REDISCOVERY OF *CORYNOPHILUS PUMILUS* (KLUG), AND A NEW GENUS AND TWO NEW SPECIES OF SYMPHYTA FROM SOUTH AMERICA (HYMENOPTERA, PERGIDAE & XIPHYDRIIDAE)

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ABSTRACT. *Corynophilus pumilus* (Klug) (Pergidae) is redescribed, and *Philoperra obscura*, n. gen., n. sp. (Pergidae), and *Brachyxiphus impunctus*, n. sp. (Xiphydriidae), are described. Specimens of *C. pumilus* were reared from leaf mines in *Roupala montana* (Proteaceae) in Brazil, and they represent the first collection of the species since its description in 1834. *Corynophilus* is transferred from the Syzygoniinae to the Acorduleceriinae. *Philoperra* is based on a specimen from Chile and shares characters with two subfamilies of Pergidae, Perreyiinae and Philomastiginae, but is placed in Philomastiginae. It has two preapical spines on the midtibia, a character unique in the family. *Brachyxiphus impunctus* from Chile represents the third species in that genus.

KEYWORDS. PERGIDAE; *ROUPALA MONTANA* SAWFLIES; SOUTH AMERICA; XIPHYDRIIDAE.

I take this opportunity to document three species of Symphyta that have come to my attention since my treatments of the Xiphydriidae (SMITH, 1988) and Pergidae (Smith, 1990) of South America.

Pergidae

Corynophilus pumilus (Klug)

(Figs. 1-7)

Klug (1834) described *Cephalocera pumila* from a single male from "Brasilien". It was later placed in *Corynophilus* by Kirby (1882), who proposed that name for the preoccupied *Cephalocera*. In my study of the family Pergidae (SMITH, 1990), the holotype of that species was the only specimen I examined. It is in rather poor condition, and I was unable to clearly see significant characters to allow proper placement. It seemed best to assign it to the subfamily Syzygoniinae. More recently Dr. Braulio F.S. Dias, Brasilia, D.F., Brazil, sent me a short series of a sawflies reared from leaf mines in *Roupala montana*. Restudy of the holotype and comparison of the holotype side by side with these specimens showed that they are *C. pumila*, the first specimens known to me since Klug's 1834 description. I am now able to adequately describe the species and correctly place it, transferring it to the subfamily Acorduleceriinae in my 1990 classification.

This is the first instance of a leaf mining habit in neotropical Pergidae. The only other Pergidae that are known to be leaf miners are the Australian Phylacteophaginae in *Eucalyptus*.

Female. Length 4.0 - 5.5 mm. Black with antenna more brownish and sometimes abdomen more brownish than black thorax; mandible yellowish with apex black. Head and body texture smooth and shining. Antenna (Fig. 2) stout, slightly clubbed, 7-segmented, first two segments about as long as broad, 3rd segment longer

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than 4th, apical 3 segments slightly enlarged; antennal length slightly shorter than (0.9X) head width. Eye margins straight, not converging below, lower interocular distance 1.4X eye length; postocellar area slightly broader (1.25X) than long; clypeus truncate; malar space nearly liner; each mandible with two small subapical teeth (Fig. 7); maxillary palpus 6-segmented, length shorter than eye length; labial palpus 4-segmented; labium with fused glossae and unfused paraglossae, the three subequal in size and shape, giving labium trilobed appearance (Fig. 6). Mesopleural sutures faint; mesoprescutal sutures obsolete behind; mesoscutellum not carinate behind; cervical sclerites pointed on meson. Mid- and hindtibia each with preapical spine; tarsal claws simple; hindbasitarsus slightly longer than following two tarsal segments combined. Forewing with 3 or 4 cubital cells, first cubital crossvein may be distinct, faint, or apparently absent (wings as in figure 1). Hindwing with vein 1r-m not in a straight line. Length of hindbasitarsus subequal to length of three following tarsal segments together; inner hindtibial spur half length of hindbasitarsus; foretibia with 2 apical spurs. Sheath short and rounded at apex in lateral view, broad at base and tapering to apex in dorsal view (Fig. 4). Lancet as in figure 3.

Male. Length, 3,0 - 3,5 mm. Similar in color and structure to female. Genitalia as in figure 5.

Distribution. Brazil, *Reserva Ecológica do IBGE*, Brasilia, D.F. The specimens are labeled "minador padrão, Larvas - 1 cm. compr., coleta: 24/10/90, colocados na terra: 25/10/90, eclosão 2/11/90 (3 indiv.), 3/11/90 (1 indiv.), 4/11/90 (1 indiv.), 5/11/90 (1 indiv.); Onildo Marini Filho., Reserva Ecológica do IBGE, (leaf miner on *Roupala montana*)."

Host. Leaf miner of *Roupala montana* (Proteaceae). Larvae collected October 24, 1990; cocoons were formed October 25, 1990; adults emerged November 2-5, 1990.

Taxonomic placement. *Corynophilus* is more properly placed in the subfamily Acorduleceriinae because of the following characteristics: 6-segmented maxillary palpus; 4-segmented labial palpus; trilobed labium; presence of preapical spines on the mid- and hindtibiae; faint and indistinct mesopleural suture; mesoprescutal sutures obsolete behind; and lack of anal cell in forewing. The Syzygoniinae have a 3-5 segmented maxillary palpus; 2-3 segmented labial palpus; single-lobed labium; and distinct mesopleural and mesoprescutal sutures.

The genus traces to couplets 5 and 6 in my 1990 key to genera of Acorduleceriinae. These couplets include the genera with 7-segmented antennae: *Acorduloceridea, Suwatnus,* and *Busalus. Corynophilus* would go to *Suwatnus* which has the third antennal segment longer than the fourth segment. The other two genera have the third antennal segment shorter than or subequal in length to the fourth segment. *Corynophilus* is separated from *Suwatnus* as follows:

5. Third antennal segment longer than fourth segment 5a
   Third antennal segment shorter than or subequal in length to fourth segment 6

5a. Antenna filiform, slender; head in dorsal view strongly narrowed behind eyes; lower interocular distance shorter than eye length ..... *Suwatnus*
   Antenna short, slightly clubbed; head in dorsal view somewhat broadened behind eyes; lower interocular distance greater than eye length ..... *Corynophilus*

Philoperra, gen. n.

Type species: *Philoperra obscura* Smith, by present designation.

Antennae long, slender, serrate in female. Palpi uniformly slender, maxillary palpus 6-segmented, labial palpus 4-segmented (unable to see labium without damaging specimen). Mesoscutellum not bilobed; mesosternal-pleural sutures present; cenchri broad and close together, distance between them equal to half breadth of one. Forewing (Fig. 10) with median cell large; radial cell open at apex; crossvein 2r-m absent, therefore with 3 cubital cells; part of vein 2A+3A present, but obliterated apically, thus representing a partial anal cell; costa narrower than intercostal area except where swollen toward apex; hindwing with radial cell open at apex. Basal plates completely sclerotized, without membranous area. Midtibia with two preapical spines; hindtibia with one preapical spine; foretibia with two equal apical spines.

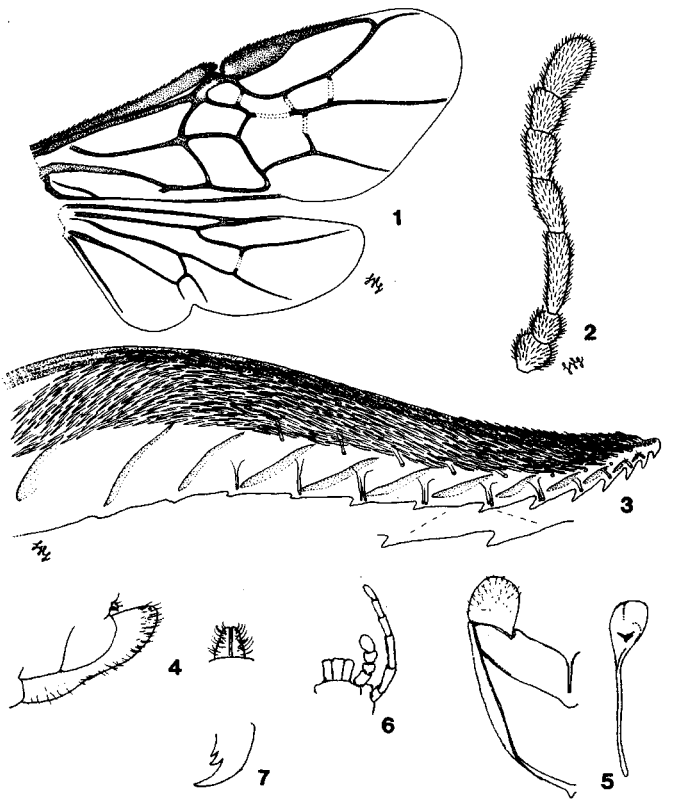
This genus is assigned to the subfamily Philomastiginae. Though some characteristics are shared with the Perreyiinae, such as the presence of a partial anal cell and large cell M in the forewing, most are typical for the Philomastiginae, especially the presence of preapical spines on the mid- and hindtibiae which are lacking in the Perreyiinae. It is the first specimen I have seen that shares such significant characters with each subfamily, and it may represent a potential link between the two. It also shares characters with the monotypic Australian subfamily Styracotechyinae which has a petiolate anal cell in the forewing and has preapical spines on the mid- and hindtibiae. The partial anal cell in the forewing and presence of two preapical spines on the midtibia are so unique in the included species that conceivably a new subfamily could be considered. However, without speculating on its exact placement and affinities, I believe it is properly placed in the Philomastiginae pending discovery and study of additional material, especially the male.

The occurrence of two preapical spines on the midtibia deserves special emphasis. A number of Pergidae and Argidae have a single preapical spine, but this is the first known instance of two preapical spines in the Pergidae. It is found in only one other genus in the Tenthredinoidea, the Australian argid genus *Zenarge*, which is considered a very primitive member of the Argidae. The families considered the most primitive in the Symphyta, Xyelidae, Pamphiliidae, and Megalodontidae, have three or more preapical spines on the mid- and hindtibiae, and also some Cephidae have two preapical spines on the hindtibiae. However, this was unknown in other groups except for *Zenarge*, and now *Philoperra*. The discovery of this in the Pergidae may be of significant value in studies of the phylogeny of the family or superfamily.

The anal cell of the forewing is complete only in the Perreyiinae and Styracotechyinae in the Pergidae. In other groups such as the Australian Euryinae and neotropical Conocoxinae, only a short stub of vein 2A+3A is present. The presence of a long vein 2A+3A in *Philoperra* represents an intermediate loss of this vein.

This genus is separated from the other two genera of South American Philomastiginae, *Cerospastus* and *Ecopatus*, by the partial presence of vein 2A+3A and presence of three cubital cells in the forewing and presence of two preapical spines on the midtibia.

The genus name is a combination of Philomastiginae and Perreyiinae, indicating its affinities to each taxon; gender, feminine.



Figs. 1-7. *Corynophilus pumilus.* 1, Forewing and hindwing; forewing length = 3.0 mm. 2, Antenna; length = 0.8 mm. 3, Female lancet; length = 0.6 mm. 4, Female sheath, lateral and dorsal views; length = 0.8 mm. 5, male genitalia, ventral view of genital capsule on left, lateral view of penis valve on right; length of genital capsule = 0.5 mm. 6, Palpi; length = 0.4 mm. 7, Left mandible; length = 0.4 mm.

Philoperra obscura, sp. n.
(Figs. 8-13)

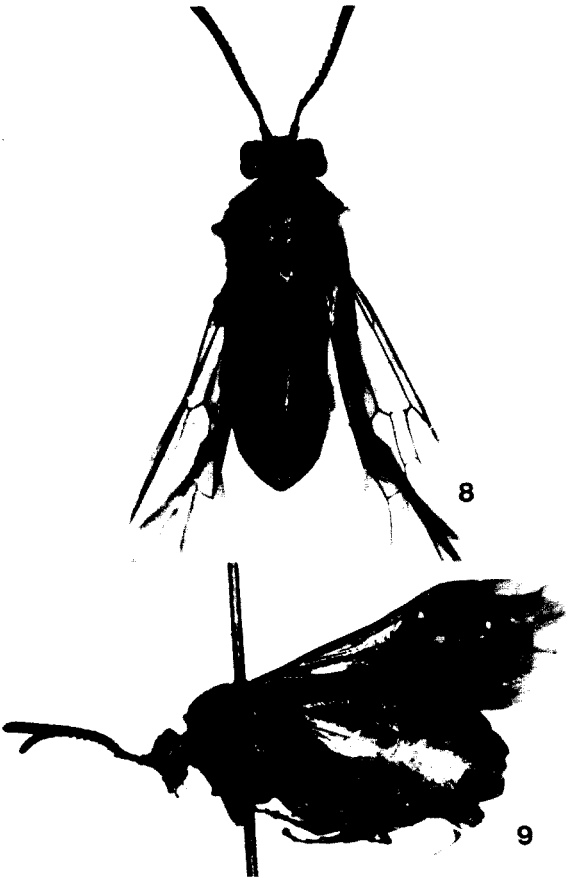
Female. Length, 10.0 mm. Antenna, head and thorax black; abdomen and most of basal plates orange, basal plates laterally and sheath black with hindfemur, inner surface of hindcoxa, outer surface of midfemur, and outer surface of apical half of forefemur orange. Wings uniformly lightly black infuscated; veins and stigma black. Texture of head and body smooth and shining with widely scattered punctures on thorax; abdomen with fine transverse microsculpture. Antennal length 2X head width; 21-22 segmented (apical segments fused and difficult to distinguish); 1st and 2nd segments about as broad as long; 3rd segment longer than 4th segment and subequal in length to following 3 segments; 3rd segment with short apical projection; segments 4-17 each with short rounded projection (Fig. 11); segments 18 to apex without projections. Malar space subequal to distance between antennal sockets and nearly 2X broader than diameter of front ocellus; clypeus truncate; postocellar area 3X broader than long; inner margins of eyes converging below, lower interocular distance 1.5 X eye length; head from above broadened behind eyes; maxillary and labial palpi slender, shorter than eye length. Tarsal claws simple; hindbasitarsus shorter than length of following two tarsal segments combined; inner hindtibial spur long and stout, its length 0.75X length of hindbasitarsus, and longer than width of hindtibia at its apex; outer hindtibial spur short and slender, about a third length of inner spur and less than half width of hindtibia at its apex. Sheath with posteriorly projecting scopae (Fig. 12). Lancet as in figure 13.

Male. Unknown.

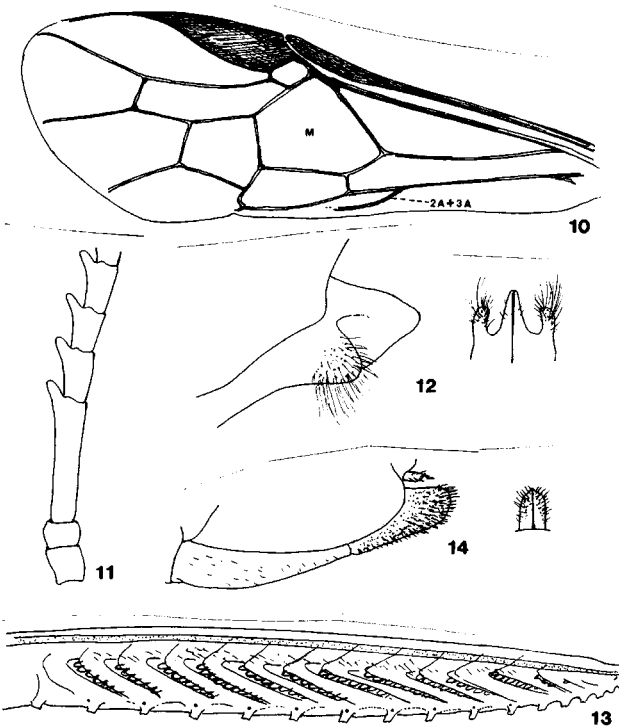
Holotype. Female, labeled "Nuble, Las Trancas, 10.1:1987, S. Roitman." Deposited in the *Museo Nacional de Historia Natural*, Santiago, Chile.

Xiphydriidae
Brachyxiphus impunctus, sp. n.
(Figs. 14, 17, 18)

Female. Length, 15-20 mm. Antenna and head black; mandible except apex brownish; thorax black with mesepisternum and mesonotum orange except for black downturned lateral areas; abdomen orange with basal plates, apical tergum, and sheath black; legs black. Wings uniformly darkly black infuscated; veins and stigma black. Texture smooth and shining without surface sculpture except for some widely spaced punctures on interantennal area, para-antennal areas, supraclypeal area, clypeus and mandible; short transverse carina near apex of mesoscutellum, and area from carina to apex of scutellum dull and rugose; standing hairs sparse on head and thorax and those present much shorter than length of 2nd antennal segment. Antenna filiform, 24-25 segmented. Malar space about half length of 3rd antennal segment; inner margins of eyes straight, not converging, lower interocular distance 1.7X eye length; postocellar area about as long as broad and defined by distinct lateral furrows. Apical hindtarsal segment enlarged, its length nearly 1.5X length of hindbasitarsus; tarsal claw with small inner tooth. Sheath rounded at apex in lateral view, uniformly slender in dorsal view (Fig. 14).



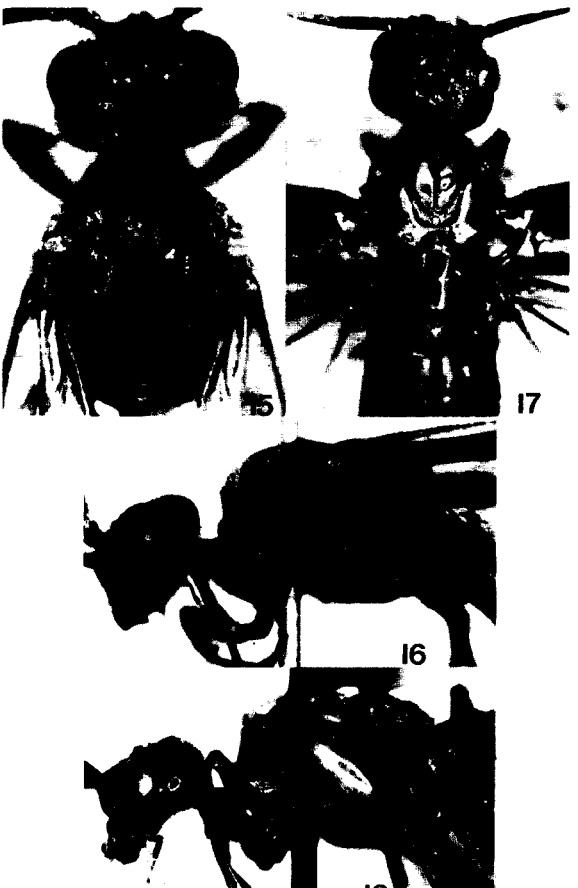
Figs. 8-9. *Philoperra obscura*, holotype female. 8, Dorsal view. 9, Lateral view. Length = 10.0 mm.



Figs. 10-14. 10-13, *Philoperra obscura,* holotype female. 14, *Brachyxiphus impunctus,* holotype female. 10, Forewing; length = 11.0 mm. 11, Antennal segments 1 to 6; length = 2.0 mm. 12, Female sheath, lateral and dorsal views; length = 1.8 mm. 13, Female lancet; length = 1.4 mm. 14, Female sheath, lateral and dorsal views; length = 4.0 mm.

Male. Length, 12 mm. Color similar to female with apical half of apical tergum blackish. Structural characters as for female except apical segment of hindtarsus normal, its length about 0.7X length of hindbasitarsus.

Holotype. Female, labeled "T. Rio Blanco, Curacautin, 6,18-Febrero-43, 1050, 1500 m, coll: L.E. Pena." Deposited at the *Museo Nacional de Historia Natural,* Santiago, Chile.



Figs. 15-18. *Brachyxiphus hyalinus*, from "Punta Arenas" and *B. impunctus*, holotype female. 15, Dorsal view of head and thorax of *B. hyalinus*. 16, Lateral view of head and thorax of *B. hyalinus*. 17, Dorsal view of head and thorax of *B. impunctus*. 18, Lateral view of head and thorax of *B. impunctus*. Length of head + thorax of both species = 8.0 mm

Paratypes. CHILE: Pelluhue, Costa Maule, 2-Dic.-53, 600 m, coll: L.E. Pena (1 female, deposited with the holotype); Gorbea [spelling uncertain, handwritten on label], 14 Enero 1952 (1 male, National Museum of Natural History, Washington, D.C.).

Discussion. This species is easily distinguished from *B. grandis* Phillipi and *B. hyalinus* Kirby by its smooth and shining texture and lack of dense, long hairs on the head and thorax (compare figures 15-18). In addition, the malar space of the other *Brachyxiphus* species is broader, subequal to the length of the 3rd antennal segment; the head and thorax are black with the tegula yellowish; the abdomen is orange with the basal plates, part of the first two terga, the apical two terga, and sheath black; and the apical hindtarsal segment is about 1.2X the length of the hindbasitarsus. In *B. hyalinus*, the wings are hyaline to yellowish, and in *B. grandis* the wings are blackish.

This unusual species necessitates a slight change in the generic definition of the Brachyxiphini and *Brachyxiphus*. SMITH (1988) indicated that these taxa have the head dull and deeply sculptured, and that there are standing hairs on the head that are subequal to or longer than the length of the pedicel. This is true for the previously known species, *B. grandis* and *B. hyalinus*. This new species shares all characters with the tribe and its only genus, including the presence of lateral furrows which distinctly define the postocellar area, but it is entirely smooth and shining and lacks the dull surface sculpture and dense standing hairs present in the other species.

The specimen of *Brachyxiphus hyalinus* compared and photographed (Figs. 15, 16) is a female from "Punta Arenas", in the *Museo National de Historia Natural,* Santiago, Chile.

Acknowledgments. With thanks to Braulio F.S. Dias, *Reserva Ecológica do IBGE,* Brasilia, D.F., for finding and loaning the specimens of *C. pumilus* and sharing its host information; to F. Koch, *Museum für Naturkunde der Humboldt-Universität zu Berlin,* for loaning Klug's holotype; and to Mario Elgueta D., *Museo Nacional de Historia Natural,* Santiago, Chile, for the loan of specimens. Linda Lawrence, staff illustrator for the Systematic Entomology Laboratory, prepared the figures of the antenna, wings, and ovipositor of *C. pumilus.* I express appreciation to the following for reviewing this manuscript: W.W. Middlekauff, University of California, Berkeley; Henry Goulet, Biological Resources Division, Agriculture Canada, Ottawa; and N.E. Woodley and D.A. Nickle, Systematic Entomology Laboratory, U.S.D.A., Washington, D.C.

REFERENCES

KIRBY, W.F. 1882. *List of Hymenoptera in the British Museum v. 1. Tenthredinidae and Siricidae*. 450p., London.

KLUG, J.C.F. 1934. Uebersicht der Tenthredinetae der Sammlung (des Berliner entomologischen Museums). *Jb. Insect. 1*: 223-253.

SMITH, D.R. 1988. A synopsis of the sawflies (Hymenoptera: Symphyta) of America south of the United States: introduction, Xyelidae, Pamphiliidae, Cimbicidae, Diprionidae, Xiphydriidae, Siricidae, Orussidae, Cephidae. *Syst. Ent. 13:* 205-261.

_____. 1990. A synopsis of the sawflies (Hymenoptera, Symphyta) of America south of the United States: Pergidae. *Revta bras. Ent. 34*(1): 7-200.

Received 16.06.1993; accepted 10.11.1994.