & Wirth, 1981: 1289. Brazil (Amazonas)

**nelsoni** Grogan & Wirth, 1981: 1290. Brazil (Amazonas)

**pseudofasciata** Grogan & Wirth, 1981: 1286. Brazil (Santa Catarina). Brazil records – Goiás, Santa Catarina

**sordidipes** (Macfie), 1939a: 209 (*Palpomyia*). Brazil (Santa Catarina). Brazil records – Pará, Minas Gerais, São Paulo, Santa Catarina

##### Genus BEZZIA Kieffer

**BEZZIA** Kieffer, 1899: 69. Type species: *Ceratopogon ornatus* Meigen, by original designation.

*PSEUDOBEZZIA* Malloch, 1915b: 351. Type species: *Ceratopogon expolitus* Coquillett, by original designation.

*ALLOBEZZIA* Kieffer, 1917a: 296. Type species: *Ceratopogon expolitus* Coquillett, by original designation.

*LASIOBEZZIA* Kieffer, 1925c: 54. Type species: *Bezzia pilipennis* Lundström, by original designation.

*HOMOBEZZIA* Macfie, 1932a: 496. Type species: *Homobezzia nyasae* Macfie, by monotypy.

*SIVABEZZIA* Remm, 1974: 440 (as subgenus of *Bezzia*). Type species: *Bezzia campanai* Clastrier, by original designation.

*PYGOBEZZIA* Remm, 1974: 441 (as subgenus of *Bezzia*). Type species: *Bezzia strobli* Kieffer (= *Ceratopogon albicornis* Meigen), by original designation.

*ASPINABEZZIA* Dow & Turner, 1976: 122 (as subgenus of *Bezzia*). Type species: *Ceratopogon glaber* Coquillett, by original designation.

**aitkeni** Spinelli & Wirth, 1991: 5. Brazil (Pará)

**albuquerquei** Lane, 1961b: 43. Brazil (Distrito Federal)

**carioca** Lane, 1958: 30. Brazil (Rio de Janeiro)

**catarinensis** Spinelli & Wirth, 1990: 17. Brazil (Santa Catarina)

**clavipennis** Spinelli & Wirth, 1989: 775. Brazil (Amazonas). Brazil records – Amazonas, Rondônia

**dentifemur** Spinelli & Wirth, 1991: 3. Colombia. Brazil records – Pará

**fluminensis** Lane, 1947a: 236. Brazil (Rio de Janeiro). Brazil records – Distrito Federal, Rio de Janeiro

**goianensis** Lane, 1961b: 44. Brazil (Distrito Federal)

**lenkoi** Lane, 1958: 31. Brazil (São Paulo). Brazil records – Amazonas, Pará, Distrito Federal, Rio de Janeiro, São Paulo

**mazaruni** Macfie, 1940a: 193. Guyana. Brazil records – Amazonas, Rondônia  
*coloradensis* Wirth, 1952: 238. USA (California)

**megatheca** Spinelli & Wirth, 1990: 22. Colombia. Brazil records – Rondônia

**nobilis** (Winnertz), 1852: 79 (*Ceratopogon*). Germany. Brazil records – Rio Grande do Sul  
*setulosa* (Loew), 1861: 312 (*Ceratopogon*). USA (District of Columbia)  
*barberi* (Coquillett), 1901: 601 (*Ceratopogon*). USA (Maryland)  
*punctata* Lundström, 1910: 42 (as variety of *leucogaster*). Finland  
*leucosticta* Kieffer, 1919b: 124. Russia  
*cinerella* Kieffer, 1919b: 124. Hungary  
*armaticrus* Kieffer, 1919b: 125. Hungary  
*csikiana* Kieffer, 1919b: 126. Russia  
*chrysocoma* Kieffer, 1922: 355. Poland  
*acanthodes* Macfie, 1940a: 192. Guyana  
*atlantica* Wirth & Williams, 1957: 13. Bermuda (Great Britain)  
*nobiliformis* Clastrier, 1962: 74. France

**pseudovenustula** Spinelli & Wirth, 1991: 8. Brazil (Pará)

**pulchripes** Kieffer, 1917a: 330. Paraguay. Brazil records – Amazonas, Pará, Rondônia, Mato Grosso

**punctipennis** (Williston), 1896: 278 (*Ceratopogon*). St. Vincent. Brazil records – Amazonas

**schmitzorum** Dippolito & Spinelli, in Dippolito et al., 1995: 54. Brazil (Rondônia)

**snowi** Lane, 1958: 34. Guatemala. Brazil records – Pará

**subfusca** Macfie, 1939a: 218. Brazil (Santa Catarina). Brazil records – Distrito Federal, Goiás, Santa Catarina

**venustula** (Williston), 1896: 278. (*Ceratopogon*). St. Vincent. Brazil records – Bahia  
*concoloripes* Macfie, 1940c:31. Guyana

### Genus CLASTRIEROMYIA Spinelli & Grogan

**CLASTRIEROMYIA** Spinelli & Grogan, 1985: 330. Type species: *Clastrieromyia schnacki* Spinelli & Grogan, by original designation.

**kremeri** Spinelli & Grogan, 1985: 332. Brazil (Amazonas)

### Genus PACHYHELEA Wirth

**PACHYHELEA** Wirth, 1959a: 50. Type species *Ceratopogon magnus* Coquillett (= *Ceratopogon pachymerus* Williston), by original designation.

**pachymera** (Williston), 1900: 224 (*Ceratopogon*). Mexico. Brazil records – Rondônia, Mato Grosso do Sul, Rio de Janeiro

*latifemoris* (Ingram & Macfie), 1931: 231 (*Johannsenomyia*). Argentina

### Genus PALPOMYIA Meigen

**PALPOMYIA** Meigen, 1818: 82. Type species: *Ceratopogon flavipes* Meigen, by monotypy. Generic name first published in synonymy with *Ceratopogon* but available under ICZN Code Article 11(e).

**APOGON** Rondani, 1856: 175 (preoccupied by *Apogon* Lacepede, 1802). Type species: *Ceratopogon hortulanus* Meigen (= *Ceratopogon flavipes* Meigen), by original designation.

**ALASION** Rondani, 1857: 14. New name for *Apogon* Rondani. Type species: *Ceratopogon hortulanus* Meigen (= *Ceratopogon flavipes* Meigen), automatic.

**MIOPALPOMYIA** Pierce, 1966: 95. Type species: *Miopalpomyia shilo* Pierce, by original designation.

**NEOPALPOMYIA** Pierce, 1966: 95. Type species: *Neopalpomyia freyi* Pierce, by original designation.

**PARAPALPOMYIA** Pierce, 1966: 97. Type species: *Parapalpomyia ryshkoffi* Pierce, by original designation.

**GLUHHOVIA** Remm, 1976: 174 (as subgenus of *Palpomyia*). Type species: *Palpomyia miki* Goetghebuer, by original designation.

**almeidai** (Lane), 1946b: 219 (*Sphaeromyias*). Brazil (São Paulo)

**amazonensis** Feijó, Farias, Alencar & Pessoa, 2017: 119. Brazil (Amazonas)

**barrettoi** Lane, 1947c: 442. Brazil (Rio de Janeiro)

**brasiliensis** Macfie, 1939a: 213. Brazil (Santa Catarina). Brazil records – Minas Gerais, São Paulo, Santa Catarina

**carioca** Lane, 1960: 384. Brazil (Rio de Janeiro)

**carrerai** (Lane), 1947a: 235 (*Dicrobezzia*, as *carreirai*). Brazil (São Paulo)

**castanea** Macfie, 1939a: 211. Brazil (Santa Catarina). Brazil records – São Paulo, Santa Catarina

**catarinensis** Lane, 1960: 385. Brazil (Santa Catarina)

**conifera** Macfie, 1939a: 214. Brazil (Santa Catarina). Brazil records – Distrito Federal, Goiás, São Paulo, Santa Catarina

**crassicrus** Kieffer, 1917a: 321. Paraguay. Brazil records – São Paulo

**guarani** Lane, 1946b: 221. Brazil (São Paulo). Brazil records – Espírito Santo, Rio de Janeiro, São Paulo

**johannseni** (Lane), 1947a: 233 (*Dicrobezzia*). Brazil (São Paulo). Brazil records – Rio de Janeiro, São Paulo

**lacustris** Lane, Forattini & Rabello, 1955: 83. Brazil (São Paulo)

**lanceolata** Feijó, Farias, Alencar & Pessoa, 2017: 119. Brazil (Amazonas)

**limnochares** (Macfie), 1940d: 76 (*Sphaeromias*). Brazil (Pernambuco)

**lutzi** Lane, 1947c: 440. Brazil (Rio de Janeiro)

**mellichroa** Macfie, 1939a: 212. Brazil (Santa Catarina)

**nigroflava** Lane, 1947c: 446. Brazil (São Paulo)

**nigroscutellata** Lane, 1947c: 444. Brazil (São Paulo). Brazil records – Rio de Janeiro, São Paulo

**oliveirai** Lane, 1947c: 443. Brazil (Minas Gerais). Brazil records – Rondônia, Minas Gerais

**pampana** Lane, 1960: 386. Brazil (Rio Grande do Sul)

**paraensis** Lane, 1960: 387. Brazil (Pará)

**paulistensis** Lane, 1947c: 445. Brazil (São Paulo). Brazil records – Rio de Janeiro, São Paulo

**pseudolacustris** Dippolito & Spinelli, *in* Dippolito et al., 1995: 55. Brazil (Rondônia)

**spinifemur** (Lane), 1947a: 234 (*Dicrobezzia*). Brazil (São Paulo). Brazil records – Rio de Janeiro, São Paulo

**spinosa** Lutz, 1914: 93. Brazil (Rio de Janeiro).

**subfuscula** Ingram & Macfie, 1931: 216. Chile. Brazil records – Minas Gerais

**tamoioi** Lane, 1960: 388. Brazil (Rio de Janeiro)

**tanycornis** Borkent, *in* Borkent & Wirth, 1997: 134. New name for *longicornis*.  
*longicornis* (Williston), 1896: 280 (*Ceratopogon*, preoccupied by *Ceratopogon longicornis* Waltl, 1837). St. Vincent. Brazil records – Distrito Federal

**umbella** Macfie, 1939a: 208. Brazil (Santa Catarina). Brazil records – Distrito Federal, Mato Grosso do Sul, Rio de Janeiro, Rio Grande do Sul, Santa Catarina

**versicolor** Macfie, 1939a: 215. Brazil (Santa Catarina). Brazil records – Rondônia, Santa Catarina

**wirthi** Lane, Forattini & Rabello, 1955: 82. Brazil (São Paulo)

### Genus PHAENOBEZZIA Haeselbarth

**PHAENOBEZZIA** Haeselbarth, 1965: 297. Type species: *Probezzia pistiae* Ingram & Macfie, by original designation.

**ateles** (Macfie), 1940d: 78 (*Bezzia*). Brazil (Bahia). Brazil records – Bahia, Distrito Federal  
*astyla* Spinelli & Wirth, 1986: 232. Colombia

**maya** Spinelli & Wirth, 1986: 234. Belize. Brazil records – Rondônia

#### TRIBE STENOXENINI COQUILLET, 1899

##### Genus **PARYPHOCONUS** Enderlein

**PARYPHOCONUS** Enderlein, 1912: 57. Type species: *Paryphoconus angustipennis* Enderlein, by original designation.

**aemulus** Macfie, 1940e: 180. Guyana. Brazil records – Amazonas, Mato Grosso do Sul

**amapaensis** Lane, 1961a: 450. Brazil (Amapá)

**angustipennis** Enderlein, 1912: 57. Brazil (Santa Catarina). Brazil records – Goiás, São Paulo, Santa Catarina

**anomalicornis** Kieffer, 1917a: 333. Colombia and Paraguay. Brazil records – Amazonas

**barrettoi** Lane, 1946a: 203. Brazil (Goiás) Brazil records – Goiás, São Paulo

**batesi** Lane, 1961c: 455. Brazil (Distrito Federal)

**brunneipennis** Spinelli & Wirth, 1984c: 890. Brazil (Amazonas)

**enderleini** Lane, 1956: 301. Brazil (Mato Grosso do Sul)

**fittkai** Spinelli & Wirth, 1984c: 892. Brazil (Amazonas)

**flavidus** (Johannsen), 1943: 761 (*Ceratobezzia*). Guyana. Brazil records – Amazonas, Mato Grosso  
*lanei* Wirth, 1959b: 236. Brazil (Amazonas)

**fusciradialis** Spinelli & Wirth, 1984c: 895. Brazil (Pará)

**fuscus** Lane, 1946a: 206. Brazil (Goiás)

**goianensis** Lane, 1961c: 456. Brazil (Distrito Federal)

**grandis** Macfie, 1939c: 6. Brazil (Santa Catarina). Brazil records - Pará, Ceará, Mato Grosso do Sul, Santa Catarina

**guianae** Macfie, 1940e: 180. Guyana. Brazil records – Pará, Mato Grosso do Sul, São Paulo

**kiefferi** Lane, 1956: 302. Brazil (Goiás)

**macfie** Lane, 1946a: 203. Brazil (São Paulo). Brazil records – Pará, Mato Grosso, São Paulo

**mayeri** Wirth, 1959b: 236. Brazil (Amazonas). Brazil records – Amazonas, Rondônia

**neotropicalis** (Lane), 1947a: 229 (*Macropeza*). Brazil (São Paulo)

**nigripes** Macfie, 1939c: 8. Argentina. Brazil records – Pará, Rondônia

**nubifer** Macfie, 1939c: 5. Brazil (Santa Catarina). Brazil records - Amazonas, Goiás, Minas Gerais, Rio de Janeiro, Santa Catarina

**oliveirai** Lane, 1956: 303. Brazil (Pará). Brazil records – Amazonas, Pará

**paulistensis** Lane, 1961c: 457. Brazil (São Paulo)

**subflavus** Macfie, 1940c: 23. Guyana. Brazil records – Amazonas, Pará, Rondônia, Distrito Federal  
*travassosi* Lane, 1956: 304. Brazil (Pará)

**telmatophilus** (Macfie), 1940d: 77 (*Bezzia*). Brazil (Paraíba). Brazil records – Paraíba, Rio de Janeiro

**terminalis** (Coquillett), 1904b: 90 (*Ceratopogon*). Nicaragua. Brazil records – Amazonas, Santa Catarina

**unimaculatus** Macfie, 1940e: 179. Guyana. Brazil records – Pará

**wirthi** Lane, 1961c: 458. Brazil (Distrito Federal)

**wygodzinskyi** Lane, 1946a: 208. Brazil (Rio de Janeiro)

#### **Genus STENOXENUS Coquillett**

**STENOXENUS** Coquillett, 1899: 61. Type species: *Stenoxenus johnsoni* Coquillett, by monotypy.

**aductus** Dippolito & Spinelli, *in* Dippolito et al., 1995: 56. Brazil (Rondônia)

**brasiliensis** Macfie, 1939a: 140. Brazil (Santa Catarina). Brazil records – Amazonas, Santa Catarina

**carrerai** Lane, 1956: 305 (as *carreirai*). Brazil (Goiás)

**excentricus** Lane, 1961c: 453. Brazil (Pará)

**niger** Lane, 1947a: 230 (as *nigrus*). Brazil (Goiás). Brazil records – Goiás, Rio de Janeiro

**paraensis** Lane, 1956: 306. Brazil (Pará)

**setiger** Macfie, 1939a: 138. Brazil (Santa Catarina). Brazil records – São Paulo, Santa Catarina

#### SUBFAMILY DASYHELEINAE LENZ, 1934

##### **Genus DASYHELEA Kieffer**

**DASYHELEA** Kieffer, 1911b: 5. Type species: *Dasyhelea halophila* Kieffer, by monotypy.

**PROKEMPIA** Kieffer, 1913b: 163, 179 (as subgenus of *Dasyhelea*). Type species: *Dasyhelea ornaticornis* Kieffer, designation by Wirth, 1973: 358.

**PSEUDOCULICOIDES** Malloch, 1915b: 309. Type species: *Ceratopogon mutabilis* Coquillett, by original designation.

*TETRAHELEA* Kieffer, 1925b: 423. Type species: *Culicoides insignicornis* Kieffer, by original designation.

*DICRYPTOSCENA* Enderlein, 1936: 51. Type species: *Dasyhelea inclusa* Kieffer, by original designation.

*SEBESSIA* Remm, 1979: 55 (as subgenus of *Dasyhelea*). Type species: *Dasyhelea flavopyga* Zilahi-Sebess, by original designation.

*BORKENTIMYIA* Yu, Liu, Liu, Liu, Hao, Yan & Zhao, 2006: 321 (as subgenus of *Dasyhelea*). Type species: *Dasyhelea forsteri* Grogan & Wirth, by original designation.

**borgmeieri** Wirth & Waugh, 1976: 225. Trinidad and Tobago. Brazil records – Pará, Bahia, Santa Catarina

**cacaoi** Wirth & Waugh, 1976: 231. Trinidad and Tobago. Brazil records – Pará

**cincta** (Coquillett), 1901: 605 (*Ceratopogon*). USA (Florida). Brazil records – Maranhão, Santa Catarina

*albopicta* Ingram & Macfie, 1931: 187. Argentina

*pentheseleae* Macfie, 1935a: 55. Brazil (Maranhão)

**eloyi** Díaz & Ronderos *in* Díaz et al., 2013: 86. Brazil (Amazonas)

**filibranchia** (Lutz), 1914: 85 (*Ceratopogon*). Brazil (Rio de Janeiro)

**flavicauda** Macfie, 1939a: 201. Brazil (Santa Catarina)

**hippolytae** Macfie, 1935a: 54. Brazil (Maranhão)

**mineira** Díaz, Felipe-Bauer & Spinelli, 2017: 19. Brazil (Minas Gerais)

**parahybae** Macfie, 1940d: 74. Brazil (Paraíba)

**paulistana** Forattini & Rabello, 1957: 245. Brazil (São Paulo). Brazil records – Amazonas, Minas Gerais, São Paulo

**pseudopollinosa** Díaz & Ronderos *in* Díaz et al., 2014: 716. Brazil (Amazonas)

**pumila** Macfie, 1939a: 202. Brazil (Santa Catarina)

**pusilla** (Lutz), 1913: 65 (*Centrorhynchus*). Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, São Paulo

**soriai** Wirth & Waugh, 1976: 229. Brazil (Bahia)

**thalestris** Macfie, 1935a: 55. Brazil (Maranhão)

**viridans** Forattini & Rabello, 1957: 247. Brazil (Rio de Janeiro)

**williamsi** Wirth & Waugh, 1976: 228. Trinidad and Tobago. Brazil records – Pará, Bahia

**winderi** Wirth & Waugh, 1976: 233. Brazil (Bahia). Brazil records – Pará, Bahia, Santa Catarina

#### SUBFAMILY FORCIPOMYIINAE LENZ, 1934



## Genus **ATRICHOPOGON** Kieffer

**ATRICHOPOGON** Kieffer, 1906: 53 (as subgenus of *Ceratopogon*). Type species: *Ceratopogon exilis* Coquillett (= *Ceratopogon levis* Coquillett), designation by Coquillett, 1910: 512.

**KEMPIA** Kieffer, 1913b: 162, 179 (as subgenus of *Dasyhelea*). Type species: *Dasyhelea calcuttensis* Kieffer, designation by Wirth, 1952: 117.

**GYMNOHELEA** Kieffer, 1921b: 115. Type species: *Kempia longiserrus* Kieffer, designation by Wirth, 1973: 348.

**DOLICHOHELEA** Edwards, 1929: 8. Type species: *Dolichohelea polita* Edwards, by monotypy.

**MELOEHELEA** Wirth, 1956: 16 (as subgenus of *Atrichopogon*). Type species: *Atrichopogon meloesugans* Kieffer.

**PSAMMOPOGON** Remm, 1979: 57 (as subgenus of *Atrichopogon*). Type species: *Atrichopogon trifasciata* Kieffer (= *Atrichopogon flavolineatus* Strobl), by original designation.

**ROSTROPOGON** Remm, 1979: 57 (as subgenus of *Atrichopogon*). Type species: *Ceratopogon rostratus* Winnertz, by original designation.

**IMPENSUKEMPIA** Yu, in Liu et al., 2001: 47 (as subgenus of *Atrichopogon*). Type species: *Atrichopogon impensus*, by original designation.

**BESSAMYIA** Yu, Liu, Liu, Liu, Hao, Yan and Zhao, 2006: 355 (as subgenus of *Atrichopogon*). Type species: *Atrichopogon bessa* Yu and Yan, by original designation.

## Subgenus **ATRICHOPOGON** Kieffer

**bifidus** Ewen, in Ewen & Saunders, 1958: 694. Brazil (Rio de Janeiro)

**brasiliensis** Macfie, 1939a: 184. Brazil (Santa Catarina)

**cavus** Felipe-Bauer, in Felipe-Bauer et al., 2012:45. Brazil (Rio de Janeiro)

**columbianus** Kieffer, 1917a: 303. Colombia. Brazil records – Santa Catarina

**costalis** Macfie, 1939a: 179. Brazil (Santa Catarina)

**cryptogamus** Macfie, 1939a: 182. Brazil (Santa Catarina)

**dactilus** Felipe-Bauer, in Felipe-Bauer et al., 2012:40. Brazil (Rio de Janeiro)

**depilis** Macfie, 1939a: 178. Brazil (Santa Catarina)

**eucnemus** Macfie, 1939a: 185. Brazil (Santa Catarina)

**flavicaudae** Macfie, 1939a: 181. Brazil (Santa Catarina)

*pilosior* Macfie, 1939a: 182 (as variety of *flavicaudae*). Brazil (Santa Catarina)

**flavipes** Lutz, 1914: 90. Brazil (Rio de Janeiro)

**flumineus** Macfie, 1935a: 52. Brazil (Maranhão). Brazil records – Maranhão, Santa Catarina

**globulifer** Macfie, 1939a: 191. Brazil (Santa Catarina)

**insignipalpis** Macfie, 1940d: 73. Brazil (Northeast). Brazil records – Paraíba, Rio Grande do Norte

**nebulosus** Macfie, 1939a: 192. Brazil (Santa Catarina)

**novaeteutoniae** Macfie, 1939a: 189. Brazil (Santa Catarina)

**nukini** Felipe-Bauer, 2019: 258. Brazil (Acre)  
**palpalis** Macfie, 1939a: 196. Brazil (Santa Catarina)  
**remigatus** Ewen, *in* Ewen & Saunders, 1958: 687. Brazil (Rio de Janeiro)  
**rusticus** Macfie, 1939a: 190. Brazil (Santa Catarina)  
**shawadua** Felipe-Bauer, 2019: 259. Brazil (Acre)  
**taeniatus** Macfie, 1939a: 186. Brazil (Santa Catarina)  
**umbratilis** Macfie, 1935a: 51. Brazil (Maranhão)

#### **Subgenus LOPHOMYIDIUM Cordero**

**LOPHOMYIDIUM** Cordero, 1929: 94. Type species: *Lophomyidium uruguayense* Cordero, by original designation.

**delpontei** Cavalieri & Chiossone, 1972: 121. Argentina. Brazil records – Rondônia, Piauí  
**fuscus** (Coquillett), 1901: 605 (*Ceratopogon*). USA (New Jersey). Brazil records – Pará, Rio Grande do Sul  
*polydactylus* Nielsen, 1951: 27. Denmark

#### **Subgenus PSILOKEMPIA Enderlein**

**PSILOKEMPIA** Enderlein, 1936: 49. Type species: *Kempia appendiculata* Goetghebuer, by monotypy.

**echinodes** Macfie, 1939a: 194. Brazil (Santa Catarina)  
**glaber** Macfie, 1935a: 50. Brazil (Maranhão). Brazil records – Pará, Rondônia, Maranhão.  
**gordoni** Macfie, 1938: 164. Trinidad and Tobago. Brazil records – Rondônia, Bahia, Santa Catarina  
*fimbriatus* Macfie, 1939a: 194 (as variety of *gordoni*).  
**insigniventris** Macfie, 1935a: 51. Brazil (Maranhão)  
**javieri** Spinelli, Marino & Huerta, 2015: 35. St. Vicent. Brazil records – Pará  
**pectinatus** Macfie, 1939a: 195. Brazil (Santa Catarina)

#### **Genus FORCIPOMYIA Meigen**

**FORCIPOMYIA** Meigen, 1818: 73,75. Type species: *Tipula bipunctata* Linnaeus, designation by Westwood, 1840: 126. Generic name first published *in* synonymy with *Ceratopogon* but available under ICZN Code Article 11(e).

**LABIDOMYIA** Stephens, 1829: 52 (1829: 239) (unnecessary new name for *Forcipomyia* Meigen, as *Forcipomyia* Megerle). Type species: *Tipula bipunctata* Linnaeus, designation by Westwood, 1840: 126.

**TETRAPHORA** Philippi, 1865: 630. Type species: *Tetrachora fusca* Philippi, by monotypy.

*PROHELEA* Kieffer, 1911c: 319 (as subgenus of *Forcipomyia*). Type species: *Ceratopogon decipiens* Kieffer, designation by Brunetti, 1920: 48.

### Subgenus CALOFORCIPOMYIA Saunders

**CALOFORCIPOMYIA** Saunders, 1957: 680 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia caerulea* Saunders, by original designation.

**caerulea** Saunders, 1957: 681. Brazil (Rio de Janeiro). Brazil records – Pará, Rio de Janeiro

**eukosma** Macfie, 1939a: 148. Brazil (Santa Catarina). Brazil records – Pará, Rio de Janeiro, São Paulo, Santa Catarina

**furcifera** Macfie, 1940f: 920. Brazil (Santa Catarina)

**glauca** Macfie, 1934: 144. Great Britain. Brazil records – Southern

*monilis* Goetghebuer, 1934b: 287. Russia

*diversipes* Goetghebuer, 1936: 319. Belgium

*splendida* Wirth, 1951: 315. USA (Virginia)

**hermosa** Utmar & Wirth, 1976: 117. Brazil (Pará). Brazil records – Amazonas, Pará

**nigrescens** Macfie, 1939a: 156. Brazil (Santa Catarina). Brazil records – Rio de Janeiro, São Paulo, Santa Catarina

**remigera** Utmar & Wirth, 1976: 121. Colombia. Brazil records – Pará

**sabalitensis** Utmar & Wirth, 1976: 127. Costa Rica. Brazil records – Rio de Janeiro, São Paulo, Paraná, Santa Catarina

**varicolor** Saunders, 1957: 683. Brazil (Rio de Janeiro)

### Subgenus EUPROJOANNISIA Brèthes

**EUPROJOANNISIA** Brèthes, 1914: 155. Type species: *Euprojoannisia platensis* Brèthes, by original designation.

**EUFORCIPOMYIA** Malloch, 1915a: 312. Type species: *Euforcipomyia hirtipennis* Malloch (= *Ceratopogon palustris* Meigen), by original designation.

**CRYPTOSCENA** Enderlein, 1936: 51. Type species: *Ceratopogon palustris* Meigen, by monotypy.

**PROFORCIPOMYIA** Saunders, 1957: 662 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia wirthi* Saunders, by original designation.

**blantoni** Soria & Bystrak, 1975: 3. Brazil (Bahia). Brazil records – Pará, Bahia

**bromeliae** Saunders, 1957: 665. Brazil (Rio de Janeiro). Brazil records – Pará, Rio de Janeiro

**longispina** Saunders, 1957: 669. Brazil (Rio de Janeiro)

**quasiingrami** Macfie, 1939a: 164. Brazil (Santa Catarina). Brazil records – Bahia, Santa Catarina

**spatulifera** Saunders, 1957: 667. Brazil (São Paulo). Brazil records – Pará, Bahia, São Paulo

### Subgenus FORCIPOMYIA Meigen

**argenteola** Macfie, 1939a: 146. Brazil (Santa Catarina). Brazil records – Mato Grosso do Sul, Rio de Janeiro, Santa Catarina

**calatheae** Wirth, 1982b: 573. Dominica. Brazil records – Bahia, Santa Catarina

**catarinensis** Marino & Spinelli, 2002: 309. Brazil (Santa Catarina)

**genualis** (Loew), 1866: 128 (*Ceratopogon*). Cuba. Brazil records – Amazonas, Bahia, Rio de Janeiro, Santa Catarina

*propinqua* (Williston), 1896: 279 (*Ceratopogon*). St. Vincent

*raleighi* Macfie, 1938: 160. Trinidad and Tobago

**harpegonata** Wirth & Soria, 1975: 19. Puerto Rico (USA). Brazil records – Amazonas, Pará, Bahia

**ornatipennis** Macfie, 1939a: 151. Brazil (Santa Catarina). Brazil records – Mato Grosso do Sul, Santa Catarina

**pictoni** Macfie, 1938: 161. Trinidad and Tobago. Brazil records – Amazonas, Pará, Bahia, São Paulo

**pinamarensis** Spinelli, 1983: 121. Argentina. Brazil records – Pará, Bahia, Rio de Janeiro

**poulaineae** Ingram & Macfie, 1931: 227. Argentina. Brazil records – Bahia, Santa Catarina

**quatei** Wirth, 1952: 142. USA (California). Brazil records – Bahia, Santa Catarina

**squamitibia** Lutz, 1914: 88. Brazil (Santa Catarina). Brazil records – Bahia, Mato Grosso do Sul, Rio de Janeiro, São Paulo, Santa Catarina

*soriai* Wirth, 1991: 168. Brazil (Bahia).

### Subgenus LASIOHELEA Kieffer

*CENTRORHYNCHUS* Lutz, 1913: 62 (preoccupied by *Centrorhynchus* Steven or Fisher Waldheim, 1829). Type species: *Centrorhynchus stylifer* Lutz, by original designation.

**LASIOHELEA** Kieffer, 1921b: 115. Type species: *Atrichopogon pilosipennis* Kieffer (= *Ceratopogon velox* Winnertz), by original designation.

*PARAPTEROBOSCA* Harant, Huttel and Huttel, 1951: 468. Type species: *Parapterobosca anthropophila* Harant, Huttel and Huttel, by original designation.

*DACNOFORCIPOMYIA* Chan and Saunders, 1965: 527 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia anabaenae* Chan and Saunders, by original designation.

**anitae** Huerta & Ibañez-Bernal, 1996: 350. Mexico. Brazil records – Bahia

**cornuta** Saunders, 1964: 464. Costa Rica. Brazil records – São Paulo

**insigniforceps** Macfie, 1939a: 165. Brazil (Santa Catarina)

**multidentata** Ronderos & Spinelli, 1999: 153. Brazil (Bahia)

**stylifer** (Lutz), 1913: 63 (*Centrorhynchus*). Brazil (Minas Gerais). Brazil records – Pará, Bahia, Goiás, Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina

### Subgenus LEPIDOHELEA Kieffer

**LEPIDOHELEA** Kieffer, 1917a: 364. Type species: *Ceratopogon chrysolophus* Kieffer, by original designation.

**annulatipes** Macfie, 1939a: 154. Brazil (Santa Catarina). Brazil records – Pará, Bahia, Santa Catarina

**bahiensis** Wirth & Spinelli, 1993: 113. Brazil (Bahia)

**bicolor** Lutz, 1914: 89. Brazil (Rio de Janeiro). Brazil records – Rio de Janeiro, Santa Catarina  
*discoloripes* Macfie, 1939a: 159. Brazil (Santa Catarina)

**brasiliensis** Macfie, 1939a: 153. Brazil (Santa Catarina)

**dubia** Macfie, 1939a: 162. Brazil (Santa Catarina)

**kuanoskeles** Macfie, 1939a: 150. Brazil (Santa Catarina)

**lacrimatorii** Macfie, 1939a: 161. Brazil (Santa Catarina)

**luteigenua** Wirth & Spinelli, 1992: 353. Costa Rica. Brazil records – Bahia

**seminole** Wirth, 1976: 81. USA (Florida). Brazil records – Rio de Janeiro

**winderi** Wirth, 1991: 171. Brazil (Bahia)

#### Subgenus **METAFORCIPOMYIA** Saunders

**METAFORCIPOMYIA** Saunders, 1957: 685 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia cerifera* Saunders, by original designation.

**cerifera** Saunders, 1957: 685. Brazil (Rio de Janeiro)

#### Subgenus **MICROHELEA** Kieffer

**MICROHELEA** Kieffer, 1917a: 364. Type species: *Atrichopogon microtomus* Kieffer, designation by Kieffer, 1921a: 7, with explanatory notation on erroneous previous type designation).

**PHASMIDOHELEA** Mayer, 1937: 233. Type species: *Phasmidohelea crudelis* Mayer (= *Forcipomyia mayeri* Forattini & Lane), by original designation.

**amazonica** Wirth, 1971: 241. Brazil (Amazonas)

**belemensis** Clastrier & Wirth, 1995: 140. Brazil (Pará)

**castneri** Clastrier & Wirth, 1995: 111. Peru. Brazil records (Pará)

**catarina** Clastrier & Wirth, 1995: 131. Brazil (Santa Catarina)

**cristata** Clastrier & Wirth, 1995: 135. Brazil (Santa Catarina)

**desutterae** Clastrier & Wirth, 1995: 100. French Guiana. Brazil records – Pará

**eriophora** (Williston), 1896: 279 (*Ceratopogon*). St. Vincent. Brazil records – Bahia

**fuliginosa** (Meigen), 1818: 86 (*Ceratopogon*). Germany. Brazil records – Pará, Bahia, Rio de Janeiro, São Paulo, Santa Catarina

*villosa* (Zetterstedt), 1850: 3645 (*Ceratopogon*). Sweden

*crudelis* (Karsch), 1886: 18 (*Ceratopogon*). Germany

*hirtipes* (de Meijere), 1907: 209 (*Ceratopogon*). Indonesia

*brevimana* Lundström, 1910: 32. Finland  
*inornatipennis* (Austen), 1912: 107 (*Ceratopogon*). Nigeria  
*erucicida* Knab, 1914: 65. USA (Florida)  
*crudelis* Knab, 1914: 66 (preoccupied by *Forcipomyia crudelis* (Karsch), 1886). Mexico  
*coquilletti* (Kieffer), 1917a: 297 (*Ceratopogon*). USA (New York)  
*tropica* (Kieffer), 1917a: 297 (*Ceratopogon*). Costa Rica  
*obscura* Santos Abreu, 1918: 276 (as variety of *bipunctata*, preoccupied by *Forcipomyia obscura* (Walker), 1848). Canary Islands (Spain)  
*alboclavata* (Kieffer), 1919b: 12 (*Ceratopogon*, also as *asticta*). Slovak Republic  
*canaliculata* (Goetghebuer), 1920: 110 (*Ceratopogon*). Belgium  
*nilotheres* Macfie, 1924: 62. Egypt  
*ornaticrus* Ingram & Macfie, 1924: 577 (as variety of *inornatipennis*; preoccupied by *Forcipomyia ornaticrus* Kieffer, 1912). Ghana  
*atripennis* Goetghebuer, 1935: 149. Democratic Republic of the Congo  
*auripila* Goetghebuer, 1935: 150. Democratic Republic of the Congo  
*curtimana* Goetghebuer, 1935: 151. Democratic Republic of the Congo  
*grisescens* Goetghebuer, 1935: 154. Democratic Republic of the Congo  
*vicina* Goetghebuer, 1935: 161. Democratic Republic of the Congo  
*longiradialis* Tokunaga, 1940: 66. Japan  
*takagii* Tokunaga, 1941: 90. China  
*wansoni* (Harant & Baur), 1946: 141 (*Lasiohelea*, preoccupied by *Forcipomyia wansoni* de Meillon, 1939). Democratic Republic of the Congo  
*brookmani* Wirth, 1952: 140. USA (California)  
*santosi* Remm, 1981: 32. New name for *obscura*

**insignipalpis** Macfie, 1949: 109. Mexico. Brazil records – Pará

**luteisquamosa** Wirth, 1972: 575. Brazil (Santa Catarina)

**microtoma** (Kieffer), 1917a: 299. Paraguay. Brazil records – Amazonas, Bahia, Rio de Janeiro, Santa Catarina.

**minisquamosa** Wirth, 1972: 570. Belize. Brazil records – Amazonas, Pará

**moorei** Clastrier & Wirth, 1995: 133. Brazil (Santa Catarina)

**novaeteutoniae** Clastrier & Wirth, 1995: 107. Brazil (Santa Catarina)

**obesa** Costa Lima, 1928: 85. Brazil (Amazonas). Brazil records – Amazonas, Pará

**paulista** Falaschi, Albertoni & Fusari, 2014: 381. Brazil (São Paulo)

**penultimata** Wirth, 1972: 573. Brazil (Santa Catarina)

**plaumanni** Clastrier & Wirth, 1995: 127. Brazil (Santa Catarina)

**squamosa** Lutz, 1914: 87. Brazil (Rio de Janeiro). Brazil records – Amazonas, Bahia, Rio de Janeiro, São Paulo, Santa Catarina

**thomasi** Clastrier & Wirth, 1995: 115. Brazil (Pará)

**wagneri** (Séguy), 1941: 85 (*Phasmidohelea*). Brazil (Rio de Janeiro)

**willistoni** Wirth, 1971: 242. Puerto Rico (USA). Brazil records – Santa Catarina

### Subgenus **PEDILOHELEA** de Meillon & Wirth

**PEDILOHELEA** de Meillon & Wirth, 1980: 9 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia clastrieri* Dessart, by original designation.

**aitkeni** de Meillon & Wirth, 1980: 12. Brazil (Pará)

**archboldi** de Meillon & Wirth, 1980: 13. Dominica. Brazil records – Pará

**spilmani** de Meillon & Wirth, 1980: 22. Dominica. Brazil records – Santa Catarina

### Subgenus **PHYTOHELEA** Remm

**PHYTOHELEA** Remm, 1971: 189 (as subgenus of *Forcipomyia*). Type species: *Ceratopogon bromelicola* Lutz, by original designation.

**bromelicola** (Lutz), 1914: 84 (*Ceratopogon*). Brazil (Rio de Janeiro)

**edwardsi** (Saunders), 1925: 260 (*Apelma*). Brazil (Rio de Janeiro). Brazil records – Pernambuco, Rio de Janeiro

**keilini** (Saunders), 1925: 265 (*Apelma*). Brazil (Pernambuco)

**magna** (Saunders), 1925: 266 (*Apelma*). Brazil (Pernambuco)

**musae** Clastrier & Delécolle, 1994: 51. French Guiana. Brazil records – Amazonas

### Subgenus **PTEROBOSCA** Macfie

**PTEROBOSCA** Macfie, 1932b: 266. Unavailable name; proposed after 1930 without type species designation.

**PTEROBOSCA** Macfie, 1940b: 16. Type species: *Ceratopogon aeshnosuga* de Meijere, by original designation.

**fusicornis** (Coquillett), 1905: 63 (*Ceratopogon*). USA (Florida). Brazil records – Rio de Janeiro

*fur* (Johnson), 1913: 444 (*Ceratopogon*). Bermuda (Great Britain)

*macfiei* (Costa Lima), 1937b: 616 (*Pterobosca*). Brazil (Rio de Janeiro)

*floridana* (Johannsen), 1950: 143 (*Pterobosca*). USA (Florida)

**incubans** (Macfie), 1937: 111. Belize. Brazil records – Minas Gerais

### Subgenus **RHYNCHOFORCIPOMYIA** Wirth and Dow

**RHYNCHOFORCIPOMYIA** Wirth & Dow, 1972: 863 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia messersmithi* Wirth & Dow, by original designation.

**brachyrhyncha** Wirth & Dow, 1972: 867. Colombia. Brazil records – Bahia

**guamai** Wirth & Dow, 1972: 869. Brazil (Pará)

### Subgenus **SALIOHELEA** Wirth & Ratanaworabhan

**SALIOHELEA** Wirth & Ratanaworabhan, 1978: 494 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia leei* Wirth & Ratanaworabhan, by original designation.

**leei** Wirth & Ratanaworabhan, 1978: 498. Colombia. Brazil records – Amazonas, Pará, Bahia, Rio de Janeiro, Santa Catarina

#### **Subgenus SCHIZOFORCIPOMYIA Chan & LeRoux**

**SCHIZOFORCIPOMYIA** Chan & LeRoux, 1971: 271 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia petersoni* Chan & LeRoux (= *Forcipomyia borbonica* Clastrier), by original designation.

**cinctipes** (Coquillett), 1905: 64 (*Ceratopogon*). USA (Florida). Brazil records – Pará, Bahia

#### **Subgenus SYNTHYRIDOMYIA Saunders**

**SYNTHYRIDOMYIA** Saunders, 1957: 688 (as subgenus of *Forcipomyia*). Type species: *Lasiohelea acidicola* Tokunaga, by original designation.

**tenuiforceps** Macfie, 1939a: 167. Brazil (Santa Catarina)

#### **Subgenus THYRIDOMYIA Saunders**

**THYRIDOMYIA** Saunders, 1925: 268. Type species: *Thyridomyia palustris* Saunders (= *Ceratopogon monilicornis* (Coquillett)), by original designation.

**nana** (Macfie), 1939a: 171 (*Lasiohelea*). Brazil (Santa Catarina)

**univesicula** Macfie, 1939a: 170. Brazil (Santa Catarina)

#### **Subgenus TRICHOHELEA Goetghebuer**

**APELMA** Kieffer, 1919b: 64 (preoccupied by Billberg, 1820). Type species: *Apelma auronitens* Kieffer (= *Trichohelea tonnoiri* Goetghebuer), designation by Macfie, 1940b: 16.

**TRICHOHELEA** Goetghebuer, 1920: 39. Type species: *Trichohelea tonnoiri* Goetghebuer, by original designation.

**NEOFORCIPOMYIA** Tokunaga, in Tokunaga and Murachi, 1959: 200 (as subgenus of *Forcipomyia*). Type species: *Ceratopogon pectinunguis* de Meijere, by original designation.

**aeronautica** Macfie, 1935b: 265. Guyana. Brazil records – Pará

**opilionivora** (Lane), 1947d: 159 (*Lasiohelea*). Brazil (São Paulo)

#### **Subgenus WARMKEA Saunders**

**WARMKEA** Saunders, 1957: 671 (as subgenus of *Forcipomyia*). Type species: *Forcipomyia bicolor* Saunders (= *Forcipomyia lesliei* Wirth), by original designation.

**galindoi** Wirth & Soria, 1980: 146. Panama. Brazil records – Pará

**louriei** (Macfie), 1935a: 49 (*Lasiohelea*). Brazil (Maranhão). Brazil records – Pará, Maranhão, Santa Catarina

*narthekephora* Macfie, 1939a: 166. Brazil (Santa Catarina)

**spinosa** Saunders, 1957: 676. Puerto Rico (USA). Brazil records – Pará, Bahia, Rio de Janeiro



**tuberculata** Saunders, 1957: 677. Trinidad and Tobago. Brazil records – Amazonas, Pará

#### SUBFAMILY LEPTOCONOPINAE NOÈ, 1907

##### Genus **LEPTOCONOPS** Skuse

**LEPTOCONOPS** Skuse, 1889: 288. Type species: *Leptoconops stygius* Skuse, by monotypy.

**TERSESTHES** Townsend, 1893: 370. Type species: *Tersesthes torrens* Townsend, by original designation.

**MYCTEROTYPUS** Noè, 1905: 114. Type species: *Mycterotypus bezzii* Noè, designation by Carter, 1921: 3.

**PROTERSESTHES** Kieffer, 1921b: 107. Type species: *Tersesthes brasiliensis* Lutz, by original designation.

**SCHIZOCONOPS** Kieffer, 1918: 135. Type species: *Schizoconops indicus* Kieffer, by monotypy.

##### Subgenus **HOLOCONOPS** Kieffer

**HOLOCONOPS** Kieffer, 1918: 135. Type species: *Leptoconops kerteszi* Kieffer, by original designation.

**MICROCONOPS** Kieffer, 1921b: 108. Type species: *Microconops vexans* Kieffer, by original designation.

**knowltoni** Clastrier & Wirth, 1978: 26. USA (California). Brazil records – Santa Catarina

##### Subgenus **LEPTOCONOPS** Skuse

**brasiliensis** (Lutz), 1913: 66 (*Tersesthes*). Brazil (Amazonas). Brazil records – Acre, Amazonas, Pará

#### REFERENCES

Almeida, J.F., E.S. Farias, R.B. Alencar and F.A.C. Pessoa. 2017. Description of two new species of *Palpomyia* Meigen (Diptera: Ceratopogonidae) from the Brazilian Amazon. *EntomoBrasilis* 10(2):118-122.

Austen, E.E. 1912. Notes on African blood-sucking midges (Family Chironomidae, subfamily Ceratopogoninae), with descriptions of new species. *Bulletin of Entomological Research* 3:99-108, pl. 1.

Barbosa, F.A.S. 1943. Descrição de "*Culicoides recifensis*" n. sp. e do macho de "*Culicoides reticulatus*" Lutz (Diptera, Chironomidae). *Revista Brasileira de Biologia* 3:261-264.

– 1947. *Culicoides* (Diptera: Heleidae) da região neotropical. *Anais da Sociedade de Biologia de Pernambuco* 7:3-30. (Nov.).

– 1951. A change of specific name in the genus *Culicoides* (Diptera, Heleidae). *Proceedings of the Entomological Society of Washington* 53:163.

- 1952. Novos subsidios para o conhecimento dos *Culicoides* neotropicos (Diptera: Heleidae). Thesis, Universidade do Recife, Recife: Imprensa Industrial, 21 pp.
- 1953. Novos subsidios para o conhecimento dos *Culicoides* neotropicos (Diptera: Heleidae). Publicacoes Avulsas do Instituto Aggeu Magalhaes 2:11-41.
- Barretto, M.P. 1944. Sobre o género *Culicoides* Latreille, 1809, com a descricao de três novas espécies (Diptera, Ceratopogonidae). Anais da Faculdade de Medicina (da Universidade) de Sao Paulo 20:89-105, pls. 1-4.
- Beck, E.C. 1957. Two new species of *Culicoides* from Florida (Diptera: Heleidae). Florida Entomologist 40:103-105.
- Boorman, J. and R.P. Lane. 1979. A new genus and species of Ceratopogonidae (Diptera) closely related to *Culicoides* from West Africa. Journal of Natural History 13:327-332.
- Borkent, A. 2015a. World Ceratopogonidae fauna. Available in <http://wwx.inhs.illinois.edu/files/1114/2384/5200/CeratopogonidaeCatalog.pdf>
- 2015b. The Subgeneric Classification of Species of *Culicoides* - thoughts and a warning. Available in <http://wwx.inhs.illinois.edu/files/8514/2385/5053/CulicoidesSubgenera.pdf>
- Borkent, A. and G.R. Spinelli. 2000. Catalog of the new world biting midges south of the United States of America (Diptera: Ceratopogonidae). Contribution on Entomology, International 4(1):1-107.
- 2007. Neotropical Ceratopogonidae. In Aidis, J., J.R. Arias, G. Rueda-Delgado and K.M. Wantzen (eds.). Aquatica Biodiversity in Latin America. Pensoft, Moscow, volume 4, 198pp.
- Borkent, A. and W.W. Wirth. 1997. World species of biting midges (Diptera: Ceratopogonidae). Bulletin of the American Museum of Natural History 233, 257 pp.
- Brèthes, J. 1912. Descripcion de un nuevo género y especie nueva de Chironomidae (Dipt). Anales del Museo Nacional de Buenos Aires 15:451-453.
- 1914. Descripcion de six Cécidomyidae (Dipt.) de Buenos Aires. Ibid. 26:151-156.
- Browne, J.E. 1980. New species of biting midges of the genus *Culicoides* from Colombia and the first description of the male of *C. florenciae* (Diptera: Ceratopogonidae). Journal of Medical Entomology 17:533-544.
- Brunetti, E. 1920. Catalogue of Oriental and south asiatic Nematocera. Records of the Indian Museum 17:1-300.
- Carter, H.F. 1921. A revision of the genus *Leptoconops*, Skuse. Bulletin of Entomological Research 12:1-28. (June).
- Carter, H.F., A. Ingram and J.W.S. Macfie. 1921. Observations on the ceratopogonine midges of the Gold Coast with descriptions of new species Part III. Ibid.:309-331.
- Castellón, E.G. and M.L. Felipe-Bauer. 2015. Classificação e Distribuição das espécies de *Culicoides* (Diptera: Ceratopogonidae) na Amazônia Brasileira ou Amazônia Legal. In

- Castellón, E.G. and R.S. Veras (eds.). *Maruins (Culicoides: Ceratopogonidae) na Amazônia Brasileira*, Manaus, Editora INPA, 144pp.
- Cavalieri, F. 1966. Notas sobre Ceratopogonidae (Diptera, Nematocera) V. Descripción de una nueva especie de Venezuela: *Culicoides (Oecacta) birabeni* sp. n. *Physis* 26:59-63.
- Cavalieri, F. and I.F. Chiossone. 1972. Notas sobre el género *Atrichopogon* Kieffer, 1906, de la Argentina (Diptera, Ceratopogonidae). I. Consideraciones generales y descripción de *Atrichopogon delpontei* sp. nov. *Revista de la Sociedad Entomologica Argentina* 34:119-129.
- Cazorla, C.G. and G.R. Spinelli. 2016. Two new species of the subgenus *Acanthohelea* of *Stilobezzia* from Brazilian Amazonia (Diptera: Ceratopogonidae). *Zootaxa* 4066(2): 189-193.
- Cazorla, C.G., E.A. Cardoso and M.L. Felipe-Bauer. 2017. Contributions to the knowledge of predaceous midges of the subgenus *Eukraiohelea* Ingram & Macfie of *Stilobezzia* Kieffer (Diptera: Ceratopogonidae), from Brazil. *Ibid.* 4324(3):557-570.
- Cazorla, C.G., M.M. Ronderos, G.R. Spinelli, S.R.S. Torreias and R.L. Ferreira Keppler. 2012. A new species of *Stilobezzia* Kieffer from Neotropical Region (Diptera, Ceratopogonidae). *Revista Brasileira de Entomologia* 56(4):399-404.
- Chan, K.L. and E.J. LeRoux. 1971. A new subgenus and species of midge (Diptera: Ceratopogonidae) from Singapore. *Canadian Entomologist* 103:271-276.
- Chan, K.L. and L.G. Saunders. 1965. *Forcipomyia (Dacnoforcipomyia) anabaenae*, a new blood-sucking midge from Singapore, described in all stages (Diptera: Ceratopogonidae). *Canadian Journal of Zoology* 43:527-540.
- Clastrier, J. 1962. Notes sur les Cératopogonidés. XVI. Espèces du genre *Bezzia* Kieffer ou apparentées de la région Paléarctique. *Archives de l'Institut Pasteur Algérie* 40:53-125.
- 1968. Deux Ceratopogonides nouveaux de la Guyane Française. *Archives de l'Institut Pasteur de la Guyane Française et de L'Inini* 21:85-92.
- 1971. Deux nouveaux *Culicoides* (Diptera, Ceratopogonidae) de la Guyane Française. *Annales de Parasitologie* 46:285-294.
- 1979. Un nouvel *Atrichopogon* de la Guyane Française (Diptera: Ceratopogonidae). *Revue Française d'Entomologie* 1:30-32.
- 1984. *Schizonyxhelea guyana* n. g., n. sp. de la Guyane Française (Diptera, Ceratopogonidae). *Revue Française d'Entomologie* 6:1-4.
- Clastrier, J. and J.C. Dellécole. 1994. Description de *Forcipomyia (Phytohelea) musae* n. sp. de la Guyane française (Diptera, Ceratopogonidae). *Revue Française d'Entomologie* 16:51-56.
- Clastrier, J. and W.W. Wirth. 1978. The *Leptoconops kerteszi* complex in North America (Diptera: Ceratopogonidae). United States Department of Agriculture Technical Bulletin Number 1573:58 pp.

– 1995. Révision des *Forcipomyia* du sous-genre *Microhelea* de la région Néotropicale, parasites de phasmes (Diptera: Ceratopogonidae). Annales de la Societe Entomologique de France 31:97-150.

Coquillett, D.W. 1899. A new dipterous family related to the Chironomidae. Entomological News 10:60-61.

– 1901. New Diptera in the U.S. National Museum. Proceedings of the United States National Museum 23:593-618.

– 1904a. A new Ceratopogon from Brazil. Journal of the New York Entomological Society 12:35-36.

– 1904b. New Diptera from Central America. Proceedings of the Entomological Society of Washington 6:90-98.

– 1905. New nematoceros Diptera from North America. Journal of the New York Entomological Society 13:56-69.

– 1910. The type-species of the North American genera of Diptera. Proceedings of the United States National Museum 37:499-647.

Cordero, E.H. 1929. Contribución al estudio de los Dipteros del Uruguay, I. *Lophomyidium uruguayense* n. gen., n. sp. nueva Ceratopogonina hematófaga. Anales del Museo de Historia Natural de Montevideo 3:93-108.

Costa Lima, A. da. 1928. Ceratopogonineos ectoparasitos de phasmideos. Memorias do Instituto Oswaldo Cruz, Suppl. 3:84-85, 2 pls.

– 1937a. Chave das especies de *Culicoides* da regio neotropica (Diptera: Ceratopogonidae). Ibid. 32:411-422.

– 1937b. Primeira especie americana do genero *Pterobosca* (Diptera: Ceratopogonidae). Ibid.:615-616, pls. 1-2.

Crampton, G.C. 1925. A phylogenetic study of the thoracic sclerites of the non-tipuloid Nematoceros Diptera. Annals of the Entomological Society of America 18:49-69, pls. 3-7.

De Meijere, J.C.H. 1907. Studien über Südostasiatische Dipteren. I. Tijdschrift voor Entomologie 50:196-264.

De Meillon, B. and W.W. Wirth. 1980. A new subgenus of *Forcipomyia*, with descriptions of eight new species (Diptera: Ceratopogonidae). Proceedings of the Entomological Society of Washington 82:9-24.

Díaz, F., M.L. Felipe-Bauer, G.R. Spinelli. 2017. Two new Neotropical species of the *Dasyhelea mutabilis* group (Culicomorpha: Ceratopogonidae). Papéis avulsos de Zoologia 57(2): 17-22.

Díaz, F., M.M. Ronderos, G.R. Spinelli, R.L. Ferreira-Keppeler and S.R.S. Torreias. 2013. A new species of *Dasyhelea* Kieffer (Diptera: Ceratopogonidae) from Brazilian Amazonia. Zootaxa 3686(1):85-93.

- Díaz, F., S.R.S. Torreias, G.R. Spinelli and M.M. Ronderos. 2014. A new species of *Dasyhelea* from Brazilian Amazonas and the description of the male of *D. paulistana* (Diptera: Ceratopogonidae). *Acta Entomologica Musei Nationalis Pragae* 54(2):715-728.
- Dippolito, A., G.R. Spinelli and W.W. Wirth. 1995. A report on a collection of Ceratopogonidae (Diptera) from Rondonia (Brazil) and Iquitos (Peru) 1. Tribes Palpomyiini and Stenoxenini. *Insecta Mundi* 9:53-60.
- Dow, M.I. and E.C. Turner. 1976. A revision of the Nearctic species of the genus *Bezzia* (Diptera: Ceratopogonidae). *Occasional Papers from the Department of Entomology, Virginia*.
- Duret, J.P. and J. Lane. 1955. Novas *Heteromyia* da Argentina (Diptera. Ceratopogonidae). *Dusenía* 6:35-40.
- Edwards, F.W. 1922. On some Malayan and other species of *Culicoides*, with a note on the genus *Lasiohelea*. *Bulletin of Entomological Research* 13:161-167.
- 1929. Philippine nematoceros Diptera II. *Notulae Entomologicae* 9:1-14.
- Enderlein, G. 1912. *Paryphoconus*, eine neue Chironomiden-gattung aus Brasilien. *Stettiner entomologische Zeitung* 73:57-60.
- 1936. Ordnung: Zweiflügler, Diptera. Abt. 16, 259 pp. In P. Brohmer, P. Ehrmann and G. Ulmer (eds.), *Die Tierwelt Mitteleuropas* 6: Insekten III Teil. Leipzig.
- Ewen, A.B. and L.G. Saunders. 1958. Contributions toward a revision of the genus *Atrichopogon* based on characters of all stages (Diptera, Heleidae). *Canadian Journal of Zoology* 36:671-724.
- Falaschi, R., F.F. Albertoni and L. Fusari. 2014. A new species of *Forcipomyia* (Microhelea) Meigen (Insecta: Diptera: Ceratopogonidae) from the Neotropical Region. *Zootaxa* 3878(4):379-389.
- Farias, E.S., A.M. Pereira Júnior, M.L. Felipe-Bauer, F.A.C. Pessoa, J.F. Medeiros and M.C.A. Santarém. 2016. *Culicoides hildebrandoi*, a new species of the *reticulatus* species group from the Brazilian Amazon Region (Diptera, Ceratopogonidae). *Zookeys* 571: 105-111.
- Felippe-Bauer, M.L. 1987. A new Neotropical *Culicoides* from Minas Gerais (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 82:147-148.
- 2019. Two new species of *Atrichopogon* Kieffer from Acre State, Brazil (Diptera: Ceratopogonidae). *Zootaxa* 4532(2): 257-265.
- Felippe-Bauer, M.L. and R. Lourenco-de-Oliveira. 1987. A new Neotropical biting midge of the *Culicoides debilipalpis* group (Diptera: Ceratopogonidae). *Ibid.* 82:149-150.
- Felippe-Bauer, M.L. and A.R. Quintelas. 1993a. *Downshelea bicornis*, a new Neotropical predaceous midge from Brazil (Diptera: Ceratopogonidae). *Ibid.*: 185-187.
- 1993b. Two new Brazilian predaceous midges of the genus *Downshelea* Wirth and Grogan (Diptera: Ceratopogonidae). *Ibid.* 88:33-38.
- 1994. *Culicoides lobatoi*, a new Brazilian biting midge of the Limai group (Diptera: Ceratopogonidae). *Ibid.* 89:25-27.

- Felippe-Bauer, M.L. and C.S. Silva. 2008. *Downshelea* (sic) *oliveirai*, a new neotropical predaceous midge from northern Brazil (Diptera: Ceratopogonidae). *Iheringia, série Zoológica* 98:400-403.
- Felippe-Bauer, M.L. and G.R. Spinelli. 1991. New Brazilian predaceous midges of the genus *Monohelea* Kieffer and redescription of *M. guaimiesi* (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 86:201-207.
- 2015. New species and new records of the predaceous midge genus *Parabezzia* Malloch (Diptera: Ceratopogonidae) from Brazil. *Zootaxa* 3915 (3):390-402.
- Felippe-Bauer, M.L. and W.W. Wirth. 1987. A new *Culicoides* of the *Stigmalis* group (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 82:415-419.
- 1988. *Culicoides tavaresi*, a new species from the state of Rio de Janeiro, Brazil (Diptera: Ceratopogonidae). *Ibid.* 83:261-263.
- Felippe-Bauer, M.L., E.A. Cardoso and R.L. Trindade. 2017. New species and new records of *Monohelea* Kieffer from eastern Amazon, Brazil (Diptera: Ceratopogonidae). *Zootaxa* 4358 (1):142-160.
- Felippe-Bauer, M.L., A.G. Cáceres, C. S. Silva, W. Valderrama-Bazan and A. Gonzales-Perez. 2003. Two new *Culicoides* of the *paraensis* species group (Diptera: Ceratopogonidae) from the Amazonian region of Peru. *Memorias do Instituto Oswaldo Cruz* 98:1051-1058.
- Felippe-Bauer, M.L., A.G. Cáceres, C. S. Silva, W. Valderrama-Bazan, A. Gonzales-Perez, and J.M. Costa. 2008. Description of *Culicoides pseudoheliconiae* sp. n. from Peruvian Amazon and revalidation of *Culicoides contubernalis* Ortíz & Leon (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 103:259-262.
- Felippe-Bauer, M.L., C.P. Damasceno, V. Py-Daniel, and G.R. Spinelli. 2009. *Culicoides baniwa* sp.nov. from the Brazilian Amazon Region with a synopsis of the hylas species group (Diptera: Ceratopogonidae). *Ibid.* 104:851-857.
- Felippe-Bauer, M.L., C.P. Damasceno, R.L. and V. Py-Daniel. 2010. A new *Culicoides* (Diptera: Ceratopogonidae) of the *Reticulatus* species group from Brazilian Amazon Region. *Ibid.* 105: 863-865.
- Felippe-Bauer, M.L., T.N. da Silva, E.S. Ribeiro and A. Borkent. 2011. A new species of *Downshelea* Wirth & Grogan and a redescription of the male of *Downshelea cebacoi* (Lane & Wirth) (Diptera: Ceratopogonidae). *Zootaxa* 2780:20-28.
- Felippe-Bauer, M.L., T.N. da Silva, and J.R.C. Alves. 2012. Two new species of *Atrichopogon* Kieffer from Rio de Janeiro, Brazil (Diptera: Ceratopogonidae). *Ibid.* 3566:39–50.
- Felippe-Bauer, M.L., T.N. da Silva, R.L. Trindade. 2013. New *Culicoides* Latreille of the subgenus *Mataemyia* Vargas from Pará, Brazil (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 108:54-58.
- Felippe-Bauer, M.L., R.S. Veras, E.G. Castellon and N.A. Moreira. 2000. A new *Culicoides* from the Amazonian Region, Brazil (Diptera: Ceratopogonidae). *Ibid.* 95:35-37.

- Floch, H. and E. Abonnenc. 1942a. Cératopogonidés hématophages de la Guyane Française - II. Publication de l'Institut Pasteur de la Guyane et du Territory de L'Inini 49:1-5.
- 1942b. Cératopogonides hématophages de la Guyane Française. Ibid. 37:1-10.
- Forattini, O.P. 1954a. Nova espécie de *Culicoides* (Diptera, Ceratopogonidae) do Brasil Central. Arquivos da Faculdade de Higiene e Saude Publica da Universidade de Sao Paulo 8:189-192.
- 1954b. Nova espécie de *Culicoides* (Diptera, Ceratopogonidae) do estado de Goiaz, Brasil. Folia Clinica et Biologica 21:315-320.
- 1956a. A new *Culicoides* from Panama (Diptera, Ceratopogonidae). Proceedings of the Entomological Society of Washington 58:35-36.
- 1956b. Nova espécie de *Culicoides* (Diptera, Ceratopogonidae) de Sao Vicente, estado de Sao Paulo, Brasil. Arquivos da Faculdade de Higiene e Saude Publica da Universidade de Sao Paulo 10:81-84.
- 1957. *Culicoides* da Regiao Neotropical (Diptera, Ceratopogonidae). Ibid. 11:159-526.
- Forattini, O.P. and E.X. Rabello. 1957. Dados sobre *Dasyhelea* Kieffer, 1911 do Brasil (Diptera, Ceratopogonidae). Revista Brasileira de Entomologia 7:241-250.
- Fox, I. 1946. A review of the species of biting midges or *Culicoides* from the Caribbean Region (Diptera: Ceratopogonidae). Annals of the Entomological Society of America 39:248-258.
- 1947. Two new Central American biting midges or *Culicoides* (Diptera: Ceratopogonidae). Kuba 3:90-91. (June).
- 1948. *Hoffmania*, a new subgenus in *Culicoides* (Diptera: Ceratopogonidae). Proceedings of the Biological Society of Washington 61:21-28.
- 1952. Six new Neotropical species of *Culicoides* (Diptera: Ceratopogonidae). Annals of the Entomological Society of America 45:364-368.
- 1955. A catalogue of the bloodsucking midges of the Americas (*Culicoides*, *Leptoconops* and *Lasiohelea*) with keys to the subgenera and Nearctic species, a geographic index and bibliography. Journal of Agriculture of the University of Puerto Rico 39:214-285.
- Fox, I. and W.A. Hoffman. 1944. New Neotropical biting sand flies of the genus *Culicoides* (Diptera: Ceratopogonidae). Puerto Rico Journal of Public Health and Tropical Medicine 20:108-111.
- Garrett, C.B.D. 1925. Seventy new Diptera. Cranbrook, British Columbia, 16 pp.
- Gerry, B.I. 1933. Four new species of Chironomidae from the Greater Antilles. Psyche 40:94-97.
- Goeldi, E. 1905. Os mosquitos no Pará. Reunião de quatro trabalhos sobre os mosquitos indigenas, principalmente as especies que molesta o homem. Memorias do Museu Goeldi (Museu Paraense) de Historia Natural e Ethnographie 4:1-154, 5 pls.

- Goetghebuer, M. 1920. Ceratopogoninae de Belgique. Mémoires du Musée Royal d'Histoire Naturelle de Belgique 8(3): 1-116.
- 1934a. 13a. Heleidae (Ceratopogonidae). In E. Lindner (ed.), Die Fliegen der palaearktischen Region 3: 49-94, 129-133, pls. 7-12 (= Lfg. 78). Stuttgart.
  - 1934b. Ceratopogonidae et Chironomidae nouveaux ou peu connus d'Europe (Cinquieme Note). Bulletin & Annales de la Société Entomologique de Belgique 74: 287-294. (Aug.).
  - 1935. Cératopogonides récoltés par le Dr. De Wulf au Congo Belge. Revue de Zoologie et de Botanique Africaines 27:145-181.
  - 1936. Nouvelle contribution a la Connaissance des Cératopogonides et des Chironomides de Belgique. Bulletin & Annales de la Société Entomologique de Belgique 76:319-326.
- Grogan, W.L. and W.W. Wirth. 1981. A new American genus of predaceous midges related to *Palpomyia* and *Bezzia* (Diptera: Ceratopogonidae). Proceedings of the Biological Society of Washington 94:1279-1305.
- Haeselbarth, E. 1965. *Phaenobezzia*, a new genus of biting midges (Diptera: Ceratopogonidae), with a review of the African species. Zeitschrift für Angewandte Zoologie 52:297-324.
- Hall, D.G. 1932. A new biting *Culicoides* from saltmarshes in the southeastern states. Proceedings of the Entomological Society of Washington 34:88-89.
- Harant, H. and O. Baur. 1946. *Lasiohelea wansoni* n. sp. Cératopogonide du Congo belge. Archives de l'Institut Pasteur Algérie 24:141-142.
- Harant, H., W. Huttel and N. Huttel. 1951. *Parapterobosca anthropophila* nov. gen., n. sp. Cératopogonide de la Cote d'Ivoire vulnérant pour l'homme. Annales de Parasitologie Humaine et Comparée 26:468-472.
- Hoffman, W.A. 1925. A review of the species of *Culicoides* of North and Central America and the West Indies. American Journal of Hygiene 5:274-301.
- 1939. *Culicoides filariferus*, new species. Puerto Rico Journal of Public Health and Tropical Medicine 15:172-176.
- Huerta, H. and S. Ibanez-Bernal. 1996. Especie nueva de *Forcipomyia* (Lasiohelea) de Chiapas, Mexico (Diptera: Ceratopogonidae). Anales del Instituto de Biología Universidad Nacional Autónoma de México, Serie Zoología 67:349-355.
- Iches, L. 1906. Sobre cinco Dipteros nuevos del Chaco Austral. Boletín de Ministerio de Agricultura y Ganadería, Argentina 6:262-273.
- Ingram, A. and J.W.S. Macfie. 1921. West African Ceratopogoninae. Annals of Tropical Medicine and Parasitology 15:313-376.
- 1922. West African Ceratopogoninae II. Ibid. 16:243-282.
  - 1924. Notes on some African Ceratopogoninae - species of the genus *Forcipomyia*. Ibid.: 533-593.



- 1931. Ceratopogonidae. *In* Diptera of Patagonia and South Chile. Part II. Fasc. 4:155-232.
- Johannsen, O.A. 1907. Some new species of Kansas Chironomidae. *In* E. S. Tucker, Some results of desultory collecting of insects in Kansas and Colorado, pp. 109-112. Bulletin of the University of Kansas, Science Bulletin 4:51-112.
- 1938. New species of Nematocera from Puerto Rico. Journal of Agriculture of the University of Puerto Rico 22:219-225.
- 1943. Two new species of American Ceratopogonidae (Diptera). Annals of the Entomological Society of America 36:761-762.
- 1950. A new *Pterobosca* from Florida with a key to the American species. Florida Entomologist 33:141-144.
- Johnson, C.W. 1913. The Diptera fauna of Bermuda. Annals of the Entomological Society of America 6:443-452.
- Karsch, F. 1886. Ein neues märkisches Dipteron (*Ceratopogon crudelis* n. sp.). Berliner Entomologische Zeitschrift 30:xvii-xviii.
- Kieffer, J.J. 1899. Description d'un nouveau genre et tableau des genres européens de la famille des Chironomides (Dipt.). Bulletin de la Société Entomologique de France 1899:66-70.
- 1906. Diptera. Fam. Chironomidae. *In* P. Wytsman (ed.), Genera Insectorum: Fasc. 42, 78 pp., 4 pls. Bruxelles.
- 1911a. Description de nouveaux chironomides de l'Indian Museum de Calcutta. Records of the Indian Museum 6:113-177, pls. 6-7.
- 1911b. Nouvelles descriptions de chironomides obtenus d'éclosion. Bulletin de la Société d'Histoire Naturelle de Metz 27:1-60. (Nov. 1).
- 1911c. Les chironomides de (Tendipedidae) de l'Himalaya et d'Assam. Records of the Indian Museum 6: 319-349. (Dec.).
- 1913a. Chironomidae et Cecidomyiidae. *In* C. A. Alluaud and R. Jeannel (eds.), Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale (1911-1912). Resultats scientifiques. Diptera (= Vol. 5): 1-43, Paris, 351 pp.
- 1913b. Nouvelle etude sur les chironomides de l'Indian Museum de Calcutta. Records of the Indian Museum 9:119-197, pls. 11-12.
- 1917a. Chironomides d'Amérique conservés au Musée National Hongrois de Budapest. Annales Historico-Naturales Musei Nationalis Hungarici 15: 292-364.
- 1917b. Chironomides d'Australie conservés au Musée National Hongrois de Budapest. Ibid.:175-228.
- 1918. Chironomides d'Afrique et d'Asie conservés au Museum National Hongrois de Budapest. Ibid. 16:31-136.

- 1919a. Observations sur les chironomides (Dipt.) décrits par J. R. Malloch. Bulletin de la Société Entomologique de France 1919:191-194.
- 1919b. Chironomides d'Europe conservés au Musée National Hongrois de Budapest. Ibid. 17:1-160. (Dec. 29).
- 1921a. Chironomides de l'Afrique Équatoriale. Annales de la Société Entomologique de France 90:1-56.
- 1921b. Sur quelques Diptères piqueurs de la tribu des Ceratopogoninae. Archives de l'Institut Pasteur de l'Afrique du Nord 1:107-115. (March).
- 1922. Nouveaux Chironomides à larves aquatiques. Annales de la Société Scientifique de Bruxelles 41:355-367.
- 1923. Chironomides piqueurs de Java. Ibid. 43:134-143. (Dec. 12).
- 1925a. 16. Chironomiden der Hochmoore Nordeuropas und des östlichen Mitteleuropas. Beitrage zur Kunde Estlands 10:145-163.
- 1925b. Nouveaux genres et nouvelles espèces de chironomides piqueurs. Archives de l'Institut Pasteur Algérie 3:405-430.
- 1925c. Diptères (Nématocères piqueurs): Chironomidae Ceratopogoninae. Faune de France 11:1-139.

Knab, F. 1914. Ceratopogoninae sucking the blood of caterpillars. Proceedings of the Entomological Society of Washington 16:63-66.

Lane, J. 1944. As Espécies Neotropicas do Genero *Clinohoelea* Kieffer, 1917. (Diptera, Ceratopogonidae). Revista de Entomologia 15:249-261.

- 1946a. New Neotropical Ceratopogonidae (Heleidae). (Diptera, Nematocera). Ibid. 17:202-215.
- 1946b. Duas espécies novas de Ceratopogonídeos Brasileiros (Diptera Ceratopogonidae) (Heleidae). Livro de Homenagem a R.F. d'Almeida 22:219-225.
- 1947a. Novas Ceratopogonídeos do Brasil (Diptera, Ceratopogonidae) (Heleidae). Ibid.: 225-239, Figs 1-8.
- 1947b. Espécies Brasileiras de *Stilobezzia* (Dipt. Ceratopogonidae) e *Zygoneura stonei* nov. nom (Dipt. Mycetophilidae). Revista de Entomologia 18:197-214.
- 1947c. Novas espécies de *Palpomyia* do Brasil (Diptera, Ceratopogonidae). Ibid.: 438-447.
- 1947d. A biologia e taxonomia de algumas espécies dos grupos *Forcipomyia* e *Culicoides* (Diptera, Ceratopogonidae) (Heleidae). Arquivos da Faculdade de Higiene e Saude Publica da Universidade de Sao Paulo 1:159-170
- 1956. On "*Paryphoconous*" and *Stenoxenus* (Diptera, Ceratopogonidae). Revista Brasileira de Biologia 16:299-308.

- 1958. On Neotropical *Bezzia*. *Revista Brasileira de Entomologia* 8:25-36.
  - 1960. Additional data on "*Palpomyia*" (Diptera, Ceratopogonidae). *Revista Brasileira de Biologia* 20:381-389.
  - 1961a. Insecta Amapaensia, Diptera: Ceratopogonidae and Anisopodidae. *Studia Entomologica* 4:449-452.
  - 1961b. Further notes on Neotropical Ceratopogonidae (Diptera). *Revista Brasileira de Biologia* 21:37-44.
  - 1961c. The genera *Stenoxenus* and *Paryphoconus* in the Neotropics (Diptera: Ceratopogonidae). *Studia Entomologica* 4: 452-458.
- Lane, J. and J.P. Duret. 1954. *Clinohelea* da Argentina e do Brasil (Diptera, Ceratopogonidae). *Dusenya* 5:247-253.
- Lane, J. and O.P. Forattini. 1956. Neotropical *Stilobezzia* Kieffer, 1911 I. Nine new Panamanian species. (Diptera, Nematocera, Ceratopogonidae). *Revista Brasileira de Malariologia e Doenças Tropicais* 8:207-226.
- 1958. Neotropical *Stilobezzia* II. Fourteen new species, chiefly from Panama (Diptera, Ceratopogonidae). *Revista Brasileira de Entomologia* 8:203-224.
  - 1961. Neotropical *Stilobezzia*, 1911 III. Key for the the adults of this genus and description of one new species (Diptera, Ceratopogonidae). *Ibid.* 10:83-94.
- Lane, J., O.P. Forattini and E.X. Rabello. 1955. Biologia e espécies novas de *Palpomyia* e *Stilobezzia* (Diptera, Nematocera, Ceratopogonidae). *Dusenya* 6:81-88.
- Lane, J. and W.W. Wirth. 1964. The biting midge genus *Monohelea* Kieffer in the Neotropical region (Diptera, Ceratopogonidae). *Studia Entomologica* 7:209-236.
- Latreille, P.A. 1809. *Genera crustaceorum et insectorum secundum ordinem naturalem in familias disposita, iconibus exemplisque plurimis explicata*. Vol. 4. Paris and Strasbourg, 399 pp., 4 pls.
- Lenz, F. 1934. 13a. Heleidae (Ceratopogonidae). In E. Lindner (ed.), *Die Fliegen der palaearktischen Region* 3:95-133 (Lfg. 78). Stuttgart.
- Liu, J.-H., G. Yan, G.-P. Liu, B.-S. Hao, Z.-J. Liu and Y.-X. Yu. 2001. Forcipomyiinae of China (Diptera: Ceratopogonidae) I. General introduction and the genus *Atrichopogon* Kieffer. *Fauna of China* 2:5-160.
- Loew, H. 1861. *Diptera Americae septentrionalis indigena*. *Berliner Entomologische Zeitschrift* 5:307-359.
- 1866. *Diptera Americae septentrionalis indigena*. *Zeitschrift für die Gesamten Naturwissenschaften* 9:127-186
- Lundström, C. 1910. Beiträge zur Kenntnis der Dipteren Finlands VI. Chironomidae. *Acta Societatis pro Fauna et Flora Fennica* 33(10): 1-46.

- Lutz, A. 1913. Contribuicao para o estudo das Ceratopogoninas hematofagas do Brazil. Memorias do Instituto Oswaldo Cruz 5:45-73, pls. 6-8.
- 1914. Contribuicao para o conhecimento das Ceratopogoninas do Brasil. Ibid. 6:81-99, pls. 8-9
- Macfie, J.W.S. 1924. On some Egyptian Ceratopogonidae. Bulletin of Entomological Research 15:61-67.
- 1932a. Some new or little-known Ceratopogonidae. Annals and Magazine of Natural History Ser. 10, 9:485-499.
  - 1932b. Ceratopogonidae from the wings of dragonflies. Tijdschrift voor Entomologie 75:265-283.
  - 1934. A new British *Forcipomyia* (Diptera, Ceratopogonidae). Entomologist's Monthly Magazine 70:144-145. (June).
  - 1935a. Ceratopogonidae (Dipt.) from the river Amazon. Stylops 4:49-56.
  - 1935b. A new ceratopogonid (Dipt.) from British Guiana. Ibid.: 265.
  - 1937. Notes on Ceratopogonidae (Diptera). Proceedings of the Royal Entomological Society of London (B) 6:111-118.
  - 1938. Notes on Ceratopogonidae (Diptera). Ibid. 7:157-166.
  - 1939a. A report on a collection of Brazilian Ceratopogonidae. Revista de Entomologia 10:137-219.
  - 1939b. 5. Ceratopogonidae. In Ruwenzori Expedition 1934-5 (British Museum of Natural History) 1(5): 81-102, pls. 25, 26.
  - 1939c. A key to the species of Ceratopogonidae akin to *Macropeza* Mg. (Diptera). Transactions of the Royal Entomological Society of London 89:1-12, pl. 1.
  - 1940a. Ceratopogonidae (Diptera) from British Guiana and Trinidad. Part 2. Proceedings of the Royal Entomological Society of London (B) 9:187-195.
  - 1940b. The genera of Ceratopogonidae. Annals of Tropical Medicine and Parasitology 34:13-30.
  - 1940c. A report on a collection of Ceratopogonidae (Diptera) from British Guiana. Entomologist's Monthly Magazine 76:23-32.
  - 1940d. Ceratopogonidae (Diptera) from north-eastern Brazil. Proceedings of the Royal Entomological Society of London (B) 9:73-79.
  - 1940e. Ceratopogonidae (Diptera) from British Guiana and Trinidad. Part 1. Ibid.: 179-186.
  - 1940f. *Forcipomyia furcifera*, sp. n. (Dipt. Ceratopogonidae). Revista de Entomologia 11:920-922.

- 1948. Some species of *Culicoides* (Diptera, Ceratopogonidae) from the state of Chiapas, Mexico. *Ibid.* 42:67-87.
- 1949. Notes on Ceratopogonidae. *Proceedings of the Royal Entomological Society of London (B)* 18:109-115.
- Maes, J.M. and W.W. Wirth. 1990. Catalogo de los Diptera de Nicaragua. 6. Ceratopogonidae (Nematocera). *Revista nicaraguense de entomologia* 14:1-17.
- Malloch, J.R. 1915a. Some additional records of Chironomidae for Illinois and notes on other Illinois Diptera. *Bulletin of the Illinois State Laboratory of Natural History* 11:305-363, pls. 80-84.
- 1915b. The Chironomidae, or midges, of Illinois, with particular reference to the species occurring in the Illinois River. *Ibid.* 10:275-543, 24 pls.
- Marino, P.I. and G.R. Spinelli. 2002. A revision of the *Forcipomyia squamitibia* group in the Neotropics with the description of three new species (Diptera: Ceratopogonidae). *Insect Science and its Application, Nairobi*, 22:307-319.
- Mayer, K. 1937. Beitrag zur Kenntnis der deutschen Ceratopogoniden. (Dipt.) IX. *Stettiner entomologische Zeitung* 98:301-304.
- Meigen, J.W. 1818. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Vol. 1, xxxvi + 333 pp., pls. 1-11. Aachen.
- Meunier, F. 1920. Quelques insectes de l'Aquitaine de Rott, Sept-Monts (Presse rhénane) [part]. *Verslagen der Zittingen van de Wis- en Natuurkundige Afdeeling der Koninklijke Akademie van Wetenschappen van (II)* 28:645-655. (Also published 1920, *Proceedings, Koninklijke Akademie van Wetenschappen te Amsterdam* 22:727-737).
- Morrone, J.J. 2014. Biogeographical regionalisation of the Neotropical region. *Zootaxa* 3782:1-110.
- Newman, E. 1834. Attempted division of British insects into natural orders. *Entomological Magazine* 2:379-431.
- Nielsen, A. 1951. Contributions to the metamorphosis and biology of the genus *Atrichogon* Kieffer (Diptera, Ceratopogonidae) with remarks on the evolution and taxonomy of the genus. *Det Kongelige Danske Videnskabernes Selskab, Biologiske Skrifter* 6(6): 1-95, pls. 1-2.
- Noè, G. 1905. Un nuovo genere appartenente alla famiglia Chironomidae. *Rendiconti, Accademia Nazionale dei Lincei* 14:114-120.
- 1907. Due nuove specie di ditteri appartenenti ad un genere nuovo. *Archivio Zoologico Italiano: Pubblicato Sotto gli Auspicii Della Unione Zoologica* 3:101-163, 2 pls.
- Ortíz, I. 1950a. Estudios en *Culicoides* V. Informes sobre una nueva especie y lista de los machos cuyas genitalias son conocidas. *Revista de Sanidad y Asistencia Social* 15: 461-465.
- 1950b. Estudios en *Culicoides* IV. Revisión de las especies americanas del sub-género *Hoffmania* Fox 1948, con la descripción de dos nuevas especies. *Ibid.*: 437-460.

- 1950c. Estudios en *Culicoides* II. Diptera, Ceratopogonidae. *Culicoides lanei* n. sp. de Panama. *Ibid.*:431-433.
- 1951a. Estudios en *Culicoides* (Diptera, Ceratopogonidae). IX. Sobre los caracteres diferenciales entre *Culicoides paraensis* (Goeldi, 1905), *C. stellifer* (Coquillett, 1901), y *C. lanei* (Ortíz, 1950). Descripción de cuatro nuevas especies con la redescipción de algunas otras poco conocidas. *Ibid.* 16:573-591.
- 1951b. Estudios en *Culicoides* (Diptera, Ceratopogonidae). 6. *Culicoides bricenoi* n. sp. Boletín del Laboratorio de la Clínica "Luis Razetti" 11:442-448.
- 1953. Nueva contribución al conocimiento de los caracteres morfológicos externos de las hembras americanas del género *Culicoides* LTR. (Diptera, Ceratopogonidae) con una espermateca. Descripción de dos nuevas especies de Venezuela: *Culicoides transferrans* (*C. oublepharus* [sic] Ortíz, 1952) y *Culicoides mirsae*. *Revista de Sanidad y Asistencia Social* 18:797-806.
- 1954. Sobre dos nuevos dipteros hematofagos del genero *Culicoides* (Nematocera, Ceratopogonidae). *Archivos Venezolanos de Patología Tropical y Parasitología Médica* 2:221-226.
- 1956. Sobre un pequeño diptero de la region del Auyantepuy. *Boletín Venezolano de Laboratorio Clínico* 1:93-96.
- 1961. Descripción de una nueva especie de *Culicoides* (*C. forattinii* sp. n.) del subgenero *Oecacta* Poey, 1851, de Venezuela. *Revista Brasileira de Entomologia* 10:211-215.

Ortíz, I. and L.A. León. 1955. Los *Culicoides* (Diptera: Ceratopogonidae) de la Republica del Ecuador. *Boletín de Informaciones Científicas Nacionales* 67:564-594. (January - February).

Ortíz, I. and M. Mirsa. 1950. Estudios en *Culicoides* (Diptera, Ceratopogonidae) VIII.- Sobre una nueva especie del grupo haematopotus: *Culicoides venezuelensis* n. sp. *Archivos Venezolanos de Patología Tropical y Parasitología Médica* 2:137-143.

– 1951. Estudios en *Culicoides*. Descripción de dos nuevas especies: *Culicoides avilaensis* y *C. discrepans*, y del macho de *C. leopoldoi* Ortíz, 1951. Redescipción de *C. limai* Barretto, 1944, *C. baueri* Hoffman 1925, *C. lichyi* Floch & Abonnenc, 1949, y *C. pusillus* Lutz, 1913. *Revista de Sanidad y Asistencia Social* 16:593-605.

– 1952. Sobre las especies Americanas del género "*Culicoides*" Latr., (Diptera, Ceratopogonidae) con una espermateca. *Acta Científica Venezolana* 2:125-128.

Philippi, R.A. 1865. Aufzählung der chilenischen Dipteren. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 15:595-782.

Pierce, W.D. 1966. Fossil arthropods of California. 29. Silicified Miocene pupae of ceratopogonid flies. *Bulletin of the Southern California Academy of Sciences* 65(2): 81-98.

Poey, F. 1853. *Memorias sobre la historia natural de la Isla de Cuba, acompañadas de sumarios latinos y extractos en frances*. Vol. 1 (part 4), pp. 201-280, Habana.

- Rafinesque, C.S. 1815. Analyse de la nature ou tableau de l'univers et des corps organisés. Le nature est mon guide, et Linnéus mon maitre. Palmero: Privately published. 224 pp.
- Remm, H. 1971. On the fauna of Ceratopogonidae of South Primorye (Ussuri Land) [in Russian, English summary]. In Living Nature of the Far East: pp. 182-220,. Akademiia nauk Estonskoi SSR, 240 pp.
- 1974. A review of species of the genus *Bezzia* Kieffer (Diptera, Ceratopogonidae) from the fauna of the USSR. I [in Russian, English summmary]. Entomologicheskoe Obozrenie 53:429-442. Translation in Entomological Review 53(1): 136-145.
  - 1976. A synopsis of the *Palpomyia* of the USSR (Diptera, Ceratopogonidae). Loodusuurijate Seltsi Aastaraamat 64:172-197.
  - 1979. Eesti NSV habesääsklaste (Diptera, Ceratopogonidae) fauna kataloog [in Estonian, with Russian and English summary]. In Dipteroloogilisi Uurimusi (Tartu), pp. 40-60. Eesti NSV Teaduste Akadeemia Eesti Looduseuurijate selts.
  - 1981. New synonyms and new names of the Palaearctic Ceratopogonidae (Diptera). Eesti NSV Teaduste Akadeemia Toimetised 30:27-32.
- Rondani, C. 1856. Dipterologiae Italicae prodromus. Volume 1. Genera Italica ordinis Dipterorum ordinatim disposita et distincta et in familias et stirpes aggregata. Parmae [= Parma], 228 pp.
- 1857. Ibid. Volume 2. Species Italicae ordinis Dipterorum in genera characteribus definita, ordinatim collectae, methodo analitica distinctae, et novis vel minus cognitis descriptis. Pars prima. Oestridae: Syrpfhidae: Conopidae. A. Stocche, Parmae [= Parma], 264 pp.
- Ronderos, M.M. and G.R. Spinelli. 1995. Redescrpcion de *Culicoides lahillei* y descripcion de *Culicoides ichesi*, n. sp. de la Argentina, Paraguay y Uruguay (Diptera: Ceratopogonidae). Neotropica 41:77-81.
- 1999. On the subgenus *Forcipomyia* (*Lasiohelea*) in the Neotropical Region (Diptera: Ceratopogonidae). Transactions of the American Entomological Society 125:151-161. (June).
- Santarém, M.C.A., A. Borkent, M.L. Felipe-Bauer. 2020. Taxonomic Revision of Neotropical *Downshelea* Wirth and Grogan predaceous midges (Diptera: Ceratopogonidae). Insects 11(9): 1-94.
- Santarém, M.C.A., A. Borkent, G. Spinelli, M.L. Felipe-Bauer. 2018. New Neotropical species of *Downshelea* Wirth and Grogan and redescription of *D. multilineata* (Lutz) (Diptera: Ceratopogonidae). Journal of Natural History 52(9-10):509-540.
- Santarém, M.C.A., E.S. Farias, M.L. Felipe-Bauer. 2015. *Culicoides castelloni* sp. nov. from the Brazilian Amazon Region with a revision of the *reticulatus* species group (Diptera, Ceratopogonidae). Anais da Academia Brasileira de Ciências 87(2):955-972.
- Santarém, M.C.A, R.L. Trindade, T.N. Silva, E.G. Castellón, C.A. Mello-Patiu and M.L. Felipe-Bauer. 2014. New Neotropical *Culicoides* and redescription of *Culicoides reticulatus* Lutz (Diptera: Ceratopogonidae). Zootaxa: 3795: 255-274.

- Santos Abreu, E. 1918. Ensayo de una Monografía de los Tendipedidos de las Islas Canarias. Memorias de la Real Academia de Ciencias y Artes de Barcelona 14(2):159-326, 1 pl.
- Saunders, L.G. 1925. On the life history, morphology and systematic position of *Apelma* Kieff and *Thyridomyia* n. g. (Diptera, Nemat. Ceratopogoninae). Parasitology 17:252-277.
- 1957. Revision of the genus *Forcipomyia* based on characters of all stages (Diptera, Ceratopogonidae). Canadian Journal of Zoology 34:657-705 [1956].
- 1964. New species of *Forcipomyia* in the *Lasiohelea* complex described in all stages (Diptera, Ceratopogonidae). Ibid. 42:463-482.
- Say, T. 1825. American entomology, or descriptions of the insects of North America. Vol. 2, 121 pp., pls. 19-36. Philadelphia.
- Séguy, E. 1941. Quelques Cératopogonides vulnérants parasites des insectes. Revue Française d'Entomologie 8:82-88.
- Shevchenko, A.K. 1977. Bloodsucking midges [in Russian]. Fauna Ukraini 13: 1-251.
- Skuse, F. A.A. 1889. Diptera of Australia. Part VI. - The Chironomidae. Proceedings of the Linnean Society of New South Wales 4:215-311, pls. 11-14.
- Soria, S. and P.G. Bystrak. 1975. A new species of *Forcipomyia* (Diptera, Ceratopogonidae) described in all stages, with an account of its role as a cacao pollinator. Revista Theobroma (Brasil) 5(2): 3-11.
- Spinelli, G.R. 1983. Notas sobre Ceratopogonidae de la Republica Argentina (Diptera, Nematocera) II. Nuevos aportes al conocimiento del genero *Forcipomyia* Meigen. Neotropica 29:121-129.
- 1984. Notas sobre Ceratopogonidae (Diptera: Nematocera) de la Republica Argentina. IV. Descripción de adulto y pupa de *Neobezzia termophila* sp. nov. Ibid. 30:197-200.
- 1990. The genus *Brachypogon* in Argentina, with a key to the Neotropical species (Diptera, Ceratopogonidae). Revista Brasileira de Entomologia 34:743-755.
- Spinelli, G.R. and A. Borkent. 2004. New species of Central American *Culicoides* Latreille (Diptera: Ceratopogonidae) with a synopsis of species from Costa Rica. Proceedings of Entomological Society of Washington 106(2):361-395.
- Spinelli, G.R. and W.L. Grogan. 1985. *Clastrieromyia*, a new Neotropical genus of predaceous midges related to *Palpomyia* and *Bezzia* (Diptera: Ceratopogonidae). Proceedings of Entomological Society of Washington 87:329-334.
- 1987. A revision of the Neotropical species of *Parabezzia* (Diptera: Ceratopogonidae). Biologia Acuatica 11:1-45.
- 1998. A revision of the Neotropical predaceous midges of *Brachypogon* (*Brachypogon*) Kieffer (Diptera: Ceratopogonidae). Insecta Mundi 12:59-79.



- Spinelli, G.R. and W.W. Wirth. 1984a. The Neotropical predaceous midges of the genus *Alluaudomyia* (Diptera: Ceratopogonidae). Proceedings of the Entomological Society of Washington 86:673-702.
- 1984b. Ocho especies nuevas del genero *Culicoides* Latreille de la region Neotropical. Primera descripcion del macho de *C. flinti* Wirth, y de la hembra de *C. lenti* Tavares y Luna Dias (Diptera: Ceratopogonidae). Revista de la Sociedad Entomologica Argentina 43:171-185.
- 1984c. A review of the Neotropical predaceous midge genus *Paryphoconus* (Diptera: Ceratopogonidae). Proceedings of the Biological Society of Washington 97:882-908.
- 1986. The Neotropical species of *Phaenobezzia* (Diptera: Ceratopogonidae). Florida Entomologist 69:231-236.
- 1989. The Neotropical predaceous midges of the genus *Bezzia* (Diptera Ceratopogonidae) Part I. The glabra and brevicornis groups. Limnobiology 2:762-778.
- 1990. Neotropical predaceous midges of the genus *Bezzia* (Diptera: Ceratopogonidae) Part III. The gibbera group of species. Insecta Mundi 4:11-32.
- 1991. The Neotropical predaceous midges of the genus *Bezzia* (Diptera: Ceratopogonidae) Part IV. The dentifemur and venustula groups. Ibid. 5:1-17.
- 1993. Los Ceratopogonidae de la Argentina (Insecta: Diptera). Fauna de agua dulce de la República Argentina. Buenos Aires, PROFADU, 124 pp.
- Spinelli, G.R., A. Dippolito and W.W. Wirth. 1995. A report on a collection of Ceratopogonidae (Diptera) from Rondonia, Brazil. 2. Tribes Heteromuiini [sic] and Sphaeromiini. Ibid. 9:165-169.
- Spinelli, G.R., E.C. Greiner and W.W. Wirth. 1993. The Neotropical bloodsucking midges of the *Culicoides guttatus* group of the subgenus *Hoffmania* (Diptera: Ceratopogonidae). Contributions of the American Entomological Institute 27(3): 1-91.
- Spinelli, G.R., E. Santamaría, O.L. Cabrera, M.M. Ronderos and M.F. Suárez. 2009. Five new species of *Culicoides* Latreille described from Colombia, yielding a new species list and country records (Diptera: Ceratopogonidae). Memórias do Instituto Oswaldo Cruz 104(1):81-92.
- Spinelli, G.R., P.I. Marino and H. Huerta. 2015. Revision of the Neotropical species of the subgenus *Atrichopogon* (Psilokempia) (Diptera: Ceratopogonidae). Zootaxa 4003(1):1-64.
- Spinelli, G.R., M.M. Ronderos, F. Diaz and P.I. Marino. 2005. The bloodsucking biting midges of Argentina (Diptera: Ceratopogonidae). Memorias Do Instituto Oswaldo Cruz 100:137-150.
- Spinelli, G.R., M.M. Ronderos, P.I. Marino, D.S. Carrasco, and R. L. Menezes Ferreira. 2007. Description of *Culicoides (Mataemyia) felippebaueri* sp. n., *Forcipomyia musae* immatures, and occurrence of *F. genualis*, breeding in banana stems in Brazilian Amazonia (Diptera: Ceratopogonidae). Ibid. 102:659-669.

- Stephens, J.F. 1829. The nomenclature of British insects; being a compendious list of such species as are contained in the Systematic Catalogue of British Insects and forming a guide to their classification, &c.&c. London: Baldwin & Cradock, (2) + 68 pp. (June 1)
- Tavares, O. and A.J. Silva Pereira. 1978. Duas espécies novas do genero *Monohelea* Kieffer, 1917, do Estado do Rio de Janeiro, Brasil (Diptera, Ceratopogonidae). *Revista Brasileira de Biologia* 38:157-160.
- Tavares, O. and A.P. Luna Dias. 1980. Quatro novas espécies do genero *Culicoides* Latreille, 1809, do Estado do Rio de Janeiro, Brasil (Diptera, Ceratopogonidae). *Revista Brasileira de Biologia* 40:393-399.
- Tavares, O. and R.A. Ruiz. 1980. Sobre duas espécies novas do genero *Culicoides* Latreille, 1809, do Brasil (Diptera, Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 75:27-32.
- Tavares, O. and M.A. de Souza. 1978. Sobre tres espécies novas do genero *Culicoides* Latreille, 1809 do Brasil (Diptera, Ceratopogonidae). *Ibid.* 38:619-624.
- 1979. Sobre algumas espécies do genero *Culicoides* Latreille, 1809 do Estado do Rio de Janeiro, Brasil (Diptera, Ceratopogonidae). *Ibid.* 39:611-613.
- 1980. Duas espécies novas do genero *Monohelea* Kieffer, 1917, do Estado do Rio de Janeiro, Brasil (Diptera, Ceratopogonidae). *Ibid.* 40:95-100.
- Tokunaga, M. 1940. Biting midges from Japan and neighbouring countries, including Micronesian Islands, Manchuria, North China and Mongolia (Diptera, Ceratopogonidae). *Tenthredo* 3:58-100. (May 31).
- 1941. Biting midges from Manchuria (Ceratopogonidae, Diptera). *Insecta Matsumurana* 15:89-102, pl. 1.
- Tokunaga, M. and E.K. Murachi. 1959. Insects of Micronesia. Diptera: Ceratopogonidae. *Insects of Micronesia* 12(3): 103-434. (Nov. 6).
- Townsend, C.H.T. 1893. An interesting blood-sucking gnat of the family Chironomidae. *Psyche* 6:369-371.
- Trindade, R.L. da and M.L. Felipe-Bauer. 2011a. Two new biting midges from Para, Brazil (Diptera: Ceratopogonidae). *Memorias do Instituto Oswaldo Cruz* 106:61-64.
- 2011b. *Culicoides parauapebensis*, a new species of the subgenus *Hoffmania* Fox from northern Brazil (Diptera: Ceratopogonidae). *Zootaxa* 2999:42-44.
- Utmar, J.A. and W.W. Wirth. 1976. A revision of the new world species of *Forcipomyia*, subgenus *Caloforcipomyia* (Diptera: Ceratopogonidae). *Florida Entomologist* 59:109-133.
- Vargas, L. 1954. Dos nuevas especies de *Culicoides* Mexicanos (Diptera, Heleidae). *Revista del Instituto de Salubridad y Enfermedades Tropicales* 14:25-32.
- 1960. The subgenera of *Culicoides* of the Americas (Diptera, Ceratopogonidae). *Revista de Biologia Tropical* 8:35-47.

- Walker, F. 1856. Vol. 1. Diptera. pp. 415-474, *In*: Insecta Saundersiana: or characters of undescribed insects in the collection of William Wilson Saunders, Esq., F.R.S., F.L.S., &c. Van Voorst, London, 474 pp.
- Westwood, J.O. 1840. Order XIII. Diptera Aristotle (Antliata Fabricius. Halteriptera Clairv.). *In* his An introduction to the modern classification of insects; founded on the natural habits and corresponding organisation of the different families: 125-154. Synopsis of the genera of British insects, London, 158 pp.
- Williston, S.W. 1896. On the Diptera of St. Vincent (West Indies). Transactions of the Entomological Society of London 1896:253-446, pls. 8-14.
- 1900. Supplement (Part), in F. D. Godman and O. Salvin (eds), Biologia Centrali-Americana. Zoologia-Insects-Diptera: 217-248, Vol. 1. London: 378 pp., 6 pls.
- Winnertz, J. 1852. Beitrag zur Kenntniss der Gattung Ceratopogon Meigen. Linnaea Entomologica 6:1-80.
- Wirth, W.W. 1951. New species and records of Virginia Heleidae (Diptera). Proceedings of the Entomological Society of Washington 53: 313-326.
- 1952. The Heleidae of California. University of California Publications in Entomology 9:95-266.
  - 1953a. American biting midges of the heleid genus *Monohelea*. Proceedings of the United States National Museum 103: 135-154.
  - 1953b. Biting midges of the heleid genus *Stilobezzia* in North America. *Ibid.*:57-85.
  - 1956. The biting midges ectoparasitic on blister beetles (Diptera, Heleidae). Proceedings of the Entomological Society of Washington 58:15-23.
  - 1959a. *Pachyhelea*, a new genus of American Ceratopogonidae related to *Palpomyia* (Diptera). Bulletin of the Brooklyn Entomological Society 54:50-52.
  - 1959b. New species and records of Heleidae from Brazil (Diptera). Deutsche Entomologische Zeitschrift 6:234-237.
  - 1962. A reclassification of the *Palpomyia- Bezzia-Macropeza* groups and a revision of the North American Sphaeromiini (Diptera, Ceratopogonidae). Annals of the Entomological Society of America 55:272-287.
  - 1965a. A revision of the genus *Parabezzia* Malloch. Proceedings of the Entomological Society of Washington 67:215-230.
  - 1965b. A new *Johannsenomyia* from Brazil (Diptera: Ceratopogonidae). Proceedings of the Entomological Society of Washington 67:4.
  - 1971. A review of the "Stick-ticks", Neotropical biting midges of the *Forcipomyia* subgenus *Microhelea* parasitic on walking stick insects (Diptera: Ceratopogonidae). Entomological News 82:229-245.

- 1972. The Neotropical *Forcipomyia* (*Microhelea*) species related to the caterpillar parasite *F. fuliginosa* (Diptera: Ceratopogonidae). *Annals of the Entomological Society of America* 65:564-577.
  - 1973. Family Ceratopogonidae. *In A Catalog of the Oriental Region*: 346-388. Vol. 1. Suborder Nematocera. Honolulu: University of Hawaii, 618 pp.
  - 1976. *Forcipomyia pictoni* Macfie and descriptions of two new related species from Florida (Diptera: Ceratopogonidae). *Florida Entomologist* 59:77-84.
  - 1982a. New species of Neotropical *Culicoides* (Diptera: Ceratopogonidae). *Florida Entomologist* 65:248-253.
  - 1982b. The cacao-pollinating midges of the *Forcipomyia argenteola* group (Diptera: Ceratopogonidae). *Proceedings of the Entomological Society of Washington* 84:568-585.
  - 1991. New and little-known species of *Forcipomyia* (Diptera: Ceratopogonidae) associated with cocoa pollination in Brazil. *Ibid.* 93:163-175.
  - 1992. A new genus of Ceratopogonini (Diptera: Ceratopogonidae) from Brazil. *Ibid.* 94:276-281.
  - 1994. The western hemisphere species of the predaceous midge genus *Echinohelea*, with descriptions of six new species (Diptera: Ceratopogonidae). *Insecta Mundi* 8:227-242.
- Wirth, W.W. and P. Barreto. 1978. New species of *Culicoides* biting midges (Diptera: Ceratopogonidae) from Colombia. *Journal of Medical Entomology* 14:553-564.
- Wirth, W.W. and F.S. Blanton. 1953a. Studies in Panama *Culicoides* (Diptera: Heleidae): I. Descriptions of six new species. *Journal of the Washington Academy of Sciences* 43:69-77.
- 1953b. Studies in Panama *Culicoides* (Diptera, Heleidae). II. Descriptions of six additional new species. *Journal of Parasitology* 39:229-236.
  - 1955a. Studies in Panama *Culicoides* (Diptera, Heleidae) IV. Descriptions of three new species. *Bulletin of the Brooklyn Entomological Society* 50:100-106. (October).
  - 1955b. Studies in Panama *Culicoides* (Diptera, Heleidae) V. Descriptions of three new species of the subgenus *Oecacta* Poey. *Ibid.*: 121-127.
  - 1956. Studies in Panama *Culicoides* (Diptera, Heleidae). IX. Two new species related to *leoni* Barbosa and *reevesi* Wirth. *Ibid.* 51:45-52.
  - 1959. Biting midges of the genus *Culicoides* from Panama (Diptera: Heleidae). *Proceedings of the United States National Museum* 109:237-482.
  - 1968a. A revision of the Neotropical biting midges of the *hylas* group of *Culicoides* (Diptera: Ceratopogonidae). *Florida Entomologist* 51:201-215.
  - 1968b. A new *Culicoides* from Guyana (Diptera: Ceratopogonidae). *Ibid.*: 251-252.

- 1970a. Notes on *Brachypogon* Kieffer (Diptera, Ceratopogonidae), a new species and two new Neotropical genera of the tribe Ceratopogonini. *Ibid.*: 93-104.
  - 1970b. New genera of Neotropical Ceratopogonidae (Diptera). *Ibid.* 53:7-14.
  - 1971. New Neotropical sandflies of the *Culicoides debilipalpis* group (Diptera: Ceratopogonidae). *Proceedings of the Entomological Society of Washington* 73:34-43.
  - 1973. A review of the maruins or biting midges of the genus *Culicoides* (Diptera: Ceratopogonidae) in the Amazon Basin. *Amazoniana* 4:405-470.
- Wirth, W.W. and M.I. Dow. 1972. Studies on the genus *Forcipomyia* 4. *Rhynchoforcipomyia*, a new Neotropical subgenus in the *Trichohelea* complex (Diptera: Ceratopogonidae). *Annals of the Entomological Society of America* 65:862-872.
- Wirth, W.W. and W.L. Grogan. 1988. The predaceous midges of the world (Diptera: Ceratopogonidae; Tribe Ceratopogonini). *Flora and Fauna Handbook* 4. E. J. Brill, xv + 160 pp.
- Wirth, W.W. and N.C. Ratanaworabhan. 1972. *Neobezzia*, a new Neotropical biting midge genus of the tribe Sphaeromiini (Diptera: Ceratopogonidae). *Journal of the Kansas Entomological Society* 45:476-490.
- 1978. Studies on the genus *Forcipomyia*. V. Key to subgenera and description of a new subgenus related to *Euprojoannisia* Brethes (Diptera: Ceratopogonidae). *Proceedings of the Entomological Society of Washington* 80:493-507.
- Wirth, W.W. and S.J. Soria. 1975. A new Neotropical *Forcipomyia* midge closely related to *F. (F.) genualis* (Loew) (Diptera: Ceratopogonidae). *Revista Theobroma* 5:19-27.
- 1980. Studies on the genus *Forcipomyia* VI. The Neotropical species of the subgenus *Warmkea* (Diptera: Ceratopogonidae). *Ibid.* 9:137-161.
- Wirth, W.W. and G.R. Spinelli. 1992. Immature stages of *Forcipomyia seminole* Wirth and a related new Neotropical species (Diptera: Ceratopogonidae). *Florida Entomologist* 75:349-356.
- 1993. The American species of the *annulatipes* group of the subgenus *Lepidohelea*, genus *Forcipomyia* (Diptera: Ceratopogonidae). *Insecta Mundi* 6:109-125. (1992)
- Wirth, W.W. and W.T. Waugh. 1976. Five new Neotropical *Dasyhelea* midges (Diptera: Ceratopogonidae) associated with culture of Cocoa. *Studia Entomologica* 19:223-236.
- Wirth, W.W. and R.W. Williams. 1957. The biting midges of the Bermuda Islands, with descriptions of five new species. *Proceedings of the Entomological Society of Washington* 59:5-14.
- Yu, Y.-X., J.-H. Liu, G.-P. Liu, Z.-J. Liu, B.-S. Hao, G. Yan and T.-S. Zhao. 2006. Ceratopogonidae of China, *Insecta*, Diptera [in Chinese]. Volumes 1-2. 1699 pp., Military Medical Science Press, Beijing.
- Zetterstedt, J.W. 1850. *Diptera Scandinaviae. Disposita et descripta* 9:3367-3710. Lundae (= Lund).
- Zilahi-Sebess, G. 1940. Magyarorszag Heleidai. *Folia Entomologica Hungarica* 5:10-133, 3 pls.