

PHILIPPUS GERMAIN, A REMARKABLE
LISTRODERINI FROM SOUTHERN SOUTH AMERICA
(COLEOPTERA: CURCULIONIDAE)

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ABSTRACT

The external morphology, body vestiture, and male and female genitalia of the weevil genus *Philippus* Germain (Curculionidae: Rhytirrhinae: Listroderini) were analyzed and illustrated, and a lectotype was selected for *P. insignis* Germain [= *P. superbus* (Reed)]. The genus *Philippus* includes only one species, *P. superbus* (Reed). Several features that easily distinguish it from other genera of the tribe Listroderini are discussed. Its distribution is restricted to the Valdivian region of southern South America. The analysis of morphology and geographical distribution suggests that *Philippus* represents a relictual form, with no clear relationships with other American Listroderini.

The tribe Listroderini (Curculionidae: Rhytirrhinae) is widely distributed in southern cold-temperate regions, mainly southern South America, Australia, and New Zealand. Eleven genera are known from southern South America (Wibmer and O'Brien 1986), nine of them are endemic to this area (one of them, *Listroderes* Schönherr, accidentally introduced into North America and some areas of the Old World) and two (*Listronotus* Jekel and *Lixellus* LeConte) are also widely represented as native elements in the Nearctic Region.

Germain (1895-96), in his monograph on the Chilean Listroderini, provided a characterization of the tribe, a key to the genera, complete descriptions of four genera, and descriptions of many species, especially from the genus *Listroderes* Schönherr. This work is the only synthetic treatment of the tribe, although restricted to a relatively small part of the total range.

Germain considered that the species described in 1872 by Reed as *Listroderes superbus* (the name attributed by Reed to Philippi) was sufficiently distinct from the rest of the species of *Listroderes* and erected for it the genus *Philippus*. Moreover, he described another species, *Philippus insignis*. In 1950, Kuschel established the synonymy of *P. insignis* and *P. superbus* and transferred to *Philippus* the taxon *Heilipus laesicollis* Fairmaire and Germain. Finally, Kuschel (1987) referred *P. laesicollis* to the new genus *Germainius* (Molytinae: Phrynixini). Thus *Philippus* became a monotypic genus.

The distinctive shapes of the pronotum and elytra and the relatively large size of the only known species, among other morphological characteristics, give *Philippus* its distinctive look. The opportunity of studying numerous specimens of this rare taxon allowed the analysis of additional morphological features, especially of the body vestiture and of the male and female genitalia. The scales were analyzed with a scanning electron microscope.

The main objectives of this paper are to provide redescriptions and illustrations for the genus and its type species and to discuss the taxonomic placement of *Philippus*.

MATERIAL AND METHODS

Specimens examined in this study, including a specimen herein designated as lectotype of *P. insignis* Germain, were obtained on loan from the following institutions (codens identify the collections in the text):

- IADIZA Instituto Argentino de Investigación en Zonas Áridas, Mendoza, Argentina (Silvia Clavers).
 MACN Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Buenos Aires, Argentina (Axel Bachmann).
 MHNS Museo Nacional de Historia Natural, Santiago, Chile (Mario Elgueta).
 MLP Museo de La Plata, La Plata, Argentina (Ricardo Ronderos).

Measurements were made with an ocular micrometer in a stereoscopic microscope. Total length was measured dorsally, along the midline, from the apex of the elytra to the fore margin of the pronotum. Observations with the scanning electron microscope were made at the Museo de La Plata with a Jeol-JSM-T100.

The generic and specific status of the characters were determined by taking into account the criteria used in recent studies of other genera of the subfamily, e.g., *Gromilus* and *Nestrius* (Kuschel 1964), *Listronotus* (O'Brien 1981), and *Hyomora* (Louw 1981).

PHILIPPUS GERMAIN

Philippus Germain 1895:314; Schenkling and Marshall 1931:5 (cat.); Blackwelder 1947:812 (cat.); Kuschel 1958:231 (not *Listroderini*), 1960:549; Wibmer and O'Brien 1986:116 (cat.); Kuschel 1987:28 (again in *Listroderini*).

TYPE SPECIES. *Listroderes superbus* Reed 1872:354 (designated by Wibmer and O'Brien 1986:116).

DIAGNOSIS. Size large; scales with finger-like processes; pronotum rounded, strongly vermiculate; scutellum not visible; elytra flat, subrectangular, with oblique series of five declivital tubercles; tibiae lacking spurs; tarsomere 3 cylindrical; and female sternum 8 oval.

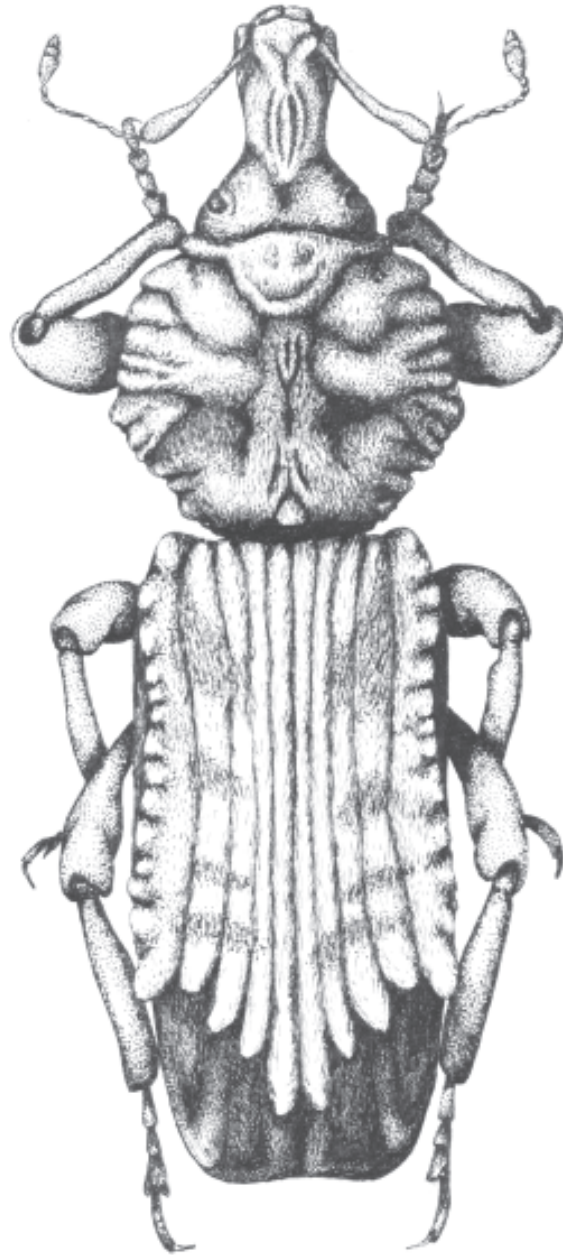
REDESCRIPTION. Habitus (Fig. 1). Body length 17.5–22.8 mm. Integument black; vestiture of small, sparse, recumbent, cupreous, flat scales with apical finger-like processes (Figs. 2–7).

Head convex, small. Frons with deep fovea and inconspicuous median carina. Eyes very small, transverse, flat, lateral. Rostrum weakly curved, shorter than pronotum, ca. twice as long as wide, with three dorsal carinae. Scrobes directed towards but not reaching eyes, visible from above, dorsal carina thick, ventral carina without tooth. Pterygia well developed and protruding. Epistome flat. Mandibles strong, each with three long setae. Mentum with two setae. Antenna inserted subapically, insertion visible from above; scape reaching hind margin of eye when resting in scrobe; article 1 of funicle longer than 2; club elongate, very small, clearly separated from article 7 of funicle, with two distinct sutures (Fig. 8).

Prothorax large, little wider than long, with sides strongly rounded, constricted at apex, loosely attached to elytra; disc strongly sculptured, vermiculate, impressed in arc in anterior portion; postocular lobes very weak.

Scutellum not visible.

Elytra fused at midline, subrectangular, little narrower than prothorax, flat, epipleural carinae prominent, humeri subquadrate, not prominent; declivity nearly vertical; with



Reed

Fig. 1. *Philippius superbus* (Reed), male habitus. Actual size 22 mm.

oblique series of five declivital tubercles on each elytron, on intervals 1-5, apical tubercle small; apex conjointly rounded (male) or produced and with two triangular lobes (female). Metathoracic wings atrophied.

Venter with sterna 3 and 4 short, together shorter than 5; hind margin of sternum 5 rounded in male (Fig. 9), emarginate with median triangular projection in female (Fig. 10).

Legs with femora long, nonclavate; all tibiae mucronate, lacking spurs, with very small corbels; tarsi with each tarsomere 3 cylindrical, not bilobed, with median line on ventral surface denudate.

Male. Aedeagus symmetrical, strongly sclerotized (Figs. 11, 12). Tegmen without parameres.

Female. Sternum 8 oval, apodeme wide, with two separate, independent sclerotized rods (Fig. 13). Hemisternites sclerotized, short, subtriangular; stylus apical, well developed, with long setae (Fig. 14). Spermatheca falciform, thick; spermathecal gland large, attached near spermathecal duct (Fig. 15).

REMARKS AND COMPARATIVE NOTES. The shape of the rostrum, configuration of scrobes, presence of postocular lobes, and tegmen of aedeagus lacking parameres place the genus *Philippus* among the Listroderini. The absence of tibial spurs, tarsomere 3 cylindrical, and scutellum not visible are characters that seem strange for the tribe. Within the Listroderini, *Philippus* is not closely related to any other genus.

On the other hand, *Philippus* superficially resembles *Germainius* (Molytinae: Phrynixini). They both share several features, like the large size, sparse body vestiture, eyes small and transverse, pronotal disc strongly sculptured, and elytra subrectangular and flat. *Germainius* can be distinguished easily from *Philippus* by its narrower, longer rostrum (ca. three times as long as wide), with weak median carina; scape not reaching eyes; prothorax slightly narrower than elytra, postocular lobes large, partly covering eyes; elytra with humeri strongly tuberculate, only two declivital tubercles on each elytron; and tarsomere 3 bilobed.

DISTRIBUTION. *Philippus* is known from the provinces of Malleco, Valdivia, Osorno, Llanquihue, Chiloé, and Aisén in Chile, and Neuquén in Argentina. The Chilean distribution lies entirely within the Valdivian region, as discussed by Kuschel (1960) and O'Brien (1971).

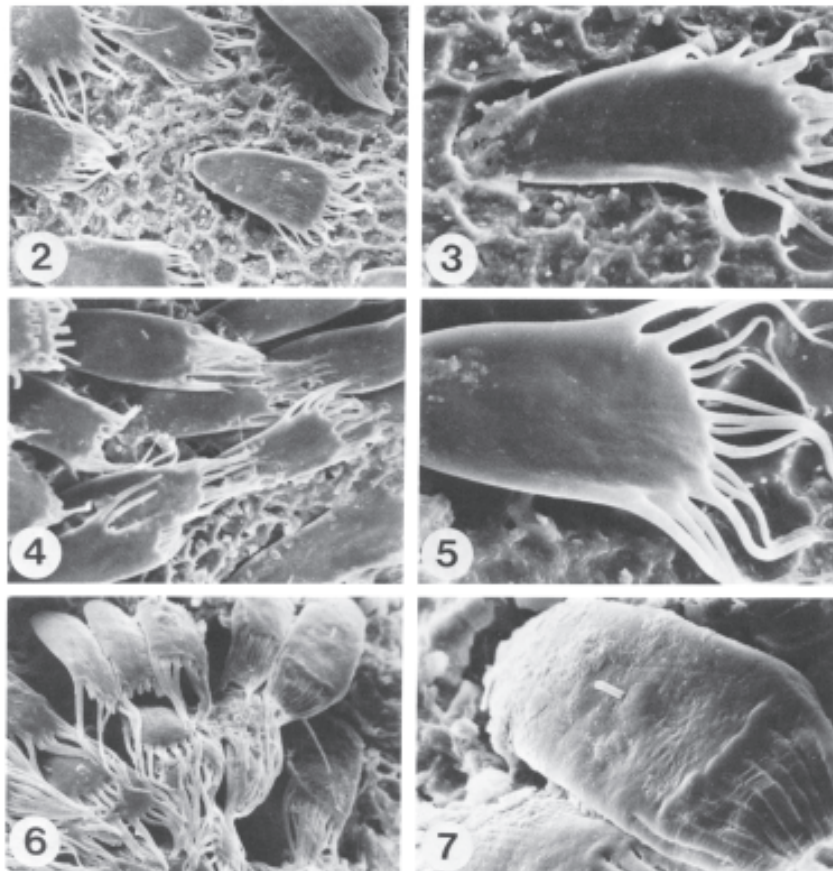
Philippus superbus (Reed)
(Figs. 1-15)

Listroderes superbus Reed 1872:354; Kolbe 1907:103 (cat.); Schenkling and Marshall 1931:10 (cat.); Blackwelder 1947:813 (cat.).

Philippus insignis Germain 1895:315; Schenkling and Marshall 1931:5 (cat.); Blackwelder 1947:812 (cat.); Kuschel 1950:13 (syn. of *P. superbus*).

Philippus superbus; Germain 1895:314; Kuschel 1950:13; Wibmer and O'Brien 1986:116 (cat.); Kuschel 1987:28.

REDESCRIPTION. Integument black, matte due to conspicuous alveolate microsculpture. Scales of one basic type on entire body; flat, with 12-16 apical finger-like processes. On elytra, density of scales and length and direction of scale processes vary considerably according to location. Basally, scales sparse, not or slightly imbricate (Fig. 2), with processes short, ca. 1/2 length of plate, and abundant (Fig. 3). Near apex of declivity, scale density and imbrication increase (Fig. 4), with processes reaching 1/2 length of plate and directed caudad (Fig. 5). On tubercles of apical declivity scales densely imbricate (Fig. 6), with processes very long, subequal to length of plate and closely joined together (Fig. 7).

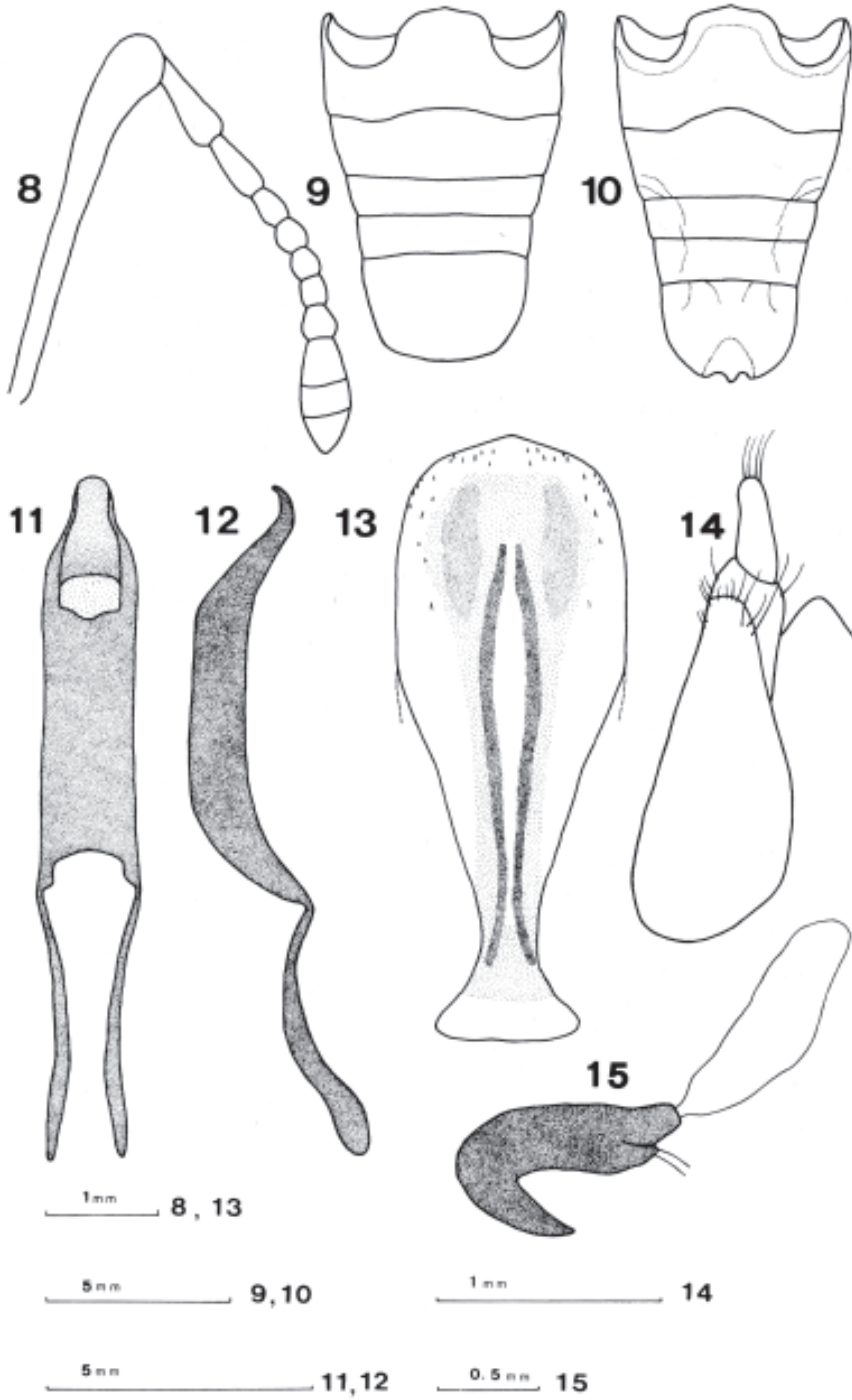


Figs. 2-7. *Philippius superbus* (Reed), elytral vestiture. 2, 3, basal portion: 2, general view, 500 \times ; 3, detail of one scale, 1,000 \times . 4, 5, region near apex of declivity: 4, general view, 500 \times ; 5, detail of one scale, 1,500 \times . 6, 7, declivital tubercle: 6, general view, 500 \times ; 7, detail of one scale, 1,500 \times .

Head with numerous rugae, especially behind eyes. Rostrum 0.7-0.9 times length of pronotum; dorsal carinae thick, lateral carinae convergent with median carina in basal portion. Antenna with scape rather thick, gradually widening towards apex; first article of funicle 1.3-1.5 times as long as 2, other articles progressively shorter, 7 broader than 6; club 2.3-2.7 times as long as wide.

Prothorax quadrate to 1.2 times as broad as long, rugae very numerous at lateral margins, delimiting large protuberances on disc, with median carina interrupted by apical impression.

Figs. 8-15. *Philippius superbus* (Reed). 8, antenna, lateral view. 9, abdominal sterna, male. 10, abdominal sterna, female. 11, aedeagus, dorsal view. 12, aedeagus, lateral view. 13, female sternum 8, ventral view. 14, hemisternite, ventral view. 15, spermatheca, lateral view.



Elytra 1.6–1.7 times as long as broad, widest at apical $\frac{1}{3}$; epipleural carinae with transverse striae, intervals moderately convex; elytral tubercles 3 + 4 fused and tubercle 5 anteriorly displaced in female, unmodified in male.

Abdominal sterna wider in male; 1 and 2 impressed in male, convex in female; sternal lengths 3:2.5:1:1:3 (male), 2:2:1:1:1.5 (female).

Total length (pronotum + elytra): 17.5–22.8 mm.

Male. Aedeagus (Figs. 11, 12) with flat dorsal surface; apex rounded, short, bent ventrad; apodemes compressed.

Female. Sternum 8 (Fig. 13) strongly sclerotized; with few subapical to apical, very short setae; length 5.4 mm, width 2.1 mm. Hemisternites as in Fig. 14. Spermathecal length 1.16 mm, maximum width 0.36 mm (Fig. 14).

MATERIAL EXAMINED. Lectotype male of *P. insignis* Germain, MHNS #2342. From the original description it is inferred that Germain had more than one specimen at hand when describing the species, but in the Germain collection there remains only one specimen, which was incorrectly considered by Camousseight (1980) as the holotype. This single syntype is here selected as lectotype, and bears the following labels (each separated by square brackets with a slash to separate each line): [δ] [*Philippius insignis* / P. G.] [Sintipo] [Chile / tipo N 2342] [*Philippius superbus* (Reed) / J. Moroni det. 1973] [Lectotipo δ / *Philippius insignis* Germain 1895 / Juan J. Morrone desig. / 1990 (red label)]. The type material of *Listroderes superbus* Reed could not be located.

Additional specimens: **ARGENTINA.** Neuquén: Río Pucará, 5-XII-1959, Swaryczewsky col., 1 (MLP). **CHILE.** Malleco: Monumento Nacional Contulmo, 15-XII-1985, Roig Juñent col., 1 (IADIZA). Osorno: Parque Nacional Puyehue, Agua Caliente, XII-1984, Roig Juñent col., 1 (MLP). Llanquihue: P. N. Vicente Pérez [Rosales], Cerro Derrumbe, 14-III-1974, Solervicens col., 1 (MHNS). Aisén: Laguna San Rafael, Ladera Norte, 15-I-1978, Riveros col., 1 (MHNS). *Without precise data:* Chile, Bruch col., 1 (MACN).

DISCUSSION

The unusual characters of the genus *Philippius* led Kuschel (1958) to doubt the placement of the genus in the tribe Listroderini, but in 1987 he confirmed its placement in this tribe.

Some morphological characters, e.g., absence of tibial spurs or tarsomere 3 cylindrical, make it difficult to include *Philippius* in the tribe Listroderini. In fact, when *Philippius* is compared with the other South American Listroderini, the area with which relationships would appear most likely on geographical grounds, it is evident that no genus shows close affinity with it.

Among the peculiarities of *Philippius*, its superficial similarity with the genus *Germainius* Kuschel is one of the most interesting. The latter belongs to the tribe Phrynixini of the Molytinae, and is based on *Heilipus laesicollis*. Due to its similarity, this species was once referred by Kuschel (1950) to *Philippius*. The characters shared by both genera are hypothesized here as products of convergent evolution.

The distribution of *Philippius* is restricted to the Valdivian region. This region is part of the southern cold-temperate portion of South America, which is characterized by numerous endemic elements and its fauna is related to other southern continents.

The analysis of the external morphology and geographical distribution suggests that *Philippius* represents a relictual form, widely separated from the rest of the Listroderini, and without clear relationships with the other South American genera. For this reason, its cladistic placement cannot be properly assessed

until the relationships of the Listroderini within the subfamily Rhytirrhinae as a whole are considered. Until then, it seems best to leave this genus in the Listroderini, although this placement is not without doubt.

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