

**A NEW SPECIES OF *PELOMUS* REISS, 1989 (DIPTERA:  
CHIRONOMIDAE) FROM SOUTHEASTERN BRAZIL, WITH THE  
DESCRIPTION OF IMMATURE STAGES**

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With 12 Figures

**ABSTRACT:** The male, female, pupae and 4<sup>th</sup> instar larvae of a new species of the *Harnischia*-complex, from southeastern of Brazil, *Pelomus psammophilus* sp.n. are described and figured. The larvae, reared in the laboratory to obtain all life stages, were collected on littoral sand bottom of a little reservoir in central area of the state of São Paulo, Brazil.

**RESUMO:** As formas adultas e os imaturos de uma nova espécie do complexo *Harnischia*, da região sudeste do Brasil, *Pelomus psammophilus* sp.n. são descritas e ilustradas. As larvas, criadas no laboratório para obtenção de todos os estágios de vida, foram coletadas no sedimento arenoso de um pequeno reservatório localizado na área central do Estado de São Paulo, Brasil.

**Keywords:** Chironominae, *Harnischia*-complex, neotropics

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## INTRODUCTION

*Pelomus*, a genus of *Harnischia*-complex was erected by REISS (1989) based on specimens from Amazon region (Brazil). The hypopygium of *P. notabilis*, the only species whose adult is known, presents unusual features of the *Harnischia* complex. Nevertheless, the characteristics of its pupa, together with the other two described species (*P. secundus* Reiss, 1989 and *P. tertius* Reiss, 1989) justified the inclusion of this genus within the *Harnischia*-complex. Both the larva and, with some modification, the pupa of *Pelomus* will key to *Paracladopelma* Harnisch which includes *Saetheria* Jackson in SÆTHER (1977a). *Saetheria* (JACKSON 1977) appears to be the closest related genus.

The occurrence of unnamed species of this complex living on sand sediments of artificial ponds in the state of São Paulo, Southeastern Brazil, was recorded by STRIXINO & TRIVINHO-STRIXINO, 1998. Based on the material from this previous study, and on reared larvae and associated pupal exuviae and adults, we here describe a new species of *Pelomus* including the first description of the larval stage for the genus.

## MATERIAL AND METHODS

The material examined was mounted on slides in Euparal® or Hoyer's medium. The general terminology follows SÆTHER (1977b, 1980). The term 'taeniae' was used for the flattened setae on the pupae abdomen in accordance with LANGTON (1994).

Measurements are given as the values of the holotype (when applicable) followed by values of the smallest and largest paratype, respectively. Seta counts are given as the range only.

The holotype and most paratypes are deposited in the Laboratório de Entomologia Aquática collection, Universidade Federal de São Carlos, São Paulo, Brazil (UFSCar). One male paratype will also be deposited in the Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP).

### *Pelomus psammophilus* sp. n.

(Figs. 1-12)

*Harnischia* (*Cladopelma*) nr. *nais* Townes sp1. Roback, 1960: 328

*Harnischia* (?) sp. 2 Trivinho-Strixino & Strixino, 1995:111

Etymology: from Greek "psammo" (=sand) and "philus" (=friend); it refers to sandy sediments in which the larvae inhabit.

*Type material.* Holotype: male, Brazil: São Paulo State, Salesópolis, Rio Claro, Poço Verde (Estação Biológica de Boracéia), 10. x. 2001, Leg. C. G. Froehlich.

*Paratypes:* 1 male with pupa and larva exuviae, Brazil: São Paulo State, São Carlos, Fazzari reservoir (UFSCar Campus), 17. v. 2005, Leg. S.T. Strixino, MZUSP Coll. 1 female with pupa and larva exuviae, Brazil, São Paulo State, Pirassununga, CEPTA, 20. iii. 2002, Leg. L. C. Correia. 1 4th instar larva, Brazil, São Paulo State, São Carlos, Fazzari Reservoir (UFSCar Campus), 24.viii. 1987, Leg. L. Albuquerque. 1 4th instar larva, Brazil, São Paulo State, São Carlos, Mayaca pond (UFSCar Campus), 2. iv. 1988, Leg.S. T. Strixino. 1 4th instar larva, São Paulo State, São Carlos, Boa Vista Reservoir (Fazenda Canchim), 24. viii. 1987, Leg. L. Albuquerque.

*Diagnosis.* The male of *P. psammophilus* sp. n. approaches that of *P. notabilis* in the general configuration of the hypopygium, differing by the shape of the anal point, more pointed in *P. psammophilus*, and by having the inferior volsella distally enlarged as in the unnamed *Pelomus* of REISS (1989 fig. 4). The pupa of *P. psammophilus* differs from the other known species of the genus by the absence of spines on the posterolateral margin of segment VII; it resembles *P. secundus* and *P. tertius* by the possession of scutal tubercles and *P. secundus* by the absence of the pair of spines on median posterior margin of sternite VIII.

The larva of *P. psammophilus* resembles the larvae of the genera *Harnischia* Kieffer, *Paracladopelma* and *Saetheria* differing from the two first by the number of antennal segments (6), and by the presence of premandibular brush and labral lamella.

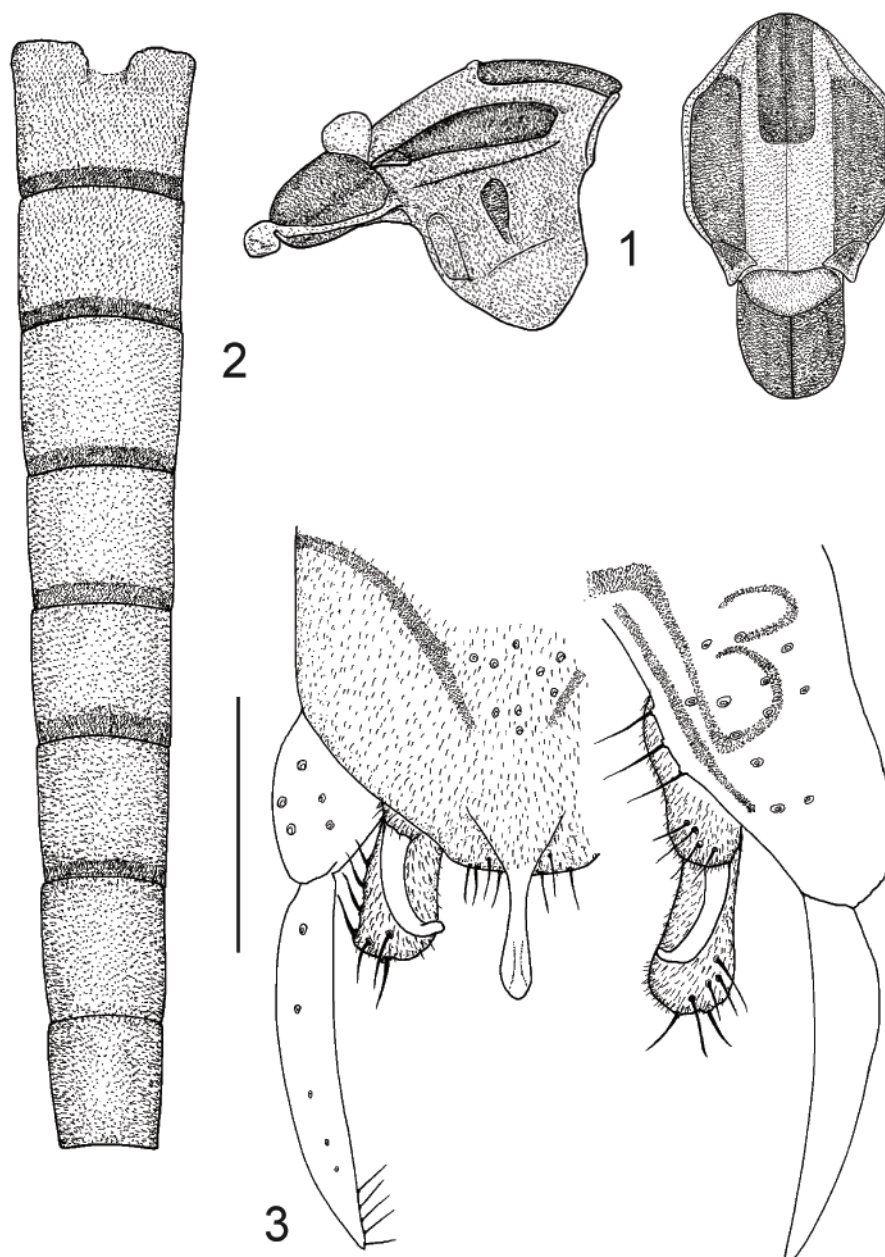
## DESCRIPTION

### *Adult male*

Total length: 4.0-5.0 mm. General coloration yellowish brown. Thorax brownish, with vitae and postnotum dark brown (Fig. 1). Abdomen yellowish brown with dark brown bands on distal margin of tergites I-VI (Fig. 2). Genitalia light yellowish.

Head. Yellowish brown. Antenna with 11 segments, brownish, 1.16-1.24 mm long; AR=2.38-2.41. Maxillary palps yellowish brown. Palpomeres 2-5= 50, 150, 137, 250  $\mu$ m long. Clypeus with 14-15 setae. Temporals with 14 setae.

Thorax. Scutal tubercle absent. Acrostichals 0; dorsocentrals 8-9 in single row; prealars 5-6; scutellars 11-12.



Figs. 1-3. *Pelomus psammophilus*, sp. n. male. 1. Thorax dorsal and lateral view. 2. Abdominal tergites. 3. Hypopygium, dorsal view left, ventral view right. (Scale: fig. 3 = 100  $\mu$ m).

Wing. Length 1.82 mm, width 0.55 mm, transparent, with lightly pigmented veins; FCu slightly distal than RM; VR 1.24.  $R_{2+3}$  ending proximal to  $R_1$ . R,  $R_1$  and  $R_{4+5}$  setose. Squama with 10 long setae. Brachiolum with 2 setae.

Lengths (in  $\mu\text{m}$ ) and proportions of legs:

	Fe	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	LR
I	815	554	1185	569	446	369	154	2.14
II	723	723	446	230	169	77	61	0.62
III	861	830	600	307	261	138	108	0.72

Hypopygium (Fig. 3). Anal point 54 $\mu\text{m}$  long; apex slightly large than base. Superior volsella with broad setose base, bearing 4 long distal setae and strongly naked hook-like distal part. Inferior volsella long, distally larger bearing 7-8 long setae. Gonostylus narrow, 160  $\mu\text{m}$  long; Gc/Gs=0.92-0.94.

*Adult female.*

Total length 2.7 mm. Coloration as male.

Head. Antennal flagellomeres 1-5 = 81, 52, 54, 71, 138  $\mu\text{m}$ . AR = 0.26. Palpomeres 2-5 = 43, 108, 115, 197  $\mu\text{m}$ . Clypeus with 12 setae. Temporal with 12 setae.

Thoracic setal count: 2 acrostichals, 13 dorsocentrals, 6 prealars, 17 scutellars.

Wing. Length 1.45 mm, width 0.51 mm. VR = 1.26. Squama with 9 setae.

Leg segment lengths in  $\mu\text{m}$  and LR proportions:

	Fe	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	LR
I	692	508	908	400	338	323	154	1.79
II	615	580	340	138	107	61	61	0.58
III	677	708	331	200	169	1107	92	0.46

Genitalia. Sternite VIII bearing 11 setae, irregularly distributed, on each side. GCa VIII strong rounded caudolaterally. GpVIII slightly divided into dorsomesal lobe; ventrolateral lobe reduced. Postgenital plate weak. Gonocoxite IX (GcIX) with 3 setae. Segment X with 1 seta on each side. Cerci relatively large, somewhat rectangular, 86  $\mu\text{m}$  long. Labia with weak microtrichia. Seminal capsule and spermathecal ducts not discernible in the slide preparation.

*Pupa*

Exuviae pale brown. Abdomen 3.4 mm (male) long; 2.8mm (female).

Cephalic tubercles short, conical, apically pointed; frontal setae short, inserted subapically.

Thorax (Fig. 4). Basal ring oval, somewhat constricted medially. Dorsum of thorax granulose anteriorly. Prealar tubercle rounded. Scutal tubercle prominent. Two precorneals, 2 anteprenotals and 4 dorsocentrals closed spaced present.

Abdomen (Fig. 5). Hook row, interrupted medially, occupying about 1/3 the width of segment II. Segment I with large anterior pedes spurii B. Pedes spurii B absent on segment II. Pedes spurii A present on sternite IV. Tergites I and II bare; III-V with posterior group of median fields of spines; VII with triangular median field of large spines. Conjunctives bare. Pleura bare except for small patches of fine spines on posterior corner of segments V-VII. Anal lobe well developed with complete fringe of about 45 taeniae and one dorsal semitaeniate seta on each side.

Abdominal setation:

Segment	tergite	sternite	lateral
I	6	2	1
II	4	6	3
III	4	6	3
IV	4	6	3
V	4	6	4T
VI	4	4	4T
VII	4	6	4T
VIII	0	2	5T

*4<sup>th</sup> instar larvae* (n=4).

Total length 5.2 mm.

Head: Width 349  $\mu$ m, length 418  $\mu$ m. Antenna 6 segmented, with blade arising in mid of second segment; basal segment 67  $\mu$ m (61-79) longer than flagellum, with basal ring organ in distal 2/3; segment 2 shorter than segment 3. Style present on segment 3. (Fig. 10).

Labrum (Fig. 6). SI fine, short, seta-like; SII long, strong, blade-like; SIII very short. SIVa elongated, 3segmented; SIVb short, arising behind first segment of SIVa. Labral lamella present, divided into 2 parts. Pecten epipharyngis a single, distally trifold scale. Premandible (Fig7) with 2 large apical teeth and 1 smaller tooth proximally; brush present.

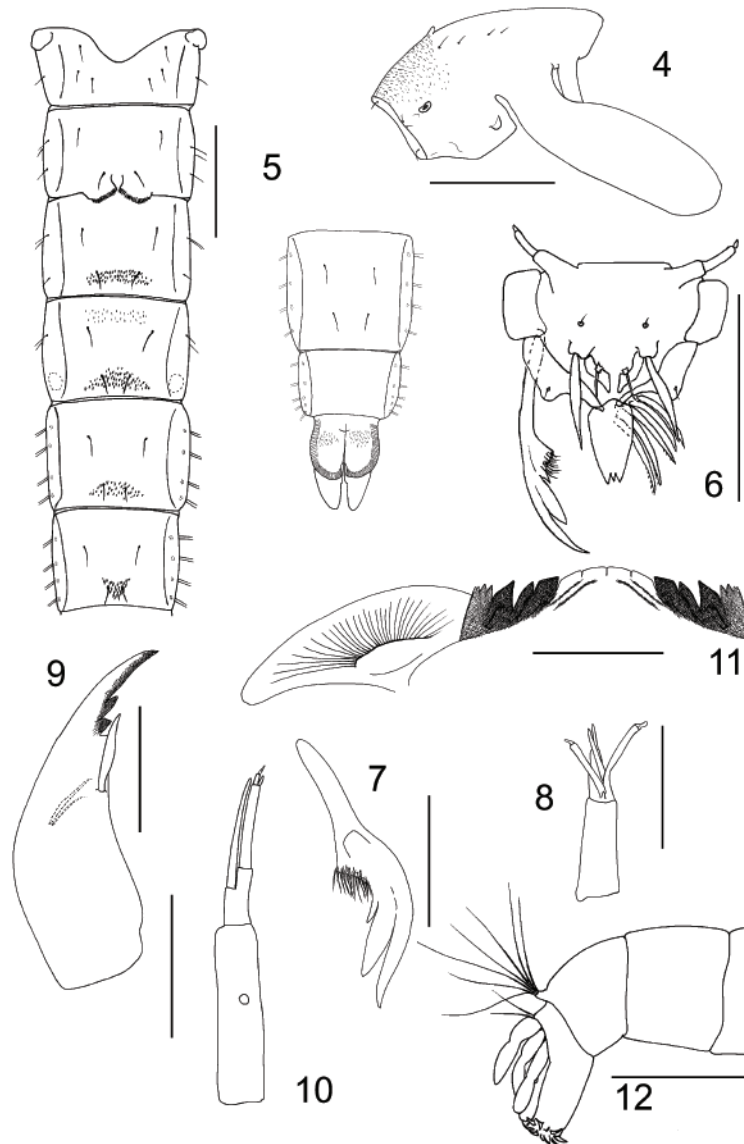
Mandible (Fig. 9). Lacking dorsal tooth, with strong apical tooth and three small inner teeth; lowest inner tooth paler. Pecten mandibularis with two filaments.



Maxilla with 81  $\mu\text{m}$  (78-83) long maxillary palp (Fig.8).

Mentum (Fig. 11) with four wide light median teeth in a convex arc; three darker teeth and 4-5 short paler lateral teeth on either side. Third lateral teeth separate of second by a coarse suture. Ventromental plate about as wide as mentum, course striated with anterior margin weakly crenulated.

Abdomen with anal tubules 275  $\mu\text{m}$  long, with a median constriction, shorter than posterior parapods (Fig. 12).



Figs. 4 - 12. *Pelomus psammophilus*, sp. n. pupa (4-5) and larva (6-12). 4. Thorax, lateral view. 5. Abdominal tergites. 6. Labrum. 7. Premandible. 8. Maxillary palp. 9. Mandible. 10. Antenna. 11. Mentum and ventromental plate. 12. Posterior abdominal segments. (Scale: figs 6, 7, 8, 9, 11 = 100  $\mu\text{m}$ ; 4, 5, 12 = 500  $\mu\text{m}$ ).

## ECOLOGICAL NOTES

The larvae of *P. psammophilus* sp. n. are relatively common in small rural reservoirs in the middle of the state of São Paulo. These, among others that probably belong to the same genus (*Harnischia* (?) sp. 1, *Harnischia* (?) sp. 3 TRIVINHO-STRIXINO & STRIXINO, 1995) live on sand sediments of small reservoirs or on sand littoral of larger ones (STRIXINO & TRIVINHO-STRIXINO, 1998).

Gut content analysis of some specimens point out the presence of animal remains (Oligochaetes bristles) together with detritus. The buccal apparatus with pointed mandibles and mentum with median unsclerotized teeth indicate that the larva is capable to ingest larger food such as other invertebrates or large algae (Diatoms and Desmids).

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