

A Revision of *Perissocentrus* Crawford (Hymenoptera: Torymidae)

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Abstract.—The South American genus *Perissocentrus* is revised. Six valid species are recognized: *P. argentinae* Crawford, *P. caridei* Brèthes, *P. chilensis* Crawford, *P. phormio* (Walker) (with *Monodontomerus vianai* Blanchard and *Megastigmus porteri* Brèthes as new synonyms), *P. striatulus* n. sp., and *P. tumidulus* n. sp. A neotype is designated for *P. caridei*. *Perissocentrus bruchi* Girault is transferred to the genus *Zaglyptonotus* Crawford. All species of *Perissocentrus* have been reared as parasites of lepidopterous pupae, but two species also are facultative hyperparasites of Ichneumonidae which attack the pupae.

The genus *Perissocentrus* Crawford is known from the Neotropical region between 10° north of the equator and 40° south. Five species were previously recognized. This is the first revision of the genus and it is based upon my study of type material and nearly 600 reared and collected specimens. I recognize 6 species as valid: *argentinae* Crawford, *caridei* Brèthes, *chilensis* Crawford, *phormio* (Walker) (with new synonyms *Megastigmus porteri* Brèthes and *Monodontomerus vianai* Blanchard), *striatulus* n. sp., and *tumidulus* n. sp. *Perissocentrus bruchi* Girault is transferred to the genus *Zaglyptonotus* Crawford. All species were reared as parasitoids of lepidopterous pupae, but 2 species were reported also as hyperparasites of ichneumonids attacking the pupae. It is possible that most, if not all, species act as facultative hyperparasites. Included in this paper is a host-parasite list (authors' names for hosts appear only in this list).

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Argentina (FCNM); J. M. Gallardo, Museo Argentina de Ciencias Naturales 'Bernardino Rivadavia,' Buenos Aires, Argentina (MBR). USNM is used for material housed in the United States National Museum of Natural History.

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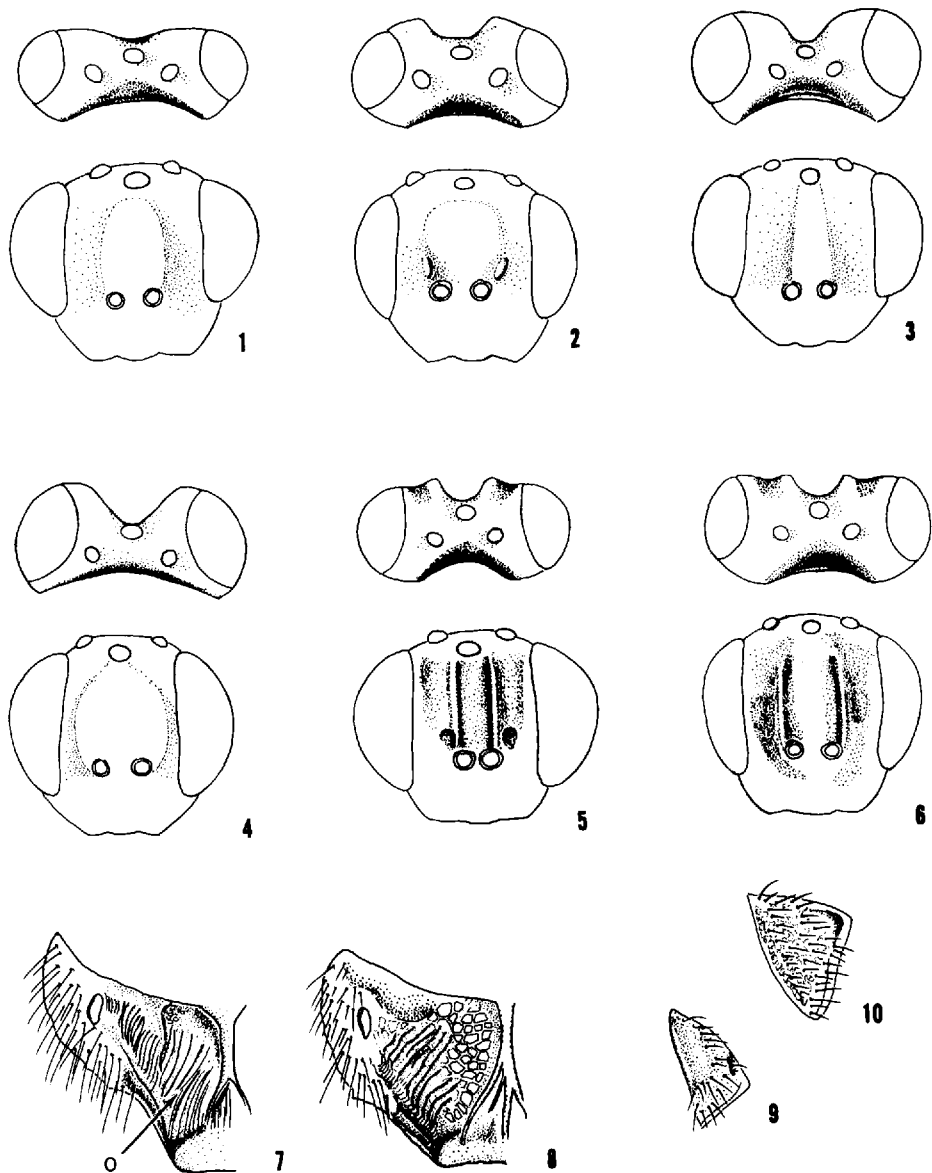
PERISSOCENTRUS Crawford 1910

Fig. 26, habitus

Perissocentrus Crawford 1910:235.

Type species: *Perissocentrus chilensis* Crawford. Original Designation.

Diagnosis.— Occipital carina (Fig. 18) present, ventrally joining hypostomal carina, placed midway between vertex and foramen; head in dorsal view transverse (Fig. 1-6, upper); antenna with first flagellomere (i.e. ring segment) reduced, much wider than long; antennal club 3-segmented; clypeal apex straight; marginal vein 4 to 5X longer than stigmal, postmarginal 2X longer than stigmal; frenal groove present; notauli complete; hindfemur with single, subapical tooth (Figs. 11-14) and sometimes with secondary distal lobe (Figs. 11-13); hindtibia (Figs. 11-14) straight, apex truncate, 2 hindtibial spurs inserted 1/5th or more distance from apex (Fig. 15), greatly elongate, the shorter one not extending much beyond hindtibial apex; propodeum projecting beyond metapleuron (Fig. 23), with well developed median carina (Figs. 7-8), sublateral foveae absent; hindcoxa setose dorsally;



Figs. 1-10. *Perissocentrus*. 1-6, Heads, frontal view (lower), dorsal view (upper). 1, *P. argentinae* (female). 2, *P. tumidulus* (male). 3, *P. phormio* (male). 4, *P. chilensis* (male). 5, *P. caridei* (male). 6, *P. striatulus* (male). 7-8, Propodea, left half, dorsal view (o=oblique carinae). 7, *P. striatulus*. 8, *P. caridei*. 9-10, Metapleuron, side view (left margin anterior). 9, *P. phormio*. 10, *P. argentinae*.

metasternum (Fig. 22) with hindcoxal foramen separated by sclerotized plate; metasomal tergum 2 posteriorly straight (Figs. 19-20).

Remarks.— Among torymid genera *Perissocentrus* and the monotypic Australian genus *Aloomba* Girault are the only two that have elongated hindtibial spurs which are located at least one-fifth or more the length of the hindtibia basad of the apex (Figs. 11-15). The condition of elongate spurs is known also in New World *Zaglyptonotus*, but in this genus the spurs are inserted at the apex of the tibia (Fig. 16) instead of proximally (Fig. 15). Modifications of hindtibial spurs also occur in *Platykula* Huber (Nearctic) and *Rhynchotricida* Bouček (Afrotropical), but in these cases they are modified in thickness rather than length. There is one species of *Monodontomerus* (*M. strobili* Mayr) which has elongate spurs. I point this out as an indication that spur modification is a homoplasious character and does not necessarily indicate relationship.

Although *Perissocentrus* and *Aloomba* appear phenetically similar, they would not be confused at present because they occur in different zoogeographic regions. Alternatively, *Perissocentrus* and *Zaglyptonotus*, which occur in the same region, might superficially be confused because both have elongated hindtibial spurs. *Perissocentrus* differs in that the occipital carina is comparatively low on the head (Fig. 18) and ventrally contiguous with the hypostomal carina (high on the head and not reaching hypostomal carina in *Zaglyptonotus*, Fig. 17), the shorter of the two hindtibial spurs scarcely projects beyond the tibial apex (Fig. 15) (projecting much further in *Zaglyptonotus*, Fig. 16), metasomal tergum 2 is entire apically (Figs. 19-20) (emarginate

in *Zaglyptonotus*, Fig. 21), the propodeum is elongate (Fig. 23) (scarcely projecting beyond metapleuron in *Zaglyptonotus*, Fig. 25), and the metasternum is differently constructed, with the hindcoxal foramina separated from the anterior margin of the metasternum (Fig. 22) (touching margin in *Zaglyptonotus*, Fig. 24). The presence or absence of a frenal area and/or groove used by Crawford (1914) to separate the genera cannot always be relied upon because a few undescribed *Zaglyptonotus* (as defined above) have a faint frenal groove.

Perissocentrus appears to be most closely related to *Monodontomerus* and differs from it in two character states: the elongate and subapically placed hindtibial spurs (unmodified and apical in *Monodontomerus*) and the metasternum with the hindcoxal foramina separated from the posterior margin of the metasternum (Fig. 22) (touching margin in *Monodontomerus*, as for *Zaglyptonotus* Fig. 24). Both states found in *Perissocentrus* are hypothesized as apomorphic based upon my unpublished analysis, and my data indicate that *Perissocentrus* and *Monodontomerus* are sister taxa derived from a common ancestor and that *Perissocentrus* is the more specialized of the two taxa.

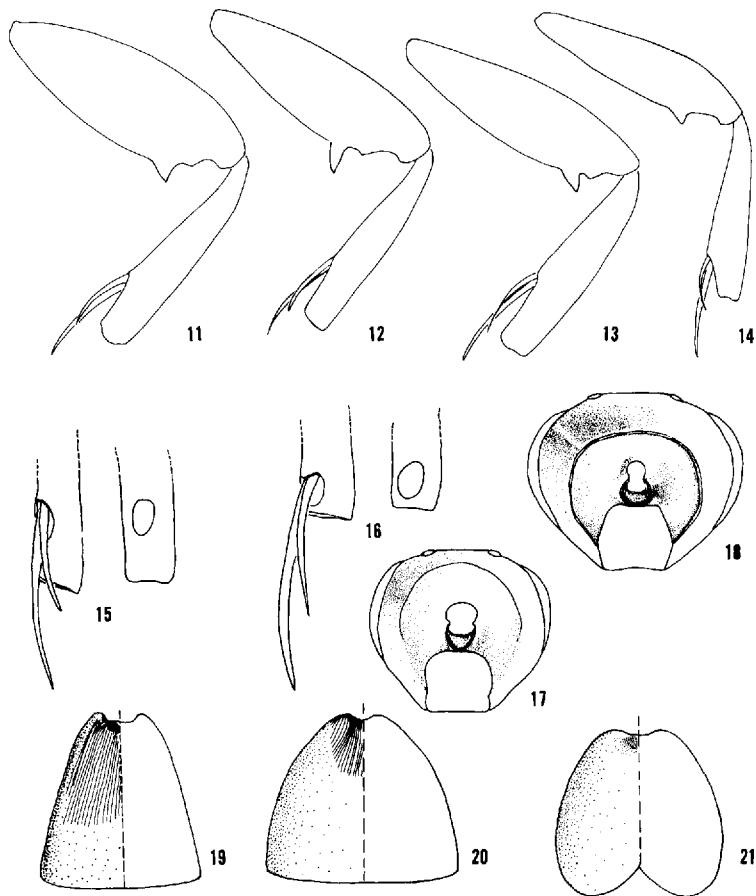
Perissocentrus, with 6 Neotropical species seems to replace *Monodontomerus* in that region. There are 2 known species of the latter genus in South America, but 10 to 15 species in the Nearctic.

Species of *Perissocentrus* display a remarkably broad array of characters and character states, and are sexually dimorphic for some of these states. The following key is artificial and not necessarily indicative of relationships.

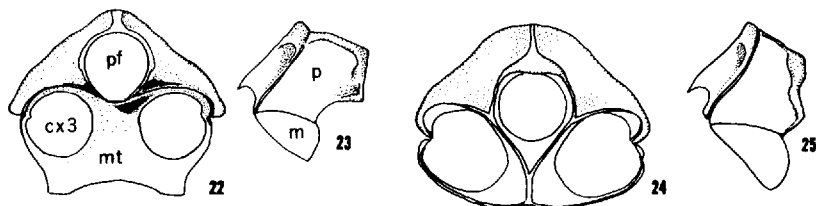
KEY TO FEMALE AND MALE PERISSOCENTRUS

- | | | |
|----|--|-----------------------------------|
| 1. | Hindfemur with secondary lobe distad of ventral tooth (Figs. 11-13); | 2 |
| — | Hindfemur without secondary lobe distad of ventral tooth (Fig. 14). | 4 |
| 2. | Metapleuron completely setose (Fig. 10); female scape yellow or yellow and green | <i>argentinae</i> Crawford |
| — | Upper metapleuron anteriorly without setae (Fig. 9); female scape entirely green | 3 |
| 3. | Scrobal depression reaching midocellus (Fig. 4); hindtibial spurs inserted 2/5 distance from distal apex (Fig. 13); female scape almost reaching ventral edge of midocellus; male without polished tumescence on lateral edge of scrobal depression above torulus (Fig. 4) | <i>chilensis</i> Crawford |
| — | Scrobal depression not reaching midocellus (Fig. 2); hindtibial spurs inserted 1/3 distance from distal apex (Fig. 12); in female, scape clearly not reaching ventral edge of midocellus; male with polished tumescence on lateral edge of scrobal depression above torulus (Fig. 2) | <i>tumidulus</i> Grissell, n. sp. |

4. Metasomal tergum 2 entirely polished; male with lateral margins of scrobal depression gradually curving onto frons which is neither sunken nor depressed (Fig. 3)..... *phormio* (Walker)
- Metasomal tergum 2 with basal 1/3 to 2/3 longitudinally striate (Figs. 19-20); male with scrobal depression laterally margined by raised border, frons sunken laterad of border (Figs. 5-6)..... 5
5. Frenal area and metapleuron (as in Fig. 10) entirely setose and sculptured; propodeum with incomplete posterolateral oblique carinae and anterolateral reticulation (Fig. 8)..... *caridei* Brèthes
- Frenal area asetose, medially polished; upper anterior area of metapleuron asetose (as in Fig. 9) and barely sculptured; propodeum laterally with oblique carinae (Fig. 7) and no reticulations..... *striatulus* Grissell, n. sp.



Figs. 11-21. *Perissocentrus* and *Zaglyptonotus*. 11-14, Left hindfemur and tibia (outer view). 11, *P. argentiniae*. 12, *P. tumidulus*. 13, *P. chilensis*. 14, *P. phormio*. 15-16, Apex of hindtibia, side view (left), ventral view with apical spurs removed (right). 15, *P. caridei*. 16, *Z. mississippiensis*. 17-18, Heads, back view. 17, *Z. schwarzi*. 18, *P. tumidulus*. 19-21, Metasomal tergum 2, dorsal view (only left half showing sculpture). 19, *P. striatulus*. 20, *P. caridei*. 21, *Z. schwarzi*



Figs. 22-25. *Perissocentrus* and *Zaglyptonotus*. 22, 24, Thoracic metasternum, ventral view; cx3 = hindcoxal foramen; mt = metasternum; pf = propodeal foramen. 23, 25, Propodeum (p) and metapleuron (m), side view (right side posterior). 22-23, *P. tumidulus*. 24-25, *Z. schwarzi*.

Perissocentrus argentineae Crawford

Figs. 1, 10, 11

Perissocentrus argentineae Crawford 1910:236. 3 female, 1 male syntypes, Ceres, Argentina. Lectotype female, USNM, herein designated.

Perissocentrus argentineae Brad.; Brèthes 1917b:374 (Fig. 11), 377. Erroneously attributed to "Bradford."

Diagnosis (both sexes except as noted).—Scape in female yellow or apical half green, in male entirely green, not reaching ventral edge of midocellus; scrobal depression obscure dorsally (Fig. 1), not reaching midocellus, sculpture varies centrally with some small polished areas surrounded by faint reticulation, setae continuous from sides of frons ventrad of midocellus, depression not deeply excavated in dorsal view (Fig. 1, upper), male depression unmodified on lateral edge above torulus; genal sulcus faint and visible only at some angles of view or only at base of eye; metapleuron covered with setae (Fig. 10), sculptured similarly overall; frenum without setae, sculptured similarly overall; hindfemur (Fig. 11) with secondary lobe distad of ventral tooth, hindtibial spurs inserted 1/3 distance from tibial apex; propodeum with few incomplete longitudinal carinae, surface nearly entirely reticulate; metasomal tergum 2 entirely polished; ovipositor 1.0 to 1.2 X length metasomal tergum 2.

Type Material.—*Perissocentrus argentineae* was described from the syntype series in USNM as noted above. All specimens bear the label data "Ceres, Argentina" and I designate one female lectotype with my handwritten label.

Material Examined.—In addition to the type material I saw 251 females and 162 males of this species from the following localities (all specimens USNM except as noted): ARGENTINA: 1 female, 1 male, San Javier (Prov. de Tucuman - locality not verified for this Province), I-1940, Bridarolli; 1 male,

San Martin (Prov. Mendoza), 9-XII-1967 on Prosopis; 19 females, 15 males, Tucuman (Prov. de Tucuman), XI-1953 (CNC); 225 females, 149 males, Buenos Aires (Prov. Buenos Aires), I-III-1958 and X-1949, some ex *Papilio polydamas* (CNC). CHILE: 1 female, Piscicultura (Aconcagua), 17-XI-1959 (CNC). URUGUAY: 4 females, 6 males, Pando, III-IV-1943, H. L. Parker, ex *Oiketicus ?geyeri*. BRAZIL: 1 female, "Pelotas," A. Ronna (MBR).

Distribution.—This species is known from Paraguay (De Santis 1979), southern Brazil (Parker et al. 1953), Uruguay, Chile, and northern Argentina.

Hosts.—*Perissocentrus argentineae* has been reported as a primary parasite of large Lepidoptera with emergence from the pupal stage. Parker, et al. (1953) reared *Perissocentrus argentineae* from an arctiid chrysalid (in Brazil) and from *Oiketicus* sp. (*?geyeri*) (Psychidae) from Uruguay. I examined these last-named specimens and confirmed the identity of the parasite. The host *Oiketicus platensis* was listed by Brèthes (1917a, 1917b, 1920b). I have seen several long series reared from *Battus polydamas* (Papilionidae, new host record).

Discussion.—*Perissocentrus argentineae* is unique among all species of the genus in having the hindfemur with a secondary lobe (Fig. 11) in combination with a completely setose metapleuron.

There is much confusion concerning this species in relation to *caridei*, and I discuss the problem and methods to separate them at some length under the latter species.

According to Crawford (1910), *P. argentineae* is the correct name for the species which Künckel (1905, 1908) called *Monodontomerus phormio* Walker in several papers on the biology of the species. There is no basis for Crawford's conclusion because he examined neither Walker's type nor Künckel's material. I have seen Walker's type (see discussion under *phormio*) and it is distinct from *P. argentineae*.

Because no specimens of Künckel's material were found, it is doubtful that anyone will be able to verify his identification.

Perissocentrus caridei Brèthes

Figs. 5, 8, 15, 20

Perissocentrus caridei Brèthes 1917a:340. **Nomen Nudum.**

Perissocentrus argentinæ var. *caridei* Brèthes 1917b:377-378. 1 female, 1 male syntypes, Argentina, destroyed. Neotype female, herein designated, MBR.

Perissocentrus caridei Brèthes; DeSantis 1967:185. **Revised status.**

Diagnosis (both sexes except as noted).—Scape in female yellow, in male green, not reaching venter of midocellus; scrobal depression reaching midocellus, evenly sculptured overall, asetose, relatively narrowly excavated in dorsal view, in male (only) margined by raised border laterally (Fig. 5, upper), frons sunken laterad of border and slight teardrop depression present on lateral edge of scrobal depression above torulus (Fig. 5, lower); genal sulcus absent or visible only at base of eye; metapleuron covered with setae, sculptured similarly overall (as for *argentinæ*, Fig. 10); frenal area scarcely perceptible as a region, completely setose and evenly sculptured; hindfemur without secondary lobe distad of ventral tooth (as in *phormio*, Fig. 14); hindtibial spurs inserted 1/5 distance from tibial apex (Fig. 15); propodeum with incomplete, posterolateral oblique carinae and anterolateral reticulation (Fig. 8); basal third of metasomal tergum 2 longitudinally striate (Fig. 20); ovipositor 1.3 to 1.5 X length metasomal tergum 2.

Type Material.—The problem of type material (and subsequent confusion with the species *P. argentinæ*) for this species is complicated, and the following discussion is given in the interest of nomenclatural stability. "*Perissocentrus caridei* n. sp." was mentioned by Brèthes without description in one paper (1917a:340), but was not described until a few pages later in a different paper in the same journal (Brèthes 1917b:377). Here he described it as "*Perissocentrus argentinæ caridei* n. var.," apparently from 1 female and 1 male as he gave only one length for each sex. No holotype was designated.

In searching for Brèthes' types, Dr. Jose Maria Gallardo (Museo Argentino de Ciencias Naturales Bernardino Rivadavia) was able to find only "a slide with dissected parts of the [incomplete] type."

This is labeled in Brèthes' handwriting with only the name and the word "type." Included on this slide are the mouthparts and one antenna of a male based upon the color of the scape. Because no holotype was selected in the description, and because the only remnant of the syntype series is a mandible and antenna, I am designating as lectotype for *P. argentinæ caridei* the illustration of the female given by Brèthes (1917b, Plancha III). The slide material of the male thus becomes a paralectotype. In ICZN Article 74(c) (1985) the statement is made that "designation of an illustration . . . of a syntype as a lectotype is to be treated as designation of the specimen illustrated." Since the lectotype specimen no longer exists, and since the circumstances of recognition of this species are exceptionally confused (see next paragraph), I follow ICZN Article 75(b)iii (1985) in designating a neotype in spite of the existence of a surviving paralectotype which, according to this section of the code, ". . . does not in itself preclude the designation of a neotype."

An argument cannot be made for designating a neotype based upon the supposition that syntypes are no longer extant because, in fact, parts of a syntype actually exist. Therefore one cannot use the "exceptional circumstances" argument (ICZN Article 75(b)ii) to overcome the problem of stability. The use of the illustration in this case is, in my opinion, the most viable option, within the parameter of the code, to settle the problem of stability.

The selection of a neotype is necessary because there is considerable confusion over what Brèthes really meant by the name "*caridei*." As previously mentioned, Brèthes listed *caridei* as a species (1917a) then described it as a variety of *argentinæ* (1917b). He realized that 2 taxa were present (1917b) because he gave habitus figures for both *argentinæ* (Plancha II) and *argentinæ* var. *caridei* (Plancha III). He repeated these figures again in 1920b (in which *caridei* is still referred to as a "n. var."). It is doubtful that Brèthes examined specimens of *argentinæ* described by Crawford, and we might presume that his concept of Crawford's species was based upon specimens taken from nearly the same localities (Crawford's from Santa Fe; Brèthes' from Cordoba and Buenos Aires).

In describing *caridei*, Brèthes did not mention differences between it and *argentinæ* so we must work from present knowledge to resolve the problem. The illustrations are not very helpful as they do not elucidate any diagnostic characters. Brèthes,

in 1918, identified some material from southern Brazil as *P. a. caridei*, and I borrowed these specimens through the courtesy of Dr. Gallardo (MBR). From these specimens and the type of *P. argentinae* Crawford, I conclude that *caridei* is a valid species and readily distinct from *argentinae* (I discuss these differences below, under the Discussion section).

In the interest of nomenclatural stability I herein designate a neotype from Brèthes' own material. It is selected from specimens mounted on two cards on the same pin; 4 female specimens are on the upper card and 4 females and 1 male on the lower card. The data label reads "E. Ronna, Pelotas." The neotype female is on the upper card with a black arrow pointing to it. It is in the MBR.

Material examined.— In addition to the above material I saw 3 female and 4 males as follows (all USNM): BRAZIL: 3 females, 2 males, Sao Paulo, 21-III-1942, H.L. Parker, ex Lepidoptera chrysalid ("?primaries"); 2 males, Mato grosso, 1934, J. Lane.

Distribution.— Reported in the literature from southern Brazil (De Santis 1980) and Uruguay (De Santis 1979) south to central Argentina (De Santis 1967). I can confirm only the Brazil records.

Hosts.— *Perissocentrus caridei* has been repeatedly listed as a parasite of *Oiketicus platensis* (Psychidae) (e.g., Brèthes 1917a,b, 1920b; Koehler 1939) and De Santis (1967) gives also *Oiketicus geyeri* (Psychidae) and *Battus polydamas* (Papilionidae) as hosts.

Discussion.— As I pointed out above in the discussion of type material, the names *caridei* and *argentinae* have been confused since Brèthes' first description of *caridei*. In part this confusion exists because both species are reared from the same hosts, namely *Oiketicus platensis* and *O. geyeri*, and because they appear to have similar geographic distributions.

Perissocentrus caridei (both sexes) is the only species of the genus that has the frenal area entirely covered with setae (i.e., similar to remainder of scutellum); all other species have the frenum without setae. *Perissocentrus argentinae* has a few long recurved setae which project backward over the frenal area but they are situated in the frenal groove, never on the frenum itself. Additionally, *caridei* has only a single tooth on the hindfemur (as in *phormio*, Fig. 14) whereas *argentinae* has a prominent lobe distal to the tooth (Fig. 11). Further, *caridei* has metasomal tergum 2 with the basal third longitudinally striate (Fig. 20) whereas in *argentinae* metasomal tergum 2 is entirely smooth.

Havrylenko and Winterhalter (1949:44) provided a full page habitus drawing of *caridei* from Argentina, but it is so generalized that it could be any species of *Perissocentrus*.

Perissocentrus chilensis Crawford

Figs. 4, 13

Perissocentrus chilensis Crawford 1910:235-236. Number of specimens unknown, Santiago, Chile. Lectotype female, USNM, herein designated.

Diagnosis (both sexes except as noted).— Scape green, almost reaching venter of midocellus in female but not male; scrobal depression in female essentially parallel-sided and reaching midocellus, narrowly impressed (i.e., face between outer edge of depression and eye about as wide as scapal depression, as in Fig. 1 for *argentinae*), broadly impressed in male, i.e., face between outer edge of depression and eye narrower than width of scapal depression (Fig. 4), depression in both sexes essentially polished (very slight sculpture and a few setae may be detected below midocellus at magnification of 50X and above), scrobal depression distinctly impressed in dorsal view, male without modification on lateral edge above torulus; genal sulcus present; upper metapleuron anteriorly without setae (as in *phormio*, Fig. 9), sculptured similarly overall; frenum without setae, faintly reticulately sculptured overall (may appear shiny in some views); hindfemur (Fig. 13) with secondary lobe distad of ventral tooth; hindtibial spurs inserted 2/5 distance from apex; propodeum with complete longitudinal carinae, intercarinal surfaces smooth; metasomal tergum 2 entirely polished; ovipositor 0.9 to 1.1X length metasomal tergum 2.

Type Material.— The number of specimens used for the original description was not given by Crawford (1910). Twelve syntypes (7 females, 5 males) from Santiago, Chile now reside in the USNM collection, and I designate by label 1 female as lectotype.

Material examined.— In addition to the type material I saw 13 females, 11 males all from CHILE as follows: 1 female, Colina (El Portezuelo), XI-1978 (USNM), 11 females, same, coll. III-1988, 5-IV-15-V-1988, L. E. Peña (CNC); 1 female, Fundo Malcho, 11-20-XI-1964, L. E. Peña (CNC); 8 males, rd. to Ovalle, 17-II-1985, I. Gauld (CNC); 2 males, Aysen, Chico, 24-31-XII-1960, L. E. Peña (CNC), 1 male, Chovellen, Maule, 5-XII-1953, L. E. Peña (CNC).

Distribution.— Known only from Chile.

Hosts.— This species was described originally from the saturniid *Ormiscodes crinita* (now = *cinnamomea*) (Saturniidae). De Santis (1979) also recorded the hosts *Cercophora* (= *Cercophana*) *frauenfeldii* (Saturniidae) and *Thanatopsyche chilensis* (Psychidae). I have not verified these last hosts.

Discussion.— *Perissocentrus chilensis* is defined by the combination of hindfemur with a secondary lobe, the upper metapleuron anteriorly without setae, and the scrobal depression which reaches the midocellus. In addition to the key characters cited above, *P. chilensis* is separated from *P. tumidulus* by the ovipositor which is at most 1.1X the length of metasomal tergum 2 (over 1.5X as long in *tumidulus*).

***Perissocentrus phormio* (Walker)**

Figs. 3, 9, 14

Torymus phormio Walker 1843:113. Lectotype female, Valparaiso. BMNH, examined.

Monodontomerus phormio (Walker); Künckel 1905:227-228. Generic transfer.

Perissocentrus phormio (Walker); Bouček 1983:2. Generic transfer.

Megastigmus porteri Brèthes 1916:9. 1 female, 1 male syntypes, Santiago, Chile. ?MBR, presumably lost. NEW SYNONYMY.

Perissocentrus porteri (Brèthes); Brèthes 1920a:15. Generic transfer.

Monodontomerus vianai Blanchard 1936:7-9 (Fig. 1a-d). Number of syntypes unknown. "provincia Salta." [Types reported in Blanchard's collection and the entomology laboratory of the "Division de Zoología Agrícola del Ministerior de Agricultura de la Nación", not found.] NEW SYNONYMY.

Diagnosis (both sexes except as noted).—Scape green, not reaching venter of midocellus; scrobal depression reaching midocellus, centrally polished from torulus nearly to midocellus (may be small triangular patch of sculpture ventrad of ocellus), in female relatively narrowly excavated in dorsal view, in male (Fig. 3) lateral margins not bordered but gradually curving onto frons which is not sunken or depressed and without modification on lateral edge above torulus; genal sulcus present but faint and visible only at some angles of view; upper metapleuron anteriorly without setae, polished (Fig. 9); frenum without setae, sculptured but medially nearly polished; hindfemur (Fig. 14) without secondary lobe distad to ventral tooth; hindtibial spurs inserted 1/4 distance from tibial apex; propodeum with complete longitudinal carinae, intercarinal surfaces smooth; metasomal tergum 2 entirely polished; ovipositor 1.2 to 1.5 X length metasomal tergum 2.

Type Material.— *Torymus phormio* was apparently described from one specimen, designated as lectotype by Z. Bouček in BMNH (Hym. Type 5.54). The syntypes of *Megastigmus porteri* Brèthes have not been found in MBR, but J.M. Gallardo of that museum has sent 2 females from Santiago, Chile (the type locality) which are identified by Brèthes as "*Perissocentrus porteri* (Brèthes) Brèthes." These are apparently the specimens which Brèthes (1920a) used to transfer the specimens from *Megastigmus* to *Perissocentrus* and I used them as the basis for my interpretation of *P. porteri*. *Monodontomerus vianai* Blanchard was described from an unspecified number of females and males collected by Viana. Attempts to locate these specimens proved unsuccessful, but in the collection of FCNM are 2 females and 1 male (on a single pin) collected by Viana and labeled as "*Monodontomerus vianai* n. sp. Blan." These specimens come from the province of "BsAs" (= Buenos Aires) and not Salta as specified in the original description. I have used these specimens as the basis for my interpretation of *M. vianai*.

Material examined.— In addition to the types, I have seen 15 females and 5 males from the following localities (all specimens USNM except as noted): BOLIVIA: 1 female, 1 male, (no locality), XII-1972, B. Rose, with *Melipotis* material. CHILE: 1 female, 1 male, La Rosa, IX-1952, O. Higgins, secondary parasite of *Cirphis* (= *Leucania*); 1 female, Los Trancas (Andes Range), 20-25-II-1980; 1 female, Castro, 12-XII-1940, P. A. Bery, on *Ormiscodes*; 1 male, Las Cruces, V-1961, N. Krauss; 1 female, Las Cruces, X-1958, L. E. Peña (CNC); 1 female, 1 male, Valdivia, 19-I-1974, J. Naray, hyperparasite of *Ichneumonidae*; 1 female, Rio Bio Bio, 2-6-I-1959 (CNC); 2 females, Fundo Malcho, XII-1957, L. E. Peña (CNC); 1 female, Arauco, 20-28-I-1959, L. Peña (CNC); 1 female, 8 km. down from Termas Chillan, 16-I-1985, I. Gauld (CNC); 1 female, 48 km. along Santiago-Disputada rd. 9-I-1985 (CNC); 2 females, rd. to Ovalle, 17-II-1985, I. Gauld (CNC); 1 male, 14 km. up Anihuanguai rd., 26-I-1985, I. Gauld (CNC). ARGENTINA: 1 female, Buenos Aires, 23-X-1919, J. Brèthes (MBR); 2 females, Plumerillo (Prov. Mendoza), 20-X-1968, ex *Oiketeticus platensis* (FCNM).

Distribution.— This species occurs from Bolivia to south-central Chile and Argentina.

Hosts.— Based upon examined specimens this species is associated with *Oiketeticus platensis* (Psychidae), *Leucania* and *Melipotis* (Noctuidae), and

Ormiscoles (Saturniidae) and is, as well, a secondary parasite on ichneumonids. This species is reported in the literature as a parasite of *Orygia antiqua* (Lymantriidae) by Brèthes (1920a:15), Pairoa (1944:140), and Etcheverry and Ramírez (1964:65). Künckel (1905:227-228; 1908:231) reported this species from *Psyche* (= *Lumaca*) *kunckeli* (Psychidae), but there is no way to ascertain if the specimens were correctly identified. [Crawford (1910:236) stated that Ashmead made this identification, but Ashmead most likely had never seen Walker's type.] Hosts reported for the type specimens of *P. vianai* (Blanchard 1936) were the ichneumonid *Parapechthis bazani* and the noctuid *Alabama argillacea*.

Discussion.— This species is recognized by the character combination of the hindfemur without secondary lobe and metasomal tergum 2 entirely polished. *Perissocentrus phormio* and *chilensis* are similar in appearance and might easily be confused if the hindfemur is badly positioned. In these cases, *phormio* is recognized by the insertion point of the hindtibial spurs being relatively closer to the apex of the tibia (Fig. 14) than in *chilensis* (Fig. 13). *Perissocentrus phormio* appears to be the most primitive member of the genus based upon both the single femoral tooth and the unmodified metasomal tergum.

***Perissocentrus striatulus* Grissell, new species**

Figs. 6, 7, 19, 26

Description of female holotype (paratype variation enclosed in brackets).— Body length 3.1 mm (3.8 mm with ovipositor) [3.2–5.2 mm with ovipositor]; body metallic greenish black, including scape, except as follows: orange are apices of fore and midfemora, tibiae except faintly metallic green medially on outer side [may be entirely orange], tarsi (except mid and hindbasitarsi whitish); brown are flagellum, wing veins, ovipositor sheaths; scape not reaching venter of midocellus; scrobal depression not reaching midocellus, centrally polished (sculpture and setae continuous from sides of frons ventrad of ocellus), shallowly excavated as in *argentinae* (Fig. 1) with depression about as wide as distance between its lateral edge and eye; genal sulcus absent; upper metapleuron anteriorly without setae, slightly sculptured; frenum without setae, medially polished; hindfemur without secondary lobe (as in Fig. 14 for *phormio*) distad of ventral tooth; hindtibial spurs inserted 1/5 distance from tibial apex; propodeum laterally (Fig. 7)

with complete oblique carinae, intercarinal surfaces smooth, no reticulations present; basal 2/3 [2/3 to 3/4] of metasomal tergum 2 (Fig. 19) longitudinally striate; ovipositor 1.4 [1.3 to 1.5] X length metasomal tergum 2.

Male.— Differs from female as follows: body length 1.7–3.3 mm; scape exceeding midpoint of midocellus; scrobal depression reaching venter of midocellus (Fig. 6) margined laterally by raised border caused by frons sunken laterad of edge, lower face without modification on lateral edge above torulus, noticeably depressed laterally in large specimens, less obvious in small ones.

Type Material.— Holotype female, Colombia, Cundinamarca, Zipaquirá, 10-IX-1966, L. Pasada, secondary parasite of geometrid on pine (deposited in USNM); 46 female, 45 male paratypes as follows (in USNM unless otherwise specified): 27 females, 23 males, same data as holotype (3 females, 3 males each deposited in CNC, BMNH); 15 females, 20 males, Colombia, Boyacá, Tunja, 1971, H. E. Lugo, secondary parasite of Lepidoptera on pine (2 females, 2 males each deposited in CNC, BMNH); 1 male, Colombia, Narino, Pasto, December 1986, M. Hernandez, ex pupa *Cyanotricha necyria*; 1 female, Ecuador, Pichincha, Quito, II-1984, E. Martinez, secondary parasite of *Casinaria cavigena* on *Leuculopsis pulverulenta* (on *Pinus radiata*); 3 females, 1 male, Ecuador, Salcedo, IV-1985, G. Taniguchi, ex pupa *Cyanotricha necyria*.

Distribution.— In the Andean range from north central Colombia (Tunja) to central Ecuador (Salcedo).

Hosts.— This species has been reared from a pupa of *Cyanotricha necyria* (Diptera) and as a secondary parasite of *Casinaria cavigena* (Ichneumonidae) on *Leuculopsis pulverulenta* (Geometridae). The majority of records indicate that this species is a secondary parasite.

Etymology.— From the Latin "stria," in reference to the longitudinal striations on metasomal tergum 2.

Discussion.— Only *P. striatulus* and *P. caridei* share the condition of a striate second metasomal tergum (both sexes). Additionally, males are unique in the genus by having well-defined, parallel-sided scrobal depressions with the area between the edge and the eye depressed. In addition to characters given in the key, males of *P. striatulus* may be distinguished from those of *P. caridei* by the absence of a small depression just laterad of the toruli (Fig. 6) (present in *caridei*, Fig. 5).

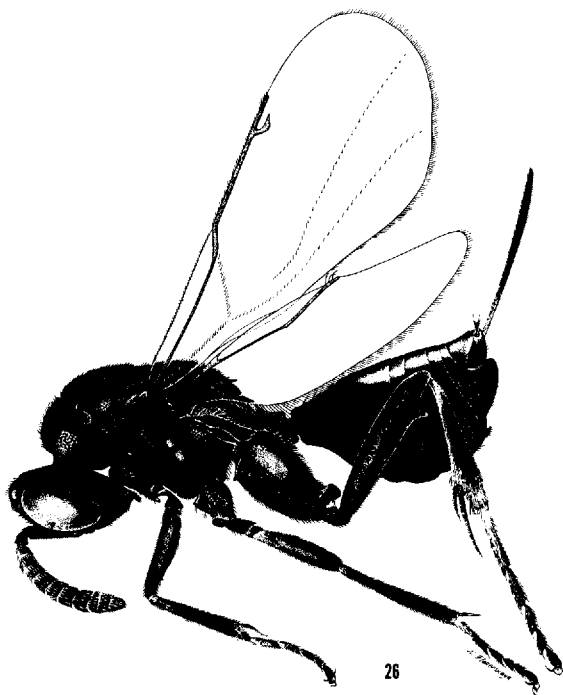


Fig. 26. *Perissocentrus striatulus* n. sp. Habitus.

***Perissocentrus tumidulus* Grissell, new species**

Figs. 2, 12, 18, 22, 23

Description of female holotype (paratype variation enclosed in brackets).— Body length 3.3 mm (4.1 mm with ovipositor) [3.3 - 4.6 mm with ovipositor]; body metallic greenish black, including scape, except as follows: burnt-orange are fore- and midfemur [to mostly metallic green], tibiae except faintly metallic green on outer side, tarsi (except mid and hindbasitarsi whitish); brown are flagellum, wing veins, ovipositor sheaths; scape not reaching venter of midocellus; scrobal depression obscure dorsally, not reaching midocellus (setae continuous from sides of frons ventrad of midocellus) [sculpture varies centrally with some small polished areas surrounded by faint reticulation], scrobal depression shallowly excavated in dorsal view but lateral margin above torulus slightly

bulging, especially in lateral view; genal sulcus faint and visible only at some angles of view or only at base of eye; upper metapleuron anteriorly with narrow asetose area, sculptured similarly overall; frenum without setae, weakly sculptured similarly overall (appearing shiny in incandescent light); hindfemur (Fig. 12) with secondary lobe distad of ventral tooth; hindtibial spurs inserted $1/3$ distance from apex; propodeum with weakly developed longitudinal carinae, intercarinal areas weakly reticulate; metasomal tergum 2 entirely polished; ovipositor 1.5 [1.5 to 1.8] X longer than metasomal tergum 2. [Propodeum (Fig. 23) and metasternum (Fig. 22) illustrated to demonstrate generic characters.]

Male.— Differs from female as follows: body length 2.5 - 2.7 mm; scrobal depression with polished tumescence on lateral edge above torulus (Fig. 2).

Type Material.—Holotype female, Chile, Cautin, Temuco, 1945, G. O. Faure, ex butterfly (deposited in USNM); 20 female, 9 male paratypes all from Chile as follows: 7 females, 2 males (including allotype) same data as holotype; 1 female, LaCruz, V-1963, ex "*Tanatopsyche*" (= *Thanatopsyche*) *chilensis*, S. R. Poblete (USNM); 8 females, 5 males, LaCruz, III-1971, S. Rojas, ex *Cercophora* (= *Cercophana*) (1 female, 1 male USNM, 7 females, 4 males CNC); 3 females, 2 males, Santiago, 15-30-VIII-1942, L. Duran, ex *Thanatopsyche chilensis* (USNM); 1 female, Santiago, 1942, H. Pairo, ex cocoon *Thanatopsyche chilensis* (USNM).

Distribution.—Known only from central Chile, from Santiago south to Cautin.

Hosts.—The species has been reared from *Thanatopsyche chilensis* (Psychidae) and *Cercophana* sp. (Saturniidae).

Etymology.—From the Latin "tumeo," in reference to minute swellings on the face of males of this species.

Discussion.—*Perissocentrus tumidulus* and *P. chilensis* are likely to be confused because they are reared from similar hosts (psychids and saturniids), are sympatric, and appear similar structurally. Males of both species are easily separated based upon the face. Not only does *P. tumidulus* have the polished elevations just above the toruli (Fig. 2; absent in *P. chilensis*, Fig. 4), but the scapal depression does not continue to the midocellus and the side of the face between the depression and the eye is wide compared to that of *P. chilensis* which is very narrow (Fig. 4). Females of both species can be separated by characters given in the key, but these are sometimes difficult to see (especially the scapal depression which may be covered by the scapes. In addition to the key characters given for females, the tooth of the hind femora of *P. tumidulus* is relatively longer, more robust, and more distinctly right-angled (Fig. 12) than that of *P. chilensis* (Fig. 13), but again this is somewhat difficult to appreciate without both species for comparison. Females may also be separated by the ovipositor which is longer (about 1.5X) than metasomal tergum 2 in *P. tumidulus*, but at most 1.1X longer than metasomal tergum 2 in *P. chilensis*.

SPECIES REMOVED FROM *PERISSOCENTRUS*

Zaglyptonotus bruchi (Girault), new combination

Perissocentrus bruchi Girault 1917:11-12. Holotype female, "from *bruchii* P.C. 55/5." USNM, examined.

Discussion.—There is no doubt that this species should be placed in the genus *Zaglyptonotus* based upon the synapomorphy of the elongated hindtibial spurs inserted at the apex of the tibia. Additional characters that place this species in *Zaglyptonotus* are the occipital carina placed relatively high up on the head and not meeting the hypostomal carina, the propodeal and metasternal structures, and the emarginate metasomal tergum 2. The cryptic label data "from *bruchii* P. C. 55/5" have never been explained and no type locality has been ascertained although a number of gazetteers have been studied. In addition, I have asked Spanish, Portuguese, and Italian speaking entomologists if they can make sense of the label and none have. The paper by Girault treats species from the United States, Mexico, Africa, Ceylon, and Europe so there is no evidence of locality from the paper itself.

De Santis (1989) reported this species (as *Perissocentrus*) from Argentina as a parasite of Bruchidae in seed pods of *Prosopis argentinae*. I have seen the specimens (from FCNM) upon which this identification was based and compared them with the type of *bruchii*. I can confirm that they are correctly identified to species. The species name "*bruchii*" was obviously derived from the label name "*bruchii*" on the type label and it is possible that this was a common name for Bruchidae.

This is the first record of *Zaglyptonotus* from the Neotropical region. Other Neotropical species occur there because I have seen specimens (including undescribed species) in the USNM from Colombia, Brazil, Chile, and Argentina. The 2 known U.S. species range into Southmost, Texas, but have not yet been reported further south.

HOST-PARASITE LIST FOR *PERISSOCENTRUS*

LEPIDOPTERA

Arctiidae:

Arctiid chrysalid: *Perissocentrus argentinae*

Dioptriidae:

Cyanotricha necyria Felder: *Perissocentrus striatulus*

Geometridae:

Leuculopsis pulverulenta Dognin: *Perissocentrus striatulus*

Lymantriidae:

Orgyia antiqua (L.): *Perissocentrus phormio*

Noctuidae:

Alabama argillacea Hübner: *Perissocentrus phormio*

Leuconia sp.: *Perissocentrus phormio*

Melipotis sp.: *Perissocentrus phormio*

Papilionidae:

Battus polydamas (L.):

Perissocentrus argentinae,

Perissocentrus caridei

Psychidae:

- Lumacra kunkeli* (Heylerts): *Perissocentrus phormio*
Oiketicus geyeri Berg: *Perissocentrus caridei*
Oiketicus ?geyeri Berg: *Perissocentrus argentinae*
Oiketicus platensis Berg:
Perissocentrus argentinae,
Perissocentrus caridei,
Perissocentrus phormio
Thanatopsyche chilensis (Philippi):
Perissocentrus chilensis,
Perissocentrus tumidulus

Saturniidae:

- Cercophana frauenfeldii* Felder: *Perissocentrus chilensis*
Cercophana sp.: *Perissocentrus tumidulus*
Ormiscodes cinnamomea (Guerin-Meneville):
Perissocentrus chilensis
Ormiscodes crinita Blanchard see *Ormiscodes cinnamomea*
Ormiscodes sp.: *Perissocentrus phormio*

HYMENOPTERA

Ichneumonidae:

- Casinaria cavigena* Walley: *Perissocentrus striatulus*
Parapechthis bazani Blanchard: *Perissocentrus phormio*

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