



## A new Amazonian species, description of male of *Isanopus sahlbergi* Bernhauer, 1917, and a revised key to species of *Isanopus* Sharp, 1876 (Coleoptera: Staphylinidae)

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### Abstract

We describe the male of *Isanopus sahlbergi*, and a new species of the genus *Isanopus* from French Guiana, *Isanopus itoupe* Klemann-Junior & Chatzimanolis, **sp. nov.** We illustrate major diagnostic features and present a revised key to species of *Isanopus*.

**Key words:** Amazon, South America, neotropical, new species, Xanthopygina, taxonomy

### Resumo

São descritos o macho de *Isanopus sahlbergi* e uma nova espécie do gênero *Isanopus* para a Guiana Francesa, *Isanopus itoupe* Klemann-Junior & Chatzimanolis, **sp. nov.** As principais características de diagnóstico são ilustradas e é apresentada uma chave dicotômica revisada para as espécies de *Isanopus*.

**Palavras-chave:** Amazônia, América do Sul, neotropical, nova espécie, Xanthopygina, taxonomia

### Introduction

*Isanopus* Sharp, 1876 (Coleoptera: Staphylinidae: Staphylinini: Xanthopygina) is a genus of rove beetles distributed in tropical rainforests (mainly montane) from Mexico to Brazil at altitudes ranging from 10 to 2070 m (Chatzimanolis 2008). *Isanopus* currently includes six species, with records from Mexico, Honduras, Ecuador, Peru, Bolivia and Brazil (Chatzimanolis 2008). The genus, described by Sharp (1876), was revised by Chatzimanolis (2008), who redescribed three species, described three new species, and provided distribution maps and illustrations of structural features for all six species. Males were unknown for one of the species, *Isanopus sahlbergi* Bernhauer, 1917, and the redescription was made from a single female specimen collected in Petrópolis, Rio de Janeiro, Brazil (Chatzimanolis 2008). In this paper, we describe for the first time, the male of *I. sahlbergi* and describe a new species of *Isanopus* from French Guiana, increasing the number of known species of the genus to seven.

### Material and methods

To study the aedeagus, we relaxed some male individuals in warm soapy water and then dissected the apical abdominal segments from the abdomen. We cleared the apical abdominal segments using 10% KOH, and removed

the aedeagus from the inside of the abdomen. We carried out the dissections and character studies under a stereoscopic microscope. We took the photographs of the habitus, head and pronotum, antenna, and abdomen using a Canon 5D mark IV digital camera equipped with extension tubes and a MP-E65 mm macro lens. We took the photographs of the aedeagus using a five-megapixel camera attached to a trinocular optical microscope. The images were automontaged in Helicon Focus 8 software.

All measurements and the adopted terminology for the descriptions follows Chatzimanolis (2008) and Naomi (1989). All measurements are in millimeters and, for the new species, were based on the holotype. The measurements taken were:

- BL body length (from anterior margin of head to posterior margin of tergite VIII)
- EL elytral length (maximum)
- EW elytral width (maximum)
- FL forebody length (measured by adding HL+EL+PL)
- HL head length (from anterior to posterior margin of head)
- HWhead width (maximum, including eyes)
- IO interocular distance (minimum)
- OL eye length in dorsal view (maximum)
- OWeye width in dorsal view (maximum)
- PL pronotum length (maximum)
- PW pronotum width (maximum)

For the specimens label data, quotation marks (‘’) separate different labels, and a vertical bar (|) separates different lines within a label. Text within square brackets [ ] is explanatory and it is not included in the original labels.

## Depositaries

All specimens are deposited in the following collections (curators in parenthesis):

CEMT—Setor de Entomologia da Coleção Zoológica da Universidade Federal de Mato Grosso, Departamento de Biologia e Zoologia, Cuiabá, Mato Grosso, Brazil (Fernando Vaz-de-Mello);

DZUP—Coleção Entomológica Pe. Jesus Santiago Moure, Curitiba, Paraná, Brazil (Lucia Massuti de Almeida);

INPA—Instituto Nacional de Pesquisas da Amazônia, Manaus, Amazonas, Brasil (Márcio Luiz de Oliveira);

UEA—Coleção entomológica do Centro de Estudos Superiores de Itacoatiara, Universidade do Estado do Amazonas, Itacoatiara, Amazonas, Brasil (Louri Klemann-Junior).

## Results

### Taxonomy

#### Subfamily Staphylininae Latreille, 1802

#### Tribe Staphylinini Latreille, 1802

#### Subtribe Xanthopygina Sharp, 1884

#### Genus *Isanopus* Sharp, 1876

#### *Isanopus itoupe* Klemann-Junior & Chatzimanolis, sp. nov.

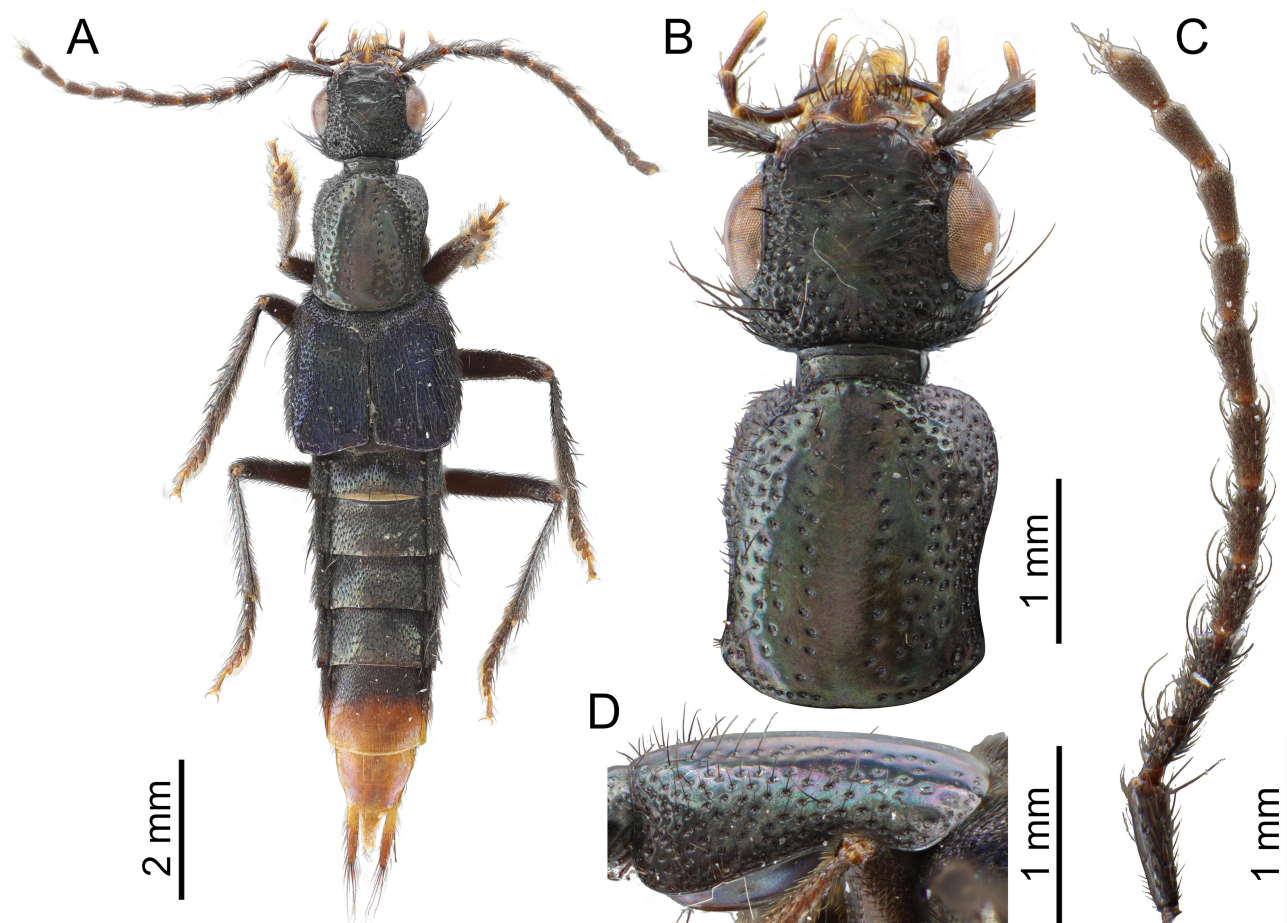
<https://zoobank.org/urn:lsid:zoobank.org:act:7A34C8F1-07ED-44E8-9DCA-182CEAFE75A4>  
(Figs 1A–D, 2A–E)

**Type material** (5♂♂, 10♀♀).

**Holotype:** FRENCH GUIANA: ♂, labeled: “French Guiana: Mont Itoupé[Itoupé Mountain] | DZE 570[trap code]-FIT[flight intercept trap]-800m[above sea level]|17.iii[March].2010|3°01'23"N/53°05'44"W|SEAG[Société Entomologique Antilles Guyane] | CESIT-UEA[Centro de Estudos Superiores de Itacoatiara—Universidade do Estado do Amazonas] [left sideline]”, “HOLOTYPE [red label] | *Isanopus* | *itoupe* sp. nov. | Desig. Klemann-Junior | & Chatzimanolis 2024” (INPA). **Paratypes:** FRENCH GUIANA: (4♂♂, 10♀♀), labeled: “French Guiana: Mont Itoupé[Itoupé Mountain] | DZE 570[trap code] - FIT[flight intercept trap] - 800m[above sea level] | 17.iii[March].2010 | 3°01'23"N/53°05'44"W | SEAG[Société Entomologique Antilles Guyane] | CESIT-UEA[Centro de Estudos Superiores de Itacoatiara—Universidade do Estado do Amazonas] [left sideline]”, “PARATYPE [yellow label] | *Isanopus* | *itoupe* sp. nov. | Desig. Klemann-Junior | & Chatzimanolis 2024” (1♂, 2♀♀ CEMT; 1♂, 2♀♀ DZUP; 1m, 4♀♀ INPA; 1♂, 2♀♀ UEA).

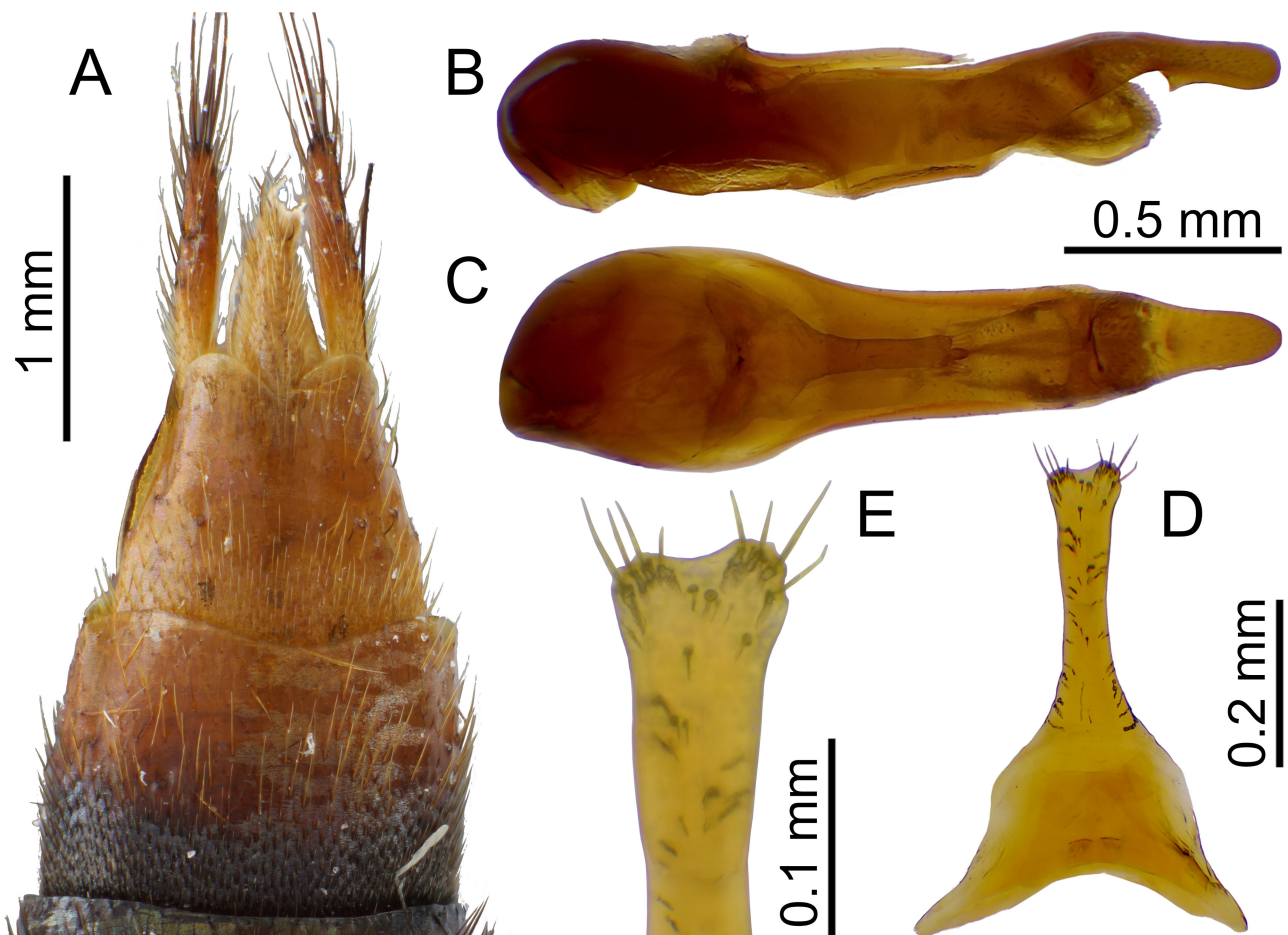
**Diagnosis.** Among *Isanopus* species that have convex pronotum in lateral view, *Isanopus itoupe* sp. nov. can be differentiated from *I. tenuicornis* and *I. sallaei* by the coloration of antenna (Fig. 1C), proportion of antennal segments 5–10, and the distinctive shape of aedeagus (Figs 2B–E). Antenna dark brown in *I. itoupe* sp. nov. (antennal segments 4–11 yellow in *I. tenuicornis* and *I. sallaei*). Antennal segments 5–10 two times longer than wide in *I. itoupe* sp. nov. (three times longer than wide in *I. tenuicornis* and 2.5 times longer than wide in *I. sallaei*). Paramere of *I. itoupe* sp. nov. in parameral view expanded before apex (not expanded before apex in *I. tenuicornis* and *I. sallaei*); with slightly rounded, bilobed apex (apex straight, with no apical processes in *I. tenuicornis*; apex converging to two apical processes, with narrow U-shaped emargination between them in *I. sallaei*); without peg setae. Median lobe of *I. itoupe* sp. nov. in lateral view with apex rounded and a small ventral tooth (median lobe strongly curved from middle to apex, without ventral tooth in *I. sallaei*).

**Description.** Holotype male, BL: 10.72 mm, FL: 5.84 mm.



**FIGURE 1.** Holotype of *Isanopus itoupe* sp. nov.; **A.** Dorsal habitus; **B.** Head and pronotum dorsal view; **C.** Antenna; **D.** Pronotum lateral view.





**FIGURE 2.** Holotype and aedeagus (paratype) of *Isanopus itoupe* sp. nov. **A.** Sternites VII–IX; **B.** Aedeagus lateral view; **C.** Aedeagus parameral view; **D.** Paramere, antiparameral view; **E.** Detail of the tip of paramere, antiparameral view.

**Coloration.** Head, pronotum and scutellum dark brown to black (Fig. 1A–B). Antenna dark brown (Fig. 1C). Legs dark brown; tarsi light brown, becoming lighter from the first to the fifth tarsomere (Fig. 1A). Elytra (Fig. 1A) dark metallic blue, purplish blue, sometimes with greenish overtones. Abdomen (Fig. 1A, 2A) dark brown, almost black; except segment VII with anterior 1/2 dark brown and posterior 1/2 orange, and segments VIII–IX orange. Prosternum, meso- and metaventricle dark brown.

**Head** (Fig. 1A–B) wider (HW: 1.68) than long (HL: 1.44), width: length ratio=1.17, with rounded hind angles. Head with long dark brown macrosetae along borders. Head with medium size umbilicate punctures each carrying dark brown microsetae; umbilicate punctures absent in middle and denser at the inner margin of eyes and posteriorly; punctures smaller around eyes and at base of head. Distance between punctures vary, from a small ridge (with some confluent punctures) to two times width of punctures. Integument of epicranium with dense microsculpture formed by transverse lines uniformly distributed; few micropunctures distributed at middle. Eyes prominent, length (OL: 0.71) about 1/2 the length of head, distance between eyes (IO: 1.12) about 3.6 times the width of eyes (OW: 0.31). Antennal segments (Fig. 1D) 1–11 gradually club-like thickened, longer than wide, with long macrosetae; segments 4–11 densely covered by microtrichiae; segment 1 about twice as long segment 2 length; segment 3 about 1.5 times segment 2 length; segment 4 about 0.75 times segment 3 length; segments 5–10 almost identical, two times longer than wide; segment 11 subequal to previous segments. Neck with irregular punctures and micropunctures; integument with dense microsculpture formed by transverse lines uniformly distributed.

**Pronotum** (Fig. 1A–B) longer than wide (PL: 2.04; PW: 1.67), width: length ratio=0.82; pronotum broadest in apical 1/3 and narrower just below the midpoint; anterolateral angles obtusely rounded curved; from the anterolateral angle, the pronotum touches the neck through a smooth concave curve; anterior midline with a smooth convex curve; lateral margins strongly concave in dorsal view; pronotum slightly convex in lateral view. Pronotum with dark



brown microsetae and, along borders, few dark brown macrosetae. Medium size umbilicate punctures distributed in 4–9 rows; punctures absent on disc of pronotum; least distance between punctures for each row as wide as 1–2 punctures; anterolateral angles densely punctuated, distance between punctures as wide as 0.5–1.2 punctures. Integument of pronotum glossy, with dense microsculpture formed by transverse lines uniformly distributed and few micropunctures. Scutellum prominent, with dark brown microsetae, densely punctate, punctures confluent. EL/PL ratio=1.16.

Elytra (Fig. 1A) quadrate (EL: 2.36; EW: 2.36), wider than pronotum; with medium size punctures; punctures smaller than head and pronotum; distance between punctures as wide as 0.6–1.3 punctures (about 8 punctures/0.5 mm); covered with dark brown microsetae and few long dark brown macrosetae along the lateral borders.

Legs (Fig. 1A). Profemur with dark brown microsetae; protibia with pale microsetae; protarsus dorsoventrally flattened, with yellow microsetae. Middle and hind legs with dark brown microsetae; mesotibia and metatibia with spines on the external side and with apical spurs; meso and metatarsus elongated and enlarged, with brown microsetae dorsally and light brown to yellow microsetae ventrally; tarsomeres 1–4 asymmetrical, apically dilated.

Abdominal (Fig. 1A) segments III–VI with dense and uniform punctation pattern; punctation smaller than head, pronotum, and elytra; punctation in each segment becoming less dense from anterior to posterior region. Segment VII with denser punctation than the previous segments on anterior 1/2 (dark brown region), posterior 1/2 (orange region) with sparser punctation. Tergite VIII with few, very sparse, punctures; sternite VIII (Fig. 2A) with dense punctation on anterior 1/3 and sparse punctation on posterior 2/3. Each puncture with dark brown microsetae on segments III–VI and anterior 1/2 of segment VII; punctures with yellow microsetae on posterior 1/2 of segment VII and on segment VIII; few long dark brown macrosetae along borders of all segments. Lateral tergal sclerites of segment IX long and straight, covered with long brown and yellowish macrosetae. Abdominal tergites III–V with tergal basal carina and no subbasal (arch-like) carina. Posterior margin of sternite VII (Fig. 2A) with shallow and broad emargination at midline; posterior margin of sternite VIII (Fig. 2A) with deep V-shaped emargination at midline; sternite IX emarginate.

Aedeagus as in Figures 2B–E. Paramere extremely reduced; paramere: median lobe ratio=0.41. Paramere in parameral (Fig. 2C) and antiparameral (Fig. 2D–E) view with lateral outline slightly curved; expanded before apex (Fig. 2D–E); with rounded slightly bilobed apex (Fig. 2D–E); without peg setae (Fig. 2D–E); with four long setae on each side of the apex and few setae along paramere. Median lobe in parameral view (Fig. 2B) with lateral outline almost straight; converging, in apical 1/3, to a narrower rounded apex. Median lobe in lateral view (Fig. 2C) becoming narrower apically; with three different angles: 1/3 basal straight, 1/3 middle angled upward, and 1/3 apical angled slightly downward; apex rounded with a small ventral tooth.

*Female.* Similar to male, except by the posterior margin of sternites VII and VIII straight.

*Habitat.* Captured with window flight interception trap hung approximately 1.5 m above ground. The capture site is 800 m.a.s.l. and the vegetation is montane Evergreen Tropical Forest “Floresta Ombrófila Densa Montana”.

*Distribution.* Known from Mont Itoupé in French Guiana.

*Etymology.* The specific epithet refers to the name of the mountain where all known specimens were collected, Mont Itoupé; it is a noun in apposition.

### *Isanopus sahlbergi* Bernhauer, 1917

(Figs 3A–D, 4A–E)

**Examined material** (5♂♂, 7♀♀).

**Brazil:** Paraná: 5♂♂, 7♀♀, labeled: S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 24.XI.1986 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324652”, “DZUP | 324527”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♂, 1♀ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 15.XII.1986 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324645”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♀ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 22.XII.1986 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324635”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♂ DZUP); “TELÊMACO BORBA | Res.[Reserve] Samuel Klabin | BRASIL 07.IX.1987 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324537”, “24°17'S/50°37'W | 750m.a.s.l.” (1♀ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 07.XII.1987 | Lev.

Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324519”, “DZUP | 324520”, “DZUP | 324518”, “25°34'S/49°01'W | 1050m.a.s.l.” (2♂♂, 1♀DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 21.XII.1987 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324526”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♀ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 03.XI.1986 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324647”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♂ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 18.I.1988 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324525”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♀ DZUP); “S. JOSÉ PINHAIS[São José dos Pinhais] - PR[Paraná] | Ser. Mar[Serra do Mar] Br277 Km 54 | BRASIL 25.I.1988 | Lev. Ent.[entomological survey] PROFAUPAR | MALAISE”, “DZUP | 324524”, “25°34'S/49°01'W | 1050m.a.s.l.” (1♀ DZUP). All specimens with label “*Isanopus sahlbergi* Bernhauer, 1917 | Det. Klemann-Junior | & Chatzimanolis 2024”.

Diagnosis (from Chatzimanolis 2008). *Isanopus sahlbergi* can be distinguished from all other known *Isanopus* species by the shape of the antennomeres. In *I. sahlbergi* the antennomeres are shorter than any other species and it can only be mistaken for *I. eptaskouros*; however, in addition to the shape of the aedeagi, the two species can easily be distinguished by the coloration of abdominal segment VII, which is completely dark brown-black in *I. eptaskouros*. The meso and metatibia appear less enlarged in *I. sahlbergi* in comparison to other taxa in *Isanopus*.

Description. BL: 10.78 mm, FL: 5.63 mm.

Coloration. Head, pronotum and scutellum dark brown to black (Fig. 3A–B). Antenna dark brown (Fig. 3C). Legs dark brown; tarsomere 1 dark brown, tarsomeres 2–5 light brown, becoming lighter from the second to the fifth tarsomere (Fig. 3A). Elytra (Fig. 3A) dark metallic greenish blue. Abdomen (Fig. 3A, 4A) dark brown, almost black; except segment VII with anterior 4/5 dark brown and posterior 1/5 orange; and segments VIII–IX orange. Prosternum, meso- and metaventricle dark brown to black.

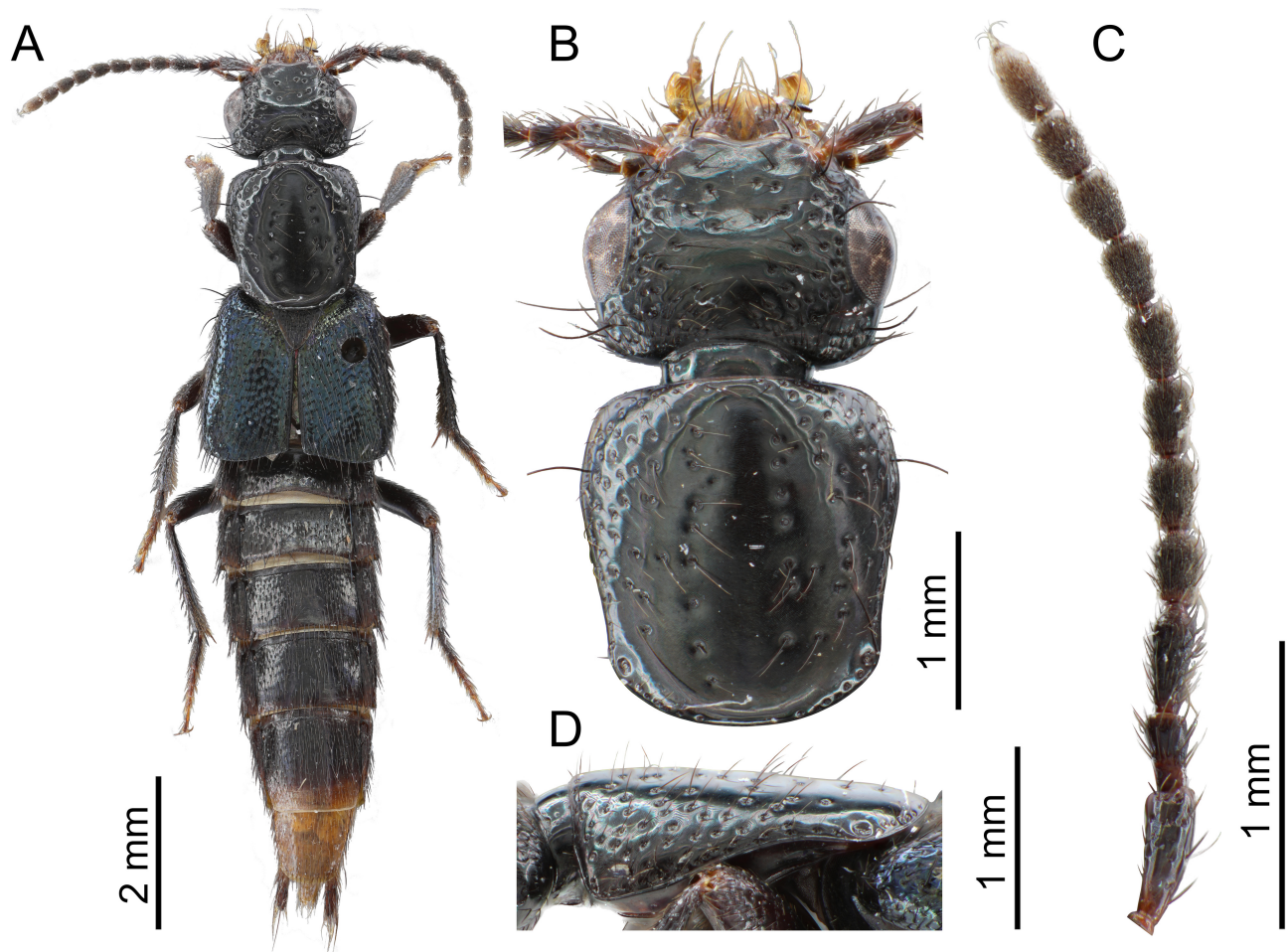


FIGURE 3. *Isanopus sahlbergi*; A. Dorsal habitus; B. Head and pronotum dorsal view; C. Antenna; D. Pronotum lateral view.

Head (Fig. 3A–B) wider (HW: 1.76) than long (HL: 1.33), width: length ratio=1.32, with rounded hind angles. Head with long dark brown macrosetae along borders. Head with medium size umbilicate punctures each carrying dark brown microsetae; umbilicate punctures absent in middle and denser at the inner margin of eyes and posteriorly; punctures smaller around eyes and at base of head. Distance between punctures vary, from 0.5 to 1 times width of punctures. Integument of epicranium glossy, with dense microsculpture formed by transverse lines uniformly distributed; few micropunctures distributed at middle. Eyes prominent, length (OL: 0.62) about 1/2 the length of head, distance between eyes (IO: 1.21) about 4.2 times the width of eyes (OW: 0.29). Antennal segment (Fig. 3D) 1 gradually club-like thickened; segments 1–11 longer than wide, with long macrosetae; segments 4–11 densely covered by microtrichiae; segment 1 about twice as long segment 2; segment 3 about 1.5 times segment 2 length; segment 4 about 0.7 times segment 3 length; segments 5–10 almost identical, 1.6 times longer than wide; segment 11 subequal segments 5–10. Neck with few punctures and micropunctures; integument with dense microsculpture formed by transverse lines uniformly distributed.

Pronotum (Fig. 3A–B) longer than wide (PL: 1.98; PW: 1.8), width: length ratio=0.91; pronotum broadest in apical 1/2 and narrower at basal angles; anterolateral angles obtusely rounded curved; from the anterolateral angle, the pronotum touches the neck through a smooth convex curve; lateral margins concave in dorsal view; pronotum flat in lateral view. Pronotum with dark brown microsetae and, along borders, few dark brown macrosetae. Medium size umbilicate punctures distributed in 4–5 rows; punctures absent on disc of pronotum; least distance between punctures for each row as wide as 1–2 punctures; distance between rows smaller towards anterolateral angles, distance between punctures as wide as 0.5–1.5 punctures. Integument of pronotum glossy, with dense microsculpture formed by transverse lines uniformly distributed and few micropunctures. Scutellum prominent, with dark brown microsetae, densely punctuate, distance between punctures as wide as 0.25–1 punctures. EL/PL ratio=1.17.

Elytra (Fig. 3A) subquadrate (EL: 2.32; EW: 2.42), wider than pronotum; with medium size punctures; punctures smaller than head and pronotum; distance between punctures as wide as 0.7–1.6 punctures (about 7 punctures/0.5 mm); covered with dark brown microsetae and few long dark brown macrosetae along the lateral borders.

Legs (Fig. 3A). Profemur with dark brown microsetae; protibia with light brown microsetae; protarsus dorsoventrally flattened, with yellow microsetae. Middle and hind legs with dark brown microsetae; mesotibia and metatibia with spines on the external side and with apical spurs; meso and metatarsus elongated and enlarged, with brown microsetae dorsally and light brown to yellow microsetae ventrally; tarsomeres 1–4 asymmetrical, apically dilated.

Abdominal (Fig. 3A) segments III–VI with dense and uniform punctuation pattern; punctuation smaller than head, pronotum, and elytra; punctuation in each segment becoming less dense from anterior to posterior region. Tergite VII with punctuation becoming less dense from anterior to posterior region on anterior 4/5 (dark brown region), and denser punctuation on posterior 1/5 (orange region); sternite VII with punctuation becoming less dense from anterior to posterior region. Segment VIII with uniform distributed punctuation, sparser than previous segments. Each puncture with dark brown microsetae on segments III–VI and anterior 4/5 of segment VII; punctures with yellow microsetae on posterior 1/5 of segment VII and on segment VIII; few long dark brown macrosetae along borders of all segments. Lateral tergal sclerites of segment IX long and straight, covered with long brown and yellowish macrosetae. Abdominal tergites III–V with tergal basal carina and no subbasal (arch-like) carina. Posterior margin of sternite VII (Fig. 4A) with shallow and broad emargination at midline; posterior margin of sternite VIII (Fig. 4A) with deep V-shaped emargination at midline; sternite IX emarginate.

Aedeagus as in Figures 4B–E. Paramere extremely reduced; paramere: median lobe ratio=0.3. Paramere in parameral (Fig. 4C) and antiparameral (Fig. 4D–E) view with lateral outline slightly concave curved (Fig. 4D); with a smooth curve at the apex (Fig. 4D–E); without peg setae (Fig. 4D–E); with three long setae on each side of the apex (Fig. 4D–E). Median lobe in parameral view (Fig. 4B) with lateral outline converging smoothly to a narrower rounded apex. Median lobe in lateral view (Fig. 4C) in a slight downward curve; abruptly narrower in the apical 1/3; apex rounded.

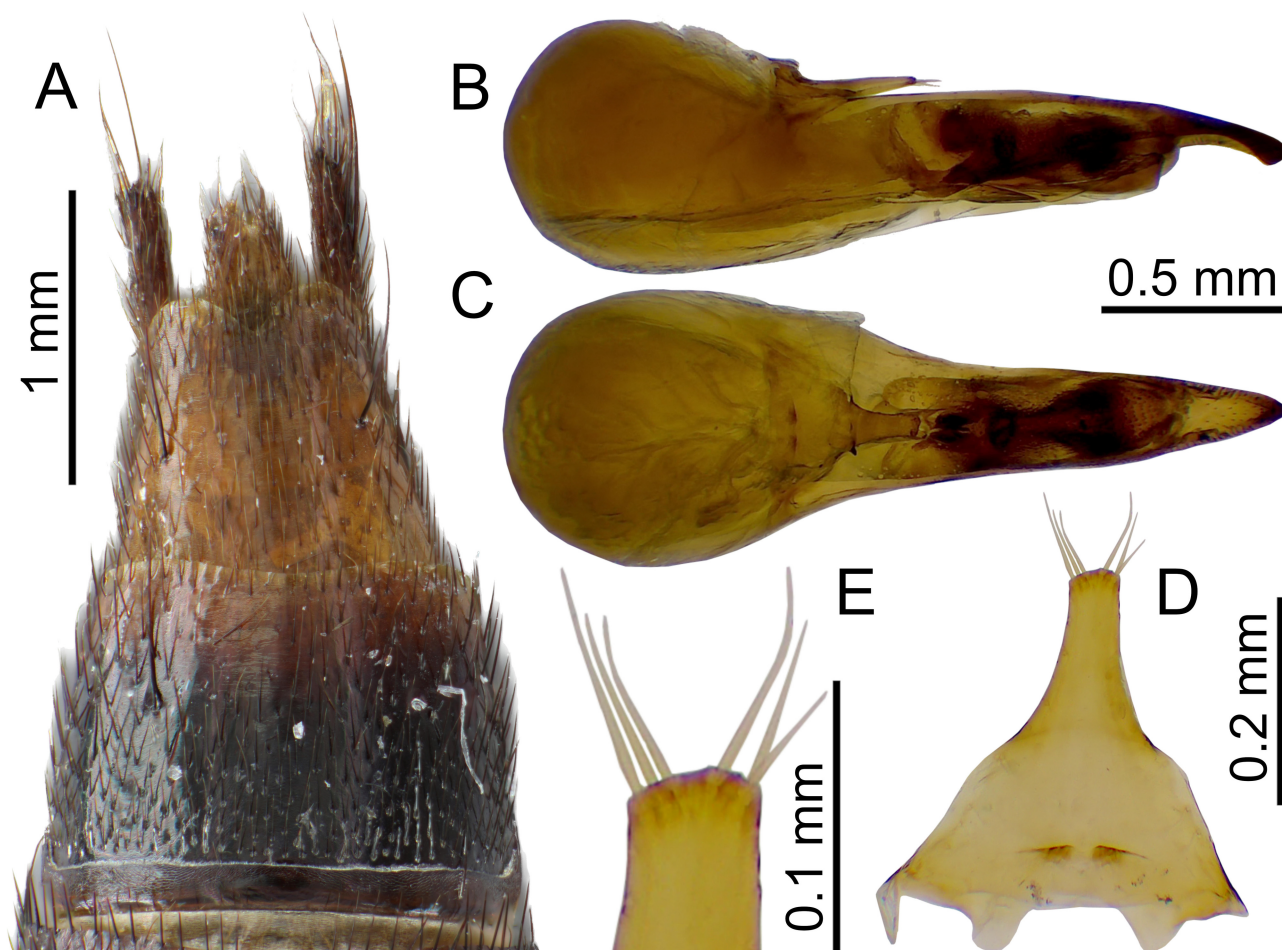
*Female* (described in Chatzimanolis 2008). Similar to male, except by the posterior margin of sternites VII and VIII straight.

*Habitat*. Captured with Malaise trap. The capture sites in the state of Paraná is 1050 m.a.s.l. (São José dos Pinhais) and 750 m.a.s.l. (Telêmaco Borba). The vegetation is Evergreen Subtropical Forest “Floresta Úmida Subtropical” (Holdridge 1987), in the transition between “Floresta Ombrófila Densa Montana” and “Floresta Ombrófila Mista Montana” (São José dos Pinhais), and “Floresta Ombrófila Mista Montana” (Telêmaco Borba) (Veloso & Góes



Filho 1982). For details on climate, floristics and other data on collection sites in the state of Paraná, see Marinoni & Dutra (1991).

Distribution. Known distribution for Brazil, state of Rio de Janeiro (Petrópolis) and state of Paraná (São José dos Pinhais and Telêmaco Borba).



**FIGURE 4.** *Isanopus sahlbergi*; **A.** Sternites VII–IX; **B.** Aedeagus lateral view; **C.** Aedeagus parameral view; **D.** Paramere, antiparameral view; **E.** Detail of the tip of paramere, antiparameral view.

Revised key to the species of *Isanopus* (modified from Chatzimanolis 2008; figures starting with C refer to the figures in Chatzimanolis 2008):

- |   |                                                                                                                                                                                                                                                                               |                                           |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1 | Abdominal segments III–V dark orange to rufous or gradient between brown and orange                                                                                                                                                                                           | 2                                         |
| - | Abdominal segments III–V dark brown to black                                                                                                                                                                                                                                  | 3                                         |
| 2 | Abdominal segments III–VIII dark orange to rufous; antennae dark brown; aedeagus as in Figures C5A–C                                                                                                                                                                          | <i>I. ashei</i> Chatzimanolis, 2008       |
| - | Abdominal segments III–VIII with a color gradient from dark brown to yellow, usually III–IV dark brown, V–VI rufous to orange, VII–VIII orange to yellow; antennae orange to yellow; aedeagus as in Figures C7A–C                                                             | <i>I. hinojosai</i> Chatzimanolis, 2008   |
| 3 | Head punctuation on the posterior part of the head less dense, distance between punctures at least 0.5–1 times the size of puncture (Figures C1B); paramere in dorsal view fairly wide but converging to two apical processes, with narrow U-shaped emargination between them | <i>I. sallaei</i> Sharp, 1884             |
| - | Head punctuation on the posterior part of the head almost confluent (Figures 1B, 3B); paramere not as above                                                                                                                                                                   | 4                                         |
| 4 | Abdominal segment VII completely dark brown to black, aedeagus as in Figures C6A–C                                                                                                                                                                                            | <i>I. eptaskouros</i> Chatzimanolis, 2008 |
| - | Abdominal segment VII orange or combination of dark brown and orange, aedeagus not as above                                                                                                                                                                                   | 5                                         |
| 5 | Antennomeres 5–10 about 1.6 times longer than wide (Figure 3C); median lobe without tooth (Fig. 4B)                                                                                                                                                                           | <i>I. sahlbergi</i> Bernhauer, 1917       |
| - | Antennomeres 5–10 at least two times longer than wide (Figure 1C); median lobe with tooth (e.g., Fig. 2B)                                                                                                                                                                     | 6                                         |

- 6 A    antennomeres 4–11 dark brown (Fig. 1C); antennomeres 5–10 twice as long as wide (Fig. 1C); paramere in parameral view expanded before apex, with rounded slightly bilobed apex (Fig. 1D–E) ..... *I. itoupe* **sp. nov.**
- Antennae 4–11 yellow (Fig. C1A); antennomeres 5–10 2.5 times longer than wide (Fig. C4D); paramere in parameral view not expanded before apex, apex straight with no apical processes (Fig. C9C) ..... *I. tenuicornis* Sharp, 1876

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