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Taxonomic history and review of the Förster genera of Platygastridae (Hymenoptera: Platygastroidea)

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Abstract. Platygastridae is a 'dark taxon', with many genera and species in dire need of professional attention. The taxonomic impediment is especially severe in the Palearctic Platygastrinae due to the abundance of names with vague concepts. Historical descriptions and their associated type material must be examined and clarified before further revisionary work can occur. Arnold Förster described 18 genera of Platygastridae, most of which represent distinct and recognizable lineages. The present study reviews their taxonomic history, providing diagnostic remarks, English translations, and illustrations of important specimens from the Förster collection in the Natural History Museum Vienna. The collection also includes original exemplar specimens of European species whose types have been lost. Neotypes and lectotypes are designated from this material to improve nomenclatural stability in the group. Neotypes are designated for *Amblyaspis forticornis* (Nees, 1834), *Isocybus grandis* (Nees, 1834), *Platygaster striolata* Nees, 1834, and *Trichacis tristis* (Nees, 1834). Lectotypes are designated for *Leptacis spinigera* (Nees, 1834) comb. nov. and for *Platygaster corvina* Förster, 1861, with *Platygaster henkvlugi* Buhl, 1996 treated as a junior synonym. *Platygaster mutica* Nees, 1834 stat. rev., nomen dubium, is transferred from *Synopeas*.

Keywords. Taxonomy, parasitoid wasps, historical specimens, Central Europe, Palearctic fauna.

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Introduction

When Arnold Förster began his research on micro-Hymenoptera, there were three valid genera in the family "Platygasteroidae": *Iphitrachelus* Haliday, 1836, *Inostemma* Haliday, 1833, and *Platygaster* Latreille, 1809. Förster indicated himself as the author of Platygasteroidae in *Hymenopterologische Studien* (1856). However, Haliday (1833) presented the name "Platygastres" for higher level classification, which was essentially the group's earliest family level name. Förster pioneered the division of Platygastridae into

numerous genera, which was no small task given that *Platygaster* already included many superficially described species, authored primarily by Walker and Nees von Esenbeck. His proposal of 18 new genera was thus seminal to platygastrid classification and most of these remain valid taxa (Table 1).

The 18 genera originally proposed by Förster (1856) are: *Acerota*, *Allotropa*, *Amblyaspis*, *Anopedias*, *Catillus*, *Ectadius*, *Hypocampsis*, *Isocybus*, *Isorhombus*, *Isostasius*, *Leptacis*, *Metaclisis*, *Monocrita*, *Polygnotus*, *Sactogaster*, *Synopeas*, *Trichacis*, and *Xestonotus*. Of these, nine are presently valid: *Allotropa*, *Amblyaspis*, *Anopedias*, *Isostasius*, *Leptacis*, *Metaclisis*, *Piestopleura* (replacement name for *Catillus*), *Synopeas*, and *Trichacis*. The generic concepts of *Allotropa*, *Isostasius*, and *Metaclisis* were treated by Masner & Huggert (1989), but the remaining genera have yet to receive analysis on a cosmopolitan scale.

Unfortunately, Förster was not in the habit of designating type species or type specimens for his genera. As a result, most of the type species were described and designated later by other authors, and some did not match Förster's generic concepts. However, it is worth re-examining Förster's concepts and the material on which they were based, even if they were never formally linked. Förster's concepts remain useful, regardless of their nomenclatural status, because they reflect morphologically recognizable lineages that may eventually be treated as subgenera or even resurrected as the taxonomy of the group advances.

Most importantly, Förster's specimens represent the oldest remaining reference collection for the Platygastridae of central Europe. Although Ratzeburg and Nees von Esenbeck also described many central European species during the 19th century, their collections have largely not survived, having been destroyed or lost during wartime (Graham 1988; Horn *et al.* 1990; Vlug 1995). The lack of reference specimens, combined with the superficiality of the original descriptions, leaves the identification of European species of Platygastridae in a kind of purgatory; the names are valid, and have been used in subsequent research, but the species concepts remain nebulous.

In the absence of any better reference, Förster's collection can be used as a guide to select neotypes from available material. Förster was known to have studied Nees's collection in Bonn, and he corresponded with prominent hymenopterists of his day (Förster 1841; Fitch 1884; Vlug 1973). As a result, the collection includes many specimens labelled "Or. Ex." meaning "original exemplar", sometimes translated as "authentic specimen". The "Or. Ex." designation has no official status in the *International Code of Zoological Nomenclature* (ICZN 1999), but it typically refers to a specimen received from the author of the taxon (Schifter 1991). Förster (1856) notes, for instance, that he received an original exemplar of *Inostemma mecrida* Walker, 1835 from its author, Alexander Henry Haliday. These specimens can provide valuable clues as to the identity of taxa for which types have been lost.

Förster's collection also includes scores of nomina nuda. These specimens are labelled, numbered, and marked in the same fashion as types of valid species, requiring an external reference to distinguish the two. After Förster's death, his collection was examined by Kieffer (1914), who published some of the species as his own with the same epithets and returned the specimens, unmarked, to Vienna. Thus, some of Kieffer's types were not easily recognized. The failure to distinctly indicate type status on specimens created additional complications. For example, Buhl (1996) described *Platygaster henkvlugi* based on a single Förster specimen that he did not believe had type status. However, we determined that the specimen he chose is actually the type of a valid published species, *P. corvina* Förster, 1861.

Despite his massive impact on the taxonomy of Platygastridae, Förster described relatively few species. These include four species of *Sactogaster* in 1856 (*Sa. curvicauda*, *Sa. longicauda*, *Sa. pisi*, and *Sa. subaequale*) and 17 species in assorted genera from a trip to the Alps in 1861 (*Amblyaspis walkeri*, *Monocrita affinis*, *Mo. monheimii*, *Platygaster brevicornis*, *Pl. corvina*, *Pl. hirticornis*, *Pl. lata*, *Pl. lissonota*, *Pl. picipes*, *Pl. siphon*, *Pl. subtilis*, *Pl. tenuicornis*, *Polygnotus signatus*, *Synopeas melampus*,

Table 1. Platygastrid genera described by Förster (1856).

Genus	Status	Type species	Type repository	CUID
Acerota	junior synonym of *Inostemma*	*Acerota caryae* Ashmead, 1887	USNM	USNMENT00979986
Allotropa	valid	*Inostemma mecrida* Walker, 1835	NHMW	NHMW-HYM#0005310
Amblyaspis	valid	*Platygaster tritici* Walker, 1835	NMINH	NMINH_2018_11_30
Anopedias	valid	*Anopedias obscurus* Thomson, 1859	MZLU	MZLU TYPE 02858:1
Catillus	replaced with *Piestopleura*	*Platygaster catillus* Walker 1835	NHMUK	B.M. TYPE HYM. 9.568
Ectadius	junior synonym of *Synopeas*	*Platygaster craterus* Walker, 1835	NMINH	NMINH_2018_11_36
Hypocampsis	junior synonym of *Platygaster*	*Hypocampsis hyalinata* Thomson, 1859	NHRS	NHRS-HEVA 000018481
Isocybus	valid	*Platygaster grandis* Nees, 1834	NHMW	NHMW-HYM#0005320
Isorhombus	junior synonym of *Platygaster*	*Isorhombus hyalinipennis* Ashmead, 1887	USNM	USNMENT00989054
Isostasius	valid	*Platygaster punctiger* Nees, 1834	unknown	–
Leptacis	valid	*Ichneumon tipulae* Kirby, 1798	NHMUK	B.M. TYPE HYM. 9.574
Metaclisis	valid	*Inostemma areolata* Haliday, 1835	NMINH	NMINH_2018_11_05
Monocrita	junior synonym of *Isostasius*	*Inostemma atinas* Walker, 1835	NHMUK	B.M. TYPE HYM. 9.557
Polygnotus	junior synonym of *Platygaster*	*Platygaster striolatus* Nees, 1834	NHMW	NHMW-HYM#0005313
Sactogaster	junior synonym of *Synopeas*	*Epimeces ventralis* Westwood, 1833	OXUM	OXUM 0004
Synopeas	valid	*Synopeas inermis* Thomson, 1859	MZLU	MZLU TYPE 02854:1-2
Trichacis	valid	*Platygaster pisis* Walker, 1835	NMINH	NMINH_2018_11_24
Xestonotus	replaced with *Xestonotidea*, junior synonym of *Leptacis*	*Xestonotus andriciphilus* Ashmead, 1887	USNM	USNMENT00954734

Sy. nigriscapis, *Sy. prospectum*, and *Sy. rigidicornis*.) All of the known types are in Vienna (Vlug 1973) and most of the species remain valid: Buhl (1996) synonymized *Pl. hirticornis* and *Pl. lissonota* with *Pl. splendidula* Ruthe, 1859 and *Pl. siphon* with *Pl. tisias* Walker, 1835; Buhl (1997) synonymized *Sa. longicauda* and *Sa. pisi* with *Sa. curvicauda*.

Förster's legacy has been occasionally revisited since his death in 1884. Dalla Torre (1885) published a list of Förster's works: 20 publications and 131 species. Howard (1886) published a direct translation of the key to genera from *Hymenopterologische Studien* (Förster 1856). The translation was reasonably accurate, but neglected to update the name *Catillus*, which had been replaced by *Piestopleura* in the addendum of the same volume. Vlug (1973) published a catalogue of platygastrid types in the Naturhistorisches Museum Wien (NHMW) and included a short biography. Förster's personal notebooks are stored on microfilm in the archives of the Smithsonian Institution (CUID SIA.FARU7130). However, at the time of writing, these have not been made available as digital scans.

The current work presents the first photographic catalogue of Platygastridae from the NHMW, with notes on the taxonomic history and diagnoses of the Förster genera. The section of *Hymenopterologische Studien* dealing with Platygastridae, including extensive commentary on each genus, has been entirely translated into English (Supp. file 1). It is our hope that the illustrations and information presented here will be of use to future researchers who seek to untangle the complex taxonomy of Palearctic Platygastridae.

Material and methods

Photography

Images were produced with a Macropod imaging system with a Canon EOS 6D Mark II camera, EF 70–200 mm lens, and 10 x and 20 x M Plan APO Mitutoyo objective lenses. Microphotography software included EOS 6D Mark II camera utility and Helicon Focus Pro 6.8.0 for image stacking. Adobe Photoshop was used for addition of scale bars and post processing. Images of type specimens from Naturhistoriska Riksmuseet Sverige and Biological Museum Lund University were provided by those institutions. Images of type specimens in the United States National Museum were provided by Talamas *et al.* (2017).

Informatics

Specimen data were transcribed from labels, with English translations and inferred collecting data in square brackets. Selected photographs of original labels were added to highlight the diverse taxonomic history of specimens. Associated data such as country of origin, collector, and collecting dates were gleaned from the original published descriptions. These data, along with specimen images, were uploaded to the Ohio State University's Museum of Biological Diversity database (mbd-db.osu.edu) and can be retrieved by entering the collecting unit identifier (CUID) into the search form.

Institutional abbreviations

MZLU = Biological Museum Lund University, Lund, Sweden.
NHMUK = Natural History Museum, London, UK.
NHMW = Naturhistorisches Museum Wien, Vienna, Austria.
NMINH = National Museum of Ireland, Dublin, Ireland.
NHRS = Naturhistoriska Riksmuseet Sverige, Stockholm, Sweden.
OXUM = Oxford University Museum of Natural History, Oxford, UK.
RBINS = Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium.
USNM = United States National Museum, Washington, DC, USA.

Results

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Platygastroidea Haliday, 1833
Family Platygastridae Haliday, 1833

Genus ***Acerota*** Förster, 1856 (junior synonym of *Inostemma* Haliday, 1833)

Acerota Förster, 1856: 107, 110. Type species *Acerota caryae* Ashmead, 1887, by subsequent designation by Muesebeck *et al.* 1951: 707. Junior synonym of *Inostemma* Haliday, 1833 (Masner 1964: 146).
Inocerota Szelényi, 1939: 121. Type species *Inocerota discessus* Szelényi, 1939 by original designation.

Inocerota Szelényi, 1939 – Masner 1964: 148.

Remarks

Acerota was described by Förster as resembling *Inostemma*, except in the lack of a horn (cornutus) on the first metasomal tergite of the females. He did not include any species. *Acerota caryae* Ashmead, 1887, was the first species described in the genus, and thus was automatically the type species. This species was transferred to *Inostemma* by Masner (1964), implicitly treating *Acerota* as a synonym.

Acerotella Masner, 1964 was erected to accommodate the remaining species of *Acerota*, with *Acerota evanescens* Kieffer, 1914 as the type of the genus. Kieffer described *Acerota evanescens* from a Förster nomen nudum in NHMW, and thus Förster's concept of *Acerota* persisted and his specimens constituted

the type material, albeit with the name *Acerotella*. The genus can be distinguished from *Inostemma* by the semicircular mesoscutellum in dorsal view (Fig. 1D).

Acerotella evanescens (Kieffer, 1914)
Fig. 1

Acerota evanescens Kieffer, 1914: 369.

Acerotella evanescens (Kieffer, 1914) – Masner 1964: 148.

Material examined

Lectotype
GERMANY • 1 ♀ (right of pin); Aachen; A. Förster leg.; NHMW NHMW-HYM#0005406.

Paralectotypes
GERMANY • 1 ♀ (same pin as lectotype); same data as for lectotype; NHMW NHMW-HYM#0005405 • 1 ♂; same data as for lectotype; NHMW NHMW-HYM#0005407.

Remarks

Kieffer (1914) described several species based on a loan of Förster's specimens from Vienna. However, he did not label these specimens. Their identity can be inferred from the locality (Aachen, or Aix-la-Chapelle in Kieffer's French description) and often from a shared name, since Kieffer would use Förster's nomina nuda as his own.

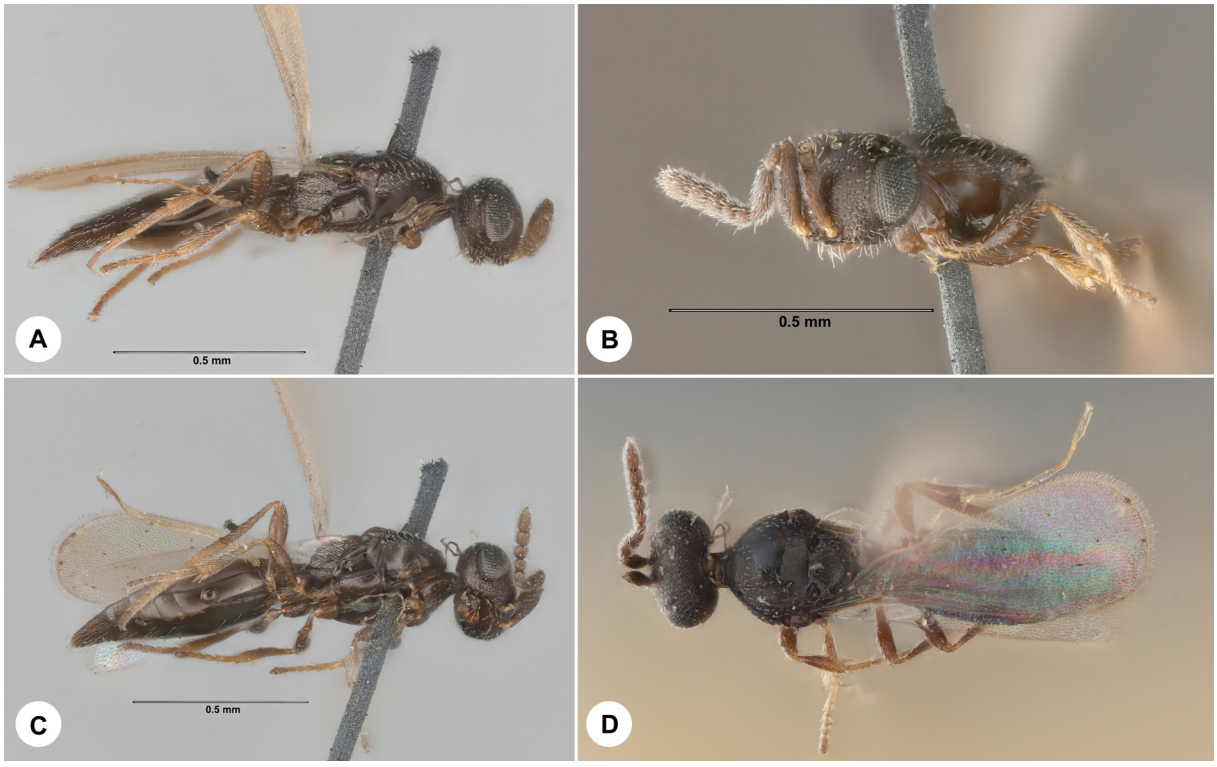

Fig. 1. *Acerotella evanescens* (Kieffer, 1914), lectotype, ♀ (NHMW-HYM#0005406). **A**. Lateral habitus. **B**. Anterolateral head. **C**. Ventrolateral habitus. **D**. Dorsal habitus.

Inostemma americanum (Ashmead, 1887)

Allotropa americana Ashmead, 1887: 125
Monocrita melanostropha Ashmead, 1887: 126.
Acerota caryae Ashmead, 1887: 128.

Acerota americana (Ashmead, 1887) – Muesebeck *et al.* 1951: 707.
Monocrita melanostropha Ashmead, 1887 – Muesebeck *et al.* 1951: 707.
Acerota caryae Ashmead, 1887 – Muesebeck *et al.* 1951: 707.
Inostemma caryae (Ashmead, 1887) – Masner 1964: 146.
Inostemma americanum (Ashmead, 1887) – Masner 1964: 146.

Material examined

Lectotype of *Acerota caryae*
USA • 1 ♀; Florida, Jacksonville; USNM USNMENT00979986.

Remarks

Although this specimen represents the first species to be placed in *Acerota*, it is not congeneric with specimens identified by Förster. Ashmead (1887) named three species in the same paper, which were all later synonymized under the name *Inostemma americanum*.

Genus ***Allotropa*** Förster, 1856

Allotropa Förster, 1856: 106, 109. Type species *Inostemma mecrida* Walker, 1835, by monotypy.

Remarks

Allotropa is the only Förster genus of Platygastridae currently classified in the Sceliotrachelinae Brues, 1908. The genus was treated by Masner & Huggert (1989). The type species is *Inostemma mecrida* Walker, 1835, and the lectotype in NHMW was designated by Vlug & Graham (1984).

Allotropa mecrida (Walker, 1835)
Fig. 2

Inostemma mecrida Walker, 1835: 273.

Allotropa mecrida (Walker, 1835) – Förster, 1856: 109.

Material examined

Lectotype
[ENGLAND] • 1 ♂; [A. Haliday leg.]; original exemplar; NHMW NHMW-HYM#0005310.

Genus ***Amblyaspis*** Förster, 1856
Figs 3–4

Amblyaspis Förster, 1856: 107, 112. Type species *Platygaster tritici* Walker, 1835 by subsequent designation by Vlug 1995: 12.

Remarks

The genus *Amblyaspis* is defined by a conical and setose mesoscutellum in both sexes and the close diagonal appression of the apical two clavomeres in the female. The type species is *Platygaster tritici* Walker, 1835, the male lectotype of which is in the NMINH, Dublin. According to Vlug (1995), the specimen identified as *Pl. tritici* in the Förster collection is a different species.

The NHMW includes the female lectotype of *Am. walkeri* Förster, 1861 and an original exemplar of *Am. forticornis* (Nees, 1834), the type specimen of which has been lost. We here designate this specimen (NHMW-HYM#0005324) as the neotype of *Am. forticornis*.

Amblyaspis forticornis (Nees, 1834)
Fig. 3

Platygaster forticornis Nees, 1834: 308.

Amblyaspis forticornis (Nees, 1834) – Vlug 1973: 180.

Material examined

Neotype (here designated)
[GERMANY] • 1 ♀; original exemplar; NHMW NHMW-HYM#0005324.

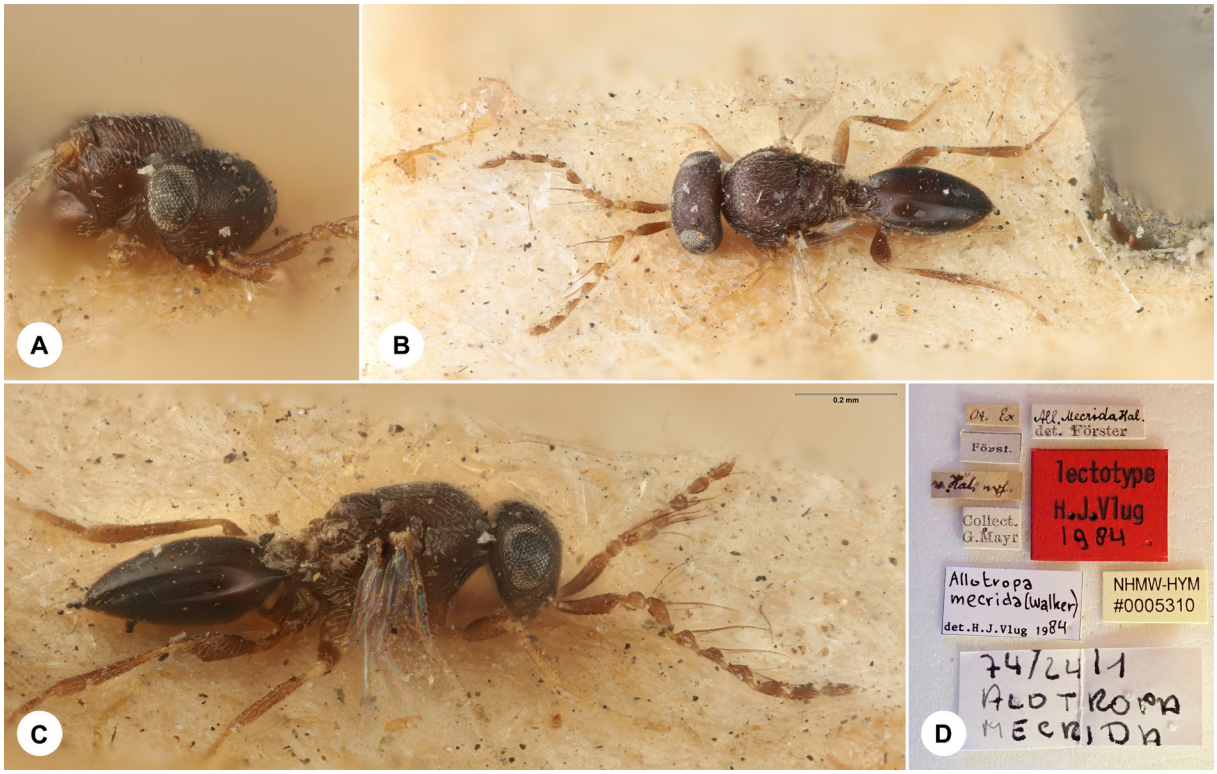

Fig. 2. *Allotropa mecrida* (Walker, 1835), lectotype, ♂ (NHMW-HYM#0005310). **A**. Anterolateral head. **B**. Dorsal habitus. **C**. Dorsolateral habitus. **D**. Labels.

Amblyaspis tritici (Walker, 1835)

Fig. 4

Platygaster tritici Haliday, 1830 – Curtis 1830: 309 (nomen nudum). — Walker 1835: 233.
Platygaster tritici Curtis, 1831 – Muesebeck & Walkley 1956: 327 (nomen nudum).
Platygaster tritici Walker, 1835 – Vlug & Graham 1984: 119; 1995: 12.

Amblyaspis tritici (Walker, 1835) – Vlug 1995: 13.

Material examined

Lectotype
[WESTERN EUROPE] • 1 ♂; [Haliday leg.]; NMINH NMINH_2018_11_30.

Remarks

The type species of *Amblyaspis* was first designated by Ashmead (1893) as "*Amblyaspis aliena* Förster". Although *Amblyaspis aliena* (Nees, 1834) is a valid species with which Förster was familiar, Ashmead's combination was considered a nomen nudum by Muesebeck & Walkley (1956), who designated "*Platygaster tritici* Curtis, 1831" instead. The latter name first appeared in Curtis's British Entomology, a series of illustrations published periodically between 1824 and 1839. Curtis (1830) attributed the species

Fig. 3. *Amblyaspis forticornis* (Nees, 1834), neotype, ♀ (NHMW-HYM#0005324). **A**. Dorsal habitus. **B**. Anterolateral head. **C**. Lateral habitus.

to Haliday. However, there was no description and the combination is therefore also a nomen nudum. The species was not formally described until Walker (1835), who also attributed it to Haliday.

Vlug (1995) designated "*Platygaster tritici* Walker, 1835" as the type species, with a male lectotype from the Haliday collection in Dublin. Unfortunately, the country of origin of this specimen cannot be determined, as Haliday collected in both England and Ireland, and both countries are mentioned in the original description.

Amblyaspis walkeri Förster, 1861

Amblyaspis walkeri Förster, 1861: 41.

Material examined

Lectotype

SWITZERLAND • 1 ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005322.

Fig. 4. *Amblyaspis tritici* (Walker, 1835), lectotype, ♂ (NMINH_2018_11_30). **A**. Dorsolateral habitus. **B**. Dorsal habitus.

Genus ***Anopedias*** Förster, 1856

Anopedias Förster, 1856: 108, 114. Type species *Anopedias obscurus* Thomson, 1859 by subsequent designation by Ashmead 1903: 97.

Remarks

Förster defined *Anopedias* by the flattened mesoscutellum in lateral view. The type of *Anopedias* is *An. obscurus* Thomson, 1859. The type specimen is in the MZLU, Lund. No specimens of taxonomic note were found in the NHMW.

Anopedias obscurus Thomson, 1859
Fig. 5

Anopedias obscurus Thomson, 1859: 80.

Fig. 5. *Anopedias obscurus* Thomson, 1859, lectotype, ♀ (MZLU TYPE 2858:1). **A**. Lateral habitus. **B**. Dorsal habitus. **C**. Labels. Images courtesy of Biological Museum, Lund University (MZLU).

Material examined

Lectotype

[SWEDEN] • 1 ♀; MZLU MZLU TYPE 2858:1.

Genus ***Ectadius*** Förster, 1856 (junior synonym of *Synopeas* Förster, 1856)

Ectadius Förster, 1856: 108, 113. Type species *Platygaster craterus* Walker, 1835 by monotypy. Junior synonym of *Synopeas* Förster, 1856 – Masner 1965: 140.
Polymecus Förster, 1856: 144. Unnecessary replacement name for *Ectadius* Förster, 1856.

Remarks

In the addendum, Förster (1856) unnecessarily proposed the replacement name *Polymecus* to avoid confusion with the plant genus *Ectadium* E.Mey. Förster distinguished *Ectadius* from *Synopeas* by the elongate female metasoma in the former. It was later treated as a junior synonym of *Synopeas* by Fouts (1924). The type species of *Ectadius* is *Platygaster craterus* Walker, 1835, by monotypy, for which the primary type is deposited in NMINH. The specimens in Vienna are original exemplars, likely provided by Walker himself and used in the original description of the genus. They are identical to the lectotype and paralectotype except for being somewhat lighter in color.

Synopeas craterum (Walker, 1835)
Fig. 6

Platygaster craterus Walker, 1835: 224.

Ectadius craterus (Walker, 1835) – Förster 1856: 113.
Polymecus craterus (Walker, 1835) – Muesebeck & Walkley 1956: 387.
Synopeas craterus (Walker, 1835) – Masner 1965: 141

Material examined

Lectotype

[ENGLAND] • 1 ♀; NMINH NMINH_2018_11_36.

Paralectotype

[ENGLAND] • 1 ♀; NHMUK B.M. TYPE HYM. 9.632.

Other material

ENGLAND • 1 ♂, 1 ♀; original exemplar; NHMW NHMW-HYM#0005311.

Genus ***Hypocampsis*** Förster, 1856 (junior synonym of *Platygaster* Latreille, 1809)

Hypocampsis Förster, 1856: 108, 115. Type species *Hypocampsis hyalinata* Thomson, 1859 by subsequent designation by Ashmead 1903: 98. Junior synonym of *Platygaster* Latreille, 1809 – Fouts 1920: 67.
Triplatygaster Kieffer, 1913: 178. Type species *Platygaster contorticornis* Ratzeburg, 1844 by monotypy.

Triplatygaster Kieffer, 1913 – Szelényi 1938: 100, 101.

Remarks

Förster describes the principal character of *Hypocampsis* to be the "widely turned edges of the metasoma". Presumably, this refers to the laterotergites, which are relatively broad. Additionally, the female antenna is filiform and the clavomeres are not expanded in diameter. The original description does not include any species, but specimens were reared from "*Cecidomyia strobi* in *Abies* cones". Based on the current taxonomy of the midges and the tree, this is probably *Kaltenbachiola strobi* (Winnertz, 1853) on *Picea abies* (L.) H.Karst., which according to Kieffer (1926) is also the host of *Platygaster contorticornis* Ratzeburg, 1844, the type species of *Triplatygaster* Kieffer, 1913. Fouts (1920, 1924) synonymized *Hypocampsis* with *Platygaster*, based on Förster's description. Later, Szelényi (1938) treated *Triplatygaster* as a junior synonym of *Hypocampsis*.

The type specimen of *Pl. contorticornis* is almost certainly destroyed, presenting an obstacle to species identification and casting uncertainty on the species group that MacGown (1979) based on *Pl. contorticornis*. The *contorticornis* group is associated with conifers and characterized by coarse

Fig. 6. *Synopeas craterum* (Walker, 1835), original exemplar (NHMW-HYM#0005311). **A**. Lateral habitus. **B**. Dorsal habitus. **C**. Labels.

microsculpture, complete notauli, a strongly flattened metasoma, and a wedge-shaped male antennal plate organ. There are two specimens in Förster's collection identified as *Pl. contorticornis*. However, their provenance is unknown and they do not resemble the prevailing concept of *Pl. contorticornis*.

Platygaster hyalinata (Thomson, 1859)

Hypocampsis hyalinata Thomson, 1859: 82.

Platygaster hyalinata (Thomson, 1859) – Huggert 1973: 100–102, figs 7–9.

Material examined

Lectotype
[SWEDEN] • 1 ♀; NHRS NHRS-HEVA 000018481.

Other material
[GERMANY] • 2 ♀♀; NHMW NHMW-HYM#0005289 to 0005290.

Genus ***Isocybus*** Förster, 1856

Isocybus Förster, 1856: 108, 114–115. Type species *Platygaster grandis* Nees, 1834 by subsequent designation by Ashmead 1893: 327.

Remarks

Förster described *Isocybus* as having a cubical head, a mesoscutellum with a tuft of setae, and a relatively large body size. He included the species *Platygaster cotta* Walker, 1835, *Pl. erato* Walker, 1835, and *Pl. matuta* Walker, 1835, the types of which are located in the NMINH and the NHMUK. He also included *Pl. ruficornis* (Latreille, 1805), which influential authors of the time considered to be a senior synonym of *Pl. grandis* Nees, 1834 (Walker 1835; Curtis 1837). *Platygaster grandis* Nees, 1834 is the type species of *Isocybus*. The type material is unknown, probably lost. Four specimens in the Förster collection are marked as original exemplars of *Pl. grandis*, but we do not have reliable evidence that they could be considered part of Nees's syntype series. However, we do believe that they correspond to Nees's concept of the species and they fully match his description. Based on this, we here designate specimen NHMW-HYM #0005320 (top left) as the neotype of *Pl. grandis*.

Isocybus grandis (Nees, 1834)
Fig. 7

Platygaster grandis Nees, 1834: 300–301.

Isocybus grandis (Nees, 1834) – Dalla Torre 1898: 469.

Material examined

Neotype (here designated)
[GERMANY] • 1 ♀ (top left); original exemplar; NHMW NHMW-HYM#0005320.

Other material
[GERMANY] • 2 ♀♀ (same pin as neotype); original exemplar; NHMW • 1 ♀; original exemplar; NHMW.

Genus ***Isorhombus*** Förster, 1856 (junior synonym of *Platygaster* Latreille, 1809)

Isorhombus Förster, 1856: 107, 113. Type species *Isorhombus hyalinipennis* Ashmead, 1887 by first subsequent inclusion. Junior synonym of *Platygaster* Latreille, 1809 – Fouts 1924: 51.

Remarks

The genus *Isorhombus* was characterized by a diamond-shaped head in frontal view and a three-merous clava. The type species is *Isorhombus hyalinipennis* Ashmead, 1887. Based on Ashmead's type, Fouts (1924) synonymized it with *Platygaster*. Ashmead's interpretation differed from Förster's concept, which was more similar to *Leptacis* than to *Platygaster*.

Debauche (1947) proposed the name *Anacoryphe* to refer to *Isorhombus* sensu Förster, with *Anacoryphe orchymonti* Debauche, 1947 as the type species. The type specimen is in RBINS. *Anacoryphe* was later synonymized with *Leptacis* by Kozlov (1978). Evidence that Debauche correctly interpreted Förster's concept is exemplified by two specimens in the NHMW labelled as *Isorhombus fulvipes* Förster. This is a nomen nudum, and the specimens were subsequently identified by Lars Huggert as *Leptacis orchymonti*.

Fig. 7. *Isocybus grandis* (Nees, 1834), original exemplars (NHMW-HYM#0005320). **A**. Dorsal head. **B**. Anterior head. **C**. Dorsal mesosoma and metasoma. **D**. Lateral head and mesosoma.

Leptacis orchymonti (Debauche, 1947)
Fig. 8

Anacoryphe orchymonti Debauche, 1947: 274–278, figs 19–21.

Leptacis orchymonti (Debauche, 1947) – Kozlov 1978: 660, 661.

Material examined

[GERMANY] • 1 ♂, 1 ♀; NHMW NHMW-HYM#0005312.

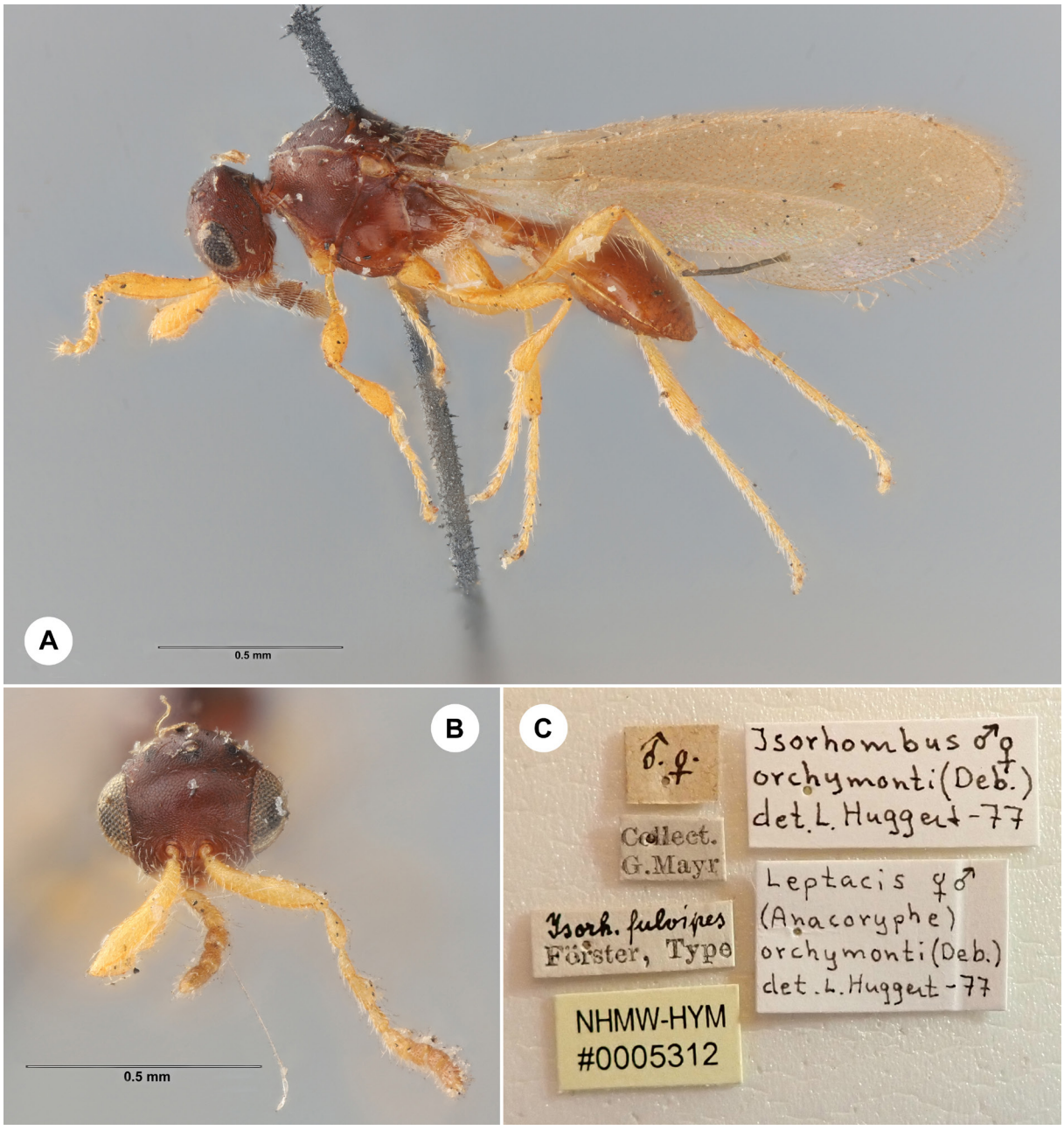

Fig. 8. *Leptacis orchymonti* (Debauche, 1947) (NHMW-HYM#0005312). **A**. Lateral habitus. **B**. Anterior head. **C**. Labels.

Platygaster hyalinipennis Ashmead, 1887

Isorhombus hyalinipennis Ashmead, 1887: 129.

Platygaster hyalinipennis (Ashmead, 1887) – Fouts 1924: 51.

Material examined

Holotype

USA • ♀; Florida, Jacksonville; USNM USNMENT00989054.

Genus ***Isostasius*** Förster, 1856

Isostasius Förster, 1856: 106, 109–110. Type species *Platygaster punctiger* Nees, 1834 by monotypy.

Remarks

Isostasius is remarkable in that the female metasoma has only three visible tergites. The genus was treated by Masner & Huggert (1989). The type species is *Platygaster punctiger* Nees, 1834, and we consider the type material to be destroyed. There are seven males in the NHMW labeled as original exemplars, but these are not suitable for neotype designation. A female neotype would be more appropriate, due to the sex-specific metasomal structure.

Isostasius punctiger (Nees, 1834)
Fig. 9

Platygaster punctiger Nees, 1834: 307.
Inostemma scrutator Walker, 1835: 271, pl. 12 fig. 21.

Isostasius punctiger (Nees, 1834) – Förster 1856: 110.
Inostemma scrutator Walker, 1835 – Förster 1856: 110.

Material examined

GERMANY • 7 ♂; Aachen; [A. Förster leg.]; original exemplar; NHMW NHMW-HYM#0005325.

Genus ***Leptacis*** Förster, 1856
Figs 10–11

Leptacis Förster, 1856: 107, 112–113. Type species *Ichneumon tipulae* Kirby, 1798 by subsequent designation by Ashmead 1893: 270.
Xestonotus Förster, 1856: 107, 112. Type species *Xestonotus andriciphilus* Ashmead, 1887 by first subsequent inclusion.
Miramblyaspis Dodd, 1914: 91. Type species *Miramblyaspis mirabilis* Dodd, 1914 by monotypy.
Tricholeptacis Kieffer, 1914: 357. Type species *Amblyaspis verticillatus* Ashmead, 1894 by monotypy and original designation.
Proleptacis Kieffer, 1926: 632, figs 254–257. Type species *Leptacis foersteri* Kieffer, 1914 by original designation.
Prosamblyaspis Kieffer, 1926: 610, fig. 248. Type species *Amblyaspis flavosignatus* Kieffer, 1912 by monotypy.
Anacoryphe Debauche, 1947: 274–278, figs 19–21. Type species *Anacoryphe orchymonti* Debauche, 1947 by monotypy and original designation.
Mandraka Risbec, 1953: 343, 344, figs 22, 23, 25. Type species *Mandraka pauliani* Risbec, 1953 by monotypy.

Xestonotus Förster, 1856 – Ghesquière 1948: 44.
Proleptacis Kieffer, 1926 – Masner 1960: 3.
Mandraka Risbec, 1953 – Masner 1960: 3.
Tricholeptacis Kieffer, 1914 – Masner 1965: 135.
Prosamblyaspis Kieffer, 1926 – Masner 1965: 134.
Miramblyaspis Dodd, 1914 – Huggert 1976: 220.
Anacoryphe Debauche, 1947 – Kozlov 1978: 660, 661.

Remarks

Förster described *Leptacis* on the basis of a long and pointed mesoscutellar spine, ocular ocellar length (OOL) less than lateral ocellar length (LOL), and four-segmented clava in the female. The type species of *Leptacis* is *Ichneumon tipulae* Kirby, 1798, the type specimen of which is in the NHMUK. The NHMW includes paralectotypes of *L. scutellaris* Thomson, 1859 and *L. torispinula* Huggert, 1980. Huggert (1980) synonymized *L. scutellaris* with *L. tipulae*. Vlug (1985) synonymized *L. torispinula* with *L. nydia* (Walker, 1835).

Fig. 9. *Isostasius punctiger* (Nees 1834), original exemplar (NHMW-HYM#0005325). **A**. Anterolateral head. **B**. Lateral habitus. **C**. Dorsolateral habitus. **D**. Ventrolateral habitus.

One specimen of *Platygaster spinigera* Nees, 1834 (NHMW-HYM#0005297), identified by Förster, rightfully belongs to *Leptacis* and the label on this specimen is consistent with Nees's style (Graham 1988). However, another specimen identified as *P. spinigera* in NHMW (NHMW-HYM#0005298) belongs to *Synopeas*. Based on the authenticity of the label, we consider the former specimen to be part of the syntype series and the latter specimen to be misidentified. We here designate NHMW-HYM#0005297 as the lectotype of *Platygaster spinigera* Nees, 1834 and transfer it to *Leptacis*.

Leptacis nydia (Walker 1835)

Platygaster nydia Walker, 1835: 221.
Leptacis torispinula Huggert, 1980: 109–111.

Leptacis nydia (Walker, 1835) – Kieffer, 1926: 640.
Leptacis torispinula Huggert, 1980 – Vlug 1985: 213.

Material examined

Paralectotypes of *Leptacis torispinula*
[GERMANY] • 2 ♀♀; NHMW NHMW-HYM#0005318.

Leptacis spinigera (Nees, 1834) comb. nov.
Fig. 10

Platygaster spiniger Nees, 1834: 304.

Platygaster spinipes Nees, 1834 – Dalla Torre 1898: 476 (misprint).
Platygaster spinigera Nees 1834 – Kieffer 1926: 831.

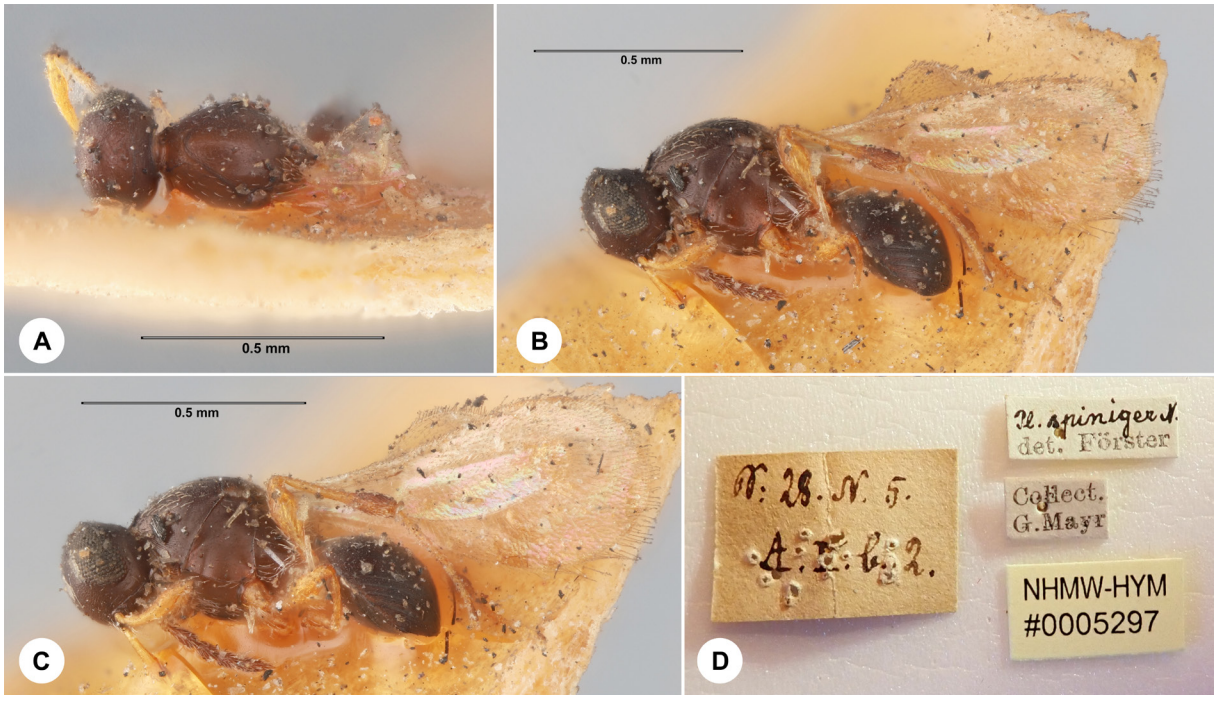

Fig. 10. *Leptacis spinigera* (Nees 1834), lectotype (NHMW-HYM#0005297). **A**. Dorsal head and mesosoma. **B**. Lateral habitus. **C**. Ventrolateral habitus. **D**. Labels.

Material examined

Lectotype (here designated)
[GERMANY] • 1 ♀ (top specimen); [Nees von Esenbeck leg.]; NHMW NHMW-HYM#0005297.

Paralectotypes
[GERMANY] • 3 specimens (same pin as lectotype); same data as for lectotype; NHMW.

Leptacis tipulae (Kirby, 1798)
Fig. 11

Ichneumon tipulae Kirby, 1798: 232.
Platygaster scutellaris Nees, 1834: 309.
Leptacis scutellaris Thomson, 1859: 76.

Platygaster tipulae (Kirby, 1798) – Walker, 1835: 220, pl. 12 figs 7–9.
Leptacis tipulae (Kirby, 1798) – Kieffer 1926: 638, 639, fig. 259.
Leptacis scutellaris (Nees, 1834) – Kieffer 1926: 639. — Huggert 1980: 107.
Leptacis scutellaris Thomson, 1859 – Huggert 1980: 107–109, figs 30–34.

Material examined

Neotype
[ENGLAND] • 1 ♀; NHMUK B.M. TYPE HYM. 9.574.

Paralectotype of *Leptacis scutellaris*
[SWEDEN] • 1 ♀; [Thomson leg.]; NHMW NHMW-HYM#0005317.

Genus ***Metaclisis*** Förster, 1856

Metaclisis Förster, 1856: 106, 109. Type species *Inostemma areolata* Haliday, 1835 by monotypy.
Parinostemma Kieffer, 1914: 355. Type species *Inostemma quinda* Walker, 1842 by monotypy and original designation.

Parinostemma Kieffer, 1914 – Masner 1965: 131.

Remarks

Metaclisis was treated by Masner & Huggert (1989). The genus is diagnosable by the fan of striae in the malar space and the forked knob of the submarginal vein in the fore wing. Förster did not recognize these characters, and instead defined it by the number of clavomeres (3, although the number can actually range from 2 to 4) and what he interpreted as a basal fore wing vein (actually a nebulous and pigmented RS&M vein). The type species is *Inostemma areolata* Haliday, 1835, the lectotype of which is deposited in NMINH. The original exemplar in NHMW is a paralectotype.

Förster did not describe any species in *Metaclisis*. However, *Monocrita monheimii* Förster, 1861, was later transferred to *Metaclisis* (Vlug 1973). See section on *Monocrita*.

Metaclisis areolata (Haliday, 1835)
Fig. 12

Inostemma areolata Haliday, 1835 – Walker 1835: 272, pl. 12 figs 16–20.

Metaclisis areolatus (Haliday, 1835) – Förster 1856: 109.

Material examined

Lectotype

[IRELAND] • 1 ♀; [Haliday leg.]; NMINH NMINH_2018_11_05.

Paralectotypes

[IRELAND] • 1 ♀ (same pin as lectotype); NMINH • 1 ♀; original exemplar; NHMW.

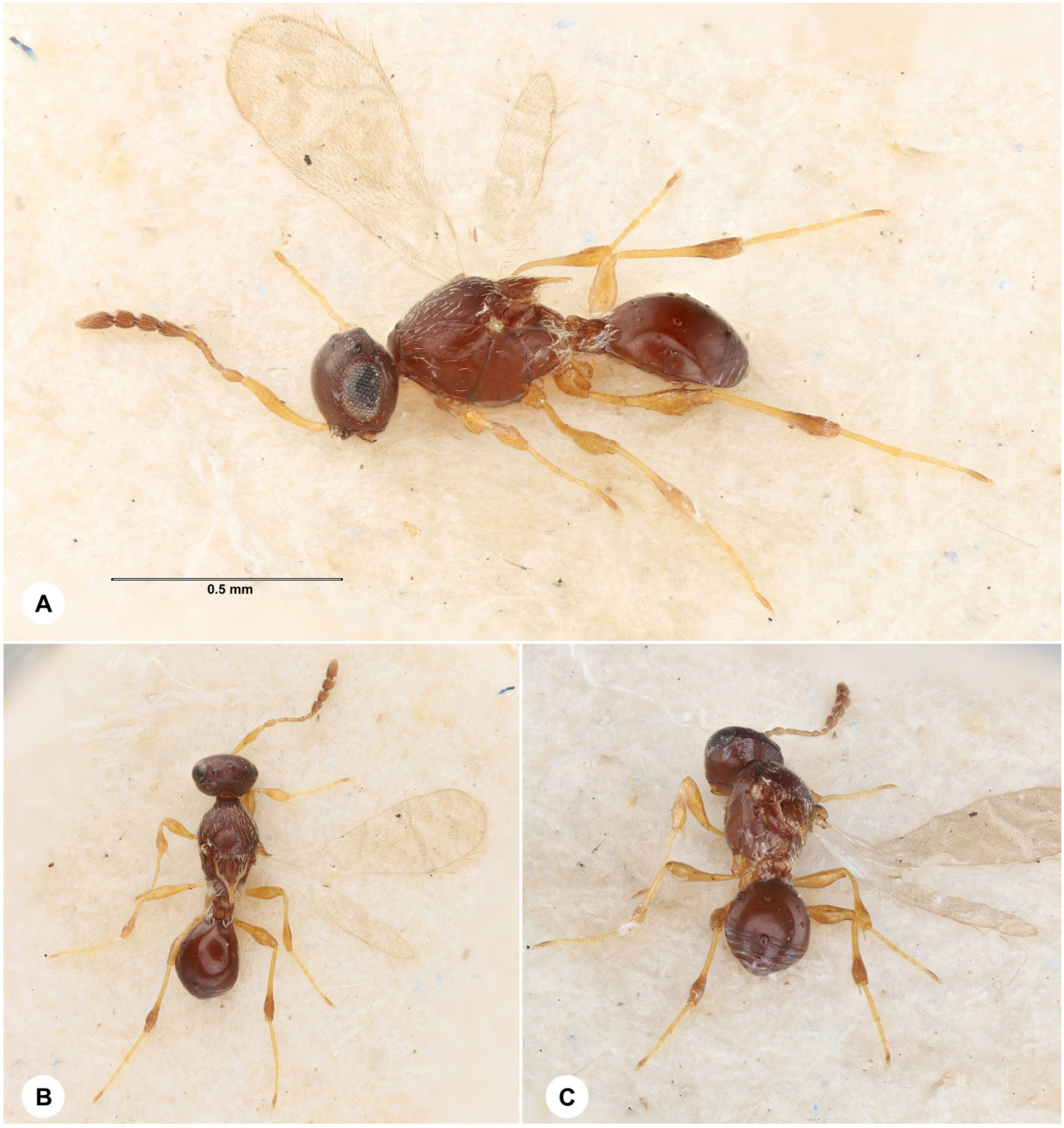

Fig. 11. *Leptacis tipulae* (Kirby, 1789), neotype, ♀ (B.M. TYPE HYM. 9.574). **A**. Dorsolateral habitus. **B**. Dorsal habitus. **C**. Posterodorsal habitus.

Fig. 12. *Metaclisis areolata* (Haliday, 1835), lectotype, ♀ (NMINH_2018_11_05). **A**. Dorsal habitus. **B**. Dorsolateral habitus.

Genus ***Monocrita*** Förster, 1856 (junior synonym of *Isostasius* Förster, 1856)
Figs 13–14

Monocrita Förster, 1856: 106, 109. Type species *Inostemma atinas* Walker, 1835 by monotypy. Junior synonym of *Isostasius* Förster, 1856 – Masner 1965: 131.

Remarks

Förster differentiated *Monocrita* from *Metaclisis* based on the antennal segments. What he interpreted as a one-segmented clava in *Monocrita* is in fact an elongate A10 (Masner & Huggert 1989). The type species of *Monocrita*, *Inostemma atinas* Walker, 1835, was transferred to *Isostasius* by Masner (1965). Thus, *Monocrita* is a junior synonym of *Isostasius*. However, not all species described in *Monocrita* belong to *Isostasius*. *Monocrita monheimii* Förster, 1861 was transferred to *Metaclisis* (Vlug 1973). The type specimen and taxonomic position of *Monocrita affinis* Förster, 1861 are unknown (Vlug 1995).

Isostasius atinas (Walker, 1835)
Fig. 13

Inostemma atinas Walker, 1835: 272.

Monocrita atinas (Walker, 1835) – Förster 1856: 109.
Isostasius atinas (Walker, 1835) – Masner 1965: 131.

Material examined

Lectotype
[ENGLAND] • 1 ♀; NHMUK B.M. TYPE HYM. 9.557.

Metaclisis monheimi (Förster, 1861)
Fig. 14

Monocrita Monheimii Förster, 1861: 42.

Monocrita monheimi Förster, 1861 – Kieffer 1926: 568.
Metaclisis monheimi (Förster, 1861) – Vlug 1973: 176, 177.

Material examined

Lectotype
SWITZERLAND • 1 ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005321.

Genus ***Piestopleura*** Förster, 1856 (replacement name for *Catillus* Förster, 1856)

Catillus Förster, 1856: 107, 111, 112. Preoccupied by *Catillus* Gray, 1847.
Piestopleura Förster, 1856: 144. Type species *Platygaster catillus* Walker, 1835 by monotypy.

Remarks

The name *Catillus*, proposed by Förster 1856, was preoccupied by a genus of snail (*Catillus* Gray, 1847). Förster (1856) quickly proposed the replacement name *Piestopleura* in the addendum to *Hymenopterologische Studien*. This genus is defined by the strong lateral compression of the mesosoma, antero-posterior compression of the head, and dorsoventral compression of the metasoma. The type

specimen of *Platygaster catillus* Walker, 1835 is in the NHMUK. The specimen in Vienna is an original exemplar, likely provided by Walker himself and used in the original description of the genus.

Fig. 13. *Isostasius atinas* (Walker, 1835), lectotype, ♀ (B.M. TYPE HYM. 9.557). **A**. Lateral habitus. **B**. Dorsal habitus.

Piestopleura catilla (Walker, 1835)
Fig. 15

Platygaster catillus Walker, 1835: 219, 220, pl. 12 figs 2, 3.
Catillus walkeri Förster, 1856: 112.
Piestopleura walkeri Förster, 1856: 144.

Piestopleura catillus (Walker, 1835) – Thomson 1859: 75.
Piestopleura catilla (Walker, 1835) – Vlug & Graham 1984: 120.

Material examined

Lectotype
[ENGLAND] • 1 ♀; NHMUK B.M. TYPE HYM. 9.568.

Other material
[ENGLAND] • 1 ♀; original exemplar; NHMW NHMW-HYM#0005279.

Fig. 14. *Metaclisis monheimii* (Förster, 1861), lectotype (NHMW-HYM#0005321). **A**. Lateral habitus. **B**. Anterior head. **C**. Dorsal habitus. **D**. Antenna.

Genus ***Platygaster*** Latreille, 1809

Platygaster Latreille, 1809: 31, 32. Type species *Scelio ruficornis* Latreille, 1805 by monotypy.
Epimeces Westwood, 1833: 421. Type species *Epimeces ensifer* Westwood, 1833 by subsequent designation by Muesebeck & Walkley 1956: 351. Preoccupied by *Epimeces* Billberg, 1820.
Polygnotus Förster, 1856: 108, 115, 166. Type species *Platygaster striolatus* Nees, 1834 by original designation.

Fig. 15. *Piestopleura catilla* (Walker, 1835), lectotype, ♀ (B.M. TYPE HYM. 9.568). **A**. Dorsolateral habitus. **B**. Dorsal habitus.

Hypocampsis Förster, 1856: 108, 115. Type species *Hypocampsis hyalinata* Thomson, 1859 by subsequent designation by Ashmead 1903: 98.
Isorhombus Förster, 1856: 107, 113. Type species *Isorhombus hyalinipennis* Ashmead, 1887 by first subsequent inclusion.
Coelopelta Ashmead, 1893: 289, 290, pl. 12 fig. 6.
Aneuron Brues, 1910: 49. Type species *Aneuron anormis* Brues, 1910 by monotypy and original designation.
Triplatygaster Kieffer, 1913: 178. Type species *Platygaster contorticornis* Ratzeburg, 1844 by monotypy.
Misocyclops Kieffer, 1914: 353, 362. Type species *Platygaster ornatus* Kieffer, 1914 by monotypy.
Prosactogaster Kieffer, 1914: 352, 362, pl. 13, fig. 6. Type species *Platygaster lineatus* Kieffer, 1906 by subsequent designation by Muesebeck & Walkley 1956: 391.
Parepimeces Kieffer, 1926: 760. Replacement name for *Epimeces* Westwood, 1833.
Paracyclops Maneval, 1936a: 56–58, fig. 8. Type species *Paracyclops bettyae* Maneval, 1935, by monotypy and original designation. Preoccupied by *Paracyclops* Claus, 1893.
Urocyclops Maneval, 1936b: 142. Replacement name for *Urocyclops* Maneval, 1936.
Pyrgaspis Kozlov, 1967: 715. Type species *Pyrgaspis haloxylonomyiae* Kozlov, 1967 by monotypy and original designation.
Anirama Kozlov, 1970: 224. Type species *Platygaster marikovskii* Kozlov, 1967 by monotypy and original designation.
Criomica Kozlov, 1975b: 965. Type species *Criomica viktorovi* Kozlov, 1975 by monotypy and original designation.

Epimeces Westwood, 1833 – Walker 1835: 243.
Polygnotus Förster, 1856 – Fouts 1920: 67.
Hypocampsis Förster, 1856 – Fouts 1920: 67.
Isorhombus Förster, 1856 – Fouts 1924: 51.
Coelopelta Ashmead, 1893 – Fouts 1920: 67.
Aneuron Brues, 1910 – Fouts 1924: 23.
Triplatygaster Kieffer, 1913 – Szelényi 1938: 100, 101.
Misocyclops Kieffer, 1914 – Masner 1965: 135.
Prosactogaster Kieffer, 1914 – Masner 1965: 135.
Parepimeces Kieffer, 1926 – Masner 1965: 135.
Paracyclops Maneval, 1936 – Maneval 1936b: 142.
Urocyclops Maneval, 1936 – Huggert 1974: 58.
Pyrgaspis Kozlov, 1967 – Talamas & Buffington 2014: 107, 108.
Anirama Kozlov, 1970 – Talamas & Buffington 2014: 105.
Criomica Kozlov, 1975 – Talamas & Buffington 2014: 106, 107.

Remarks

Although *Platygaster* is not a Förster genus, his concept of the genus has prevailed and was the baseline against which he assigned generic status to lineages with recognizable characters. Förster regarded *Platygaster* as a large and confusing genus, an assessment that has been shared by many. It appears at the end of his key, being defined by its lack of distinguishing characteristics. No species names are cited, although he did mention the type species of *Platygaster*, *Pl. ruficornis*, as an example of *Isocybus*.

Förster described nine species in *Platygaster*, six of which remain valid. The types of all nine species are in the NHMW. Vlug (1973) expressed doubt that the specimen labelled as the type of *Pl. corvina* represented the original because the label and pinning style were not consistent with Förster's work. It is true that the locality label is missing and that the specimen is pinned on a light-colored piece of pith instead of a dark one. However, it is possible that a label was lost and that the specimen was remounted

after Förster's death. Furthermore, the verdigris on the pin itself suggests that it is of a similar age and chemical composition to the other pins in Förster's collection. The specimen generally matches Förster's description, except for minor differences in flagellomere proportions, which are easily explained by viewing angle. We disagree with Vlug (1973) and here assert that the type specimen of *Pl. corvina* is accurately labelled. This renders *Pl. henkvlugi* Buhl, 1996 as an objective synonym of *Pl. corvina*, since they are based on the same type specimen.

Besides Förster's species, the NHMW includes four Nees species of *Platygaster*, two of which are original exemplars. The type specimens of all four species are unknown. *Platygaster niger* Nees, 1834, *Pl. obscurus* Nees, 1834, and *Pl. tuberosa* Nees, 1834 match the prevailing concept of *Platygaster*. However, the specimens identified as *Pl. spinigera* belong to *Leptacis* and *Synopeas* (see section on *Leptacis*). Additionally, the holotype of *Pl. splendidula* Ruthe, 1859 is housed in the NHMW.

Platygaster brevicornis Förster, 1861

Platygaster brevicornis Förster, 1861: 42.

Material examined

Holotype

SWITZERLAND • ♂; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005286.

Platygaster corvina Förster 1861

Fig. 16

Platygaster corvinus Förster, 1861: 41, 42.
Platygaster henkvlugi Buhl, 1996: 221, 222, figs 4–6.

Platygaster corvina Förster, 1861 – Vlug 1995: 51.

Material examined

Lectotype

SWITZERLAND • 1 ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005296.

Platygaster lata Förster, 1861

Platygaster latus Förster, 1861: 42.

Platygaster lata Förster, 1861 – Dalla Torre 1898: 474.

Material examined

Holotype

SWITZERLAND • ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005285.

Platygaster nigra Nees, 1834

Platygaster niger Nees, 1834: 304, 305.

Platygaster nigra Nees, 1834 – Dalla Torre 1898: 474.

Material examined

[AUSTRIA] • 1 ♂, 3 ♀♀; ex. "Cecid. salicis"; NHMW NHMW-HYM#0005294.

Platygaster obscura Nees, 1834

Platygaster obscurus Nees, 1834: 300.

Platygaster obscura Nees, 1834 – Dalla Torre 1898: 475.

Material examined

[GERMANY] • 1 ♂; original exemplar; NHMW NHMW-HYM#0005295.

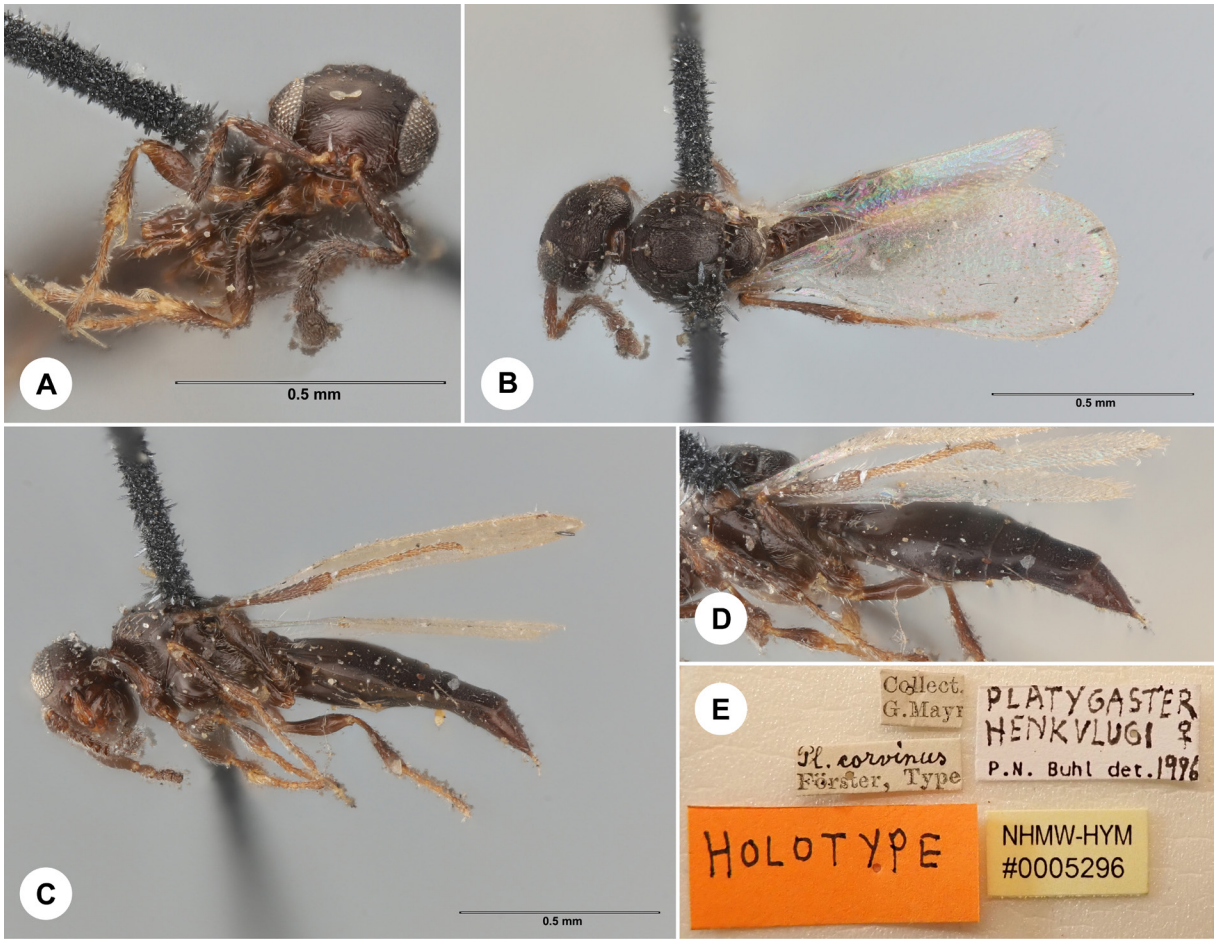

Fig. 16. *Platygaster corvina* Förster, 1861, lectotype, ♀ (NHMW-HYM#0005296). **A**. Anterior head. **B**. Dorsal habitus. **C**. Lateral habitus. **D**. Lateral metasoma. **E**. Labels.

Platygaster picipes Förster, 1861

Platygaster picipes Förster, 1861: 42.

Material examined

Lectotype
SWITZERLAND • 1 ♂; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005281.

Paralectotypes
SWITZERLAND • 2 ♀♀ (same pin as lectotype); same data as for lectotype; NHMW.

Platygaster splendidula Ruthe, 1859

Platygaster splendidulus Ruthe 1859: 313.
Platygaster hirticornis Förster 1861: 42.
Platygaster lissonotus Förster 1861: 42.

Platygaster hirticornis Förster 1861 – Buhl 1996: 223, figs 7–9.
Platygaster lissonota Förster 1861 – Dalla Torre 1898: 474. — Buhl 1996: 225, figs 13–15.

Material examined

ICELAND • 2 specimens, syntypes of *Pl. splendidulus*; 19 Jun. 1856; [Standinger leg.]; NHMW NHMW-HYM#0005300.

SWITZERLAND • 1 ♂, holotype of *Pl. hirticornis*; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005284 • 1 ♂, lectotype of *Pl. lissonotus*; same data as for preceding; NHMW NHMW-HYM#0005282 • 1 ♂, paralectotype of *Pl. lissonotus*; same data as for preceding; NHMW NHMW-HYM#0005283.

Platygaster subtilis Förster, 1861

Platygaster subtilis Förster, 1861: 42.

Material examined

Lectotype
SWITZERLAND • 1 ♂; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005280.

Platygaster tenuicornis Förster, 1861

Platygaster tenuicornis Förster, 1861: 42.

Material examined

Lectotype
SWITZERLAND • 1 ♂; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005288.

Platygaster tisias Walker, 1835

Platygaster tisias Walker, 1835: 247.
Platygaster siphon Förster, 1841: 46, fig. 24.

Platygaster siphon Förster, 1841 – Buhl 1996: 229, 230, figs 25–27.

Material examined

Lectotype
[GERMANY] • 1 ♀, lectotype of *Pl. siphon*; original exemplar; NHMW NHMW-HYM#0005287.

Platygaster tuberosa Nees, 1834

Platygaster tuberosus Nees, 1834: 303.

Platygaster tuberosa Nees, 1834 – Dalla Torre 1898: 477.

Material examined

[GERMANY] • 2 specimens; [Nees von Esenbeck leg.]; original exemplar; NHMW NHMW-HYM#0005299.

Genus ***Polygnotus*** Förster, 1856 (junior synonym of *Platygaster* Latreille, 1809)

Polygnotus Förster, 1856: 108, 115, 116. Type species *Platygaster striolatus* Nees, 1834 by monotypy and original designation. Junior synonym of *Platygaster* Latreille, 1809 – Fouts 1920: 67.

Remarks

Polygnotus was described as having a wide head with strong sculpture, a cushion-shaped mesoscutellum, and a mesoscutal lamella. It resembles *Isocybus* in size and sculpture, but lacks the tuft of setae on the mesoscutellum. Fouts (1920) considered it a junior synonym of *Platygaster*. The type species is *Platygaster striolata* Nees, 1834, the type specimen of which is unknown. The NHMW includes an original exemplar of *Pl. striolata*, which bears a label consistent with Nees's style, as well as the holotype of *Po. signatus* Förster, 1861. Based on the authenticity of the label, we here designate a neotype for *Platygaster striolata* Nees, 1834.

The NHMW also houses original exemplars of *Platygaster orus* Walker, 1835 (type specimen in NHMUK), which was considered by Förster to belong to *Polygnotus* but was never formally transferred.

Platygaster orus Walker, 1835

Platygaster orus Walker, 1835: 254.

Material examined

[ENGLAND] • 3 specimens; original exemplar; NHMW NHMW-HYM#0005314.

Platygaster signata (Förster, 1861)

Polygnotus signatus Förster, 1861: 41.

Platygaster signatus (Förster, 1861) – Vlug 1973: 178.

Platygaster signata (Förster, 1861) – Vlug 1995: 65.

Material examined

Holotype
SWITZERLAND • ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005301.

Platygaster striolata Nees, 1834
Fig. 17

Platygaster striolatus Nees, 1834: 301.

Polygnotus striolatus (Nees, 1834) – Förster 1856: 116.

Material examined

Neotype (here designated)
[GERMANY] • 1 ♀; [Nees von Esenbeck leg.]; NHMW NHMW-HYM#0005313.

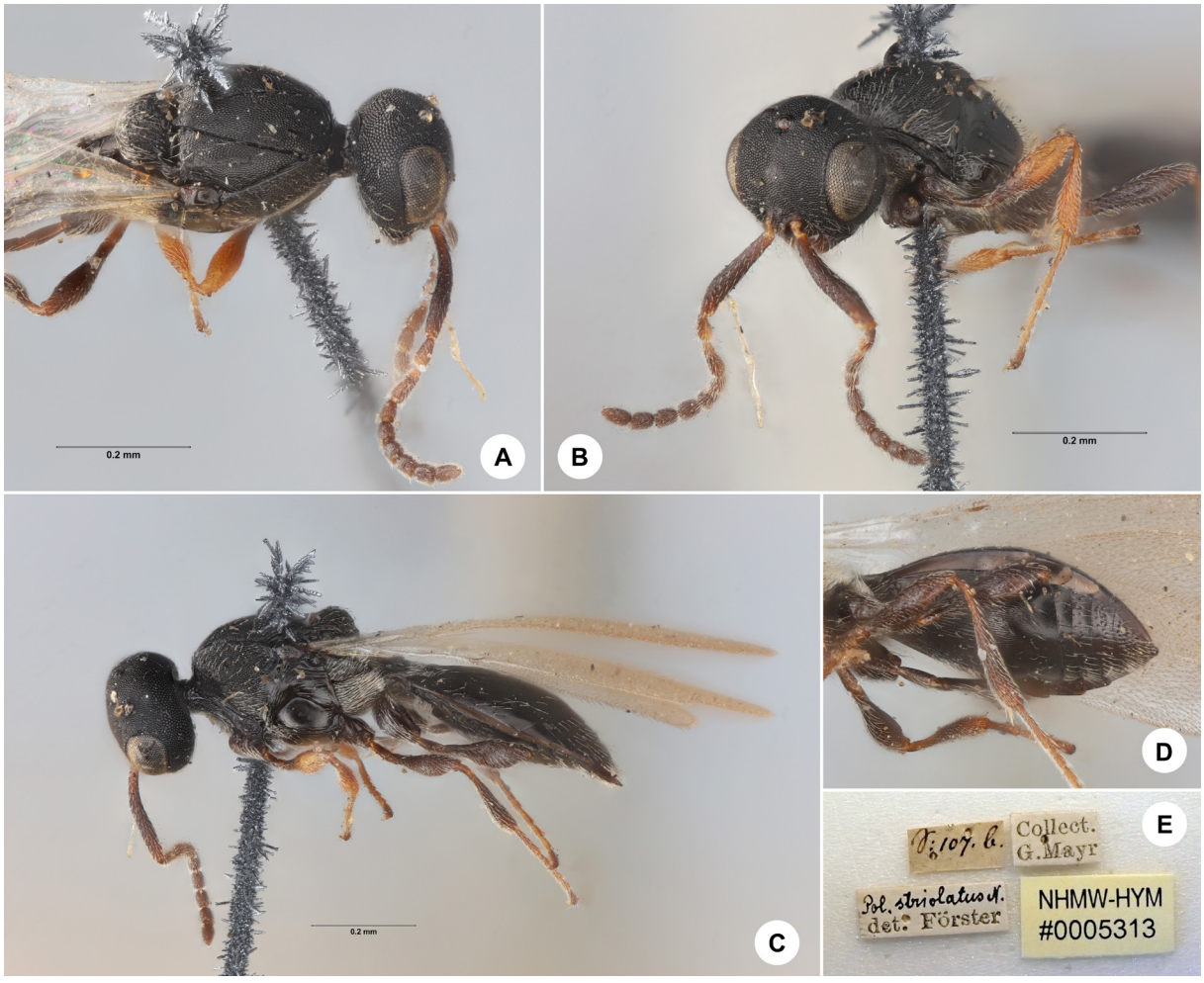

Fig. 17. *Platygaster striolata* Nees, 1834, neotype, ♀ (NHMW-HYM#0005313). **A**. Dorsal mesosoma and dorsolateral head. **B**. Anterolateral head. **C**. Lateral habitus. **D**. Ventral metasoma. **E**. Labels.

Genus ***Sactogaster*** Förster, 1856 (junior synonym of *Synopeas* Förster, 1856)
Figs 18–19

Sactogaster Förster, 1856: 108, 113, 114. Type species *Epimeces ventralis* Westwood, 1833 by subsequent designation by Ashmead 1893: 284. Junior synonym of *Synopeas* Förster 1856 – Kozlov 1978: 657.

Remarks

Sactogaster was clearly a favorite of Förster, as he writes about it quite effusively in *Hymenopterologische Studien* (1856). It is also the only genus in the platygastrid section of this publication to include a key to species and new species names (*Sa. curvicauda*, *Sa. longicauda*, *Sa. pisi*, and *Sa. subaequalis* Förster, 1856). Förster defined *Sactogaster* by the shape of the female metasoma, which has T2 ventrally expanded. *Sactogaster* was synonymized with *Synopeas* by Kozlov (1978) and Buhl (1997) synonymized

Fig. 18. *Synopeas curvicauda* (Förster, 1856), ♀♀. **A**. Lectotype of *Sactogaster curvicauda* (NHMW-HYM#0005303); anterior head. **B**. Lateral habitus. **C**. Dorsal habitus. **D**. Lectotype of *Sactogaster pisi* (NHMW-HYM#0005309); lateral habitus.

Sa. longicauda and *Sa. pisi* with *Sa. curvicauda*. Förster's species of *Sactogaster* are represented by type material in the NHMW, all of which are in relatively good condition.

Ashmead (1893) designated the type species of *Sactogaster* as *Epimeces ventralis* Westwood, 1833. This designation takes precedence over the designation of *Sa. pisi* by Kieffer (1926), which was mistakenly replicated by Vlug (1995).

Synopeas curvicauda (Förster, 1856)
Fig. 18

Sactogaster curvicauda Förster, 1856: 114.
Sactogaster longicauda Förster, 1856: 114.
Sactogaster pisi Förster, 1856: 114.

Synopeas curvicauda (Förster, 1856) – Vlug 1995: 77.
Synopeas longicauda (Förster, 1856) – Buhl 1997: 25.
Synopeas pisi (Förster, 1856) – Buhl 1997: 25.

Material examined

Lectotypes
GERMANY • 1 ♀, lectotype of *Sa. curvicauda*; NHMW NHMW-HYM#0005303 • 1 ♀, lectotype of *Sa. longicauda*; NHMW NHMW-HYM#0005308 • 1 ♀, lectotype of *Sa. pisi*; Krefeld; Winnertz leg.; ex. "Cecidomyia pisi"; NHMW NHMW-HYM#0005309.

Paralectotype
GERMANY • 1 ♀, paralectotype of *Sa. longicauda* (same pin); same data as for lectotype; NHMW.

Synopeas subaequale (Förster, 1856)

Sactogaster subaequalis Förster, 1856: 114.

Synopeas subaequalis (Förster, 1856) – Vlug 1995: 82.

Material examined

Holotype
[GERMANY] • ♀; NHMW NHMW-HYM#0005304.

Synopeas ventrale (Westwood, 1833)
Fig. 19

Epimeces ventralis Westwood, 1833: 421.

Platygaster ventralis (Westwood, 1833) – Walker 1835: 223, 224.
Sactogaster ventralis (Westwood, 1833) – Förster 1856: 114.
Synopeas ventralis (Westwood, 1833) – Kozlov 1978: 658.

Material examined

Holotype
[ENGLAND] • ♀; [near Cambridge]; [Jul. 1833]; OXUM OXUM 0004.

Genus ***Synopeas*** Förster, 1856
Figs 20–21

Synopeas Förster, 1856: 108, 114. Type species *Synopeas inerme* Thomson, 1859 by first subsequent inclusion.

Ectadius Förster, 1856: 108, 113. Type species *Platygaster craterus* Walker, 1835 by monotypy. Junior synonym of *Synopeas* Förster, 1856.

Polymecus Förster, 1856: 144. Unnecessary replacement name for *Ectadius* Förster, 1856.

Sactogaster Förster, 1856: 108, 113, 114 . Type species *Epimeces ventralis* Westwood, 1833 by subsequent designation by Ashmead 1893: 284.

Dolichotrypes Crawford & Bradley, 1911: 124, 125, pl. 8. Type species *Dolichotrypes hopkinsi* Crawford & Bradley, 1911 by monotypy and original desgination.

Stosta Kozlov 1975a: 310–313. Type species *Stosta tosticola* Kozlov, 1975, by monotypy and original designation.

Haustagaster Szabó, 1979: 178, 179; 1981: 285, 286. Type species *Haustagaster compressiventris* Szabó, 1981 by monotypy.

Fig. 19. *Synopeas ventrale* (Westwood, 1833), holotype, ♀ (OXUM 0004).

Ectadius Förster, 1856 – Masner 1965: 140.
Polymecus Förster, 1856 – Masner 1965: 140.
Sactogaster Förster, 1856 – Kozlov 1978: 1200.
Dolichotrypes Crawford & Bradley, 1911 – Masner 1964: 149, 150.
Stosta Kozlov 1975 – Talamas & Buffington 2014: 112, 113, figs 29–32.
Haustagaster Szabó, 1979 – Buhl 2000: 415–419.

Remarks

Förster's description of *Synopeas* is rather minimal, consisting mainly of the mesoscutellum bearing a short wart- or awl-like spine. More recently, Jackson (1969) defined the genus by the fusion of T1 and T2 and the presence of a ventral pronotal pit. Our interpretation of *Synopeas* includes a highly variable shape of the mesoscutellar spine, from almost non-existent to very prominent (Awad *et al.* 2021). The type species of *Synopeas* is *Sy. inerme* Thomson, 1859 (Muesebeck & Walkley 1856). Ashmead (1893; 1903) incorrectly listed *Sy. prospectus* Förster, 1861 and *Sy. melampus* Förster, 1861 as the type species, respectively.

The type specimens of all three Förster species are in the NHMW. The collection also includes an original exemplar of *Platygaster muticus* Nees, 1834, which was transferred to *Synopeas* by Thomson (1859) based on the description. The lectotype of this species is in OXUM, with only the metasoma and legs remaining,

Fig. 20. *Synopeas inerme* Thomson, 1859, lectotype, ♀ (MZLU TYPE 2854:1-2). **A**. Lateral habitus. **B**. Anterodorsal habitus. **C**. Dorsal habitus. **D**. Labels. Images courtesy of Biological Museum, Lund University (MZLU).

and these body parts were the basis for Graham (1988) considering it to be a species of *Platygaster*. The original exemplar in NHMW clearly belongs to *Synopeas*, and is thus of no use in providing additional information about the species. *Platygaster muticus* is essentially a nomen dubium because it cannot be recognized at the species level based on the remaining parts of the type and the original description, but it clearly does not belong in *Synopeas*, where it is currently placed, and we here transfer it to *Platygaster*.

Platygaster mutica Nees, 1834 stat. rev., nomen dubium

Platygaster muticus Nees, 1834: 308, 309.

Synopeas muticus (Nees, 1834) – Thomson 1859: 74.

Material examined

Lectotype
[GERMANY] • 1 specimen; [Nees von Esenbeck leg.]; OXUM.

Other material (not congeneric)
[GERMANY] • 1 specimen; original exemplar; NHMW NHMW-HYM#0005315.

Synopeas inerme Thomson, 1859
Fig. 20

Synopeas inermis Thomson, 1859: 74.

Material examined

Lectotype
[SWEDEN] • 1 ♀; MZLU MZLU TYPE 2854:1-2.

Synopeas melampus Förster 1861

Synopeas melampus Förster, 1861: 41.

Leptacis melampus (Förster, 1861) – Vlug 1973: 177.
Synopeas melampus Förster, 1861 – Buhl 1997: 22, 23, figs 5–8.

Material examined

Lectotype
SWITZERLAND • 1 ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005305.

Synopeas prospectum Förster, 1861
Fig. 21

Synopeas prospectus Förster, 1861: 41.

Material examined

Lectotype
SWITZERLAND • 1 ♀; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005306.

Other material

ITALY • 1 ♀; Monte Argentario, "Plateau Westl. Telegraphenstat."; alt. 600 m.; Moczarski-Scherpeltz leg.; NHMW NHMW-HYM#0005307.

Synopeas rigidicornis Förster, 1861

Synopeas rigidicornis Förster, 1861: 41.

Leptacis rigidicornis (Förster, 1861) – Vlug 1973: 177.
Synopeas rigidicornis Förster, 1861 – Buhl 1997: 24, 25, figs 9–12.

Fig. 21. *Synopeas prospectum* Förster, 1861, lectotype, ♀ (NHMW-HYM#0005306). **A**. Lateral habitus. **B**. Anterolateral head. **C**. Labels.

Material examined

Holotype

SWITZERLAND • ♂; Rosegg-Thal [Roseg Valley]; [Jul. 1861]; [A. Förster leg.]; NHMW NHMW-HYM#0005302.

Genus ***Trichacis*** Förster, 1856

Figs 22–23

Trichacis Förster, 1856: 108, 115. Type species *Trichacis pisis* (Walker, 1835) by subsequent designation by Ashmead 1893: 294.

Trichasis Förster, 1856 – Thomson 1859: 78. — Vlug 1995: 84 (misspelling).

Remarks

Trichacis is characterized by a tuft of setae on the mesoscutellum and a round or ovoid head (as opposed to the blocky head of *Isocybus*). Species of *Trichacis* typically have a smooth or finely sculptured frons with transverse striation or rugulae above the toruli. Upon its description, Förster included *T. didas* (Walker, 1835), *T. pisis* (Walker, 1835), and *T. remulus* (Walker, 1835). *Trichacis pisis* was designated as the type species by Ashmead (1983). The NHMW includes one female original exemplar of *T. tristis*, a species for which there is no known type material. We here designate this specimen (NHMW-HYM#0005319) as the neotype of *Platygaster tristis* Nees, 1834.

Trichacis pisis (Walker, 1835)

Fig. 22

Platygaster pisis Walker, 1835: 239

Trichacis pisis (Walker, 1835) – Förster 1856: 115.

Material examined

Lectotype

[ENGLAND] • 1 ♂; NMINH NMINH_2018_11_24.

Trichacis tristis (Nees, 1834)

Fig. 23

Platygaster tristis Nees, 1834: 302

Trichacis tristis (Nees, 1834) – Kieffer 1926: 712, 713, fig. 293.

Material examined

Neotype (here designated)

[GERMANY] • 1 ♀; original exemplar; NHMW NHMW-HYM#0005319.

Genus ***Xestonotus*** Förster, 1856 (junior synonym of *Leptacis* Förster, 1856)

Xestonotus Förster, 1856: 107, 112. Type species *Xestonotus andriciphilus* Ashmead, 1887 by first subsequent inclusion. Junior synonym of *Leptacis* Förster, 1856 – Ghesquière 1948: 41–44. Preoccupied by *Xestonotus* Leconte, 1853.

Xestonotidea Gahan, 1919: 524. Replacement name for *Xestonotus* Förster, 1856. Wrongly designated type species *Xestonotidea foersteri* Gahan, 1919.

Axestonotus Kieffer, 1926: 625. Replacement name for *Xestonotus* Förster, 1856.

Eoxestonotus Debauche, 1947: 267, 268, figs 11–15. Replacement name for *Xestonotus* Förster, 1856. Wrongly designated type species *Eoxestonotus pini* Debauche, 1947.

Remarks

The taxonomic history of *Xestonotus* is complex. Förster defined it by the nearly parallel notauli and smooth, blunt, relatively elongate mesoscutellum. Because he did not include any species, the type species was *X. andriciphilus* Ashmead, 1887 by first subsequent inclusion. However, Ashmead's description and illustration were incongruous with Förster's concept. Fouts (1924) transferred it to *Platygaster,* despite the fact that the type had already been lost. Ghesquière (1948) synonymized *Xestonotus* with *Leptacis* based on the drawing of *X. andriciphilus* from Ashmead (1893), an opinion seconded by Masner (1964).

Fig. 22. *Trichacis pisis* (Walker, 1835), lectotype, ♂ (NMINH_2018_11_24).

Adding to the confusion, the name *Xestonotus* was preoccupied by a beetle, *Xestonotus* Leconte, 1853. Gahan (1919) proposed the replacement name *Xestonotidea*, but also named a new type species, *Xestonotidea foersteri* Gahan, 1919. This type designation was determined to be invalid (Muesebeck & Walkley 1956) because a replacement name for a genus always retains the original type species. Later suggestions for replacement names were *Axestonotus* Kieffer, 1926 and *Eoxestonotus* Debauche, 1947, but priority makes these invalid. Debauche made the same mistake as Gahan, attempting to designate a new type species along with the replacement name.

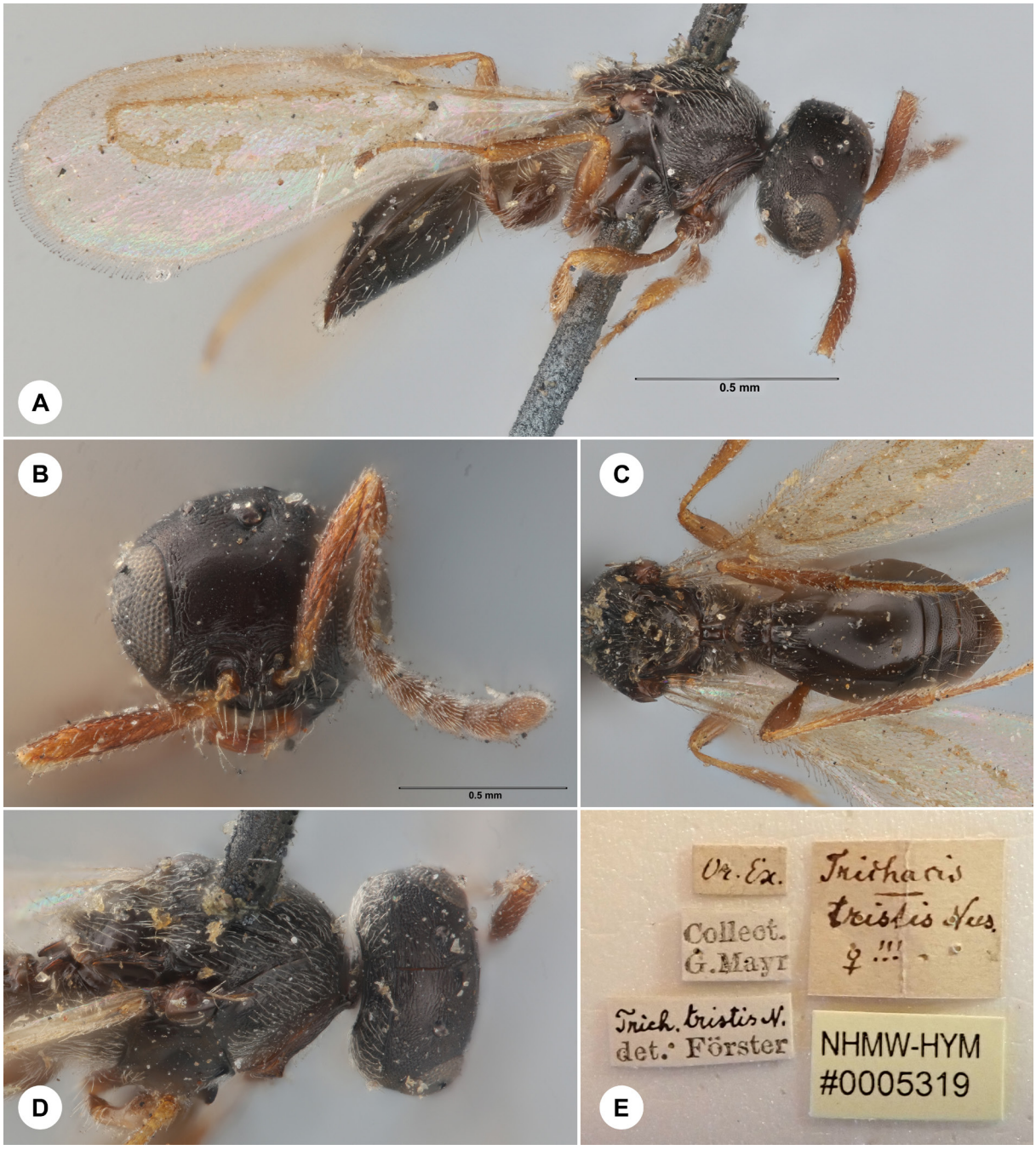

Fig. 23. *Trichacis tristis* (Nees, 1834), neotype, ♀ (NHMW-HYM#0005319). **A**. Lateral habitus. **B**. Anterior head. **C**. Dorsal mesosoma and metasoma. **D**. Dorsal head. **E**. Labels.

Gahan and Debauche both intended to restore Förster's concept of the genus, which was so obviously misinterpreted by Ashmead. However, once the type species was fixed by first subsequent inclusion, the genus was permanently linked to that concept. The only way to restore the concept was to erect a new genus with its own type species, hence *Euxestonotus* Fouts, 1925. The type species is *Platygaster error* Fitch, 1865, which is housed in the USNM. The NHMW has no material of special taxonomic significance to either *Xestonotus* or *Euxestonotus*.

Discussion

This study highlights three issues which are essential to the practice of good taxonomy: designation of type species and type specimens, conservatism in the generation of new names, and strict adherence to the rules of the ICZN. If Förster had designated types for his genera, if Ashmead and Kieffer had been more conservative in their approach to nomenclature, if Gahan and Debauche had obeyed the Code, much confusion would have been avoided. In Förster's defense, few guidelines were available for zoological taxonomists in the early to mid-19th century (Melville 1995). On the other hand, Kieffer did designate type specimens, in a sense, but he did not always label them as such and rarely made note of their institutional location.

Clearing up these taxonomic problems is time-consuming and often involves multilingual detective work. Such obstacles may explain why the present study is the first comprehensive update to Förster's pioneering work on the Platygastridae. The data and commentary here provide easy access to each generic concept and its nomenclatural history, as well as the species described by Förster and some of his contemporaries. These resources will be of use in the development of identification tools and revisionary taxonomic works at the genus and species levels.

Neotypes of *Platygaster forticornis* Nees, 1834, *Platygaster grandis* Nees, 1834, *Platygaster striolatus* Nees, 1834, and *Platygaster tristis* Nees, 1834 are here designated in accordance with Article 75 of the International Code of Zoological Nomenclature. These are some of the earliest described species of Platygastrinae and establishing their identity is essential for taxonomic stability and the treatment of later names. The loss of Nees von Esenbeck's collection is well documented, precluding selection of neotypes from this material (Graham 1988; Horn *et al.* 1990; Vlug 1995). The historical provenance of the original exemplars, accompanied by label data, provides our best evidence for matching specimens with original concepts, and neotype specimens morphologically congruent with the descriptions in Nees (1834). All neotypes are property of the NHMW and are accessible for study.

Much work remains to generate a functional taxonomy for Palearctic Platygastridae. There is a need for a rigorous treatment of the world genera, and many species remain nearly unidentifiable, despite being described somewhat recently. For each genus, a thorough chronological exploration of type specimens will be required to characterize morphology, identify junior synonyms, and develop reliable diagnoses. If types are missing, neotypes must be appropriately designated. Future workers should not be discouraged by these challenges. Although the process can be slow, high-quality taxonomic research is worthwhile, as its products are critical to understanding the diversity of life on our planet.

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Supplementary files

Supp. file 1. English translation of Platygastridae in *Hymenopterologische Studien* by Förster (1856).
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