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## Taxonomic Notes on Paper Wasps (Hymenoptera: Vespidae; Polistinae)

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### ABSTRACT

Corrections to the nomenclature of paper wasps are: *Agelaia centralis* (Cameron) is a valid species, NEW STATUS, and is a senior synonym of *A. multipicta fulvanceps* (Bequaert), NEW SYNONYMY and *A. vulgaris mexicana* (Ducke), new synonymy; *Chartergus artifex* (Christ) is a senior synonym of *C. chartarius* (Olivier), NEW STATUS; *Epipona quadrituberculata* sensu Richards (1978a) is *E. guerini* (de Saussure); the valid name for *E. guerini* sensu Richards (1978a) is *E. niger* (Brèthes); *Leipomeles nana* (de Saussure) = *L. dorsata* (Fabricius), REVISED SYNONYMY; the valid name for *L. nana* sensu Richards (1978a) is *L.*

*spilogastra* (Cameron), NEW COMBINATION; *Parachartergus fasciipennis* Ducke = *P. fulgidipennis* (de Saussure), REVISED SYNONYMY, but *P. fulgidipennis* sensu Richards (1978a) provisionally = *P. amazonensis* Ducke; *Polybioides tabidus* var. *isabellinus* von Schulthess = *tabidus* (Fabricius), NEW STATUS; *Protopolybia punctulata* Ducke is again treated as a synonym of *P. sedula* (de Saussure), REVISED SYNONYMY. Lectotypes are designated for *Belonogaster brevipetiolata* de Saussure and *Parachartergus fasciipennis* Ducke. Notes are given on the type specimens of various species contained in 22 European and American museums.

### INTRODUCTION

While visiting several European museums in the summer of 1991, I was able to examine type material not seen by the authors of the most recent revisions and keys of Polistinae (Richards, 1978a, 1978b, 1982; Hensen and Blommers, 1987; Giordani Soika, 1991). As a result of this study, certain no-

menclatural problems became apparent. I list the type specimens here, in order to draw attention to them, and correct the nomenclature now rather than later. In addition, I include notes on type material studied in Argentina during a visit to Buenos Aires in 1992, and specimens brought from Budapest

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by my colleague John W. Wenzel, also in 1992. I re-examined several specimens during visits to Paris in 1992 and 1996, and also received some type material on loan from London and Paris then. Finally, I made three visits to Brazil during 1997, and studied type material in São Paulo and Belém.

As is well known, taxonomists of the 19th and early 20th centuries did not always specify the depositories for the species they described, nor even label the types. It was also frequent practice to retain types in personal collections, which with the vicissitudes of time became scattered among various other collections. Some taxonomists sent syntypes to other workers long after the descriptions; this of course is still commonly done with paratypes, but may lead to obvious problems when lectotypes must be designated. For example, Richards (1978a) fixed lectotypes for many of the species described by Ducke from syntypes deposited in museums in London, Paris, and São Paulo, but did not locate any specimens for a number of species. Overal (1978) subsequently designated lectotypes for several of these species from syntypes deposited in the Museu Goeldi in Belém, and Roig (1988) called attention to Ducke type material deposited in Bern by Emil Goeldi (see Obrecht and Huber, 1993). I have also discovered Ducke type specimens in Berlin, presumably overlooked because of the difficulties in gaining access to the collection brought about by World War II and the political situation in East Berlin prior to 1989. However, other types were found in Zürich, Geneva, Paris, and Frankfurt. The status of these specimens must be considered in the interest of nomenclatural stability. Moreover, an unexpectedly large number of errors in published type data was encountered, and I take this opportunity to publish corrections.

For recent revisions of polistine generic nomenclature see Raw (1985), Carpenter and Day (1988), Carpenter and Wenzel (1990), Carpenter (1991), and Carpenter et al. (1996); see Carpenter (1996a) and Cooper (1997) for revisions of subgeneric classification in *Polistes* and *Mischocyttarus*, respectively. A generic catalog is given by van der Vecht and Carpenter (1990); Carpenter (1993) gives a revised tribal classification

(see also Carpenter, 1997). Other corrections to polistine specific nomenclature are made in Carpenter and van der Vecht's (1991) study of the types of American Polistinae described by Fox, the checklist of *Polistes* by Carpenter (1996b), the catalog of Ropalidiini by Kojima and Carpenter (1997), and Kojima (1998) and Kojima and Carpenter (1998).

## TAXONOMY

Tribes are listed alphabetically, and genera and species group taxa are listed alphabetically within tribes. For each species group taxon (subspecies and varieties as well as species), the pagination of the original description is cited, followed by the sex of the specimen(s) if stated. The original combination or orthography, if different from that used now, is given in parentheses. The locality given in the original description is then quoted. When quoting label data in discussion of type material, a slash (/) denotes the beginning of a new line on the label. "MP" is an abbreviation used here for "Museum Paris," the familiar heading for many labels in that collection. Where numbers are mentioned on MZUSP labels, these were usually originally written sideways. In general, I have refrained from designating lectotypes. In most cases it did not appear necessary to do so, and further overlooked types may yet be found. Acronyms used for collections are listed below.

AMNH	American Museum of Natural History, New York
BMNH	Natural History Museum, London
ETH	Eidgenössische Technische Hochschule, Zürich
HNHM	Hungarian Natural History Museum, Budapest
MACN	Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires
MRAC	Musée Royal de l'Afrique Central, Tervuren
MCGD	Museo Civico di Storia Naturale "Giacomo Doria," Genoa
MCSN	Museo Civico di Storia Naturale, Venice
MIZT	Museo di Zoologia Sistemica, Università de Torino
MCZ	Museum of Comparative Zoology, Cambridge
MG	Museu Paraense Emílio Goeldi, Belém
MHN	Muséum d'Histoire Naturelle, Geneva
MNHN	Muséum National d'Histoire Naturelle, Paris

MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin
MZUSP	Museu de Zoologia da Universidade de São Paulo (formerly part of the Museu Paulista)
NMB	Naturhistorisches Museum Bern
NMW	Naturhistorisches Museum Vienna
NR	Naturhistoriska Riksmuseet, Stockholm
NS	Naturmuseum Senckenberg, Frankfurt am Main
OUM	Hope Entomological Collections, Oxford
RMNH	Nationaal Natuurhistorisch Museum, Leiden
UZM	Universitets Zoologisk Museum, Copenhagen

## EPIPONINI LUCAS, 1867

**Agelaia** (= *Stelopolybia*, v. Carpenter and Day, 1988).

*centralis* Cameron, 1907: 184, male (described as a variety of *Polybia pallipes*) — “Belize.” Richards and Richards (1951: 74) listed a female from Belize as a specimen of *Stelopolybia pallipes* var. *myrmecophila*, stating that it was “probably type of *Polybia pallipes* var. *centralis* Cameron.” Richards (1978a: 256) subsequently listed *centralis* in the synonymy of *myrmecophila*, referring to a holotype female; Cameron evidently mistook the sex of this specimen. As discussed under *myrmecophila*, q. v., Richards mixed several species under this name. The name *centralis* has gone unused since its description, but appears to be the oldest name applicable to a distinct species, which I first recognized in the type series of *pallipes fulvanceps* Bequaert, q. v. Junichi Kojima and Martin Cooper confirmed for me that *centralis* is that species, and *Agelaia centralis* is therefore raised to species rank, NEW STATUS.

*flavipennis* Ducke, 1905a: 20, female (described in the genus *Polybia*) — “Teffé, État de Amazonas.” Ducke (1910: 523) transferred this taxon to *Stelopolybia*, as a variety of *meridionalis* (von Ihering, 1904). The lectotype was designated by Richards (1978a: 253, MNHN, not labeled by Richards), who treated *flavipennis* as a species. Roig (1988) did not include this taxon in his list for NMB, but Obrecht and Huber (1993: 178) noted one syntype there, which is a paralectotype. In the HNHM is a female marked as type, with a determination label by Giordani Soika as *meridionalis* var. *flavipennis*, and labeled “Teffé/6.9.1904/Ducke” and “Brazil/Estado do Amazonas.” This specimen is evidently from the type series, thus a paralectotype.

*fulvanceps* Bequaert, 1944c: 297, female (described as a variety or subspecies of *Stelopo-*

*lybia pallipes*) — “COLOMBIA: Rio Frio, Dept. Magdalena.” The holotype and a series of paratypes are in the MCZ. Richards (1978a: 255) examined the holotype, and treated this taxon as a subspecies of *multipicta* (Haliday, 1836). In 1989, Martin Cooper (in litt.) suggested to me that the specimens from Central America and the Pacific Coast of Colombia determined as *myrmecophila* (Ducke) by Richards were not that species, but really *multipicta fulvanceps*. Richards (1978a) mixed several species under his concept of *myrmecophila*, q. v. True *myrmecophila* and *multipicta fulvanceps* have the same color pattern, but can be separated by, inter alia, the shape of the first metasomal segment. However, the states are the opposite of those described in Richards’ (1978a: 239) key. The type series of *multipicta fulvanceps* has the first metasomal segment “narrower, sides diverging more from base to apex with almost no angulation at spiracles” as given in couplet 21, and so should key out to *myrmecophila*. The two taxa are distinct species. However, *pallipes* var. *centralis* Cameron, 1907, and *vulgaris* var. *mexicana* Ducke, 1910, q. v., synonymized by Richards (1978a) with *myrmecophila*, are likewise distinct from true *myrmecophila*. The senior name is applicable to *multipicta fulvanceps*. *Agelaia centralis* is thus a senior synonym of *multipicta fulvanceps*, NEW SYNONYMY.

*lignicola* Ducke, 1904: 349 (key), 355, female (described in the genus *Polybia*) — “Belém do Pará na mata; Rio da Villanova (Anauerapucú) n’uma barraca de seringueiro, sahindo do ôco d’uma trave.” Ducke (1910: 524) subsequently synonymized this taxon with *Stelopolybia cajennensis* (as *cayennensis* [!]). The type depositary was unknown to Richards (1978a: 240), although he suggested that a female in the BMNH from “Brazil, Guyana, R. Villanova, 2.xi.00 (A. Ducke)” might be a syntype. Overal (1978: 11) noted a syntype in the MG, from “R. Villanova/3-11-1900/Ducke.” In addition to lacking the head, as mentioned by Overal, the specimen is missing the left forewing and right foreleg after the trochanter. In the ETH is female marked as type, with the metasoma missing, and labeled with “Rio Villanova/(Macapá)/3.11.1900/Ducke.” This specimen is evidently a syntype, as well. Although the locality does not match exactly, Macapá is close to what is now called the Amauerapucú River, and the date matches the MG specimen. When Ducke (1910) synonymized *lignicola*, he gave “Rio Villanova près de Macapá” as a locality of “*cayennensis*.” The MG and ETH speci-

mens are indeed *cajennensis*, confirming the synonymy.

*lutea* Ducke, 1904: 346 (key), 353, female (described in the genus *Polybia*) — “Belem do Pará, Mazagão, Obidos.” This taxon was synonymized with *Polybia pallipes* (Olivier, 1792) by Ducke (1905b: 683), a species placed in *Stelopolybia* by Ducke (1910: 521). The type depository was unknown to Richards, (1978a: 257). Roig (1988) did not include this taxon in his list for NMB, but Obrecht and Huber (1993: 179) noted one syntype there. In the MNHN is a female marked as type, and labeled “MP/Bresil, Obidos/A. Ducke 1904)” and by du Buysson as *pallipes*. This specimen is evidently a syntype as well, and is typical *pallipes*, confirming the synonymy.

*meridionalis* von Ihering, 1904: 211, female (described in the genus *Polybia*) — “Est. S. Paulo e Franca.” Von Ihering wrote “n. n.” but it was not a replacement name; rather, he described a new species, which had previously been misidentified. Thus, the discussion by Richards (1978a: 254) of the best treatment of von Ihering’s name was unnecessary. This taxon was placed in *Gymnopolybia* by Ducke (1918: 344), who questioned whether it might be a synonym of *multipecta* (Haliday, 1836). It was synonymized with *multipecta* by Richards (1978a: 254), who designated the lectotype from among four specimens in the MZUSP, which were labeled “SP, Franca, No. 1267.” In the MNHN are two females with the same locality and label number as the series whence Richards selected the lectotype: “Franca/E. S. Paulo/O. Dreher lg./1267 1902.”; one is labeled as cotype. These specimens are evidently paralectotypes.

*mexicana* Ducke, 1910: 524 (described as variety of *Stelopolybia vulgaris*) — “Oaxaca, Bas Mixtèque.” Richards (1978a: 257) synonymized this taxon with *Stelopolybia myrmecophila* (Ducke, 1905). He stated that he had labeled as lectotype a female (MNHN) from a series of 55 females from Basse Mistèque placed with *vulgaris*. There is a series in the MNHN of 14 females under a recent *myrmecophila* header label, three of which have determination labels by Richards. One of these states, “This series from Basse- Mistèque under *S. vulgaris*/is really *S. myrmecophila* D.” None are labeled as lectotype (nor even as var. *mexicana*). There are 51 other specimens placed under the header label *vulgaris*; none of these are labeled by Richards, nor even as *mexicana*. Four specimens merely bear du Buysson’s determination label. They are from the right lo-

cality, and presumably the type series. In that case, Richards did not actually designate a lectotype, as the specimens cannot be distinguished by the information he gave. The taxon represented by these specimens is distinct from *myrmecophila*, q. v. The size is larger, and the first metasomal segment relatively narrower, with the sides diverging more evenly from base to apex. This is the same species as *Agelaia centralis*, q. v., and *vulgaris* var. *mexicana* is a thus a synonym, NEW SYNONYMY.

In the HNHN is another female marked as type, with a determination label by Ducke as *vulgaris* and one by Giordani Soika as *fulvofasciata mexicana*, with the same locality label as the MNHN syntypes (“MP/Basse-Mixtèque/État d’Oaxaca/L. Diguet 1904”). This is evidently another syntype.

*myrmecophila* Ducke, 1905b: 684, female and male (described in the genus *Polybia*) — “no Estado do Pará — de Belem e Faro; no do Amazonas — de Barcellos, Teffé e do baixo Japurá.” Ducke (1910: 524) transferred this taxon to *Stelopolybia*. The lectotype was designated by Richards (1978a: 256, female MNHN, from Teffé). This specimen was not so labeled by Richards; I have attached a lectotype label. The paralectotype in Paris mentioned by Richards (1978a: 257) is a different species: although in poor condition, it appears to be *Agelaia flavipennis* (Ducke).

Richards mixed another species under his concept of *myrmecophila*. His key (1978a: 239, couplet 21) characterizes *myrmecophila* as having the first metasomal segment “narrower, sides diverging more from base to apex with almost no angulation at spiracles.” But the lectotype does not have this condition, rather it is the opposite: “wider, sides first diverging, then angled and becoming more nearly parallel.” The lectotype keys out to *multipecta fulvanceps* in Richards’ key, but that is a distinct species, which should actually key out to *myrmecophila*. Richards’ key thus does not accurately key *myrmecophila*, and his synonymy is also incorrect. The name *vulgaris* var. *mexicana* Ducke, q. v., is applicable to specimens keying out to *myrmecophila*.

It might also be added that Martin Cooper (May 5, 1997, in litt.) stated that although there is some variation in whether the sides of the first metasomal segment are diverging in *myrmecophila*, an invariant character separating this species from *multipecta* are the longer hairs of the eyes in *myrmecophila*, as well as a wide first metasomal segment in the queen.

*ornata* Ducke, 1905a: 20, female (described in the

genus *Polybia*) — “Teffé (État d’Amazonas).” This taxon was transferred to *Stelopolybia*, as a variety of *angulata* (Fabricius, 1804), by Ducke (1910: 520). Richards (1978a: 245) returned it to species rank; he listed the type depository as unknown. The lectotype was designated by Overal (1978: 7, MG), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. In the MNHN is a female marked as type, and labeled “MP/Brésil Teffé/A. Ducke 1908” and “Teffé/29.9.1904/Ducke”; it is evidently from the syntype series, hence a paralectotype.

*sulfureofasciata* Ducke, 1910: 522, female (described in the genus *Stelopolybia*) — “le Mexique et Guatemala. . . Nicaragua (Managua. . .), l’Honduras britannique (Belize. . .), la Colombie. . . le Venezuela (San Esteban. . .) et l’Ecuador occidental.” This taxon was synonymized with *areata* (Say, 1837) by Bequaert (1949: 134). The type depository was listed as a question mark by Richards (1978a: 256). Ducke (1908b: 697) had previously misidentified this taxon as *Polybia fasciata* (Olivier), and Richards stated: “*S. sulfureofasciata* was Ducke’s new name for a species he wrongly called *Polybia fasciata* in 1908. This quotation was based on specimens from Belize and Managua in Prof. Baker’s collection and a lectotype would have to be selected from among these.” This conclusion, of course, is completely erroneous; Ducke (1910) described a new taxon from the material before him at that time, regardless of previous misidentification. The lectotype was designated by Overal (1978: 7, MG, from Belize), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. The lectotype no longer has the determination label mentioned by Overal, and in addition to lacking most of the metasoma, both hindlegs and the left midleg lack tibiae and tarsi, and the left forewing is gone. In the MNHN are four females marked as types, which are from the type series. Ducke (1910) listed “Mus. Paris” as a type depository for specimens from several localities that correspond to these specimens. One of the specimens is labeled “Mexiq.” and “MP/Mexique/Coll. O. Sichel 1867,” and with a lectotype label by Richards. He did not publish the lectotype designation because the specimen was not from the Baker collection, given his mistaken view on the description of *sulfureofasciata*. The other three specimens are labeled, respectively, “MP/Guatemala/Angrand 19-55,” “San Esteban/E. Simon 111.88,” and “MP/Venezuela/Coll R Du Buysson/1900.” All of these specimens are paralectotypes. In addition, placed

with these four specimens are 11 other specimens with the “MP/Mexique/Coll. O. Sichel 1867” label, four specimens (including a male) from Guatemala, two labeled “MP/Mexique/Salle 97-58,” one labeled “MP/Darien/F. Geay 33-96,” one labeled “Caracas/S.S.” and “MP/Venezuela/Caracas/R. du Buysson/1900,” four labeled “MP/Bogota/201-62,” one labeled “MP/Colombie/Caratago/Frère Sébastian 1899,” and one labeled “Belize” and “MP/Belize/A. Ducke 1908” and with Ducke’s 1908 determination label as *fasciata*. Most of these, if indeed not all, are from the type series: Ducke listed “Mus. Paris” as depository for specimens from Mexico, Guatemala, Colombia, and Venezuela, and the specimen labeled *fasciata* is doubtless also one of those for which the MNHN is specified as depository. The additional specimens are thus also paralectotypes. All of the specimens, including those marked as types, are *areata*, confirming the synonymy.

*vicina* de Saussure, 1854: 189, female (described in the genus *Polybia*) — “Le Brésil.” This taxon was transferred to *Stelopolybia* by Ducke (1910: 521). The lectotype was designated by Richards (1978a: 246, MNHN). Richards mentioned a series of eight specimens in the MNHN. There are actually nine specimens marked as types in the MNHN, thus there are eight paralectotypes, not seven. The lectotype is badly damaged, missing the metasoma and propodeum.

*vulgaris* Ducke, 1904: 346 (key), 352, female and male (described in the genus *Polybia*) — “Belém do Pará, Obidos, Almeirim, Amapá, Calçoene e Oyapoc.” Bequaert (1944c: 296) synonymized the taxon with *Stelopolybia fulvofasciata* (DeGeer, 1773). The lectotype was designated by Richards (1978a: 250, female MNHN, from Belém do Pará), who mentioned three females marked as types. None of the specimens is labeled by Richards. He gave as label data for the lectotype “Pará, 12.xi.99 (A. Ducke)” and for the paralectotypes “Pará, 9.viii.99” and “Obidos, 9.viii.02.” These data allow recognition of the lectotype, hence Richards’ designation is valid. The lectotype label date is actually 13.11.1899; the paralectotype dated as 9.viii.02 is really 5.8.1902; and the specimen dated 9.viii.99 is a male, not a female. Obrecht and Huber (1993: 178) noted male and female syntypes in the NMB, which are paralectotypes. In the HNHN are two females marked as types, with determination labels by Giordani Soika as *fulvofasciata*, one labeled “Brasil/Pará/12.8.1903/Ducke” and the other labeled “Oyapock/10.6.1904/Ducke” and

“Brazil/Estado do/Pará.” Both are evidently also from the type series, hence paralectotypes.

### Angiopolybia

*ampullaria* Möbius, 1856: 133 (described in the genus *Polybia*) — “Brazil.” Ducke (1910: 524) synonymized by this taxon with *Stelopolybia infernalis* (de Saussure, 1854), a species in turn synonymized with *Rhopalidia pallens* Lepeletier, 1836, by Bequaert (1944c: 294) and now placed in *Angiopolybia* (Araujo, 1946: 169). Richards (1978a: 232) listed the types as perhaps in Hamburg. In MNHU there are six specimens labeled as types. The locality labels read “Bahia Guenez/vd Para Lieber,” and all of the specimens are also labeled with the number 3482, handwritten determination labels, and printed type labels. These specimens are probably syntypes. The synonymy with *Angiopolybia pallens* sensu auct. is correct.

*luctuosa* Schulz, 1905: 132 (in the combination *Polybia paraensis luctuosa*) — “Surinam.” Bequaert (1944c: 295) synonymized this taxon with *Stelopolybia obidensis* (Ducke, 1904), a species now placed in *Angiopolybia* (Araujo, 1946: 169). The lectotype was designated by Richards (1978a: 234, BMNH). In the ETH are three females marked as “spec. typ.” and with determination labels in Schulz’ hand. However, the locality label reads “Surinam/coll. Fruhsdorfer,” and Schulz (1905: 131) gave Michaelis as the collector. These specimens are thus perhaps pseudotypes.

*obidensis* Ducke, 1904: 348 (key), 354, female (described in the genus *Polybia*) — “Obidos. . . Oyapoc.” This taxon was transferred to *Stelopolybia* by Ducke (1910: 526), and placed in *Angiopolybia* by Araujo (1946: 169). The lectotype was designated by Richards (1978a: 234, MNHN, from Obidos); he did not label it.

*ruficornis* Ducke, 1905a: 20, female (described in the genus *Polybia*) — “Dans les forêts du fleuve Japurà et près du fort du Tabatinga, Haut Amazone.” Ducke (1910: 526) synonymized this species with *Stelopolybia paraensis* (Spinola, 1851); the latter taxon was placed in *Angiopolybia* by Araujo (1946: 169). The lectotype was designated by Richards (1978a: 235, MNHN, from Tabatinga). The specimen is unlabeled by Richards. Obrecht and Huber (1993: 178) noted one syntype in the NMB, which is a paralectotype.

*zischkai* Richards, 1978a: 234, female — “EC-UADOR: Santiago-Zamora, Rio Zamora, Zumbi, 700 m.” Richards stated that the holotype is in the U. S. National Museum of Natural History, but it is actually in the AMNH. Richards

also gave the collecting date as 2.xi.44, but the label states “41.”

### Asteloeca

*obscura* Ducke, 1909: 626, female (described as a variety of *Polybia ujhelyi*) — “Fonteboa (Haut Amazone).” This variety was synonymized with *Occipitalia traili* (Cameron, 1906) by Richards (1978a: 199), a species now placed in *Asteloeca* (Raw, 1985). It was described from a single specimen, and the holotype is in the HNHM. It has a determination label by Giordani Soika. The right wing has fallen off and been glued to the locality label (which reads: “Fonteboa/Brasil”). It corresponds to the dark form of the species that Richards (1978a: 198-199) termed “morph” *traili*, as he stated.

*ujhelyi* Ducke, 1909: 626, female (described in the genus *Polybia*) — “Teffé (Haut Amazone). . . Guyane française, Bas Maroni, Les Hattes.” The lectotype was designated by Richards (1978a: 199, MNHN, from “Tefé”), who synonymized this taxon with *Occipitalia traili* (Cameron, 1906), a species later made the type of the genus *Asteloeca* by Raw (1985). In the HNHM is a female marked as type, with a yellow square, and locality labels “Brazilia/Teffé/1882.” and (penciled) “Teffé.” This specimen is evidently from the type series, thus a paralectotype.

### Brachygastra

*augusti* de Saussure, 1854: 233, female (described in the genus *Nectarinia*) — “Le Brésil. Capit. de Saint Paul, Rio Grande, Goyaz.” The lectotype was designated by Naumann (1968: 953, 956, female MNHN), who selected it from among three females labeled as type in the MNHN. On p. 956, Naumann recorded the localities, which differed, for each of the specimens, and stated that he was designating the sole specimen labeled Rio Grande as lectotype. Richards (1978a: 169) overlooked this, stating “Naumann’s statement (1968: 953) is ambiguous; he does not say which of the three localities he is choosing.” Richards then (invalidly) designated as lectotype the same specimen Naumann had (validly) designated. In the MNHN is another specimen marked as type, a female from “MP/Pérou/R. v. Ihering 1902” and “830,” obviously a pseudotype.

*azteca* de Saussure, 1857: 280 (in the combination *Nectarinia azteca*) — “Le Mexique (des terres chaudes de la province de Mexico).” The lectotype was designated by Naumann (1968: 940, female MNHN). Naumann (1968: 943) referred to three syntypes in the MNHN, one of which he designated as lectotype, and another 12

- specimens in the MHN that he reckoned had been examined by Sausure in 1857. Two other specimens in MNHU from Mexico are labeled as types, and one has a green label in de Saussure's hand. These specimens are thus paralectotypes.
- aztecus* Cameron, 1906b: 154 (described in the genus *Chartergus*) — "Mexico." Meade-Waldo (1911: 112) transferred this taxon to *Nectarina* (unnecessary replacement name for *Brachygastra*), where the name is preoccupied by *azteca* de Saussure, 1857. Meade-Waldo proposed *Nectarina cameroni* as a replacement name, and Bequaert (1933: 95) synonymized the taxon with *leheguana* (Latreille, 1824). Naumann (1968) separated *mellifica* (Say, 1837) from *leheguana*, and placed *cameroni* in synonymy of *mellifica*. Richards (1978a: 166) omitted these names from the synonymy of *mellifica*, along with *centralis* (Cameron, 1907). In the ETH are two females marked as types in Cameron's hand, with locality label "Mexico"; these are evidently syntypes. Meade-Waldo (1911: 112) stated, in reference to *aztecus* and three other taxa described by Cameron in *Chartergus*: "The four species described by Cameron as *Chartergus* are thus all referable to *Nectarina*; the types are in the British Museum." Such a general statement does not constitute valid fixation of a lectotype, which must be individual (Art. 74(d) of the International Code of Zoological Nomenclature).
- baccalaurea* von Ihering, 1903: 154 (described in the genus *Nectarinia*) — locality not stated. The lectotype was designated by Naumann (1968: 959, 962, female MZUSP). Richards (1978a: 177) however also designated as lectotype the same specimen Naumann had designated. The lectotype is labeled "827/Perú" and with a determination label from "Ducke rev. 11"; it also has Naumann's determination label, and a label by Richards "Nectarinia/baccalaurea/♀ R. v. Iher./Lectotype/chosen by/Naumann/but not so/labelled." Richards' label may explain why he published a lectotype designation, but it is nevertheless invalid. Naumann (1968: 962) stated: "According to Ducke (1910), there is an additional cotype in the Paris Museum but this has not been found." I have seen the (paralectotype) specimen in the MNHN, which was referred to by Richards (1978a: 177) as "probably a paralectotype."
- bilineolata* Spinola, 1841: 76, female — "Cayenne." The lectotype was designated by Naumann (1968: 962, MIZT). In the MNHN is a specimen marked as type, and labeled "MP/Cayenne/Leprieur 1839." This specimen is evidently a paralectotype; it is the specimen du Buysson (1905d: 552) referred to as "probablement le type!"
- buyssoni* Ducke, 1905a: 11, female (in the combination *Nectarina buyssoni*) — "Tabatinga, dans le Haut-Amazonie." The lectotype was designated by Richards (1978a: 177, MNHN). Obrecht and Huber (1993: 178) noted one syntype in the NMB, which is a paralectotype. The MG also has a specimen, not mentioned by Nascimento (1979), which is evidently a paralectotype. It bears the labels "Tabatinga/9.10.1904/Ducke" and "Brazil/Estado do Amazonas," as well as determination label in Ducke's hand. Richards (1978a: 164) in his key stated that the species is without tomentum, except some very fine on the metasoma, but that is not the case with these paralectotypes.
- fasciata* von Ihering, 1904: 106 (key), 112 (described as a variety of *Caba bilineolata*) — "Surinam. Brazil, rio Juruá, Amazonas." Ducke (1910: 480) synonymized this taxon with *bilineolata*. The lectotype was designated by Richards (1978a: 171, female MZUSP, from Surinam). Richards stated of this specimen "The type of von Ihering's variety (Surinam and AM: Rio Juruá) is represented in the Mus. Paulista by a female from Surinam, here made lectotype." The lectotype has the locality label "785/Surinam," von Ihering's determination label, a determination label as *bilineolata* with "Ducke rev. 11," and a label by Richards. There are two other females in the MZUSP with the locality label "786/Surinam," and determination by Ducke as *Protonectarina sylveirae*. The lectotype and both of these latter specimens have yellow squares as well. All three specimens may be from the original series, making the latter two specimens paralectotypes.
- leheguana* Latreille, 1824: 317 (described in the genus *Polistes*) — "Brésil et du Paraguay." Du Buysson (1905d: 562) listed the type depository of this species as MNHN, but neither Naumann (1968: 988) nor Richards (1978a: 165) were able to locate the types there. In the MNHN are five females marked as types, all with MP labels, two from "Sud de la/capite de Goyaz" and one each from "Nort Capite/de St-Paul," "Ouest Capite/des Mines" and "Brésil: Rio/Grande/St. Hilaire." These are clearly the missing syntype series. The specimens correspond to the present interpretation of the species.
- mexicanus* Cameron, 1906b: 154, female (in the genus *Chartergus*) — "Acapulco, Mexico." Ducke (1908b: 695) synonymized this taxon with *azteca* (de Saussure, 1857). The lectotype

was designated by Richards (1978a: 165, BMNH). Other specimens from the type series include a female in the ETH labeled as a type and in Cameron's hand, and a female in the MNHN marked as paratype and determined as *azteca*, both labeled "Acapulco/Mexico/Coll. Baker." These specimens are paralectotypes.

*quinta* von Ihering, 1903: 153 (described as a variety of *Nectarinia augusti*) — "l'État de S. Paulo; Ourinno, Parana et Rio Jurua (Amazonas)." This taxon was synonymized with *augusti* (de Saussure, 1854) by Naumann (1968: 953). On p. 958, Naumann designated the lectotype as follows: "R. von Ihering's variety *quinta* was described from a series of specimens in the Museo Paulista but only four specimens (3 ♀, 1 ♂) there now can definitely be said to be of his type series. These are from Rio Jurua, Amazonas, Brazil, 1902, E. Garbe collector. I am designating one of these, a female, as lectotype." Richards (1978a: 169), however, stated, "I could not, however, find the lectotype which Naumann (p. 956) says he chose, unless he merely labelled it *B. augusti*. I have myself marked one such ♀ as lectotype. . . ." The specimen in the MZUSP with Richards' lectotype label also has Naumann's determination label, but as Richards stated, Naumann did not label it as lectotype. The locality label reads "Rio Jurua AM/Brasil 1902/E. Garbe col." and it has the number "1.253."

### Charterginus

*huberi* Ducke, 1904: 341, female (described in the genus *Polybia*, subgenus *Charterginus*) — "Oyapoc." This taxon was synonymized with *Charterginus aberrans* (Gribodo, 1892) by Richards (1978a: 131), who designated the lectotype (BMNH), and also saw a paralectotype in the MZUSP. Kojima and Carpenter (1998) later synonymized *aberrans* with *Charterginus xanthura* (de Saussure, 1854). Obrecht and Huber (1993: 177) noted one syntype of *aberrans* in the NMB, which is a paralectotype. I have seen other syntypes, which are now paralectotypes, in the MNHU, ETH, HNHM and MNHN. Single females labeled as type by Ducke, and "Oyapoc/13.6.1904/Ducke," are in the MNHU, ETH and HNHM. The specimen in the HNHM has a determination label by Giordani Soika as *Pseudocharterginus fuscatus*, an error. In the MNHN is another female with Ducke's determination label, and the same locality label. The MNHN also has a female marked as type and "MP/Oyapoc/A. Ducke 1909," which is too late to be part of the type series — unless the label is a replacement, and

the date really refers to when Ducke presented the specimen.

### Chartergus

*nidulans* Fabricius, 1793: 271 (described in the genus *Vespa*) — "Cajennae." This taxon was synonymized with *Chartergus chartarius* (Olivier, 1792) by de Saussure (1854: 220), and that synonymy has been followed since. The date of Olivier's work has usually been cited as 1791 (e. g. Dalla Torre, 1904: 85; Richards, 1978a: 567). However, Richards (1983) pointed out that Olivier's work was actually published in two parts, with the part containing the new polistine taxa appearing in 1792. This fact has the following nomenclatural consequence. De Saussure (1854) also synonymized *Vespa artifex surinamensis* Christ, 1791, with *Chartergus chartarius* (Richards, 1978a, did not list *artifex surinamensis*). Although Christ's types appear to be lost, examination of his plate 20 leaves no doubt as to the identity of the wasp. Christ's name is thus a senior synonym. Application of the Principle of Priority dictates that this name now be used, but it might be argued that an appeal should be made to the International Commission on Zoological Nomenclature for suppression of *artifex surinamensis*, which has not been treated as valid for over a century. Although I believe that nomenclatural stability is best served by strict application of priority anyway, I also do not regard polistine nomenclature as sufficiently stable to warrant suspension of priority (e. g. Carpenter and Day, 1988). In this particular case, even the generic placement of the species has fluctuated during this century (cf. Bequaert, 1938b). I herewith replace *chartarius* with *Chartergus artifex*, NEW STATUS. Fabricius gave "Mus. Dom. Bosc" as the type depository of *nidulans*, and that collection is supposed to have been deposited in the MNHN (Zimsen, 1964). However, I did not find it there.

### Epipona

*guerini* de Saussure, 1854: 215, female (described in the genus *Tatua*) — "Le Mexique." Richards (1978a) did not examine the types of most of the taxa for his revision of *Epipona*, including *guerini*. I have seen specimens evidently from the type series in MNHU, MHN and MNHN. A single specimen in the MNHU is marked as type, with the labels "Cordova/t.c.," "3540" and "Mexico/Saussure." In the MHN are 26 specimens placed under *guerini*, six labeled only "Mexique" and the others from Cordova, Mirador, and Orizaba. A single specimen in the MNHN is labeled cotype, and with

“Cordova/t.c.,” “31,” and “MP/Mexique/H. de Saussure/185[?]8.” All the specimens correspond to *quadrituberculata* sensu Richards, which that author did not record from Central America, listing only *guerini*. In fact, two species occur in Central America, true *guerini* and *guerini* sensu Richards, to which the name *niger* (Brèthes, 1926), q. v., applies.

*morio* Fabricius, 1798: 264 (described in the genus *Vespa*) — “Cajennae” (UZM). This taxon was first synonymized with *Epipona tatua* (Cuvier, 1797) by White (1841: 316), but de Saussure (1854: 214) used the name *Tatua morio* for this taxon. In the MNHU is a specimen marked as type, but from “S. Amerik,” hence more likely to be a pseudotype.

*niger* Brèthes, 1926: 13 (described in the genus *Coloboclypeus*) — “De Fusagasugá.” Richards (1978a: 158) examined the holotype female in the MACN, and synonymized this taxon with *guerini* (de Saussure, 1854), but as noted above he misidentified the latter. The name *guerini* applies to the species termed *quadrituberculata* (Gribodo, 1892) by Richards. I have examined the holotype of *niger* as well, which is labeled “Colombia/Fusagasuga/F. Apollinaire,” and the name is applicable to the species misidentified as *guerini* by Richards. I have already pointed out the synonymy to various workers, and *Epipona niger* has come into use as the valid name of this species (Sarmiento, 1994: 359; West-Eberhard et al., 1995: 586).

*quadrituberculata* Gribodo, 1892: 251, female (described in the genus *Tatua*) — “Sarajacu” (MCGD). This taxon was treated as a synonym of *tatua* (Cuvier, 1797) by Ducke (1910: 489). Richards (1978a: 162) did not examine the type of *quadrituberculata*, but reported seeing a specimen from Caracas “presumably identified by Gribodo.” In his text, Richards also listed a specimen from the MNHN as a holotype, through error; the synonymy correctly gives the type depository as MCGD. I have seen both the specimen seen by Richards and the holotype of *quadrituberculata*, a specimen with locality label “Coll. Gribodo/Sarayacu” and Gribodo’s determination label. As Richards surmised, the type locality given in the original description should be Sarayacu; the pin is partly through the letter “y” on the locality label, which is presumably why Gribodo wrote “Sarajacu.” The holotype is missing the antennae and sting, the head and terminal metasomal segments have been glued back on, and the right forewing has fallen off and been glued to the locality label. The holotype and the specimen from Caracas are not the same species. The

specimen studied by Richards is *guerini* (de Saussure), but the holotype is distinct. It is most like *tatua*, with the second metasomal tergum punctate, the humeri strongly punctured, and the first metasomal segment relatively broad; the propodeum is punctate, not striate. But the first metasomal segment has two flanges or tubercles basally, as mentioned by Gribodo, a character unique within *Epipona*. The first tergum has the punctation coarser and denser, and the hairs denser, than other specimens of *tatua* I have seen. The humeri are also more densely punctate, and raised into more strongly projecting shoulders. Although still only known from one specimen, *quadrituberculata* seems more likely to be a species than a teratology.

### Leipomeles

*nana* de Saussure, 1863: 240, female (described in the genus *Polybia*) — “Brésil.” Ducke (1910: 536) synonymized this taxon with *Leipomeles lamellaria* Möbius, 1856, a taxon in turn synonymized with *dorsata* (Fabricius, 1804) by Schulz (1912: 87). Richards (1978: 215) treated *nana* as a valid species of *Leipomeles*, applying it to a taxon previously misidentified by Bequaert (1944c: 299) and Richards (in Richards and Richards, 1951: 85) as *Pseudopolybia pusilla* (Ducke, 1904). Richards did not examine the types himself, stating only that they were seen by Ducke in Geneva. In the MHN are four specimens labeled “Brasilia/Freiress,” one with a 1909 determination label by Ducke as *Leipomeles lamellaria* Moeb.; these are the specimens mentioned by Ducke (1910: 536) as cotypes. They were probably part of the original series. All these specimens are *dorsata* (Fabricius) sensu auct. De Saussure himself stated that the specimens described in his 1863 paper were in the “Senkenberg” Museum. There are five specimens in the NS labeled “Brasilia/Freiress”; three also have numbers (217–219). These specimens are undoubtedly syntypes. All are damaged, but are apparently female: one lacks the head and metasoma, and three others lack the metasoma, while the remaining specimen has had the head and prolegs glued back on the specimen. All these specimens are also *dorsata*. *Leipomeles nana* is therefore a junior synonym of *dorsata*, REVISED SYNONYMY. The correct name for *nana* sensu Richards is *L. spilogastra* (Cameron), q. v.

*spilogastra* Cameron, 1912: 208 (key), 213, female (described in the genus *Polybia*) — locality not stated, from Guyana. Richards (1978a: 215) synonymized this taxon with *Leipomeles nana* (de Saussure, 1863), q. v., a spe-

cies he had misidentified. Richards designated the lectotype (BMNH) from among two syntypes. I have examined the lectotype, and confirm that it is a distinct species from *dorsata* (Fabricius). *Leipomeles spilogastra*, NEW COMBINATION, is thus the valid name for this taxon.

### Marimbonda

*pusilla* Duce, 1904: 329 (key), 336, female (described as *Chartergus pusillus*) — “Belem do Pará e Oyapoc.” This species was transferred to *Marimbonda* by Richards (1978a: 202), who designated the lectotype (MNHN, from Pará). Obrecht and Huber (1993: 178) noted one syntype in the NMB, which is a paralectotype. The type label states *Parachartergus pusillus*, a combination published by Duce (1910: 528, 530). The MG also has a female, not mentioned by Nascimento (1979), which is probably from the type series as well, hence another paralectotype. It has locality labels “Oyapock/26.5.1904/Duce” and “Brazil/Estado do Pará,” and a determination label as *Parachartergus pusillus*. The specimen is rather dirty, and the antennae are missing.

### Metapolybia

*acincta* Richards, 1978a: 184 (key), 185, female — “SURINAM: Republiek, nest 23. . .; Zanderij. . .; PERU: Huánuco, Tingo Maria. . ., nest G. . .; Tingo Maria, 1 km east of, 610 m. . .; Loreto, Pucallpa.” The holotype is in the RMNH, from Republiek; the number of the nest it is from is actually 73, not 23. I have examined the type series in the RMNH and BMNH, and two species may be confused under the name *acincta*. The holotype and both paratypes from the same nest (that in the BMNH is headless) will key out in the key of Richards (1978a: 184): the humeri do not project very much, but more so than in *docilis*, and the anterior pronotal carina (“prominence” of Richards) is sharp. There are two females labeled as paratypes from nest G in the RMNH (Richards mentioned only BMNH as depository for 250 paratypes from this nest); these and the BMNH specimens are larger, the humeri project more, the clypeus is hairy all the way down to the apex instead of with a polished rim, the propodeum is hairier, and metasomal tergum I has the distal part shorter and more swollen. Four other nest G specimens in the RMNH, not labeled as paratypes, are additional specimens. Additional specimens of true *acincta* in the RMNH, not labeled as paratypes, include 25 from nest 73; three from Republiek 30 June,

nest 30.6.2; and one from Zanderij, 10 May ex Malaise.

Additional material in the BMNH, placed under *acincta*, are the second form. This includes specimens from Colombia: Putumayo, and “Ouro Preto Emeratel.” A specimen from Pará, Bularu, placed here is *nigra* Richards.

Specimens of the unnamed form are also in the AMNH, from Ecuador: Pastaza and Napo.

*azteca* Araujo, 1945: 66 (key), 79, female — “Basse-Mistèque, État d’Oaxaca, Rio Mariscal, . . . Oaxaca, México.” Richards (1978a: 189) stated, “Araujo described the species from Mexico: Oaxaca, ♀ 17.080 (no other data) and Mexico: Oaxaca, Basse Mistèque, Rio Mariscal, 1903, 2♀, 16.488 (*L. Diguët*) (Mus. Paulista). Though he labelled a holotype he did not publish this, so I here make the female lectotype.” By this statement, Richards meant that he was designating as lectotype the specimen labeled as holotype by Araujo. The specimen in the MZUSP labeled as holotype, and lectotype by Richards, has the locality label “MP/BASSE-MIXTÈQUE/ÉTAT D’OAXACA/RIO MARISCALA/L. DIGUËT 1903,” “16488” with “Buysson det.,” a determination label by Araujo as n. sp., and a yellow square. One paralectotype is from the same locality; the other has the locality label “17.079/Oaxaca/(Mexico),” not 17080.

*nigra* Richards, 1978a: 184 (key), 190, female — “SURINAM: Upper Corantijn Riv., Coeroeni, on *Cissus* sp.” This species was described from a single female, stated to be deposited in the RMNH. The date and collector given were “23.vi.63 (*J. G. Wessels Boer*)”; the species was stated to have been recognized by van der Vecht, who asked Richards to describe it. I failed to find any specimen labeled as type in the RMNH. I did find an unmarked female with the locality label “Suriname/Upper Corantijn River/Coeroeni/23 June 1963/*J. G. Wessels Boer*” and also “on *Cissus*/(I) vitac.” It is also labeled, in van der Vecht’s handwriting, “Metapolybia/spec.??/terg. 2 londer/than in *acincta*” (van der Vecht had also sent *acincta* to Richards to describe). The specimen is slightly damaged, with the midlegs missing the tarsi, and the hindlegs broken off (one is glued to the locality label), but readily recognized as *nigra*. Given all the coincidence in description and label data, the specimen is clearly either the missing holotype of *nigra*, which Richards failed to label, or a specimen retained by van der Vecht when sending the holotype to Richards.

*rufopicta* Duce, 1910: 488 (described as a variety of *pediculata*) — “Bolivie.” Bequaert

(1944c: 276) observed that this taxon was the same as the types of *suffusa* (Fox, 1898). Richards (1978a: 188) listed the type depository as unknown; Ducke himself stated Mus. Berlin. In the MNHU are five specimens marked as types, and labeled "Bolivia/Garlepp S. V.," doubtless the syntype series. The synonymy of this variety with *suffusa* is correct.

*unilineata* von Ihering, 1904: 184, male and female (described as a variety of *Polybia pediculata*). — "Rio Juruá — Amazonas." Richards (1978a: 188) designated the lectotype (female, MZUSP), stating "Araujo saw the syntypes (♂, 4♀) in the Mus. Paulista (No. 1,586 = 1902, E. Garbe). He marked a ♀ as lectotype but did not publish this, so that I now make the ♀ labelled by Araujo the lectotype." In fact, Araujo labeled all five syntypes simply as "TY-PUS"; he did not mark any as lectotype. There is a lectotype label on one of the specimens, but it is by Richards. The male paralectotype is missing the right wings and most of the left antenna, and one of the female paralectotypes is missing the most of the antennae, the first metasomal segment and one leg, and has the rest of the metasoma glued to a card along with two legs.

### Nectarinella

*championi* Dover, 1925: 305, female (described in the genus *Nectarina*) — "David, Chiriqui, Panama." Bequaert (1938b) described the monotypic subgenus *Nectarinella* of the genus *Parachartergus* for this species, which was later raised to generic rank (Richards, 1978a). The holotype is in the BMNH, and Richards (1978a: 215) mentioned ca. 100 specimens from the type series deposited there. Part of the type series is in the ETH and RMNH as well. The ETH has a single damaged female, with the legs gone and the metasoma glued on, and labeled "David/Panama/Champion" and "Godman-Salvia/Collection/1913-214" and a determination label with "e museo London." The RMNH has two females, sent by Richards.

### Parachartergus

*amazonensis* Ducke, 1905a: 13, female — "dans la forêt à Teffé et au fleuve Japurá (Haut Amazonie)." The lectotype was designated by Richards (1978a: 211, BMNH, from R. Japurá), who also saw a paralectotype in the MNHN. Obrecht and Huber (1993: 178) noted one syntype in the NMB, which is a paralectotype. In the MNHU are two females marked as types by Ducke, only one of which has a printed label. One of the specimens is labeled as a var. of *fulgidipennis*, the other not. The locality label

for both specimens is "R. Japurá/20.9.1904/Ducke." That is the same label as the lectotype, hence these two specimens are evidently paralectotypes.

*bentobuenoi* von Ihering, 1904: 129, female and male — "Rio Juruá — Amazonas." Ducke (1910: 533) synonymized this taxon with *P. fulgidipennis* (de Saussure, 1854), and Bequaert (1938b: 110) treated it as a synonym of *Chartergus fulgidipennis* var. *griseus* Fox, 1898. Richards (1978a: 213) designated the lectotype of *bentobuenoi* (female, MZUSP) and treated it as a synonym of *P. griseus*. The lectotype was designated from among six females; these have the locality label "1576/Rio Juruá/E. Amaz." There is also another female, labeled "1576" and with a new label "BRASIL: AM: Rio Juruá/x.1902, E. Garbe col." Although from the same lot, this specimen may have been prepared later, and hence may not be part of the type series. In the MNHN is a paralectotype, with a determination label as *P. bentobuenoi*, and one by du Buysson as *fulgidipennis*.

*fasciipennis* Ducke, 1905b: 665, female — "Arrayollos. . . Tabatinga, Estado do Amazonas." The type depository was unknown (Richards, 1978a: 212). In the MNHN I found a female labeled as type in Ducke's hand and "= griseus ex parte!"; the other labels are "MP/Brésil/Tabatinga/A. Ducke 1909" and "Tabatinga/16.10.1904/Ducke," the latter label in Ducke's hand. The specimen is clearly a syntype, and in view of the confusion attendant on the name for this taxon, I am designating it as lectotype. It is a junior synonym of *fulgidipennis* (de Saussure, 1854), q. v., Revised SYNONYMY. In the MG are two specimens from the Coleção Ducke, not mentioned by Nascimento (1979), which are evidently also from the type series, and I am designating them as paralectotypes. One has the labels "R. Arrayollos/20.4.1903/Ducke" and "Brazil/Estado do/Pará," and a determination label by Silveira. The other has the labels "Tabatinga/16.10.1904/Ducke" and "Brazil/Estado do/Amazonas" and is damaged, lacking the right hindleg, the tibia and tarsus of the left hindleg, and the left antenna; the metasoma is glued to the balsa of the double-mount.

*fulgidipennis* de Saussure, 1854: 217 (key), 218 (described in the genus *Chartergus*) — "Le Para." The holotype is a female in the BMNH. In the key of Richards (1978a: 205-207) this specimen keys to *fasciipennis*; *fulgidipennis* in his sense is a different species. Richards (1978a: 210) listed only three other specimens seen, all from the western Amazon region (Bra-

zil, Peru, Ecuador), although an unpublished manuscript in the BMNH added localities from Bolivia and Colombia. These specimens were presumably not compared with the holotype. M. Cooper (in litt., June 30, 1996) concludes that *fulgidipennis* sensu Richards may be provisionally considered a geographical form of *amazonensis* Ducke.

*lenkoi* Richards, 1978a: 207 (key), 213, female — “BRAZIL: MT, Utiariti. . .AM, Tefé (= Ega). . .BOLIVIA: La Paz, Yungas, Ingavi – Coroco Rd, 1500 m.” The holotype is in the MZUSP. Richards gave as the collecting date and nest series for the holotype “31.x.66 (nest KL. 16),” but the label has collecting date 30.x.1966 and nest series number KL 161. The label also has additional locality data, reading “Utiariti/Rio Papagaio, Mt/30.x.1966/Lenko & Pereira.”

### **Polybia**

*affinis* du Buysson, 1908c: 216, female — “Guyane française: Saint-Laurent-du-Maroni, février; Nouveau-Chantier, mars; Saint-Jean-du-Maroni, mai; La Forestière, Haut-Maroni, mai.” The lectotype was designated by Richards (1978a: 111, MNHN, from Saint-Jean-du-Maroni), from among three females marked as types. Richards quoted the label data of the lectotype as “(Guyane, Ste. Jean du Maroni, Mai (E. Le Moulit, 1909)” and concluded that the year must be the date in which the specimen was presented or labeled. The lectotype is labeled “Mai,” “Guyane/St. Jean/du Maroni” and “MP/Guyane Franç./E. Le Moulit 1909,” which supports Richards’ conclusion. In addition to the specimens marked as types in the MNHN are two others: a female labeled “Mai” and “MP/Guyane Française/La Forestiere/Haut Maroni/Coll Le Moulit” and a second female labeled “MP/Guyane Franç./E. Le Moulit 1909,” also from the type series, hence both are paralectotypes.

*aurichalcea* de Saussure, 1854: 178, female — “Le Brésil.” This taxon was synonymized with *Polybia chrysothorax* (Lichtenstein, 1796) by Ducke (1910: 504; Ducke attributed *chrysothorax* to Weber). Ducke and Richards (1978a: 108) both examined a specimen stated to be the type in the MNHN; it was headless when Richards saw it. In the MNHN is another female determined as *chrysothorax* by du Buysson, 1909; it also has a green determination label, possibly by de Saussure, as *aurichalcea*. The locality label reads “MP/Brésil/Para/Ghiliiani 1846.” The specimen is possibly from the original series as well (de Saussure mentioned a Var.). In that case, Ducke’s or Richards’ citation

of the type is a designation of the lectotype (Art. 74(b) of the International Code of Zoological Nomenclature). Ducke (1910: 504) stated merely: “Le type de *aurichalcea* est un exemplaire très vieux de *chrysothorax*.” This does not really allow individual recognition of the specimen, but Richards’ (1978a: 108) statement that the type is a headless female certainly does.

*belizensis* Cameron, 1906a: 151, female (described as a “race” of *Polybia rejecta*) — “Belize.” This taxon was treated as a variety of *rejecta* by Ducke (1910: 508) and Bequaert (1944c: 285), but listed as a “morph” of *rejecta* by Richards (1978a: 45), who on p. 122 referred to a specimen in the BMNH as the holotype. Richards’ statement effectively designates a lectotype, should other syntypes later be discovered (Art. 74(b) of the International Code of Zoological Nomenclature). Because the category “morph” is without nomenclatural standing, *belizensis* is a synonym of *rejecta*. In the ETH is a specimen labeled in Cameron’s hand as type, with locality label “Belize.” This specimen is probably from the original series, hence a paralectotype.

*brunneiceps* Cameron, 1912, : 208 (*brunneiceps* [!], key), 213, female — locality not stated, from Guyana. In the ETH is a specimen marked as type by Cameron and labeled “Br. Guiana”; evidently also from the type series. Richards (1978a: 61) stated to have examined the holotype in the BMNH, a statement that effectively designates the lectotype. The ETH specimen is thus a paralectotype.

*buyssoni* von Ihering, 1903: 151 — “Piquete (Est. S. Paulo), . . . Ypiranga (S. Paulo).” Ducke (1910: 499) synonymized this taxon with *Polybia fastidiosuscula* de Saussure, 1854; Richards (1978a: 58) designated the lectotype (female MZUSP, from Piquete). Richards stated “Some of the material in the Mus. Paulista probably includes the type and I have marked a female from Piquete as lectotype.” He did not mention the number of specimens he had seen. The specimen with the lectotype label has the locality label “1.068/Piquete/(Est. S. P.),” a blue circle, and a determination label. In the MZUSP is another female with the same labels; three females with the label “1424/São Paulo/Ypiranga” and determined as *buyssoni*; a female with the label “337/São Paulo/Ypiranga” and no determination; a male and a female with the 337 label and determination as *fastidiosuscula*; another male determined as *fastidiosuscula* and labeled only 337, and with a new label “BRASIL: SP, São Paulo/Ipiranga, 18.iii.1899/

- J. Lima col.”; a female with the same 337 and new labels, but no determination label; a female with the labels “1.082/Ypiranga/E. S. Paulo” and “1082/Polybia  $\beta$ /sp. ?/(now vicina Sauss.) differs [illegible] nos {1068 [?]/1088 [?]”]; a female with the same number and locality label and determination label as *fastidiosuscula*, with “Ducke rev. 1911” on the last line; two females with the same style of locality but number 16.958, without determination label; and two males and three females with same style of locality but number 1.188, and determination as *fastidiosuscula*. All, or nearly all, of these specimens are likely originally from the types series, hence are paralectotypes.
- caementaria* Ducke, 1904: 348 (key), 355, female — “Belem do Pará, nas mattas, . . . alto Purús (Estado do Amazonas).” Ducke (1910: 513) synonymized this taxon with *Polybia fasciata* de Saussure, 1854, a junior secondary homonym of *fasciata* (Olivier, 1792; treated by de Saussure as a synonym of *Polybia phthisica* (Fabricius, 1793), a species now placed in the genus *Mischocyttarus*; *fasciata* Olivier is now considered to be a synonym of *Agelaia fulvofasciata* (Degeer, 1773)). *Polybia fasciata* de Saussure was synonymized with *P. emaciata* Lucas, 1879, by Bequaert (1944c: 281). The type depository was unknown to Richards (1978a: 117). Overall (1978: 10) mentioned syntypes in the MG but did not state their number; Nascimento (1979: 15) listed three. Nascimento gave the locality data of one of these as “Pará, Belém, 19-IV-1900 (Ducke),” but the label only reads “Brasil/Para/19-4.1900/Ducke.” Roig (1988) did not include this taxon in his list for NMB, but Obrecht and Huber (1993: 177) noted one syntype there. In the MNHN is another syntype, a female labeled “Alto Rio/Purús/1903” and with an MP 1904 label, and marked by Ducke as type.
- cubitalis* de Saussure, 1854: 109, female (described in the genus *Apoica*) — “Bahia.” This taxon was synonymized with *Polybia sericea* (Olivier, 1792) by Ducke (1910: 503). Richards (1978a: 107) examined the holotype in the MNHN, giving the label data as “Bahia, ii.45, *Mocquerys*” and stated that there is a “puparium of a male Strepsipteran beneath the right side of gastral tergite 3.” The label of the holotype actually gives as date 3.45, and the strepsipteran is under tergum V.
- decorata* Ducke, 1905a: 9, female — “Tabatinga (Haut Amazone).” The name is a primary homonym of *Polybia decorata* Smith, 1857, and was replaced by *signata* Ducke, 1910. The lectotype was designated by Richards (1978a: 53, MNHN, as the lectotype of *signata*). Richards cited as label data for *signata* “Brésil, Tabatinga, 1905 (A. Ducke).” That is what is given on the MP label; in addition, the specimen has a label reading “Tabatinga/11.10.1904/Ducke.” Obrecht and Huber (1993: 177) noted another syntype in the NMB, which is a paralectotype. The right wings are missing on this specimen.
- digueta* du Buysson, 1905a: 9, female and male (described as variety of *occidentalis*) — “d’Oaxaca (Mexique).” Richards (in Richards and Richards, 1951: 138) treated this taxon as a species. The lectotype was designated by Richards (1978a: 89, female, MNHN), from among “a very long series.” A series of 22 females and seven males, including the labeled lectotype, is in a box in the MNHN that had been sent to Richards. Another box has 29 specimens that are from the series. In the MNHN are two other specimens marked as types and one with du Buysson’s determination label, with locality label “Mexique/Oaxaca.” These are evidently from the type series as well, hence they are paralectotypes.
- dimorpha* Richards, 1978a: 40 (key), 57, female — “SURINAM: Zanderij savannah. . . BRAZIL: ? AM, R. Autaz, Amazon. . . ; Amazon. . . ; PERU: Cuzco, Valle del Cosñipata, 1700 m. . . ; EC-UADOR: Napo. . . ; Limoncocha, 00°24’S, 76°36’W. . . ; COLOMBIA: Nariño, Barbacoas, 80 m.” The type depository for the holotype, from Surinam, was stated to be RMNH. I failed to find it there. Paratypes from the same locality were stated to be in both the RMNH and BMNH, and I did see specimens from that locality in the RMNH, but with only van der Vecht’s determination label.
- dubitata* Ducke, 1910: 495 (key), 500, female — “Obidos.” Bequaert (1943: 295) treated this taxon as a variety of *procellosa* Zavattari, 1906, and Richards (1978a: 126) treated it as a subspecies, and designated the lectotype (MZUSP). Richards stated that this specimen was marked as co-type, but that is not true now; the lectotype is labeled only “6.417/Obidos/Est. Pará” and “Brazil/Estado do/Pará” and with Richards’ determinator and lectotype label. In the MNHN is a female marked as type, with a determination label by Giordani Soika as *procellosa* var. *dubitata*, and labeled “Obidos/15.5.1905/Ducke” and “Brazil/Estado do/Pará.” This specimen is evidently from the type series, hence it is a paralectotype.
- emaciata* Lucas, 1879: 363, female — “Brésil.” Richards (1978a: 117) listed the type depository as questionably the MNHN, but I failed to find it there.

*furnaria* von Ihering, 1904: 172 (key), 217, female and male — “Santarém, Pará”. The lectotype was designated by Richards (1978a: 121, female MZUSP) from among four syntypes. These specimens were all stated to be female, but one is actually a male (headless). Richards saw another female in the U. S. National Museum from that series, a paralectotype. In the MNHN is a headless female labeled cotype, with locality labels “Santarém” and “Brazil/Estado do/Pará” and an MP 1919 label. This may be from the type series as well, another paralectotype.

*heydeniana* de Saussure, 1863: 241, female — “Brésil.” Bequaert (1943: 301) treated this taxon as a variety of *bifasciata* de Saussure, 1854, and Richards (1978a: 53) listed it as a doubtful synonym of *bifasciata*. Richards stated the “holotype” is in Geneva, but there are no specimens in the MHN. De Saussure (1863) stated that the specimens are in the “Senkenberg” Museum. There are two females in the NS, with the “Brasilia/Freiress” label of the other South American polistines described by de Saussure in 1863. They are also numbered, 226 and 227, and the latter is labeled “Saussure/determ.” and with a written determination label. These specimens are syntypes. The synonymy with *bifasciata* is confirmed.

*incerta* Ducke, 1907b: 175 (key), 179, female — “Teffé (Estado do Amazonas).” The lectotype was designated by Richards (1978a: 124, MZUSP). The specimen in the MZUSP is actually labeled as paralectotype by Richards, but the label data otherwise correspond. Obrecht and Huber (1993: 177) noted one syntype in the NMB, which is a paralectotype. Further paralectotypes are in the MNHU, MNHN and HNHM. The MNHU has a single specimen marked as type, labeled “Teffé/7.9.1904/Ducke.” The MNHN has a single female marked as type, labeled “Teffé/IX-1904/Ducke” and with an MP 1907 label. In the HNHM is a female marked as type, with a determination label by Giordani Soika, labeled “Teffé/7.9.1904/Ducke” and “Brazil/Estado do/Amazonas.” The MG also has five females, not mentioned by Nascimento (1979), which are evidently from the type series, hence paralectotypes. All have the labels “Brazil/Estado do/Amazonas” and “Teffé/7.9.1904/Ducke”; two lack the metasoma, and one of these the right wings. Another female in the MG lacks any label, but is double-mounted in the same way as the paralectotypes there; it, too, may have been from the original series.

*micans* Ducke, 1904: 347 (key), 351, female —

“Belem do Pará, Almeirim, Obidos, Itaituba, Amapá e Oyapoc.” The lectotype was designated by Overal (1978: 3, MG, from Amapá), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. The lectotype now lacks the determination label by Ducke, mentioned by Overal. Overal also mentioned two other specimens in the MG as probably from the type series, from Pará and Oyapock; I have seen these these specimens, and they are evidently paralectotypes. One is labeled “Brazil/Estado do/Pará” and “Oyapock/17.6.1904/Ducke.” The other is labeled “Pará/16.12.99/Ducke,” and lacks the right forewing. Richards (1978a: 111) examined a specimen in the MNHN from Obidos, which he characterized as “perhaps one of the original series.” I have examined that specimen, which is marked as type by Ducke and is labeled “Obidos/7.7.1903/Ducke” and with a 1904 MP label. There seems no doubt that it is from the original series, hence it is a paralectotype. In the HNHM is a female marked as type, labeled “Teffé/9.1.1904/Ducke” and “Brazil/Estado do/Pará.” This is evidently another paralectotype.

*minarum* Ducke, 1906: 8, female — “Barbacena.” The lectotype was designated by Richards (1978a: 105, BMNH). Obrecht and Huber (1993: 177) noted one syntype in the NMB, which is a paralectotype. This is evidently also another paralectotype. In the MNHN is another paralectotype, a female marked as type by Ducke, and labeled “Barbacena/13.10.1905/Ducke” and with a 1907 MP label. In the HNHM is a female marked as type, labeled “Barbacena/20-10-1905/Ducke” and “Brazil/Estado do/Minas Ger.” This is evidently also another paralectotype. The MG also has two females, not mentioned by Nascimento (1979), which are evidently paralectotypes. Both have the label “Brazil/Estado do/Minas Ger.”; one is also labeled “Barbacena/20-10-1905/Ducke,” whereas the other is labeled “Barbacena/10.11.1905/Ducke.”

*nigratella* du Buysson, 1905a: 9, female (described as variety of *occidentalis*) — “Mexique: environs d’Oaxaca.” Richards (1978a: 68) treated this taxon as a subspecies of *occidentalis* (Olivier, 1792). He stated: “The subspecies *nigratella* is represented at Paris by a long series of dark females from Mexico: Oaxaca, Basse Mistèque, Puerto Angel, 1903 (*L. Diguët*) and I have put a lectotype label on one of them.” In the MNHN is a series of 36 specimens with the label data given by Richards’ label, but none has a lectotype label. Unless a

labeled specimen can be found, Richards' lectotype designation is not valid.

*paulista* H. von Ihering, 1896a: 160, female and male (described as a variety of *scutellaris*) — “Brésil” (lectotype female São Paulo). Richards (1978a: 85) treated this taxon as a species, and designated the lectotype (female, MZUSP). Inexplicably, Richards cited H. von Ihering's (1896b) paper first in the synonymy, listing the name *paulista* as a nomen nudum; he cited the 1896a paper second in the synonymy, but in his bibliography cited this paper first. Evidently, the name *paulista* was validly proposed when it was first published. Richards further stated “No definite locality was indicated but by inference it should be in S. Paulo.” In his second paper, H. von Ihering (1896b) did mention São Paulo.

Of the lectotype, Richards (1978a: 86) stated, “In the collection of the Mus. Paulista are some wasps labelled ‘Ypiranga [= Ipiranga, SP], 1199’, some with the additional label ‘stachelig nest’ and others ‘glatten nest’. I have labelled one of the latter the lectotype of *P. paulista*.” Richards also stated “I cannot at the moment describe the male but I suspect that the yellow-er specimens with the clypeus entirely pale and substantial yellow markings on the gaster belong here.”

The specimen with the lectotype label has the locality “glattes Nest/YPI-RANGA” [not “glatten”]. Other specimens that are evidently from the type series, hence paralectotypes, include two other females with the same “YPI-RANGA” label, but nothing about the nest on this; one of them also has the determination label “*Polybia* 1199/*scutellaris* Sauss./det./E. de S. Paulo.” There are also two males and a female labeled “1.199/Ypiranga/E. S. Paulo” and with “Sauss. det” labels (not in de Saussure's handwriting). There are another male and female labeled “351/Ypiranga/E. S. Paulo,” with the sex specified on the label, and without determination labels. There is also a male, partly dissected, with locality label “8.851/Ypiranga/Lüderw. Leg.” There are no specimens in this tray with a “stachelig nest” label, but under *scutellaris* is a female labeled “Stachelig/YPI-RANGA/1199” and “Sauss. Det.” and a male labeled “351/Ypiranga/E. S. Paulo,” with the sex specified on the label.

*punctata* du Buysson, 1908c: 216, female — “Brésil, Barbacena.” The lectotype was designated by Richards (1978a: 112, MNHN). The specimen in the MNHN is recognizable, although the pubescence is rubbed on the clypeus, rendering one character of couplet 68 in Richards' key inapplicable. The lectotype has

no label by Richards, and the determination label does not read “*aurichalcea* Ducke nec Sauss. = *punctata* Buyss.” (the determination label as = *punctata* Buyss. is by Ducke, 1909; on the underside is a 1906 Ducke determination as *aurichalcea*).

*rufitarsis* Ducke, 1904: 344 (key), 351, female — “Itaituba (Rio Tapajoz).” Ducke described this species from a single individual, but Overal (1978: 3) designated the specimen (in the MG) as “lectotype.” The lectotype designation was unnecessary. The holotype was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG.

*sampaioi* Ducke, 1906: 8, female — “Curityba (État de Paraná),... São Paulo.” Ducke (1910: 499) treated this taxon as a variety of *Polybia fastidiosuscula* de Saussure, 1854, and Richards (1978a: 58) treated it as a “morph” of *fastidiosuscula*, a category without nomenclatural standing. It is therefore a synonym of *fastidiosuscula*. The lectotype was designated by Richards (1978a: 58, MNHN), who gave as label data “Curityba, 1907 (A. Ducke).” The lectotype also has a locality label in addition to the MP label cited by Richards, which reads “Curityba/Dr J. Sampaio.”

*sculpturata* Ducke, 1904: 347 (key), 356, female — “Belem do Pará, Anajás, Macapá, Oyapoc e Obidos.” Ducke (1910: 509) synonymized this taxon with *Polybia gorytoides* Fox, 1899, but Richards (1978a: 43, 102) treated it as a subspecies of *gorytoides*. Richards listed the type depository as unknown. The lectotype was designated by Overal (1978: 3, MG, from Macapá), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. Overal, however, mentioned two other specimens in the MG from the type series, from Rio Anajás and Oiapoque. These specimens are paralectotypes. Both are labeled “Brazil/Estado do/Pará,” and one is also labeled “I. Marajo/R. Anajas/10.6.1904/Ducke” while the other is labeled “Oyapock/12.6.1904/Ducke.” The first lacks the front legs, left wings, and most of the antennae; the head and prothorax have been glued on the pin. The second lacks the right foreleg and left antenna. Roig (1988) did not include this taxon in his list for NMB, but Obrecht and Huber (1993: 177) noted one syntype, which is a paralectotype. It has a penciled determination label as *gorytoides*. In the MNHN is female marked as type, with locality label “Obidos/15.1.1904/Ducke” and with a 1904 MP label. This specimen is another paralectotype.

*septentrionalis* von Ihering, 1904: 174 (key), 210

- (name for *Polybia fasciata* sensu Lepeletier, and de Saussure) — “Panamá. . . Perú, Maracapata. . . ; Bolivia; Venezuela.” Ducke (1910: 498) synonymized this taxon with *Polybia catillifex* Möbius, 1856. Richards (1978a: 60) listed the type depository as “probably partly in Mus. Paulista” and stated to have seen one male and seven females under the number 1615 from “Peru: Marcapata” that, however, did not bear a *septentrionalis* label. Richards listed only Peru and Bolivia as type localities, but von Ihering’s description (which Richards stated to be on p. 269, but that is in the section on nests and biology; the description is actually on pp. 210–211) also mentioned Panama, citing de Saussure, and Venezuela, based on MZUSP specimens. In the MZUSP under the number 1615 (written sideways on the locality label, which reads “Maracapata/(Perú),” not Marcapata) are actually two males and two females. Four other females are from the same locality, but bear the numbers “1.612” and 1.614.” All eight specimens are labeled with yellow squares, and the determination labels are as *catillifex*, with “Ducke rev. 11” on the last line. These are doubtless syntypes. Two other females, bearing the number “1189” and locality “Bolivia” are determined by Richards as *catillifex*, but also have the determination label as *fastidiosuscula*, with “Ducke rev. 11” on the last line (the numbers are joined on one of these specimens, so that it appears to read “rev. 4”). These two specimens are probably syntypes as well.
- singularis* Ducke, 1909: 627 (name for *Polybia emaciata* in Ducke, 1905b: 680, recorded for females and a nest from “Obidos”). The lectotype was designated by Richards (1978a: 114, female BMNH, from Óbidos; Richards also listed two sites in Amazonas that were not mentioned by Ducke). In the MNHN is a female marked as type, determined by Ducke, with locality label “Obidos/1904” and a 1909 MP label. In the HNHM is another female marked as type, with locality label “Obidos/1904” and labeled “Brazil/Estado do/Pará.” Both specimens are evidently from the type series, hence paralectotypes.
- socialis* de Saussure, 1854: pl. XXIV fig. 5, not 177 text, which is *Mischocyttarus socialis* (de Saussure), q. v. Bequaert (1944a) detailed the synonymy of this taxon, currently considered a synonym of *Polybia ignobilis*. De Saussure (1858: VV, revised explanation of plate) recognized that he had mixed two species under the name *Polybia socialis*, and proposed the name *Polybia nigra* for the species depicted in the plate published in 1854, female specimens from “Le Brésil.” Richards (1978a: 106) mentioned six females marked as types of *socialis* in the MNHN; there are actually seven, but one of these is labeled “MP/Guyane Franc./Mana/ Leschenault,” hence it is a pseudotype.
- spilonota* Cameron, 1904: 68, female — “San Marcos, Nicaragua.” Richards (1978a: 69) synonymized this species with *Polybia occidentalis bohemani* Holmgren, 1868. Richards referred to a BMNH specimen as the holotype. In the ETH is a specimen marked as type and in Cameron’s hand as cotype, from “San Marcos/Nicaragua/Coll. Baker.” The specimen is evidently from the original series, hence a syntype. Richards’ reference to the holotype in the BMNH effectively designates the lectotype (Art. 74(b) of the International Code of Zoological Nomenclature), hence the ETH specimen is a paralectotype.
- sycophanta* Gribodo, 1892: 251, female — “Miarim (Brasile),” Bequaert (1944c: 282) synonymized this taxon with *Polybia striata* (Fabricius, 1787). Richards (1978a: 47) listed the type depository as the MCGD. In the ETH is a female labeled cotype, with locality label “Miarim/Brasilia/coll Gribodo” and Gribodo’s determination label. This specimen is evidently a syntype; Gribodo mentioned eight specimens in his description, and did not distinguish a holotype.
- velutina* Ducke, 1907b: 171 (key), 180, female and male — “Teffé, Rio Japurá, Tabatinga, Iquitos.” The lectotype was designated by Richards (1978a: 110, female from Rio Japurá, BMNH). Obrecht and Huber (1993: 177) noted one female syntype in the NMB, which is a paralectotype. In the MNHU is another paralectotype, a female marked as type, and labeled “R. Japurá/21.9.1904/Ducke.” In the HNHM is still another paralectotype, a female marked as type, with a determination label by Giordani Soika as a subspecies of *micans*, and labeled “R. Japurá/21.9.1904/Ducke” and “Brazil/Estado do/Amazonas.” The MG also has three females, not mentioned by Nascimento (1979), which are evidently paralectotypes. All have the label “Brazil/Estado do/Amazonas”; one is labeled “R. Japurá/21.9.1904/Ducke,” one is labeled “Teffé/8.9.1904/Ducke,” and one is labeled “Tabatinga/16.10.1904/Ducke.”
- venezuelana* Giordani Soika, 1965: 29, female (described as a subspecies of *Polybia occidentalis*) — “Venezuela: I. Margarita”; also from Guarico and Aragua. Richards (1978a: 70) gave the holotype depository as the MNHN, but

Giordani Soika stated that it was in his collection (MCSN).

### Protonectarina

*sylveirae* de Saussure, 1854: pl. 22 fig. 2 and errata: 256 (*sylveibae* [!] p. 171), female (described in the genus *Polybia*) — “Le Brésil.” Richards (1978a: 127) stated: “Three females in the MNHN, Paris labeled ‘Le Brésil, Sylveira, 1833’ include the one here made lectotype.” In the MNHN are three specimens with locality label “MP/Brésil/Sylveira 1833,” all also with circular labels, two with de Saussure labels and one with a de Saussure determination label. None of these has a label by Richards. Because he did not distinguish the specimens, Richards’ statement cannot be regarded as a valid designation. The three specimens are thus all syntypes.

**Protopolybia** (= *Pseudochartergus*, v. Carpenter and Wenzel, 1990.)

*ducke* du Buysson, 1905b: 126, female (described in the genus *Charterginus*) — “Brésil, Bahia.” This taxon was synonymized with *Protopolybia emortalis* (de Saussure, 1855) by Ducke (1907b: 470). Richards (1978a: 144) stated that the holotype is in the MNHN, but I failed to find it there and du Buysson described the species from material of the Vienna Museum.

*holoxantha* Ducke, 1904: 342 (key), 349, female (described in the genus *Polybia*) — “Oyapoc.” The lectotype was designated by Richards (1978a: 140, BMNH), who also saw two paralectotypes in the MNHN. Obrecht and Huber (1993: 177) noted one syntype in the NMB, which is a paralectotype. In the ETH there are two other females marked as types, labeled “Brasil/Barcellona/6.1905/Ducke” and determined by von Schulthess. These specimens are pseudotypes. In the HNHM are two females marked as types, with determination labels by Giordani Soika, labeled “Oyapock/27.5.1904/Ducke” and one also “Brazil/Estado do/Pará.” Both are evidently from the type series, hence paralectotypes. The MG also has three females, not mentioned by Nascimento (1979), which are evidently paralectotypes. All have the label “Brazil/Estado do/Pará”; one is also labeled “Oyapock/26.5.1904/Ducke” whereas the others are labeled “Oyapock/27.5.1904/Ducke.” Two of the specimens lack the left forewing, and one of these lacks the left hindwing and metasoma.

*iheringi* Ducke, 1910: 469 (key), 474, female — “Pérou, oriental subandin, Marcapata.” The lectotype was designated by Richards (1978a: 148, female MZUSP), who also saw males in

the type series; he did not say how many specimens he saw, but there are two males and one female in the MZUSP. The males lack the wings, and one is missing both antennae and the right foreleg, whereas the other lacks most of the left antenna and some the right hindleg tarsomeres. The MG also has three females, not mentioned by Nascimento (1979), which are evidently from the type series, hence are paralectotypes. Two have the label “Maracapatá/(Perú),” whereas the other is labeled “Maracapatá/(Perú)/P. pumila/sec. R. v. Ih.” and has a 1905 determination label by von Ihering as *pumila*. All of these specimens are in bad condition, one lacking the head and much of the wings, and all moldy to some degree, with two quite obscured.

*nitida* Ducke 1904: 327 (key), 338, female (described in the combination *Chartergus nitidus*) — “Obidos e Oyapoc.” Bequaert (1944b: 118) synonymized this taxon with *Protopolybia picteti* var. *bella* (von Ihering, 1903) but Richards (1978a: 139, 145) treated it as distinct, and designated the lectotype (p. 145, BMNH, from Obidos). He also saw a paralectotype in the MNHN. Obrecht and Huber (1993: 177) noted one syntype in the NMB, which is a paralectotype. In the HNHM are two females marked as types, with determination labels by Giordani Soika as *picteti bella*, one labeled “Oyapock/17.6.1904/Ducke” and the other labeled “Obidos/21.12.1903/Ducke” and “Brazil/Estado do/Pará.” Both are evidently from the type series, hence paralectotypes. The MG also has four females, not mentioned by Nascimento (1979), which are evidently paralectotypes. All have the label “Brazil/Estado do/Pará”; two are also labeled “Obidos/21.12.1903/Ducke,” another is labeled “Obidos/20.7.1902/Ducke,” and the last is labeled “Oyapock/21.6.1904/Ducke.”

*palmarum* Blanchard, 1868: 414 fig., 415 (described in the genus *Polybia*) — “commune au Guatémala.” Ducke (1910: 474) synonymized this taxon with *Protopolybia sedula* var. *exigua*, but it was overlooked by Richards (1978a). In the MNHN are 10 females labeled “MP/Mexique,” and marked as types of *palmarum*, probably syntypes despite the discrepancy in locality (Silveira and Carpenter, 1996). The specimen bearing the type and determination label is also determined as *exigua* by du Buysson. The color of the specimens, including six callows, is yellow, as stated by Blanchard, not ferruginous as stated by Ducke. The synonymy with the typical form of *exigua* is confirmed (Silveira and Carpenter, 1996).

*pumila* de Saussure, 1863: 239, female (described in the genus *Polybia*) — “Brésil.” Richards (1978a: 150) synonymized this taxon with *Protopolybia sedula* (de Saussure, 1854), but presumably did not see the type, stating only: “The type *P. pumila* is at the Senckenberg Museum and there is no reason to think that it has not been correctly identified.” In the NS is a single female specimen with the “Brasilia/Freire” label of the other taxa described by de Saussure in 1863. It is also labeled “235.” This specimen is evidently the holotype; the synonymy with *sedula* is confirmed.

*punctulata* Ducke, 1907b: 166 (key), 167, female — “Iquitos (Perú amazonico) e Barbacena (Minas Geraes). .La Mana (Guyana francesa). .de diversas localidades do Estado de São Paulo.” Ducke (1910: 474) synonymized this taxon with *Protopolybia sedula* (de Saussure, 1854), which Richards (1978a: 142) treated as a misidentification of *Protopolybia exigua* (de Saussure, 1854). The type depository was unknown to Richards. Obrecht and Huber (1993: 178) noted one syntype in the NMB. I agree; that specimen is a female marked as type and labeled “Barbacena/20-10-1905/Ducke.” In addition there are two females labeled as types by Ducke in the MNHN, with date/locality labels reading “Brésil/Barbacena/A. Ducke 1907” and “Barbacena/18.11.1905/Ducke.” These are also presumably syntypes. The specimens are not the same species as *exigua*, rather, they are true *sedula*. Obrecht and Huber (1993) similarly came to the conclusion that the Bern syntype corresponded to Richards’ description of *sedula*. Therefore, *punctulata* should be returned to the synonymy of *sedula*, REVISED SYNONYMY.

*rotundata* Ducke, 1910: 469 (key), 472, female — “La Mana, Guyana française.” Richards (1978a: 145) designated as the lectotype one of four specimens in the MNHN, “The one marked type.” There are three specimens in the MNHN with type labels, but none were labeled by Richards. One of the specimens has Ducke’s determination label with the word type, and perhaps this is the specimen Richards meant. The MG also has a female, not mentioned by Nascimento (1979), which is evidently from the type series. It is labeled “MP/GUYANE FR./LA MANA/MÉLINON 1864” and with a green circle. The head has been broken off, and glued to the wooden strip of the double-mount.

*rufo-ornatus* Cameron, 1912: 220, female (described in the genus *Charterginus*) — locality not stated, from Guyana. Richards (*in* Richards and Richards, 1951: 22) synonymized this tax-

on with *Protopolybia emortualis* (de Saussure, 1855), and Richards (1978a: 144) designated the lectotype from among four specimens in the BMNH. In the ETH is a specimen marked as type and labeled in Cameron’s hand “*Chartergus/rufo-ornatus/Cam. Type/Br. Guiana*”; evidently it is also from the type series, hence a paralectotype. The head is mostly gone, but the specimen is still recognizable as *emortualis*.

*rugulosa* Ducke, 1907b: 166 (key), 167, female — “Teffé” Ducke (1910: 476) synonymized this species with *Protopolybia laboriosa* (de Saussure, 1854), which Richards (1978a: 143) suggested was a misidentification, although he did not examine the type of *laboriosa*. Richards (1978a: 143) designated as lectotype for *rugulosa* a BMNH specimen, and saw two other specimens in the MNHN that are evidently paralectotypes. Obrecht and Huber (1993: 178) noted one syntype in the NMB, which is a paralectotype, and which they suggested “is probably” *minutissima* (Spinola). There is another female in the MNHU with an identical date/locality label and marked as type by Ducke. This specimen is an additional paralectotype. The MG also has three specimens, not mentioned by Nascimento (1979), which are evidently paralectotypes. All have the labels “Brazil/Estado do/Amazonas” and “Teffé/6.9.1904/Ducke.” Two are in bad condition, quite dirty, and one of these specimens lacks the head, metasoma, and left wings.

*sedula* de Saussure, 1854: 169, female (described in the genus *Polybia*) — “Bahia.” Richards (1978a: 150) examined a specimen from the MNHN that he referred to as the holotype. There are four specimens in the MNHN marked as types, all with the same date/locality label. One of the specimens also bears a green circle and a printed de Saussure determination label, which was probably added after the specimen was acquired by the MNHN. It thus does not appear that there is a holotype, and Richards’ statement does not distinguish among the specimens, so does not serve to designate a lectotype. A specimen in the MHN labeled “Bahia” may be a further syntype, as de Saussure (1854) stated that a part of the specimens he described was in his collection, which was deposited in the MHN.

### **Pseudopolybia**

*compressa* de Saussure, 1854: 217 (key), 223, male (described as *Chartergus compressus*) — “Les Amazones.” Richards (1978a: 227) stated that the holotype is in Paris, but it is actually in the BMNH — as stated by de Saussure.

*difficilis* Ducke, 1905a: 14, female (described in the genus *Parachartergus*) — “dans le grand bois de la rive brésilienne du fleuve Oyapoc.” Ducke stated, “J’ai capturé une femelle”; nevertheless, Richards (1978a: 227) designated a specimen in the MNHN as “lectotype,” although he did not so label it. Roig (1988: 14) listed syntype material as present in the NMB, although I saw no specimen there marked as a type. Obrecht and Huber (1993) did not include it in their list of Ducke type material in the NMB, and so Roig’s listing was presumably an error — aside from the fact that the holotype is the only type specimen.

*laticinctus* Ducke, 1904: 326 (key), 330, female (described in the genus *Chartergus*) — “Belem do Pará.” Richards (1978a: 228) treated this taxon as a “morph” of *Pseudopolybia compressa*, which is a category without nomenclatural standing, hence *laticinctus* is a synonym. Richards designated a specimen in the MNHN as lectotype. He did not label the specimen, but it is readily recognizable.

*testacea* Ducke, 1907b: 160 (as a variety of *Parachartergus vespiceps*) — “Guyanas. . . de Cayenne e de Suriname. . . Amazonia (Belem do Pará, Macapá, Obidos, Teffé). . . São Luiz do Maranhão.” The lectotype was designated by Richards, 1978a: 225 (female MZUSP, from Suriname), who treated this taxon as a “morph” of *vespiceps*. Because the category morph is without nomenclatural standing, Richards effectively treated *testacea* as a synonym of *vespiceps*. The number on the label of the lectotype is 748, not 7.48 as Richards had it. Other specimens in the MZUSP that are probably also from the types series, hence paralectotypes, include one with the locality label “747/Cayenne,” a yellow square, and a determination label “Ducke rev. 11”; and a female with the locality label “16.731/Obidos/(Est. Pará)” and a determination label “Ducke rev. 11.”

*vespiceps* de Saussure, 1863: 237, female (described in the genus *Polybia*) — “Brésil.” Richards (1978a: 225) recorded the type depository as unknown, although de Saussure (1863) stated that his material was in the “Senkenberg” Museum. There is one female in the NS, labeled “Brasilia/Freiress” as with the other taxa described in 1863, and numbered 197. This specimen is evidently the holotype.

### Synoeca

*azurea* de Saussure, 1852: 554, female — “Le Brésil, Bahia.” Ducke (1910: 542) synonymized this taxon with *surinama* (Linnaeus,

1767), along with *cyanea* (Fabricius, 1775), but Richards (1978a) restored *cyanea* to species rank, and (p. 180) treated *azurea* as a synonym of *cyanea*. Richards stated that one of the two type females of *azurea* that he examined was designated the lectotype. The two specimens are present in the MNHN, but they are labeled identically; there is no lectotype label. Because he did not distinguish the specimens, Richards’ statement cannot be regarded as a valid designation.

### Synoecoides

*depressus* Ducke, 1905a: 16, female (original orthography *depressa*) — “Teffé (Haut-Amazone).” Ducke described this species from a single individual, but Overall (1978: 1) designated the specimen (in the MG) as “lectotype.” Overall wrote, “nenhuma designação foi feita por Ducke,” but pointed out that the specimen was marked as type by Ducke. That specimen is the holotype, thus the lectotype designation was unnecessary. The holotype was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. Roig (1988: 14) listed syntype material as present in the NMB, although I saw no specimen there marked as a type. Obrecht and Huber (1993) did not include it in their list of Ducke type material in the NMB, and so Roig’s listing was presumably an error — aside from the fact that the holotype is the only type specimen.

## MISCHOCYTTARINI CARPENTER, 1993

### Mischocyttarus

*alfkenii* Ducke, 1904: 360 (key), 362, female and male (described in the genus *Megacanthopus*) — “nas matas dos rios Villanova e Camahipy (município de Mazagão), do Oyapoc e de Obidos.” Ducke (1913: 331) synonymized *Megacanthopus* with *Mischocyttarus*, and treated *alfkenii* [as *alfkeni* !] as a variety of *phthisicus* (Fabricius, 1793); Zikán (1935: 153) returned *alfkenii* to species rank. The lectotype was designated by Richards (1978a: 343, female MZUSP, from Villanova). That specimen is labeled “17.107/Rio Villanova/Guyana/brasil.” and with “Ducke rev. 11” as cotype. Richards also saw two female paralectotypes in MNHN. He gave as label data for one of these specimens “R. Villanova, 26.x.00”; the complete label reads: “Guyana brasil/R. Villanova/26.10.1900/Ducke,” which is repeated on an MP label. Obrecht and Huber (1993: 179) noted another female syntype in the NMB, which is a paralectotype.

- artifex* Ducke, 1914: 315, 327, female and male — “Obidos am unteren Amazonas.” The lectotype was designated by Richards (1978a: 426, female MZUSP, as *Megacanthopus* [!]). He did not label the specimen, other than with a determination label, but this, the only specimen cited from the MZUSP, is readily recognizable. It has as other labels “Brazil/Estado do/Pará,” “16.396” (with the reverse being a Ducke cotype label), “Obidos/5-3-1909/Ducke” and “Dept. Zoologia,” as well as a green strip.
- bahiaensis* Zikán, 1949: 20 (key), 88, female — “Estado da Bahia.” The holotype is in the MZUSP. Zikán gave as the collector “Muquers,” but Richards (1978a: 401) correctly cited the name as “Mocquers”; the locality label reads “MP/Brésil/Bahia/E. Mocquers 1845.”
- basimacula* Cameron, 1906a: 150, female (described in the genus *Polybia*) — “Belize.” Ducke (1910: 523) transferred this taxon to *Megacanthopus* as a variety of *indeterminabilis* (de Saussure, 1854); he later (1913) synonymized *Megacanthopus* with *Mischocyttarus* and *indeterminabilis* with *phthisicus* (Fabricius, 1793). Richards (1945: 391) returned *basimacula* to species rank, and designated the lectotype (p. 392, BMNH). He also mentioned another specimen in the BMNH. In the MNHN is a female with Baker’s determination label as cotype, and labeled with “Belize,” “Collection/Carl F Baker,” a 1907 MP label and du Buysson’s determination as a variety of *indeterminabilis*; a second female has the same labels, except no Baker determination label. The locality and collection data are those given by Cameron, thus these specimens are probably syntypes, hence paralectotypes.
- buyssoni* Ducke, 1906: 9, female (described in the genus *Monacanthocnemis*) — “Rio de Janeiro.” Ducke (1913: 331) synonymized *Monacanthocnemis* with *Mischocyttarus*; Ducke (1918: 355) published the combination *Mischocyttarus buyssoni*. The lectotype was designated by Richards (1978a: 373, BMNH), who saw paralectotypes in MNHN and MZUSP. Obrecht and Huber (1993: 179) noted one syntype in the NMB, which is a paralectotype. In the MNHU is a specimen marked as type, and with the label “Rio de Janeiro/12-1-1906/Ducke,” evidently a paralectotype.
- cassununga* von Ihering, 1903: 146, female and male (described in the genus *Polybia*) — “São João Climaco, à deux lieues de S. Paulo. . São Bernardo.” Ducke (1906: 10) transferred this taxon to *Megacanthopus*, and Ducke (1918: 352) published the combination *Mischocyttarus cassununga*. The lectotype was designated by Richards (1978a: 363, female MZUSP). Richards stated that von Ihering (1903) described this taxon “without definite locality,” but overlooked that von Ihering did give the locality for two nests, on p. 148. Richards went on to state that “In 1904, R. von Ihering gives [Brazil: SP], Itatiba as the type locality. In the Mus. Paulista are ♂ 1058, ♀ 1066 from this place. . I have marked the female 1058 as the lectotype.” In the MZUSP there are actually two females labeled “1.058/Itatiba/(Est. S. P.),” both with determination labels from “Ducke rev. 11,” blue circles and “Dept. Zoologia.” The second of these specimens is evidently a paralectotype. Several other specimens are marked by Richards “None of these specimens is a paratype,” but specimens from other localities mentioned by von Ihering (1904: 208) include six from Perú and four from Os Perú, and one from Campinas.
- collaris* Ducke, 1904: 359 (key), 361, female and male (described in the genus *Megacanthopus*) — “Belem do Pará. Obidos e Oyapoc.” Ducke (1913: 331) synonymized *Megacanthopus* with *Mischocyttarus*; Ducke (1918: 354) published the combination *Mischocyttarus collaris*. The lectotype was designated by Richards (1978a: 384, female MZUSP, from Oyapoc, the spelling Ducke used for Oyapock. Richards typically used the Brazilian name Oiapoque; on p. 384 he misspelled this as Oipoque). The locality label reads “17.097/Oyapock.” Obrecht and Huber (1993: 179) noted one female syntype in the NMB, which is a paralectotype. In the MNHN is a female marked as a type, with locality label “Pará/25.7.99/Ducke” and a 1904 MP label; and a damaged male, marked as a type, with locality label “Oyapock/25.5.1904/Ducke” and a 1909 MP label. These specimens are evidently also paralectotypes.
- duckei* du Buysson, 1908c: 218, female (described in the genus *Megacanthopus*) — “Guyane française; Nouveau Chantier du Bas Maroni.” Ducke (1913: 331) synonymized *Megacanthopus* with *Mischocyttarus*; Richards (1940: 183) published the combination *M. duckei*. The specimen in the MNHN marked as type only has label data: “MP/Guyane Franç./E. Le Moul 1909.” The date on the label is apparently when that particular label was attached.
- flavicornis* Zikán, 1935: 154 (key), 168, female — “Goyaz.” The lectotype was designated by Richards (1978a: 340, MZUSP). Richards stated that the lectotype “bears the label ‘*indeterminabilis* var. *alfkenii* Ducke rev. 1911’ and typus.” This information is actually on two determination labels, one of which reads “Me-

- gacanth./indeterm. alfken.” and on the reverse side “R. v. Ihg./det. 13,” while the other reads “var. alfkenii Ducke/Ducke rev. 11.” The specimen also bears a determination label by Zikán.
- goeldii* Ducke, 1905b: 690, female and male (described in the genus *Megacanthopus*) — “Barcellos nos igapós do rio Negro.” Ducke (1918: 350) synonymized this taxon with *Mischocyttarus flavicans* (Fabricius, 1804). The type depository was unknown to Richards (1978a: 287). Obrecht and Huber (1993: 179) noted one female syntype in the NMB, mentioning that I had confirmed it in 1991. In the MACN is another female with the label “Barcellos/23-VI-1905/Ducke” and Ducke’s type label, evidently another syntype.
- imitator* Ducke, 1904: 359 (key), 362, female and male (described in the genus *Megacanthopus*) — “Belem do Pará; Anajás (ilha de Marajó).” Ducke (1905b: 689) synonymized this taxon with *ater* (Olivier, 1792), a species for which the name *socialis* (de Saussure, 1854) is now used (Bequaert, 1944a). Richards (1978a) returned *imitator* to species rank and (p. 296) designated the lectotype (female MZUSP, from Ilha de Marajó, Anajás). He also saw female paralectotypes in the BMNH and MNHN. The label data given by Richards for the paralectotype in the MNHN data are wrong: the label date is 2.6.1900, not 2.vii.00. Obrecht and Huber (1993: 179) noted another female syntype in the NMB, which is a paralectotype.
- indeterminabilis* de Saussure, 1854: 201 (described in the genus *Polybia*) — “Amérique du Sud. Ile Sainte-Lucie.” Ducke (1913: 331) synonymized this taxon with *Mischocyttarus phthisicus* (Fabricius, 1793). The lectotype was designated by Richards (1978a: 316, female, MNHN), from among four specimens marked as types. In the MNHN there is only one female marked as type, without a label by Richards, but the locality is correct. The lectotype of *cubensis* (designated by Richards, 1978a: 317) and the paralectotypes are pinned with the *indeterminabilis* type; one female is determined as *indeterminabilis* by du Buysson, which is the specimen with de Saussure’s *cubensis* determination label.
- injudundus* de Saussure, 1854: 200, female (described in the genus *Polybia*) — “Le Para.” Ducke (1904: 362) transferred this taxon to *Megacanthopus*; he later (1913) synonymized *Megacanthopus* with *Mischocyttarus*, and Ducke (1918: 353) published the combination *Mischocyttarus injudundus*. Richards (1978a: 302) designated a lectotype from the MNHN, but gave incorrect citation and label data (corrected in Richards, 1983). I failed to find the lectotype in the MNHN, but it is not clear that one should be there. Richards gave both the MNHN and Spinola’s collection as type depositories, but de Saussure’s description mentioned only the latter. The catalog of Spinola’s collection published by Casolari and Casolari Moreno (1979: 97) lists only one species in *Megacanthopus*, *infidens*, a name that has never been published, but which just might be a corruption of *injudundus* during label transcription, as they list de Saussure as the author (according to author codes given in Casolari and Casolari Moreno, 1978). However, the locality code given for that specimen is Tampico.
- japuraensis* Zikán, 1949: 29 (key), 147, female — “Rio Japurá, Estado do Amazonas, Brasil.” The holotype is in the MZUSP. Richards (1978a: 344) synonymized this taxon with *alfkenii alfkenii* (Ducke, 1904). He gave as number for the holotype “17.706” but the label reads “17.106.”
- lecointei* Ducke, 1904: 359 (key), 361, female and male (described in the genus *Megacanthopus*) — “Obidos. .nas mattas do Camahipy e do Oyapoc.” Ducke (1913: 331) synonymized *Megacanthopus* with *Mischocyttarus*; Ducke (1918: 354) published the combination *Mischocyttarus lecointei*. The lectotype was designated by Richards (1945: 408, male BMNH, from Oyapoc). Richards (1978a: 381) listed the lectotype in the synonymy as “here designated,” but in the text correctly stated that he had already designated it in 1945. Richards (1978a) mentioned a female paralectotype in MZUSP. Obrecht and Huber (1993: 179) noted another female syntype in the NMB, which is a paralectotype. There is also a male with a handwritten type label, but collected at Rio Japura and with a 1905 Ducke determination label; clearly it is a pseudotype. In the MNHN are two males, both labeled “Oyapock/3.6.1904/Ducke,” and two females, both labeled “Oyapock/20.6.1904/Ducke,” all marked by Ducke as types. These are evidently syntypes as well, hence paralectotypes.
- mastigophorus* Richards, 1978a: 376, male, female — “ECUADOR: [El Oro], near Piñas, Morro Morro” (holotype male AMNH). Richards gave the collector as van der Vecht, which is incorrect; there is no collector indicated on the label. Presumably, the holotype was sent to Richards by van der Vecht, as Richards (1978a: 294) stated to be the case with *latissimus*. Also, the female specimen referred to this taxon by Richards is a different species.
- metathoracicus* de Saussure, 1854: 198, female

- (described as *Polybia metathoracica*) — “Cayenne.” Ducke (1904: 362) transferred this taxon to *Megacanthopus*; he later (1913) synonymized *Megacanthopus* with *Mischocyttarus*, and Ducke (1918: 353) published the combination *Mischocyttarus metathoracicus*. The lectotype was designated by Richards (1978a: 307, MNHN). The lectotype has no label by Richards, and the MP label only gives “Guyane” as locality. There is a specimen in the NMB with a handwritten type label, but it also has a collector label of Ducke, and a determination label by Ducke dated 1903, hence it is a pseudotype.
- parallelogrammus* Zikán, 1935: 154 (key), 172, female and male — “Südabhang des Itatiaya, 700 m.” The lectotype was designated by Richards (1978a: 386, female MZUSP). He stated: “Two females in the Mus. Paulista are labelled Itatiaya, 700 m, 6.vi.1932, Monte Bello and one, which I now make lectotype, was labelled typus.” The locality labels differ slightly on these two specimens, as follows: the lectotype has “J. F. Zikán [sideways]/Itatiaya — 700 m/E. do Rio — Brasil/6.-vi.-1932 M. Bello, Bau 2” whereas the paralectotype has “J. F. Zikán [sideways]/Itatiaya, 700 m/Est. do Rio/6.-vi.-1932/Monte bello.”
- paulistanus* Zikán, 1935: 154 (key), 176, female — “Villa Emma, Staat S. Paulo.” The lectotype was designated by Richards (1978a: 407, MZUSP), who gave as number for the specimen “1.204”; it is actually “1.205.”
- pedunculatus* Zikán, 1935: 155 (key), 159, female and male — “Südabhang des Itatiaya in 500 m. (Fazenda Valparaiso) und 700 m.” The lectotype was designated by Richards (1978a: 334, female MZUSP). Richards stated that Fazenda Valparaiso was at 700 m., which is not correct, and designated the lectotype as follows: “In the Mus. Paulista are 1♂, 2♀, Itatiaia, 700 m and 550 m, 5.iii, 3.ii, 17.ii.33, all marked with Zikán’s determination label and ‘typus’. I have made the female of 3.ii.33 the lectotype.” The locality label for the lectotype reads “J. F. Zikán/Itatiaya-550 m./km, 3-II-1933/Faz. Valparaiso/zu [?] Bau 2”; that for the paralectotype reads “J. F. Zikán/Itatiaya-700 m/E. do Rio-Brasil/17.-II.-1933/Bau M. Bello.”
- punctatus* Ducke, 1904: 360 (key), 363, female (described in the genus *Megacanthopus*) — “Alcantara, Estado do Maranhão.” Ducke (1913: 331) synonymized *Megacanthopus* with *Mischocyttarus*; Ducke (1918: 353) published the combination *Mischocyttarus punctatus*. Ducke described this species from a single individual, but Overall (1978: 6) designated the specimen (in the MG) as “lectotype,” although he stated of this specimen “a fêmea, única em que a descrição foi baseada.” The holotype was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. Roig (1988: 14) listed syntype material as present in the NMB, although I saw no specimen there marked as a type. Obrecht and Huber (1993) did not include it in their list of Ducke type material in the NMB, and so Roig’s listing was presumably an error — aside from the fact that the holotype is the only type specimen.
- riograndensis* Richards, 1978a: 314 (key), 361, female and male — “BRAZIL: RS, S. Leopoldo. . . ; . . . RS. . . ; RS, Nova Teutônia.” The holotype female is in the MZUSP. Richards gave as its number “184.90” and “18490”; the label reads “18.490.” Richards also mentioned a female paratype with number “1210” in the MZUSP, but I failed to find it there.
- rufidens* de Saussure, 1854: 204, female (described in the genus *Polybia*) — “Cayenne.” Ducke (1908a: 86) transferred this taxon to *Megacanthopus*; he later (1913) synonymized *Megacanthopus* with *Mischocyttarus*, and Ducke (1918: 352) published the combination *Mischocyttarus rufidens*. This name has been used for a variety of species (Richards, 1940: 183, 1945: 385), and its identity remains uncertain. De Saussure gave Spinola’s collection as the type depository. In the MNHN are a female and male labeled as cotypes, the female with “Angang,” “24,” “MP/Mexique/H. de Saussure/1858,” a silver square and a green circle; the male with “Cordova/f. c.,” “23,” “MP/Mexique/H. de Saussure/1858,” a gold square and a green circle. These specimens are evidently pseudotypes.
- socialis* de Saussure, 1854: 177, text not figure, female (described in the genus *Polybia*) — “Le Brésil.” The tortuous synonymy involving this taxon was detailed by Bequaert (1944a); de Saussure’s text description referred to a *Mischocyttarus* but his figure to a *Polybia*. In 1858 he introduced the name *nigra* for the figure in a revised explanation to pl. 24, a taxon synonymized with *Polybia ignobilis* (Haliday, 1836) by Bequaert. The confusion extends to the specimens placed under these names in the MNHN, as Richards (1978a: 106, 299) pointed out: specimens labeled as *socialis* are the *Polybia*, and specimens labeled as *nigra* are the *Mischocyttarus*. Richards (1978a: 299) mentioned four of de Saussure’s specimens labeled as *nigra*, which are *Mischocyttarus*. Due to the condition of the specimens, he did not definitively settle their identity; nevertheless, he used the name *socialis* for a species taxon in *Mischocyttarus*.

These four specimens all have MP labels and green circles, and one has du Buysson's determination label, along with de Saussure's determination label as *ater*. These specimens are therefore evidently really syntypes of *socialis*, as de Saussure (1854: VV, footnote to revised explanation of pl. XXIV fig. 5) synonymized *socialis* with *Polybia atra*. See also the entry for *Polybia nigra*, above.

*surinamensis* de Saussure, 1854: 200, female and male (described in the genus *Polybia*) — "Surinam, le Brésil." Ducke (1908a: 86) transferred this taxon to *Megacanthopus*; he later (1913) synonymized *Megacanthopus* with *Mischocyttarus*, and Ducke (1918: 354) published the combination *Mischocyttarus surinamensis*. The type depository was unknown (Richards, 1978a: 401). In the MNHN are four females marked as types, all with "MP/Bresil/Gaudichaud 1833" and green circles, and three with de Saussure's determination labels. These specimens are evidently syntypes. In addition, some other specimens, placed with these but not marked as types, have label data that suggest they could possibly have been seen by de Saussure. This includes a female with de Saussure's determination label, with "Surinam" crossed out and "Brésil" written in, locality label "MP/Rio Janeiro/A de St Hilaire," and a green circle; another female with the same locality label and green circle; another female with de Saussure's determination label, locality label "MP/Brésil/Bahia/E. Mocquerys 1845," and a green circle; another female with this same locality label and green circle; and an incipient nest with the same locality label (de Saussure, 1854: 201, mentioned the nest of this species, but then wrote "mais dont la forme nous est inconnue").

*undulatus* Ducke, 1905a: 21, female and male — "du poste brésilien sur l'Oyapoc (Etat du Pará) et de Teffé (Etat d'Amazonas)." The lectotype was designated by Overal (1978: 6, male MG, from Oyapoc). Richards (1978a: 413) first listed the type depository as unknown, but then went on to state, "The specimen in MNHN, Paris marked as type is undoubtedly a male of the present species, quite different from *M. alfkenii* but is labelled, Brazil: AM, R. Japurá, 16.ix.04 (A. Ducke). I shall treat this specimen as the type." I failed to find this specimen, but in any event, it is surely not a type. In his description of *undulatus*, Ducke (1905a: 22) specifically listed "Japurá" as a locality for *alfkenii*, not *undulatus*. There seems to be no reason to attribute a labeling error to Ducke; certainly, Richards provided none.

Unfortunately, as was pointed out to me by

Orlando Tobias Silveira, the lectotype does not correspond to Richards' concept of *undulatus*. This specimen keys to the *artifex* group in Richards' (1978a: 389-397) key. The antennae are dirty, but the lectotype does not appear to have antennal cilia, however, the first seven antennal articles are not black above. Thus, the lectotype fails to key at couplet 84, and does not really seem to correspond to any of the species keyed there. *Undulatus*, as represented by the lectotype, may thus be a valid species—but *undulatus* sensu Richards requires a new name.

#### POLISTINI LEPELETIER, 1836

##### Polistes

*andrei* du Buysson, 1913b: 296, male (described in the genus *Polybia*) — "Malacca: Pérak." This taxon was transferred to *Polistes* by van der Vecht (1966: 5), who synonymized it with *meadeanus* (von Schulthess, 1913c). There is a specimen in the MNHN marked as type, with locality labels "Perak" and "Malacca." This is presumably the holotype, by monotypy (Art. 73(a)(ii) of the International Code of Zoological Nomenclature).

*albicinctus* de Saussure, 1890: 144 (key), 148, female — "Madagascar." There are five females and two males in the MHN with de Saussure's determination label, two females with a determination label in what may be another hand but with locality label "Madagascar/Grandidier," a male labeled "Nossi Be," three females and a male labeled "Madagascar/Sikora," a female labeled "Madagascar/Annanarive," and a female with "18" on one side of the label and part of "Madagascar" on the other. Part at least of this series is type material; specimens were also said to be in London in de Saussure's description. Bequaert (1938a) treated this taxon as a variety of *marginalis* (Fabricius, 1804), but Giordani Soika (1991: 84) returned it to species rank and I agree (Carpenter, 1996b).

*albolcaratus* du Buysson, 1905c: 257, female and male — "Madagascar: Fénériver et région de Fort-Dauphin." In the MNHN there are a female and a male marked as types, the female labeled "MP/Madagascar/Fôret Tanala/Fort-Dauphin" and "Alluaud," and the male labeled "MP/Madagascar/Fénériver/R. Oberthur 97-97." These specimens are evidently syntypes. There are three other females with the collector label "Alluaud '01"; it is not clear whether these are part of the type series. Bequaert (1938a) treated this taxon as a variety of *smithii* de Saussure, 1853, but I believe it should be returned to species rank (Carpenter, 1996b), as

- with many of the American taxa treated as varieties in *Polistes* by Bequaert (see Richards, 1978a).
- aquilinus* du Buysson, 1905c: 256, female — “Congo français: Ogooué, Mayumba, Brazzaville; Sierra Leone.” In the MNHN is a female labeled as type, and with “MP/Congo français/Mayumba/(R.P. Le Minitior)/Dr. E. Brumpt 1904.” This is doubtless a syntype. It is pinned with five other females, dated 1899, 1900, 1901 and 1906 (two). Although the first three might be syntypes, those from 1906 are presumably not.
- bequaerti* von Schulthess, 1921: 123, female — “NO-Rhodesia, Hochplateau des Tanganyikasees, 4500 Fuss.” In the ETH are two females labeled as type and cotype, and “N. E. Rhodesia./High Plateau S./L. Tanganyika./(dense forest),/4500 feet./Coll. Aug. 26.08/pres 1909 by/S. A. Neave.”; these are syntypes. In the OUM is a female labeled at type, and nine females labeled as cotype; these have OUM paratype labels, but are also syntypes. These two series constitute the entire type series: von Schulthess referred to 12 females, and gave his collection and OUM as type depositories.
- Bequaert (1938a) treated this taxon as a variety of *madecassus* de Saussure, 1853, but I believe it should be treated as a valid species (Carpenter, 1996b).
- bituberculatus* du Buysson, 1905c: 257, female and male — “Madagascar: région de Fort-Dauphin, région d’Ikongo, etc.” In the MNHN are a female and a male, labeled respectively “MP/Madagascar/Région du Sud-Est/Valle du Fanjhira/I’saka/Ch. Alluau 1901” and “MP/Madagascar/Fôret Tanala/Région D’Ikongo/Ankarimbelo/Ch. Alluau 1901.” These are evidently syntypes; there are also two females labeled “Grand” and “Alluau” that may not be types. Bequaert (1938a) treated this taxon as a variety of *saussurei* Dalla Torre, 1894, but I believe it should be treated as a valid species (Carpenter, 1996b).
- brevifissus* Richards, 1978a: 468 (key), 481, female and male — “BRAZIL: MT, Rio Papagaio, Utiariti. . . ; AP, Rio Amapa. . . ; BA, Rocha Velho, Barreiras. . . ; ES, Guarapari. . . ; Domingos Martins. . . ; Santa Teresa. . . ; MT, Base camp, 12°50 × S, 52°47 × W, gallery-campo margin. . . ; cerrado. . . ; MA, 20 km S. of São Domingos. . . ; PA, Belém. . . ; Almerim. . . ; Pará. . . ; Cachimbo. . . ; Belém. . . ; RS, Pelotas. . . ; S. Leopoldo. . . ; RR (prob.), Amazonas. . . ARGENTINA: Buenos Aires, Tandil. . . ; San Clemente del Tuyú. . . ; ES, Conc. do Bara. . . ; Linhares. . . ; Leopoldina. . . ; Santa Teresa. . . ; J. Petropolis. . . ; Viana. . . ; MG, Uberlândia. . . ; MT, Chapada de Guimarães. . . ; PR, Guratuba. . . ; RJ, Duque de Caixas. . . ; Itabapoana.” The holotype is a female in the MZUSP, from Rio Papagaio. Richards gave the collecting date of the holotype as “28.x.66,” but the label actually reads “27.x.1966.” This specimen has a type label with a red circle around it, and Richards’ handwritten type label. There is another female also labeled by Richards as the holotype, and this one does have a date of “28.x.1966” on the label. Richards stated that there was a paratype in the MZUSP with the same data as the holotype, so I conclude that the first specimen is really the holotype, and assume that Richards mistook the date, as well as incorrectly labeled the paratype.
- callimorphus* de Saussure, 1853: 71 (original orthography *callimorpha*), female and male — “Timor.” In the MNHN are three females and one male labeled as type and “MP/Timor,” evidently the type series.
- claripennis* Ducke, 1904: 366 (key), 370, female — “Obidos.” The lectotype was designated by Richards (1978a: 537, MNHN). It should be noted that the specimen in the MNHN has as locality label only “MP/Bresil/A. Ducke 1904,” not “Óbidos” as stated by Richards. Presumably the locality label is a replacement, a frequent practice for the time. The lectotype also lacks any label by Richards, who did not label most of the MNHN lectotypes he designated in his 1978 monograph. Nascimento (1979) did not list this species in his catalog of Ducke types in the MG, but there is a specimen there that is evidently from the type series, hence a paralectotype. It is labeled “Brazil/Estado do/Pará” and “Obidos/1904” and with Ducke’s determination label, as well as a Coleção Ducke label. Obrecht and Huber (1993: 179) noted one syntype in the NMB, which is a paralectotype. It is labeled with Ducke’s determination label and “Obidos/1903.” Obrecht and Huber stated that this specimen is distinct from the paralectotype of *synoecoides* also in the NMB (q. v.), and I agree. The occipital carina is much higher in the *claripennis* paralectotype, and the gena appears wider; the dorsal pronotal carina is higher ventrally, so that it appears longer. Obrecht and Huber concluded that the *claripennis* paralectotype did not correspond to any of the species in Richards’ monograph. The paralectotype of *claripennis* in the MG differs in the same way from the paralectotype of *synoecoides* also in the MG.
- deuteroleucus* Ducke, 1906: 10, female and male — “Barbacena.” Richards (1978a: 531) syn-

onymized this taxon with *Polistes bicolor* Lepeletier, 1836, and designated the lectotype (male MNHN). He saw a female paralectotype in MNHN as well. Obrecht and Huber (1993: 180) noted one female syntype in the NMB, which is a paralectotype. It is labeled "Barbacena/28-10-1905/Ducke," along with Ducke's type and determination labels (and "Mus Goeldi/Pará"). Obrecht and Huber suggested that this paralectotype corresponds better to *niger* than to *bicolor*.

*diabolicus* de Saussure, 1853: 68, female — "Les Iles de Java, de Timor, etc." In the MNHN are 4 females and one male labeled as types, three of the females labeled as from Java and one female and the male labeled as from Timor. This is evidently the type series.

*ellenbergi* du Buysson, 1908a: 64, female "Congo français, à Talagouga, près de N'Jolé." In the MNHN are two specimens labeled "MP/Congo Français/Talagouga près N'Jole/Legit R. Ellenberger/E. Haug 1906," evidently syntypes. Bequaert (1938a) treated this taxon as a variety of *smithii* de Saussure, 1853, but I believe it should be returned to species status (Carpenter, 1996b).

*erythrogaster* Ducke, 1905a: 23, female and male — "Teffé (Haut Amazone)." Richards (1978a: 534) synonymized this taxon with *Polistes rufiventris* Ducke, 1904, and designated the lectotype (male, MNHN). He saw an additional paralectotype in the MZUSP. Obrecht and Huber (1993: 180) noted one male syntype in the NMB, which is a paralectotype. It is labeled as type and determined by Ducke, and "Teffé/8-9-1904/Ducke." In the MNHN is a female with the same locality label, not mentioned by Richards. This specimen is evidently also a paralectotype. The MG has two males, not mentioned by Nascimento (1979), which are evidently paralectotypes. Both have the label "Brazil/Estado do/Amazonas"; one is also labeled "Teffé/8-9-1904/Ducke" whereas the others are labeled "Teffé/29-9-1904/Ducke." The wings are not expanded on the former specimen, and the latter lacks the metasoma and left antenna, and the left forewing is glued to a card attached to the pin.

*exilis* de Saussure, 1853: 85, male — "Amerique du Nord." In the MNHN are a female and male labeled as types, the female with de Saussure's determination label. The female has the locality label "MP/Amerique Sept./Philadelphia/Peale 1833" and the male "MP/Amerique/septentrion./Bastard 1837." Both specimens are evidently syntypes.

Bequaert (1940a: 29) suggested that this tax-

on is a synonym of *fuscatus* var. *pallipes* Lepeletier, 1836, which was in turn synonymized with nominotypical *fuscatus* (Fabricius, 1793) by Snelling (1974). The taxon was omitted by Richards (1978a), who treated *pallipes* as a subspecies of *fuscatus*. Richards did not cite Snelling, but stated of *pallipes* "Its distribution widely overlaps that of *f. fuscatus* which gives some weight to Rau's suggestion (1942) that it is really a distinct species, especially as the male genitalia seem to be a little different." No genitalic characters were ever described, and the taxon cited as *pallipes* by Rau (1942) was actually a misidentification of *metricus* Say, 1831 (Krombein et al., 1979: 1511). These "subspecies" are no more than color forms. The overlap and intergradation between typical *fuscatus* and *pallipes* noted by Snelling support the synonymy, especially in light of MacLean et al.'s (1978) experimental demonstration that these taxa can be produced by manipulation of humidity. MacLean et al. (1978) synonymized all of the numerous subspecies of *fuscatus* under that form or *aurifer* de Saussure, 1853, which they returned to specific rank. I agree with that treatment (Carpenter, 1996b), and have adopted a similar approach with other vespid subspecies (see below, and Carpenter, 1988, 1996b; Carpenter and van der Vecht, 1991). Snelling (1983) has applied this approach to some other subspecies of *Polistes*.

*ferreri* de Saussure, 1853: 77, female — "L'Amerique du Sud, depuis l'Uruguay jusqu'aux Missions." Richards (1978a: 482) designated the lectotype (MNHN). I did not find any specimens in the MHN, although de Saussure gave that museum as one of the type depositories. In the MNHN I found only four specimens, although Richards mentioned seeing eight. He regarded the four specimens labeled as types and with the locality "des Missions" as part of the type series, and stated to have labeled one as lectotype. The other four specimens were from "St. Catherine." The header in the MNHN states "des Missions" and this is on the label of one of the specimens. However, the specimen labeled as lectotype has as locality "MP/St. Cathérine/louido de la mer/A. de St. Hilaire 1820." All four specimens are dated 1820, so it is probable that they all are types, and possible that Richards miscounted.

*flavipennis* de Saussure, 1853: 52, female — "Le cap de Bonne-Espérance." In the MNHN is a specimen labeled "MP/Cap/de bon Esper./Coll Bosc 1828," evidently the holotype. The antennae are broken off beyond the third or fourth article, respectively.

Bequaert (1938a: 132, 135) was not able to include this species in his key to African *Polistes*. It fails to key out at the first couplet: the "episternal suture" (= dorsal groove) is present but there is no epicnemial carina. The prestigma is nearly as long as the posterior border of the pterostigma but the occipital carina is present only on the upper two thirds of the external orbits; the hindtarsal claw (present only on the right hindleg) is slightly asymmetrical. Unlike most African species, the mesepisternal punctation is not very coarse and the propodeal striae are rather fine. Without settling its identity, because anything resembling *flavipennis* has not been subsequently collected in South Africa, I consider it likely that the specimen is mislabeled, and was actually collected elsewhere. But the specimen may in fact be a stray *olivaceus*, which it resembles in color and other features. *Olivaceus* is widespread on islands in the Indo-Pacific Region, and has been introduced in many places (Richards, 1978a, b), and conceivably may have been accidentally introduced into South Africa.

*goeldii* Ducke, 1904: 365 (key), 368, female and male — "Belem do Pará. . . Alemquer. . . na villa de Curuá. . . Rio Purús no Estado de Amazonas." The type depository was unknown to Richards (1978a: 521). The lectotype was designated by Overal (1978: 5, female MG, from Pará), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. Overal gave the date on the locality label as "14-3-1900" and noted that the numbers 14 and 3 had been handwritten. Written over the number 1900 is what is apparently the numeral 1, thus giving a date of 1901. There is another female in the MG from the Coleção Ducke, mentioned by Overal, which is apparently from the type series, hence a paralectotype. It is labeled "R. Purús" and "Brazil/Estado do/Amazonas," and as noted by Overal it is damaged, lacking the right hindleg after the coxa, most of the right midtarsus, and the left antenna, and the left forewing is glued to a card pinned with the specimen. Obrecht and Huber (1993: 179) noted one male syntype in the NMB, which is a paralectotype. It is labeled "Alemquer" and with a type and determination label in Ducke's hand. It is severely damaged, without wings, and the head and metasoma have been glued back onto the mesosoma. In the MNHN is a female labeled "Alemquer" and with a type and determination label in Ducke's hand. This specimen is also evidently part of the type series, and thus a paralectotype.

*haugi* du Buysson, 1906b: 189, female and male

— "N'gomo, dans le bas Ogooué (Gabon)." In the MNHN are four females and one male labeled as types and with "MP/Congo Français/N'G'omo, Bas Ogoque/E. Haug 1906," evidently syntypes. Bequaert (1938a) treated this taxon as a variety of *smithii* de Saussure, 1853, but I believe it should be treated as a valid species (Carpenter, 1996b).

*hoplitus* de Saussure, 1853: 55, female — "Les Indes-Orientales." Bequaert (1934, 1940b) treated this taxon as a variety of *tenebricosus* Lepeletier, 1836, and Das and Gupta (1989) ranked it as a subspecies. De Saussure's original spelling was emended by him to *hoplites* in the errata list on p. 255 of his monograph, and that was accepted by Dalla Torre (1904), Bequaert (1934, 1940b), Yamane and Yamane (1979), and Yamane et al. (1989). However, the errata list was published in 1854 (Griffin, 1939), and so it may be debated whether there exists "in the original publication itself. . . clear evidence of an inadvertent error" in the sense of Art. 32(c)(ii) of the International Code of Zoological Nomenclature. Das and Gupta (1984) treated *hoplites* as an unjustified emendation, and used *hoplitus* as the valid name. They maintained that usage in their most recent monograph (Das and Gupta, 1989), and it may as well be accepted. In the MHN are three specimens, one labeled as questionably a type and with a determination by Liu, and also a lectotype label by van der Vecht dated 1957. The locality label is "Penang/Indes Or." The other two specimens are labeled as from Sumatra. The lectotype designation was never published, and so all three specimens are probably syntypes.

*incertus* de Saussure, 1890: 144 (key), 145, female — "Madagascar." This name is preoccupied by *Polistes incertus* Cresson, 1865, and was replaced by *saussurei* Dalla Torre, 1894. De Saussure stated to have described it from 12 females received from Grandidier. Although none of the specimens are labeled with the collector, in the MHN are four females with green de Saussure determination labels, one with locality label "Madag," one without a locality label, one labeled "Nossi-Be" and one labeled "Zool Mus Berlin/Madagascar." There is another female for which the determination label is not green, with locality label "Madagasc." There is also a specimen without a determination label, and with locality label "Madag." Some of these specimens are presumably syntypes, and quite possibly most of them, with the exception of the Berlin specimen.

*limai* von Ihering, 1903: 145, female — "Itati-ba.(type, avec le nid), Piquete (État de Sao Pau-

- lo), Brésil." This taxon was synonymized with *Polistes actaeon* Haliday, 1836, by Ducke (1918: 360). Richards (1978a: 550) stated to have seen the holotype in the MZUSP, but there are four female specimens, none marked as type. All have as locality label "1.057/Itatiba/(Est. S. P.)," and, respectively, "98361" (and a blue circle), "98363," "98364" and "98365" (and a red square). All four specimens are evidently syntypes, as a holotype cannot be distinguished. There is also a female labeled "16.646/Piquete/(Est. S. P.)" and "98362." This specimen may be considered to be excluded from the type series by von Ihering's statement (Art. 72(b)(vi) of the International Code of Zoological Nomenclature).
- maculipennis* de Saussure, 1853: 61, female — "Java, et l'Afrique méridionale." Petersen (1987: 247) treated this taxon as a subspecies of *stigma* (Fabricius, 1793), and designated the lectotype (MNHN). I do not agree with the recognition of intergrading color forms as subspecies even if they are allopatric (and see discussion above under *exilis*). Petersen averred that the taxa he treated as subspecies of *stigma* were structurally uniform throughout the range, which would lead to the conclusion that these taxa should be treated as synonyms. However, some of the samples studied by Petersen were quite small, and it may be that some of them can in fact be diagnosed by characters other than color, which would support species status (Nelson and Platnick, 1981; Nixon and Wheeler, 1990). Pending detailed study of more extensive series, I will not disturb the existing nomenclature in this case (Carpenter, 1996b). Aside from the lectotype and paralectotype studied by Petersen in the MNHN, I did not find further type material in the MHN.
- madecassus* de Saussure, 1853: 51, female — "Madagascar." In the MNHN is a male marked as type, and labeled "MP/Madagascar." In the MHN are two females, one labeled "Madagascar/Elliott" and the other "Madagasc," but these are probably not types, as the type was said to be in the collection of Guérin-Méneville. Unless there is a mistake in the sex given in the description, or the specimens in the MHN originally came from the Guérin-Méneville collection, the whereabouts of the type are unknown.
- madiburensis* von Schulthess, 1921: 123, 126, female — "Afrika orientalis, Madibura. . . NO-Rhodesia, Loangwatal 1700-2400, Bangweolosee 4200." Von Schulthess began his description by writing "nov. spec.," on p. 123 and 124, but on p. 125 and following, he downgraded this taxon to a variety of *smithii* de Saussure, 1853. Bequaert (1938a) also treated this taxon as a variety of *smithii*, but I believe it should be treated as a species (Carpenter, 1996b). In the ETH are a female marked as type and five females marked as cotypes. Four of the females, including that marked as type, are labeled as "D. O. Africa/Madibira [ink correction of Madibura]/1905/Ertl"; one is labeled as "N. E. Rhodesia,/near Mirongo,/edge Michinga/Escarpment,/3500 feet./Collected April 2.08/& pres. 1909 by/S. A. Neave.," and one is labeled "N. E. Rhodesia,/Up. Luangwa/Valley,/1800-2000 feet./Coll. Mar.24.08/& pres. 1909 by/S. A. Neave." In the OUM are two females labeled as cotypes, and 13 females labeled as paratypes. The cotypes are from "Up. Luangwa," as are four of the paratypes; two of the paratypes are from "East Luangwa"; six are from "Mid Luangwa"; and one is from "N Lake Bangweolo." Von Schulthess did not mention a type depository, but this is doubtless the type series.
- meadeanus* von Schulthess, 1913c: 153 (key), 161, female and male (in the combination *Parapolybia meadeana*) — "Kina Balu, Borneo. . . , Perak. . . , Sarawak." This taxon was transferred to *Polistes* by van der Vecht (1966: 6). In the ETH are a male and female marked as types, and a female marked as co-type. The male and the female co-type are labeled as "Perak" and the female type is labeled as "Kota Balu/Borneo." These specimens are both probably syntypes.
- melanosoma* de Saussure, 1853: 76, male — "Le Brésil. Goyaz." Richards (1978a: 545) listed the type depository as unknown, although he stated to have seen a female from the MNHN marked as type. There are two specimens marked as types in the MNHN. One of these is a female, although de Saussure's determination label states male. The specimen is labeled as "MP/Brésil/Coll Bosc/1828"; the terminal metasomal segments are missing. The other specimen is a male, labeled as "MP/Sud de la/Capt<sup>a</sup> de Goyaz" and with a de Saussure determination label. Whereas there may be some doubt about the status of the female, there seems to be no reason to doubt that the male is a true type.
- mertoni* du Buysson, 1913a: 227, female — "Aru, Kobroor." The holotype is in the NS, labeled "Kobroor/Papagula" and "Aroe-Ins./30.[illegible] 1908/H. Merton" and with du Buysson's determination label.
- neavei* von Schulthess, 1921: 126, female and male (as *smithii* var. *neavei*) — "NO-Rhodesia, Chinsali, Ost-Loangwa, Hochplateau s. des

- Tanganyikasees, 3900-4500 Fuss; . . . Rikatla, Delagoa. . . , Zanzibar, Sierra Leone." This taxon is presently treated as a subspecies of *smithii* (Carpenter, 1996b). In the ETH are a male and female labeled as types, and a male and two females labeled as cotypes. The male type has locality label "Sierra Leone"; the female type has "N. E. Rhodesia./Lr. Kalungwisi/Valley, 3500 ft.,/(dense forest)./Coll. Sept.16.08/& pres. 1909 by/S. A. Neave"; the male cotype has "N. E. Rhodesia./L. Chambezi V./Mpika district,/3900 feet./Coll May 17.08/& pres. 1909 by/S. A. Neave"; and the female cotypes have "N. E. Rhodesia./Chinsall and/Neighbourhood/4300 feet./Coll. April 12.08/& pres. 1909 by/S. A. Neave." In the OUM are a female marked as type, and seven females and two males marked as cotypes. All of these specimens are presumably syntypes.
- obscurus* de Saussure, 1863: 236, female — "Brésil." There is a single specimen in the NS, labeled "Brasila/Freireiss," which is the same label as the other specimens seen by de Saussure. This specimen is thus evidently the holotype. It is actually a male, not a female. In Richards' (1978a: 524-531) key, it seems to key out in the female part of the key, but is not in the male part. There, it runs to couplet 43, and like *billardi* has metasomal tergum I sloping up steeply, but the preoccipital carina is complete.
- occipitalis* Ducke, 1904: 367 (key), 371, female — "Belem do Pará, Macapá, Oyapoc e Almeirim." The lectotype was designated by Richards (1978a: 541, MNHN, from Pará); he did not label it. Obrecht and Huber (1993: 180) noted one syntype in the NMB, which is a paralectotype. The MG also has four females, not mentioned by Nascimento (1979), which are evidently paralectotypes. Three have the label "Brazil/Estado do/Pará"; one of these is also labeled "Macapá/21.5.1900/Ducke," one is labeled "Oyapock/29.5.1904/Ducke," and the third is labeled "Almeirim/18.12.1902/Ducke." The other specimen is labeled "Brasil/Pará/23.6.1902/Ducke."
- picteti* de Saussure, 1853: 69, female — "La Nouvelle-Hollande." Richards (1978b: 19) examined one specimen from the MNHN, labeled as from Ceram, and stated that this taxon is restricted to Ambon, Seram and West Irian. He treated it as a subspecies of *tepidus* (Fabricius, 1775). In the MHN are six specimens, from Amboina, the Moluccas, and "Indes Or (Navilla)"; these might be pseudotypes, as the localities do not match the description, but that given in the description is very imprecise. The specimen in the MNHN labeled as type is a male, with "MP/Ceram/Waroe/Jacquinot 1841" and de Saussure's label as "var." This is perhaps a pseudotype as well, although the description does not mention a variety. In the MNHN is another specimen, a female from New Guinea with the same date as the male but no type label. This may be an equally good candidate for being a true type.
- rhodostoma* Ducke, 1905a: 23, female — "près d'Obidos (État de Pará). . . fort de Tabatinga (Haut Amazone)." Ducke (1905b: 692) synonymized this taxon with *melanosoma* de Saussure, 1853, and in (1907a: 139) he included *deceptor* Schulz, 1905, in the synonymy. Bequaert (1937: 187) treated this taxon as a species distinct from *melanosoma*, and selected *deceptor* as the valid name; according to Richards (1978a: 543) Schulz's paper probably did appear first. The lectotype was designated by Overal (1978: 5, MG, from Óbidos), and this was the only specimen listed by Nascimento (1979) in his catalog of Ducke types in the MG. Two other specimens in the MG from the Coleção Ducke, mentioned by Overal (1978), are apparently also from the type series, hence paralectotypes. Both are labeled "Brazil/Estado do/Pará"; one is also labeled "Obidos/10.5.1905/Ducke" whereas the other is labeled simply "Obidos." In the MNHN is a female marked as type, and labeled "Tabatinga/17.10.1904/Ducke"; the specimen was determined as *melanosoma* by Ducke. This paralectotype indeed seems to be closest to *melanosoma*, with the pronotum like the type of that species. The paralectotype of *rhodostoma* is smaller than the type of *melanosoma*, and the malar space is a little more clearly punctate. But it has the same kink in the occipital carina, a similar pronotal carina, and the propodeum more or less impunctate; that is, features used to distinguish *melanosoma* in the key of Richards (1978). However, the lectotype corresponds better to *deceptor*; thus, the synonymy is correct.
- rufiventris* Ducke, 1904: 366 (key), 371, female — "Belem do Pará." The lectotype was designated by Richards (1978a: 534, MNHN), who gave as the collecting date 16.X.02. The lectotype in the MNHN does not have a label by Richards, and the collecting date on the label is actually 16.1.1902.
- sagittarius* de Saussure, 1853: 56, female — "Les Indes-Orientales, la Chine." De Saussure gave as depositories "Collect. Jurine, Musée de Genève; Musée de Londres." There are 27 specimens in the MHN, most with printed labels and determination labels by von Schulthess on two of these. The dates on the printed labels

- are 1895 and 1896, therefore none of these specimens can be types. Three specimens are labeled with the handwritten locality "Palawan" and purple circles, and one has "Java" and a silver square; these are possibly syntypes.
- shelfordi* du Buysson, 1913b: 297, female (described in the genus *Polybia*) — "Kuching (Borneo)." This taxon was transferred to *Polistes* by van der Vecht (1966: 6), who synonymized it with *meadeanus* (von Schulthess, 1913c). In the MNHN is a female labeled as type and "MP/Borneo/Kuching/Shelford 1908," evidently the holotype.
- sikorae* de Saussure, 1900: 233, female and male — "Madagascar." Bequaert (1938a) treated *sikorae* as a variety of *madecassus* de Saussure, 1853, but as with his other African varieties of *Polistes*, I believe it should be returned to species rank (Carpenter, 1996b). In the MHN are four females determined by de Saussure, and three males and another female determined as "var." (one of these specimens is also labeled with an unpublished name by de Saussure). The specimens have as locality label mostly just "Madagasc." The four females determined by de Saussure are evidently syntypes; the four determined as variety are not (Art. 72(b)(i) of the International Code of Zoological Nomenclature). His "Var. *obscura*," not listed by Bequaert (1918), is preoccupied in *Polistes* by de Saussure himself (see above), as noted by Bequaert (1938a).
- subsericeus* de Saussure, 1854: 100, pl. XII fig. 7, male — "Le Brésil, Rio Janeiro." The lectotype was designated by Richards (1978a: 535, MNHN). On p. 536, Richards mentioned a female in the MNHN from "Nord Capite. de St. Paul"; this female is marked as type, but is clearly a pseudotype.
- synoecoides* Ducke, 1907b: 195 (key), 196, female and male — "Teffé; San Antonio do Içá; Iquitos." The lectotype was designated by Richards (1978a: 537, female MNHN, from Teffé), who synonymized this taxon with *Polistes claripennis* Ducke, 1904. Richards saw additional paralectotypes in the MNHN (male) and MZUSP (female). Nascimento (1979) did not list this species in his catalog of Ducke types in the MG, but there is a female there that is evidently from the type series, hence a paralectotype. It is labeled "Perú/amazonico" and "Iquitos/7.8.1906/Ducke" and with a Coleção Ducke label. Obrecht and Huber (1993: 180) noted one female syntype in the NMB that is a paralectotype. The locality label reads "Teffé/16-6-1906/Ducke."
- synoecus* de Saussure, 1853: 65, female and male — "La Nouvelle-Hollande." The lectotype was designated by Richards (1978b: 46, male MNHN), who treated the taxon as a subspecies of *humilis* (Fabricius, 1781), attributing the revised status to Giordani Soika. In the MHN are seven specimens, one labeled only with a gold square, one with "NH," one "N. Holl.," one "Cape York/Australia," two "Rockhampton/Queensland" and one as from Sydney. Some or all of these are doubtless paralectotypes; de Saussure gave his collection as one of the two depositories.
- tasmaniensis* de Saussure, 1853: 66, female and male — "La Nouvelle-Hollande." The lectotype was designated by Richards (1978b: 43, female MNHN), who synonymized the taxon with nominotypical *humilis* (Fabricius, 1781). The specimen is not labeled by him. In the MHN are 22 specimens, nine without labels or with only silver squares, four with "N. Holl.," five with "Sydney" (one of these determined by Riek in 1968 as *synoecus*), two with "N. S. Wales," one with "Rockhampton/N. Holl.," and one with [partly illegible] "Belle/voie/60" and "32." Some or all of these are doubtless paralectotypes; de Saussure gave his collection as one depository.
- tenellus* du Buysson, 1905c: 256, female and male — "Congo français: N'jolé, rivière Bénito et Libreville." Bequaert (1918: 264, 349) synonymized this taxon with *spilophorus* Schletterer, 1891, although he did not see any types. Von Schulthess (1921: 144) returned *tenellus* to species rank. In the MNHN are a female and male labeled as types, and with "MP/Congo Franç./Entre Sam-Quito/et N'Jole/J. Bouysson 1900." These are doubtless syntypes. They are pinned with 12 other specimens, dated between 1892 and 1908. Possibly none of these are syntypes, certainly not those from a later date.
- thoracica* du Buysson, 1906a: 19, female and male (as *cavapyta* var. *thoracica*) — "Santa Rosa. . .; Uspallata. . .; Chaçras de Coria." The name is a primary homonym of *Polistes thoracicus* Fox, 1898, and was replaced by *buyssonii* Brèthes, 1909. Richards (1978a: 480) did not examine any types, stating only that they "should be in the Jensen-Haarup collection." In the MNHU there is a specimen labeled as "Argentinien/Mendoza 14.1.07/Jensen-H.V." while in the MNHN there is one from "Mendoza/San Rafael 1904/A. Tournouir." Both are presumably pseudotypes, given the discrepancies of date and locality, respectively.
- thoracica* du Buysson, 1913a: 228, male (as *stigma* var. *thoracica*) — "Aru, Kobroor." The name is a primary homonym of *Polistes thor-*

*acicus* Fox, 1898 — and of *Polistes cavapyta* var. *thoracica* du Buysson, 1906a. Carpenter (1996b: 16) synonymized the taxon with *stigma maculipennis* Saussure, 1853. The holotype is in the NS, a female labeled “Kobroor/Maroembae” and “Aroe-Ins./12.3.1908/H. Merton” and “Buysson/det.” and with a written determination label.

*trinitatis* Giordani Soika, 1965: 27, female (as a subspecies of *canadensis*) — “*Piccole Antille*: Is. Trinité.” The name is preoccupied in *Polistes* by *pacificus trinitatis* Bequaert, 1937. Richards (1978a: 490) treated the taxon as a subspecies of *lanio* (Fabricius, 1775), and proposed *soikai* as the replacement name. That name is itself preoccupied in *Polistes*, by *Polistes pamirensis* var. *soikai* Zirngiebl, 1955, and rather than proposing yet another replacement name, I (Carpenter, 1996b) have treated *canadensis trinitatis* as a synonym of *lanio* (Fabricius, 1775).

Richards was unable to locate the holotype in the MNHN, which would probably not surprise visitors to that collection. I have recently seen the holotype there, along with the paratype series, labeled “MP/La Trinite/P. Serre 1914.”

#### ROPALIDIINI BEQUAERT, 1918

##### **Belonogaster**

*abyssinica* du Buysson, 1906b: 190, female, male (original orthography *abyssinicus*) — “Abyssinie.” The lectotype was designated by Richards (1982: 96, female MNHN). Richards mentioned four males and 11 females in the MNHN, among them the lectotype, from Ethiopia but otherwise unlocalized. Four of the other specimens are marked as type; their locality label is “Abyssine,” either hand-lettered or printed.

*apicalis* de Saussure, 1900: 207 (key), 208, female — “Madagascar.” The lectotype was designated by Richards (1982: 105, MHN). However, he did not label it. In the MHN there is only one specimen, with the locality label “Madagasc.” and Saussure’s determination label; there is also a note by du Buysson reading “bonne espèce.” Richards (1982: 107) alluded to only one specimen in the MHN in his text, and so this specimen is probably the lectotype.

*atrata* von Schulthess, 1912: 41, female (original orthography *atratus*) — “Westafrika, Uelleburg.” The lectotype was designated by Richards (1982: 59, ETH), who stated that “only one female seems now to be available” in this institution. Von Schulthess had listed the Tessmann collection as the depository, and in the

MNHU are the remaining four specimens, ravaged by dermestids. These specimens are paralectotypes.

*brevipetiolata* de Saussure, 1890: 89 (key), 98, female and male (original orthography *brevipetiolatus*) — “Fianarantsoa (pays de Betsileo) et environs d’Andrangoloaká (à la limite est de la province d’Imerinã). . . Côte sud. . . Nosibé.” Richards (1982: 101) examined two specimens in the MNHN that he considered possible syntypes, although they had no locality data. In the MHN are 17 specimens. Four males and three females have as locality label “Madagascar/Fianarantsoa” and one of these males has a lectotype label by Richards dated 1979. Another male and four females are labeled “Madagascar/Andrangoloka,” another male and two females are labeled “Madagascar/Annanarivo,” another female is labeled “Madagasc./Grandid.,” and the remaining female is labeled “Zool Mus Berlin/Madagascar.” This last specimen also has a reddish head, and corresponds to *erythrocephala* Hensen and Blommers, but the other specimens are *brevipetiolata* in their sense. The specimens labeled Fianarantsoa and Andrangoloka are clearly syntypes, as perhaps is the Grandidier specimen. The specimens labeled Annanarivo are apparently not syntypes, as that locality was not mentioned by de Saussure (1890). The *erythrocephala* specimen corresponds to the variety described by de Saussure (1890: 99), but the specimen was not definitely mentioned by de Saussure; it is also not a syntype. I am designating the male with Richards’ label as the lectotype, and have so labeled it. The remaining certain syntypes have been labeled paralectotypes, and the other specimens have been given determination labels. I did not find any syntypes in the MNHN; a female labeled as cotype and paratype (from Tananarive, coll. du Buysson, 1900) may be a pseudotype.

*buyssoni* Meade-Waldo, 1911: 99, female — “Iganga Busoga, S. Nigeria.” Richards (1982: 76) synonymized this taxon with *filiventris* (de Saussure, 1853). Richards mentioned seeing a “topoparatype” in the MNHN. The specimen is labeled “Iganga Busoga/S. Nigeria,” “MP/Nigeria/1910/Meade Waldo,” “Entomological/Research/Committee,” and “British Museum,” with Meade-Waldo’s determination label as cotype. Meade-Waldo described the species from two females, stated to have been collected for the Entomological Research Committee, thus the MNHN specimen is apparently a type. Meade-Waldo did not mention a holotype, but if there were any doubt as to the status of the specimens, Richards’ (1982: 76) citation of a

- London specimen as "holotype" effectively fixed the lectotype (Art. 74(b) of the International Code of Zoological Nomenclature).
- erythrospilus* Cameron, 1910: 172, female and male — "Kilimandjaro: Kibonoto, 1300–3000 m., cultivated zone and rain forest; . . . Meru low lands, Ngare na nyuki; . . . Usambara, Mombo." Von Schulthess (1913a: 14) synonymized this taxon with *grisea* (Fabricius, 1775). The lectotype was designated by Richards (1982: 88, male NR, from Meru). Richards listed the lectotype as a female in the synonymy, but as a male (twice) in the text. His discussion referred primarily to the male. In the ETH there is a female determined as *grisea* by von Schulthess, and labeled a cotype of *erythrospilus*. The determination label appears to be in Cameron's hand. The locality labels are "Kibonoto/1000–1300 m." and "Kilimandjaro/Sjöstedt 1905–6" and "Sept." This specimen is probably from the syntype series, as Cameron referred to "Numerous examples" in his description, and considerable type material of Cameron's Eumeninae are in the ETH (Bohart, 1965), where they were presumably sent to von Schulthess. The specimen is thus a paralectotype.
- eumenoides* de Saussure, 1890: 89 (key), 94, female — "aux environs d'Andrangoloakä. . . Région centrale (province d'Imerinã)." The lectotype was designated by Richards (1982: 110, MHN, from Andrangoloakä). Although de Saussure listed Berlin as a depository, I was unable to find anything labeled as type in the MNHU. In the MNHN are a female and male marked as "paratypes." The female has labels "Madagasc" and "SAUSSURE" and a penciled determination label [not de Saussure's hand?] and a printed "H de Saussure" determination label with the species name written [perhaps de Saussure's hand]. The male has labels "Madagasc" and "SAUSSURE" and a penciled determination label as *ornatus* and a cotype label as *eumenoides* and "[illegible] au B./pomicolor S. type." The status of the female is unclear, if doubtful, but de Saussure (1890) did not mention a male, nor does the color correspond (the specimen has a yellow scutellum). It is perhaps possible that the male is from the type series of *ornata*, as it is that species, and the label matches those listed by Hensen and Blommers (1987: 26) for specimens in the MHN, including the lectotype they designated.
- facialis* du Buysson, 1908a: 65, female — "Afrique orientale anglaise: Boura, Wa-Taïta." The lectotype was designated by Richards (1982: 81, MNHN). There are three other specimens in the MNHN marked as types, two of which have the same locality label as the lectotype, hence are paralectotypes. The other specimen is from Congo, hence it is probably a pseudotype.
- grisea* Fabricius, 1775: 372 (described in the genus *Vespa*) — "Sierra Leon Africae." The holotype is a female in the BMNH. In the MNHN is a specimen labeled as type from 1901, Fernando Po; obviously it is not a type of *grisea*.
- leonhardii* du Buysson, 1909a: 217 (key), 252, female — "Ouganda anglais: Iraouer." In the NS is female labeled as type by du Buysson, with locality label "Brit. Uganda/Iraouer" and another label "von Leonhardi." The NS is the depository listed by du Buysson, however, Richards' (1982: 87) "holotype" citation effectively fixed the lectotype (MNHN), according to Art. 74(b) of the International Code of Zoological Nomenclature.
- longistylus* de Saussure, 1890: 89 (key), 97, pl. 17 fig. 13, female — "Madagascar." The lectotype was designated by Richards (1982: 103, MHN). He stated only that this female was labeled *longestylus* [!], and the only other label on the specimen marked by him as lectotype is "Belonogaster/longistylus/Sauss. ♀." There is another female collected by Elliot, but this collector was not mentioned by de Saussure.
- prasina* de Saussure, 1890: 89 (key), 92 (original orthography *prasinus*), female and male — "Forêts à l'est de l'Antisihanak(. . . Nosibé (la variété). . . aux environs de Fort-Dauphin." The lectotype male was designated by Richards (1982: 107, environs of Fort Dauphin), who stated in the synonymy that it was in the MHN, but in the text said that a specimen from a series in the MNHN had been labeled as lectotype. The lectotype is in fact in the MHN. Also in the MHN are four other males with the same locality label as the lectotype (only two with determination labels, and one of these is not by de Saussure), a female labeled "Madagascar" and "62" and determined as a variety (perhaps not by de Saussure), and a female labeled "Madagascar/Sikora." Some of these specimens are paralectotypes, perhaps excluding the last, as Sikora was not mentioned by de Saussure.
- tarsata* Kohl, 1893: 187 (original orthography *tarsatus*), female and male — "Ost-Afrika: Mbusini (Usegua. . .)." The lectotype was designated by Richards (1982: 73, male NMW). The male specimen in the MNHN mentioned by Richards is a marked as type, which would be a paralectotype if the specimen is indeed from the type series. This seems likely. Richards gave as locality data of this specimen "M'Busini Ousegouba, 1907 (*M. von Broun*)." That is what the MP label reads, but it is also

labeled "Mbusini/(Usegua)/29.8.1888" and with a Stuhlmann 1893 leg. label and Kohl's determination label. A specimen marked as type in the MNHU is probably another paralectotype.

*tessmanni* von Schulthess, 1910: 45, female and male — "Spanisch Guinea. . . Uelleborg, Benitogebiet. . .; Alcu Benitogebiet. . .; Spanisch Guinea Hinterland, Nkolontangan." This species was unrecognized in Richards (1982), who was unable to find the syntypes, stating (p. 101) that they were missing from Zürich and saying of Berlin: "MNHU, Berlin seem[s] not to have it now." The ETH has two specimens with printed "Cotype" labels attached by von Schulthess, with locality labels that read: "Westafrika/Ueleburg/VI-VIII.08/Tessmann S. G." The date is later than those cited by von Schulthess (1910), which are all 1907. Hence, these specimens are pseudotypes. There are also seven pins marked as types in MNHU, which are evidently from the type series. All save one of the MNHU specimens are damaged to greater or lesser degree (one pin is even empty). The specimens do not key very well in Richards (1982), coming closest perhaps to *kohli* Schulz in couplet 11, although there is some variation in the length of the stalk of metasomal segment II.

*vasseae* du Buysson, 1906b: 189, female — "du bassin inférieur du Zambèze, de la vallée de la Muza, à une altitude de 1.000 à 1.200 mètres." The lectotype was designated by Richards (1982: 56, who listed the elevation as 1000–1120 m). Richards mentioned eight specimens in the MNHN marked as types, and selected the lectotype from "one of them with the correct locality data." Two of the other specimens have the same locality label as the lectotype, hence are from the type series and are paralectotypes. The other specimens are labeled as "MP/Congo," hence are pseudotypes. In the ETH is a specimen labeled as co-type but with locality "Manow/DO. Africa"; evidently a pseudotype.

### Parapolybia

*disticha* du Buysson, 1913b: 298, female (described in the genus *Stelopolybia*) — "Chine: Kiang-si. . .; Chang-hai." This taxon was transferred to *Parapolybia* by von Schulthess (1927: 83), who incorrectly attributed the species to Meade-Waldo. Van der Vecht (1966: 31) synonymized it with *varia* (Fabricius, 1787), without comment. In the MNHN is a female labeled as type, from locality "Shen Si"; it also has date ("A. David/1878") and determination labels, and "818/75." There are also four other females without determination labels, three labeled "Kiang Si" and "MP/A. David/1875"

and the other labeled "MP/Chine/Changhai/de Joannis 1898." It is these latter four specimens that correspond to the locality, collector and date given in du Buysson (1913b), not the specimens labeled as type. The four specimens are doubtless from the type series, but it is unclear whether the specimen labeled as type is as well.

*escalerae* Meade-Waldo, 1911: 109, female (described in the genus *Polybia*, subgenus *Parapolybia*) — "Dupulán Baktiari, S. W. Persia." In addition to the holotype (BMNH) I have seen four females from Iraq: Sulaimaniya, Shwara (1973, BMNH), a female from Iran, Kerman CD, Pawaslia (AMNH), and two females labeled: "Fala Zeudj/Louristan/Perse" and "Museum Paris/1936/A. Dumes" (MNHN). Gusenleitner (1988: 714) has also recorded this species from Turkey. Some males from Pakistan, Chitral, Harchin (RMNH and AMNH), determined as *escalerae*, differ from the female by lacking a notch in the dorsal pronotal carina, but the first metasomal segment (petiole) is similarly very narrow.

Both *escalerae* and *persica* (Meade-Waldo) are quite distinct from other *Parapolybia*. They are smaller and the first metasomal segment is linearly petiolate, but the most remarkable difference is the hindwing venation. The CuA vein diverges from M+CuA distad of the insertion of the cu-a crossvein. In most vespids, CuA diverges basad of the insertion of cu-a (Carpenter, 1981). The Palearctic *Parapolybia* share this trait with the Oriental species of *Polybioides* (van der Vecht, 1966) and a few species of Malagasy *Belonogaster* (Hensen and Blommers, 1987), and just as van der Vecht (1966) reported for *Polybioides*, the distance between CuA and cu-a is variable within both *escalerae* and *persica*.

*indica* de Saussure, 1854: 207, female (described in the genus *Polybia*, division *Parapolybia*) — "La Chine." In the MNHN is a specimen labeled as de Saussure's type and with van der Vecht's determination label; the locality is "MP/Chine." This specimen is evidently the holotype.

*persica* Meade-Waldo, 1911: 108, female (described in the genus *Polybia*, subgenus *Parapolybia*) — "Kuh Sefid, S. W. Persia." The type series is in the BMNH, and consists of four females, as mentioned by Meade-Waldo. One of the females is marked as type; however, Meade-Waldo did not distinguish among the specimens in his description, nor was a lectotype designation ever published. Thus, all four specimens are syntypes (Art. 73 of the International Code of Zoological Nomenclature).

**Polybioides**

*buculus* du Buysson, 1902: 253, female (in the combination *Polybia bucula*) — “Assinie. . . ; Congo français: rivière de San Benito. . . ; entre Sam Quito et N’jole; N’Kogo, Ogooué. . . ; Cameroun.” This taxon was synonymized with *tabidus* (Fabricius, 1781) by von Schulthess (1913b: 341). Richards (1969: 83) studied two “paratypes” in the BMNH, and stated that they differed from *tabidus* in size and the form of the metasomal petiole. The two specimens in the BMNH are a female with a cotype label, and “MP/Congo Franç./Entre Sam-Quito/et N’Jole/J. Bouysson 1900,” and a female ex the Schulz collection, with a red “spec. typ.” label and “MP/San-Benito/Guiral 1885.” These specimens are actually syntypes, as no holotype was distinguished in du Buysson’s description. The two BMNH syntypes are well within the range of variation shown by *tabidus* in both size and form of the petiole, and I regard the synonymy as correct. Probable syntypes in the MNHN include a female labeled “Assinie/Chaper 1882”; six females labeled “Cameroun/R. Oberthür 1901” (one with a 1911 du Buysson determination label as *tabida*); 11 females from “San-Benito/Gural [?] 1885”; one female from “Congo: Oyooué N’Kogo/J. Bouysson 1901” (determined as *tabida*); and five females from “Congo Franç./Entre Sam Quito Et N’Jole/J. Bouysson 1900” (one marked as type of *bucula*, and also with a 1911 du Buysson determination label as *tabida*).

*isabellinus* von Schulthess 1913b: 341, female (in the combination *Polybia tabida* var. *isabellina*) — “Port, West-afrika.” The 1913b paper was published in March, according to a reprint I have seen. Later, when he raised *Parapolybia* to generic rank, von Schulthess (1913c: 163; published in April, according to van der Vecht, 1966: 6) transferred this variety to *Parapolybia*, referring to *isabellina* as “nov. var.” and giving as localities “Accra, Goldküste; Port, Westafrika. . . ; Nkolentangan, Spanish Guinea. . . ; Kamerun.” The 1913c publication mentioned 13 females; there are seven specimens labeled as types in the MNHU, and two (type and cotype) in the ETH. The ETH specimens have locality label “Accra/Africa” and “Kamerun/Conradt #8”; the MNHU specimens are from “N. Kamerun,” “Port W. Afr.,” “W. Afr. Uelborg” and “Span. Guinea.” Although a few specific localities of the MNHU specimens were not mentioned by von Schulthess (1913c), “Port W. Afr.” was the sole locality given in the 1913b publication, and the specimens from that locality must be syntypes. But it is likely

that all of the specimens are syntypes, including those from the ETH, as the MNHU series is marked as “Type series, Schulthess 1912.”

Examination of the collection in MRAC, certainly the largest in existence, shows that the extensive variation in the the color pattern of *tabidus* s. str. includes complete intergradation, from multiple localities, with the largely orangeish pattern of *isabellina*. I view the practice of partitioning continuous color variation with formal nomina as without merit (see Carpenter, 1988, 1996a, b; Carpenter and van der Vecht, 1991), and herewith synonymize *isabellina* with *tabidus* s. str., new status.

*psecas* du Buysson, 1913b: 299, female — in key with “Espèces indo-malaises.” Van der Vecht (1966: 17) evidently did not see the type. In the MNHN is a female from Borneo labeled as type, presumably the holotype.

*tabidus* Fabricius, 1781: 468 (in the combination *Vespa tabida*) — “Africa aequinoctiali.” Richards (1969) reported morphometric differences between queens and workers in this species. Examination of his dissections in the BMNH reveals that queens and workers are immediately distinguished by the presence of dense bristles on the eyes of queens, while the eyes of workers lack bristles. The first metasomal segment of queens is also much more robust than that of workers, as noted by Richards, indeed, more so than that of *melainus* (Meade-Waldo). Thus, Bequaert’s (1918) key will not really work for *tabidus* queens, however the bristled eyes also distinguish the queens from *melainus*. The holotype of *tabidus*, a female in the BMNH, is a worker. See Turillazzi et al. (1994) for a more detailed discussion of caste differences in this species.

**Ropalidia**

*aethiopica* du Buysson, 1906c: 110, female and male (described in the genus *Icaria*) — “Ethiopie méridionale: Dirouhorria.” The generic name *Icaria* was replaced with *Ropalidia* by Bequaert (1918), whose catalog established the current combinations for most of the Ethiopian species. In the MNHN are a female and male marked as types, with locality label “MP/Ethiopie Mérid/Dirouhorria/Maurice de Rothschild/1905”; these are undoubtedly syntypes.

*anarchica* de Saussure, 1853: 34, female (described in the genus *Icaria*) — “Madagascar.” In the MNHN are three females labeled type, with blue circles and locality label “MP/Madagascar/Jacquinot 1841,” one of them with a printed de Saussure determination label. These are evidently syntypes, although de Saussure

- gave "coll. Guérin-Méneville" as the type depository. There is another, headless, female, with the same locality label and blue circle, which may also be a syntype.
- antennata* de Saussure, 1890: 136, footnote, female and male (described in the genus *Icaria*) — "côte de Mozambique." In the ETH is a female labeled as cotype that may well be a syntype. De Saussure did not mention a type depository, and other possible type material is unknown.
- atra* de Saussure, 1890: 113 (key), 119, female (described in the genus *Icaria*) — "*Madagascar*. . . dans le Sud-Est." In the MHN is female labeled "Madagascar/Elliott" and with de Saussure's determination label, as well as the genus name and "486." This specimen is the holotype; de Saussure mentioned only one specimen.
- australis* de Saussure, 1853: 24, female (described in the genus *Icaria*) — "Dorey. Nouvelle-Guinée." In the MNHN is a female labeled type and with a printed de Saussure determination label, and "MP/Dory/Dumont d'Urv. 1841" and labels by du Buysson and Maindron. This specimen is evidently the holotype.
- bicincta* de Saussure, 1890: 114 (key), 136, female and male (described in the genus *Icaria*) — "*Madagascar*. . . *Nosibé*" In the MHN, a female labeled "Nossibe" is probably a syntype (although Hamburg was the depository listed for specimens from Nosy Be), as may be a male without locality. A female and male labeled "Madagasc/Annanarive," and three females labeled "Madagascar/Fianarantsoa," are probably not types, as the locality was not mentioned until de Saussure (1900: 232). Two other males labeled "Madagasc/Andrengoloka" are from localities never mentioned by de Saussure, hence are not types. A female collected by Grandidier, and a female and six males collected by Sikora are probably not types, because de Saussure mentioned only Robillard as collector. Another female from "Nossibe" is labeled as de Saussure's "Var. b," and is therefore not a syntype (Art. 72(b)(i) of the International Code of Zoological Nomenclature). A male and female marked as cotypes and with de Saussure's determination label in the ETH are perhaps not syntypes; von Schulthess placed labels "vic bicincta/Clyp abgestutz" and "nicht *bicincta*/aber sehr nahe/stehend Genf. 3 4" with these specimens; thus, they may have been from among the four varieties mentioned by de Saussure. A female and male marked as cotypes in the MNHN are probably not true types; the female is labeled "Madagasc./Grandid." and the male "Madagasc./F. Sikora."
- brazzai* du Buysson, 1906c: 110, female (described in the genus *Icaria*) — "Congo, Lékéti." Bequaert (1918: 339) stated that this taxon was "probably a synonym of *R. guttatipennis* (de Saussure)," although he did not see any specimens. Giordani Soika (1977: 128) studied the type, and confirmed that the taxa are distinct. In the MNHN is a female marked as type, and labeled with "MP/Congo/Lékéti/de Brazza 1896" and du Buysson's determination label; this is evidently the holotype. In the MCSN are six specimens marked as paratypes of *brazzai*, but these are not from the type series.
- carinata* de Saussure, 1890: 113 (key), 122, female and male (described in the genus *Icaria*) — "*Madagascar*." In the MHN are a female and male labeled "Madagasc/Elliott" and with green de Saussure determination labels, probably syntypes. Another male and two females with only determination labels, and a female with determination label and "488" may not be types. A female marked as cotype in the ETH, and with de Saussure's label, is possibly a syntype as well. A female marked as cotype in the MNHN, labeled "Saussure" and "Madagascar/Elliott" and with de Saussure's determination label may be a type also. It has an MP label for de Saussure 1901, but that may be when de Saussure gave the specimen to the Muséum, or when the label was attached.
- clavata* de Saussure, 1853: 40, "Le Cap de Bonne-Espérance," female (described in the genus *Icaria*). In the MNHN is a female marked as type, and with locality "MP/Cap de B. Espérance/Coll. Bosc 1828," an illegible label, and de Saussure's determination label; evidently this is the holotype.
- cohni* du Buysson, 1909c: 306, male (described in the genus *Icaria*) — "Bougainville." Van der Vecht (1941: 104) synonymized this taxon with *gregaria* (de Saussure, 1854), and Richards (1978b: 86, as *kohni* [!]) in turn synonymized it with *gregaria spilocephala* (Cameron, 1906). In the MNHN is a specimen marked as type and with du Buysson's determination label, and "MP/I Bougainville/(leg. Cohn)/Alfken 1909." This specimen is evidently a type. Another male with an almost identical locality label (differing by "Cohn leg."), but no determination or type label, may not be a type.
- conspicua* Smith, 1863: 40, female (described in the combination *Odynerus conspicuus*) — "Mysol." In the OUM are two females marked as types, labeled with type numbers 097 and 098. The first has no locality label, and the de-

termination label states, "By mistake described/ as an *Odynerus*." Number 098 is from "New Guinea," and has a labeled [by van der Vecht?] stating, "Not a type!" As the locality is incorrect, number 098 is a pseudotype. Number 097 is therefore apparently the holotype.

*constitutionalis* de Saussure, 1853: 30, female (described in the genus *Icaria*) — "Madagascar." In the MNHN is a female marked as type, with the label "MP/Madagascar/Goudot 1839," a blue circle, and a determination label. This is perhaps the holotype; a male in the collection is marked as a female and labeled as cotype, with an MP label for de Saussure 1901, is presumably of later origin. Its labels "Madagasc" and "Saussure" match better in style those from the time of Grandidier's work.

*dubia* de Saussure, 1853: 33, female (described in the genus *Icaria*) — "Madagascar." Kojima (1998) studied the holotype (MNHN). Another female in the MNHN, marked as cotype and determined as *dubia* var. (see de Saussure, 1890), is a pseudotype; Kojima (1998) described this as a new species. Two females in the ETH marked as cotypes and with de Saussure's determination labels are also evidently pseudotypes.

*ducalis* de Saussure, 1900: 216 (key), 226, female (described in the genus *Icaria*) — "Madagascar." In the MHN are two females that are evidently types; they have locality "Madagasc" and determination labels.

*duchaussoyi* Gribodo, 1896: 13, female (described in the genus *Icaria*) — "*Nova Caledonia*." Van der Vecht (1941: 104) treated this taxon as a subspecies of *marginata* (Lepelletier, 1836), but Richards (1978b: 58) listed it as a species. In the MNHN is a specimen marked as type, and with the label "MP/N. Caledonia/1904/A. Duchaussoy." This is perhaps a pseudotype, although 1904 could be the date of accession of the specimen in the MNHN. Gribodo did not specify a type depository, however other types of species described by him are in the MCGD.

*fraterna* de Saussure, 1900: 216 (key), 225, female and male (described in the genus *Icaria*) — "Madagascar; Imerina." In the MHN are two females labeled "Madagasc" and two others labeled "Madagasc/F. Sikora," which may all be syntypes. Three different vars. are labeled as well. A female and male in the MNHN marked as cotypes, and a male cotype of a "var.," may not be true types. The female is from "Madagasc/Annanarive," not a locality mentioned by de Saussure, the male variety is excluded from the type series (Art. 72(b)(i) of the International Code of Zoological Nomen-

clature), and the other male has no locality label.

*grandidieri* de Saussure, 1890: 113 (key), 120, female and male (described in the genus *Icaria*) — "*Madagascar*." A female in the MHN marked as type by de Saussure, labeled with a blue circle (on the underside of which is "19.53") and "Madag" is presumably a syntype. A female and male, both on one pin, with "Zool Mus Berlin/Madagascar," may be syntypes as well, as that depository was listed by de Saussure (I did not see other types in MNHU). Other females, collected by Sikora and Elliot, may not be types, as de Saussure did not mention these collectors, only Grandidier and Hildebrandt. There are two other females labeled as "var. b," one with "Madagascar./Grandidier" and the other "Madagasc," which may be from the original series, but are not syntypes (Art. 72(b)(i) of the International Code of Zoological Nomenclature). Three females in the MNHN marked as cotypes, and with MP de Saussure 1901 labels, are partly doubtful. One the females has locality label "Madagasc.," which accords with labels on other specimens. But the other two are labeled "Madagasc/Annanarivo" and "Madagascar/Andrengoloka," which were localities not mentioned by de Saussure.

*guttatipennis* de Saussure, 1853: 40, female (described in the genus *Icaria*) — "*Le Sénégal*." In the MNHN are four females marked as types, all labeled "MP/Senegal" and two also with Guérin, two with Robert 1836. All are presumably syntypes.

*hova* de Saussure, 1890: 104, 113 (key), 131, female and male (described in the genus *Icaria*) — "*Madagascar*. . .aux environs d'Andrangoloakã (Imerinã)." Van der Vecht (1941: 105) synonymized this taxon with *formosa* (de Saussure, 1853), characterizing the latter as erroneously described from India. This synonymy was followed by Richards (1978b: 58) and Das and Gupta (1989: 108). Giordani Soika (1991: 85, 87), without comment on the synonymy, used *hova* as the species name in his key to the *Ropalidia* of Madagascar. De Saussure (1853: 37) actually gave "Les Indes Orientales" as the locality of *formosa*, which is more ambiguous than indicated by van der Vecht (1941), but the latter author did not provide any details on the labeling of the holotype. Giordani Soika (1991) may have overlooked van der Vecht's synonymy, and given van der Vecht's study of the holotype in the course of a revision of all of the Indo-Australian species of the genus (van der Vecht, 1941, 1962), the synonymy should be followed.

- In the MHN are two females marked as types on the determination label, with locality label "Madagascar/Fianarantsoa." These may well be types despite the fact that de Saussure did not mention that locality. Other specimens include a female labeled "Madagascar/Sikora," a collector mentioned by de Saussure, and a female with label "Zool Mus Berlin/Madagascar," a depository mentioned by de Saussure. These specimens probably are syntypes. A female labeled "Madagasc," one with "Madagasc/Cembum [?]," and one with "Madagascar" are of uncertain status, but quite possibly are also types. Two females pinned on nests from "Annanarive" may be from the type series as well, as de Saussure (p. 134) referred to "Plusiers nids de ce genre, accompagnés de leurs artisans" and illustrated the nest (his fig. A on p. 104), although he did not mention the locality. Another female labeled "Madag/Annanar" may be from the same series. Two females and a male, labeled "Madagasc/Andrenogolosa," are perhaps not types, unless the label is a rendering of Andrangoloakã. However, de Saussure did not mention a male. Other specimens in the MHN are determined as varieties, hence are probably from the original series, but are not syntypes. Two females in the MNHN marked as cotypes may be from the type series; they are each labeled "Madagasc/Annanarive" and "MP/Madagascar/H de Saussure 1901" and "Saussure." Another three females marked as cotypes in the ETH are perhaps from the type series as well. A female in the MCSN marked as a cotype from "Madagascar/Andengoloka" may be from among syntypes originally sent to von Schulthess, as various specimens of Vespidae were sent from Zürich to Giordani Soika in Venice during the 1930s.
- interjecta* de Saussure, 1900: 216 (key), 225, "Madagascar. — Nossi-Bé," female and male (described in the genus *Icaria*). In the MHN is a female from "Nossi Be/26.II.95" and with a determination label, and three females and six males without locality. All of these specimens are probably types, as de Saussure referred to "Individua numerosa" (p. 226). Two females and a male in the ETH marked as cotypes, and two males similarly marked in the MNHN (without locality) are also likely from the type series.
- jacobsoni* du Buysson, 1908b: 123, female (described in the genus *Icaria*) — "aux environs de Batavia. . Java. . à Moeara Antjol." Van der Vecht (1941: 104) treated this taxon as a subspecies of *variegata* (Smith, 1852), but Richards (1978b: 58) listed it as a species, and Das and Gupta (1989: 145) pointed out characters distinguishing these taxa. The lectotype is in the RMNH, inadvertently designated by van der Vecht (1941: 157, from Batavia, Antjol), who referred to it as the holotype. In the MNHN are four specimens marked as types, that are now paralectotypes.
- lefebvrei* Le Guillou, 1841: 325, female (described in the genus *Polistes*) — "Triton-Bay." In the MNHN is a female marked as type, with the locality "MP/Triton-bay," that is evidently the holotype.
- loriana* du Buysson 1909b: 314, female (described in the genus *Polybia*) — "Nouvelle Guinée S. E. Moroka." This taxon was placed in *Parapolybia* by von Schulthess (1913c), and transferred to *Ropalidia* by van der Vecht (1966: 6). In the MNHN is a female marked as type and labeled "N. Guinea S. E./Moroka 1300 m./Loria VII-XI 98" that is evidently the holotype.
- madecassa* de Saussure, 1890: 113 (key), 125, female (described in the genus *Icaria*) — "Madagascar." De Saussure (1890: 125) described this as a new species, but listed *galimatia* (de Saussure, 1853), q. v., as *gallimathias* [unjustified emendation], as a synonym. In a footnote he stated of *gallimathias*: "Vox stulta quam mutare oportet." Obviously, sounding silly is not grounds under any rules of nomenclature for replacing *galimatia*, which must stand as the valid name. *Madecassa* is thus actually an unnecessary replacement name. In the MHN are two females from "Madagasc" and determined as *madecassa*, and one with only a determination label, and in the ETH are two females and in MCSN is one female marked as cotypes of *madecassa*, the latter labeled "Madagascar/Elliott," which corresponds to data given in 1890. But the true type of *madecassa* is the type of *galimatia*, and these specimens thus have no type status.
- minor* de Saussure, 1900: 217 (key), 228, female (described as *Icaria hova* var. *minor*) — "In Madagascar vulgaris." Giordani Soika (1991: 88) gave this taxon species status in his key to males of the species of the *Ropalidia* of Madagascar. He did not include it in his key to females. In the MHN is a female from "Nossi-be," another from "Madagascar/Sikora" and one from "Madagasc/Annanarive." All could well be types; de Saussure first noted two females in his description, but then stated "Individua numerosa" (p. 229).
- nitidula* de Saussure, 1890: 113 (key), 122, female (described in the genus *Icaria*) — "Madagascar." In the MNHU a specimen marked as type

- is from the type series, as that was the depository listed by de Saussure.
- novissima* Giordani Soika, 1944: 176, female — “Africa orientale: Banno.” Giordani Soika (1944) did not mention a type depository, but Giordani Soika (1973: 37) listed it as in his collection. I have seen the holotype in the MCSN.
- phalansterica* de Saussure, 1853: 35, female (described in the genus *Icaria*) — “Madagascar.” In the MNHN are three females and a male marked as types, with the label “MP/Madagascar/Jacquinot 1841” and blue circles, another female with a penciled determination label, and a damaged specimen (female ?) with the same MP label and blue circle, but not marked as a type. This is evidently the type series, and de Saussure presumably overlooked that one of the specimens is a male. Another female marked as cotype, and with the MP de Saussure 1901 label and “Saussure,” is probably not a type. Another female marked as type in the MCSN with the “MP/Madagascar/Jacquinot 1841” label is also evidently from the type series. In the MHN is a female lacking the metasoma from “Madag,” which is possibly from the type series, although de Saussure gave the MNHN as type depository. Another female without locality label is of unclear status, as is a male from “Madagasc,” while specimens (including males) from “Madagascar/Fianarantsoa” and “Madagasc/Annarive” are presumably not types. Two females marked as cotypes in the ETH are probably later specimens as well, not from the type series.
- picta* de Saussure, 1854: 238, female (described in the genus *Icaria*) — “Le Bengale.” Van der Vecht (1959: 235) synonymized this taxon with *fasciata* (Fabricius, 1804). In the MNHN are three females marked as types with the locality label “MP/Bengale/Diand & Duvancel 1815.” These are evidently syntypes.
- politica* de Saussure, 1854: 240, female and male (described in the genus *Icaria*) — “Le Sénégal.” De Saussure suggested that this taxon might be a variety of *guttatipennis* (de Saussure, 1853), and Bequaert (1918: 250) treated them as synonyms. Richards (1978b: 58) listed it as a species. In the MNHN are two females and a male marked as types, with locality label “MP/Sénégal/Guérin,” evidently the type series.
- prasina* de Saussure, 1900: 215 (key), 220, female (described in the genus *Icaria*) — “Madagascar, Imerina.” In the MHN are two females labeled “Madagasc” and with determination labels, which are presumably types.
- pulchella* de Saussure, 1900: 215 (key), 223, female (described in the genus *Icaria*) — “Nossi-Bé.” Giordani Soika (1991: 83) suggested that this taxon is probably a synonym of *phalansterica* (de Saussure, 1853), but I disagree. In the MHN is a female labeled “Hymenopter mit Nest/Nossi-Be/12 October 1890 (13)” that is evidently from the type series. It is perhaps not the only extant type, as de Saussure referred to two nests, collected in September and October.
- ranavali* de Saussure, 1890: 114 (key), 138, female and male (described in the genus *Icaria*) — “Madagascar.” A female in the MHN labeled “Zool Mus Berlin/Madagascar” is evidently from the type series, as is a specimen in the MNHU, as de Saussure listed that as type depository. Another female in the MHN without locality label is of unclear status, and other specimens (including males) are labeled as varieties. A male in the MNHN marked as cotype, and with an MP de Saussure 1901 label, may not be from the type series, which applies also to two females marked as cotypes in the ETH.
- regina* de Saussure, 1900: 215 (key), 220, female (described in the genus *Icaria*) — “Madagascar. Antananarivo.” In the MHN is a female with locality label “Madagasc” that may be the holotype; one female is all de Saussure listed, although he also mentioned a variety.
- romandi* Le Guillou 1841: 325, female (described in the genus *Polistes*) — “Australie Sept.” Richards (1978b: 109) examined the holotype in the MNHN, which he stated was from “north Australia (doubtless Northern Territory).” That specimen has as locality label simply “Australie Sept.”
- sakalava* de Saussure, 1900: 217 (key), 228, female (described in the genus *Icaria*) — “Madagascar, Antananarivo.” In the MHN is a female labeled “Madagasc/Annariv” that is evidently the holotype.
- schulthessi* de Saussure, 1890: 113 (key), 117, female (described in the genus *Icaria*) — “Madagascar. . . dans l’Est.” De Saussure referred to one female in the collection of von Schulthess, and that of a variety in the collection of André. In the ETH are two females labeled as co-types and determined by de Saussure. It is not clear which of these specimens is the holotype, but the co-type labels must have been added by von Schulthess.
- scottiana* de Saussure, 1890: 113 (key), 124, female (described in the genus *Icaria*) — “Madagascar. . . dans le Sud-Est.” In the MHN is a female with the labels “*Icaria/scottiana*/Madag ♀ Sss,” a green circle with “4/90” underneath, and “1323.” This is evidently the holotype.

*shetakovi* von Schulthess, 1931: 51, female and male (described in the genus *Icaria*!) — “Madagascar.” In the ETH are female and male marked as co-types that are evidently from the type series. Another male in the MCSN, marked as a co-type and with locality label “Madagascar” and von Schulthess’ determination label is presumably also from the type series. Another male in the MNHN, marked as cotype and determined by von Schulthess, with locality label “Mada/gascar” and with “MP Schulthess/1931” is evidently also from the type series. A female in the MNHN with the same locality and MP label is not marked as a type, but nonetheless may be from the type series.

*socialistica* de Saussure, 1853: 27, female (described in the genus *Icaria*) — “La Tasmanie.” Richards (1978b: 81) designated the lectotype (MNHN), concluding that the locality Tasmania was erroneous. A specimen marked as type in the MNHU, labeled as from Van Dieman’s land, is presumably a pseudotype, as the MNHN was the depository listed by de Saussure.

*subclavata* de Saussure, 1890: 113 (key), 134, female and male (described in the genus *Icaria*) — “Madagascar.” In the MHN is a female labeled “Grandidier/Madagascar” and a male labeled “Madagasc/Annanarive” that are presumably from the type series, although de Saussure mentioned neither collector nor more precise locality. A female marked as cotype in the ETH, and one in the MNHN (without locality, and with an MP de Saussure 1901 label) are possibly from the type series, but may be later additions.

*variabilis* de Saussure, 1890: 114 (key), 135, female and male (described in the genus *Icaria*) — “Madagascar.” In the MHN is a female labeled “77,” two males labeled “Madagascar/Sikora” and a male labeled “Madagascar/Andrengoloka.” All of these may be from the original series. De Saussure described several varieties, but these specimens are not marked as such. Two females and a male labeled as cotypes in the ETH, and another female cotype in the MNHN (with MP label for de Saussure 1901, and also “77”) may also be from the original series.

*velutina* de Saussure, 1890: 114 (key), 129, fe-

male (described in the genus *Icaria*) — “Madagascar.” In the MHN is a female labeled “*Icaria/velutina*/type Sss” and “Madagascar/GRANDID,” evidently the holotype, as de Saussure referred to one female, collected by Grandidier. A specimen labeled as cotype in the ETH, and a male labeled similarly in the MNHN (with MP label for de Saussure 1901, and also “Madagasc”) are evidently pseudotypes.

*venustula* de Saussure, 1900: 218 (key), 231, male (described in the genus *Icaria*) — “Madagascar; Imerina.” In the MHN are 13 males labeled “Madagascar/Sikora,” that are evidently from the type series. A female and a male labeled as cotypes in the ETH, and two males marked similarly in the MNHN (with MP label for de Saussure 1901, and also “Madagascar/Sikora”) are probably from the type series as well.

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