

NEW SPECIES OF POLYCENTROPODIDAE (TRICHOPTERA) FROM SOUTHEASTERN AND SOUTHERN BRAZIL

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Abstract.—Four new species of Polycentropodidae (Trichoptera), *Cernotina antonina*, *Cernotina lazzarii*, *Polycentropus urubici*, and *Polyplectropus profaupar*, are described and illustrated from the states of Minas Gerais, Paraná, and Santa Catarina, Brazil.

Key Words: Trichoptera, Brazil, new species, Polycentropodidae, inventory

In this paper we describe four new polycentropodid caddisflies in the genera *Cernotina*, *Polycentropus*, and *Polyplectropus* collected during two inventories of the Trichoptera fauna of southeastern and southern Brazil. The first of these, the PROFAUPAR inventory, was conducted from 1986–1988 and consisted of light and Malaise trap collections of insects from eight localities in the southern Brazilian state of Paraná (Marinoni and Dutra 1993). The Trichoptera material from this inventory was recently sorted and identified by the junior author (Almeida and Marinoni 2000, Marinoni and Almeida 2000). The second, ongoing inventory, funded by the U.S. National Science Foundation's Biotic Surveys and Inventories Program, is focused exclusively on the Trichoptera fauna of the southeastern and southern Brazilian states of Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina.

The genera *Cernotina*, *Polycentropus*, and *Polyplectropus* contain 50, 64, and 42 species, respectively, in the Neotropics (Flint et al. 1999). In Brazil, 24 species of *Cernotina* have been described, all but one of these from the Amazon basin, but only 9 species

of *Polyplectropus* and no species of *Polycentropus* have been previously described from the country. However, the latter genus was reported from Brazil by Hamilton (1986) and we have almost two dozen new species of *Polycentropus* from southeastern and southern Brazil in our collections.

Types are deposited in the collections of the Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP), the University of Minnesota Insect Collection, St. Paul, Minnesota (UMSP), the Coleção de Entomologia Pe. Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil (DZUP, UFPR), and the National Museum of Natural History, Smithsonian Institution, Washington, D.C (NMNH) as indicated below.

Cernotina antonina

Holzenthal and Almeida, new species
(Fig. 1)

This new species is a member of the *cygnea* group of Flint (1971), which includes *C. cygnea* Flint 1971, *C. decumbens* Flint 1971, and *C. trispina* Flint 1971. *Cernotina antonina* is similar to *C. decumbens* in the broad truncate lobes of tergum X, but resembles *C. trispina* in the rodlike dorsal

branch of the intermediate appendage which bears a pair of short spinelike setae.

Male.—Length of forewing 4.0 mm. Color in alcohol, pale yellowish brown. Genitalia as in Fig. 1. Sternum IX short, produced anterolaterally; anterior margin, in ventral view, narrowly excavated; tergum IX membranous, not evident. Inferior appendage elongate rectangular, truncate apically; apicoventral and mesal surfaces pigmented, setose; apicomeral lobe wide, truncate, pigmented apically, with 4 short thick apicomeral setae; basodorsal lobe shelflike, with long apicomeral setae and shorter thicker setae mesally. Tergum X membranous basally and mesally, divided mid-dorsally; lateral lobes lightly sclerotized, rounded apically, setose dorsally; base of X internally with pocket of fine setae. Preanal appendage apparently absent. Intermediate appendage bipartite; dorsal branch rodlike, bearing short fine setae and pair of short thick spinelike apical and subapical setae; ventral branch shorter, digitate, setose. Phallus long, slender, tubular, membranous internally, with internal sclerite and 3 short spines.

Female.—Unknown.

Type material.—Holotype, ♂. BRAZIL: *Paraná*: Antonina, Reserva de Sapitanduva, 25°28'S, 48°50'W, el. 60 m, 27.iii.1987, PROFAUPAR-lâmpada (UFPR). Paratypes. Same data as holotype, 26.iv.1987, 1 ♂ (UFPR); *Minas Gerais*: Rio Santo Antônio, downstream from Morro do Pilar, 19°08.134'S, 43°21.256'W, el. 530 m, 17.x.2000, Paprocki & Ferreira, 1 ♂ (UMSP); *Paraná*: Guarapuava, Estância Água Santa Clara, 25°40'S, 52°01'W, el. 740 m, 1.xii.1986, PROFAUPAR-lâmpada, 1 ♂ (UFPR).

Etymology.—The species is named for the type locality.

Cernotina lazzarii

Holzenthal and Almeida, new species (Fig. 2)

Cernotina lazzarii appears to be closest to *C. abbreviata* Flint 1971 and *C. perpendicularis* Flint 1971, the three species form-

ing a distinct group within the genus. All share a divided tergum X with its apex bearing a sclerotized process either apically (*C. abbreviata*, *C. perpendicularis*) or apicoventrally (*C. lazzarii*). The dorsal branch of the preanal appendage of each species is short and bears a pair of spinelike setae, but in the new species this branch is directed posteriorly rather than posteroventrally.

Male.—Length of forewing 3.5–3.7 mm. Body sclerites pale yellowish brown; antenna mostly white, more apical flagellomeres cream colored with light brown setae basally; head and thorax with white setae dorsomesally and light brown setae laterally; legs light brown with darker brown setae; wings light brown with scattered yellowish brown setae and line of white to cream colored setae along anal margin from base to arculus. Genitalia as in Fig. 2. Sternum IX short, produced anterolaterally; anterior margin broadly excavated ventrally; tergum IX membranous, not evident. Inferior appendage elongate rectangular; apex truncate, pigmented, setose apicoventrally; mesal surface with short, broad, setose lobe; apicomeral lobe narrow, acute, pigmented apically, with pair of mesal setae; basodorsal lobe shelflike, with long apicomeral setae and short thick mesal setae. Tergum X lightly sclerotized basally and mesally; in lateral view appearing bulbous and broadly rounded; tergum X divided middorsally, lateral lobes apically acute, slightly mesally directed, subapicoventrally with small sclerotized process. Preanal appendage short, rounded, setose. Intermediate appendage bipartite; dorsal branch short, rodlike, bearing pair of short apical and subapical spinelike setae; ventral branch longer, triangular, with apical and ventral setae. Phallus long, slender, tubular, membranous internally, with internal sclerite and 4 short spines.

Female.—Length of forewing 3.5–4.0 mm. Color and structure similar to male. Genitalia typical for genus.

Type material.—Holotype, ♂. BRAZIL: *Paraná*: Município de Corbélia, Rio Novo headwaters, 24°53.886'S, 53°14.895'W, el.

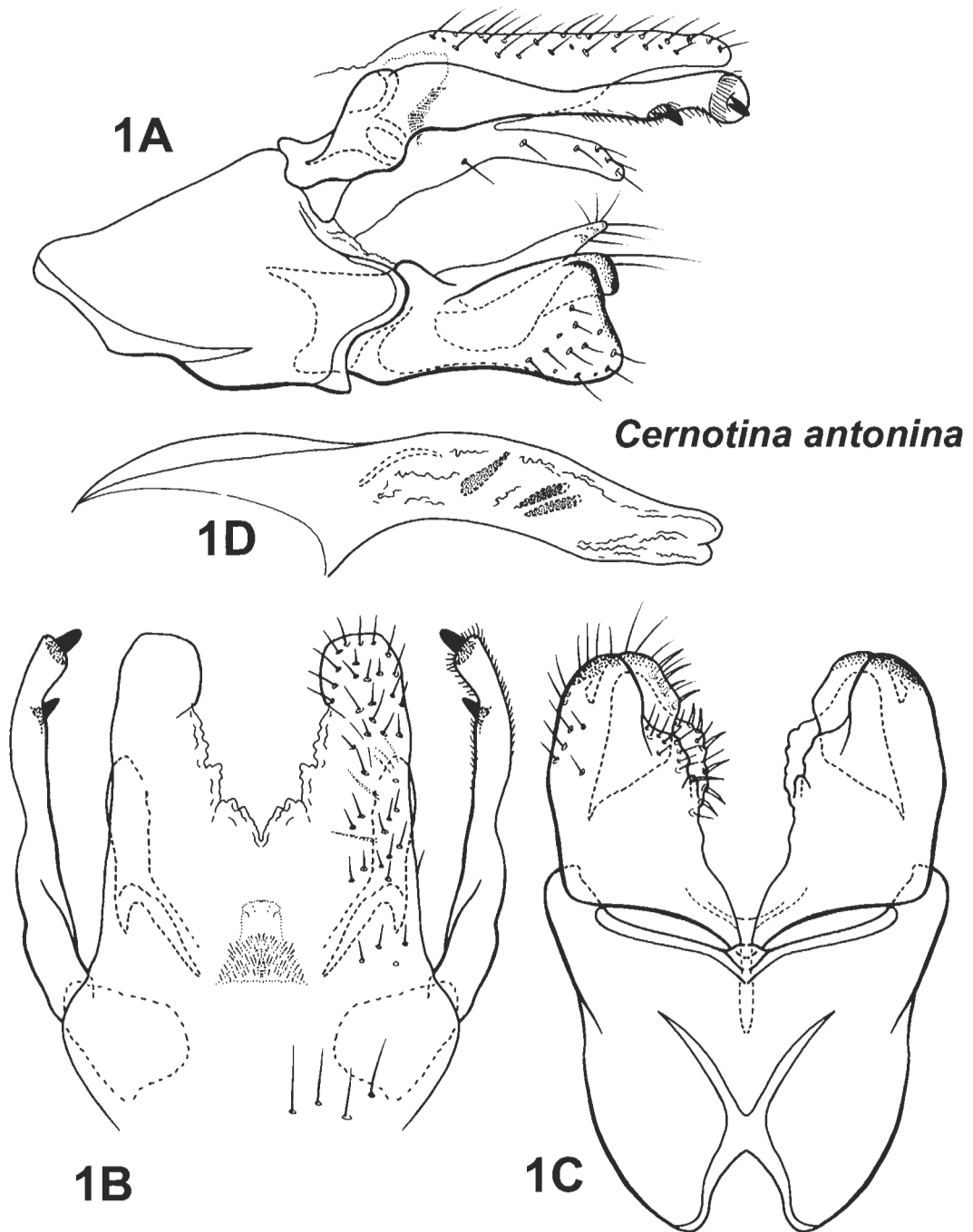
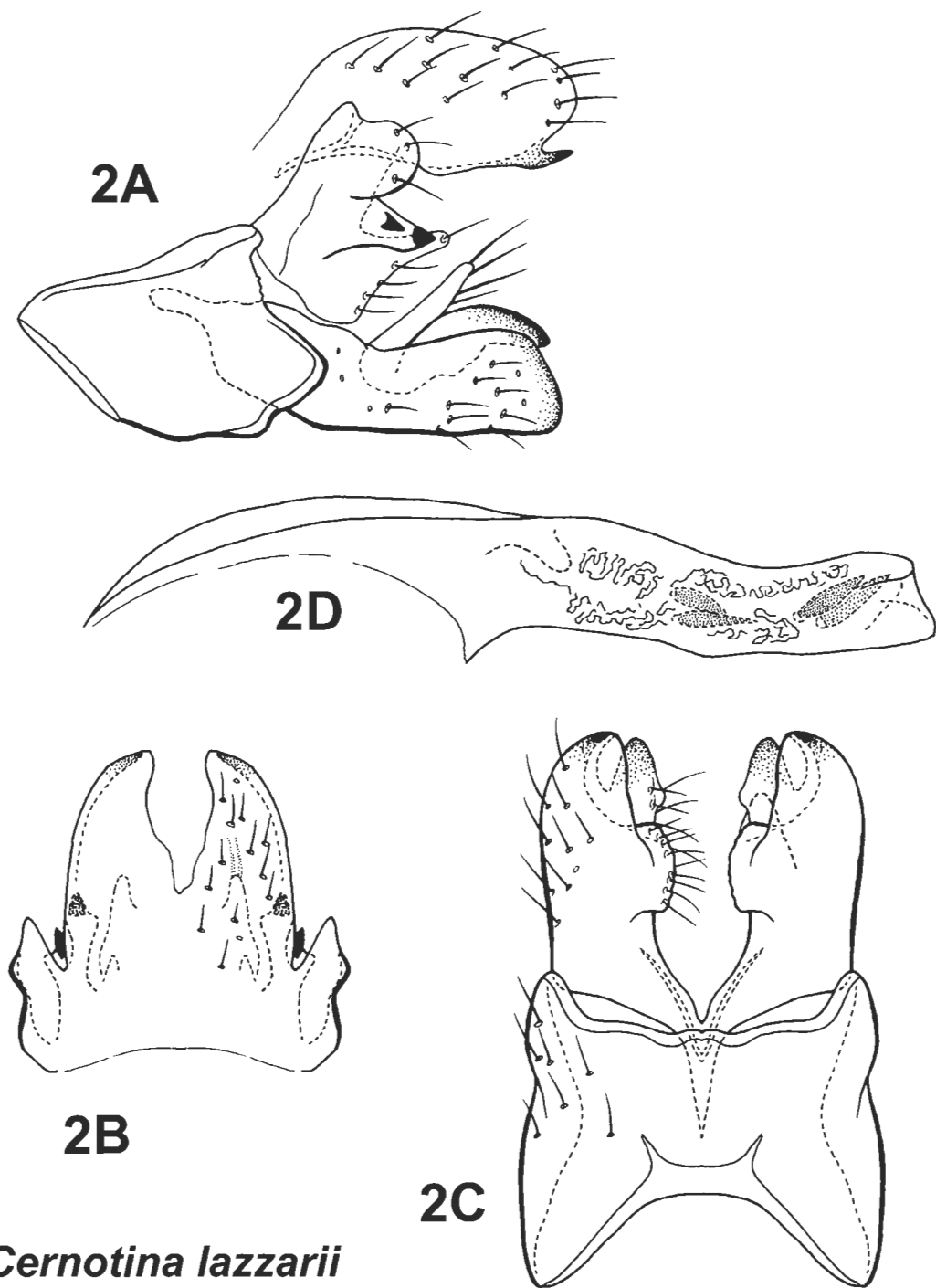


Fig. 1. *Cernotina antonina*, male genitalia. A, Lateral. B, Tergum X and intermediate appendages, dorsal. C, Sternum IX and inferior appendages, ventral. D, Phallus, lateral.



Cernotina lazzarii

Fig. 2. *Cernotina lazzarii*, male genitalia. A. Lateral. B. Tergum X, preanal and intermediate appendages, dorsal. C. Sternum IX and inferior appendages, ventral. D. Phallus, lateral.

700 m. 4-7.iv.1998, Holzenthal & Huisman (MZUSP). Paratypes. Same data as holotype, 3 ♂, 5 ♀ (UMSP), 1 ♂, 5 ♀ (NMNH), 2 ♂, 5 ♀ (MZUSP); *Paraná*: Fênix, Reserva Estadual ITCF, 23°54'S, 51°58'W, el. 350 m, 20.xi.1987, PROFAUPAR-lâmpada, 1 ♂ (UFPR).

Etymology.—This species is named with gratitude and affection for Dr. Flávio Lázari, agronomist and plant pathologist, Curitiba, Brazil, on whose farm the new species was collected.

Polycentropus urubici

Holzenthal and Almeida, new species

(Fig. 3)

This species appears to be a member of the *jorgenseni* complex of the *gertschi* species group as defined by Hamilton (1986), but the dorsal band in the apical membranes of the phallus in *P. urubici* is not as distinct as illustrated by Hamilton for other members of the complex. *Polycentropus urubici* is not close to any of the described species in the complex, but resembles a few of the undescribed species illustrated by Hamilton (1986).

Male.—Length of forewing 5.5–6.0 mm. Body and wings entirely fuscous, legs dark brown. Genitalia as in Fig. 3. Sternum IX short; anterior margin rounded in lateral view, shallowly emarginate in ventral view; tergum IX membranous. Inferior appendage short, triangular, heavily setose, broad basally, narrowing to acute, slightly upturned apex, with mesoventral toothlike projection; mesal surface setose (in paratypes from Santa Catarina, inferior appendage narrower basally and apex more strongly upturned). Tergum X entirely membranous, broad basally, narrow apically. Intermediate appendage long, rodlike, narrowed apically, extending ventrad to apex of inferior appendage (in paratypes from Santa Catarina, intermediate appendage narrow throughout length). Preanal appendage elongate oval, setose; mesoventral process short, digitate, setose, slightly upturned. Phallobase short; apicoventral process long, thick, pointed,

apex directed ventrad; phallic sclerite and dorsal band lightly sclerotized, indistinct. Subphallic sclerite broad, Y-shaped in caudal view.

Female.—Unknown.

Type material.—Holotype, ♂. BRAZIL: *Paraná*: Telêmaco Borba, Reserva Samuel Klabin, 24°17'S, 50°37'W, el. 750 m, 7.viii.1986, PROFAUPAR-lâmpada (UFPR). Paratypes. Same data as holotype, 23.x.1987, 1 ♂ (UFPR), 17.i.1988, 1 ♂ (UFPR). *Santa Catarina*: Morro da Igreja, Urubici, Cachoeira Véu da Noiva, 28°04.595'S, 49°31.090'W, el. 1,300 m, 5.iii.1998, Holzenthal, Froehlich, Paprocki, 3 ♂ (UMSP), 2 ♂ (MZUSP); Urubici, Cachoeira Avencal, 28°02.839'S, 49°36.997'W, el. 1,260 m, 6.iii.1998, Holzenthal, Froehlich, Paprocki, 1 ♂ (UMSP), 1 ♂ (NMNH).

Etymology.—The species is named for the town in Santa Catarina where paratype specimens were collected.

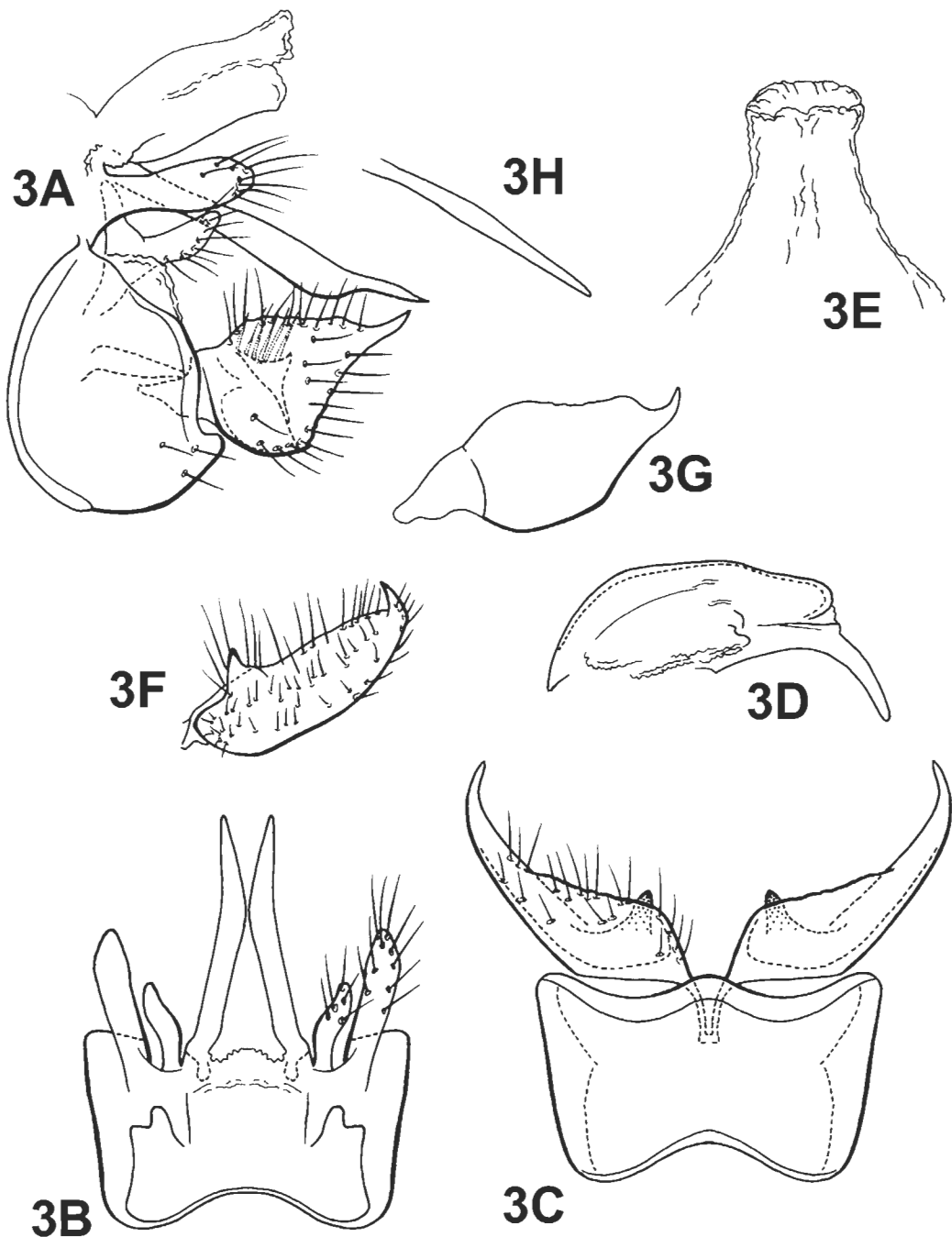
Polyplectropus profaupar

Holzenthal and Almeida, new species

(Fig. 4)

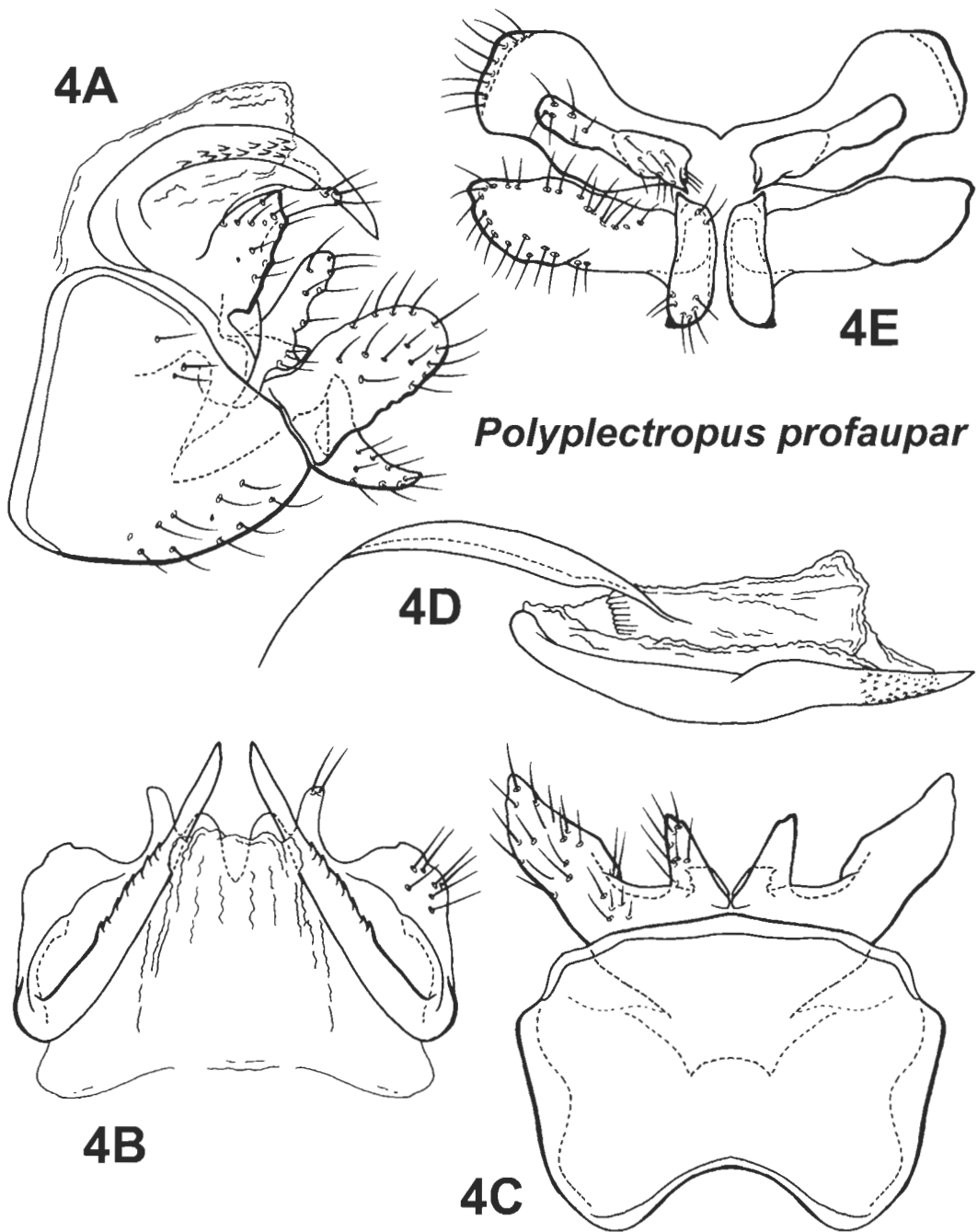
This species is very similar to *Polyplectropus annulicornis* Ulmer, also known from Santa Catarina, Brazil, but differs in the following ways. The dorsolateral process of the preanal appendage, which is thick and spinose in *P. profaupar* is long, slender and without spines in *P. annulicornis*; when viewed ventally, the ventromesal process of the inferior appendage is longer and more digitiform in *P. annulicornis* than in the new species and the apex of the inferior appendage is more rounded in *P. annulicornis*.

Male.—Length of forewing 5.5–6.5 mm. Body sclerites pale yellowish brown; palps pale yellow with scattered brown setae; antenna pale yellow, scape with long white setae, antennal flagellomeres with light brown setae basally; dorsum of head with white setae mesally and light brown setae laterally; pronotum with white and brown setae and mesonotum with white setae; legs yellowish with scattered brown setae; wings light



Polycentropus urubici

Fig. 3. *Polycentropus urubici*, male genitalia. A. Lateral. B. Segment IX, preanal and intermediate appendages, dorsal. C. Sternum IX and inferior appendages, ventral. D. Phallus, lateral. E. Tergum X, dorsal. F. Inferior appendage, caudal. G. Inferior appendage, paratype from Santa Catarina, lateral. H. Intermediate appendage, paratype from Santa Catarina, lateral.



Polyplectropus profaupar

Fig. 4. *Polyplectropus profaupar*, male genitalia. A, Lateral. B, Segment X, preanal and intermediate appendages, dorsal. C, Sternum IX and inferior appendages, ventral. D, Phallus, lateral. E, Inferior appendages and ventral portion of preanal appendages, caudal.

brown, covered with whitish setae and scattered patches of light brown setae, giving a mottled appearance, these patches darker at base of costa and at pterostigma. Genitalia as in Fig. 4. Sternum IX short, triangular; anterior margin straight in lateral view, shallowly emarginate in ventral view; tergum IX membranous. Inferior appendage with lateral lobe setose, elongate oval; ventromesal process triangular, bearing acute projections dorsally and ventrally. Tergum X entirely membranous, short. Intermediate appendage short, digitate, apically setose. Preanal appendage tripartite; dorsolateral process heavily sclerotized, long, thick, recurved, with lateral spines; mesolateral process oval, setose; ventrolateral process spatulate, setose, with digitate mesal process bearing spinelike ventral projection. Phallus with narrow basal portion and membranous apical portion, which bears pair of sclerotized pointed processes ventrally and patch of fine spines subapically; apex of phallus acute; internal phallic sclerites or spines not evident.

Female.—Length of forewing 6.0–8.0 mm. Color and structure similar to male. Genitalia typical for genus.

Type material.—Holotype, ♂. BRAZIL: *Santa Catarina*: Morro da Igreja, Urubici, Cachoeira Vêu da Noiva, 28°04.595'S, 49°31.090'W, el. 1,300 m, 5.iii.1998, Holzenthal, Froehlich, Paprocki (MZUSP). Paratypes. Same data as holotype, 2 ♂, 10 ♀ (UMSP), 5 ♀ (MZUSP);. *Paraná*: São José dos Pinhais, Serra do Mar, BR 277, km 54, 24°17'S, 50°37'W, el. 750 m, 21.i.1988, PROFAUPAR-lâmpada, 1 ♂ (UFPR). *Santa Catarina*: Urubici, Cachoeira Avenal, 28°02.839'S, 49°36.997'W, el. 1,260 m, 6.iii.1998, Holzenthal, Froehlich, Paprocki, 1 ♂, 1 ♀ (NMNH).

Etymology.—This species is named after the entomological inventory of Paraná state, Brazil, PROFAUPAR or “Projeto de Levantamento da Fauna Entomológica no Estado do Paraná” (Marinoni and Dutra 1993).

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