

A revised classification for the neopasiphaeine line, with the description of new species of the bee tribe Lonchopriini (Apidae, Colletinae)

Uma nova classificação para a linhagem neopasiphaeine, com a descrição de duas novas espécies de abelhas da tribo Lonchopriini (Apidae, Colletinae)

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Gabriel A. R. Melo

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Abstract

Two new species of Lonchopriini from Brazil are described, one belonging to *Camposapis*, a genus recently proposed in honor of Professor Lucio Campos, and the other to *Ctenosibyne*, a genus thus far considered to be monotypic. *Camposapis catarinae* sp. nov. is described based on females and males collected in Santa Catarina state. *Ctenosibyne singularis* sp. nov. is proposed based on a single male collected in Paraná state. The introduction of new names in the current classification of the Colletinae sensu lato is discussed, and a new system of the tribes composing this important element of our bee fauna is proposed. Three phyletic lines are recognized for the Colletinae: the colletine, diploglossine, and neopasiphaeine lines. In the neopasiphaeine line, the following tribes are recognized: Anthoglossini (Australia), Eulonchopriini (New World), Lonchopriini (South America), Neopasiphaeini (Australia), and Trichocolletini (Australia). It is also argued that changes to classification systems should be based on solid phylogenetic evidence. Any urge to name all possible lineages will certainly result in redundant names that will likely be abandoned in the future. Well-established taxonomic and nomenclatural practices should be strictly followed in order to avoid what has been called taxonomic vandalism.

Laboratório de Biologia Comparada de Hymenoptera, Universidade Federal do Paraná, Departamento de Zoologia, Caixa Postal 19020, CEP 81531-980, Curitiba, PR, Brazil. E-mail: garmelo@ufpr.br. ORCID: <https://orcid.org/0000-0001-9042-3899>

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Resumo

São descritas duas novas espécies de Lonchopriini para o Brasil, uma pertencente a *Camposapis*, gênero recentemente proposto em homenagem ao professor Lucio Campos, e outra a *Ctenosibyne*, gênero até então considerado monotípico. *Camposapis catarinae* sp. nov. é descrita com base em fêmeas e machos coletados no estado de Santa Catarina. *Ctenosibyne singularis* sp. nov. é proposta com base em um único macho coletado no estado do Paraná. Discute-se a introdução de novos nomes na atual classificação dos Colletinae sensu lato, e propõe-se um novo sistema de tribos que compõem este importante elemento da nossa fauna de abelhas. Três linhagens filéticas são reconhecidas para os Colletinae: as linhagens colletine, diphaglossine e neopasiphaeinae. Na linhagem neopasiphaeinae, as seguintes tribos são reconhecidas: Anthoglossini (Austrália), Eulonchopriini (Novo Mundo), Lonchopriini (América do Sul), Neopasiphaeini (Austrália) e Trichocolletini (Austrália). Também se argumenta que as mudanças nos sistemas de classificação devem ser baseadas em evidências filogenéticas sólidas. Qualquer ânsia de se nomear todas as linhagens possíveis certamente resultará em nomes redundantes que provavelmente serão abandonados no futuro. Práticas taxonômicas e nomenclaturais bem estabelecidas devem ser seguidas rigorosamente para evitar o que tem sido chamado de vandalismo taxonômico.

Palavras-chave: Colletidae, diversidade, Neotropical, Neopasiphaeinae.

Introduction

The subfamily Colletinae is one of the major lineages of Apidae s.l. and contains the so-called cellophane bees, named after the female behavior of using polyester-type secretions to line their brood cells (Almeida 2008a). While most of the diversity is found in the landmasses of the Southern Hemisphere, the subfamily as a whole has a worldwide distribution due to the widespread occurrence of the genera *Colletes* and *Hylaeus*. The former spread to other world regions after its initial diversification in South America, while the latter originated in Australia and then colonized the rest of the world (Almeida et al. 2012, 2019; Kayaalp et al. 2013; Ferrari et al. 2020). In both cases, their nesting habits likely helped in facilitating their dispersal, including to remote places such as the Hawaiian archipelago where *Hylaeus* (*Nesoprosopis*) went through extensive radiation (Michener 1979; 2007).

The South American fauna contains the highest number of colletine lineages, with eight of the 14 tribes here recognized (see below). Among the groups with a more restricted distribution, we recognize here the Lonchopriini, a poorly defined lineage that until recently was

considered part of the subfamily Paracolletinae (Silveira et al. 2002; Michener 2000, 2007) or the tribe Paracolletini (Moure et al. 2007). The phylogenetic studies conducted by Almeida & Danforth (2009) have shown that the Australian genus *Paracolletes*, the taxon upon which the family-group name was based, did not group with the other “paracolletine” bees but instead came out as the sister-group of the South American diphaglossine bees. This result was surprising and required a revision of the classification of the involved clades. With the removal of *Paracolletes*, the group formerly referred to as “Paracolletini” started to be called Neopasiphaeini (or Neopasiphaeinae, depending on the classification system), an available family-group name based on the Australian genus *Neopasiphae* (see Almeida et al. 2012). The phylogenetic relationships within the Neopasiphaeini have been investigated most recently by Almeida et al. (2019).

In this contribution, two new species of Lonchopriini are proposed, one belonging to *Camposapis*, a recently proposed genus in honor of Professor Lucio Campos, and the other to *Ctenosibyne*, a genus thus far believed to be monotypic. As a way to introduce the new names,

I also discuss the current classification of the Colletinae sensu lato and advocate a new system for the tribes composing this important element of our bee fauna.

Material and methods

The studied specimens belong to the DZUP – Coleção Entomológica Pe. Jesus Santiago Moure, Department of Zoology, Universidade Federal do Paraná, Curitiba, Brazil. The general morphological terminology follows Urban (1967), Silveira et al. (2002), and Michener (2007). The color images were obtained on a camera Leica DFC295 associated with a stereomicroscope Leica M125. Image stacking was carried out in the software Zerene.

Results

Classification of the neopasiphaeine line

The classification advocated here recognizes three major lines in the subfamily Colletinae (Fig. 1; Table 1). It is based mainly on the phylogenetic results of Almeida et al. (2019). Recognition of phyletic lines within the bee subfamilies of the classification proposed by Melo & Gonçalves (2005) is an attempt to organize the infrataxa in sets of tribes, with some equivalent to subfamilies of the traditional bee classification. In this way, the tribes would tend to have a closer correspondence between the two classification systems. In the future, these lines could be formally recognized as supertribes.

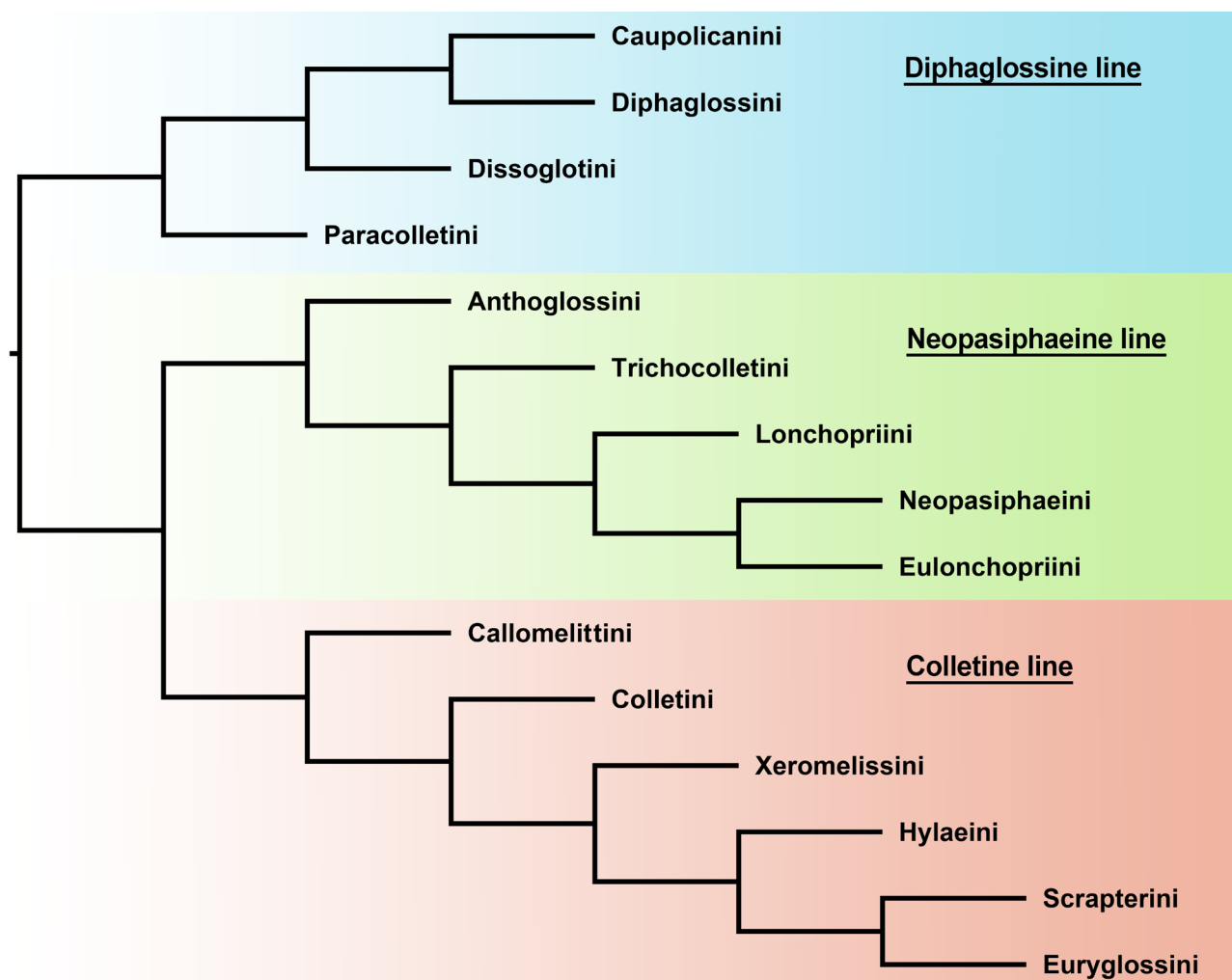


Figure 1. Phylogenetic relationships between the tribes of Colletinae, with indication of the main phyletic lines (see text for details).

The placement here of Callomelittini within the colletine line derives from an unpublished reanalysis of Almeida's et al. (2019) dataset, in which the individual genes were realigned, and a partitioned maximum likelihood analysis was carried out. Although with somewhat low support, the Callomelittini came out as the sister group of the remaining tribes in the colletine line and not in an isolated position, as found by Almeida et al. (2019). Their external morphology and nesting biology resemble more the members of the colletine line, and for the moment, this seems to represent the best placement for Callomelittini.

Five tribes are recognized in the neopasiphaeinae line — Anthoglossini, Eulonchopriini, Lonchopriini, Neopasiphaeini, and Trichocolletini (Table 1), each of them representing a major clade recovered in the study of Almeida et al. (2019). The tribes Eulonchopriini and Neopasiphaeini could be merged into a single tribe to recognize their sister-group relationship. Each clade would then be given the status of

subtribe. However, considering the large number of genera in each group and their widely disjunct distributions, the right course seems to maintain their tribal statuses.

A subtribal system was recently proposed by Engel & Gonzalez (2022) for the Eulonchopriini and Neopasiphaeini. Their system was mostly based on the phylogenetic results of Almeida et al. (2019), although this is not explicitly stated in their article, and Almeida's et al. paper is not even cited. Many of the deeper branches recovered in the analyses of Almeida et al. have low bootstrap support, and the arrangements are likely to change with the addition of new data and a broader taxonomic representation. Proposals of formal taxa based on current phylogenetic knowledge of these two tribes seem premature and prone to unnecessarily pollute our classification system. Therefore, the higher-level taxa recently proposed in Engel & Gonzalez (2022) are here ignored until further discussions about the consequences of accepting such names are held within the

Table 1. Higher-level classification system for the bee subfamily Colletinae (see Fig. 1 for phylogenetic relationships between the tribes).

Phyletic line	Tribe	Distribution
Colletine	Callomelittini Almeida, 2008	Australian
	Colletini Lepeletier, 1841	Worldwide
	Euryglossini Michener, 1944	Australian
	Hylaeini Viereck, 1916	Worldwide
	Scrapterini Melo & Gonçalves, 2005	Afrotropical
	Xeromelissini Cockerell, 1926	Neotropical
Diphaglossine	Caupolicanini Michener, 1944	New World
	Diphaglossini Vachal, 1909	South American
	Dissoglottini Moure, 1945	Neotropical
	Paracolletini Cockerell, 1934	Australian
Neopasiphaeinae	Anthoglossini Engel, 2020	Australian
	Eulonchopriini Moure, 1945	New World
	Lonchopriini Moure, 1945	South American
	Neopasiphaeini Cockerell, 1930	Australian
	Trichocolletini Plant, 2016	Australian

scientific community. A synonymic catalog for the family-group names in the neopasiphaeine line is as follows:

1. Tribe Anthoglossini Engel

Anthoglossini Engel, 2020a: 96. Type genus: *Anthoglossa* Smith, 1853; stem: Anthogloss-.

2. Tribe Trichocolletini Plant

Trichocolletini Plant, 2016: 362. Type genus: *Trichocolletes* Cockerell, 1912; stem: Trichocollet-.

Trichocolletini Engel, 2020a: 95. Type genus: *Trichocolletes* Cockerell, 1912; stem: Trichocollet-. **New synonym.**

3. Tribe Lonchopriini Moure

Lonchopriinae Moure, 1945: 139. Type genus: *Lonchopria* Vachal, 1905; stem: Lonchopri-.

4. Tribe Neopasiphaeini Cockerell

Neopasiphaeinae Cockerell, 1930: 148. Type genus: *Neopasiphae* Perkins, 1912; stem: Neopasiphae-.

Leioproctini Plant, 2016: 362. Type genus: *Leioproctus* Smith, 1853; stem: Leioproct-. **New synonym.**

5. Tribe Eulonchopriini Moure

Eulonchopriinae Moure, 1945: 140. Type genus: *Eulonchopria* Brèthes, 1909; stem: Eulonchopri-.

Reedapini Engel, 2020b: 2. Type genus: *Reedapis* Michener, 1989; stem: Reedap-. **New synonym.**

Synopsis of the tribe Lonchopriini

The circumscription adopted here for the Lonchopriini is based on a combination of morphological evidence coupled with the results derived from analyses of molecular data (see Almeida et al. 2019). Nine genera and 25 species can be attributed to the Lonchopriini (Table 2). The

most distinct group is *Camposapis*, which had been previously interpreted, based on morphological evidence, to belong among the Eulonchopriini (see Melo, 2021). In a brief treatment of this group, Engel (2020c) recognized three genera in his Lonchopriini: *Lonchoprella* Michener, *Lonchopria* sensu lato, and *Lonchorhyncha* Michener. The latter genus contains a single species from Colombia and Ecuador, whose head morphology is highly modified (see Michener, 1989). Its morphology suggests an isolated position compared to members of both Eulonchopriini and Lonchopriini and does not indicate a close resemblance with any of them. Future studies might confirm its placement within the Lonchopriini, but for the moment, I leave it as part of the Eulonchopriini, especially because its females do not have the features highlighted below for the Lonchopriini.

Considering the broad morphological variation observed among the genera of Lonchopriini, and their overall similarity with members of the Eulonchopriini, the main challenge is to provide a morphological diagnosis for the Lonchopriini under the adopted scope. While most species traditionally aggregated under *Lonchopria* sensu Michener can be diagnosed for the dense female scopa, whose plumose hairs cover most of the tibial integument, both *Lonchoprella* and *Camposapis* differ from them in their loose scopae. The most widespread diagnostic features for the tribe are related to the male terminalia, including the non-exposed sternum 8, whose apex is not visible at the tip of the metasoma. In males of Eulonchopriini and Neopasiphaeini, on the other hand, the tip of the sternum 8 is almost always exposed, resembling a pygidial plate. Additional features exhibited by all Lonchopriini are the upper frons, anterior to the ocelli, with fine longitudinal striation (almost absent only in males of *Aeganopria*) and the apex of the female scape reaching at least the height of the lateral ocelli. The latter two conditions are also observed in *Camposapis* and provide morphological support for its phylogenetic placement based on the molecular data.

The genera of Lonchopriini are quite distinct from one another and can be readily diagnosed, including *Biglossa* and *Biglossidia*. *Biglossidia* and *Lonchopria* are the most species-rich genera within the tribe (Table 2), especially the former, with nine described species and several others

still undescribed (unpubl. data). It would be premature to provide a detailed diagnosis and identification key to the genera in Lonchopriini, mainly because there are some undescribed species that do not fit the current genera (unpubl. data). Additional genus-level taxa should be proposed to accommodate them.

Table 2. Synopsis of the bee tribe Lonchopriini. *New distribution record

Genus	Species	Distribution
<i>Aeganopria</i> Moure	<i>A. magdalenae</i> (Roig-Alsina, 2017)	Argentina, Brazil*
	<i>A. nivosa</i> (Vachal, 1909)	Argentina
<i>Biglossa</i> Friese	<i>B. thoracica</i> Friese, 1906	Argentina
<i>Biglossidia</i> Moure	<i>B. aenea</i> (Friese, 1906)	Argentina
	<i>B. alopex</i> (Cockerell, 1917)	Bolivia
	<i>B. chalybaea</i> (Friese, 1906)	Argentina
	<i>B. comforti</i> (Gonzalez & Engel, 2014)	Colombia
	<i>B. danunciae</i> (Gonzalez & Engel, 2015)	Colombia
	<i>B. deceptrix</i> Moure, 1949	Argentina
	<i>B. inca</i> (Cockerell, 1914)	Peru
	<i>B. longicornis</i> (Michener, 1989)	Argentina
	<i>B. solanophila</i> Melo, 2021	Bolivia, Peru
<i>Camposapis</i> Melo	<i>C. catarinae</i> sp. nov.	Brazil
	<i>C. larejae</i> (Compagnucci & Roig-Alsina, 2008)	Argentina
<i>Ctenosibyne</i> Moure	<i>C. cingulata</i> (Moure, 1956)	Brazil
	<i>C. singularis</i> sp. nov.	Brazil
<i>Lonchoprella</i> Michener	<i>L. annectens</i> (Michener, 1989)	Argentina
	<i>L. fuscata</i> Engel, 2020	Argentina
<i>Lonchopria</i> Vachal	<i>L. heberti</i> Packer & Ruz, 2017	Chile
	<i>L. luteipes</i> (Friese, 1916)	Chile
	<i>L. rufitorax</i> Ruiz, 1942	Chile
	<i>L. similis</i> (Friese, 1906)	Chile
	<i>L. zonalis</i> (Reed, 1892)	Chile
<i>Porterapis</i> Michener	<i>P. porteri</i> (Ruiz, 1936)	Chile
<i>Silveirapis</i> Melo	<i>S. robertsi</i> (Michener, 1989)	Argentina

Taxonomy

Camposapis catarinae sp. nov.

(Figures 2-3)

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Comments and diagnosis

When examined for the first time, the specimens from Santa Catarina, described here as *Camposapis catarinae* sp. nov., were assumed to belong to the species named by Compagnucci & Roig-Alsina (2008) as *Leioproctus larejae*, from the province of Buenos Aires (Argentina). Later, specimens of *C. larejae* from Entre Rios, in Argentina were located in the DZUP collection and found to exhibit differences from the Brazilian specimens.

Camposapis catarinae sp. nov. exhibits the following differences (condition of *C. larejae* indicated in parentheses): tergal punctures deep, similar to those on the dorsolateral portion of the propodeum (metasomal punctures less marked, distinctly finer compared to those on dorsolateral portion of propodeum); longitudinal striation on lower gena weakly indicated (striation distinct); palpi short, labial palpus shorter (female) or equal (male) to scape length (palpi longer, male

labial palpus about 1.4x scape length; the palpi are hidden in the two female specimens); female with prepygidial and pygidial fimbriae brown (pale yellow). In Almeida et al. (2019), *C. catarinae* sp. nov. corresponds to the species identified both as *Bicolletes* aff. *larejae* and *Lonchopria* aff. *larejae*.

Description

Holotype female. Body length: 9.4 mm; maximum head width: 3.0 mm; forewing length: 6.9 mm; maximum T2 width: 3.3 mm. Color. Integument predominantly dark brown; antenna and legs tending to dark reddish brown. Tegula and vein Sc+R dark brown, remaining veins and pterostigma reddish brown; wing membrane with very weak yellow brown infumation, almost hyaline. Terga with very faint metallic purplish green reflexes. Pubescence. Predominantly white on head and metasoma; dorsal portion of mesosoma pale reddish yellow, ventral portion mostly pale yellow to white; legs mostly pale yellow to pale brown; hind femur with brown pubescence covering apical truncation; hairs around basitibial plate on hind tibia mostly brown; prepygidial and pygidial fimbriae brown. Integumental surface: Clypeus very sparsely punctured, distance between punctures varying from 3-5 puncture diameters, remaining surface smooth and shiny; supraclypeal area smooth and

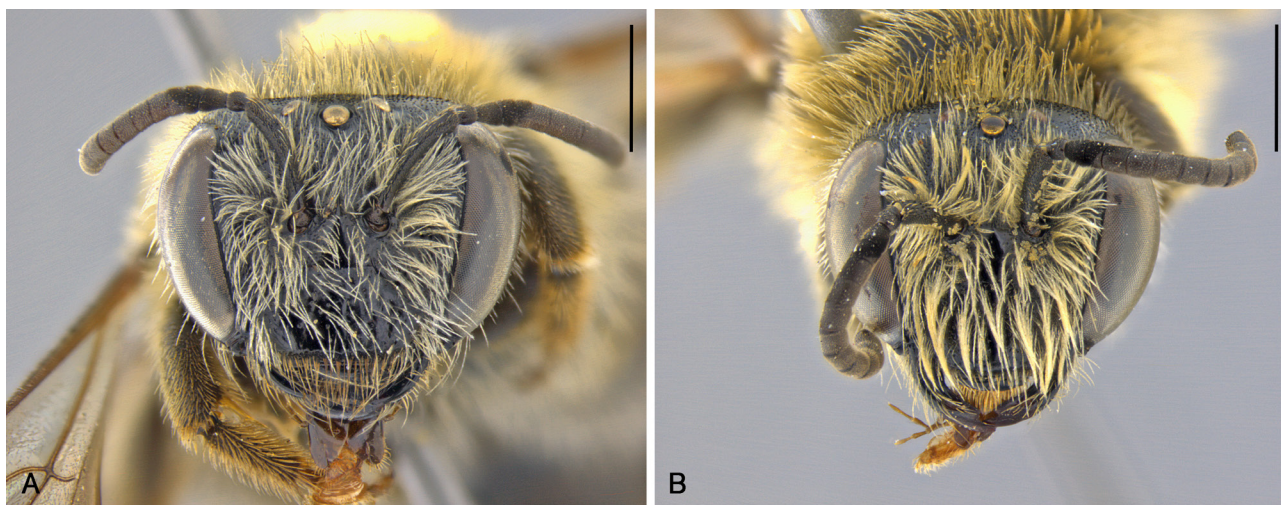


Figure 2. *Camposapis catarinae* sp. nov., head, frontal view. A. Holotype female. B. Male paratype DZUP 029334. Scale = 1 mm.

shiny, punctures restricted to its lateral portions; entire frons densely and coarsely punctured, area anterior to ocelli with inconspicuous fine longitudinal striation; lower gena almost devoid of longitudinal striation. Mesoscutum densely and coarsely punctured, except for a mostly smooth round spot in its posterior mid portion; surface between punctures finely reticulate on anterior half and becoming smooth on posterior half of sclerite. Terga with distinct punctures, their diameter similar to those on dorsolateral portion of propodeum; surface between punctures finely reticulate. Structure (measurements in mm): head about 1.3x broader than long (3.05:2.34); summed length of labial palpomeres much less than length of scape, without radicle (0.58:1.01); clypeus about 1.9x wider than long (1.52:0.81); inner orbits converging below, upper interorbital distance about 1.15x longer than lower distance (1.92:1.67); length of scape, without radicle, slightly surpassing distance between antennal socket and posterior ocellus (1.01:0.86); distance between posterior ocelli equal to ocello-orbital distance (0.56:0.56).

Male paratype (DZUP 029334). Body length: 9.2 mm; maximum head width: 2.7 mm; forewing length: 6.7 mm; maximum T2 width: 2.8 mm. Agreeing with female in color, pubescence and integumental surface, except as follows: terga with faint metallic purplish reflexes; body pubescence almost entirely pale reddish yellow, with some pale yellow on ventral portion; disc of terga 2-5 with distinct erect pubescence; clypeus densely punctured, except along midline and a narrow lower strip, punctures set apart by 0.5-1 puncture diameter. Structure (measurements in mm): head about 1.15x broader than long (2.74:2.39); summed length of labial palpomeres equal to length of scape, without radicle (0.76:0.76); clypeus about 1.5x wider than long (1.26:0.81); inner orbits converging below, upper interorbital distance about 1.2x longer than lower distance (1.72:1.44); length of scape, without radicle,

subequal to distance between antennal socket and posterior ocellus (0.76:0.73); distance between posterior ocelli longer than ocello-orbital distance (0.56:0.45).

Variation

The two females exhibit a slight difference in the color of the mesosomal pubescence, with the holotype having a paler tone, while the paratype has it tending to a brighter reddish tone. This same difference is observed in the males, with the two largest ones agreeing with the female paratype in pubescence color, including that of the head and dorsal portion of metasoma. In addition, these two male paratypes have more abundant and longer erect pilosity on their terga (compare Figures 3B and 3C). The difference in body size between males are smaller compared to that seen in *C. larejæ* (see below). The head width of the smallest male (DZUP 029336) is 2.6 mm and that of two largest males (DZUP 029331 and 029335) is 2.9 mm.

Etymology

The species is named in reference to Santa Catarina, the state in southern Brazil in which it was found.

Type material

Holotype female 'DZUP\ 029330' 'Brasil, Santa Catarina, Bom\ Jardim da Serra, Alt. 1378m,\ 28°26'29"S, 49°38'85"W,\ 5.xi.2006, A.J.C. Aguiar, A.\ Martins, L.R.R. Faria Jr.' Paratypes: one female and five males, with same data as holotype, except for accession numbers DZUP 029331 to 029336. All type specimens are deposited in the DZUP collection.



Figure 3. *Camposapis* Melo. A-C, *Camposapis catarinae* sp. nov. A. Female metasoma, dorsal view; holotype. B. Male metasoma, laterodorsal view; paratype DZUP 029335. C. Same; paratype DZUP 029334. D-E, *Camposapis larejae* (Compagnucci & Roig-Alsina). D. Female metasoma, dorsal view. E. Male metasoma, laterodorsal view. Scale = 1 mm.

Camposapis larejae (Compagnucci & Roig-Alsina)

(Figure 3)

Leioproctus (Perditomorpha) larejae

Compagnucci & Roig-Alsina, 2008: 323. Holotype female, Argentina: Buenos Aires, Moreno, La Reja (MACN; not examined).

Comments

This species was described in the genus *Leioproctus* sensu Michener by Compagnucci & Roig-Alsina (2008) and the authors placed it in *Perditomorpha* sensu Michener (1989) especially because of possession of only two submarginal cells in the forewing. As found in Almeida et al. (2019), the similarities with *Perditomorpha* sensu stricto were only superficial and this species came out in a very distinct position in the phylogeny, being recovered as sister group of the lineage containing the species placed in *Lonchopria* by Michener (1989). Melo (2021) proposed the genus *Camposapis*, having *C. larejae* as its type species, to accommodate the results found by Almeida et al. (2019). The species is currently known only from the provinces of Buenos Aires and Entre Rios, in Argentina.

Variation

Among the four examined males there is considerable variation in body size. The smallest male has a head width of 2.2 mm, while the largest one has 2.8 mm. Otherwise, the males do not differ in color or density of their pubescence.

Examined material

Two females and four males (DZUP), 'PRONUNCIAMENTO\ Entre Rios Argentina\ I-1961 J. Foerster'. One of the females bears an additional label in Moure's handwriting 'Bicolles [sic]\ fulvithorax\ n.sp.?'.

Ctenosibyne singularis sp. nov.

(Figures 4-5)

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Comments and diagnosis

The new species of *Ctenosibyne* differs from the type species most conspicuously in its pubescence pattern (compare figures 4A and 4D). In addition, the striking differences in mandible morphology, the longer flagellum, presence of microreticulation between punctures on the mesoscutum and the predominantly hyaline wing membrane also easily set *C. singularis* sp. nov. apart from *C. cingulata* Moure.

The only known specimen of *C. singularis* sp. nov. was found flying around flowers of *Mimosa scabrella* (Fabaceae, Mimosoideae), a tree popularly known as bracinga. Attempts to collect additional specimens in the same season failed, although a female of *C. cingulata* was collected while visiting flowers of *M. scabrella* ten days after the male of *C. singularis* sp. nov. was found. This must be a rare species since no other specimen is known, despite occurring in a region (Curitiba, Paraná) where bees are being regularly sampled for almost 100 years.

Description

Holotype male. Body length: 8.5 mm; maximum head width: 2.8 mm; forewing length: 6.9 mm; maximum T2 width: 2.7 mm. Color. Integument mostly dark brown to black (Figure 4A), except for apical half on inner surface of fore tibia, apex of mid tibia, entire hind tibia and tarsi of all legs reddish brown. Tegula dark brown; wing veins dark brown to brown, membrane mostly hyaline except for weak light brown infumation surrounding veins. Pubescence. Mostly pale yellow to white and distinctly long on head, mesosoma and T1. Fuscous hairs intermingled



Figure 4. *Ctenosibyne* Moure. **A-C**, *Ctenosibyne singularis* sp. nov., holotype male. **A**. Habitus, lateral view. **B**. Head, frontal view. **C**. Metasoma, dorsal view. **D**. *Ctenosibyne cingulata* Moure, male, lateral habitus. Scale = 2 mm (A, D); scale = 1 mm (B, C).

with pale hairs on vertex and scutellum; upper mesepisternum, central portion of disc of mesoscutum and upper half of propodeum with mostly fuscous pubescence. Anterior half of T2 with long pale pubescence, similar to that of T1 but shorter; posterior half, including most of marginal zone, with short dark pubescence. Disc and most of marginal zone of T3-T4 covered by short dark pubescence; hairs on T5-T7 becoming longer and paler compared to those on T3-T4. Posterior margin of T2-T5 with narrow fasciae of white hairs (Figs. 4A, 4C). Posterior margin of S2-S5 with broad fasciae of white hairs, those

on S2-S3 longer than on S4-S5. Integumental surface: Mostly punctured and finely reticulated. Lateral portions of clypeus sparsely punctured and shiny; supraclypeal area mostly unpunctured and smooth; longitudinal striation of frons well marked, conspicuous. Anterior slope of mesoscutum almost devoid of punctures, disc conspicuously punctured except for a pair of circular unpunctured spots in the middle of the posterior half; surface between punctures finely reticulated and mate. Disc of scutellum mostly unpunctured and shiny. Terga conspicuously finely reticulated between punctures; punctures

on T1 set apart by 3-5 puncture diameter; those on T2-T4 set apart by 2-4 puncture diameter. Structure (measurements in mm): Head about 1.4x wider than long (2.85:2.06); inner orbits distinctly converging below, upper interorbital distance about 1.15x longer than lower distance (1.90:1.65); scape about 5x longer than its maximum width (0.98:0.19); proportion between length and width of flagellomeres 1-4 as follows: 1.2, 1.3, 1.5, 1.7 (0.24:0.20; 0.26:0.20; 0.30:0.20; 0.34:0.20); flagellomeres 5-10 with dimensions similar to those of flagellomere 4; distance between posterior ocelli subequal to ocello-orbital distance (0.54:0.51). Ventral margin of mandible with a distinctly acute subbasal projection, followed by a low and long expansion well before mandible's apex (Fig. 5A); preapical dorsal tooth relatively small, separated from rutellum by a shallow concavity (Fig. 5A).

Etymology

The species is named in reference to its distinct morphology, compared to the type species, and for being described based on a single specimen.

Type material

Holotype male (DZUP), "Brasil, PR, Curitiba, \ Barreirinha, \ 19.ix.2016, G. Melo, \ Em *Mimosa scabrella*".

Discussion

The higher-level classification for the bees still is in a state of flux. As our phylogenetic knowledge about them progresses, we are able to propose adjustments to the classification system in a way to eliminate paraphyletic and polyphyletic taxa and provide names for newly recognized higher-level lineages resulting from the new studies. At the genus level, there have been two main approaches to organizing the species diversity. One has a lumper tendency, with the adoption of a single large genus, usually having a worldwide distribution and containing a multitude of subgenera. Examples of genera representing this approach are *Bombus*, *Ceratina*, and *Xylocopa* in Apinae, and *Coelioxys* and *Megachile*, in the Megachilinae. The other approach adopts a more restrictive circumscription for the genera and the recognition of smaller taxa, containing fewer species and usually having a more restricted distribution. In the Colletinae, we have made significant progress in departing from the lumping approach, especially in the Eulonchopriini and Neopasiphaeini with the abandonment of *Leioproctus* sensu Michener (Moure et al. 2007; Almeida 2008b). However, there is still much to be done in taxa like *Caupolicana*, *Colletes*, and *Hylaeus*, just to cite a few examples.

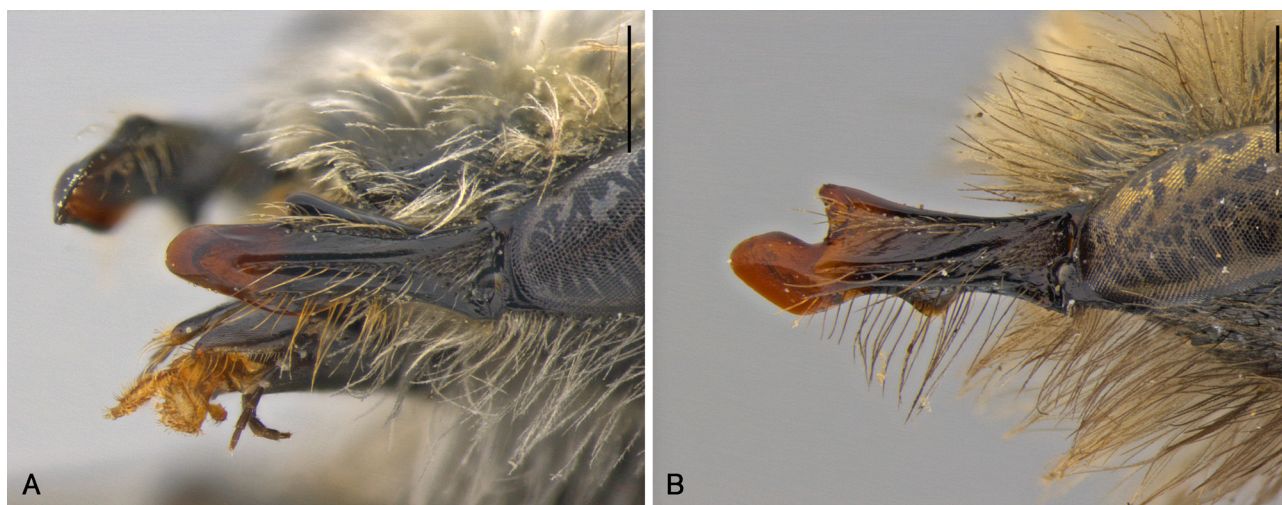


Figure 5. *Ctenosibyne* Moure, male mandible, ventrolateral view. A. *Ctenosibyne singularis* sp. nov. B. *Ctenosibyne cingulata* Moure. Scale = 0.5 mm.

It is important also to emphasize that changes in our classification system should be based on solid phylogenetic evidence. Many of the studies conducted so far can be considered preliminary, especially those involving large, speciose groups in which only a small fraction of the diversity has been sampled. Many of the arrangements recovered in these studies are likely to change with the addition of new data and taxa. Therefore, any urge to name all possible lineages at this point will certainly result in redundant names that will likely be abandoned in the future. In addition, the proposed changes to our current classifications should always observe standard taxonomic and nomenclatural practices. Violating these well-established practices can lead to what has been termed ‘taxonomic vandalism’ (see Wüster et al. 2021).

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