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DARWIN WASPS (HYMENOPTERA ICHNEUMONIDAE) OF SYRIA: A CHECKLIST WITH ILLUSTRATED TYPES, NOMENCLATURAL ACTS AND REGIONAL FAUNAL ANALYSES

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Monograph

Darwin wasps (Hymenoptera, Ichneumonidae) of Syria: a checklist with illustrated types, nomenclatural acts and regional faunal analyses

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ABSTRACT. The first comprehensive checklist of Darwin wasps (Hymenoptera, Ichneumonidae) from Syria is presented, together with information on their type material. The checklist includes 89 listed taxa, comprising 79 species-level taxa (78 identified species and one unidentified species) and 10 subspecies in 54 genera and 15 subfamilies. The most species-rich subfamilies in the Syrian fauna are Pimplinae Wesmael, 1845 (18 taxa), Cryptinae Kirby, 1837 (16), and Campopleginae Förster, 1869 and Ichneumoninae Latreille, 1802 (9 each). Name-bearing types associated with Syrian taxa are traceable to 25 institutions worldwide, including 22 in Europe, two in Asia, and one in North America. Additional non-type and comparative specimens were examined and illustrated to support taxonomic assessments, while Syrian occurrence records were established independently of non-Syrian comparative material. Type localities and distributional data are provided by biogeographic region and, within Syria, by governorate whenever such information is available. A distribution map for georeferenceable Syrian records is provided. Comparative regional analyses situate Syria within the Middle Eastern ichneumonid fauna, highlighting its moderate recorded richness but also underscoring the incompleteness of current inventories. Two descriptive metrics were developed for these comparisons: recorded richness density per 100,000 km² and the proportional contribution of Syrian to Middle Eastern subfamily richness. In addition, six lectotype designations are proposed, including those of *Collyria nigricator* Aubert, 1964 [=*Aubertiella nigricator*] and *Collyria orientator* Aubert, 1979 (both Collyriinae Cushman, 1924), *Barichneumon syriator* Aubert, 1993 (Ichneumoninae), *Dusona intelligator* Aubert, 1966 (Campopleginae Förster, 1869), *Exetastes segmentarius* Pérez, 1895, and *Lissonota superbator* Aubert, 1967 (both Banchinae Wesmael, 1845). Furthermore, three genera and four species are recorded from Syria for the first time, namely *Agrypon andalusiacum* (Strobl, 1904), *Barylypa delictor* (Thunberg, 1822), *Kokujewiella ibera* (Ceballos, 1957), and *Kokujewiella vicaria* Shestakov, 1926. Molecular data are provided for the four species newly recorded from Syria and additionally for the previously recorded *Diadegma semiclausum* (Hellén, 1949). This checklist establishes a foundation for future faunistic, taxonomic, and molecular research on the Ichneumonidae from Syria, providing an essential baseline for regional and comparative biodiversity studies.

KEYWORDS: Faunistics, Lectotype designation, New records, Taxon richness, Western Asia

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INTRODUCTION

Syria occupies a pivotal position in the Middle East, situated at the eastern margin of the Mediterranean basin and functioning as a terrestrial bridge between Eurasia and Africa (Atallah 1977, 1978). Its location, bordering Türkiye, Iraq, Jordan, Lebanon, Israel-Palestine, and the Mediterranean coast, has generated a marked mosaic of climatic, floristic, and biogeographic conditions across the country. Although most of Syria belongs to the Palaearctic region, the southwestern sector is subject to influences from more southern biotic elements. Consequently, the Syrian landscape integrates Mediterranean, Irano-Turanian, and Saharo-Sindian components, rendering it one of the most biogeographically heterogeneous territories in Western Asia (Atallah 1977, 1978). This environmental complexity suggests that the Syrian hymenopteran fauna includes elements shared with several surrounding biogeographic regions rather than forming a narrowly isolated assemblage (Patiny & Michez 2007; Grace 2010; Shebl et al. 2021).

Darwin wasps (Hymenoptera: Ichneumonidae) represent one of the most species-rich lineages of the tree of life and rank among the largest animal families currently recognised (Townes 1969; Yu et al. 2016; Klopfstein et al. 2019). The family comprises approximately 1,600 genera and more than 26,000 valid described species worldwide, whereas its true diversity is thought to be considerably greater and may exceed 60,000 species, indicating that a substantial proportion of ichneumonid diversity remains undescribed (Townes 1969; Gauld et al. 2002; Yu et al. 2016; Bennett et al. 2019; Meier et al. 2024). Most ichneumonids are parasitoids of other arthropods, especially holometabolous insects, and serve as key ecological regulators of host populations in both natural and managed ecosystems (Gauld 1991; Wahl 1993; Quicke 2015; Broad et al. 2018). Despite this central biological role, the family remains taxonomically understudied relative to its true diversity, a gap that is especially pronounced in regions where collecting and revisionary work have been historically uneven or interrupted (Quicke 2015; Klopfstein et al. 2019).

The Middle East already harbours a substantial documented ichneumonid fauna. The most recent regional synthesis reports 2,358 species and subspecies, representing 475 genera and 35 subfamilies, although this figure is expected to rise with continued faunistic and taxonomic investigation (Ghahari et al. 2026). However, knowledge of ichneumonid diversity across the region remains highly uneven. Iran (e.g., Amiri et al. 2015; Ghafouri Moghaddam et al. 2016; Pourhaji et al. 2016; Mahyabadi et al. 2017; Shirzadegan et al., 2021; Mohebban et al. 2017; Zardouei Heydari et al. 2019, 2020; Mohammadi-Khoramabadi, 2023; Mohammadi-Khoramabadi & Riedel 2020; Bahremand et al. 2022; Karimi et al. 2023; Feizi et al. 2026; Ghahari et al. 2026; Banani Sarvestani et al. 2026) and Türkiye (e.g., Riedel et al. 2014; Yurtcan & Kolarov 2015; Kolarov 2016; Khalaim 2018) have received the greatest taxonomic attention and currently support the richest documented ichneumonid faunas in the Middle East. Elsewhere in the Middle East, taxonomic knowledge of Ichneumonidae varies considerably, ranging from relatively well-documented national faunas to scattered faunistic and taxon-specific records. Israel has a comparatively strong historical baseline, with more than 200 species documented by Aubert et al. (1984) and subsequent additions reported by Broad & Kuslitzky (2019). In Saudi Arabia, targeted taxonomic studies have revealed numerous new records and species (Gadallah et al. 2017), whereas the fauna of Iraq remains less thoroughly documented, with recent surveys continuing to add new country records (Hamad 2025). By contrast, the Syrian fauna remains fragmentary and poorly documented, scattered across isolated publications (Riedel 2015; Ghahari et al. 2026). This disparity is unlikely to reflect true biological poverty, but rather largely reflects unequal collecting intensity, occasional limitations in access to and examination of type material, and the historically uneven development of ichneumonid systematics across Western Asia.

In Syria, biodiversity research has been profoundly shaped by logistical and political constraints. Human activities, prolonged armed conflict, and restricted access to large portions of the country have hindered fieldwork and curtailed opportunities for sustained taxonomic studies. As a consequence, many insect groups remain incompletely documented, with much of the local fauna still known only from old, isolated, or geographically vague records. Nevertheless, recent years have witnessed a gradual increase in hymenopteran records, including several notable additions in parasitoid wasps and related

groups (Basheer et al. 2014; Wood 2020; Youssef & Lotfalizadeh 2021). These incremental contributions demonstrate that knowledge of the Syrian fauna is expanding rapidly at both descriptive and faunistic levels, and they strongly suggest that a substantial undocumented component remains to be discovered.

The known history of Darwin wasp research from Syria is relatively old but highly discontinuous. *Gravenhorstia picta* Boie, 1836 (Anomaloninae Viereck, 1918) was the first species reported from the country by the entomologist Joseph-Étienne Giraud (1857). Subsequent records appeared only sporadically, scattered across the works of Magretti (1890), Dalla Torre (1902), Aubert (1964, 1967, 1978, 1979), Horstmann (1983, 1993, 2010, 2011), Schwarz (1997, 1998, 2004, 2005, 2007, 2015), Riedel (2008, 2015, 2021), Khalaim (2016), and other more recent contributors. Despite these contributions, the data remained fragmented across faunistic notes, taxonomic papers, and regional revisions, without a modern synthesis to consolidate Syrian records, associated type information, and nomenclatural issues into a single critical treatment. This discontinuity has limited the accessibility and comparative utility of Syrian ichneumonid data.

The present study aims to bridge longstanding gaps in knowledge of the Syrian Ichneumonidae fauna by providing a comprehensive checklist-based synthesis, with particular emphasis on taxonomy, nomenclature, type material, and distributional data. Beyond compiling the available literature, this work systematically reviews type information for the taxa involved, documents type localities and depositories, and summarises broader biogeographic distributions. Syrian occurrences are recorded by governorate whenever such data are available, thereby enhancing the spatial resolution of faunistic knowledge. For records derived solely from historical literature and not supported by specimens re-examined in the present study, the original identifications are retained provisionally and should be interpreted with caution pending future verification of the corresponding material. To improve the taxonomic clarity of problematic names, illustrated type material is incorporated, while nomenclatural actions are undertaken to stabilise usage of problematic taxa. By combining faunistic, typological, and nomenclatural information within a single framework, this paper aims to provide a documented baseline for future revisionary, faunistic, ecological, and molecular studies on the Syrian ichneumonid fauna.

More broadly, this contribution intends to situate the Syrian ichneumonid fauna within the wider Middle Eastern context while drawing on both examined specimens and historical literature records. The resulting checklist is conceived not as a terminus, but as a platform for subsequent inquiry, facilitating targeted collecting, future critical re-examination of historical material, integrative species delimitation, and more refined biogeographic analyses. Given the pronounced imbalance between the fragmentary Syrian record and the much richer faunas already documented elsewhere in the Middle East, the need for such work remains both evident and pressing.

MATERIALS AND METHODS

Compilation and validation of records. The present checklist was compiled from published records of Ichneumonidae in Syria and subjected to a critical assessment of taxonomy, nomenclature, and record reliability. The initial step involved a systematic review of the published literature dealing with Syrian Ichneumonidae, mainly the regional dataset of Middle Eastern Darwin wasps (Ghahari et al. 2026). Species status and validity were verified against currently accepted names, and where necessary, taxonomic treatments were revised, for example through lectotype designations. Otherwise, species concepts adopted herein follow the most recent nomenclatural changes (e.g., Schwarz 2004, 2005, 2007, 2015; Riedel 2008, 2015, 2021; Bennett et al. 2019; Ghahari et al. 2026). A comprehensive treatment of all synonyms was not attempted, as such an undertaking would require extensive re-examination of original type material. Accordingly, where the original types of currently accepted species were inaccessible, only a limited set of synonyms was considered, especially those examined directly or deemed relevant to the present taxonomic interpretation. These are discussed in the remarks section. A comprehensive revision of synonymy would require a coordinated, community-wide effort among ichneumonid specialists, involving renewed examination of type material, verification of historical records, and systematic reassessment of regional faunas. In the text, the checklist is arranged alphabetically, first by subfamily, then by genus, and finally by valid species with their original combination(s) listed beneath each.

Specimens examined in addition to name-bearing types are reported under "Other material examined" when they represent non-type material, specimens associated with synonymised names, or other material relevant to the taxonomic or nomenclatural assessment of the species. Where suitable Syrian specimens or images were unavailable, non-Syrian specimens were examined directly for comparative morphological and illustrative purposes. In particular, where access to name-bearing type material deposited in IZU was not possible, specimens from the United Kingdom were examined and illustrated as comparative material for the corresponding taxa. Such specimens are reported separately under "Comparative material examined", as appropriate. Comparative material was used solely to facilitate morphological interpretation, taxonomic comparison, and illustration and was not treated as evidence for the occurrence or distribution of the respective species in Syria. For British comparative material, VC refers to the Watsonian vice-county system used in biological recording in Great Britain, with VC 9 corresponding to Dorset. OSGR denotes an Ordnance Survey Grid Reference within the British National Grid. The two-letter prefixes, such as SU and ST, identify 100 × 100 km National Grid squares, while the following digits specify progressively smaller grid squares within them; for example, SU00 and ST90 represent 10 × 10 km grid squares. Original VC and OSGR information were retained in the material examined to preserve the geographical information associated with the specimen records. For comparative specimens documented through BioImages, voucher identifiers were retained in their original form. Where a collection date is followed by a letter in square brackets, for example 16 Jun. 2020[A] or 3 Aug. 2019[J], the bracketed letter forms part of the BioImages voucher identifier and distinguishes the corresponding specimen or record associated with that date. These letters are not part of the collection date and do not denote specimen sex.

Throughout the text and figure captions, metasomal tergites and sternites are abbreviated as T and S, respectively, followed by a number indicating their sequential position. Thus, T1, T2, T3, etc. refer to the first, second, third, and subsequent metasomal tergites, whereas S1, S2, S3, etc. refer to the corresponding metasomal sternites. The acronyms of the depositories cited in this paper are listed below:

ANSP	Academy of Natural Sciences, Philadelphia, USA
FMNH	Finnish Museum of Natural History, Helsinki, Finland
HNHM	Hungarian Natural History Museum, Budapest, Hungary
ICHUM	Invertebrate Collection of the Hokkaido University Museum, Sapporo, Japan
IZU	Instytut Zoologiczny Uniwersytetu, Wroclaw, Poland (Gravenhorst collection)
LSUK	The Linnean Collections of the Linnean Society, London, UK
MNCN	Museo Nacional de Ciencias Naturales, Madrid, Spain
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MWS	Malcolm William Storey, Private Collection, Wimborne, Dorset, UK
MZL	Musée de Zoologie, Lausanne, Switzerland
MZLU	Lunds universitet, Entomology Collection, Lund, Sweden
NHMAA	The Natural History Museum of Admont Abbey, Admont, Austria
NHMR	Naturhistorisches Museum Rudolstadt, Germany
NHMW	Natural History Museum Vienna, Austria
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
NMP	National Museum, Prague, Czech Republic
OLML	Oberösterreichisches Landesmuseum (now Oberösterreichische Landes-Kultur GmbH), Linz, Austria
OUMNH	The Hope Entomological Collection, Oxford University Museum of Natural History, Oxford, UK
SIZ	Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kyiv, Ukraine
SMNS	State Museum of Natural History Stuttgart, Stuttgart, Germany
UUZM	Museum of Evolution, Uppsala University, Uppsala, Sweden
ZIN	Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia
ZMHUB	Museum für Naturkunde, Leibniz Institute, Berlin, Germany
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark
ZSI	Zoological Survey of India, Kolkata, India
ZSM	Zoologische Staatssammlung, Munich, Germany

Geographical treatment. Type localities are reported as given in the original descriptions or subsequent type-designation sources, while label data are transcribed as accurately as possible from the examined material or available images. For distributional information, reporting is restricted to regions within Syria, rather than providing a complete list of country records for each species, as such a treatment lies beyond the scope of the present paper. Instead, the checklist indicates the broader zoogeographic regions in which each species occurs, based on data from Yu et al. (2016). The following acronyms are used for zoogeographic regions: **AFR** – Afrotropical, **AUS** – Australian, **E-PAL** – Eastern Palaearctic, **NEA** – Nearctic, **NEO** – Neotropical, **OCE** – Oceanian, **OTL** – Oriental, and **W-PAL** – Western Palaearctic. Because historical boundaries differ from those of present-day Syria, records from Hatay were treated separately. Present-day Hatay largely corresponds to the former Sanjak of Alexandretta, which was part of French Mandate Syria before becoming the State of Hatay in 1938 and being incorporated into Türkiye in 1939. Records clearly assignable to present-day Hatay were excluded from the Syrian checklist and listed separately. Historical records reported only as "Syria" were provisionally retained when no evidence allowed assignment to Hatay or another locality outside current Syrian borders; such records were treated as locality-unspecified and excluded from mapping and governorate-level analyses.

Type material and nomenclatural acts. Type material was examined whenever possible. Where direct examination was not feasible, digital images, label data, register information, and original descriptions were used. For taxa with unknown depository information, considerable effort was made to trace the type material. Despite meticulous consultation of the original descriptions and related sources, however, certain type specimens could not be located. Original handwritten labels by the describing authors were treated as strong evidence of type identity, although occasional mislabelling cannot be entirely excluded. Specimens selected as lectotypes were carefully compared with the original descriptions and, when available, with published illustrations. In cases where no holotype was designated in the original description, all specimens of the type series were treated as syntypes, in accordance with Article 73.2 of the International Code of Zoological Nomenclature (ICZN 1999). To our knowledge, no lectotype had previously been designated for these taxa. Under Article 74.1 (ICZN 1999), a lectotype may be designated from the syntype series when necessary to fix objectively the application of a name.

In the present study, lectotypes are designated to stabilise nomenclature, restrict the name-bearing type to a single specimen, and eliminate potential ambiguity arising from heterogeneous or insufficiently documented type series. The selected specimens, bearing original type labels and housed in the respective institutional collections, were examined directly and found to be consistent with the original descriptions and associated data. These designations were made in accordance with Article 74.7 (ICZN 1999), ensuring their validity. The remaining specimens of the original type series are accordingly recognised as paralectotypes. Label data were transcribed following standardised conventions: text on each label is enclosed in single quotation marks (' '); individual lines separated by a slash (/); abbreviations are explained in square brackets []; and notes on size, colour, font, and whether the text is handwritten or printed are provided in parentheses. As many labels are antique, some include Latin abbreviations with the following meanings: auct. = *auctorum* (as used by some authors); leg. = *legit* (collected by); desig. = *designavit* or *designatus* (designated); det. = *determinavit* (identified by); f. = *forma* (form, i.e., a morphological variant); and v. or var. = *varietas* (variety).

Digital imaging. High-resolution images of type specimens were obtained from two principal sources: either through direct requests to collection curators or via access to institutional online portals. Digital images of primary types were captured using the following equipment: Canon® EOS 700D (FMNH); Canon EOS 6D (MZL); Canon EOS R with MP-E 65 lens (MZLU and ZMHUB); Canon EOS 7D (UUZM and ZMUC); a Leica® DFC490 digital camera attached to a Leica Z16 APO stereomicroscope (NHMW); Olympus® DP73 (NMP); and Olympus OM-D E-M1 Mark II (ZSM). Final images were cleaned and standardised in Adobe Photoshop® CC 2026 (v.27.1) (Adobe Inc., San José, CA, USA). Digitised primary types can be accessed through the data portal of the Naturhistoriska Riksmuseet, Stockholm, Sweden (NHRS), by searching the unique specimen or catalogue number (NHRS-HEVA [Hege Vårdal] + 9-digit code): https://www.naturarv.se. Photographs of type specimens deposited in the Linnean

Collections of the Linnean Society, London, United Kingdom (LSUK), were kindly provided by the collections staff, who also granted permission to reproduce the digital images. The Linnean Society online catalogue (https://linnean-online.org/) was likewise consulted as an important source of information. Image courtesy of the Linnean Society of London, licensed under CC BY-NC 4.0. Image rights remain with the respective museums cited in this study, thereby ensuring proper attribution and compliance with institutional policies. Photographs of British comparative specimens supplied by MWS followed a separate macro-imaging protocol. Live-captured specimens were refrigerated for at least 24 hours and then anaesthetised with ethyl acetate vapour, without allowing the liquid to contact the insect. Pollen and other debris were removed where necessary using fine brushes, an air bulb and needles. Before mounting, specimens were gently positioned on glass slides for dorsal views or on Plastazote foam with fine pins for lateral views, with the wings and appendages arranged to expose diagnostic structures. Images were acquired using Canon® EOS digital SLR cameras with macro lenses (principally a Canon® MP-E 65 mm or Tamron 90 mm), or an Olympus® BX53 microscope for higher magnifications, under diffused twin-flash illumination. Automated focal series were captured using a Cognisys StackShot system and combined in Zerene Stacker™ using the PMax method. Composite images underwent white-balance and tonal adjustments, with limited correction of stacking artefacts, in Adobe Photoshop® CS5. Images were linked to individual specimen records in BioImages (www.bioimages.org.uk) (full protocol is in preparation, Storey et al.).

Molecular data. Sequences of the mitochondrial cytochrome *c* oxidase subunit I (*COI*) and the nuclear *internal transcribed spacer 2 (ITS2)* region were retrieved from the Barcode of Life Data Systems (BOLD Systems, https://boldsystems.org/) and the National Center for Biotechnology Information (NCBI) for a few specimens from Syria. The corresponding sequences for newly recorded species from Syria were deposited in GenBank under accession numbers PZ844063–PZ844067.

Regional faunal analyses and graphical visualisation. The distribution map (Fig. 1) was prepared in Adobe Illustrator® 2026 (v.30.0) (Adobe® Inc., San José, CA, USA). The faunal dataset was compiled using Taxapad (Yu et al. 2016), the regional dataset of Middle Eastern Darwin wasps (Ghahari et al. 2026), and original taxonomic and faunistic publications reporting Ichneumonidae from Syria. Where available, original publications and species descriptions were consulted to verify records, nomenclature, and distributional information. Because the dataset is derived from checklist records rather than standardised sampling, all analyses were treated as descriptive faunal summaries, rather than as estimates of true, sampling-corrected diversity. This distinction is critical, as checklist-based and distributional datasets are commonly influenced by uneven collecting effort, taxonomic history, publication intensity, and spatial sampling bias (Gaston 2000; Hortal et al. 2015; Meyer et al. 2015).

For country-level regional comparisons, taxon richness was defined as the total number of recorded species and subspecies, with subspecies treated as separate listed taxa. This definition was applied consistently across all countries included in the regional dataset and in the analyses presented in Figures 2–3. Accordingly, country-level richness values in these analyses represent taxon richness rather than species richness. In contrast, subfamily-level comparisons (Fig. 4) were conducted at the species level, with subspecies not counted as separate units.

Country-level richness was quantified based on the number of recorded Ichneumonidae taxa (species and subspecies) in each Middle Eastern country. Countries were subsequently ranked in descending order according to their documented taxon richness. To assess the degree to which regional records are concentrated among the most species-rich countries, cumulative contribution curves were constructed. These curves depict the proportion of total regional records accounted for by the top-ranked countries. The cumulative contribution of the first *k* ranked countries was calculated as:

$$C_k = \frac{\sum_{i=1}^{k} S_i}{\sum_{i=1}^{n} S_i} \times 100$$

where C_k denotes the cumulative percentage contribution of the first *k* ranked countries, S_i represents the recorded taxon richness of country *i*, and *n* is the total number of countries included in the analysis.

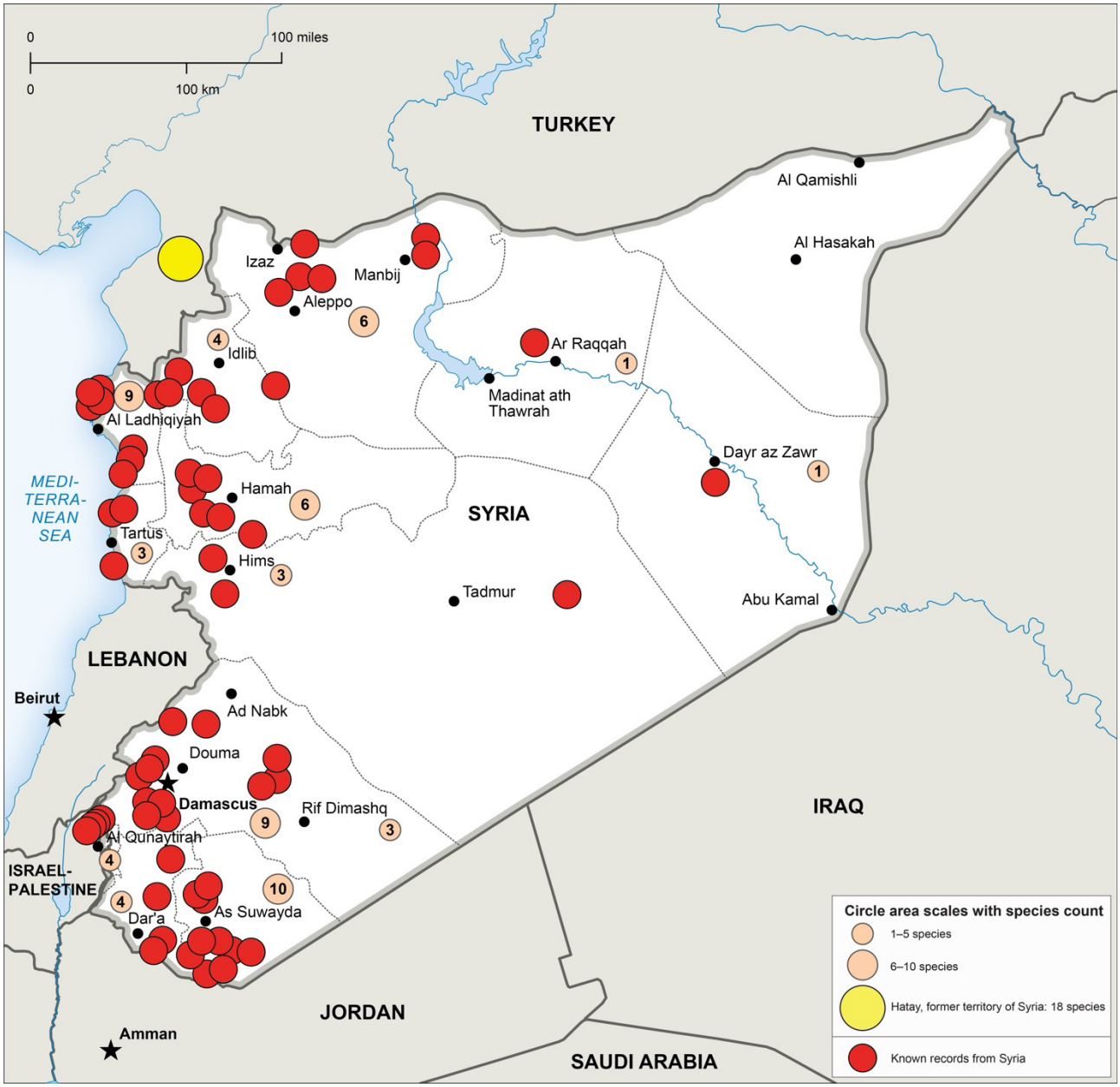


Figure 1. Distribution map of Ichneumonidae Latreille, 1802 taxa reported from Syria. Red circles indicate taxon occurrence records and are shown at a uniform size. The yellow circle denotes records from Hatay province (18 records), a former Syrian territory now within Türkiye. Numbers within the peach-coloured circles indicate the total number of species recorded from each governorate. As multiple taxa share identical or closely adjacent coordinates, some localities overlap spatially; repeated points were therefore slightly offset to improve map readability and visualisation.

This formulation is employed here as a descriptive metric derived from checklist data, rather than as a formalised or named biodiversity index. Conceptually, it follows the logic of ranked cumulative distributions commonly used to visualise patterns of dominance, concentration, and long-tail structure in faunal assemblages and biodiversity datasets (Preston 1962; Gaston 2000). Importantly, the denominator corresponds to the sum of country-level species records, rather than the total number of unique species at the regional scale. This distinction reflects the fact that individual species may be recorded in multiple countries and thus contribute more than once to the aggregated total. The relationship between country area and recorded taxon richness was examined within the classical species-area framework expressed as:

$$S = cA^z$$

where S denotes taxon richness, A represents area, c is a fitted constant, and z is the taxon-area exponent. This model follows the classical species-area relationship proposed by Arrhenius (1921) and widely developed in the biogeographical context by Lomolino (2000). For statistical estimation, the model was linearized through logarithmic transformation and fitted using ordinary least-squares regression:

$$log_{10}(S) = \beta_0 + \beta_1 log_{10}(A) + \varepsilon$$

where S denotes recorded taxon richness, A represents country area (km²), β_0 is the intercept, β_1 is the estimated slope, and ε is the residual error term. In this log-transformed formulation, β_1 provides an estimate of the species-area exponent z. Countries with zero recorded species were excluded from the analysis, as the logarithmic transformation is undefined for zero values. It is important to note that checklist-derived richness is strongly influenced by variation in sampling intensity, taxonomic effort, and publication history across countries. Accordingly, the regression was employed strictly as a comparative descriptive framework, rather than as a causal model of taxon richness. To compare recorded taxon richness relative to country size, a taxon richness density metric was calculated as:

$$D_i = \frac{S_i}{A_i} \times 100.000$$

where $D_i$denotes the recorded taxon richness density of country i, S_i its recorded taxon richness, and A_i its land area (km²). This metric was developed for the present checklist analysis as a simple area-standardised descriptive measure, expressing the number of recorded taxa (species and subspecies) per 100,000 km². Importantly, this measure should not be interpreted as an ecological estimate of species density or true spatial diversity. Small countries may appear disproportionately species-rich when sampling effort is high, whereas large countries may appear artificially species-poor when records are incomplete. This limitation reflects well-documented spatial and sampling biases in biodiversity occurrence data (Hortal et al. 2015; Meyer et al. 2015).

The regional distribution of country-level richness was summarised using violin plots with embedded box plots, and overlaid individual country observations. The box plot component depicts the median and interquartile range in accordance with Tukey's exploratory data analysis framework (Tukey 1977), whereas the violin plot illustrates the smoothed distributional shape of recorded richness, following the box plot-density trace approach of Hintze & Nelson (1998). Syria was highlighted in the comparative figures to indicate its relative position among Middle Eastern countries. Subfamily-level representation was assessed by comparing the number of species recorded from Syria within each subfamily to the total number of species documented for the Middle East in the corresponding subfamily. The proportional contribution of Syrian to regional subfamily richness was calculated as follows:

$$R_j = \frac{S_{SY.j}}{S_{ME.j}} \times 100$$

where R_j denotes the percentage representation of subfamily j in Syria, $S_{SY.j}$ is the number of species recorded from Syria within that subfamily, and $S_{ME.j}$ is the total number of species documented for the Middle East in the same subfamily. This formulation was developed for the present checklist comparison as a descriptive proportional metric. It facilitates the identification of subfamilies that are relatively well represented in the Syrian fauna, as well as those that may remain under-recorded in comparison to the broader regional assemblage. Given the exceptional diversity, taxonomic complexity, and ecological heterogeneity of Ichneumonidae, these subfamily-level comparisons are interpreted as hypothesis-generating summaries rather than substitutes for targeted taxonomic revisions or standardised sampling efforts (Quicke 2015; Broad et al. 2018).

Analyses and figure generation were performed in Python using the libraries pandas (McKinney 2010), NumPy (Harris et al. 2020), SciPy (Virtanen et al. 2020), and Matplotlib (Hunter 2007). Final figure refinement and layout adjustments were performed in Adobe Illustrator 2026 (v.30.0) and Adobe Photoshop CC 2026 (v.27.1).

RESULTS

Checklist composition and scope. A total of 89 listed taxa, comprising 79 species-level taxa (78 identified species and one unidentified species) and 10 subspecies, representing 54 genera in 15 subfamilies, are currently recorded from Syria. In addition, 18 species belonging to 16 genera and 9 subfamilies were documented from Hatay, now within Türkiye; these records are excluded from the Syrian checklist. At the level of the 89 listed taxa, Pimplinae Wesmael, 1845 is the richest subfamily, with 18 taxa (20.2%), followed by Cryptinae Kirby, 1837 with 16 (18.0%); Campopleginae Förster, 1869 and Ichneumoninae Latreille, 1802 with 9 each (10.1%); Anomaloninae Viereck, 1918 and Banchinae Wesmael, 1845 with 8 each (9.0%); Phygadeuontinae Förster, 1869 with 6 (6.7%); Tryphoninae Shuckard, 1840 with 4 (4.5%); Collyriinae Cushman, 1924 with 3 (3.4%); Acaenitinae Förster, 1869 and Metopiinae Förster, 1869 with 2 each (2.2%); and Cremastinae Förster, 1869, Ophioninae Shuckard, 1840, Rhyssinae Morley, 1913, and Tersilochinae Schmiedeknecht, 1910 with 1 each (1.1%) (Table 1). Percentages are rounded to one decimal place and therefore may not sum exactly to 100%. A total of ten subspecies are currently recognised in the Syrian fauna: *Exetastes adpressorius adpressorius* (Thunberg, 1822), *E. adpressorius syriacus* Schmiedeknecht, 1910 [both Banchinae]; *Acroricnus seductor seductor* (Scopoli, 1786), *A. seductor elegans* (Mocsáry, 1883), *A. seductor syriacus* (Mocsáry, 1883), *Meringopus titillator rhodius* (Dalla Torre, 1902), *M. titillator titillator* (Linnaeus, 1758) [all Cryptinae]; *Obtusodonta equitatoria flaviceps* (Tischbein, 1879) [Ichneumoninae]; *Chirotica meridionalis meridionalis* Horstmann, 1983 and *Ch. meridionalis rubida* Horstmann, 1993 [both Phygadeuontinae Förster, 1869]. In addition, 18 species belonging to 16 genera and nine subfamilies are attributable to present-day Hatay. These records, principally reported by Fahringer & Friese (1921), with one additional record from Horstmann (1983), are excluded from the Syrian checklist under the geographical criteria described in Materials and Methods and are treated separately below.

Biogeographic structure. The Syrian ichneumonid fauna is predominantly Palaearctic, with a marked Western Palaearctic component. When subspecies are included, the checklist comprises 89 listed taxa (79 species-level taxa and 10 subspecies). Of these, 24 taxa are confined to the Western Palaearctic, while 39 taxa exhibit a broader Palaearctic distribution spanning both the Eastern and Western subregions (Table 1). Notably, no taxa are recorded exclusively from the Eastern Palaearctic. The remaining 26 taxa extend beyond the Palaearctic into at least one additional biogeographic realm (AFR, AUS, NEA, NEO, OCE, and OTL), indicating a notable degree of faunal connectivity with adjacent regions (Table 1). Accordingly, the most frequent distribution pattern was occurrence in both the Eastern and Western Palaearctic regions (E-PAL + W-PAL = 39 taxa), followed by taxa confined to the Western Palaearctic (W-PAL = 24 taxa) (Table 1). Only two species, *Campoletis chlorideae* Uchida, 1957 and *Diadegma semiclausum* (Hellén, 1949), are also recorded from the Afrotropical region (Table 1). However, given their widespread use and movement as biological-control agents, these records should be interpreted cautiously and do not necessarily indicate native Afrotropical affinities.

Geographic distribution within Syria (Fig. 1)**.** The distribution map incorporates 44 taxa representing 11 subfamilies. A total of 45 taxa could not be plotted because their locality data were insufficiently precise, precluding reliable georeferencing. Recorded occurrences are spatially concentrated in the western and south-western regions of the country. At the species level, the highest number of records is from the governorates of As-Suwayda (10 spp.), followed by Damascus and Latakia (9 spp. each), and Aleppo and Hama (6 spp. each). More limited representation is documented from Idlib, Quneitra, and Daraa (4 spp. each), Homs, Tartus, and Rif Dimashq (3 spp. each), and Raqqa and Deir ez-Zor (1 sp. each) (Fig. 1). The remaining taxa listed above, for which only unspecified Syrian localities are available, further highlight the limitations imposed by sparse locality information on historical specimen labels and, in some cases, incomplete reporting in the associated literature. Based on the number of

governorates in which it is recorded, *Meringopus utibilis* is currently the most widely distributed species in Syria, occurring in six governorates. It is followed by *Pristomerus vulnerator* (three governorates), whereas *Cryptus tuberculatus*, *Gambrus ornatus*, *Hoplocryptus heliophilus, Liotryphon caudatus, Meringopus pseudonymus,* and *Trichomma enecator* are each recorded from two governorates. Finally, a separate point representing Hatay summarises 18 species from the former Syrian territory; this is intentionally treated as distinct from present-day Syria in the spatial analysis.

Comparative regional faunal patterns (Figs 2–4)**.** The species-area relationship across the Middle East reveals a broadly positive association between country area and recorded taxon richness; larger countries tend to have more recorded species (slope = 0.430). Only about 14.8% of the variation in recorded taxon richness is explained by country area (R^2 = 0.148). However, this relationship is weak and disproportionately affected by a small number of countries with exceptionally well-developed inventories. In particular, Iran and Türkiye support by far the largest recorded faunas, whereas Syria occupies an intermediate-to-upper position within the regional spectrum with 89 recorded taxa. Notably, Syria plots above the fitted regression line, indicating that its observed richness exceeds the value predicted solely on the basis of area under the log-log model. Countries lacking records, such as Bahrain and Qatar, were excluded from the regression due to constraints of logarithmic transformation, yet they remain informative indicators of substantial gaps in regional inventory coverage (Fig. 2A). The ranked richness profile is highly uneven and strongly right-skewed. Iran (1,692 recorded species) and Türkiye (1,374 recorded species) dominate the dataset and together account for 79.6% of the cumulative country-level record total. Expanding to the five most species-rich countries —Iran, Türkiye, Israel-Palestine, Egypt, and Syria— captures 93.2% of the total. Within this framework, Syria ranks fifth among the 16 countries considered, exceeding Cyprus, Jordan, Saudi Arabia, Lebanon, Iraq, Yemen, Oman, the United Arab Emirates, Kuwait, Qatar, and Bahrain (Fig. 2B).

The regional distribution of country-level richness is strongly right-skewed and uneven, with a broad lower end, a narrowing central portion, and a slight widening toward the upper range (Fig. 3A). The median richness is 36 recorded species, with an interquartile range of 4.75–105.50, reflecting substantial heterogeneity among countries. With the value of 89 used for Syria in the regional dataset, Syria lies above the regional median and exceeds 68.75% of the countries included in the dataset. Nevertheless, it remains far below the two dominant regional outliers, Iran and Türkiye, whose exceptionally large inventories substantially inflate the mean richness value and accentuate the skewness of the distribution (Fig. 3A). When standardised by area, Syria exhibits a taxon richness density of 48.06 species per 100,000 km², ranking seventh among the 16 countries considered (Fig. 3B). The highest taxon richness densities are observed in comparatively small geographic units, including Israel-Palestine, Cyprus, and Lebanon, where limited land area amplifies species-per-area values. In contrast, large countries with very high absolute richness, most notably Iran and Türkiye, rank lower in terms of richness, as their extensive land areas reduce the proportional species-per-area metric (Fig. 3B).

The Syrian checklist encompasses species belonging to 15 subfamilies, whereas the Middle Eastern fauna as a whole comprises 35 subfamilies, 475 genera, and 2,358 species. Within Syria, the most species-rich subfamilies are Pimplinae (18 species), Cryptinae (11 species), Campopleginae (9 species), Ichneumoninae (8 species), Anomaloninae (8 species), and Banchinae (6 species) (Fig. 4A). At the regional scale, however, subfamily diversity is dominated by Ichneumoninae (431 species), followed by Campopleginae (311 species), Cryptinae (213 species), Phygadeuontinae (186 species), Tryphoninae Shuckard, 1840 (150 species), Banchinae (139 species), Ctenopelmatinae Förster, 1869 (135 species), and Pimplinae (128 species), indicating a markedly different distribution of diversity between the Syrian fauna and the broader Middle Eastern assemblage (Fig. 4A). When expressed as proportional representation, Syria contributes most strongly to Collyriinae Cushman, 1924 (3 of 6 Middle Eastern species; 50.0%), followed by Rhyssinae Morley, 1913 (1 of 6; 16.7%), Pimplinae (18 of 128; 14.1%), Anomaloninae (8 of 69; 11.6%), and Acaenitinae Förster, 1869 (2 of 20; 10.0%) (Fig. 4B). In contrast, Syria contributes only marginally to several of the most species-rich subfamilies in the region, including Ichneumoninae (8 of 431; 1.9%), Campopleginae (9 of 311; 2.9%), Cryptinae (11 of 213; 5.2%), and Phygadeuontinae (4 of 186; 2.2%) (Fig. 4B).

Table 1. Summary statistics and principal biogeographic features of the Darwin wasp checklist of Syria, including checklist composition, biogeographic affinities, type-material coverage, and institutional distribution of name-bearing types associated with taxa recorded from Syria. The total of 89 listed taxa comprises 79 species-level taxa (78 identified species plus one unidentified species) and 10 subspecies.

Section	Metric	Value / taxa
Checklist composition	Syria	15 subfamilies; 54 genera; 79 species-level taxa (78 identified species + 1 unidentified species); 10 subspecies; 89 listed taxa; 5 taxa with molecular data
	Historical records from Hatay (present-day Türkiye)	9 subfamilies; 16 genera; 18 species; 0 subspecies; 18 listed taxa; all excluded from the main Syrian checklist.
	Recognised subspecies from Syria	10 subspecies: *Exetastes adpressorius adpressorius* and *E. adpressorius syriacus; Acroricnus seductor seductor, A. seductor elegans,* and *A. seductor syriacus; Meringopus titillator rhodius* and *M. titillator titillator; Obtusodonta equitatoria flaviceps;* and *Chirotica meridionalis meridionalis* and *Ch. meridionalis rubida*
Biogeographic structure	W-PAL only	24 taxa; confined to the Western Palaearctic.
	E-PAL + W-PAL only	39 taxa; exact combined Eastern and Western Palaearctic distribution pattern.
	E-PAL only	0 taxa; no taxon is recorded exclusively from the Eastern Palaearctic.
	Beyond the Palaearctic	26 taxa; taxa extending into AFR, AUS, NEA, NEO, OCE, and/or OTL.
	Afrotropical-associated taxa	*Campoletis chlorideae; Diadegma semiclausum*
	Most frequent exact world-distribution patterns	E-PAL, W-PAL (39); W-PAL (24); E-PAL, NEA, W-PAL (8); E-PAL, NEA, OTL, W-PAL (5); E-PAL, OTL, W-PAL (5)
Taxonomic concentration	Richest Syrian subfamilies	Pimplinae 18 (20.2%); Cryptinae 16 (18.0%); Campopleginae 9 (10.1%); Ichneumoninae 9 (10.1%); Anomaloninae 8 (9.0%); Banchinae 8 (9.0%); Phygadeuontinae 6 (6.7%); Tryphoninae 4 (4.5%); Collyriinae 3 (3.4%); Acaenitinae 2 (2.2%); Metopiinae 2 (2.2%); Cremastinae 1 (1.1%); Ophioninae 1 (1.1%); Rhyssinae 1 (1.1%); Tersilochinae 1 (1.1%). Percentages are rounded to one decimal place.
	Richest Syrian genera	*Cryptus* (5 spp.); *Itoplectis*, *Meringopus*, and *Pimpla* (4 spp. each); and *Acroricnus*, *Bathyplectes*, *Campoletis*, and *Exetastes* (3 spp. each)
Geographical concentration	Most represented governorates (species-level records)	As-Suwayda (10 spp.); Damascus and Latakia (9 spp. each); Aleppo and Hama (6 spp. each). Recorded occurrences are concentrated in western and south-western Syria.
	Taxa known only from unspecified Syrian localities	45 taxa
Molecular data	Taxa from Syria with molecular data	*Agrypon andalusiacum; Barylypa delictor; Kokujewiella ibera* and *K. vicaria;* and *Diadegma semiclausum*
New records for Syria	New genera and species	3 genera; 4 species; *Agrypon andalusiacum*; *Barylypa delictor*; *Kokujewiella ibera* and *K. vicaria*
Type material access	Image-documented types	40 types photographed or otherwise documented from available images.
	Inaccessible type series	18; 12 in IZU, 4 in HNHM, and 2 in SIZ.
	Depository unknown	17 taxa from Syria; applies to taxa recorded from Syria in the present dataset.
Institutions holding name-bearing types	Total institutions	25 institutions; Institutions housing name-bearing types of taxa recorded from Syria, not necessarily types originating from Syria.
	Europe	22 institutions: FMNH; HNHM; IZU; LSUK; MNCN; MNHN; MZL; MZLU; NHMAA; NHMR; NHMW; NHRS; NMP; OLML; OUMNH; SIZ; SMNS; UUZM; ZIN; ZMHUB; ZMUC; ZSM.
	Asia	2 institutions: ICHUM; ZSI.
	North America	1 institution: ANSP.

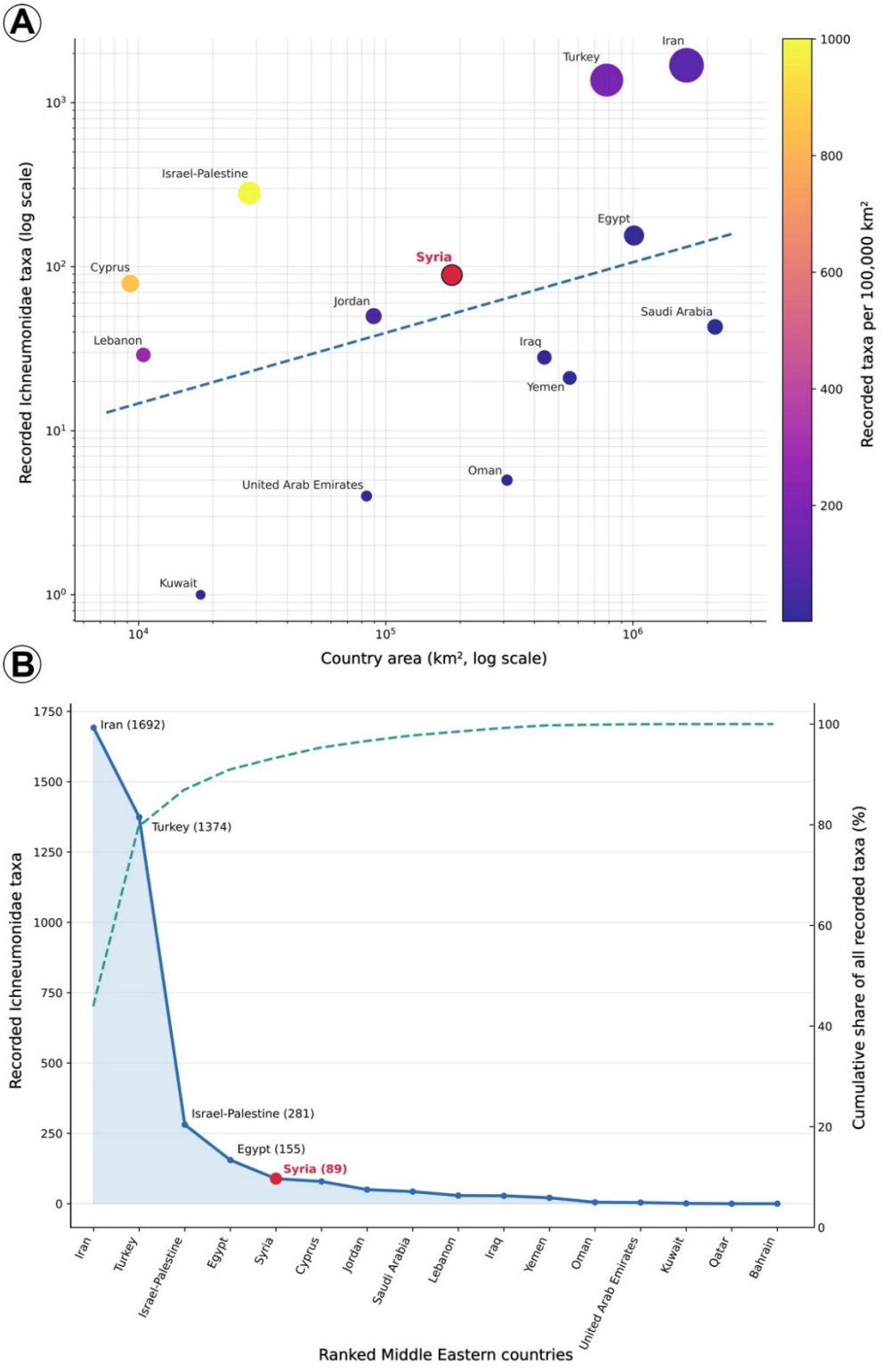


Figure 2. Country-level richness patterns of Ichneumonidae Latreille, 1802 across the Middle East. **A.** Taxon-area relationship for Middle Eastern countries. Bubble size is proportional to recorded taxon richness. Point colour represents taxon richness density (recorded taxa per 100,000 km²). Syria is highlighted to illustrate its position relative to the regional species–area trend. The dashed line represents the ordinary least-squares regression, indicating a positive but weak relationship between country area and recorded taxon richness (slope = 0.430, R^2 = 0.148, P = 0.174). All non-zero country records are labelled; **B.** Ranked richness profile of Ichneumonidae across Middle Eastern and adjacent countries. Countries are arranged from highest to lowest recorded taxon richness. The solid curve and shaded area illustrate the decline in recorded richness with rank, whereas the dashed curve represents the cumulative percentage contribution to the regional total. The five most species-rich countries account for 93.2% of all recorded country-level occurrences in the dataset.

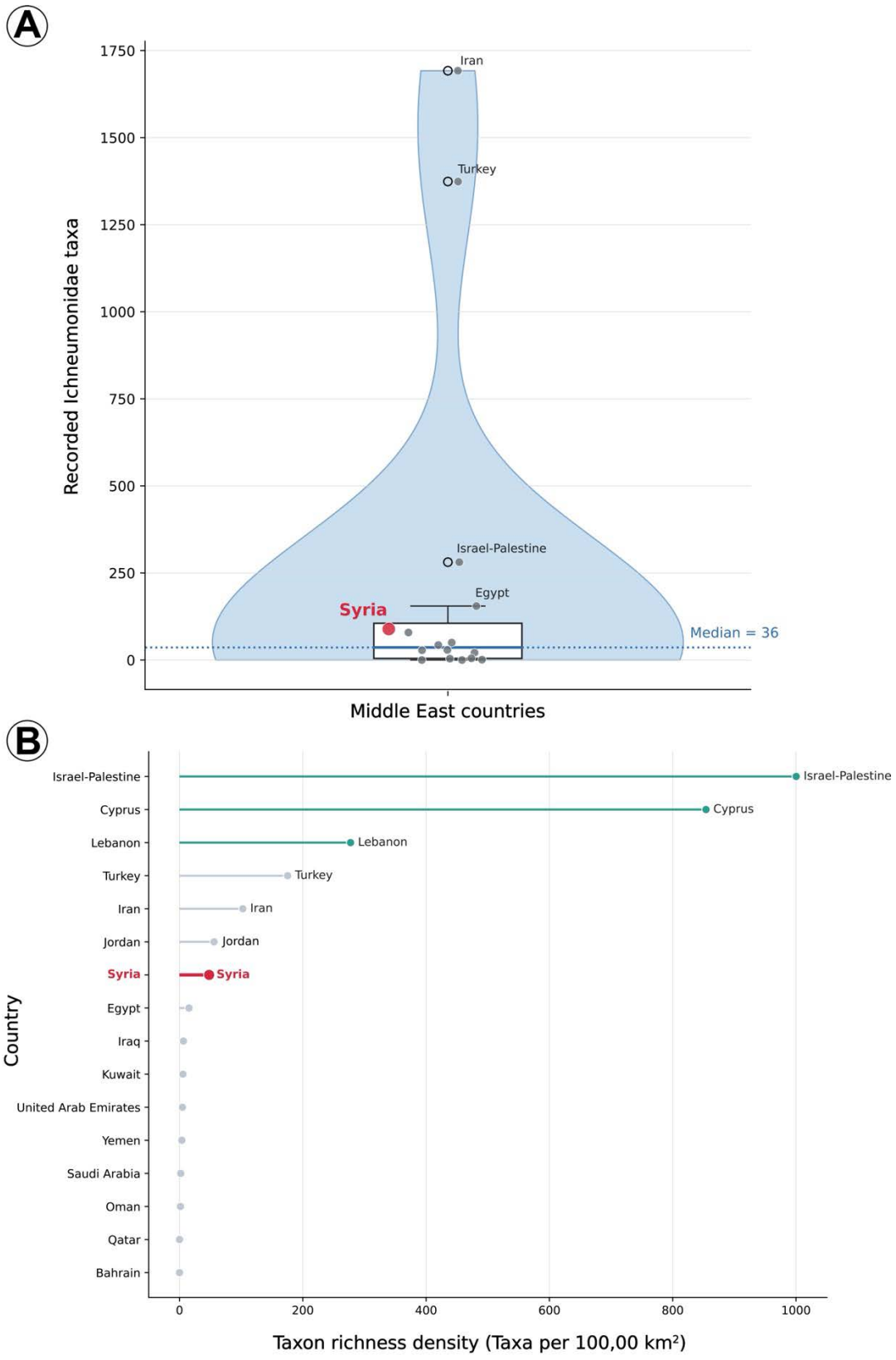


Figure 3. Regional position of Syria based on country-level taxon richness and taxon richness density of Ichneumonidae Latreille, 1802 in the Middle East. **A.** Distribution of country-level Ichneumonidae richness across Middle Eastern countries presented as a violin plot, illustrating the overall distributional pattern, with an embedded box plot indicating the median and interquartile range; each point represents an individual country. Syria is highlighted in red to show its position within the regional richness distribution; **B.** Country-level richness density of Ichneumonidae records in the Middle East presented as a lollipop plot ranking countries by taxon richness density. Syria is highlighted in red to illustrate its relative position within the regional density gradient.

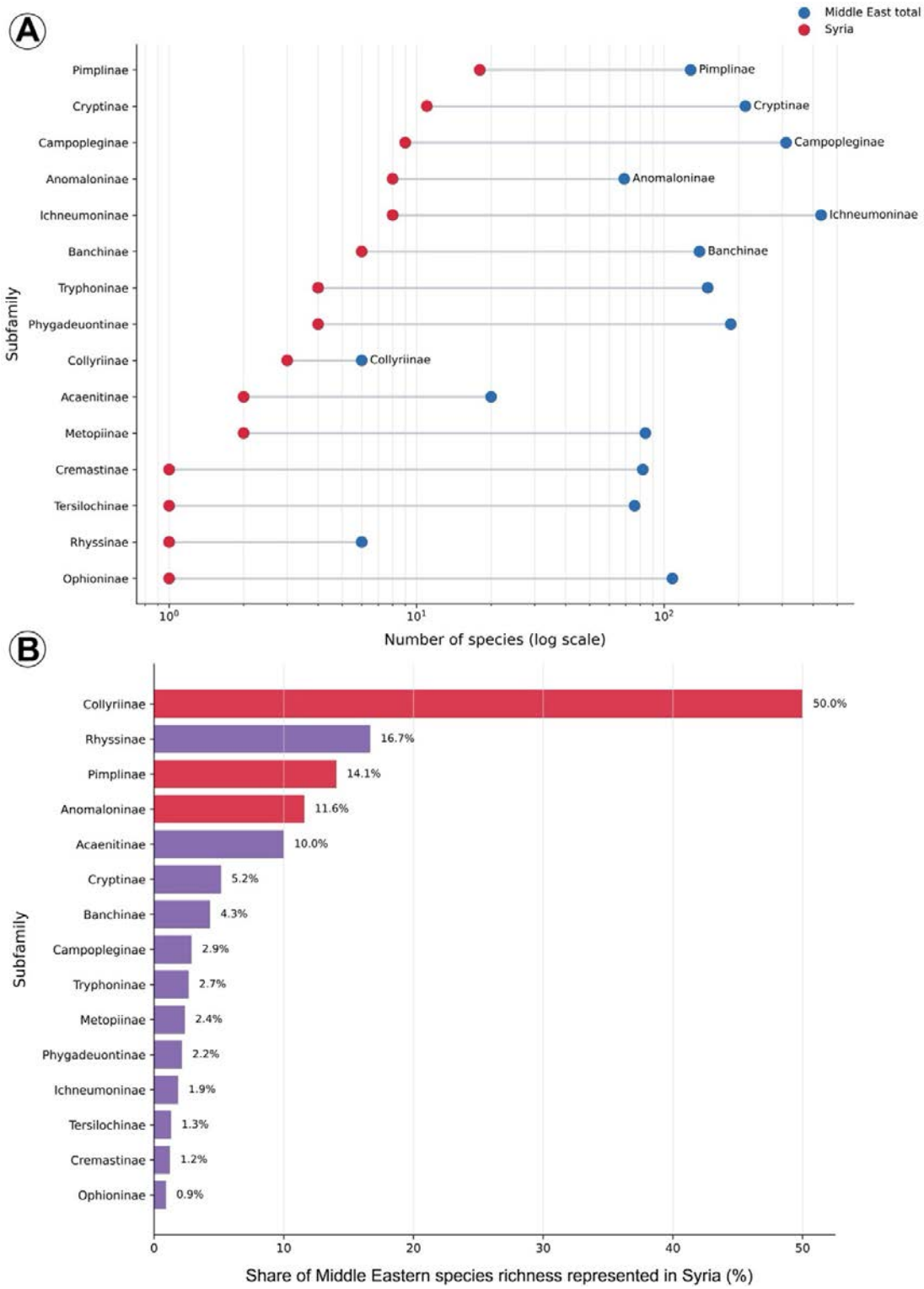


Figure 4. Subfamily-level representation of the Syrian Ichneumonidae Latreille, 1802 fauna relative to the Middle East. **A.** Comparison of taxon richness at the subfamily level between Syria and the Middle East. Each line connects the number of species recorded from Syria within a given subfamily to the total number of species recorded for the same subfamily across the Middle East. Line length reflects the disparity in taxon richness per subfamily, with shorter lines indicating more complete representation and longer lines highlighting substantial underrepresentation of Syrian fauna relative to the regional pool. Only subfamilies represented in the Syrian checklist are included. **B.** Percentage contribution of Syrian records to the total Middle Eastern taxon richness for each subfamily represented in the Syrian checklist. Longer bars indicate higher completeness, whereas shorter bars highlight substantial gaps in subfamily-level representation. In red bars subfamilies in which the Syrian fauna is comparatively well represented within the regional dataset.

Taxonomic and nomenclatural outcomes. Three genera and four species are reported from Syria for the first time: *Agrypon andalusiacum* (Strobl, 1904), *Barylypa delictor* (Thunberg, 1822), *Kokujewiella ibera* (Ceballos, 1957), and *Kokujewiella vicaria* Shestakov, 1926. Molecular data are provided for the four species newly recorded from Syria, as well as for the previously recorded *Diadegma semiclausum*. Six lectotypes are designated herein to objectively fix the identity of the relevant taxa and thereby stabilise their nomenclature: *Collyria nigricator* Aubert, 1964 [=*Aubertiella nigricator* (Aubert, 1964)] and *Collyria orientator* Aubert, 1979 (both Collyriinae), *Barichneumon syriator* Aubert, 1993 (Ichneumoninae), *Dusona intelligator* Aubert, 1966 (Campopleginae), *Exetastes segmentarius* Pérez, 1895, and *Lissonota superbator* Aubert, 1967 (both Banchinae).

Type-material coverage. Re-examination of 18 type series relevant to the Syrian fauna was not possible across three major collections, 12 in IZU (Wrocław), 4 in HNHM (Budapest), and 2 in SIZ (Kyiv), owing to either lack of physical access or the absence of digital imagery. In addition, the depository of 17 taxa included in the present dataset remains unknown. By contrast, detailed label data were available for 40 taxa, and type condition could be assessed for 38 specimens, most of which were found to be in good to very good condition and retaining the diagnostic characters necessary for reliable taxonomic evaluation. In total, 40 types were photographed or otherwise documented based on available images, whereas additional taxa could only be assessed from published sources or remained inaccessible. A broader limitation concerns the uncertain depository status of many ichneumonid types described by Gravenhorst (ca. 669 specimens) historically associated with IZU, which remain difficult to trace (Yu et al. 2016) and could not be re-examined in this study. Nevertheless, images of some Gravenhorst-type material were obtained from the ANSP and ICHUM collections.

CHECKLIST OF RECORDED ICHNEUMONIDAE SPECIES FROM SYRIA

Class Insecta Linnaeus, 1758

Order Hymenoptera Linnaeus, 1758

Family Ichneumonidae Latreille, 1802

Subfamily Acaenitinae Förster, 1869

Genus *Phaenolobus* Förster, 1869

Phaenolobus fulvicornis (Gravenhorst, 1829)

Acoenites fulvicornis Gravenhorst, 1829a:809–810.

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Ghouta and Damascus governorates (Kolarov et al. 2024).

World distribution. E-PAL, W-PAL.

Phaenolobus saltans (Gravenhorst, 1829)

Acoenites saltans Gravenhorst, 1829a:806.

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Unknown locality (Kolarov et al. 2002).

World distribution. E-PAL, W-PAL.

Subfamily Anomaloninae Viereck, 1918

Genus *Agrypon* Förster, 1860

Agrypon andalusiacum (Strobl, 1904)

Anomalon andalusiacum Strobl, 1904:56.

[Fig. 5]

Type material. **Lectotype** (designated by Schnee 2014): SPAIN • ♀; Xàtiva; NHMAA.

Other material examined. SYRIA – Idlib Governorate • 1 ♂; Jisr al-Shughur; 11 May 1996; det. Heinz Schnee; Eastern Mediterranean conifer-broadleaf forest ecoregion; BOLD BIN: BOLD:ADL0877; GenBank accession: PZ844066 (*COI*); ZSM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Jisr al-Shughur (Idlib governorate) (new record).

World distribution. W-PAL.

Remark. Both the genus and the species are recorded from Syria for the first time.

***COI* barcode.** The specimen from Syria corresponds to BIN BOLD:ADL0877 in BOLD. Its nearest-neighbour distance is 5.18% to BOLD:AFE4751, representing *Agrypon* from Mongolia.

CAGGAATAATTGGTTCCTCTATAAGAATAATTATTCGTTTAGAATTAGGTAATCCTGGATATTTAATTAATAATGATCAA
ATCTATAACTCAATAGTTACATCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATTGGTGGATTTGGAA
ATTGACTAATTCCTTTAATATTAGGAGCTCCTGATATAGCATTCCCCCGTATAAATAACATAAGATTTTGATTATTACCAC
CATCAATTACATTATTAATCTTTAGAAATTTATTAAATCAAGGAGTTGGAACTGGATGAACAGTATACCCACCTTTATCT
CTAAATTTAAGACATGAAGGAATAGCTGTTGATCAATCTATTTTTTCTTTACATATAACTGGGATATCCTCTATTATAGGA
GCAGTTAATTTTATTTCTACAATCATTAATATAAAAAACTTAAACTCTTCCTTTGATCAATTAACTTTATTTACTTGATCAA
TCAAAATTACAACTATTTTACTATTATTAGCAGTTCCTGTTCTTGCTGGAGCAATTACTATAATTCTAACAGACCGAAATT
TAAATACTTCTTTT

Genus *Anomalon* Panzer, 1804

Anomalon cruentatum (Geoffroy, 1785)

Ichneumon cruentatus Geoffroy, 1785:418.

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Latakia governorate (Youssef & Lotfalizadeh 2021).

World distribution. E-PAL, OTL, W-PAL.

Genus *Barylypa* Förster, 1869

Barylypa delictor (Thunberg, 1822)

Ichneumon delictor Thunberg, 1822:265.

[Fig. 6]

Type material. **Lectotype** (designated by Viktorov & Atanasov 1974): SWEDEN • ♀; UUZM.

Other material examined. SYRIA – Suwayda Governorate • 1 ♂; Salkhad; 17 May 1996; det. Heinz Schnee; Syrian Xeric Grasslands and Shrublands ecoregion; BOLD BIN: BOLD:ADL2322; GenBank accession: PZ844065 (*COI*); ZSM.

Label data of type. Not examined firsthand.

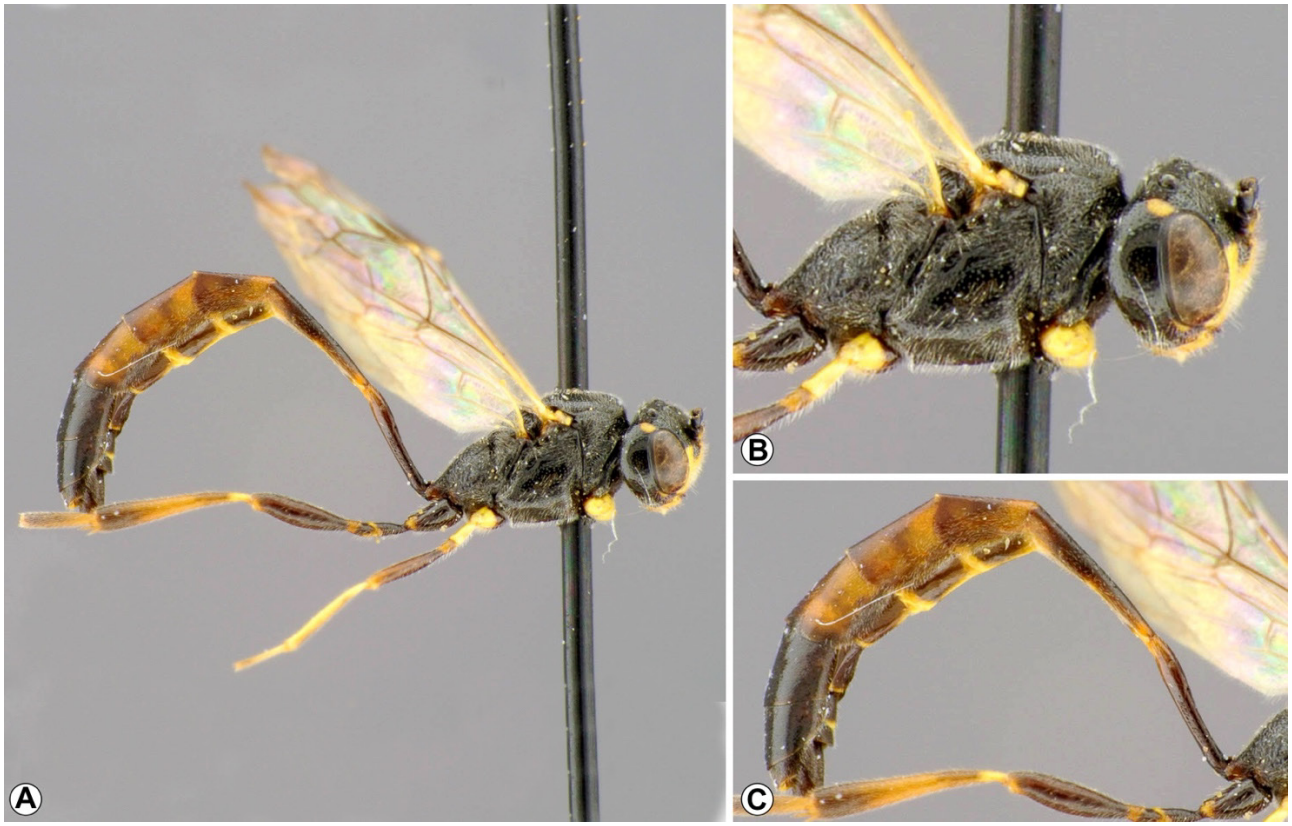


Figure 5. *Agrypon andalusiacum* (Strobl, 1904), non-type male from Syria (ZSM; BOLD:ADL0877). **A.** Habitus, lateral view; **B.** Head and mesosoma, lateral view; **C.** Metasoma, lateral view. Body length: 7.8 mm.

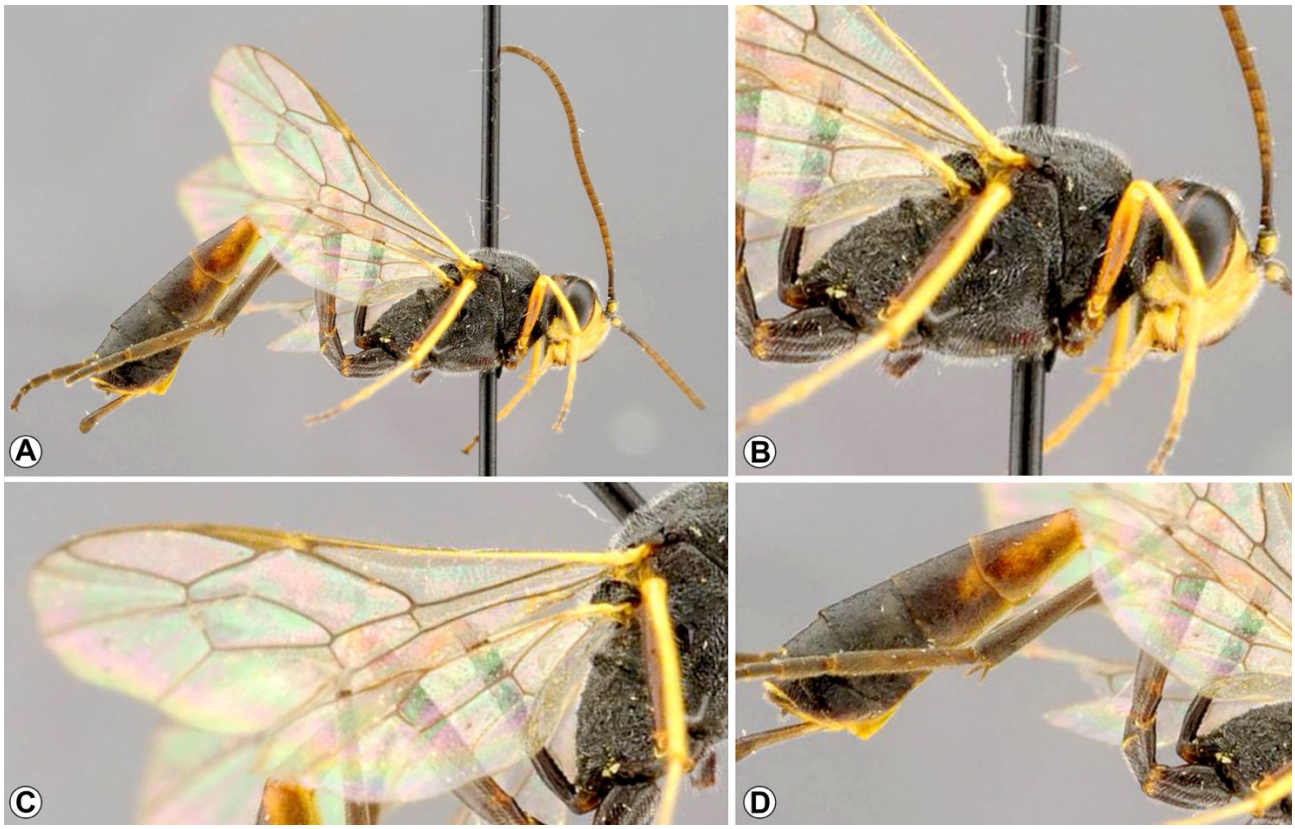


Figure 6. *Barylypa delictor* (Thunberg, 1822), non-type male from Syria (ZSM; BOLD:ADL2322). **A.** Habitus, lateral view; **B.** Head and mesosoma, lateral view; **C.** Wings; **D.** Metasoma, lateral view. Body length: 17.4 mm.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Salkhad (Suwayda governorate) (new record).

World distribution. E-PAL, W-PAL.

Remark. Both the genus and the species are recorded from Syria for the first time.

***COI* barcode.** The specimen from Syria corresponds to BIN BOLD:ADL2322 in BOLD. Its nearest-neighbour distance is 2.71% to BOLD:ADP0736; representing *Barylypa delictor* from Jordan.

CATTCGATTGGAGCTAGGAAATCCAGGCTATTTAATTAATAATGATCAAATTTACAATTCAATAGTAACTTCCCACGCTT
TTATTATAATCTTTTTTATAGTAATACCAATTATAATTGGTGGATTTGGAAATTGATTAATTCCATTAATACTAGGAGCTC
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ACTTAATCAAGGAGTTGGTACAGGCTGAACTGTATACCCCCCATTATCATTAAATATTAGACATGAAGGAATAGCTGTT
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GGTTCCTGTATTAGCAGGTGCAATTACTATAATTTTAACAGATCGAAATTTAAATACCTCATTTTTT

Genus *Erigorgus* Förster, 1869

Erigorgus fibulator (Gravenhorst, 1829)

Anomalon fibulator Gravenhorst, 1829a:681.

Type material. **Lectotype** (designated by Schnee 1989): GERMANY • ♂; ZMHUB.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Al-Haijaneh and Damascus governorates (Kolarov et al. 2024).

World distribution. E-PAL, W-PAL.

Genus *Gravenhorstia* Boie, 1836

Gravenhorstia picta Boie, 1836

Gravenhorstia picta Boie [in Drewsen & Boie],1836:42.

[Fig. 7]

Type material. **Lectotype** (designated by Schnee 1993): GERMANY • ♂; Kiel; NHRS.

Label data of type. Labels (in order): (1) 'Kiel' (small, rectangular, handwritten); (2) 'Boie' (small, rectangular, handwritten); (3) 'Cotype' (small, rectangular, handwritten); (4) '*Gravenhorstia* Boie / *picta* Boie / e[x]. pup. [pupa] *G.* (*Gelechia*) *trifolii*' (large, rectangular, handwritten); (5), 'Lectotypus / *Gravenhorstia* /*picta* Boie / Schnee 1977' (medium-sized, rectangular, red-bordered; first line printed, remaining lines handwritten); (6), '182 / 26' (square, light red; first line printed, second handwritten); (7) 'NHRS-HEVA / 000012615' (medium-sized, rectangular, printed).

Type condition. Specimen pinned and in good condition; wings dusty; left mid leg with the distal half of the femur broken; left hind leg with only the first tarsomere present.

Distribution in Syria. Unknown locality (Giraud 1857).

World distribution. E-PAL, W-PAL.

Genus *Kokujewiella* Shestakov, 1926

Kokujewiella ibera (Ceballos, 1957)

Nenethes ibera Ceballos, 1957:9.

[Fig. 8]

Type material. **Syntype**: SPAIN • ♂; MNCN.

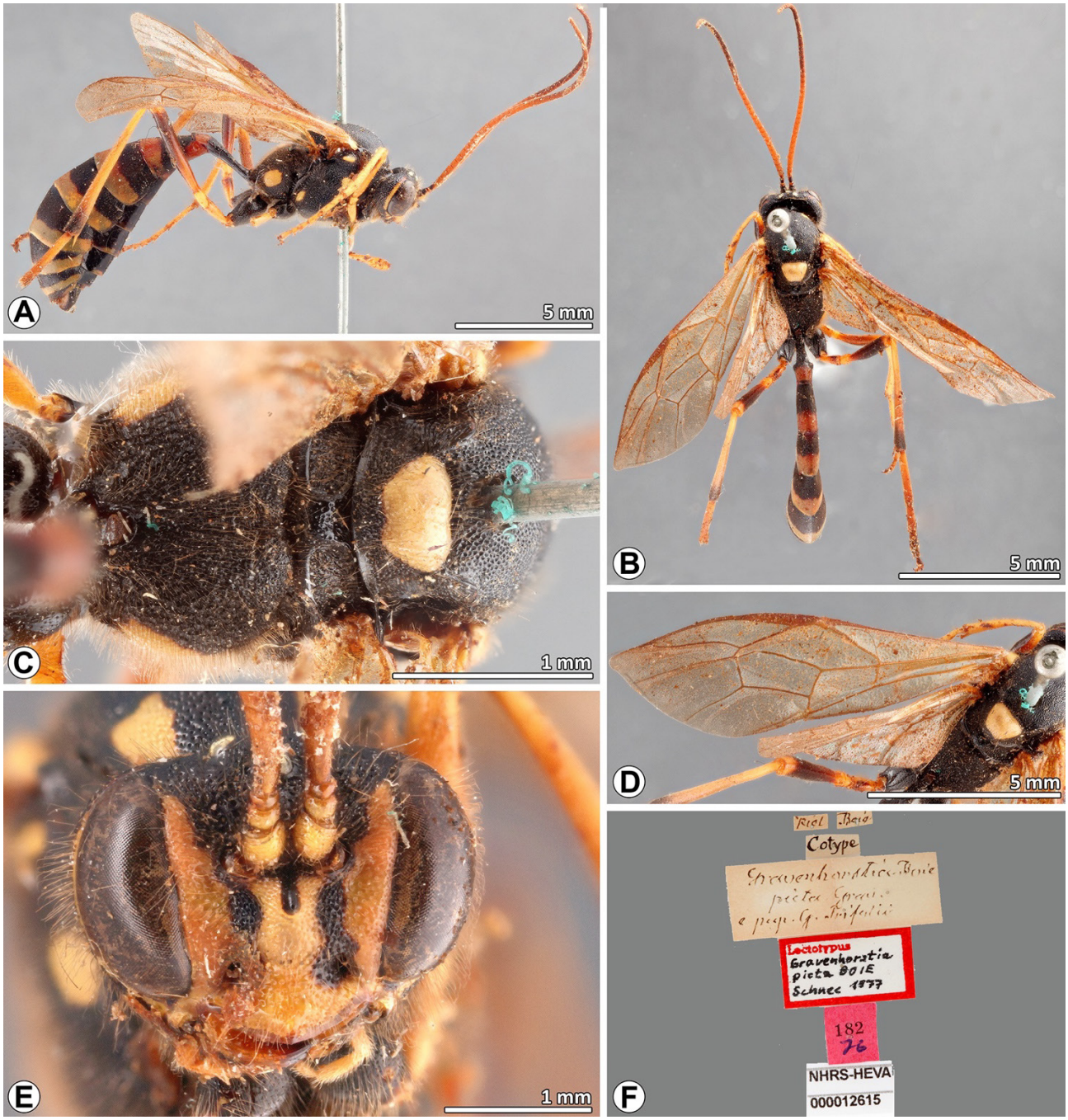


Figure 7. *Gravenhorstia picta* Boie, 1836, lectotype male (NHRS). **A., B.** Habitus; **A.** Lateral view; **B.** Dorsal view; **C.** Mesosoma, dorsal view; **D.** Wings; **E.** Head, frontal view; **F.** Lectotype labels.

Other material examined. SYRIA • 1 ♂; An Nasreh; 3 Jun. 2005; det. Heinz Schnee; Syrian Xeric Grasslands and Shrublands ecoregion; BOLD Process ID: BCHYM17603-18; BOLD BIN: BOLD:ADP4269; GenBank accession: PZ844063 (*COI*); ZSM • 1 ♂; same data as for preceding; BOLD Process ID: BCHYM17604-18; GenBank accession: PZ844064 (*COI*); ZSM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. An Nasreh (Quneitra governorate) (**new record**).

World distribution. E-PAL, W-PAL.

Remark. Both the genus and the species are recorded from Syria for the first time.

***COI* barcode.** The specimens from Syria correspond to BIN BOLD:ADP4269 in BOLD. Its nearest-neighbour distance is 2.25% to BOLD:ADP4268; representing *Kokujewiella ibera* from Türkiye.

BCHYM17603-18:

AATTGGCTCCTCTTTAAGTATAATTATTCGACTAGAATTAGGAAATCCTAGATTTTTAATTAAAAATGATCAAATTTATAA
TTCAATAGTAACTTCACATGCCTTTATTATAATTTTTTTTATAATAATACCAATTATAATTGGTGGATTTGGTAATTGATTA
ATCCCTTTAATATTAGGAGCCCCTGACATAGCTTTCCCTCGAATAAATAATATAAGATTTTGATTATTACCCCCCTCTCTT
ATATTATTAATTTTTAGAAACATTTCAGATCAAGGAGTAGGAACAGGCTGAACAGTTTACCCCCCTTTATCTTTAAATAT
AAGACATGAAGGAATTGCTATTGACCAATCAATTTTCTCCCTACATATAGCAGGGATATCCTCAATTATAGGAGCTATT
AATTTTATTTCAACTATTATTAATATAAAAAATATTAATTCTTCTTTTGAACAATTAACTCTTTTTTCATGATCAATTATTAT
CACCACAATTCTTTTATTACTAGCAGTACCTGTCCTTGCCGGAGCAATTACCATAATTTTAACAGATCGAAACTTAAATA
CATCTTTTTTTGACCCATCAGGAGGGGGTGATCCAATTCTTTATCAACACTTATTT

BCHYM17604-18:

GGATAATTGGCTCCTCTTTAAGTATAATTATTCGACTAGAATTAGGAAATCCTAGATTTTTAATTAAAAATGATCAAATTT
ATAATTCAATAGTAACTTCACATGCCTTTATTATAATTTTTTTTATAATAATACCAATTATAATTGGTGGATTTGGTAATTG
ATTAATCCCTTTAATATTAGGAGCCCCTGACATAGCTTTCCCTCGAATAAATAATATAAGATTTTGATTATTACCCCCCTC
TCTTATATTATTAATTTTTAGAAACATTTCAGATCAAGGAGTAGGAACAGGCTGAACAGTTTACCCCCCTTTATCTTTAA
ATATAAGACATGAAGGAATTGCTGTTGACCAATCAATTTTCTCCCTACATATAGCAGGGATATCCTCAATTATAGGAGC
TATTAATTTTATTTCAACTATTATTAATATAAAAAATATTAATTCTTCTTTTGAGCAATTAACTCTTTTTTCATGATCAATTA
TTATCACCACAATTCTTTTATTACTAGCAGTACCTGTCCTTGCCGGAGCAATTACCATAATTTTAACAGATCGAAACTTA
AATACATCTTTTTTTGACCCATCAGGAGGGGGTGATCCAATTCTTTATCAACACTTATTT

Kokujewiella vicaria Shestakov, 1926

Kokujewiella vicaria Shestakov, 1926:258.

[Fig. 9]

Type material. **Lectotype** (designated by Townes et al. 1965): RUSSIA • ♀; Samarskaya Oblast; ZIN.

Other material examined. SYRIA – Quneitra Governorate • 1 ♂; Faouar; 13 Mar. 2001; det. Heinz Schnee; Southern Anatolian montane conifer and deciduous forests ecoregion; BOLD BIN: BOLD:ADL0135; GenBank accession: PZ844067 (*COI*); ZSM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Faouar (Quneitra governorate) (**new record**).

World distribution. E-PAL, W-PAL.

Remark. Both the genus and the species are recorded from Syria for the first time.

***COI* barcode.** The specimen from Syria corresponds to BIN BOLD:ADL0135 in BOLD. Its nearest-neighbour distance is 9.3% to BOLD:ACG3629; representing *Erigorgus*.

GAGCAGGAATAATCGGATCCTCTTTAAGTATAATTATTCGATTAGAATTAGGAAACCCTGGACATTTAATTAATAATGA
TCAAATTTATAATTCAATAGTAACCTCACACGCTTTTATCATAATTTTCTTTATAGTTATACCAATTATAATTGGAGGATTT
GGTAATTGATTAATCCCTTTAATATTAGGAGCCCCCGATATAGCTTTTCCTCGTATAAATAATATAAGATTTTGACTTTTA
CCACCATCACTTATATTATTAATTTTTAGAAATATTTCAAATCAAGGTGTAGGTACAGGTTGAACAATTTATCCCCCTTTA
TCATTAAACCTAAGACATGAAGGAATAGCTGTAGATCAATCTATTTTCTCTCTTCATATAGCAGGAATATCTTCAATTAT
AGGAGCTATTAATTTTATCTCAACAATTTTAAACATAAAAAACATTAATTCTTCTTTTGAACAATTAACTCTTTTTTCATGA
TCAATTATTATCACCACAATTCTCTTATTATTAGCTGTCCCTGTTCTTGCAGGTGCAATTACCATAATTTTAACAGATCGA
AATTTAAATACATCTTTTTTTGATCCCTCAGGAGGAGGAGATCCAATTCTTTACCAACATTTATTT

Genus *Trichomma* Wesmael, 1849

Trichomma enecator (Rossi, 1790)

Ichneumon enecator Rossi, 1790:48.

Type material. Type status unknown. ITALY • sex and depository unknown.

Label data of type. Unknown.

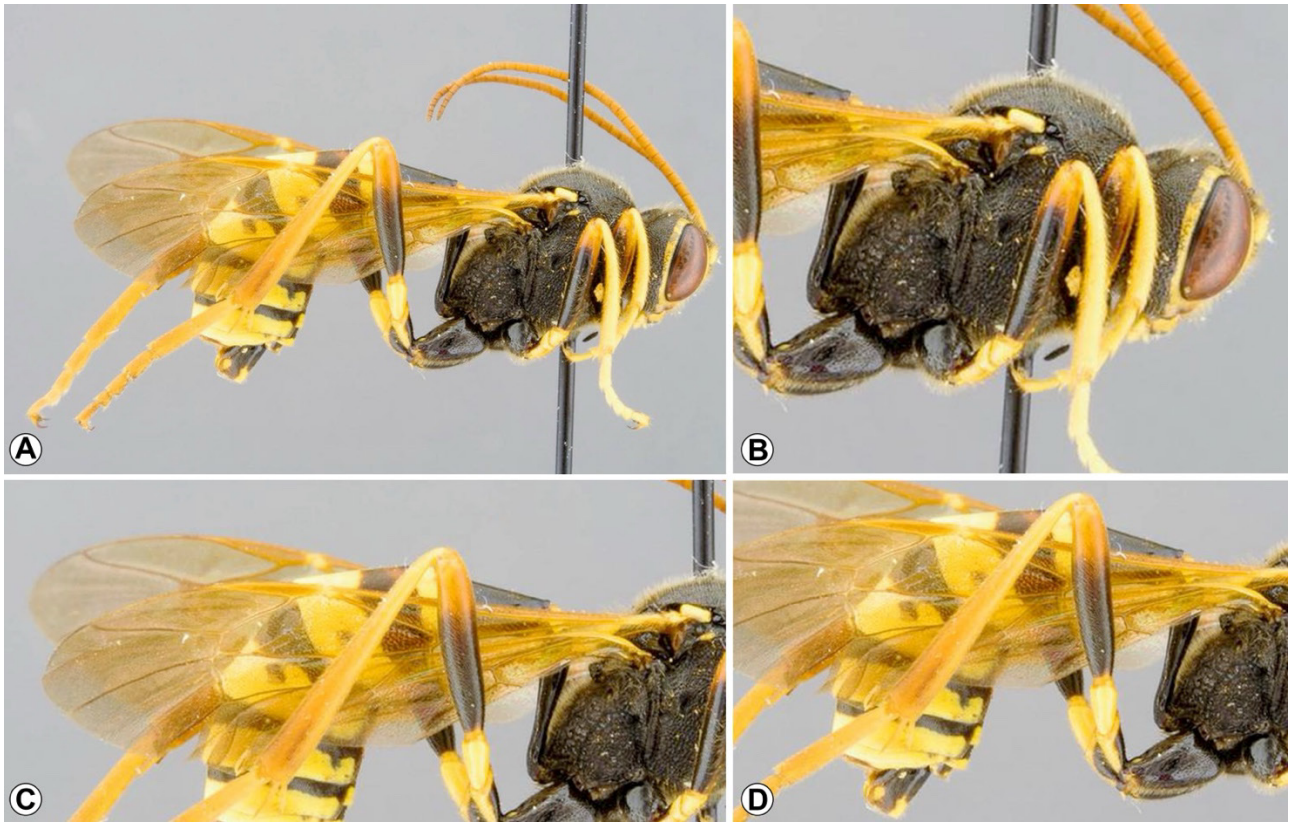


Figure 8. *Kokujewiella ibera* (Ceballos, 1957), non-type male from Syria (OLML; BOLD:ADP4269). **A.** Habitus, lateral view; **B.** Head and mesosoma, lateral view; **C., D.** Wings and metasoma, lateral view. Body length: 13.2 mm.

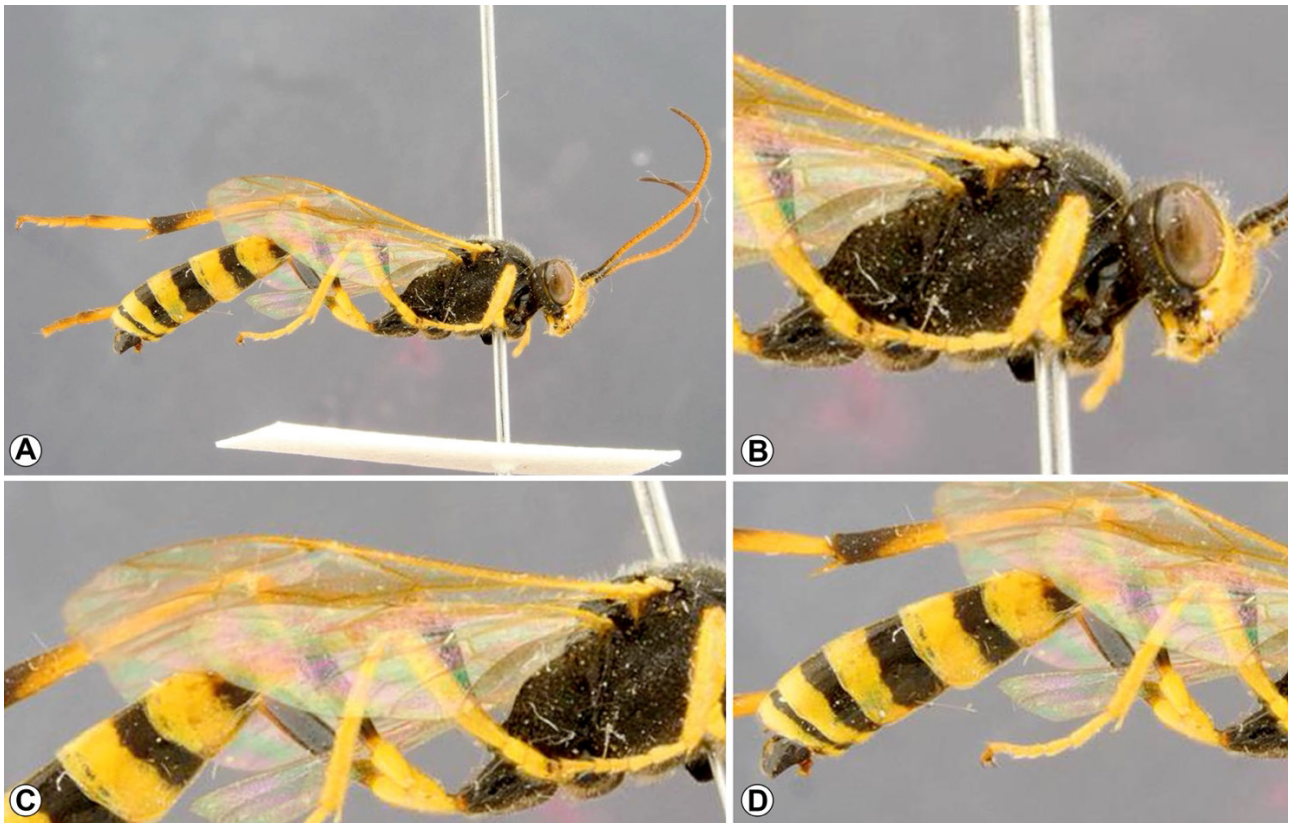


Figure 9. *Kokujewiella vicaria* Shestakov, 1926, non-type male from Syria (ZSM; BOLD:ADL0135). **A.** Habitus, lateral view; **B.** Head and mesosoma, lateral view; **C.** Wings; **D.** Wings and metasoma, lateral view. Body length: 15.9 mm.

Type condition. Unknown.

Distribution in Syria. As-Suwayda and Latakia governorates (Basheer et al. 2016).

World distribution. E-PAL, W-PAL.

Subfamily Banchinae Wesmael, 1845

Genus *Exetastes* Gravenhorst, 1829

Exetastes adpressorius adpressorius (Thunberg, 1822)

Ichneumon adpressorius Thunberg, 1822:254.

[Figs 10–12]

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; UUZM.

Comparative material examined. UNITED KINGDOM • 2 ♂♂; England, Dorset, VC 9, OSGR SU00; 21 Jun. 2020; Malaise trap; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SU00; 16 Jun. 2020; Malaise trap; M. Storey leg.; voucher 16 Jun. 2020[A]; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR ST90; 3 Aug. 2019; on *Pastinaca sativa* L.; M. Storey leg.; voucher 3 Aug. 2019[J]; MWS, to be deposited in NHMUK.

Label data of type. Labels (in order): (1) '*adpressorius* / ♀ K. [?] / Sv. [Svensk] / 2' (large, rectangular, handwritten); (2) 'Uppsala Univ. Zool. Mus. / Thunberg saml. Nr. [sampling number] 24777 / *Ichneumon adpressorius* / |female|. Sv. TYP [svensk typ = Swedish type]' (medium- sized, rectangular, red, printed); (3) '*Exetastes* /*adpressorius* / Thun. ♀' (medium-sized, handwritten).

Type condition. Pinned specimen in fairly good condition; ovipositor sheath broken; left antenna with only scape and pedicel remaining, right antenna with seven flagellomeres; right hind leg with coxa and trochanters only, both broken; left hind leg and fore leg lacking tarsomeres. Detached flagellomeres mounted on the lectotype label (lower right corner).

Distribution in Syria. Hama (Apamea city), Daraa (Busra city), Rif Dimashq (Maaloula city) governorates (Khalaim et al. 2019).

World distribution. E-PAL, NEA, W-PAL.

Exetastes segmentarius Pérez, 1895

Exetastes segmentarius Pérez, 1895:201.

[Fig. 13]

Type material. **Lectotype** (designated here): SPAIN • ♀; Canary Islands; MNHN.

Label data of type. Labels (in order): (1) '*Exetastes* / *segmentarius* / 2P' (large, rectangular, handwritten); (2), 'MUSEUM PARIS / TYPE / COLL. J. PÉREZ 1915' (medium-sized, rectangular; first and third lines printed, second handwritten); (3) 'Iles [Îles = Islands] Canaries / Tenerife / Ch. [Charles] Alluaud 1890' (medium-sized, rectangular, printed); (4) 'Muséum Paris / EY9290' (small, rectangular, printed); (5) '*Exetastes* / *ex. laouigullator [possibly laevigatus]*' (large, rectangular, handwritten); (6) 'Syntype ♀ / *Exetastes segmentarius* / Pérez, 1895 / labelled by T. Yoshida, 2011' (large, rectangular, whole red, printed); (7), 'LECTO- / TYPE /2026' (small, circular, red-bordered, printed).

Type condition. Specimen pinned and in good condition; right mid leg with tarsomeres 2–5 missing; right hind leg lost; left hind leg lacking tibia and tarsomeres.

Distribution in Syria. Aleppo governorate (Riedel 2015).

World distribution. E-PAL, W-PAL.

Remarks. The female specimen from Tenerife, Canary Islands, collected by Charles Alluaud in 1890 and preserved at MNHN (MNHN-EY-EY9290), belongs to the original type series of *Exetastes segmentarius*.

The species has been discussed in subsequent taxonomic treatments involving *E. ibericus* Seyrig, 1927 and the historical application of the name *E. bicoloratus* Gravenhorst. Fixation of a single name-bearing specimen provides a direct morphological reference for evaluating this historical taxonomic treatment and subsequent identifications, including records from geographically distant populations. Accordingly, we hereby designate the illustrated female syntype from Tenerife as the lectotype of *E. segmentarius* Pérez, 1895.



Figure 10. *Exetastes adpressorius* (Thunberg, 1822), lectotype female (UUZM). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, mesosoma, T1, and hind coxa, dorsal view; **D.** Head and antenna, lateral view; **E.** Metasoma, mid leg, and hind coxa, lateral view; **F.** Lectotype labels.



Figure 11. *Exetastes adpressorius* (Thunberg, 1822), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Head, ventral view; **L.** T3–T7, dorsal view.

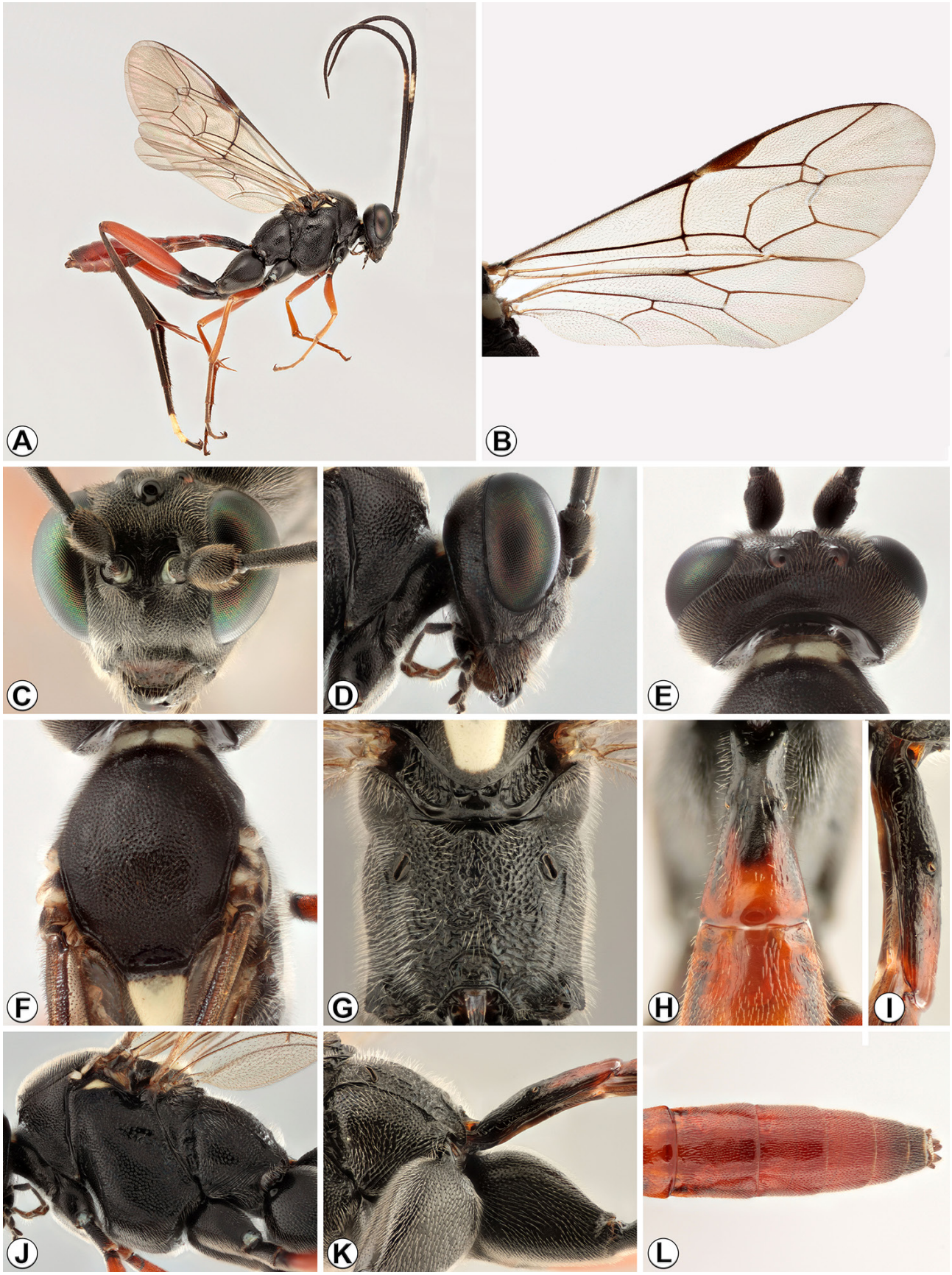


Figure 12. *Exetastes adpressorius* (Thunberg, 1822), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** T1, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa, lateral view; **L.** T3–T7, dorsal view.

Exetastes adpressorius syriacus Schmiedeknecht, 1910

Exetastes adpressorius syriacus Schmiedeknecht, 1910:1895.

Type material. **Syntype**: ISRAEL • sex and depository unknown.

Label data of type: Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Daraa (Busra city) and Rif Dimashq (Maaloula city) governorates (Riedel 2015).

World distribution. E-PAL, NEA, W-PAL.

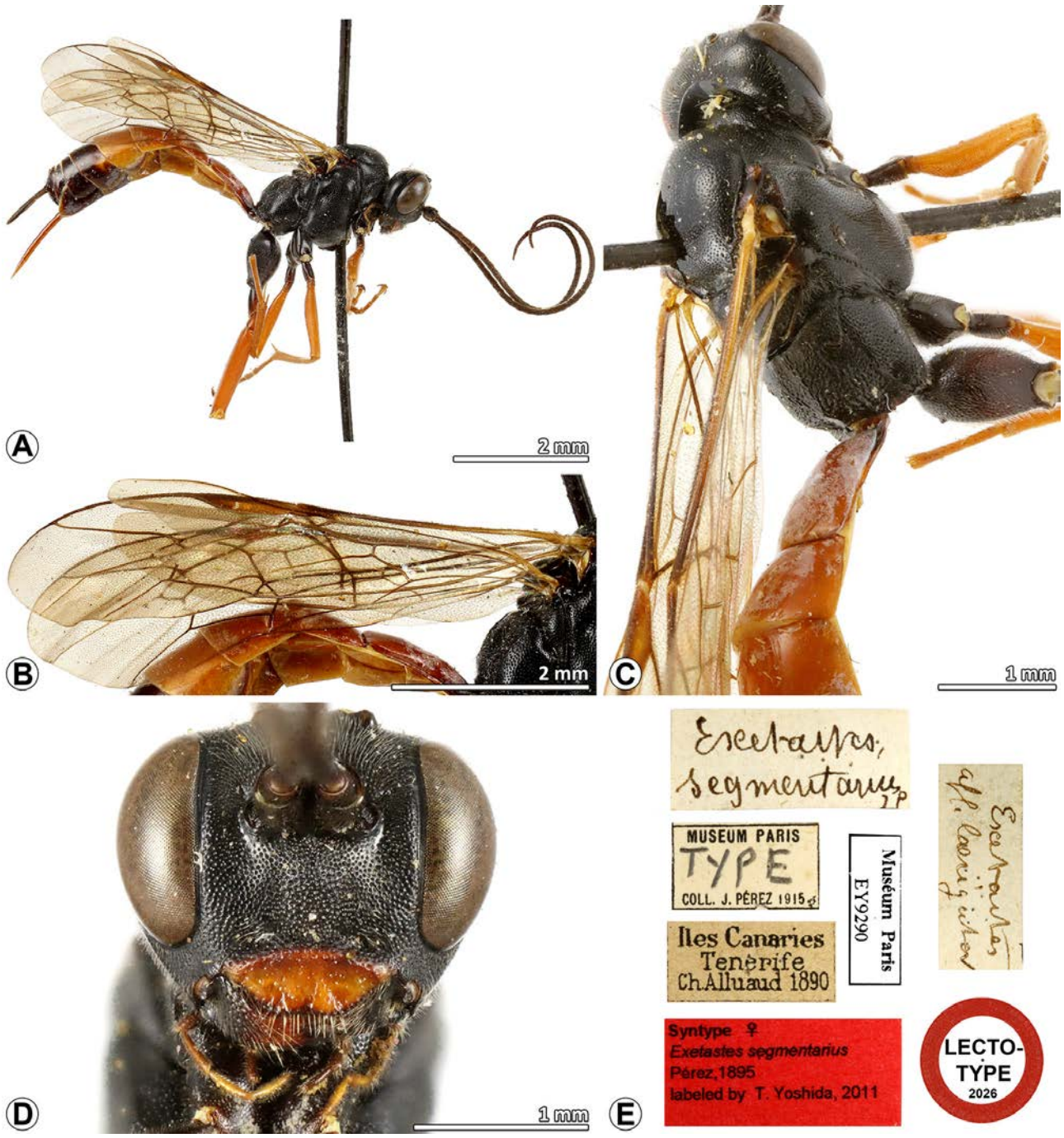


Figure 13. *Exetastes segmentarius* Pérez, 1895, lectotype female **design. nov.** (MNHN). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, mesosoma, T1–T3, and hind coxa, dorsolateral view; **D.** Head, frontal view; **E.** Lectotype labels.

Genus *Himertosoma* Schmiedeknecht, 1900

Himertosoma superbum Schmiedeknecht, 1900

Himertosoma superbum Schmiedeknecht, 1900:393.

[Figs 14–15]

Type material. **Lectotype** (designated by Oehlke & Townes 1969): EGYPT • ♀; ZMHUB.

Label data of type. Labels (in order): (1) '1897 / Egypten [Egypt] / Schmiedekn [Otto Schmiedeknecht] S. [Sammler = collector in German]' (medium-sized, rectangular, handwritten); (2) 'a.y [possibly German auf = on] Tamarin Boi [possibly German baum = tree]/ Holinan [possibly Helwan, a suburban district in the southern area of Cairo], Egypten' (medium-sized, rectangular, handwritten); (3) '28641' (small, rectangular, printed); (4) '*Himertosoma* / *superba* / ♀ Schmiedeknecht' (large, rectangular, handwritten); (5) 'Type' (medium-sized, rectangular, handwritten); (6) 'Lectotypus / OEHLKE [Joachim Oehlke]' (small, rectangular, red; first line printed, second handwritten); (7) 'Zool. Mus. / Berlin' (small, rectangular, printed); (8) 'https://coll.mfn-berlin.de/u/c2e8e9' (large, rectangular, printed, bearing a Quick Response (QR) code).

Type condition. Specimen pinned and in very good condition; left antenna with 16 flagellomeres only.

Distribution in Syria. Unknown locality (Vidal 1997).

World distribution. E-PAL, W-PAL.

Remarks. *Himertosoma superbum* Schmiedeknecht, 1900, the type species of *Himertosoma*, represents an important reference for evaluating the generic limits of *Himertosoma* and its relationship with *Lissonota*. Oehlke & Townes (1969) designated a lectotype for *H. superbum*, thereby fixing its name-bearing type. The species has subsequently been recorded from several localities in the western Palaearctic, including Egypt, Israel and Syria, and is associated with concealed-feeding Lepidoptera (Watanabe & Maeto 2012). The taxonomic interpretation of *H. superbum* is complicated by its close resemblance to *L. superbator* Aubert, 1967. Watanabe & Maeto (2012) characterised *H. superbum* by a relatively broad T1, approximately as long as its apical width, an antenna with 26–27 flagellomeres, and an ovipositor sheath shorter than the fore wing. These character states contrast with the higher reported flagellomere count and more elongate anterior metasomal tergites of *L. superbator*, although the available descriptions do not provide fully comparable measurements for all structures. Moreover, the characters traditionally employed to separate *Himertosoma* and *Lissonota*, especially the condition of the T5, have proved insufficiently reliable when considered individually (Watanabe & Maeto 2012; Reynolds Berry & van Noort 2020). The reported host associations also warrant consideration. Both nominal species have been associated with *Prays oleae* (Bernard, 1788), suggesting some ecological similarity, but shared hosts cannot establish conspecificity, particularly in the absence of independently verified rearing records and comparative morphological evidence. The possibility that some observed differences represent intraspecific variation, sexual dimorphism, or unusual morphology in individual type specimens cannot yet be excluded. Consequently, the available evidence does not justify treating *L. superbator* as a junior synonym of *H. superbum*, nor does it establish that the two species are congeneric. The existing lectotype of *H. superbum* remains the authoritative name-bearing reference, and its taxonomic interpretation should be based on comparison with the lectotype of *L. superbator* and additional reliably identified specimens. Pending such study, *H. superbum* is retained as a distinct species in *Himertosoma*, without any proposed change in synonymy or generic placement.

Genus *Lissonota* Gravenhorst, 1829

Lissonota superbator Aubert, 1967

Lissonota superbator Aubert, 1967:65.

[Fig. 16]

Type material. **Lectotype** (designated here): SYRIA • ♀; Latakia; MZL.

Label data of type. Labels (in order): (1) 'LECTO- / TYPE / 2022' (small, circular, red-bordered, printed); (2) 'TYPE' (small, rectangular, entirely red, printed); (3) '*Lissonota* ♀ / *superbator* Aub.' (small, rectangular, handwritten); (4) 'sl [*sensu lato*] Olivier / J. F. AUBERT / 1965 s / *Cacochroa* / *permixtella* H.S [Herrich-

Schäffer] / LATTAQUIE [French for Latakia]. SYRIE [French for Syria]' (medium-sized, rectangular; second printed, remaining handwritten); (5) 'Syntypes 1&2/?(14) / *Lissonota* / *superbator* / Aubert, 1967c / labelled by S. [Seraina] Klopfstein 2009' (large, rectangular, white with red lateral bands, printed); (6) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890990' (medium-sized, rectangular, bearing a Quick Response (QR) code).

Type condition. Lectotype and paralectotype pinned and in very good condition. Lectotype: left hind leg lacking tarsomeres. Paralectotype: antennae with 20 flagellomeres only, left hind leg lacking tarsomeres.

Distribution in Syria. Latakia Governorate (Aubert 1967, 1978).

World distribution. W-PAL.

Remarks. *Lissonota superbator* was described by Aubert (1967) from a syntype series encompassing specimens from Syria and Lebanon. Klopfstein & Baur (2011) documented 14 syntypes in the Musée de Zoologie, Lausanne, Switzerland, including two females mounted on the same pin from Latakia, Syria. The taxonomic status of *L. superbator* warrants reassessment because of its close morphological resemblance to *H. superbum* Schmiedeknecht, 1900, the type species of *Himertosoma*. These similarities raise questions concerning both its generic assignment and its specific distinctness, necessitating precise fixation of the name *superbator* to an individual specimen from the original type series. To stabilise the application of the name and establish a single, objectively identifiable name-bearing reference for subsequent morphological comparisons and evaluation of its generic placement and species limits, we hereby designate the female syntype from Latakia, Syria, as the lectotype of *L. superbator* Aubert, 1967. This designation fixes the application of the name to the selected specimen and consequently restricts the type locality to Latakia, Syria. This designation does not prejudge its generic placement or possible synonymy with *H. superbum*.

Aubert (1967) recognised similarities between *L. superbator* and *H. superbum*, whereas Johansson (2024), based on non-type male material of *L. superbator*, discussed differences in antennal segmentation, body size, propodeal carination, tarsal claws and metasomal proportions. According to the original description and subsequent accounts, *L. superbator* possesses 32–34 flagellomeres, compared with approximately 26–27 in *H. superbum*. Although this difference may contribute to species-level discrimination, antennal segmentation varies among species assigned to *Himertosoma* and therefore cannot independently support generic separation (Watanabe & Maeto 2012). Other reported differences, including the relatively small body size (5–6 mm), weak transverse propodeal carina, pectinate tarsal claws and elongate second and third metasomal tergites of *L. superbator*, may provide additional diagnostic evidence. In particular, the relatively elongate anterior metasomal tergites reported for *L. superbator*, compared with the broader proportions described for *H. superbum*, warrant further investigation. Nevertheless, these characters require direct comparison of the name-bearing types and additional specimens of both sexes to determine their taxonomic significance and distinguish consistent interspecific differences from intraspecific or sexually dimorphic variation. The generic delimitation of *Lissonota* and *Himertosoma* further complicates the interpretation of these morphological differences. Particular attention should be given to the proportions and sculpture of the first metasomal tergite, configuration of the fore wing areolet, propodeal carination, tarsal claw morphology and separation of the T5. Although the latter character has traditionally been considered useful for distinguishing *Himertosoma* from *Lissonota*, its diagnostic reliability has been questioned because the relevant condition varies among species assigned to these genera (Watanabe & Maeto 2012; Reynolds Berry & van Noort 2020). Consequently, generic placement should be evaluated using a combination of morphological characters rather than any single putatively diagnostic feature.

The available evidence therefore indicates that the taxonomic relationship between *L. superbator* and *H. superbum* remains insufficiently resolved. Although the two nominal species exhibit considerable morphological resemblance, the reported differences in antennal segmentation, body size and metasomal proportions provide grounds for maintaining their provisional separation. Conversely, the morphological characters currently available do not conclusively establish whether *L. superbator* is correctly assigned to *Lissonota* or should be transferred to *Himertosoma*. A comprehensive comparative examination of their name-bearing types, supplemented by reliably identified material and, where

feasible, molecular evidence, is necessary to clarify their species limits and generic placement. Accordingly, *L. superbator* is provisionally retained as a distinct species in *Lissonota*, and neither a new combination in *Himertosoma* nor synonymy with *H. superbum* is proposed here.



Figure 14. *Himertosoma superbum* Schmiedeknecht, 1900, lectotype female (ZMHUB). **A.** Habitus, lateral view; **B.** Head, frontal view; **C.** Head and mesoscutum, dorsal view; **D.** Propodeum and basal part of T1, dorsal view; **E.** Metasomal apex, posterior view; **F.** Lectotype labels.

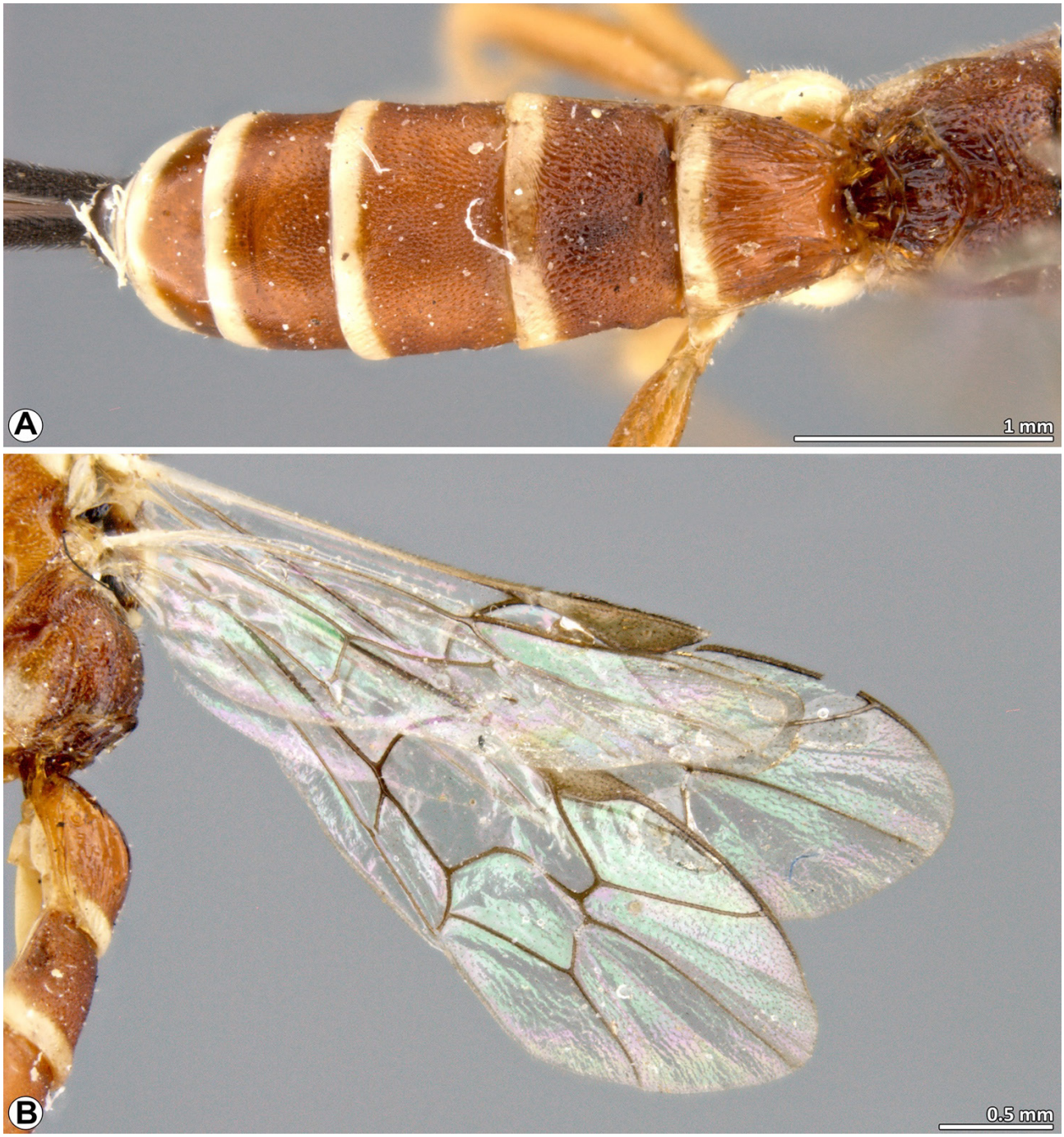


Figure 15. *Himertosoma superbum* Schmiedeknecht, 1900, lectotype female (ZMHUB). **A.** Propodeum and metasoma, dorsal view; **B.** Wings.

Genus *Odinophora* Förster, 1869

Odinophora mediterranea (Schmiedeknecht, 1900)

Odinophora mediterranea Schmiedeknecht, 1900:239.

Type material. **Lectotype** (designated by Schwarz 2004): TUNISIA • ♀; NHMR.
Label data of type. Not examined firsthand.
Type condition. Not assessed because the specimen was not examined firsthand.
Distribution in Syria. Mezzeh and Damascus governorates (Kolarov et al. 2024).
World distribution. W-PAL.

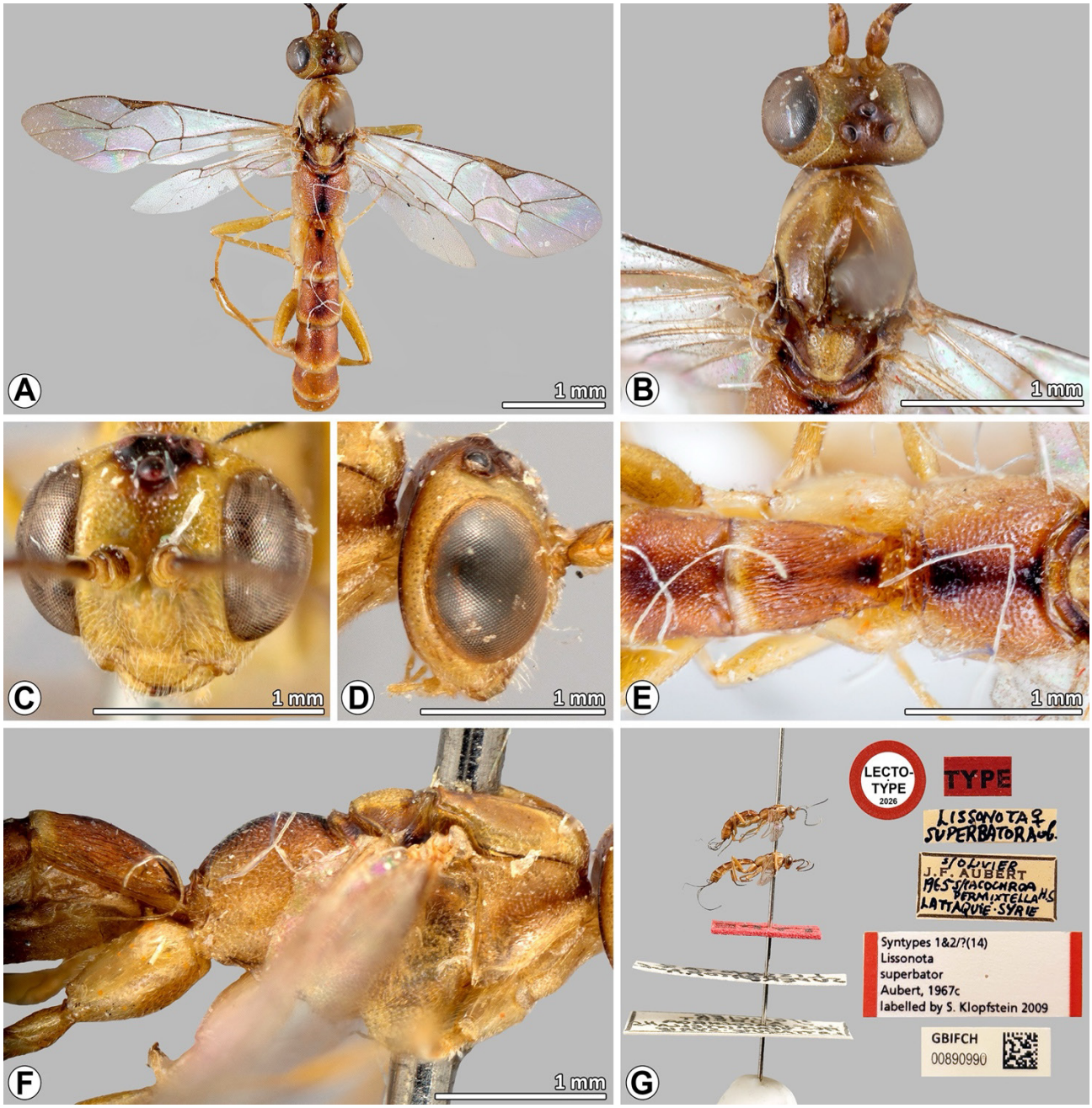


Figure 16. *Lissonota superbator* Aubert, 1967, lectotype female **design. nov.** (MZL). **A.** Habitus, in lateral view; **B.** Head, mesoscutum and scutellum, dorsal view; **C–D.** Head, **C.** Frontal view; **D.** Lateral view; **E.** Propodeum, T1, T2 tergites, dorsal view; **F.** Mesosoma, T1, and hind coxa, lateral view; **G.** Lectotype labels and pinned lectotype and paralectotype specimens.

Odinophora siderea Schwarz, 2004

Odinophora siderea Schwarz, 2004:1068–1069.

[Figs 17–20]

Type material. **Holotype:** TÜRKIYE • ♀; Halfeti; OLML. **Paratype:** SYRIA • ♀; Manbij; OLML.

Label data of type. **HOLOTYPE:** Labels (in order): (1) 'Türkei mer. [*meridionalis*] or. [*orientalis*] / Halfeti env. [*environs*] / 3. –5.5.1994 [03–05.v.1994] / leg. [*legit*] Mi. Halada' (small, rectangular, printed); (2) 'Holotypus ♀ / *Odinophora* / *siderea* Schwarz / des. [*designavit*] Mart. [Martin] Schwarz `04' (medium-

sized, rectangular, red, handwritten). **PARATYPE:** (1) 'Paratypus ♀ / *Odinophora* /*siderea* Schwarz / des. [*designavit*] Mart. [Martin] Schwarz `04' (medium-sized, rectangular, entirely red, handwritten); (2) 'SYRIA N [northern] / Marbij [Manbij] / 9.5:1996 [09.v.1996] / leg. [*legit*] Marek Halada' (small, rectangular, printed); (3), '♀' (small, square, printed).

Type condition. Both the holotype and paratype are pinned and in very good condition. Paratype: left antenna with apical flagellomere missing.

Distribution in Syria. Aleppo governorate (Schwarz 2004).

World distribution. W-PAL.

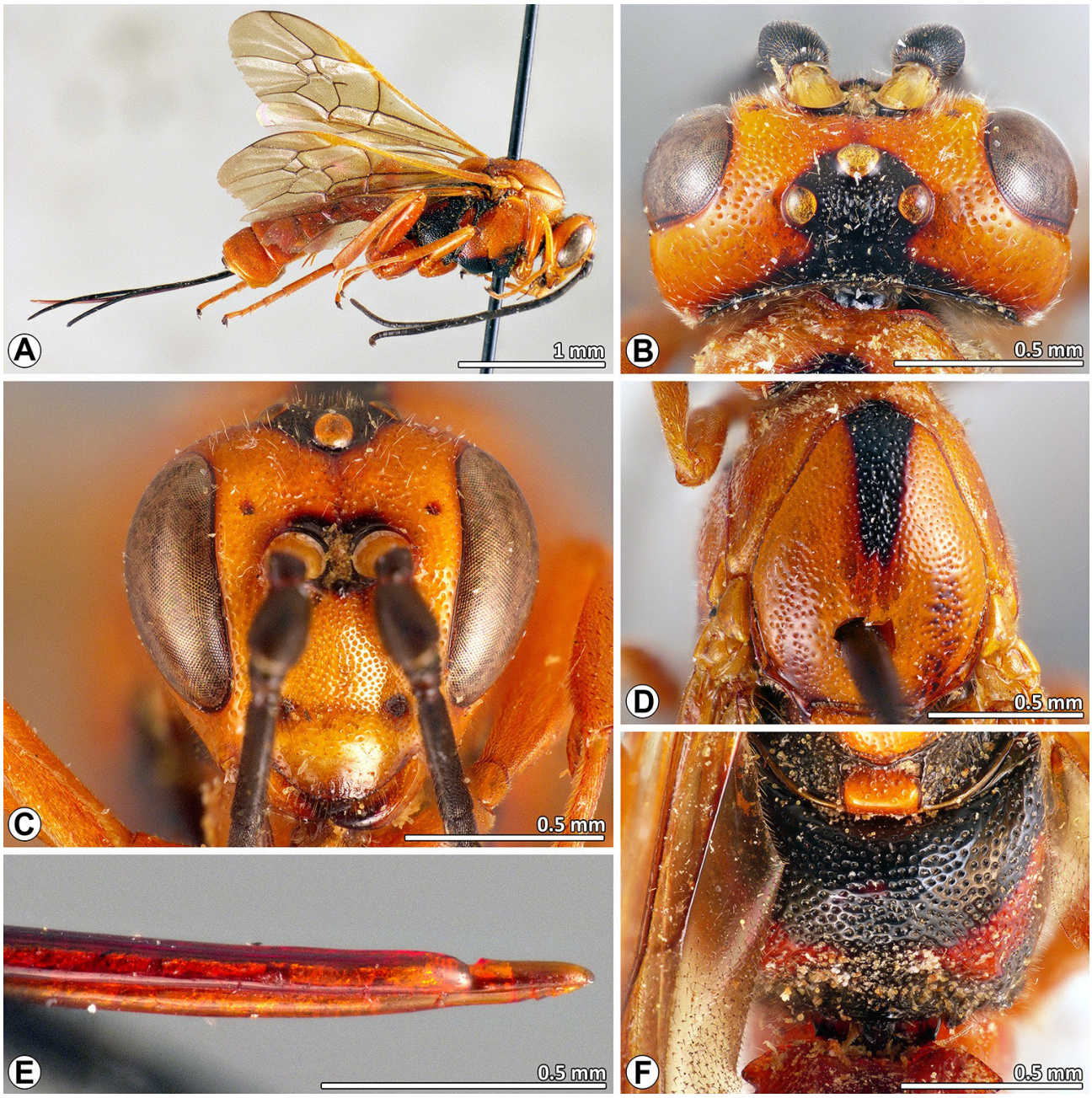


Figure 17. *Odinophora siderea* Schwarz, 2004, holotype female (OLML). **A.** Habitus, lateral view; **B., C.** Head, **B.** Dorsal view; **C.** Frontal view; **D.** Mesoscutum, dorsal view; **E.** Ovipositor apex, lateral view; **F.** Metanotum and propodeum, dorsal view.

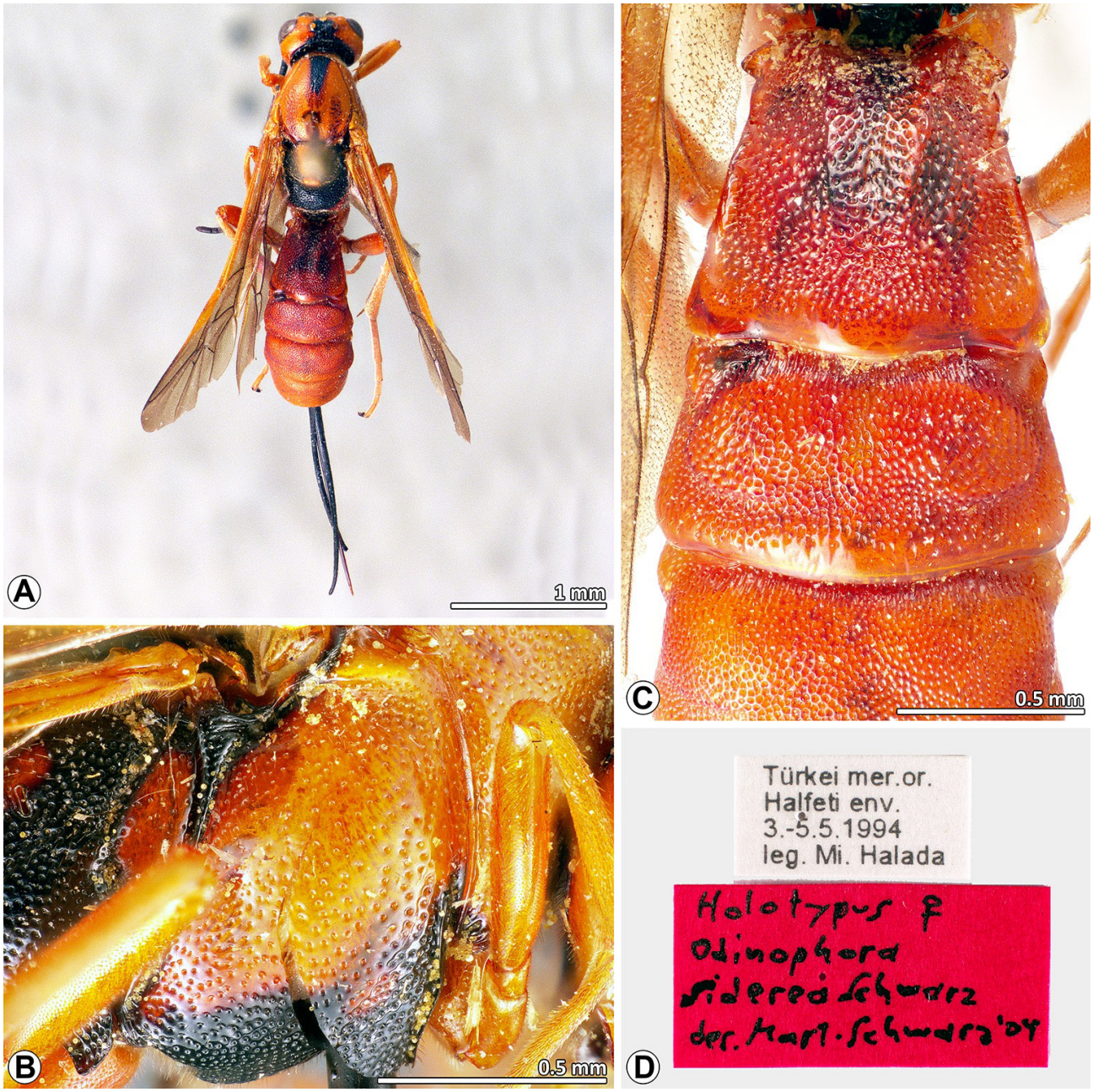


Figure 18. *Odinophora siderea* Schwarz, 2004, holotype female (OLML). **A.** Habitus, dorsal view; **B.** Mesopleuron, lateral view; **C.** T1–T3, dorsal view; **D.** Holotype labels.

Genus *Syzeuctus* Förster, 1868

Syzeuctus frontator Riedel, 2021

Syzeuctus frontator Riedel, 2021:1040–1042.

Type material. Holotype: TÜRKIYE • ♀; Sivas; OLML.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Bloudan and Rif Dimashq governorates (Riedel 2021).

World distribution. W-PAL.

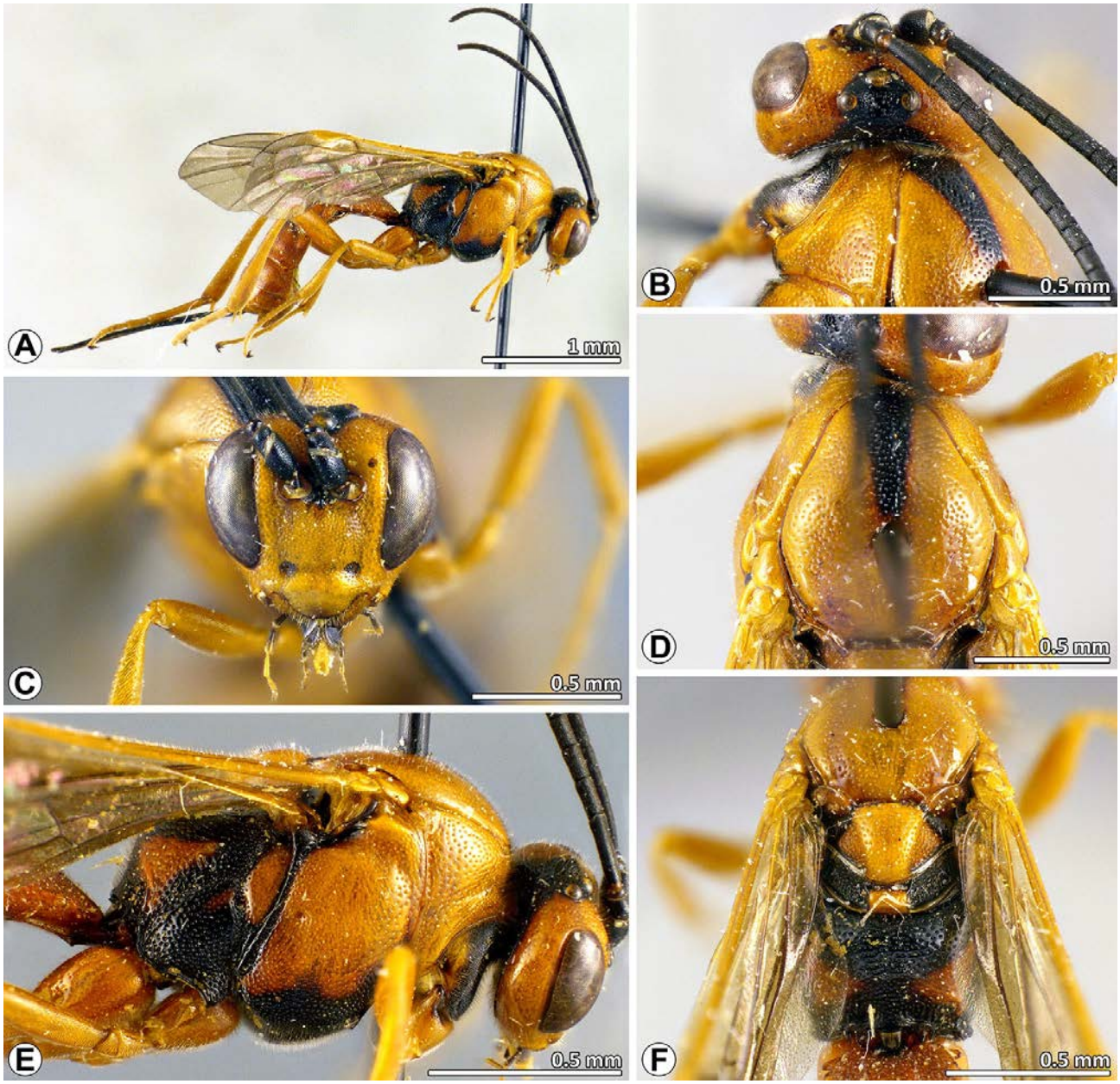


Figure 19. *Odinophora siderea* Schwarz, 2004, paratype female (OLML). **A.** Habitus, lateral view; **B.** Head, dorsal view and mesoscutum, dorsolateral view; **C.** Head, frontal view; **D.** Mesoscutum, dorsal view; **E.** Head and mesosoma, lateral view; **F.** Mesosoma, dorsal view.

Subfamily Campopleginae Förster, 1869

Genus *Bathyplectes* Förster, 1869

Bathyplectes anurus (Thomson,1887)

Canidia anurus Thomson, 1887:1113.

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; MZLU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Damascus governorate (Kawas & Basheer 2018).

World distribution. E-PAL, NEA, W-PAL.



Figure 20. *Odinophora siderea* Schwarz, 2004, paratype female (OLML). **A.** Habitus, dorsal view and paratype labels.

Bathyplectes aspergus Dbar, 1985

Bathyplectes aspergus Dbar, 1985:54.

Type material. **Syntype**: AZERBAIJAN • ♀; ZIN.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Homs governorate (Vas 2023).

World distribution. W-PAL.

Bathyplectes curculionis (Thomson, 1887)

Canidia curculionis Thomson, 1887:1113.

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; MZLU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Homs governorate (Vas 2023).

World distribution. E-PAL, NEA, OTL, W-PAL.

Genus *Campoletis* Förster, 1869

Campoletis chlorideae Uchida, 1957

Campoletis chlorideae Uchida, 1957:29 –30.

[Fig. 21]

Type material. **Holotype**: JAPAN • ♀; ICHUM. **Allotype**: JAPAN • ♂; same data as for holotype; ICHUM.

Label data of type. 岡山専売局試験場 [= Okayama Experimental Station, Department of Monopoly, Japan], 25.IV.1936, WIRT, 煙草アヲムシ [= *Helicoverpa assulta*].

Type condition. Specimen pinned and in good condition, both antennae lacking apical flagellomeres; head detached, left mid leg missing; right hind leg lacking tarsomeres.

Distribution in Syria. Daraa governorate (Saoud et al. 1989).

World distribution. AFR, E-PAL, NEO, OTL, W-PAL.

Remarks. Access to the type material was not possible, as the curator did not respond to our loan request for the holotype, either physically or as digital images. Nevertheless, low-quality images of the holotype are provided here.

Campoletis crassicornis (Tschek, 1871)

Sagaritis crassicornis Tschek, 1871:51.
Sagaritis brachycera Thomson, 1887:1111.

[Fig. 22]

Type material. **Lectotype** (designated by Horstmann 1979b): AUSTRIA [probably] • ♀; Piesting; NHMW.

Other material examined. *Sagaritis brachycera* Thomson, 1887:1111. **Lectotype** (designated by Fitton 1982): SWEDEN • ♀; MZLU.

Label data of type. ***Sagaritis crassicornis*** **Tschek 1871:** lectotypus ♀, 1.5.1871, Piesting Tschek, examined by Horstmann (NHMW). ***Sagaritis brachycera*** **Thomson, 1887:** Labels (in order): (1) 'Ö. [*Österreich* = Austria]' (small, square, printed); (2) 'Lectotypus' (large, rectangular, printed); (3) '1971 / 83' (medium-sized, rectangular; printed except the number '1' on the year which is handwritten); (4) '*Campoletis* / *brachycera* (Thoms.) / Lectotype ♀ / R. Hinz 1957' (large, rectangular, handwritten); (5) 'MZLU / Type no. / 5668:1' (medium-sized, rectangular, white with a red band along the left margin bearing 'MZLU' in vertical orientation; printed).

Type condition. Unknown for *Campoletis crassicornis*. The specimen of *Sagaritis brachycera* is in good condition, although the antennae lack apical flagellomeres. The legs were not clearly visible in the photograph, preventing a proper assessment of most structures, apparently complete.

Distribution in Syria. Unknown locality (Riedel 2017).

World distribution. W-PAL.

Remark. The lectotype of *Sagaritis crassicornis* Tschek, 1871 was not available for direct examination; therefore, we examined the lectotype of its junior synonym, *Sagaritis brachycera* Thomson, 1887.

Campoletis katalinarum Vas, 2019

Campoletis katalinarum Vas, 2019:374–377.

Type material. **Holotype**: GEORGIA • ♀; Mtskheta-Mtianeti Region; HNHM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Kafraa and Aleppo governorates (Vas 2020).

World distribution. W-PAL.

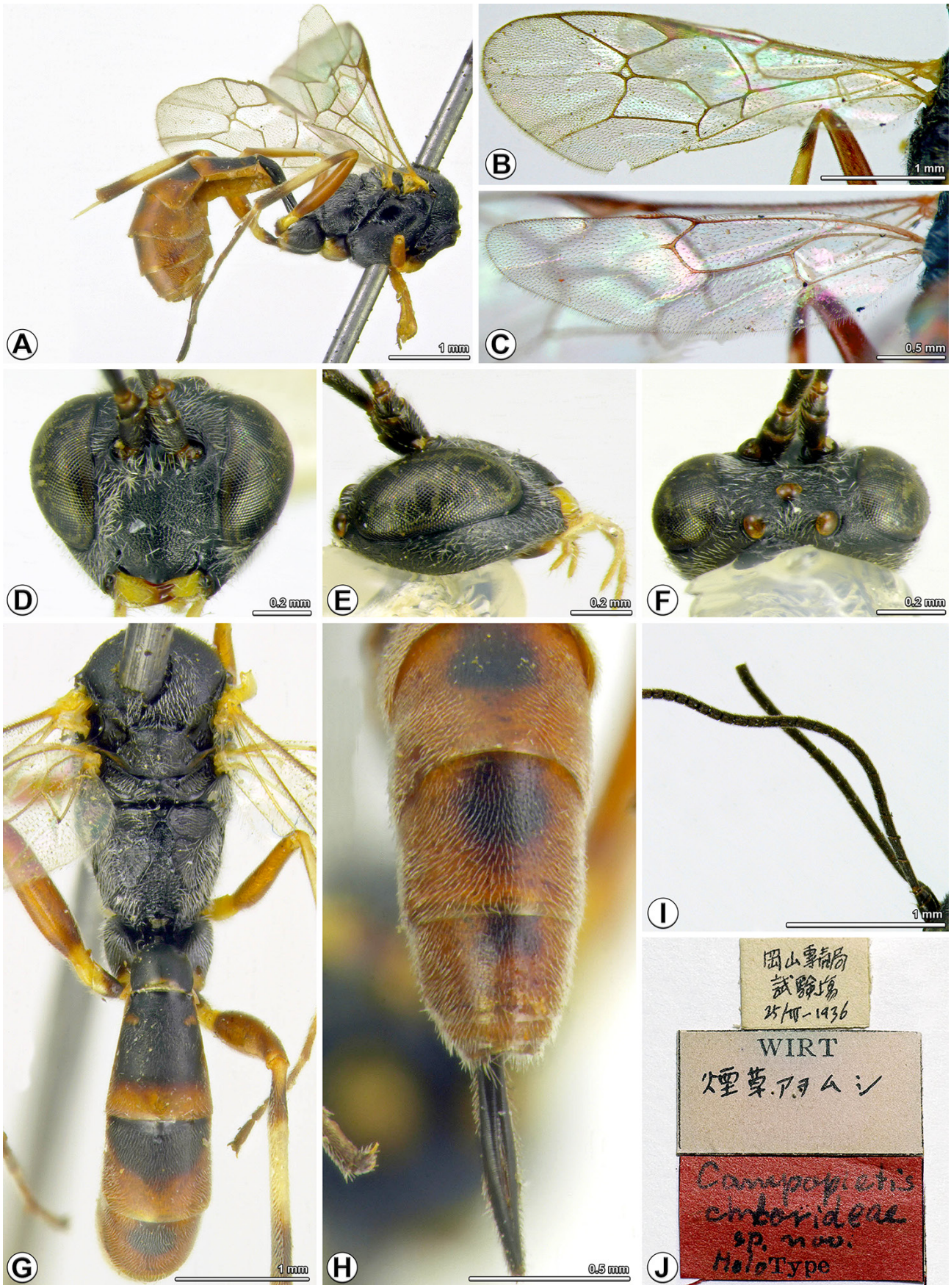


Figure 21. *Campoletis chlorideae* Uchida, 1957, holotype female (ICHUM, courtesy of Kazuhiko Konishi). **A.** Habitus, lateral view; **B.** Fore wing; **C.** Hind wing; **D.** Head, frontal view; **E.** Head, lateral view; **F.** Head, dorsal view; **G.** Mesosoma and metasoma, dorsal view; **H.** T5–T7, dorsal view; **I.** Antenna; **J.** Holotype labels.

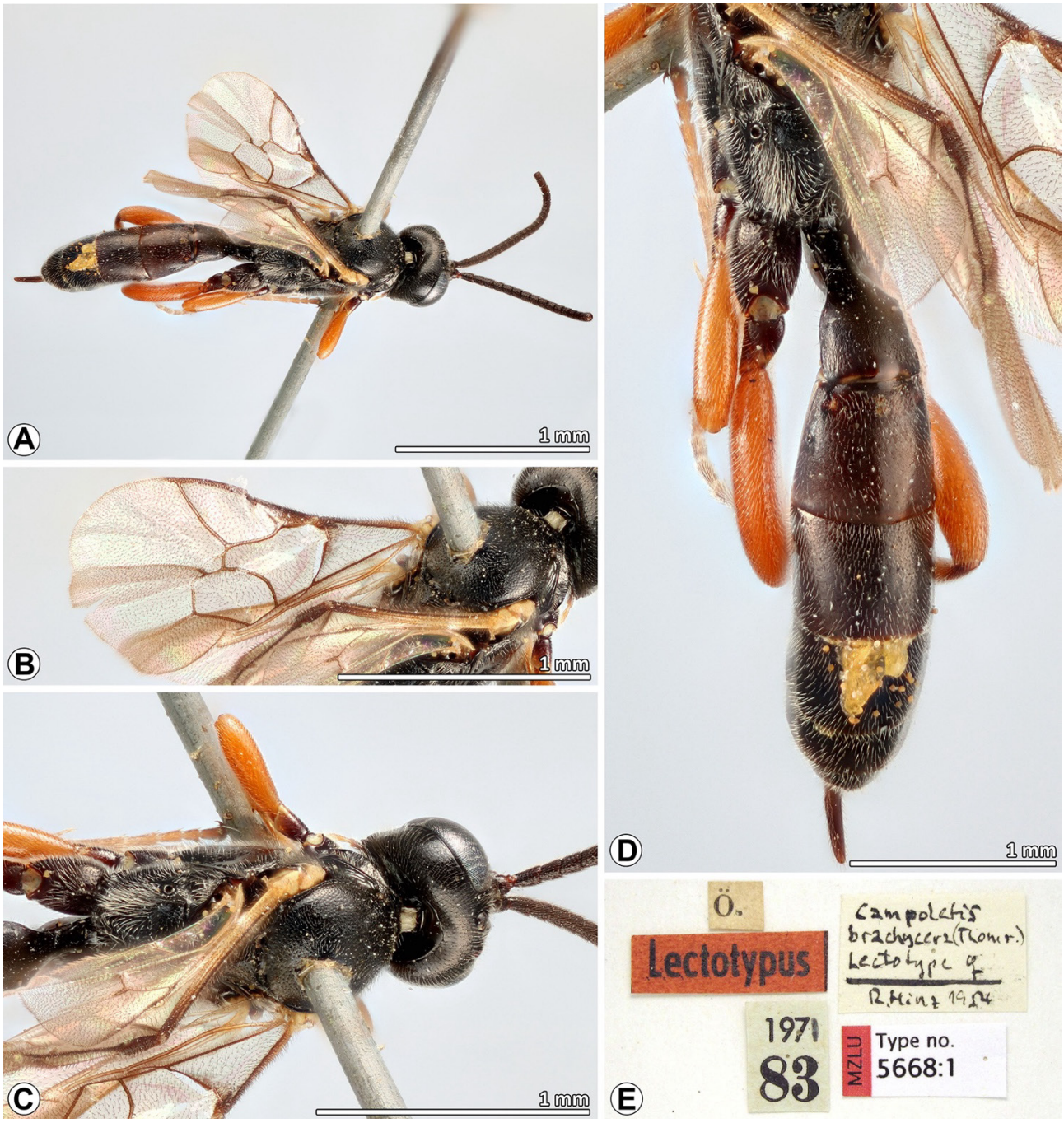


Figure 22. *Sagaritis brachycera* (Thomson, 1887), lectotype female (MZLU) [synonym of *Campoletis crassicornis* (Tschek, 1871)]. **A.** Habitus, dorsal view; **B.** Fore wing; **C.** Head and mesosoma, dorsal view; **D.** Propodeum, metasoma, and hind coxa and hind femur, dorsal view; **G.** Lectotype labels.

Genus *Diadegma* Förster, 1869

Diadegma semiclausum (Hellén, 1949)

Angitia semiclausa Hellén, 1949:20–21.

[Figs 23–24]

Type material. **Lectotype** (designated by Horstmann 1980): PORTUGAL • ♀; Ribeira da Cruz; Flores; Azores; FMNH. **Paralectotype** (designated by Horstmann 1980): PORTUGAL • ♂; same data as for lectotype; FMNH.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'https://id.luomus.fi/GL.5747' (large, rectangular, bearing a Quick Response (QR) code); (2) 'Mus. Zool. H: fors / Spec. typ. No. 5939 / *ANGITIA SEMI- / CLAUSA* Hellén' (large, rectangular; first and second lines printed, third and fourth handwritten); (3) 'Lectotypus / *Angitia* / *semiclausa* / Hellén ♀ / Horstm. 1976' (medium-sized, rectangular, entirely red, handwritten); (4) '*A.* / *semiclausa* / m [male?]' (large, rectangular, handwritten); (5) '853' (tiny, rectangular, printed); (6) 'Azores: Flores / Ribeira da Cruz / 16. VI. Storå' (small, rectangular, printed); (7) 'Photographed / 2015 / Pekka Malinen' (medium-sized, rectangular, entirely blue, printed); (8) 'Mus. Zool. Helsinki / Loan No. / HY3270' (medium-sized, rectangular, entirely yellow; first and second lines printed, third handwritten). **PARALECTOTYPE:** Labels (in order): (1) 'https://id.luomus.fi /GL.5748' (large, rectangular, bearing a Quick Response (QR) code); (2) 'Mus. Zool. H: fors / Spec. typ. No. 5940 / *ANGITIA SEMI- / CLAUSA* Hellén' (large, rectangular; first and second lines printed, third and fourth handwritten); (3) '♂' (tiny, square, handwritten); (4) 'Lectotypus / *Angitia* / *semiclausa* / Hellén ♂ / Horstm. 1977' (medium-sized, rectangular, entirely red, handwritten); (5) '897' (tiny, rectangular, printed); (6) 'Azores: Flores / Ribeira da Cruz / 16. VI. Storå' (small, rectangular, printed); (7) 'Photographed / 2015 / Pekka Malinen' (medium-sized, rectangular, entirely blue, printed); (8) 'Mus. Zool. Helsinki / Loan No. / HY3362' (medium-sized, rectangular, entirely yellow, handwritten).

Type condition. Both lectotype and paralectotype are pinned and in very good condition. Lectotype: left fore leg lacking tibia and tarsomeres; right hind leg lacking tarsomeres: part of the ovipositor sheaths missing. Paralectotype: left antenna with only 17 flagellomeres and right antenna with only six.

Distribution in Syria. Unknown locality (Azidah et al. 2000).

World distribution. AFR, AUS, E-PAL, OTL, W-PAL.

***COI* barcode.** The specimens from Syria correspond to GenBank accession numbers FJ548754 and FJ548756.

FJ548754:

CATCTTGCAGGAATATCATCAATTATAGGAGCAATTAATTTTATTACAACTATTTTTAATATAAAAAATTATAATAAAA
ATTTTGAACAATTAACTTTATTTACTTGATCAATTAATATTACTACAATTTTACTTTTATTAGCTGTTCCAGTACTAGCTG
GAGCTATTACAATATTATTAACTGATCGAAATTTAAATACATCTTTTTTTGACCCATCTGGAGGAGGAGATCCTATCTT
ATACCAACATTTATTCTGATTTTTTGGACATCCTGAAGTTTATATTTTAATTTTACCAGGATTTGGAATAATTTCTCATAT
AATTTTTAATGAAAGAAGAAAAAAAGAAAGATTTGGCTCAATTGGAATAATTTATGCAATATTAACTATTGGATTTTT
AGGATTTATTGTTTGAGCACATCATATATTTACAATTGGTATAGATGTTGACACACGAGCTTATTTTACTTCAGCTACA
ATAATTATTGCTATTCCAACAGGAATTAAAGTTTTTAGTTGATTAGCAACAATTCATGGATCAAAAATAAACTTTAATT
CAACTAAAATTTGAACTTTAGGGTTTATTTTTTATTTACAATTGGAGGATTAACAGGTGTAATTTTAGCTAATTCATCA
ATTGATATTATACTTCATGACACTTATTATGTAGTTGCACATTTTCATTATGTATTATCTATAGGAGCTGT

FJ548756:

ACTTTCATTAAATATTAGACATGAAGGAATATCTGTAGACTTAGCTATTTTTTCATTACATCTTGCAGGAATATCATCA
ATTATAGGAGCAATTAATTTTATTACAACTATTTTTAATATAAAAAATTATAATAAAAATTTTGAACAATTAACTTTATT
TACTTGATCAATTAATATTACTACAATTTTACTTTTATTAGCTGTTCCAGTACTAGCTGGAGCTATTACAATATTATTAA
CTGATCGAAATTTAAATACATCTTTTTTTGACCCATCTGGAGGAGGAGATCCTATCTTATACCAACATTTATTCTGATTT
TTTGGACATCCTGAAGTTTATATTTTAATTTTACCAGGATTTGGAATAATTTCTCATATAATTTTTAATGAAAGAAGAAA
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CATATATTTACAATTGGTATAGATGTTGACACACGAGCTTATTTTACTTCAGCTACAATAATTATTGCTATTCCAACAG
GAATTAAAGTTTTTAGTTGATTAGCAACAATTCATGGATCAAAAATAAACTTTAATTCAACTAAAATTTGAACTTTAGG
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CTTATTATGTAGTTGCACATTTTCATTATGTATTATCTATAGGAGCTGTATTTGCA

***ITS2* consensus sequence.** The specimens from Syria correspond to GenBank accession numbers FJ548755, FJ548757, FJ573182 and FJ573183:

FJ548755:

CTGCAGGACACATGAACATCGACATTTCGAACGCACATTGCGGTCCACGGATACAATTCCCGGACCACGCCTGGCT
GAGGGTCGTTTATGAATAAAAGTAAGACTGCTGCGTGTTTACACACGCTAGCGAATATGATGGGCGTTCGTCGATTG
GAAACCGGCAAAGCGCTGGGGAACGATCGGCGTCGCTTGAAGTGAATTAGTCGCGCAGGGTCACGGAGATCGAG
GGTCTTTCGATCCTCGATCCGGATCCCGCGACAAGCTTTCGCGTCGCTCGTGTTCCGTGCTTAATAAACACGGGGAT
CGGGCGCGCGGAAGCGAGACTCATTGAGAGCCGAGCCACAAAGTTTGAGCTGAGCCCGAGAGATCGAGAAAATA
CCATACGAACGCTCGTCGTTCGTAGGGCGTGTTCCCCGAATCTCGCGTAAGAGAGAATACCGCAAACACATTGACA

AGTGAACGGTCCGAGCAATCGCTAAACGGCCGGTCGATCGAGTCCCGGGGAGCTATATTCATAGTTCGAAGAGGA
CAGATACGACCCGTGTACGTTGGTAGCTCGTCCCCGTCGTGTTGCGCTTCTCCGAAACGCGTGCGGTTCGAGAGGG
ACAATAGAACGCGAAATGTCCACGGCTTTTCCGATCACGTATCTCGGCCTCTTCCAATAATGACTTTTGTGGCTCGAA
TCTTCTCATGGTTTCGATATAATCAACGAC

FJ548757:

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CTCGTCGTTCGTAGGGCGTGTTCCCCGAATCTCGCGTAAGAGAGAATACCGCAAACACATTGACAAGTGAACGGTC
CGAGCAATCGCTAAACGGCCGGTCGATCGAGTCCCGGGGAGCTATATTCATAGTTCGAAGAGGACAGATACGACC
CGTGTACGTTGGTAGCTCGTCCCCGTCGTGTTGCGCTTCTCCGAAACGCGTGCGGTTCGAGAGGGACAATAGAACG
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TTCGATATAATCAACGAC

FJ573182:

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CGAGCAATCGCTAAACGGCCGGTCGATCGAGTCCCGGGGAGCTATATTCATAGTTCGAAGAGGACAGATACGACC
CGTGTACGTTGGTAGCTCGTCCCCGTCGTGTTGCGCTTCTCCGAAACGCGTGCGGTTCGAGAGGGACAATAGAACG
CGAAATGTCCACGGCTTTTCCGATCACGTATCTCGGCCTCTTCCAATAATGACTTTTGTGGCTCGAATCTTCTCATGGT
TTCGATATAATCAACGAC

FJ573183:

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CGAGCAATCGCTAAACGGCCGGTCGATCGAGTCCCGGGGAGCTATATTCATAGTTCGAAGAGGACAGATACGACC
CGTGTACGTTGGTAGCTCGTCCCCGTCGTGTTGCGCTTCTCCGAAACGCGTGCGGTTCGAGAGGGACAATAGAACG
CGAAATGTCCACGGCTTTTCCGATCACGTATCTCGGCCTCTTCCAATAATGACTTTTGTGGCTCGAATCTTCTCATGGT
TTCGATATAATCAACGAC

Genus *Dusona* Cameron, 1901

Dusona intelligator Aubert, 1966

Dusona intelligator Aubert, 1966:37.

[Fig. 25]

Type material. **Lectotype** (designated here): ISRAEL • ♀; Ramot Naftali; MZL.

Label data of type. Labels (in order): (1) 'LECTO- / TYPE / 2022' (small, circular, red-bordered, printed); (2) 'TYPE' (small, rectangular, entirely red, printed); (3) '*DUSONA* ♀ Aubert / *INTELLIGATOR* / J. F. [Jean-François] AUBERT DET. [*determinavit*]' (medium-sized, rectangular; first and second lines handwritten, third printed); (4) 'KOGLER LEG. [*legit*] / J. F. [Jean-François] AUBERT / 15.II.1965 ISRAEL / RAMOT. NAFTALI' (medium-sized, rectangular; all lines handwritten except the second which is printed); (5) 'Syntypes 1/2(1) / *Dusona/intelligator* / Aubert, 1966i / labelled by S. [Seraina] Klopfstein 2009' (large, rectangular white with red lateral bands, printed); (6) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890995' (medium-sized, rectangular, with a Quick Response (QR) code).

Type condition. Specimen pinned and in good condition; metasoma mounted on an additional red label.

Distribution in Syria. Unknown locality (Horstmann 2011).

World distribution. W-PAL.

Remarks. The original type material of *Dusona intelligator* includes a syntype series, of which a female from Ramot Naftali, Israel, is preserved in the Aubert collection at MZL. The species has subsequently been treated in comprehensive revisions of *Dusona*, including its distinction from morphologically similar congeners based on antennal and propodeal characters. To establish a single name-bearing reference corresponding to the original species concept and facilitate consistent application of the name in subsequent taxonomic and regional faunistic studies, we hereby designate the female syntype from Ramot Naftali as the lectotype of *D. intelligator* Aubert, 1966.

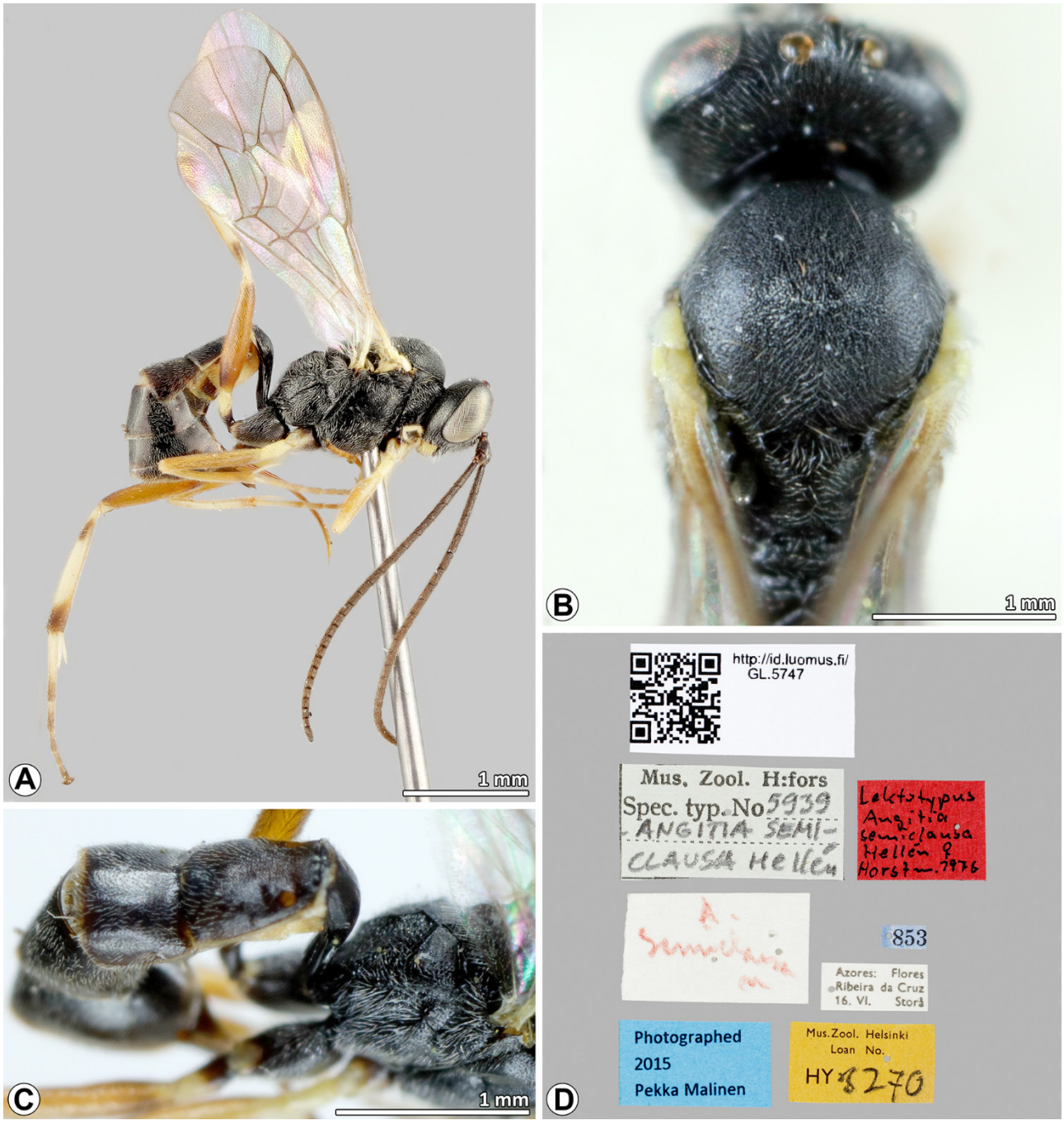


Figure 23. *Diadegma semiclausum* (Hellén, 1949), lectotype female (FMNH). **A.** Habitus, lateral view; **B.** Head, mesoscutum, and scutellum, dorsal view; **C.** Propodeum and metasoma, lateral view; **D.** Lectotype labels.



Figure 24. *Diadegma semiclausum* (Hellén, 1949), paralectotype male (FMNH). **A.** Habitus, lateral view; **B.** Head, pronotum, and antenna, lateral view; **C.** Wings; **D.** Paralectotype labels.

Dusona tricolorator Aubert, 1970

Dusona tricolorator Aubert, 1970:65.

[Fig. 26]

Type material. **Holotype**: TÜRKIYE • ♀; Urfa; MZL.

Label data of type. Labels (in order): (1) 'TYPE' (small, rectangular, entirely red, printed); (2) '*DUSONA* ♀ / *TRICOLORATOR* Aub.' (medium-sized, rectangular, handwritten); (3) 'J. F. [Jean-François] AUBERT / 19.5.1967 [19.v.1967} / URFA. [called Şanlıurfa] TURQUIE [French for Türkiye]' (medium-sized, rectangular; first line printed, second and third handwritten); (4) 'Holotype / *Dusona* / *tricolorator* /

Aubert, 1970b / labelled by S. [Seraina] Klopfstein 2009' (large, rectangular, white with red lateral bands, printed); (5) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890994' (medium-sized, rectangular, with a Quick Response (QR) barcode).

Type condition. Specimen pinned and in good condition; right antenna missing.

Distribution in Syria. Unknown locality (Horstmann 2011).

World distribution. W-PAL.

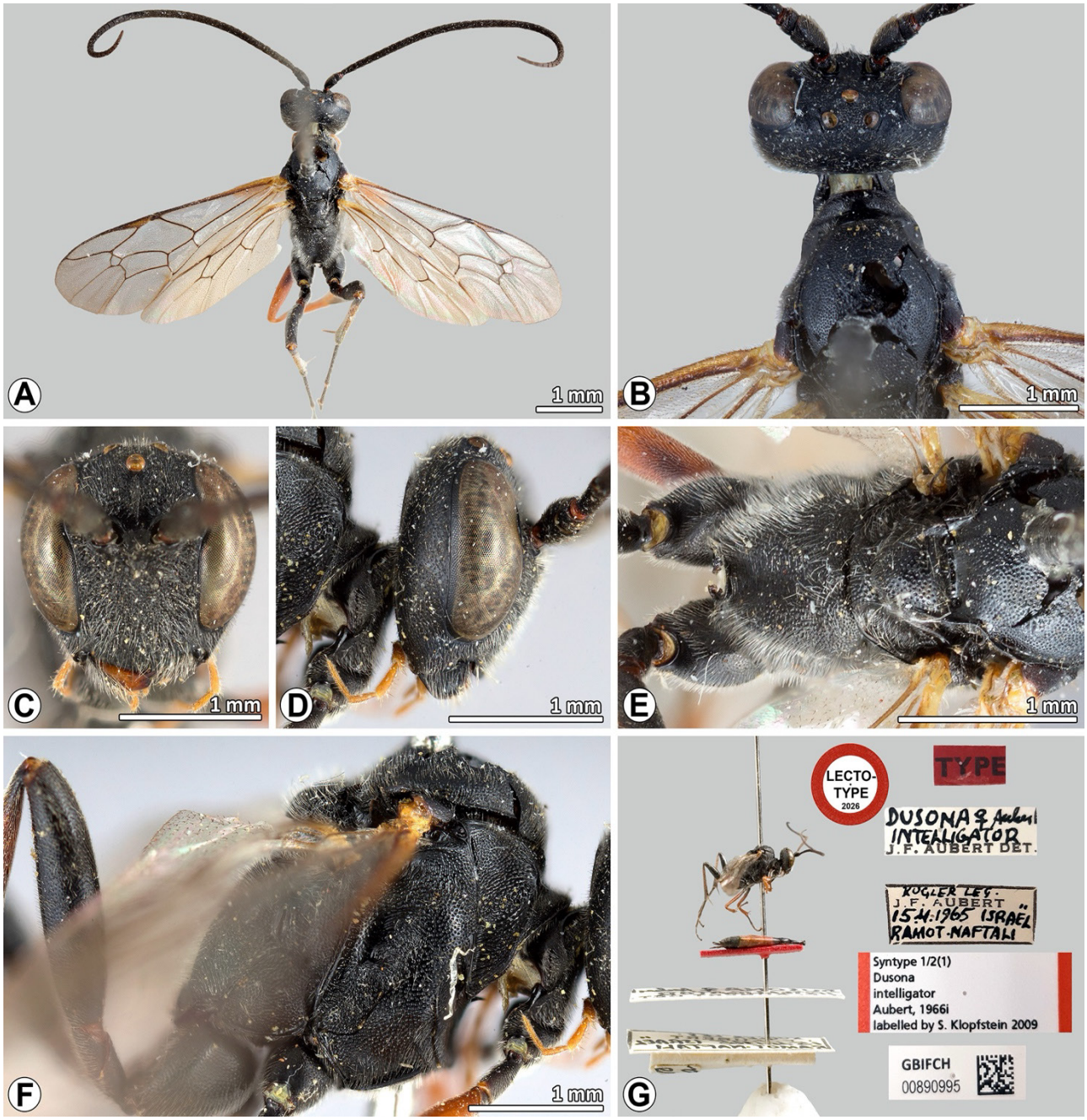


Figure 25. *Dusona intelligator* Aubert, 1966, lectotype female **design. nov.** (MZL). **A.** Habitus, dorsal view; **B.** Head and mesoscutum, dorsal view; **C., D.** Head; **C.** Frontal view; **D.** Lateral view; **E.** Scutellum and propodeum, dorsal view; **F.** Mesosoma, hind coxa, and hind femur, lateral view; **G.** Lectotype labels and pinned lectotype specimen.

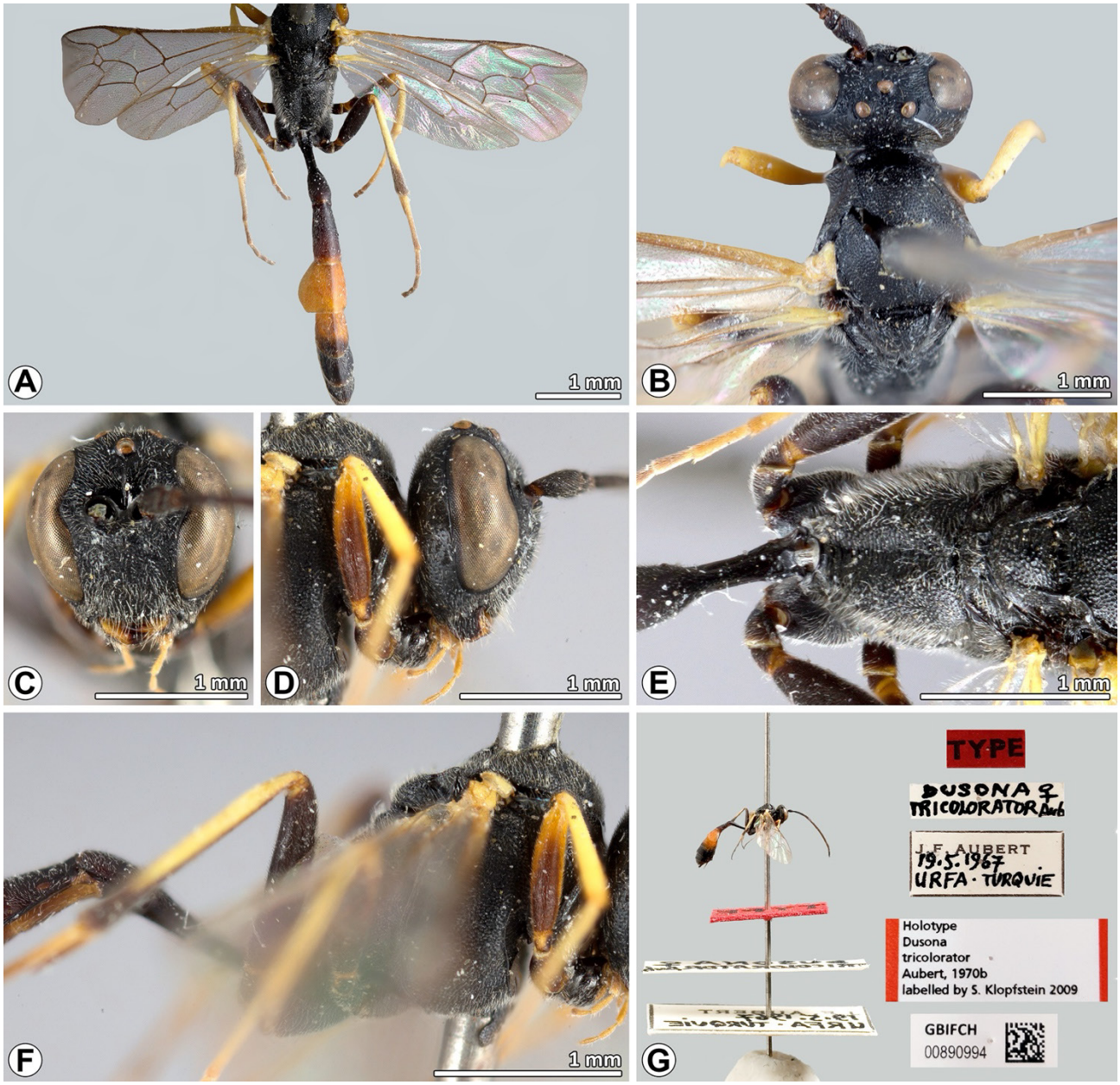


Figure 26. *Dusona tricolorator* Aubert, 1970, holotype female (MZL). **A.** Mesosoma and metasoma, dorsal view; **B.** Head and mesosoma, dorsal view; **C., D.** Head; **C.** Frontal view; **D.** Lateral view; **E.** Scutellum, propodeum, and T1, dorsal view; **F.** Mesosoma and legs, lateral view; **G.** Holotype labels and pinned holotype specimen.

Subfamily Collyriinae Cushman, 1924

Genus *Aubertiella* Kuslitzky & Kasparyan, 2011

Aubertiella nigricator (Aubert, 1964)

Collyria nigricator Aubert, 1964:35.

[Fig. 27]

Type material. **Lectotype** (designated here): SYRIA • ♂; Damascus; MZL.

Label data of type. Labels (in order): (1) 'LECTO- / TYPE / 2022' (small, circular, red-bordered, printed); (2) 'TYPE' (small, rectangular, entirely red, printed); (3) '*COLLYRIA* ♂ / *NIGRICATOR* Aub.' (medium-sized, rectangular, handwritten); (4) 'J. F. [Jean-François] AUBERT / Syrie Damas [in French = Damascus, Syria] / Rte de Kissoue ["road to Kisweh] / 2–18 V 1960 / J. [Jacques] de Beaumont' (two

lables, one superposed on the other, the upper label overhanging: large, rectangular, printed); (5) 'Syntype 1/2(2) / *Collyria /nigricator* / Aubert, 1964d / labelled by S. [Seraina] Klopfstein 2009' (large, rectangular, white with red lateral bands, printed); (6) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890993' (square, with a Quick Response (QR) code).

Type condition. Specimen pinned, in good condition; right antenna with pedicel only; left antenna broken and lost during photography.

Distribution in Syria. Damascus governorate (Aubert 1964).

World distribution. W-PAL.

Remarks. Aubert (1964) based *Collyria nigricator* on two syntypes without fixing a holotype. Because this species was subsequently transferred to the separately recognised genus *Aubertiella* and is central to the taxonomic concept of that genus, the male syntype from Damascus illustrated here is hereby designated as lectotype to provide an unambiguous name-bearing reference for the species.

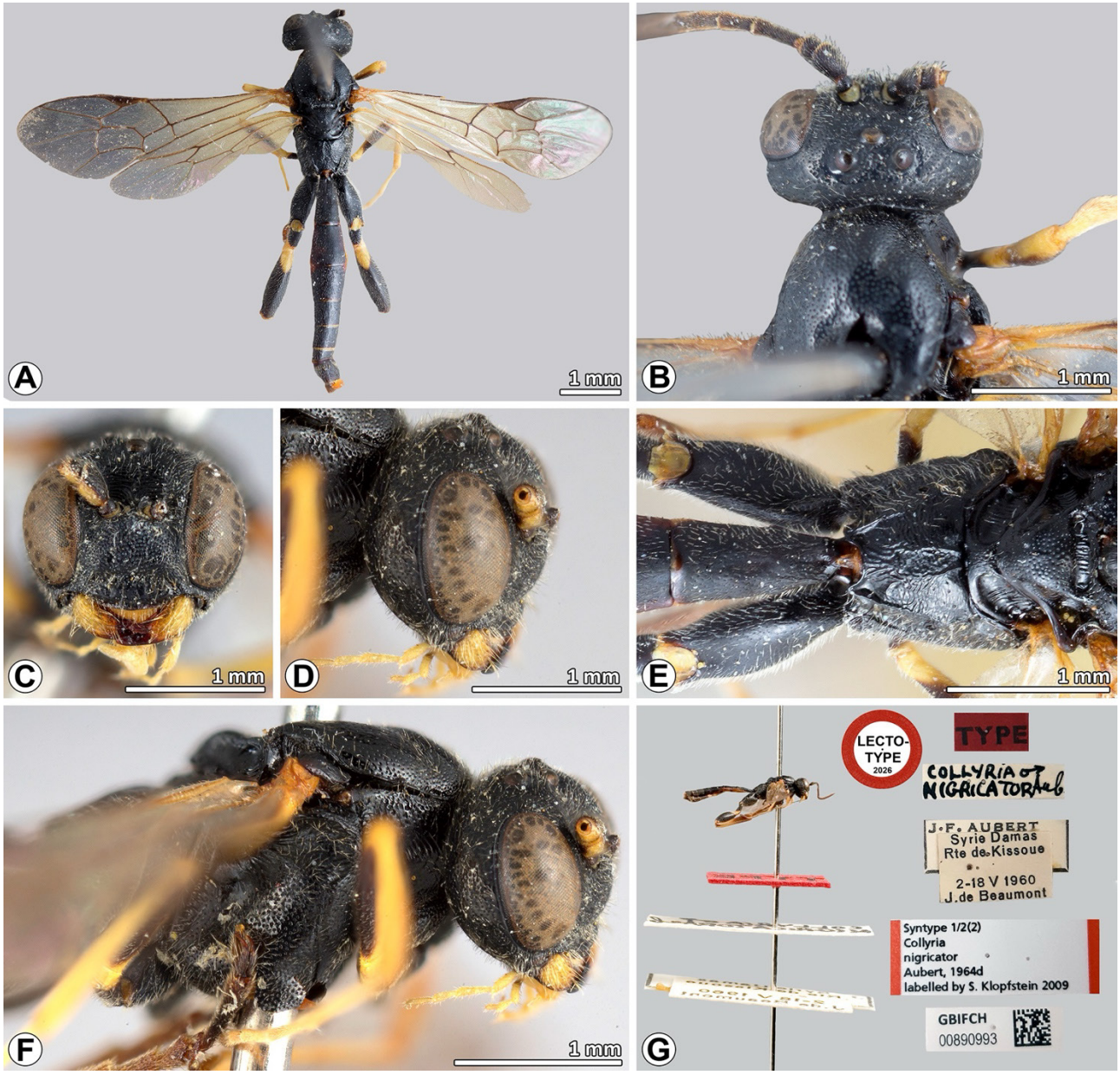


Figure 27. *Aubertiella nigricator* (Aubert, 1964), lectotype male **design. nov.** (MZL). **A.** Habitus, dorsal view; **B.** Head and mesoscutum, dorsal view; **C., D.** Head; **C.** Frontal view; **D.** Lateral view; **E.** Scutellum, metanotum, propodeum, T1, and hind coxa, dorsal view; **F.** Head and mesosoma, lateral view; **G.** Pinned lectotype specimen with labels.

Genus *Collyria* Schiødte, 1839

Collyria coxator (Villers, 1789)

Ichneumon coxator Villers, 1789:193.

[Fig. 28]

Type material. **Syntypes**: FRANCE • sex and depository unknown.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 8 Jun. 2021[A]; general sweeping; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Aleppo governorate (Miller et al. 1992).

World distribution. E-PAL, NEA, W-PAL.

Remarks. Villers (1789:193) did not specify the number of specimens examined, nor did he designate a holotype or other name-bearing type. Accordingly, all specimens included in the original description are treated as syntypes under Article 73.2 of the ICZN (1999). Khalaim et al. (2019) treated this taxon as the nominotypical subspecies *C. coxator coxator*.

Collyria orientator Aubert, 1979

Collyria orientator Aubert, 1979:17.

[Fig. 29]

Type material. **Lectotype** (designated here): ISRAEL • ♀; Benjamina; MZL.

Label data of type. Labels (in order): (1) 'LECTO- / TYPE / 2022' (small, circular, red-bordered, printed); (2) 'TYPE' (small, rectangular, entirely red, printed); (3) '*COLLYRIA* ♀ / *CALCITRATOR* gr [*gregarious*] / *ORIENTATOR* Aub.' (medium-sized, rectangular, handwritten); (4) '66 / Benjamina [**Binyamina-Giv'at Ada**] / PALESTINE / 12.4.1947 [12.iv.1947] / leg. [*legit*] Bytinski-Salz' (two overlapping labels; "66" text vertical (lines horizontal); medium-sized, rectangular; first and third lines handwritten, second and fourth printed); (5) 'Syntype 1/?(4) / *Collyria* / *orientator* / Aubert, 1979d / labelled by S. [Seraina] Klopfstein 2009' (large, rectangular, white with a red lateral bands, printed); (6) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890991' (medium- sized, rectangular, with a Quick Response (QR) code).

Type condition. Specimen pinned, in good condition; antennae and left mid leg missing.

Distribution in Syria. Damascus governorate (Aubert 1979).

World distribution. W-PAL.

Remarks. The original type fixation of *Collyria orientator* is ambiguous. Although Aubert (1979) referred to a holotype, both a male and a female from Binyamina were labelled as "Type", and Klopfstein & Baur (2011) consequently treated the four specimens cited in the original description as syntypes. To remove this ambiguity and objectively fix the application of the name, the female syntype from Binyamina illustrated here is hereby designated as lectotype.

Subfamily Cremastinae Förster, 1869

Genus *Pristomerus* Curtis, 1836

Pristomerus vulnerator (Panzer, 1799)

Ichneumon vulnerator Panzer, 1799:Tab. 5.

[Fig. 30]

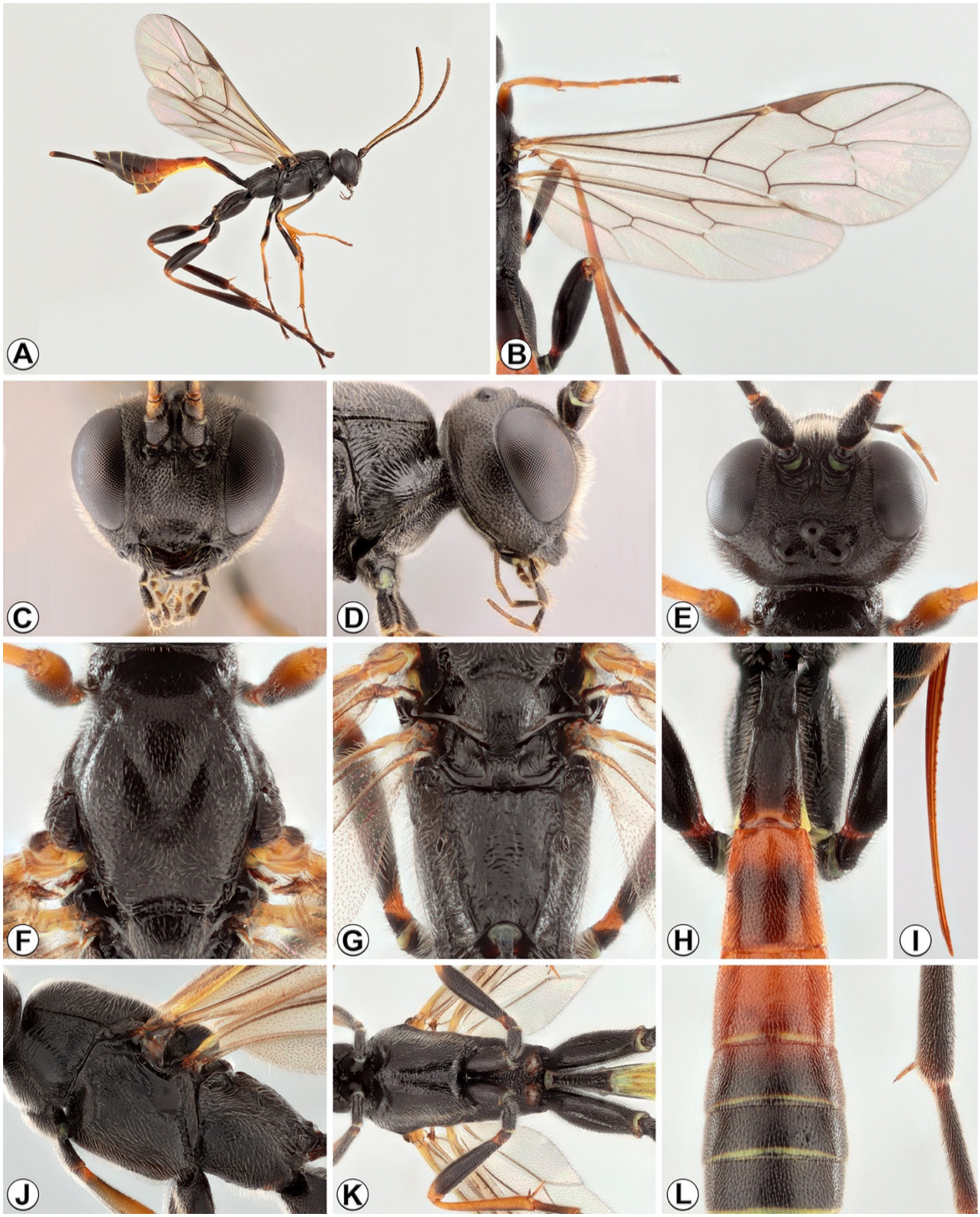


Figure 28. *Collyria coxator* (Villers, 1789), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Mesosoma and T1, ventral view; **L.** T3–T6, dorsal view. Body length: 8 mm.

Type material. **Syntypes**: country of type locality, sex and depository unknown.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Wilts, VC 8, OSGR SU01;

28 Jul. 2019[J]; swept from wild parsnip; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. As-Suwayda, Damascus, and Latakia governorates (Basheer et al. 2016).

World distribution. E-PAL, NEA, OTL, W-PAL.

Remarks. Panzer (1799:Tab. 5) did not state the number of specimens examined, nor did he designate any single specimen as holotype. All specimens are therefore regarded as syntypes in accordance with Article 73.2 of the ICZN (1999).

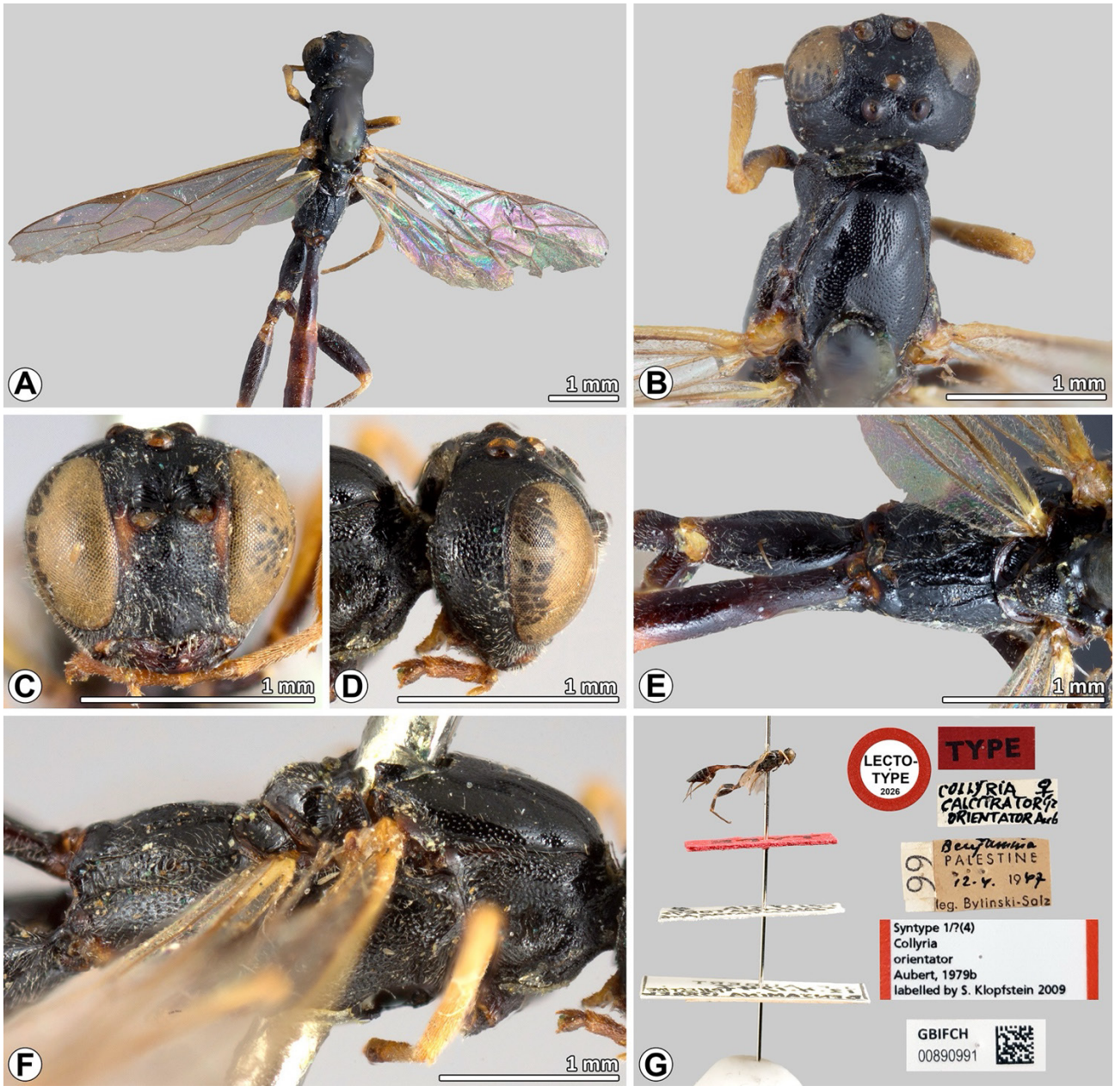


Figure 29. *Collyria orientator* Aubert, 1979, lectotype female **design. nov.** (MZL). **A.** Head, mesosoma, T1–T3, dorsal view; **B.** Head and mesoscutum, dorsal view; **C., D.** Head; **C.** Frontal view; **D.** Lateral view; **E.** Scutellum, metanotum, propodeum, T1, and hind coxa, dorsal view; **F.** Mesosoma, lateral view; **G.** Pinned lectotype specimen with labels.

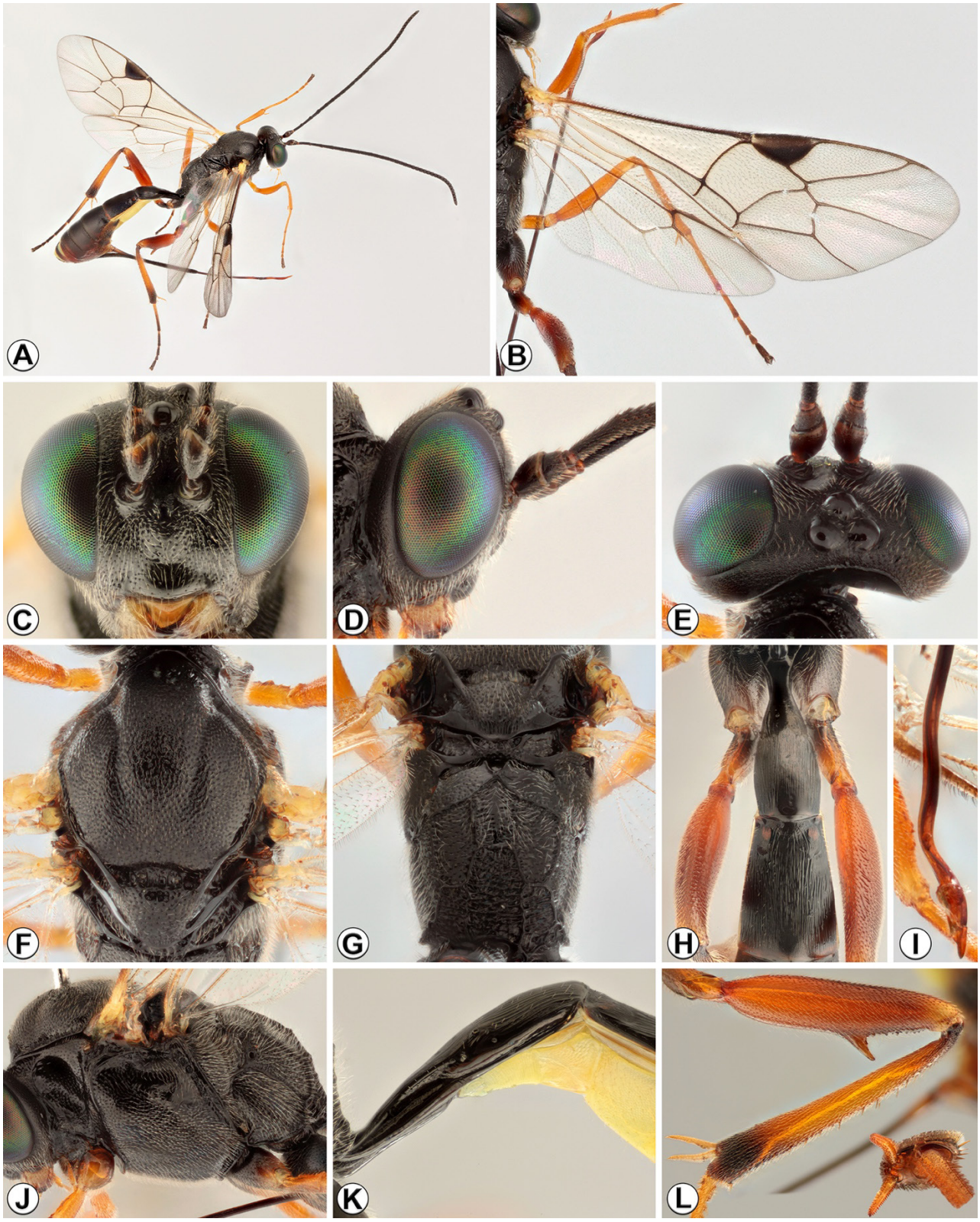


Figure 30. *Pristomerus vulnerator* (Panzer, 1799), female from the United Kingdom (MWS). **A.** Habitus, laterodorsal view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** T1, lateral view; **L.** Metafemur, metatibia, and metabasitarsus.

Subfamily Cryptinae Kirby, 1837

Genus *Acroricnus* Ratzeburg, 1852

Acroricnus seductor seductor (Scopoli, 1786)

Ichneumon seductor Scopoli, 1786:57.

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Unknown locality (Mocsáry 1883; Magretti 1890; Szépligeti 1916; Frilli 1965; Kolarov 2008, Ghahari et al. 2026).

World distribution. E-PAL, W-PAL.

Remarks. Historical records of *Acroricnus seductor* from Syria (Mocsáry 1883; Magretti 1890; Szépligeti 1916; Frilli 1965) predate the currently recognised subspecific treatment and therefore cannot be assigned confidently to A. *s. seductor*. Later citations, including Kolarov (2008) and Ghahari et al. (2026), do not provide evidence that these historical Syrian records were independently verified at subspecies level. Accordingly, the occurrence of *A. s. seductor* in Syria is regarded as doubtful and is provisionally retained pending examination of additional material.

Acroricnus seductor elegans (Mocsáry, 1883)

Osprynchotus elegans Mocsáry, 1883:11.

Type material. **Holotype**: RUSSIA • ♀; HNHM.

Label data of type. Not examined firsthand (see Schwarz 2005).

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Szépligeti 1916; Kolarov 2008, Ghahari et al. 2026).

World distribution. E-PAL, W-PAL.

Remarks. Although Szépligeti (1916) reported *Acroricnus seductor elegans* from Syria, the taxonomic concept at that time did not account for the subspecific distinctions recognised today. As a result, the Syrian material cited in that work cannot be reliably referred to any currently accepted subspecies. Accordingly, the record of *Acroricnus seductor elegans* from Syria is considered questionable, although it is tentatively maintained here, pending the examination of additional material and further taxonomic revision.

Acroricnus seductor syriacus (Mocsáry, 1883)

Osprynchotus syriacus Mocsáry 1883:12.

Type material. **Holotype**: SYRIA • ♂; HNHM.

Label data of type. Not examined firsthand (see Schwarz 2005).

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Aleppo, Idlib, and Latakia governorates (Schmidt 1954; Schwarz 2005).

World distribution. E-PAL, W-PAL.

Remarks. In contrast to the preceding subspecies, the occurrence of *A. s. syriacus* in Syria is supported by the holotype from Syria and by additional Syrian material reported from Aleppo, Idlib, and Latakia by Schmidt (1954) and Schwarz (2005).

Genus *Cryptus* Fabricius, 1804

Cryptus albidentatus Schwarz, 2015

Itamoplex indicum Jonathan, 2000:175 (preoccupied in *Cryptus*; secondary homonym of *Cryptus indicus* Cameron, 1897).
Cryptus albidentatus Schwarz, 2015:795–798 (new name for *Itamoplex indicum* Jonathan, 2000).

[Fig. 31]

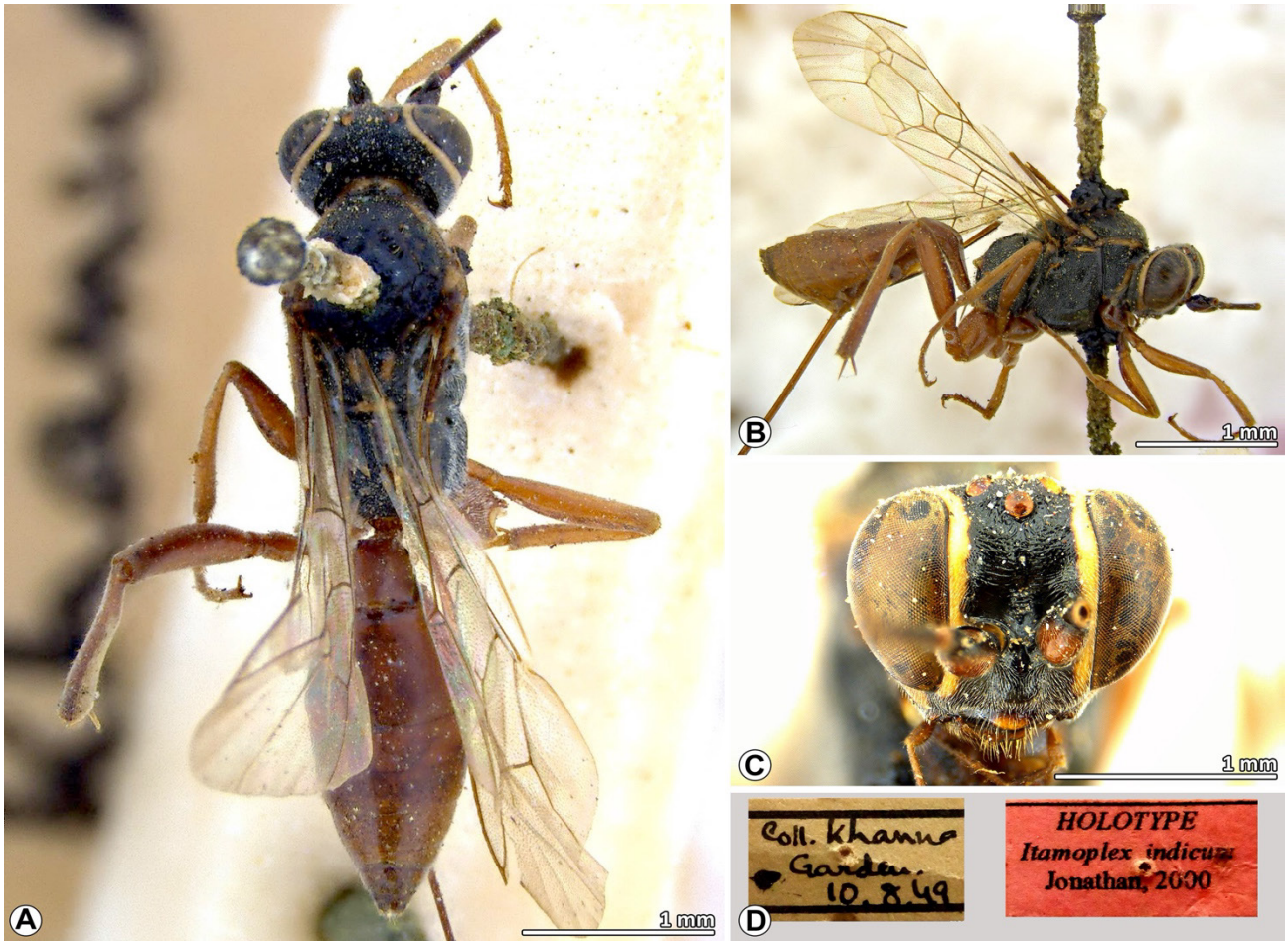


Figure 31. *Cryptus albidentatus* Schwarz, 2015, holotype female (ZSI). **A., B.** Habitus; **A**. Dorsal view; **B.** Lateral view; **C.** Head, frontal view; **D.** Holotype labels.

Type material. **Holotype**: INDIA • ♀; ZSI.

Label data of type. Labels (in order): (1) 'Coll. [collection] Khanna / Gardeu. [possibly Garga?]/ 10.8.49' (large, rectangular, handwritten); (2) 'HOLOTYPE / *Itamoplex indicum* / Jonathan, 2000' (large, rectangular, entirely red, printed).

Type condition. Specimen pinned and in relatively good condition; left antenna lacking all flagellomeres; right antenna retaining only the basal flagellomeres; wings partially torn; left hind leg lacking tarsomeres; right hind leg with coxa only.

Distribution in Syria. Damascus governorate (Schwarz 2015).

World distribution. E-PAL, OTL, W-PAL.

Cryptus inculcator (Linnaeus, 1758)

Ichneumon inculcator Linnaeus, 1758:565.

[Fig. 32]

Type material. **Lectotype** (designated by Horstmann 2000): country of type locality unknown • ♀; LSUK.

Label data of type. Labels (in order): (1) 'LECTO- / TYPE' (small, circular, red-bordered, printed); (2) 'HOLOTYPE / *Ichneumon* / *inculcator* L. ♀ / constat. [*constatavit*] G. [Guido] van Rossem 1968' (medium-sized, rectangular; first and fourth lines printed, second and third handwritten); (3) '45. *inculcator*' (medium-sized, rectangular, handwritten); (4) 'LECTOTYPE ♀ / *Ichneumon* / *inculcator* Linnaeus 1758 / by designation of / van Rossem 1969:345 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; all lines handwritten except sixth, which is printed).

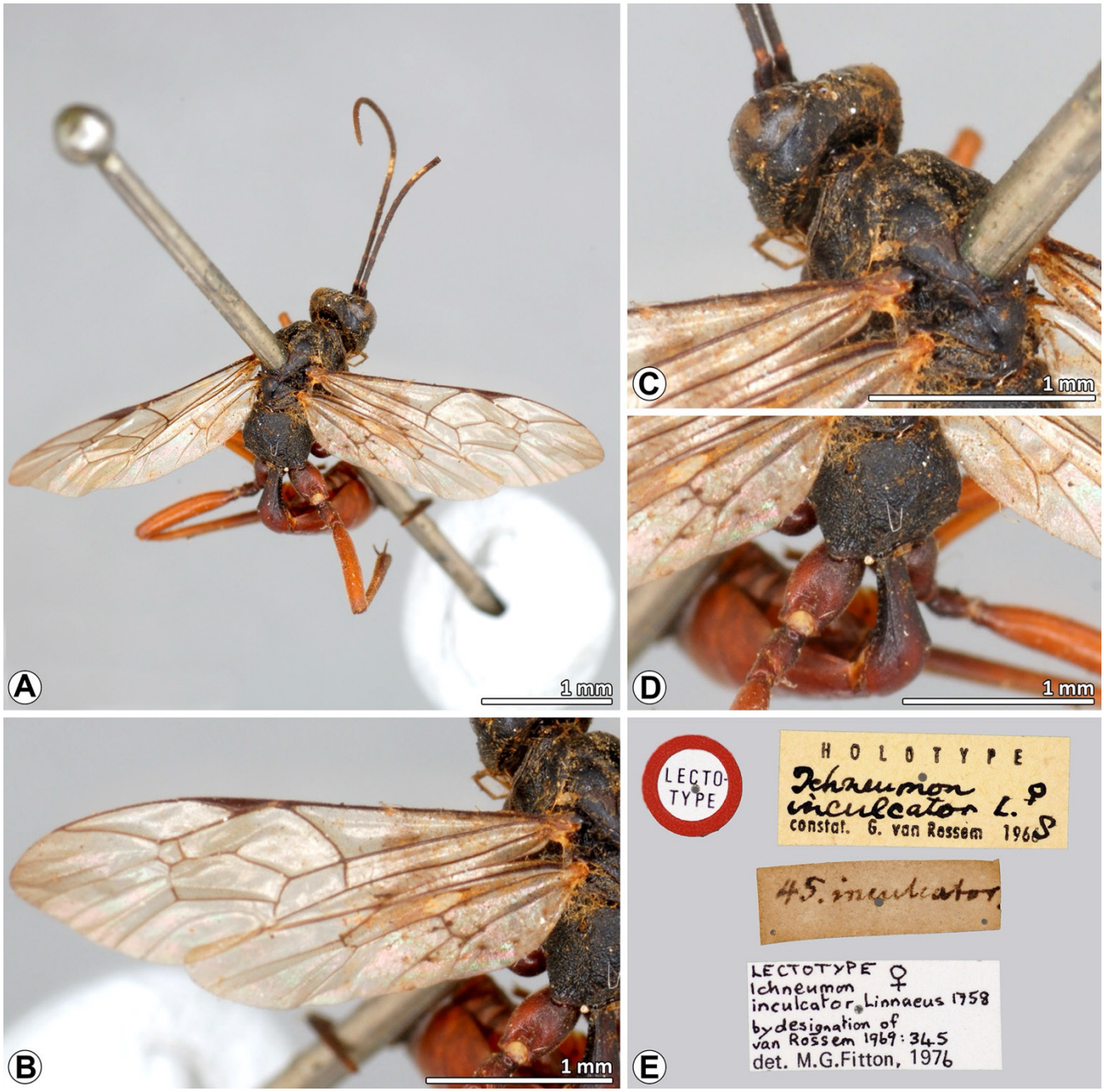


Figure 32. *Cryptus inculcator* (Linnaeus, 1758), lectotype female (LSUK). **A.** Habitus, dorsolateral view; **B.** Wings; **C.** Head, mesoscutum, and scutellum, dorsolateral view; **D.** Propodeum, T1, and hind coxa, dorsal view; **E.** Lectotype labels.

Type condition. Specimen pinned and in good condition; left antenna with 10 flagellomeres only; left hind leg lacking trochanters.

Distribution in Syria. As-Suwayda governorate (Schwarz 2015).

World distribution. E-PAL, W-PAL.

Remark. Additional data associated with the Linnaean collection include genus number (244), species number (49), reference number (LINN 2644), and box number (HYM–9).

Cryptus spinosus Gravenhorst, 1829

Cryptus spinosus Gravenhorst, 1829a:554.

Type material. **Lectotype** (designated by van Rossem 1969a): country of type locality unknown • ♀; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Idlib governorate (Schwarz 2015).

World distribution. E-PAL, W-PAL.

Remarks. Neither the type material nor associated digital images were available for examination. The relevant collections had not yet been digitised, and the specimens were not available on loan. Although travel to Poland was possible in recent years, direct examination of the material remained constrained by several practical, administrative, and logistical limitations. Accordingly, the type material could not be examined firsthand.

Cryptus triguttatus Gravenhorst, 1829

Cryptus triguttatus Gravenhorst, 1829b:534.

Type material. **Lectotype** (designated by van Rossem 1969a): AUSTRIA • ♂; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Idlib governorate (Schwarz 2015).

World distribution. E-PAL, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Cryptus tuberculatus Gravenhorst, 1829

Cryptus tuberculatus Gravenhorst, 1829b:501.

[Fig. 33]

Type material. **Lectotype** (designated by van Rossem 1969a): UKRAINE • ♀; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, Dorset, VC 9, OSGR SY66; 22 May 2023[D]; swept from flowering *Smyrnium olusatrum* L.; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Homs and As-Suwayda governorates (Schwarz 2015).

World distribution. E-PAL, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Genus *Gambrus* Förster, 1869

Gambrus ornatus (Gravenhorst, 1829)

Cryptus ornatus Gravenhorst, 1829b:620.

[Fig. 34]

Type material. **Lectotype** (designated by Frilli 1978): UKRAINE • ♀; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Hants, VC 11, OSGR SZ19; 16 Aug. 2024[D]; swept from broom; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 15 Aug. 2022[B]; swept from maritime grasses; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

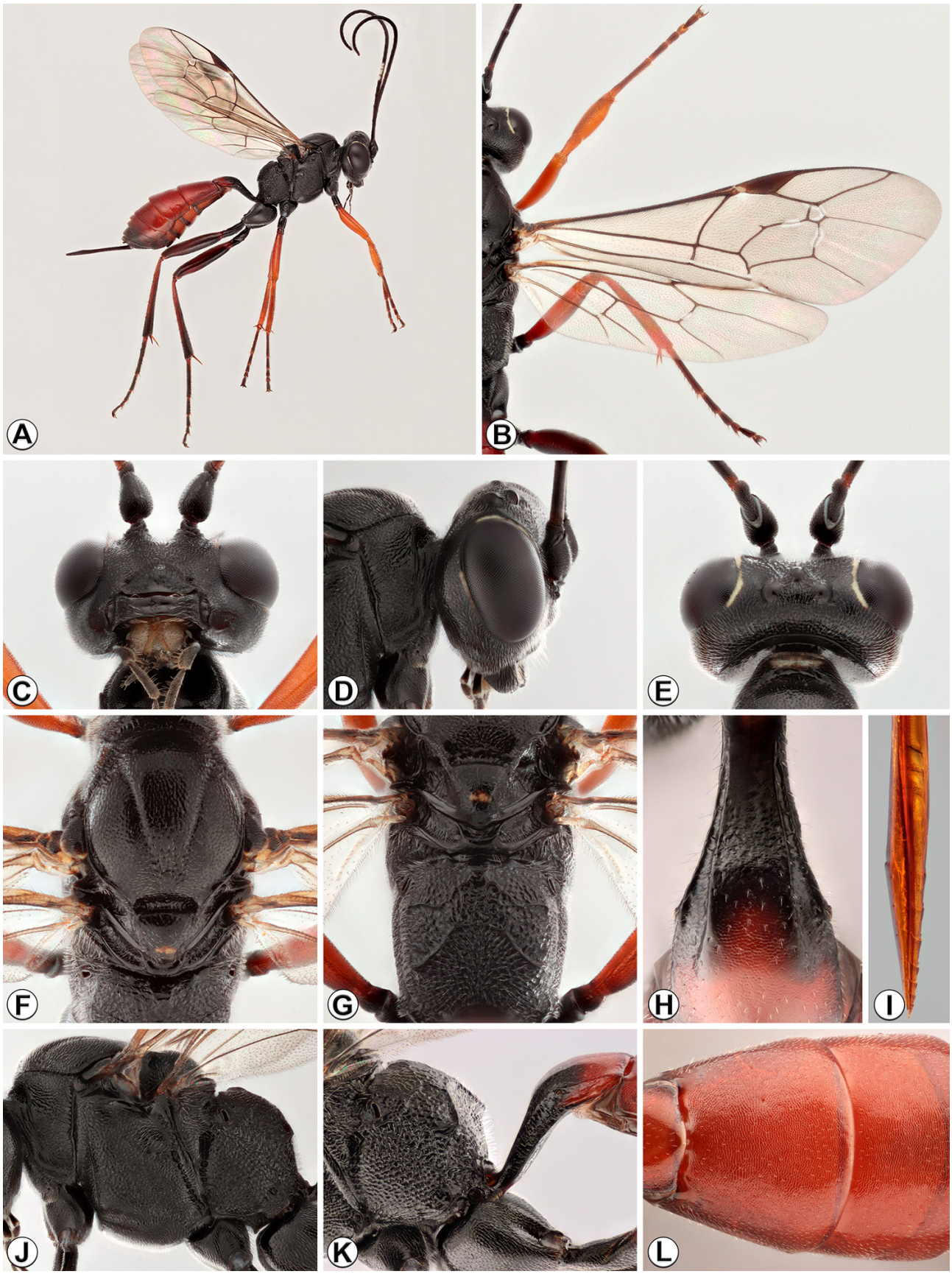


Figure 33. *Cryptus tuberculatus* Gravenhorst, 1829, female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1, lateral view; **L.** T2–T3, dorsal view. Body length: 7 mm.

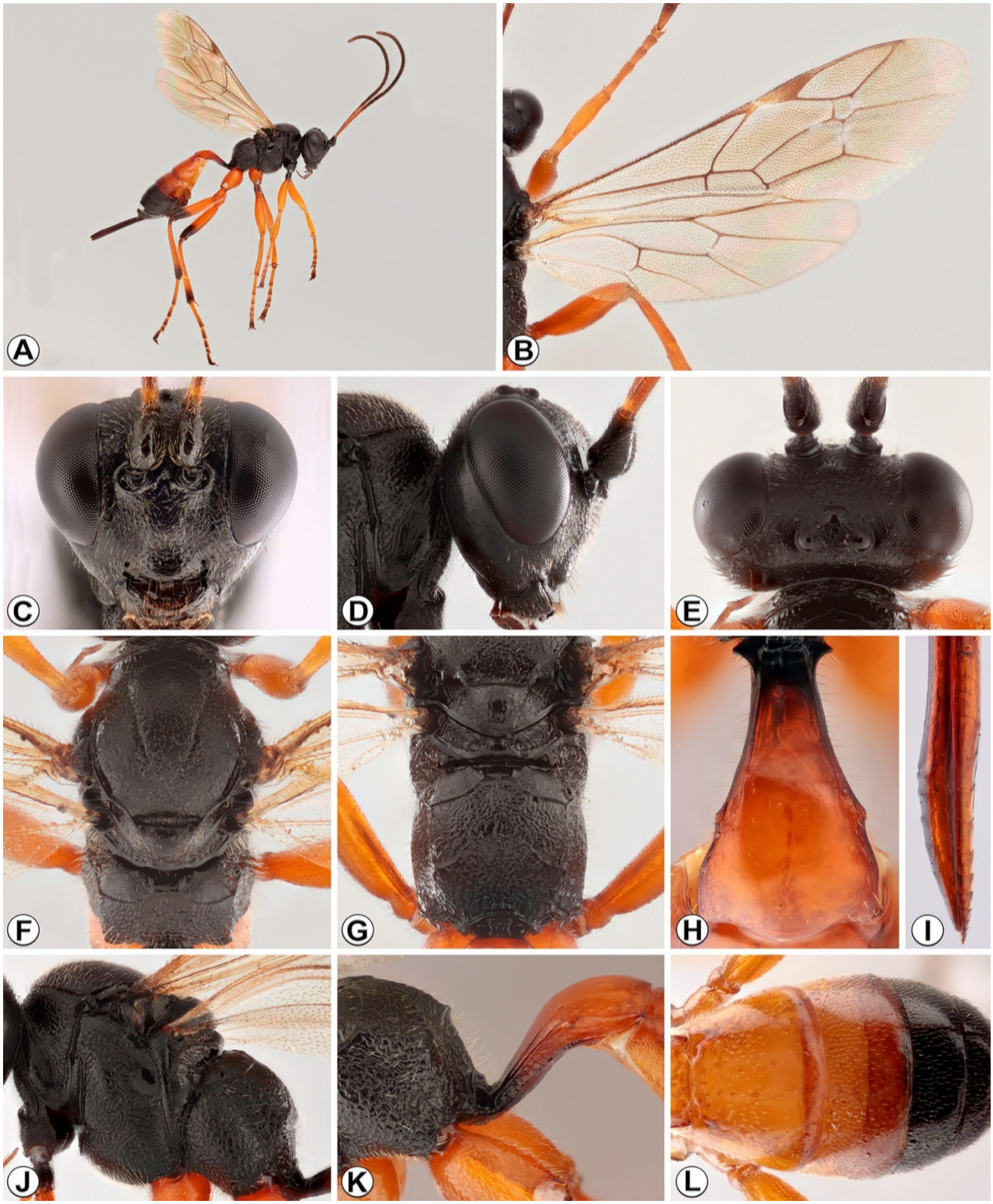


Figure 34. *Gambrus ornatus* (Gravenhorst, 1829), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1, lateral view; **L.** T2–T5, dorsal view. Body length: 5.4 mm.

Distribution in Syria. Latakia and Hamah governorates (Schwarz 2005).

World distribution. E-PAL, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Genus *Hoplocryptus* Thomson, 1873

Hoplocryptus heliophilus (Tschek, 1871)

Cryptus heliophilus Tschek, 1871:123.

[Fig. 35]

Type material. **Lectotype** (designated by Schwarz 2007): AUSTRIA • ♀; Piesting; Lower Austria; NHMW.

Label data of type. Labels (in order): (1) 'Tschek / 1872 / Piesting. [Markt Piesting, Austria]' (small, square, printed); (2) 'Type' (tiny, rectangular, handwritten in red ink); (3) '9.7.69 [09.vii.1969]' (small, rectangular, handwritten); (\$) '*Hoplocryptus* / *heliophilus* Ts. / J. F. [Jean-François] Aubert 1967 ♀ / LECTOTYPE' (medium-sized, rectangular, entirely red; first to third lines handwritten, fourth printed); (5) '*Hoplocryptus* / *heliophilus* / Tschek ♀ / det. [*determinavit]* Habermehl' (medium-sized, rectangular; first to third lines handwritten, fourth printed); (6) '*Hoplocryptus* / *heliophilus* / ♀ Tschek' (medium-sized, rectangular, handwritten); (7) 'NHMW-HYM / #0002989' (small, rectangular, entirely yellow, printed).

Type condition. Specimen pinned and in good condition; antenna with only two flagellomeres remaining; right hind leg with tarsomeres 3–5 lost; right fore leg missing; fore and hind wings partially damaged, with portions missing.

Distribution in Syria. Jisr al-Shughur (Idlib governorate) and Tartus (Tartus governorate) (Schwarz 2007).

World distribution. E-PAL, W-PAL.

Hoplocryptus murarius (Börner, 1782)

Ichneumon murarius Börner, 1782:170–171.

Type material. **Syntype(s)**: POLAND • sex and depository unknown.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Unknown locality (Kolarov 2019).

World distribution. E-PAL, W-PAL.

Genus *Meringopus* Förster, 1869

Meringopus pseudonymus (Tschek, 1872)

Cryptus pseudonymus Tschek, 1872:238.

Type material. **Neotype** (designated by van Rossem 1969b): country of type locality unknown • ♀; NHMW.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Faouar (Quneitra governorate), Qanawat (As-Suwayda governorate) (Schwarz 2020).

World distribution. E-PAL, W-PAL.

Meringopus titillator rhodius (Dalla Torre, 1902)

Cryptus australis Tschek, 1871:116. (preoccupied)
Cryptus rhodius Dalla Torre, 1902:586. (new name for *Cryptus australis* Tschek, 1871)

Type material. **Lectotype** (designated by van Rossem 1969b): country of type locality unknown • ♂; NHMW.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. As-Suwayda and Tartus governorates (Schwarz 2005).

World distribution. E-PAL, W-PAL.

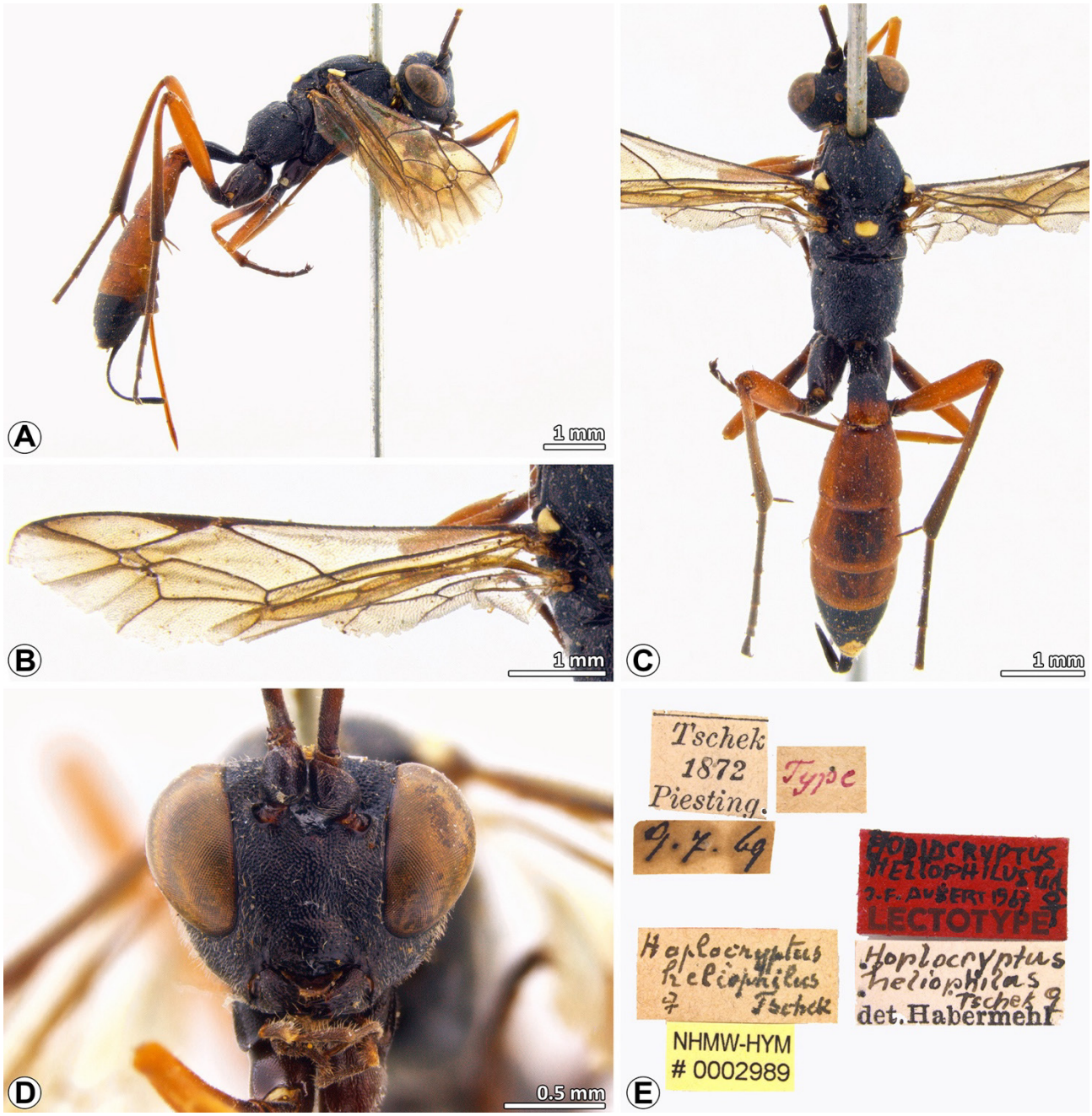


Figure 35. *Hoplocryptus heliophilus* (Tschek, 1871), lectotype female (NHMW). **A., C.** Habitus**; A.** Lateral view; **C.** Dorsal view; **B.** Wings; **D.** Head, frontal view; **E.** Lectotype labels.

Meringopus titillator titillator (Linnaeus, 1758)

Ichneumon titillator Linnaeus, 1758:565.

[Figs 36–37]

Type material. **Lectotype** (designated by van Rossem 1969b): country of type locality unknown • ♂; LSUK. **Paralectotype** (designated by van Rossem 1969b): country of type locality unknown • ♂; LSUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'LECTO- / TYPE' (small, circular, red-bordered, printed); (2) 'LECTOTYPE / *Ichneumon* ♂ / *titillator* L. / desig. [*designavit*] G. [Guido] van Rossem 1968' (large, rectangular, entirely orange; first and fourth lines printed, remaining lines handwritten); (3) 'LECTOTYPE / *Ichneumon* ♂ / *titillator* L. / G. [Guido] van Rossem / 1965 Bull. Zool Nomencl. /22:259.' (large, rectangular, handwritten). **PARALECTOTYPE:** Labels (in order): (1) 'PARA- / LECTO- / TYPE' (small, circular, pale turquoise-bordered, printed); (2) '*titillator*' (small, rectangular, handwritten); (3)

'*titillator*. / 934.' (large, rectangular, handwritten); (4) 'PARALECTOTYPE / *Ichneumon* ♂ / *titillator* Linnaeus 1758/ det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten, fourth printed).

Type condition. Specimens pinned and in good condition. Lectotype: right antenna with only 12 flagellomeres remaining; hind legs with tarsomeres lost. Paralectotype: antenna with apical flagellomeres missing; left fore and hind legs lacking tarsomeres 4–5.

Distribution in Syria. As-Suwayda and Tartus governorates (Ghahari et al. 2026).

World distribution. E-PAL, W-PAL.

Remarks. In the Linnaean collection, additional data for the lectotype comprise genus number (244), species number (35), reference number (LINN 2625), and box number (HYM–9). For the paralectotype, the corresponding data are genus number (244), species number (35), reference number (LINN 2629), and box number (HYM–9).

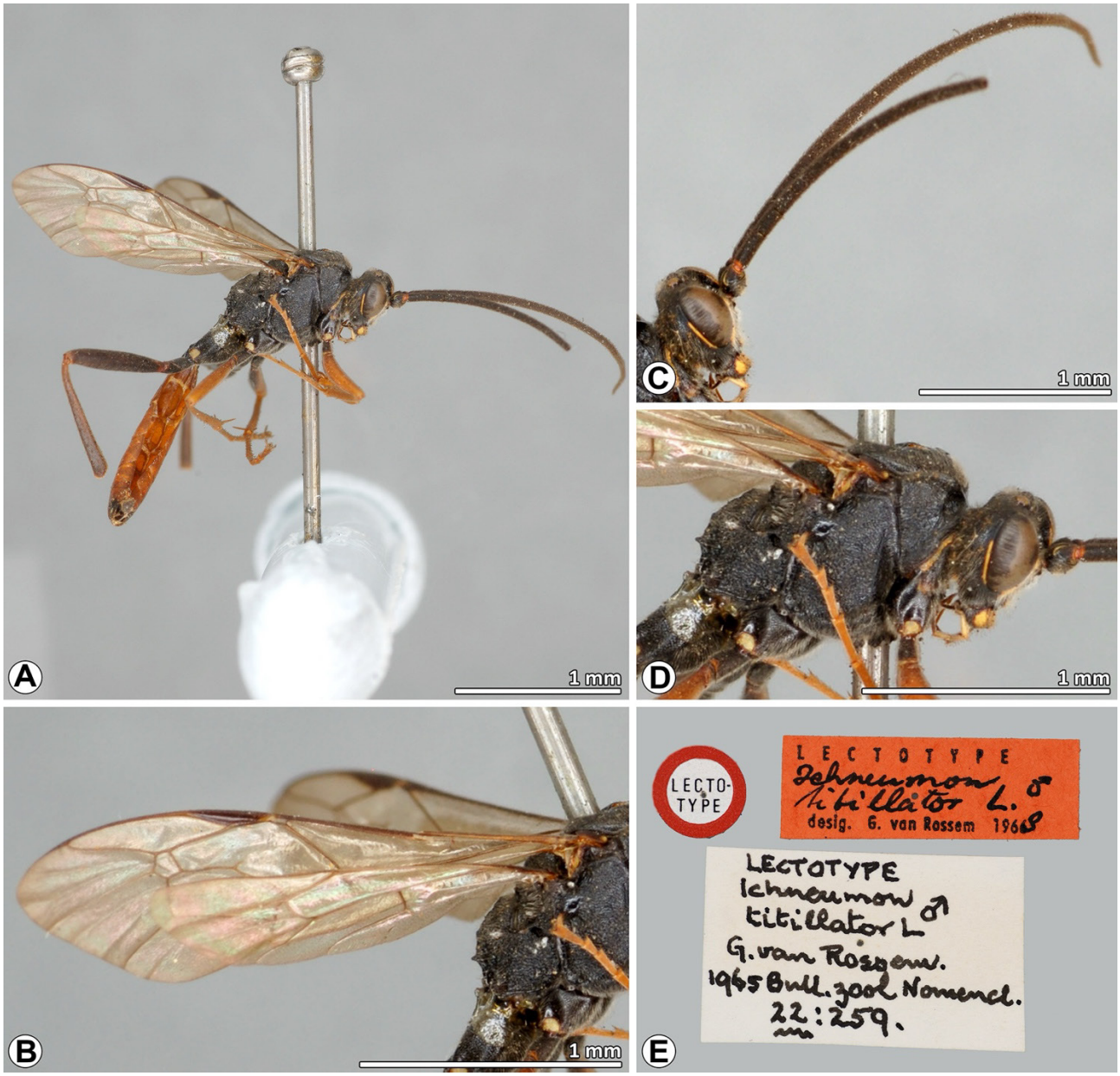


Figure 36. *Meringopus titillator* (Linnaeus, 1758), lectotype male (LSUK). **A.** Habitus, lateral view; **B.** Wings; **C.** Head and antennae, lateral view; **D.** Head and mesosoma, lateral view; **E.** Lectotype labels.

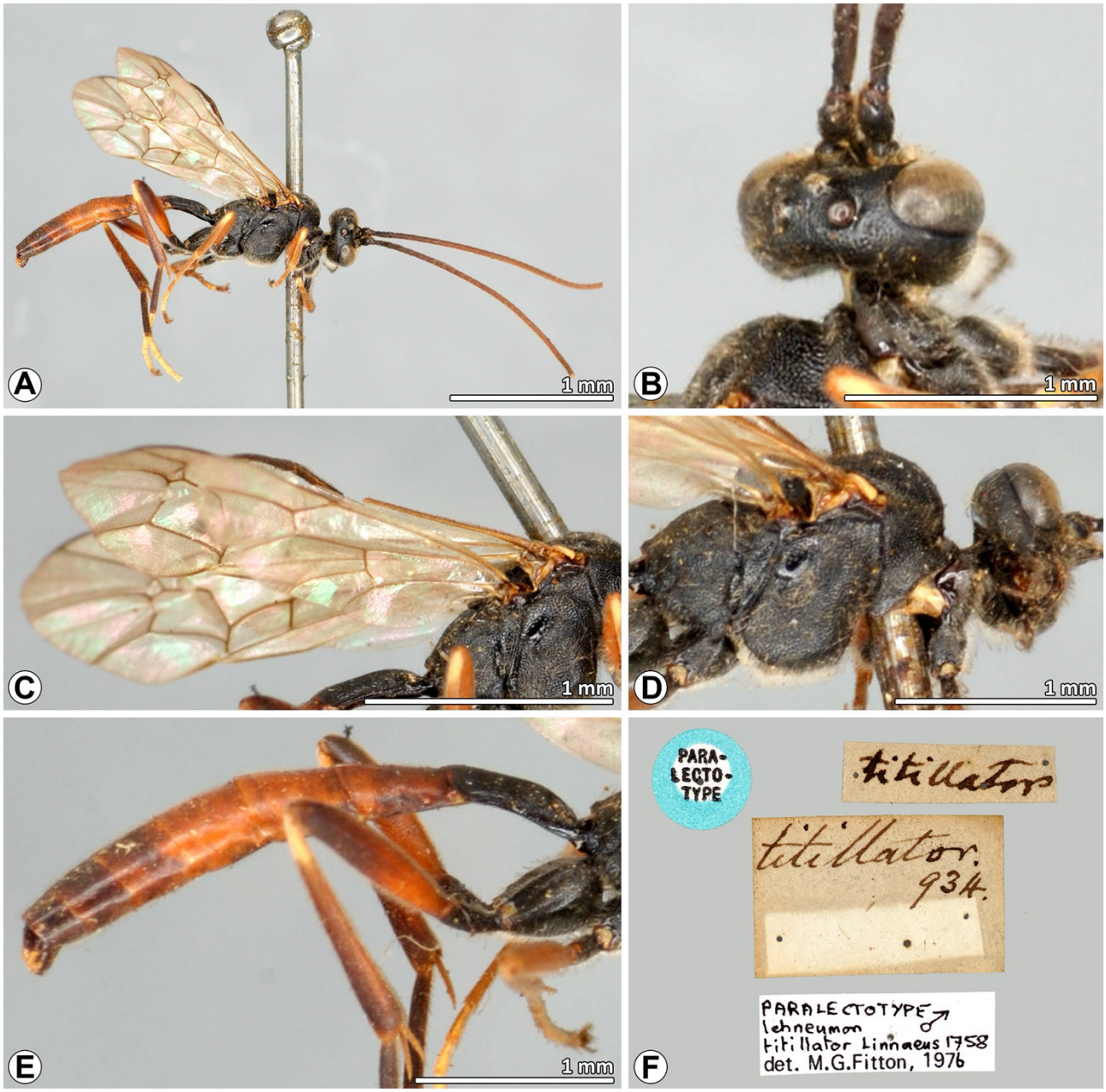


Figure 37. *Meringopus titillator* (Linnaeus, 1758), paralectotype male (LSUK). **A.** Habitus, lateral view; **B.** Head, dorsolateral view; **C.** Wings; **D.** Head, laterofrontal view; mesosoma, lateral view; **E.** Metasoma and hind leg, lateral view; **F.** Paralectotype labels.

Meringopus utibilis Schwarz, 2020

Cryptus similis Hedwig, 1957:104. Primary homonym of *Cryptus similis* Cresson, 1864:299.
Merigopus utibilis Schwarz, 2020:634–636. Nomen novum for *Cryptus similis* Hedwig, 1957:104.

Type material. **Holotype**: IRAN • ♀; Sistan and Baluchestan; SMNS.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Qunaitra (Faouar), Al Suwayda (Qanawat), Aleppo (Aleppo, Manbij), Daraa (Ash-Shaykh Miskin), Hama (Al-Thawrah), and Raqqa governorates (Schwarz 2020).

World distribution. E-PAL, W-PAL.

Genus *Synechocryptus* Schmiedeknecht, 1904

Synechocryptus erberi (Tschek, 1871)

Cryptus erberi Tschek, 1871:43.

[Fig. 38]

Type material. **Lectotype** (designated by Schwarz 1997): GREECE • ♀; NHMW.

Label data of type. Labels (in order): (1) 'Tschek / 1872 / Collectio[n]' (small, rectangular; first and second lines printed, third handwritten); (2), '*erber* [*erberi] / Coifu* [possibly *Cryptus]*' (small, rectangular, handwritten); (3) 'Type' (tiny, rectangular; handwritten with red ink); (4) '—' (square, entirely purple); (5) 'LECTOTYPE / *Cryptus* / *erberi* Tschek / desig. [*designavit*] G. [Guido] van Rossem 1970' (large, rectangular, entirely orange; first and fourth lines printed, second to third handwritten); (6) '*erberi*. Tsch. ♀ / det. [*determinavit*] Habermehl' (small, rectangular; first line handwritten, second printed); (7) '*Synechocryptus* / *mactator* f. *[forma] erberi* / DET. *[determinavit]* G. [Guido] VAN ROSSEM 1970' (large, rectangular; first and second lines handwritten, third printed); (8) 'NHMW-HYM /#0002990' (small, rectangular, entirely yellow, printed).

Type condition. Specimen pinned and in good condition; left antenna with only scape; right antenna completely missing; right fore wing with the pterostigma torn.

Distribution in Syria. Hama governorate (Schwarz 1997).

World distribution. E-PAL, W-PAL.

Subfamily Ichneumoninae Latreille, 1802

Genus *Barichneumon* Thomson, 1893

Barichneumon syriator Aubert, 1993

Barichneumon syriator Aubert, 1993:17.

[Fig. 39]

Type material. **Lectotype** (designated here): SYRIA • ♀; Hama; ZSM.

Label data of type. Labels (in order): (1) '26.V.1952 E.I Rhab, 52 / km nw. [NW] Hama (Orontes) / Syrien [German for Syria]; leg. [*legit*] Erich Schmidt' (medium-sized, rectangular, printed); (2) 'Spec. [specimen] / flagellum more / attenuated / det. [*determinavit*] G. [Georg] Heinrich' (large, rectangular; first to third lines handwritten, fourth printed); (3) '*Barichneumon* ♀ / *syriator* Aub. / J. F. [Jean-François] AUBERT DET [*determinavit*]' (medium-sized, rectangular; first and second lines handwritten, third printed); (4) 'TYPE' (small, rectangular, entirely red, printed); (5) 'LECTO- / TYPE / 2026' (small, circular, red-bordered, printed); (6) '*Barichneumon* ♀ / *levicoxa* Berth. [crossed out] / = *levicoxatus* Berth. / J. F. [Jean-François] AUBERT DET [*determinavit*]' (medium-sized, rectangular; first to third lines handwritten, fourth printed).

Type condition. Specimen pinned and in good condition; wings partially damaged with torn parts; right antenna with the apical flagellomere lost; the fifth tarsomere of the right fore leg missing. Specimen ID: ZSM-HYM-25659 (Schmidt 2021a).

Distribution in Syria. Hama governorate (Aubert 1993).

World distribution. W-PAL.

Remarks. The female specimen from Hama, Syria (ZSM-HYM-25659), bears two determination labels prepared by J. F. Aubert [Fig. 39E). One identifies the specimen as *B. syriator* Aubert, 1993, whereas the other bears the name *B. levicoxa* Berthoumieu, which has been crossed out, followed by *B. levicoxatus* Berthoumieu, preceded by an apparent equal's sign. These handwritten alterations suggest that Aubert reconsidered the identification or nomenclature of the specimen before applying the name *B. syriator*.

However, because the labels are undated, the sequence of determinations and the reasons for these changes cannot be established with certainty. The additional handwritten observation by G. Heinrich concerning the attenuation of the flagellum provides further evidence of the specimen's earlier morphological examination. While the presence of different determination labels does not independently establish synonymy or misidentification, it highlights the need for a clearly defined name-bearing reference. Therefore, to stabilise the application of the name *B. syriator* and provide an unambiguous reference for future taxonomic comparisons, particularly with morphologically similar congeners, we hereby designate the female specimen from Hama, Syria (ZSM-HYM-25659, ZSM), as the lectotype of *B. syriator* Aubert, 1993.

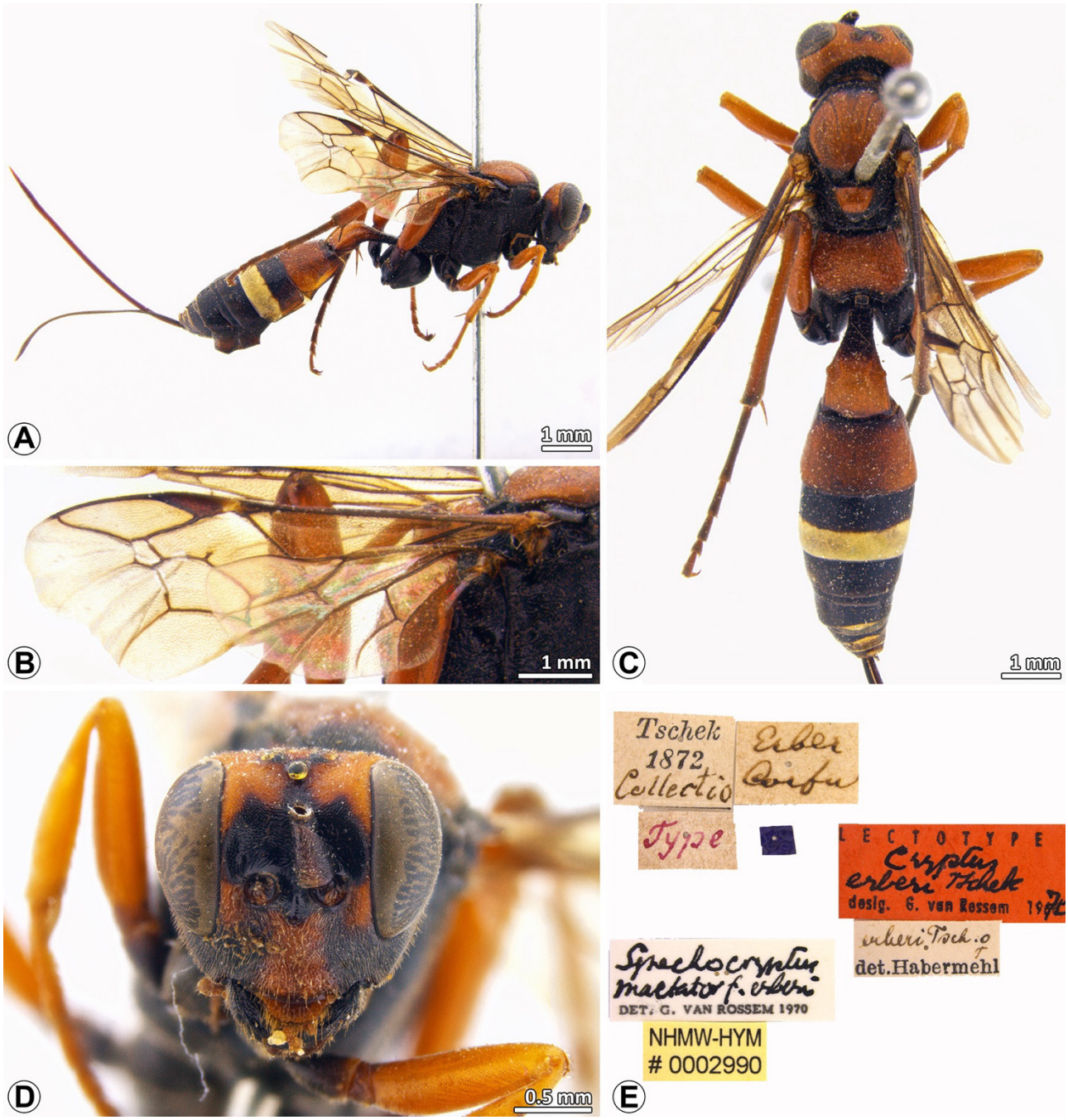


Figure 38. *Synechocryptus erberi* (Tschek, 1871), lectotype female (NHMW). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Wings; **D.** Head, frontal view; **E.** Lectotype labels.

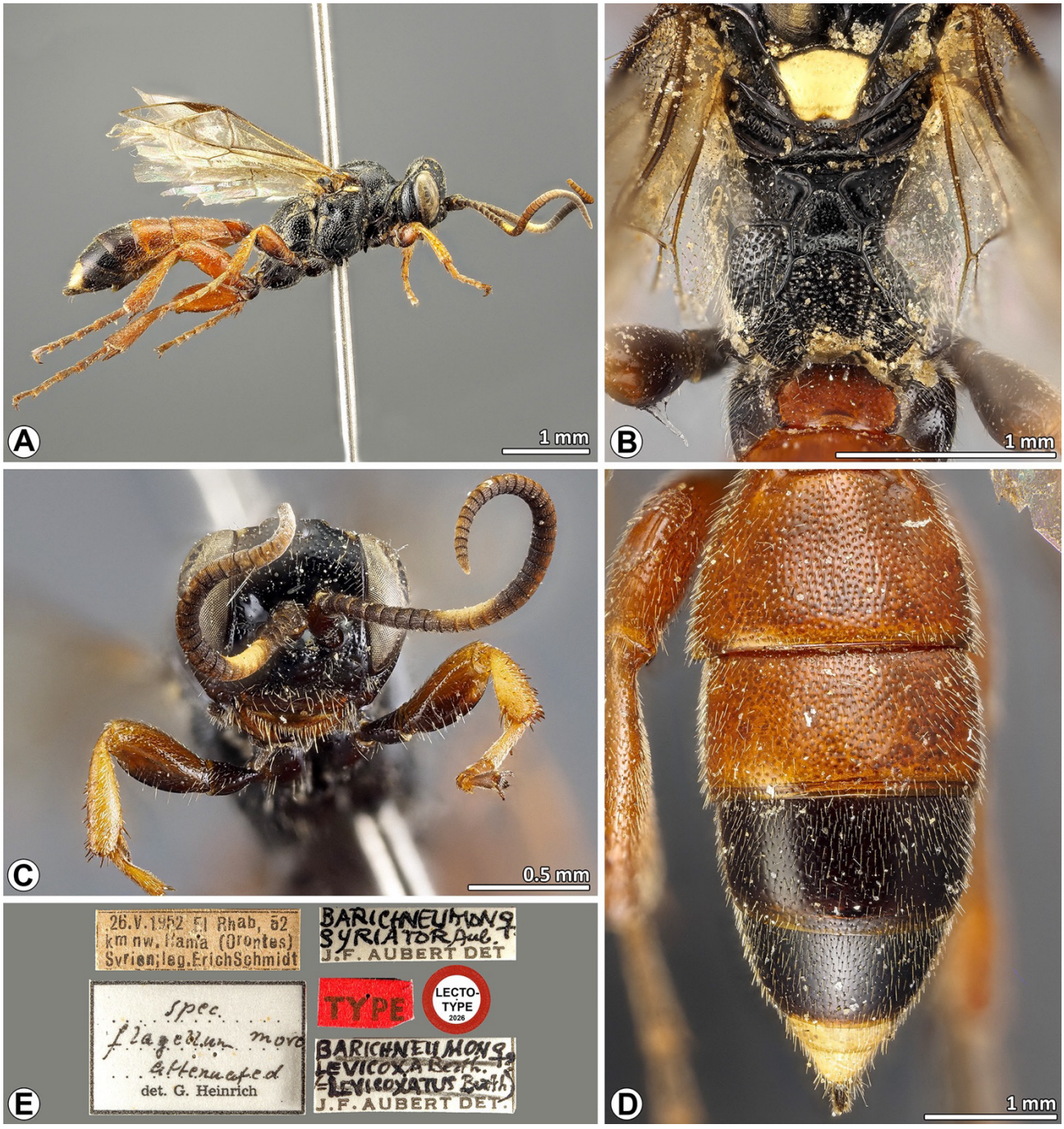


Figure 39. *Barichneumon syriator* Aubert, 1993, lectotype female (ZSM). **A.** Habitus, lateral view; **B.** Scutellum, metanotum, propodeum, and T1, dorsal view; **C.** Head and antennae, frontal view; **D.** Metasoma, dorsal view; **E.** Lectotype labels.

Genus *Coelichneumon* Thomson, 1893

Coelichneumon lacrymator (Fonscolombe, 1847)

Ichneumon lacrymator Fonscolombe, 1847:403.

[Fig. 40]

Type material. **Holotype**: FRANCE • ♂; MNHN.

Label data of type. Labels (in order): (1) 'MUSEUM PARIS / EY0000000340' (small, rectangular, printed); (2) 'MUSÉUM PARIS / Coll. [collection] O. [Otto] SICHEL 1867' (small, rectangular, printed); (3)

'Holotypus / *Ichneumon* / *lacrymator* / Fonsc. ♂ / Horstm. 1977' (medium-sized, rectangular, entirely red, handwritten); (4) '50.i [possibly internal collection or storage code] / *lacrymator* / nol [*nulla/none* = indicating no additional label data?]' (large, rectangular, entirely blue, handwritten); (5) '*Coelichneumon* / *lacrymator* (Fonsc.) / ♂ det. [*determinavit*] Riedel [Matthias Riedel] 07' (medium-sized, rectangular, printed).

Type condition. Specimen pinned and in poor condition; antennae with only two flagellomeres each; eyes absent, wings partly torn; both fore legs with tarsomeres missing; right mid leg with only one tarsomere; left mid leg with only three tarsomeres, the femur extremely damaged; right hind leg with tarsomere 4–5 missing; left hind leg with 2 and 5 tarsomeres missing; both hind coxae and femora severely damaged.

Distribution in Syria. Unknown locality (Morley 1935).

World distribution. E-PAL, W-PAL.

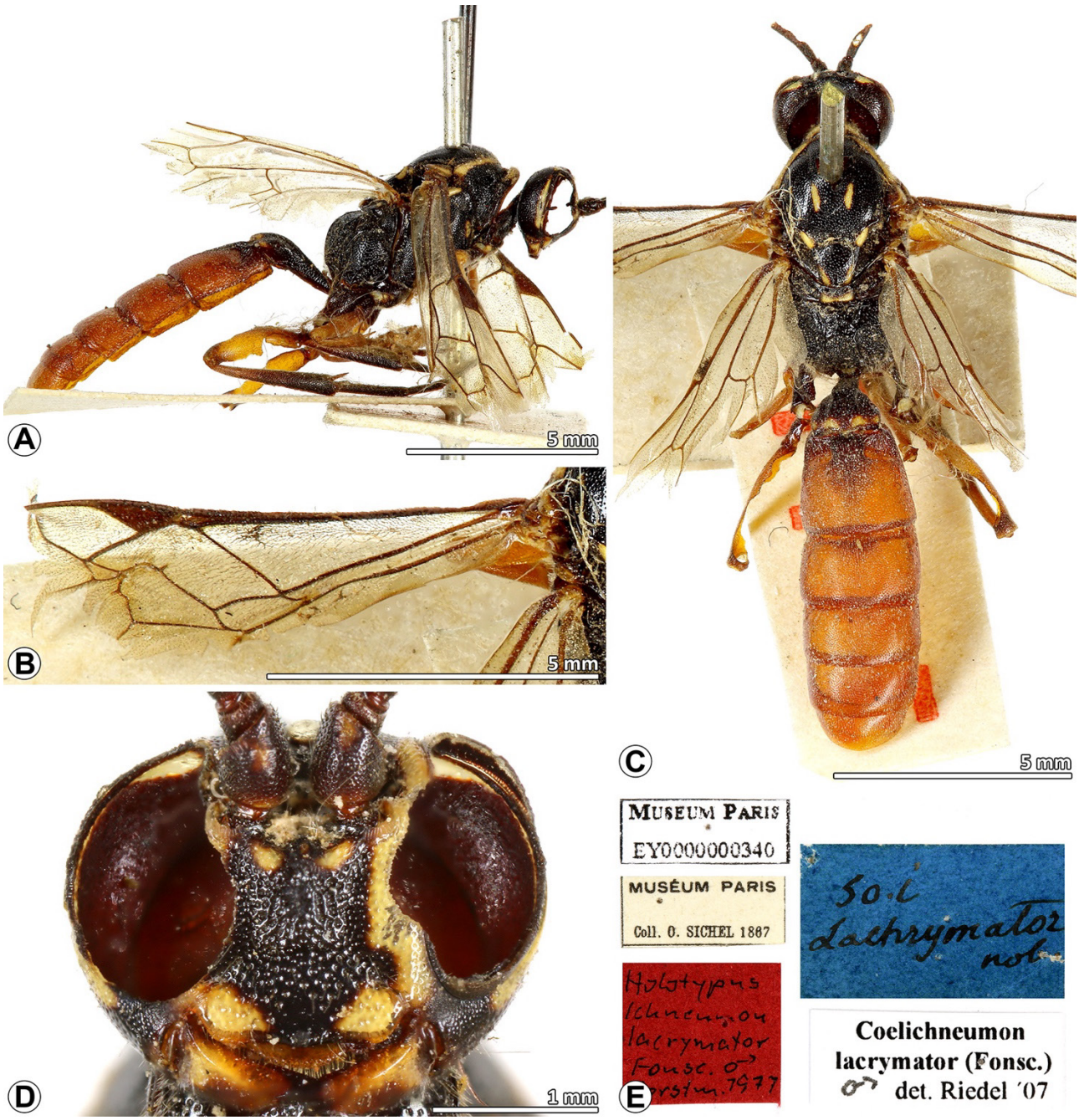


Figure 40. *Coelichneumon lacrymator* (Fonscolombe, 1847), holotype male (MNHN). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Fore wing; **D.** Head, frontal view; **E.** Holotype labels.

Genus *Dicaelotus* Wesmael, 1845

Dicaelotus pudibundus (Wesmael, 1845)

Herpestomus pudibundus Wesmael, 1845:169.
Dicaelotus alboscutatus Berthoumieu, 1900:250.
Dicaelotus gaullei Berthoumieu, 1903:148.

[Figs 41–42]

Type material. **Holotype**: BELGIUM • ♀; depository unknown.

Other material examined. *Dicaelotus alboscutatus* Berthoumieu, 1900:250. **Lectotype** (designated by Diller & Horstmann 1994): LEBANON • ♀; Beit Mery; MNHN. *Dicaelotus gaullei* Berthoumieu, 1903:148. **Lectotype** (designated by Diller & Horstmann 1994): FRANCE • ♀; Saint-Épain; MNHN.

Label data of type. ***Dicaelotus alboscutatus*** **Berthoumieu, 1900:** Labels (in order): (1) 'MUSÉUM PARIS / EY9811' (medium-sized, rectangular, printed); (2) 'type' (small, square, handwritten); (3) 'Beitneir [Beit Mery] / /Liban [French for Lebanon] Mai [French for May] 2' (medium-sized, rectangular, handwritten); (4) '*Dic. alboscutatus* / Berth.' (large, rectangular, handwritten); (5) '1' (small, square, handwritten); (6) 'MUSEUM PARIS / COLL. [collection] M [Maurice] PIC' (medium-sized, rectangular, printed); (7) 'Lectotypus / *Dicaelotus alboscutatus* / Berthoumieu, 1900, ♀ / Diller 1993' (large, rectangular, entirely red; first line printed, subsequent lines handwritten); (8) '*Dicaelotus* / (*Deloglyptus*) ♀ / *pudibundus* (Wesm) / det. [*determinavit]* E. [Erich] Diller 93' (large, rectangular; first to third lines handwritten, fourth printed except for the year). ***Dicaelotus gaullei*** **Berthoumieu, 1903:** Labels (in order): (1) 'Muséum Paris / EY9813' (medium-sized, rectangular, printed); (2) 'S. [Saint] Epain [Épiniac?] / I. et. l. [Indre-et-Loire = department of France)' (medium-sized, rectangular, handwritten); (3) 'Type' (medium-sized, rectangular, yellow, handwritten); (4), 'Muséum Paris / coll. [collection] / Berthoumieu' (large, rectangular; first line printed, second to third handwritten); (5) 'Lectotypus / *Dicaelotus gaullei* / Berthoumieu, 1903, ♀ / Diller 1993' (large, rectangular, entirely red; first line printed, second to fourth handwritten); (6) '*Dicaelotus* ♀ / *pudibundus* (Wesm.) / det. [*determinavit*] E. [Erich] Diller 1993' (large, rectangular; first to second lines handwritten, third printed); (7) '*Dic. gaullei*: Bert' (large, rectangular, handwritten except for the year).

Type condition. Unknown for *D. pudibundus*; however, type condition is provided for its synonyms, of which there are two species: *D. alboscutatus*: specimen pinned and in good condition. *Dicaelotus gaullei*: specimen pinned and in good condition; right mid leg missing.

Distribution in Syria. Unknown locality (Pic 1903).

World distribution. W-PAL.

Remarks. The type material of *D. pudibundus* could not be located. Consequently, digital images of two historical specimens of *D. alboscutatus* and *D. gaullei*, housed in MNH and both currently regarded as synonyms of *D. pudibundus*, were examined for comparative purposes. The condition of the type material of these two synonymic taxa is also provided.

Genus *Diphyus* Kriechbaumer, 1890

Diphyus fossorius (Linnaeus, 1758)

Ichneumon fossorius Linnaeus, 1758:562.

[Fig. 43]

Type material. **Holotype**: country of type locality unknown • ♂; LSUK.

Label data of type. Labels (in order): (1) 'Holo-/type' (small, circular, red-bordered, printed); (2) '21. *fossorius*' (medium-sized, rectangular, handwritten); (3) '*fossorius* / 933' (large, rectangular, handwritten); (4) 'HOLOTYPE ♂ / *Ichneumon* / *fossorius* Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (small, rectangular; all lines handwritten except for the fourth, which is printed).

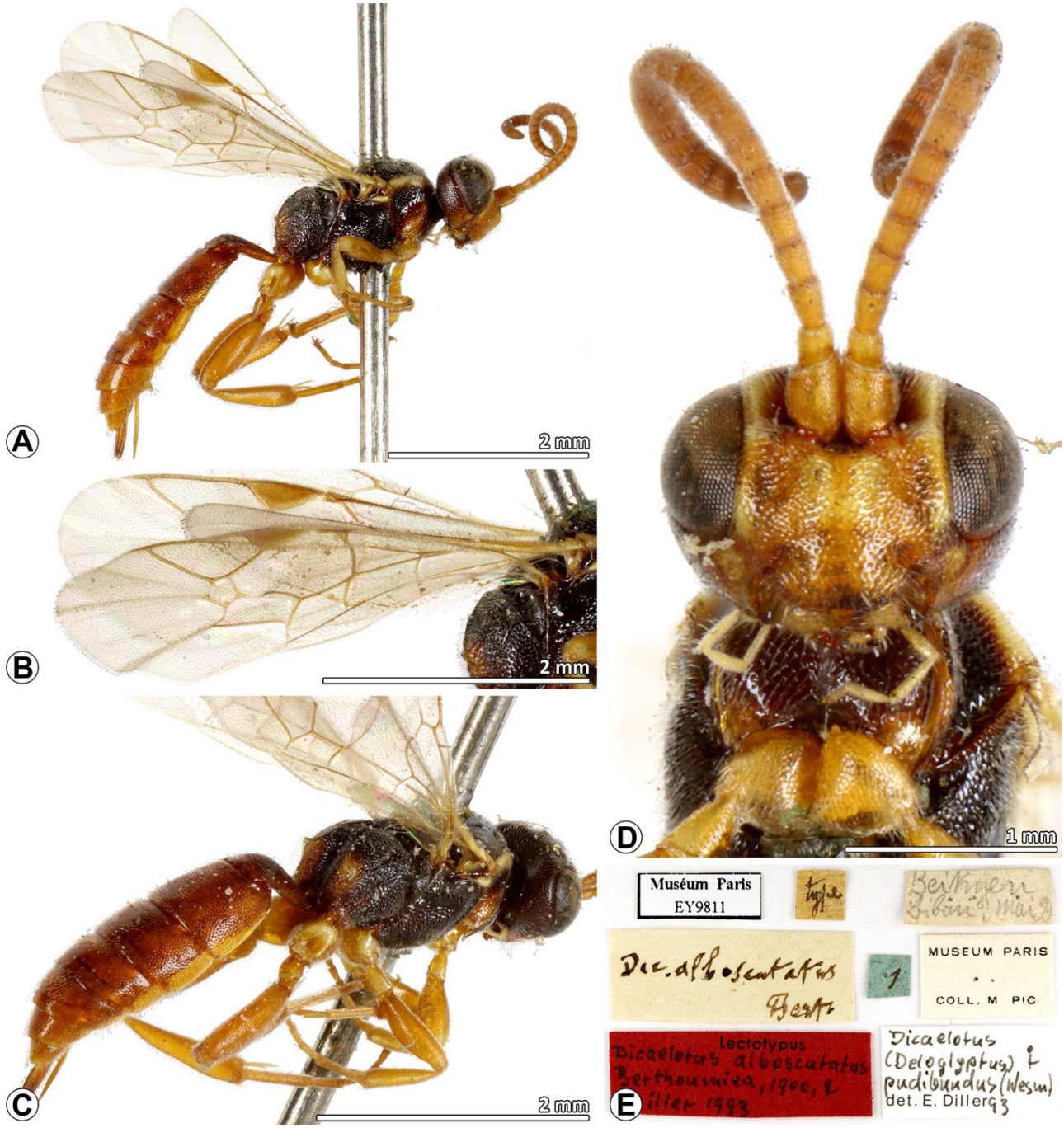


Figure 41. *Dicaelotus alboscutatus* Berthoumieu, 1900, lectotype female (MNHN) [synonym of *Dicaelotus pudibundus* (Wesmael, 1845)]. **A., C.** Habitus, lateral view; **B.** Wings; **D.** Head, frontal view; **E.** Lectotype labels.

Type condition. Specimen pinned and in good condition; right antenna with only 16 flagellomere remaining; left mid leg with the tibia and tarsomeres missing; left hind leg with the fifth tarsomere missing; right hind leg lost.

Distribution in Syria. Unknown locality (Meyer 1933).

World distribution. E-PAL, W-PAL.

Remark. In the Linnaean collection, additional data comprise genus number (244), species number (22), reference number (LINN 2606), and box number (HYM–8).

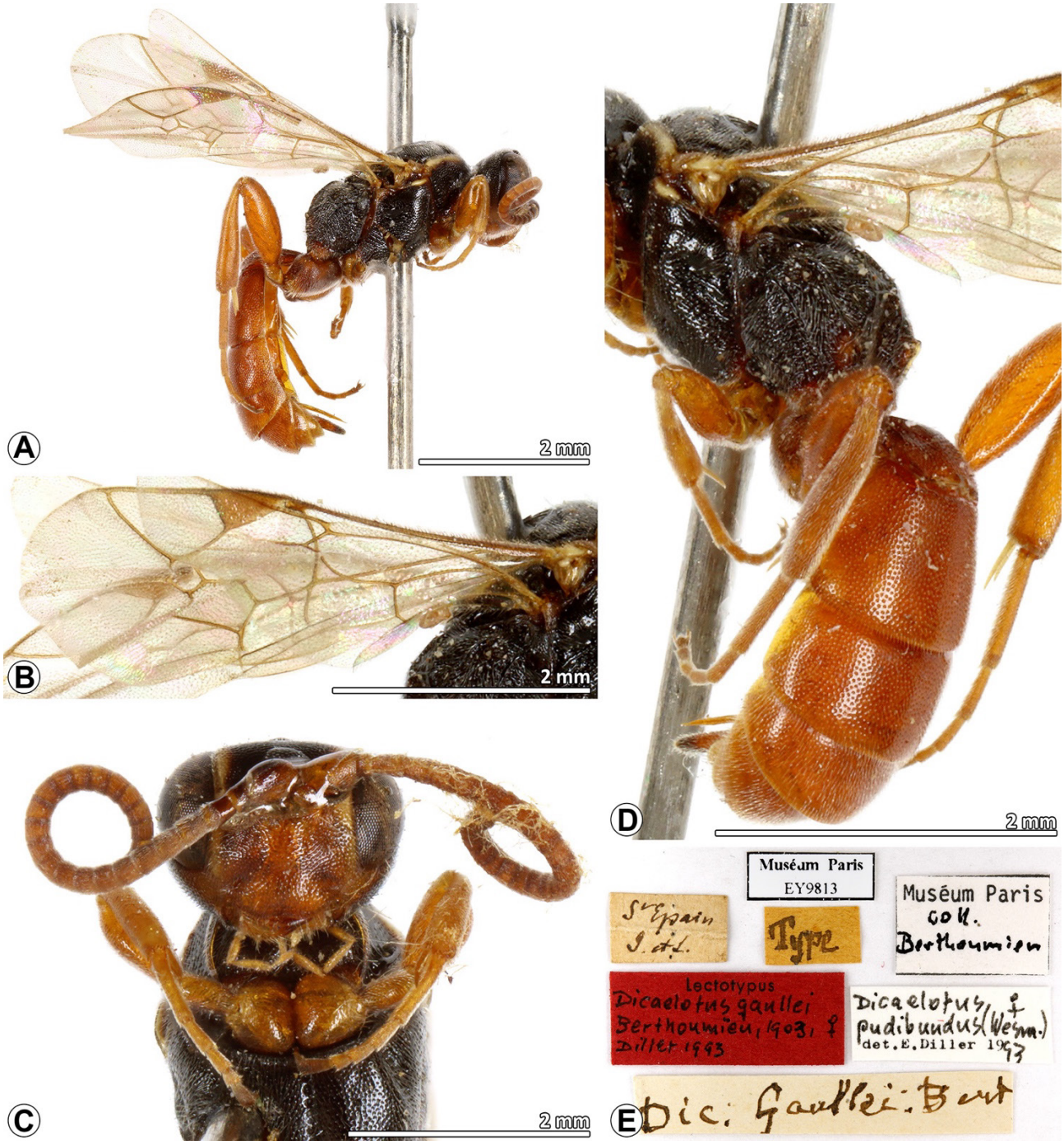


Figure 42. *Dicaelotus gaullei* Berthoumieu, 1903, lectotype female (MNHN) [synonym of *Dicaelotus pudibundus* (Wesmael, 1845)]. **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Mesosoma and metasoma, dorsolateral view; **E.** Lectotype labels.

Genus *Obtusodonta* Heinrich, 1962

Obtusodonta equitatoria (Panzer, 1786)

Ichneumon equitatorius Panzer, 1786:56.

Type material. **Syntypes**: country of type locality, sex and depository unknown.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

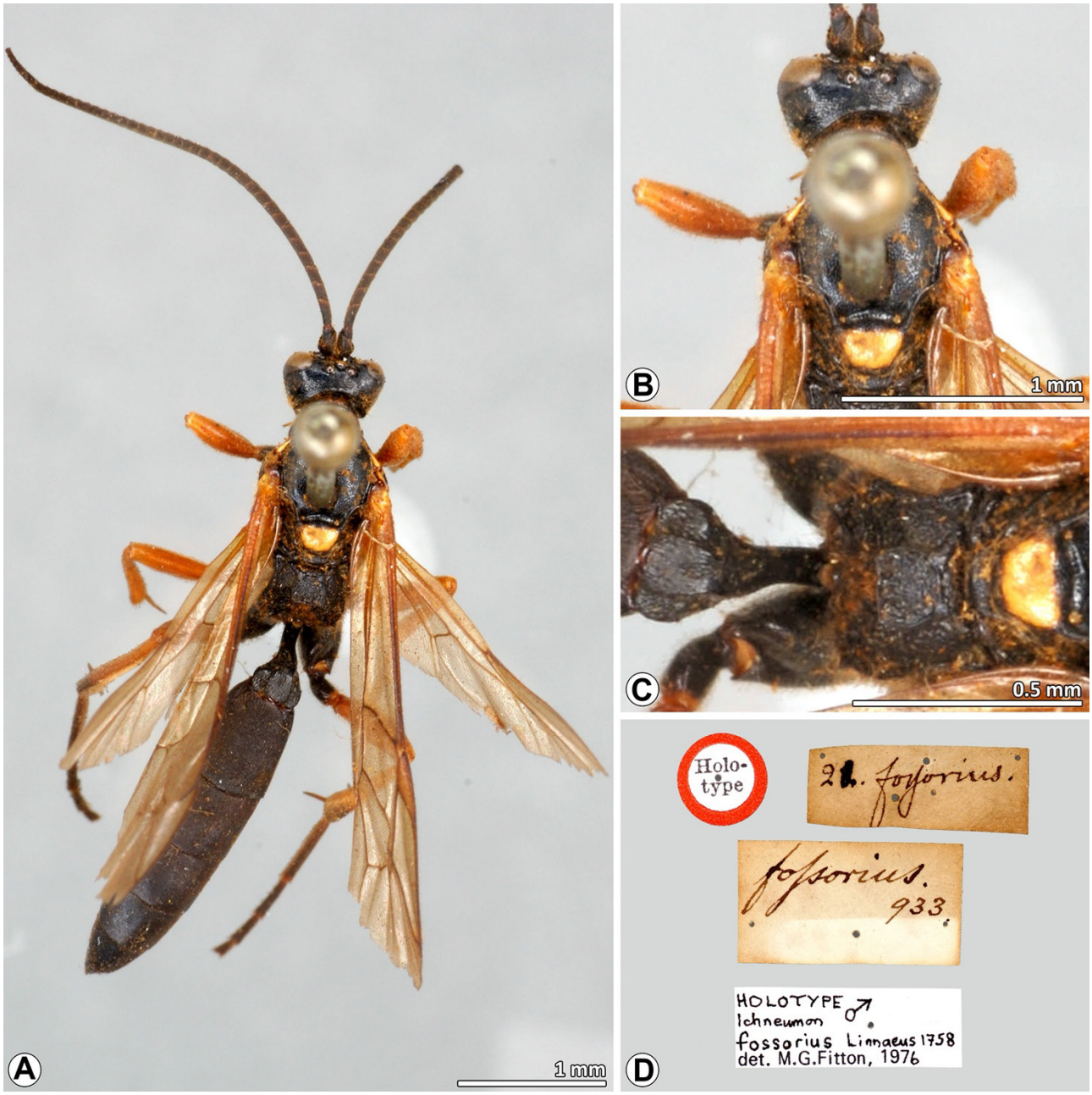


Figure 43. *Diphyus fossorius* (Linnaeus, 1758), holotype male (LSUK). **A.** Habitus, dorsal view; **B.** Head, mesoscutum, and scutellum, dorsal view; **C.** Scutellum, propodeum, and T1, dorsal view; **D.** Holotype labels.

Distribution in Syria. Unknown locality (Dalla Torre 1902).

World distribution. E-PAL, W-PAL.

Remarks. Panzer (1786: 56) did not mention the number of specimens examined, nor did he designate any individual as a holotype. Therefore, all specimens are regarded as syntypes in accordance with Article 73.2 (ICZN 1999).

Obtusodonta equitatoria flaviceps (Tischbein, 1879)

Ichneumon flaviceps Tischbein, 1879:28.

Type material. **Syntypes**: country of type locality, sex and depository unknown.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Unknown locality (Dalla Torre 1902).

World distribution. W-PAL.

Remarks. Tischbein (1879:28) did not state the number of specimens examined, nor did he designate any individual as holotype. Therefore, all specimens are to be regarded as syntypes in accordance with Article 73.2 (ICZN 1999).

Genus *Platylabus* Wesmael, 1845

Platylabus iridipennis (Gravenhorst, 1829)

Ichneumon iridipennis Gravenhorst, 1829c:416.

Type material. **Lectotype** (designated by Rasnitsyn 1981): GERMANY • ♂; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Riedel 2008).

World distribution. E-PAL, W-PAL

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Platylabus tricingulatus (Gravenhorst, 1820)

Ichneumon tricingulatus Gravenhorst, 1820:337.
Platylabus maurus Berthoumieu, 1900:250.
Platylabus maurus berthoumieui Pic, 1923:14.

[Figs 44–45)

Type material. **Holotype**: ITALY • ♂; IZU.

Other material examined. *Platylabus maurus* Berthoumieu, 1900:250. **Lectotype** (designated by Diller & Horstmann 1997): MOROCCO • ♂; Tangier; MNHN. *Platylabus maurus berthoumieui* Pic, 1923:14. **Holotype**: country of type locality unknown • ♂; MNHN.

Label data of type. ***Platylabus maurus*** **Berthoumieu, 1900:** Labels (in order): (1) '32' (small, square, handwritten); (2) 'Tanger [Tangier, Morocco]/ Olcese [Giuseppe Olcese]' (small, rectangular, handwritten); (3) 'Muséum Paris / EY10165' (medium- sized, rectangular, printed); (4) 'MUSÉUM PARIS / M. [Maurice] PIC 193' (medium-sized, rectangular, printed); (5) '*Pl. maurus* / Berth' (large, rectangular, handwritten); (6)'*Platylabus* / *maurus* von Victor Bert / oumie' (large, rectangular, handwritten); (7) 'Lectotypus / *Platylabus* / *maurus* / Berth. ♂ / Horstm. [**Horstmann**] det. [*determinavit*]' (large, rectangular, red, handwritten); (8) '*Platylabus* ♂ / *tricingulatus* (Berk.) / det. [*determinavit*] E. [Erich] Diller 1995' (large, rectangular; first to second lines handwritten, third printed except year). ***Platylabus maurus berthoumieui*** **Pic, 1923:** Labels (in order): (1) 'Museum Paris / Coll. [collection] M. [Maurice] Pic' (medium-sized, rectangular, printed); (2) 'Muséum Paris / EY10167' (medium-sized, rectangular, handwritten); (3) 'V. [*varietas*] Berthoumieu / Pic' (large, rectangular, handwritten); (4) '*Platylabus* / *tricingulatus* / Gr. ♂ / Horstm. det. [*determinavit*]' (large, rectangular, handwritten); (5) 'El Cole [École?] / 20.III.1892' (small, rectangular, handwritten); (6) '♂' (small, rectangular, handwritten); (7) '*Plat. maurus.* Bert.' (large, rectangular, handwritten), (8) 'Holotypus / *Platylabus maurus* v. [*varietas*] / *Berthoumieui* PIC, / 1923 des. [*designavit*] HILPERT- [Heinz Hilpert] / 1991' (large, rectangular, entire orange reddish, printed), (9) 'V. [*varietas*] Berthoumieu / Pic' (large, rectangular, handwritten).

Type condition. The holotype of *I. tricingulatus* was not examined. ***P. maurus*****:** specimen pinned and in good condition; right antenna with only 22 flagellomeres. ***P. m. berthoumieui*****:** specimen pinned and in good condition; left antenna with only 11 flagellomeres; left hind leg with only one tarsomere.

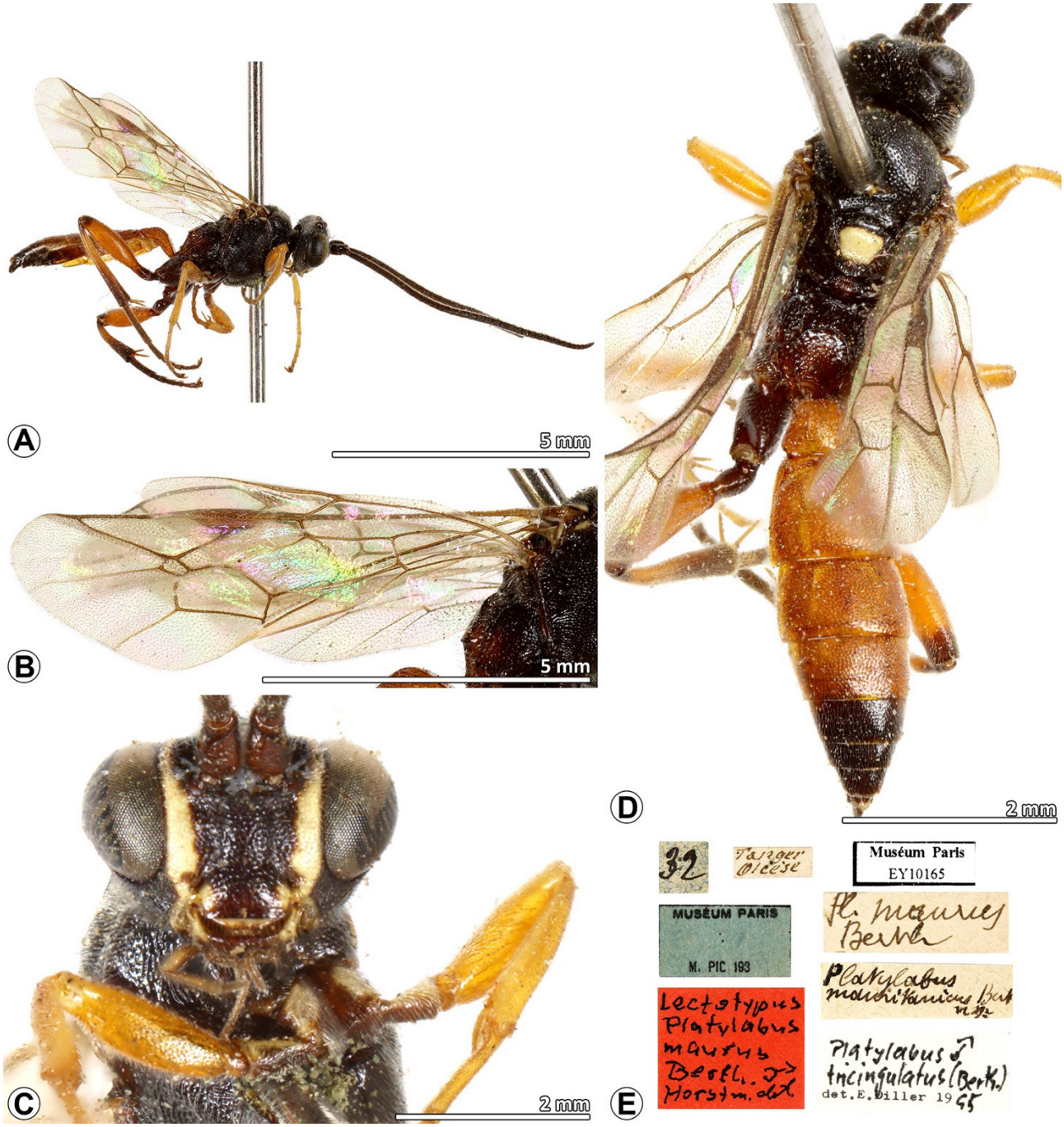


Figure 44. *Platylabus maurus* Berthoumieu, 1900, lectotype male (MNHN) [synonym of *Platylabus tricingulatus* (Gravenhorst, 1820)]. **A., D.** Habitus; **A.** lateral view; **D.** Dorsal view; **B.** Wings; **C.** Head, frontal view; **E.** Lectotype labels.

Distribution in Syria. Unknown locality (Riedel 2008).

World distribution. E-PAL, W-PAL.

Remarks. See the remark for *Cryptus spinosus* Gravenhorst, 1829. The types of *P. tricingulatus* could not be located. Digital images of two type specimens housed at MNHN, *P. maurus* and *P. m. berthoumieui*, were examined for comparative purposes; both are considered synonyms of *P. tricingulatus*. The condition of the type material of these synonymic taxa is likewise documented herein. Riedel (2008) erroneously treated the type of *P. maurus* as a holotype and reported it as female.

Genus *Triptognathus* Berthoumieu, 1904

Triptognathus uniguttatus (Gravenhorst, 1829)

Ichneumon uniguttatus Gravenhorst, 1829b:310.
Amblyteles uniguttatus stephani Pic, 1903:120.

[Fig. 46]

Type material. **Lectotype** (designated by Rasnitsyn 1981): country of type locality unknown • ♂; IZU.

Other material examined. *Amblyteles uniguttatus stephani* Pic, 1903:120. **Holotype**: ITALY • ♂; Palerme; MNHN.

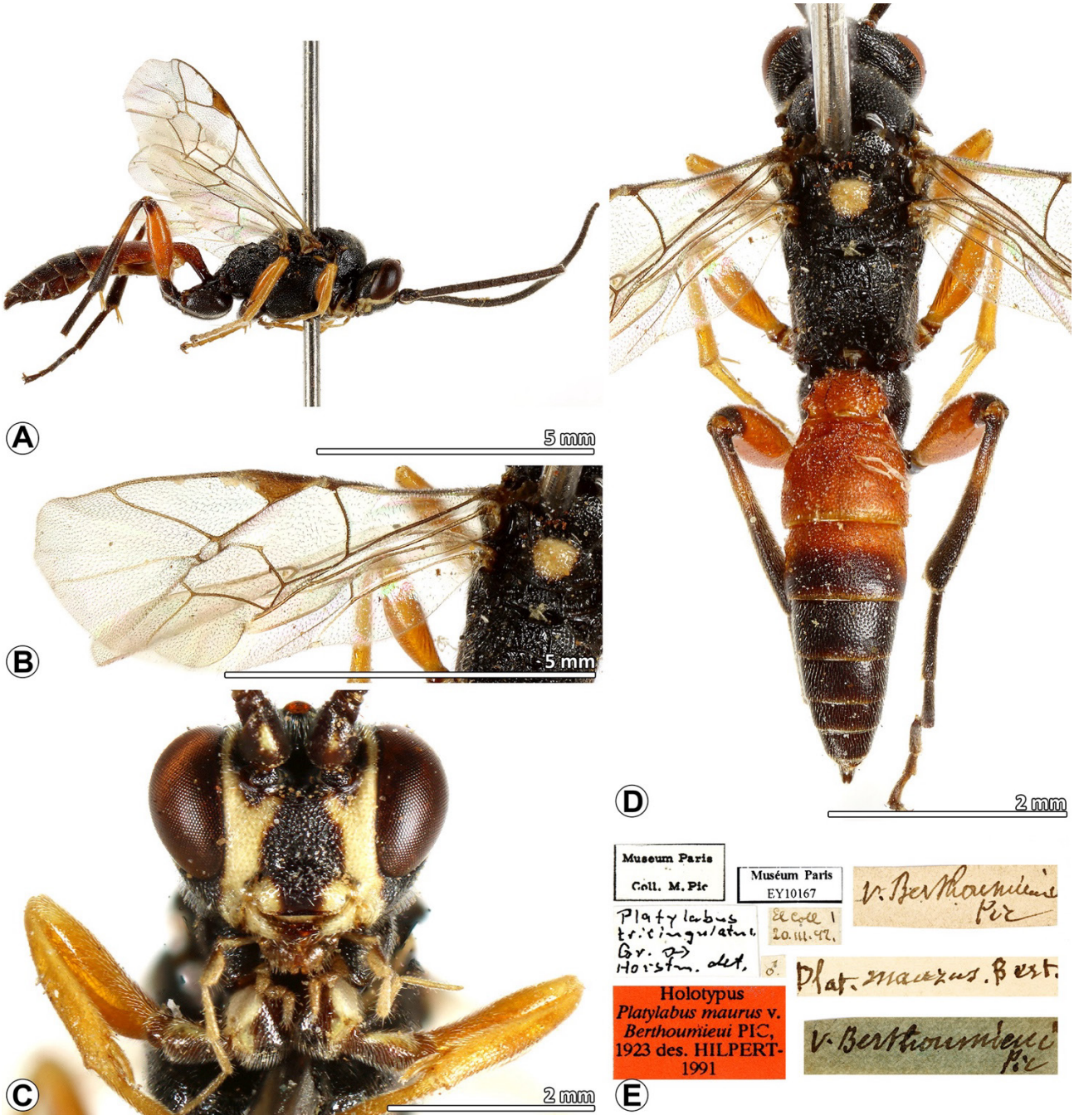


Figure 45. *Platylabus maurus berthoumieui* Pic, 1923, holotype male (MNHN) [synonym of *Platylabus tricingulatus* (Gravenhorst, 1820)]. **A., D.** Habitus; **A.** Lateral view; **D.** Dorsal view; **B.** Wings; **C.** Head, frontal view; **E.** Holotype labels.

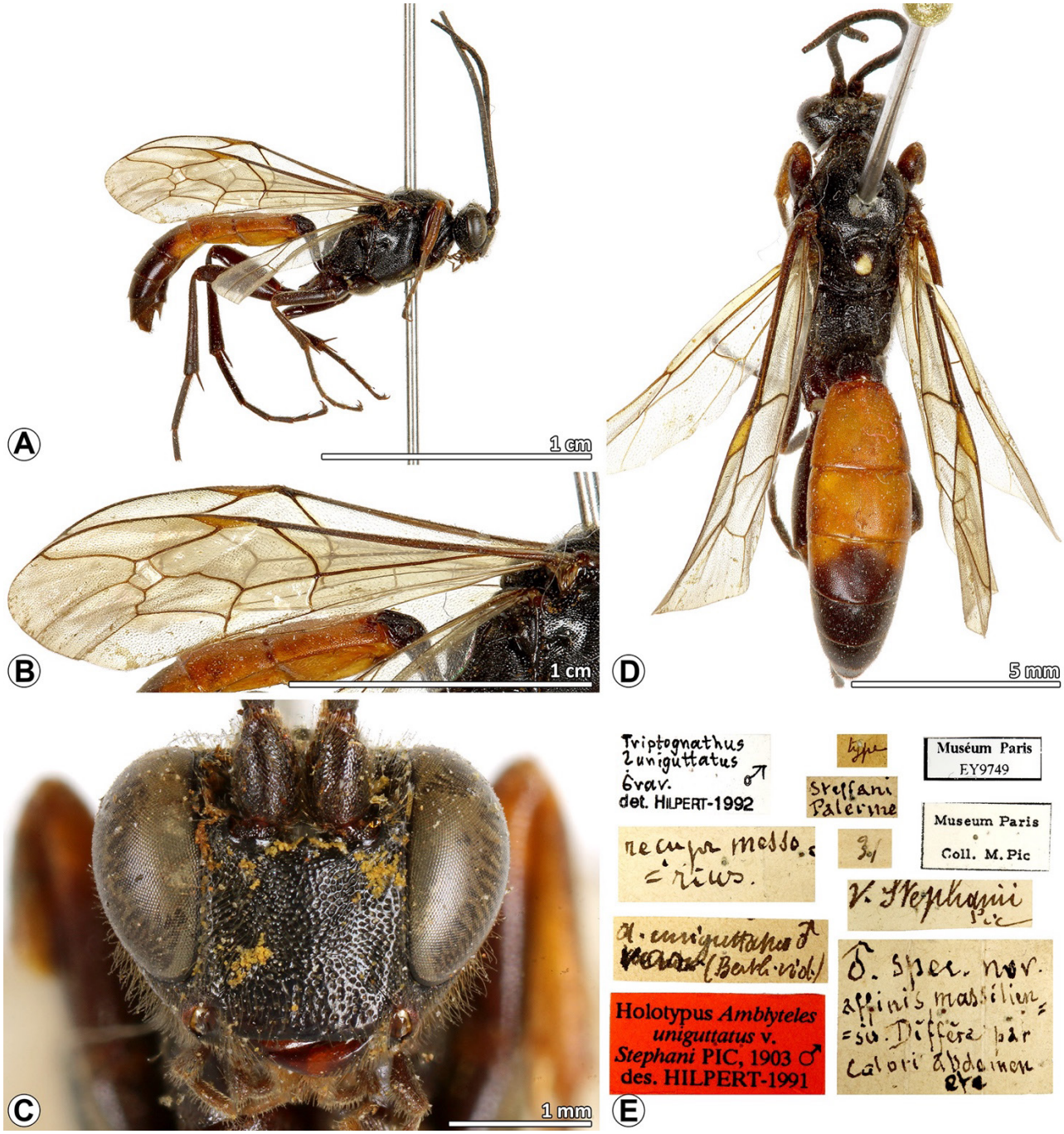


Figure 46. *Amblyteles stephani* Pic, 1903, holotype male (MNHN) [synonym of *Triptognathus uniguttatus* (Gravenhorst, 1829)]. **A., D.** Habitus; **A.** Lateral view**; D.** Dorsal view; **B.** Wings; **C.** Head, frontal view; **E.** Holotype labels.

Label data of type. ***Amblyteles uniguttatus stephani*** **Pic, 1903:** Labels (in order): (1) '*Triptognathus* / *uniguttatus* / Grav. ♂ / det. [*determinavit*] HILPERT-1992' (medium-sized, rectangular; first to third lines handwritten; fourth line printed); (2) 'type' (small, square, handwritten); (3) 'Steffani / Palerme [Palermo, Italy]' (small, rectangular, handwritten); (4), 'Muséum Paris / EY9749' (medium-sized, rectangular, printed); (5) 'recu for messo [reçu du Muséum?] / riws [?]' (large, rectangular, handwritten); (6) '31' (small, square, handwritten); (7) 'Museum Paris / Coll. [Collection] M. [Maurice] Pic' (medium-sized, rectangular, printed); (8) '*V. [Varietas] stephanii* / Pic' (large, rectangular, handwritten); (9) '*T. uniguttatus* ♂ / var. [*varietas*] (Berth.miol. [Berthoumieu])' (large, rectangular, handwritten); (10) 'Holotypus *Amblyteles* / *uniguttatus* v. [*varietas*] /*stephani* PIC, 1903 ♂ / des. [*designavit*] HILPERT [Heinz Hilpert]-1991' (large, rectangular, entirely red, printed); (11) '♂ spec. nov. / affinis massilien [Marseille] / =su. Différa par

[subsp. diffère par] = / calori abdomen [couleur de l'abdomen / era [?]' (large, rectangular, handwritten).

Type condition. Lectotype of *I. uniguttatus* was not examined. ***A. u. stephani*:** specimen pinned and in good condition; antennae with apical flagellomeres missing; right fore leg without tibia and tarsomeres; left hind leg with only two tarsomeres remaining.

Distribution in Syria. Unknown locality (Dalla Torre 1902).

World distribution. E-PAL, W-PAL.

Remarks. See the remark for *Cryptus spinosus* Gravenhorst, 1829. The types of *I. uniguttatus* could not be located. Digital images of the holotype of *A. u. stephani* were obtained from the MNHN; this taxon is a junior synonym of *I. uniguttatus*. The condition of the type of *A. u. stephani* is also provided.

Subfamily Metopiinae Förster, 1869

Genus *Metopius* Panzer, 1806

Metopius fulvicornis Mocsáry, 1883

Metopius fulvicornis Mocsáry, 1883:13–14.

Type material. **Syntypes**: LEBANON • sex unknown; HNHM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Györfi 1953).

World distribution. W-PAL.

Remarks. Physical access to the primary type material was not possible, and, owing to the unavailability of curatorial staff, imaging of the original type series could not be arranged. Consequently, a digital loan could not be secured. Mocsáry (1883: 13–14) did not indicate the number of specimens examined, nor did he designate any individual as the holotype. Accordingly, all specimens of the series must be regarded as syntypes in accordance with Article 73.2 (ICZN 1999).

Metopius syriacus Clément, 1930

Metopius syriacus Clément, 1930:421.

[Fig. 47]

Type material. **Lectotype** (designated by Horstmann 1992b): Syria • ♀; NHMW.

Label data of type. Labels (in order): (1) '*Metopius* / *syriacus* Clém / E. Clément det. [*determinavit*] ♀' (medium-sized, rectangular; first and second lines handwritten, third printed); (2) '♀' (small, rectangular, printed); (3) 'Led. [collector`s name?] / Syria / y54 [year 1854]' (small, square, handwritten); (4) 'Cotype' (small, rectangular, entirely brownish-red, printed); (5), 'Lectotypus / *Metopius* / *syriacus* / Clément ♀ / Horstm. [Klaus Horstmann] 1985' (medium-sized, rectangular, entirely red, handwritten); (6) 'NHMW-HYM / #0002987' (small, rectangular, entirely yellow, printed).

Type condition. Specimen pinned and in very good condition.

Distribution in Syria. Unknown locality (Clément 1930).

World distribution. W-PAL.

Subfamily Ophioninae Shuckard, 1840

Genus *Ophion* Fabricius, 1798

Ophion luteus (Linnaeus, 1758)

Ichneumon luteus Linnaeus, 1758:566.

[Figs 48–49]



Figure 47. *Metopius syriacus* Clément, 1930, lectotype female (NHMW). **A–C.** Habitus; **A.** Lateral view; **B., C.** Dorsal view; **D.** Head, frontal view; **E.** Lectotype labels.

Type material. **Lectotype** (designated by Fitton 1978): country of type locality unknown • ♂; LSUK. **Paralectotype** (designated by Fitton 1978): country of type locality unknown • ♂; LSUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) '*luteus*' (medium-sized, rectangular, handwritten); (2) 'LECTOTYPE / *Ichneumon* ♂ / *luteus* Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten, fourth printed) (3) 'LECTO- / TYPE' (small, circular, red-bordered, printed). **PARALECTOTYPE:** Labels (in order): (1) 'PARA- / LECTO- / TYPE' (circular, pale turquoise-bordered, printed); (2) 'no. label' (small, rectangular, printed); (3) 'PARALECTOTYPE / *Ichneumon/luteus* Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten, fourth printed).

Type condition. Specimen pinned and in relatively good condition. Lectotype: wings partially damaged

with portions torn; metasoma and right apical flagellomeres glued to the label; left antenna with 22 flagellomeres; left fore leg and right hind leg lacking the second to fifth tarsomeres; right mid leg lacking tarsomeres. Paralectotype: left antenna missing; left fore leg with the third and fifth tarsomeres absent.

Distribution in Syria. Unknown locality (Magretti 1890).

World distribution. AUS, E-PAL, NEA, NEO, OTL, W-PAL.

Remarks. The record by Magretti (1890) is considered doubtful, as several species were historically confused with *Ophion luteus* at that time. Nevertheless, it is provisionally retained in the checklist pending re-examination of the original specimen(s) and further taxonomic study. Additional data from the Linnaean collection for the lectotype include genus number (244), species number (55), reference number (LINN 2655), and box number (HYM–10). For the paralectotype, the corresponding data are genus number (244), species number (55), reference number (LINN 2657), and box number (HYM–10).

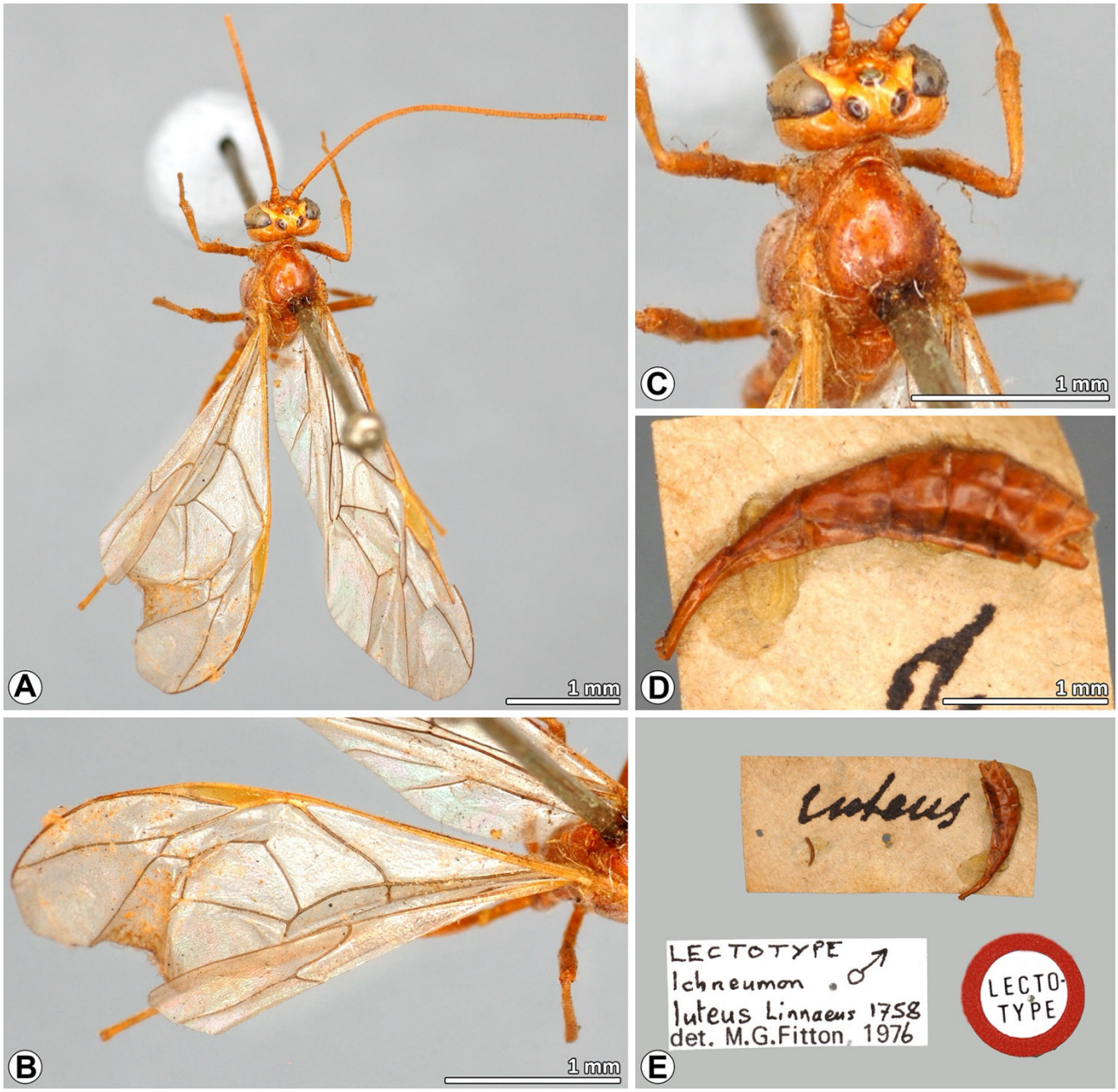


Figure 48. *Ophion luteus* (Linnaeus, 1758), lectotype male (LSUK). **A.** Habitus, dorsal view; **B.** Wings; **C.** Head, mesoscutum, and scutellum, dorsal view; **D.** Metasoma, lateral view; **E.** Lectotype labels.

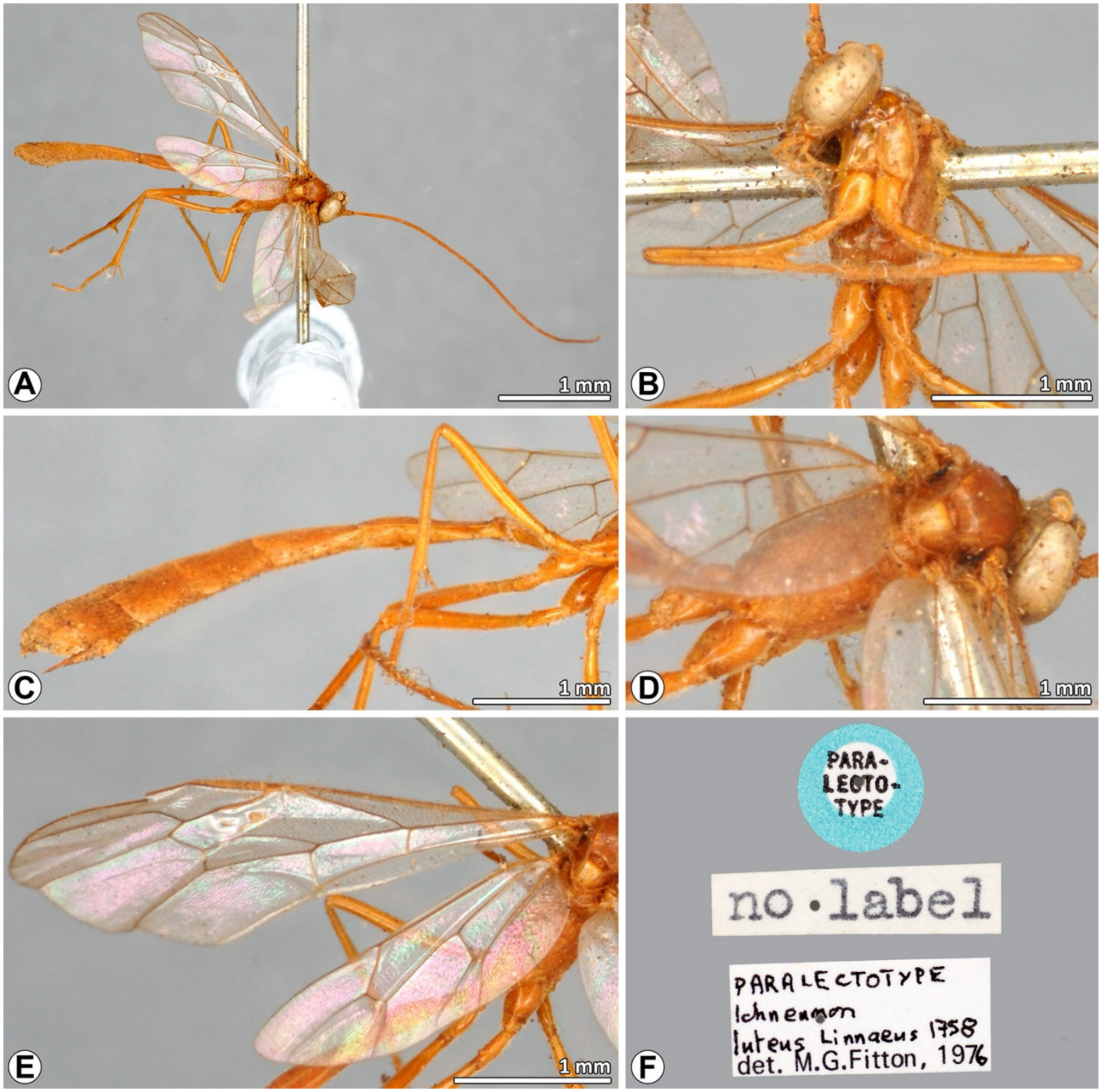


Figure 49. *Ophion luteus* (Linnaeus, 1758), paralectotype male (LSUK). **A.** Habitus, lateral view; **B.** Head, lateral view; mesosoma, ventral view; **C.** Metasoma, lateral view; **D.** Mesosoma, dorsal view; **E.** Wings; **F.** Paralectotype labels.

Subfamily Pimplinae Wesmael, 1845

Genus *Apechthis* Förster, 1869

Apechthis quadridentata (Thomson, 1877)

Pimpla quadridentata Thomson, 1877:749.

[Fig. 50]

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; Skåne; MZLU.

Label data of type. Labels (in order): (1) 'Scan [southernmost part of Sweden]' (tiny, rectangular, printed); (2) '4-*dentata*' (large, rectangular, handwritten, with an orange box); (3) 'Lectotype / *Pimpla* /

quadridentata / Tow: 64 Thom. [Townes: 1964 Thomson]' (small, rectangular, entirely red, handwritten); (4) 'MZLU-HYM / 00065074' (small, rectangular, entirely yellow, printed); (5) 'MZLU / Type no. / 7000:1' (small, rectangular, printed, white with a right lateral red band where "MZLU" is printed vertically).

Type condition. Specimen pinned and in very good condition.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, OTL, W-PAL.

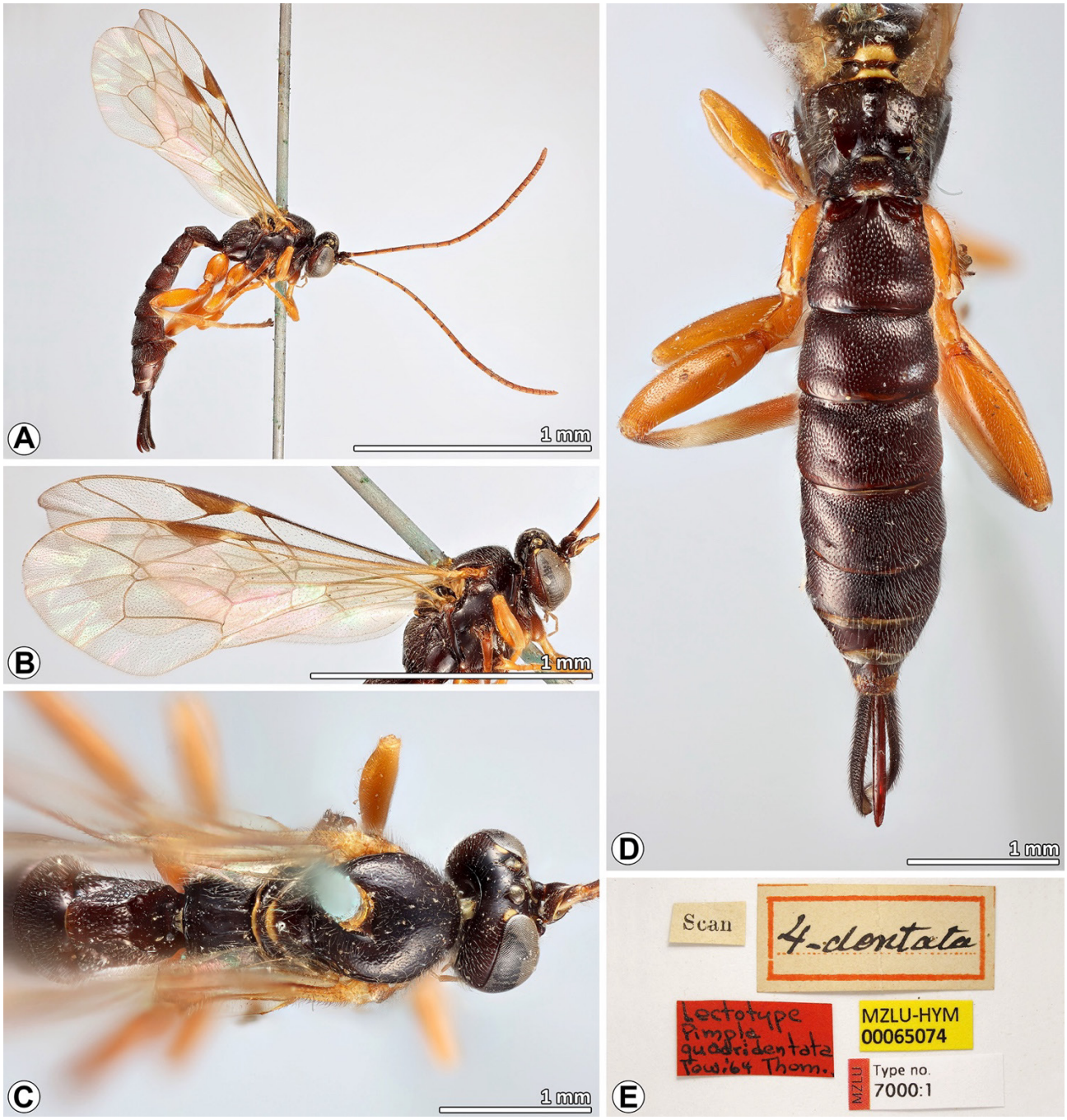


Figure 50. *Apechthis quadridentata* (Thomson, 1877), lectotype female (MZLU). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, mesosoma, and T1, dorsal view; **D.** Scutellum, propodeum, and metasoma, dorsal view; **E.** Lectotype labels.

Genus *Dolichomitus* Smith, 1877

Dolichomitus messor (Gravenhorst, 1829)

Pimpla (*Ephialtes*) *messor* Gravenhorst, 1829a:232.

Type material. **Holotype**: RUSSIA • ♀; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Genus *Ephialtes* Gravenhorst, 1829

Ephialtes manifestator (Linnaeus, 1758)

Ichneumon manifestator Linnaeus, 1758:563.

[Figs 51–53]

Type material. **Lectotype** (designated by Horstmann 2008a): country of type locality unknown • ♀; LSUK. **Paralectotype** (designated by Horstmann 2008a): country of type locality unknown • ♀; LSUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'LECTO- / TYPE' (small, circular, red-bordered, printed); (2) '30. *manifestator*' (small, rectangular, handwritten); (3) '*manifestator* / 934.' (medium-sized, rectangular, handwritten); (4) 'LECTOTYPE ♀ / *Ichneumon* / *manifestator* Linnaeus 1758 / by fixation of / Roman 1932: 9 / det. [*determinavit*]' M. G. [Mark Gurney] Fitton, 1976' (square; all lines handwritten except sixth printed). **PARALECTOTYPE:** Labels (in order): (1), 'PARA- / LECTO- / TYPE' (small, circular, pale turquoise-bordered, printed); (2) 'no label' (medium- sized, rectangular, printed); (3) 'PARALECTOTYPE / *Ichneumon* ♀ / *manifestator* Linnaeus 1758 / det [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten, fourth printed).

Type condition. Specimen pinned and in good condition. Paralectotype: ovipositor sheath glued onto the label; left antenna with only two flagellomeres; left hind leg without tarsomeres.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, OTL, W-PAL.

Remarks. Additional data from the Linnaean collection for the lectotype include genus number (244), species number (32), reference number (LINN 2619), and box number (HYM–8). For the paralectotype, the corresponding data are genus number (244), species number (32), reference number (LINN 2620), and box number (HYM–8).

Genus *Endromopoda* Hellén, 1939

Endromopoda arundinator (Fabricius, 1804)

Pimpla arundinator Fabricius, 1804:116.

[Figs 54–57]

Type material. **Lectotype** (designated by Oehlke 1967): AUSTRIA • ♀; ZMUC. **Paralectotype** (designated by Oehlke 1967): AUSTRIA • ♀; ZMUC.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Hants, VC 11, OSGR SZ19; 16 Aug. 2024[G]; swept in new reedbed; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 16 Aug. 2024[F]; swept in new reedbed; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 4 Aug. 2023[L]; swept from common reed beside road; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 15 Aug. 2022[D]; swept from stunted *Phragmites australis*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 15 Jun. 2022[F]; swept from sparse patch of short *Phragmites australis*; M. Storey

leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 15 Jun. 2022[E]; same collecting data as for preceding; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 15 Jun. 2022[G]; same collecting data as for preceding; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. **LECTOTYPE.** labels (in order): (1) '*Pimpla* / *arundinator* / Fabr. / 5.65 Lectotypus ♀ / des. [*designavit*] Oehlke [Joachim Oehlke]' (medium-sized, rectangular, entirely pale green; handwritten except for a vertical line printed on left lateral margin); (2) '*Arun* / *dina*' (small, square, handwritten); (3) 'Lectotypus / De. 65 Oe [*determinavit* 1965 Joachim Oehlke]' (small, rectangular, entirely red; first line printed, second handwritten). **PARALECTOTYPE**. Labels (in order): (1) '*Scambus* / (*Pimpla* auct. [*auctorum*]) ♀ / *arundinator* F. / J. F. [Jean François] AUBERT DET [*determinavit*]' (small, rectangular; first to third lines handwritten, fourth printed); (2) 'Paralectotypus / *Pimpla* / *arundinator* / Fab. ♀ / Horstm. [Klaus Horstmann] 1998' (medium-sized, rectangular, entirely red, handwritten); (3) 'ZMUC 00241872' (small, rectangular, printed).

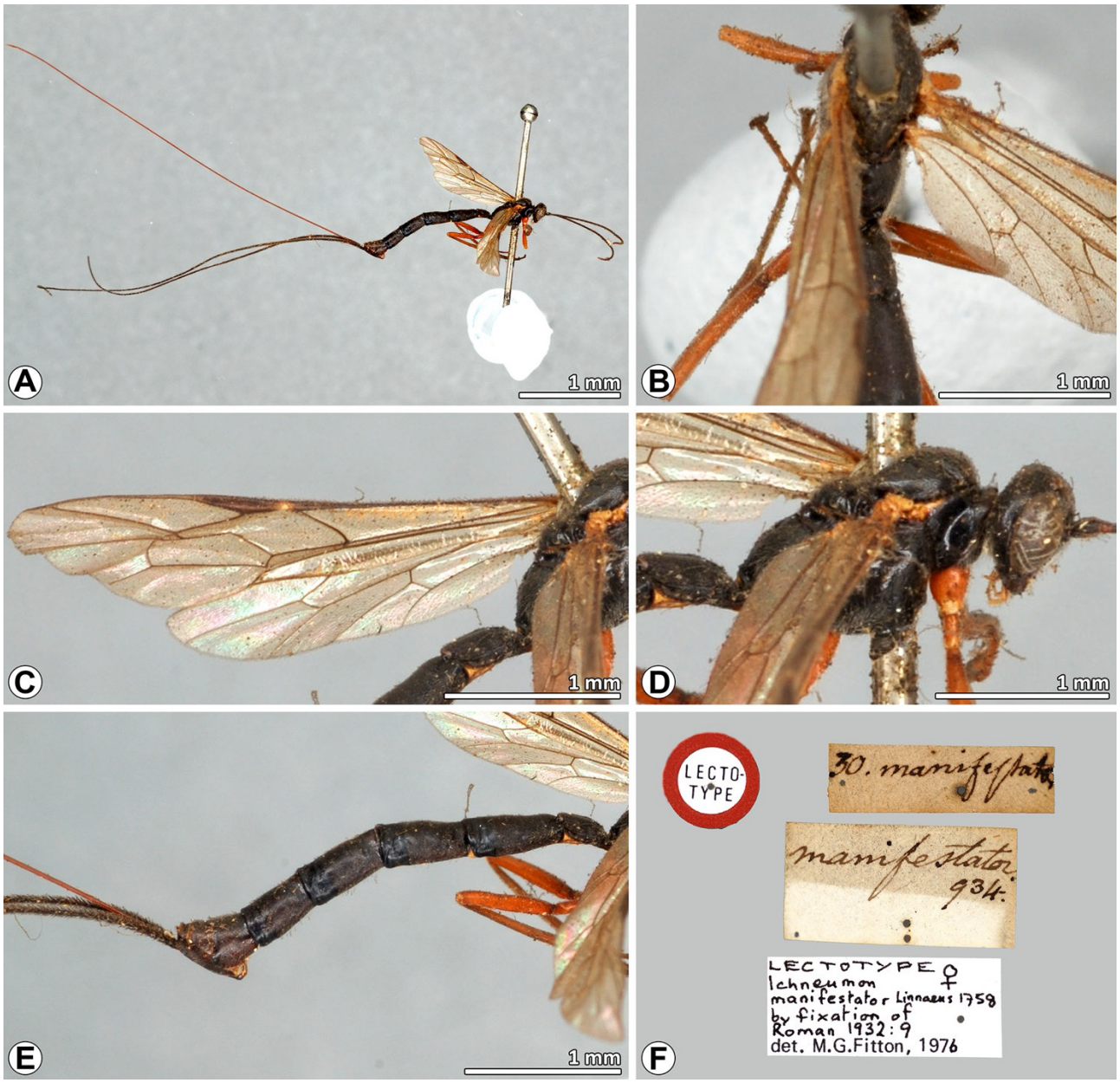


Figure 51. *Ephialtes manifestator* (Linnaeus, 1758), lectotype female (LSUK). **A.** Habitus, lateral view; **B.** Mesosoma, T1 and T2, dorsal view; **C.** Wings; **D.** Head and mesosoma, lateral view; **E.** Metasoma, lateral view; **F.** Lectotype labels.

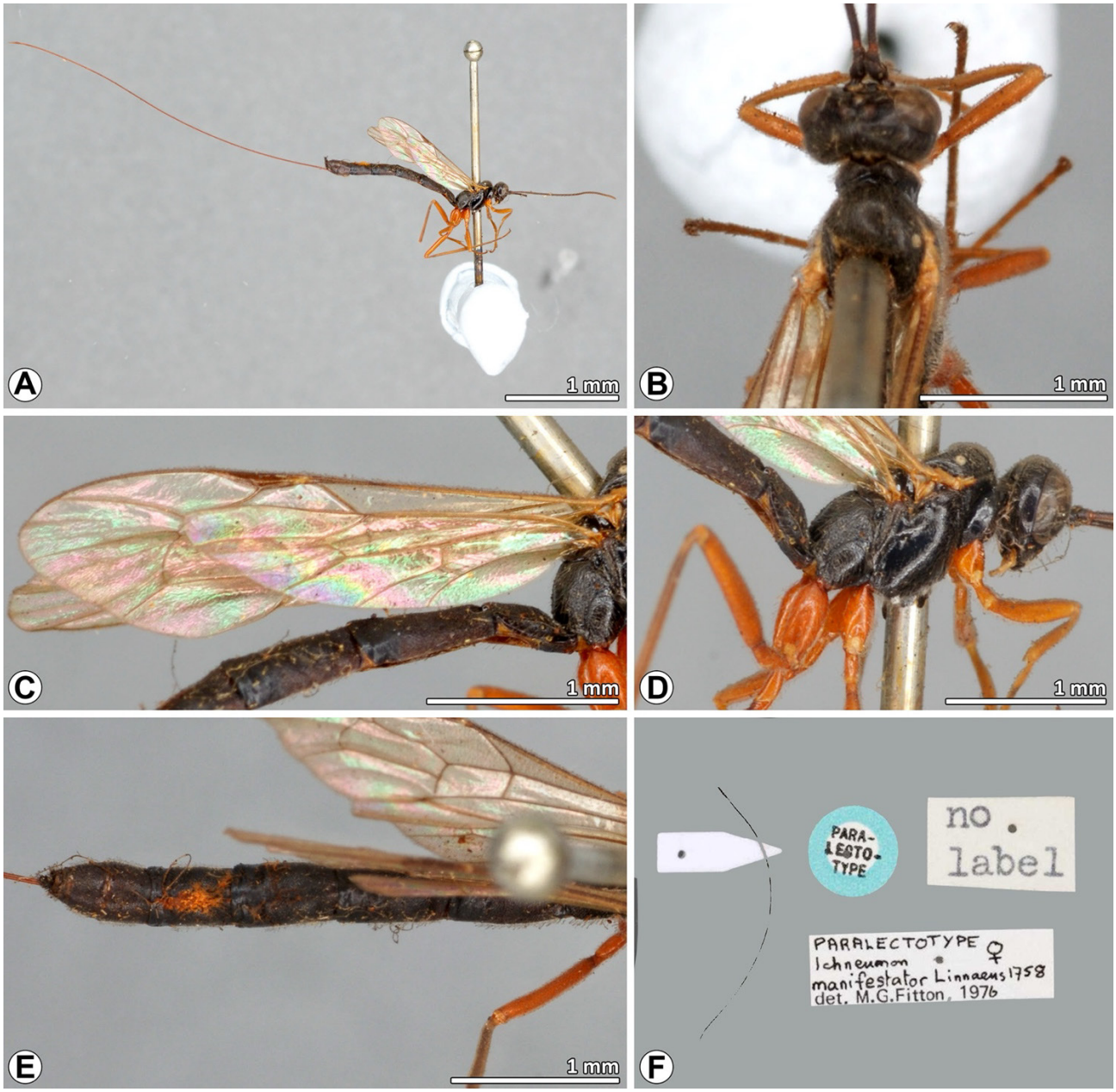


Figure 52. *Ephialtes manifestator* (Linnaeus, 1758), paralectotype female (LSUK). **A.** Habitus, lateral view; **B.** Head and mesoscutum, dorsal view; **C.** Wings; **D.** Head, mesosoma, T1, T2, and coxae, lateral view; **E.** Metasoma, lateral view; **F.** Paralectotype labels.

Type condition. Both the lectotype and paralectotype are pinned and in good condition. Lectotype: left fore leg lost; right fore leg and both mid legs without tibia and tarsomeres. Paralectotype: antennae only with the pedicel remaining; left fore leg without tibia and tarsomeres.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, W-PAL.

Endromopoda detrita (Holmgren, 1860)

Pimpla detrita Holmgren, 1860:23.

[Figs 58–61]

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; Stockholm; NHRS. **Allotype**: SWEDEN • ♂; Stockholm; NHRS.



Figure 53. *Ephialtes manifestator* (Linnaeus, 1758), non-type female (LSUK). **A.** Habitus, dorsal view.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, South Wilts, VC 8, OSGR SU01; 21 Jul. 2023[Q]; swept from flowers of *Pastinaca sativa* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU23; 12 May 2021[U]; swept from flowering *Euphorbia amygdaloides* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SU00; 4 May 2020; Malaise trap; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, North Hants, VC 12, OSGR SU54; 17 Aug. 2019[E]; general sweeping beside woodland path; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Hants, VC 11, OSGR SU31; 18 May 2018[H]; swept over rushy ditch; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'Hlm [=Holmiae= Latin name for Stockholm]' (tiny, square; handwritten); (2) 'Bhm [= Carl Henrik Boheman, collector of the specimens and entomology curator at the museum]' (tiny, square; handwritten); (3) 'Typ' (small, rectangular, entirely red, printed); (4) 'Lectotype / *Pimpla* / *detrita* / Tow: 64 Holm. [Townes: 1964 Holmgren]' (small, rectangular, entirely red; handwritten); (5) '*detrita* Holmg' (large, rectangular: handwritten); (6) '405' (small, square, entirely light pink, printed); (7) 'Riksmuseum / Stockholm' (small, rectangular, entirely light green, printed); (8) 'NHRS-HEVA / 000009234' (small, rectangular, printed). **ALLOTYPE:** Labels (in order): (1) 'Hlm [=Holmiae= Latin name for Stockholm]' (tiny, square; handwritten); (2) 'Bhm [= Carl Henrik Boheman, collector of the specimens and entomology curator at the museum]' (tiny, square; handwritten); (3) 'Allotyp' (small, rectangular, entirely red, printed); (4) 'NHRS-HEVA / 000009235' (medium-sized, rectangular, printed).

Type condition. Specimens pinned and in fairly good condition. Lectotype: head broken and glued to one of the labels; wings partially damaged with portions torn; left apical flagellomeres lost; left mid leg without tarsomeres. Allotype: left fore leg glued to the pin; right antenna missing; right mid leg lacking the second to fifth tarsomeres; left hind leg with only three tarsomeres remaining.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, OTL, W-PAL.

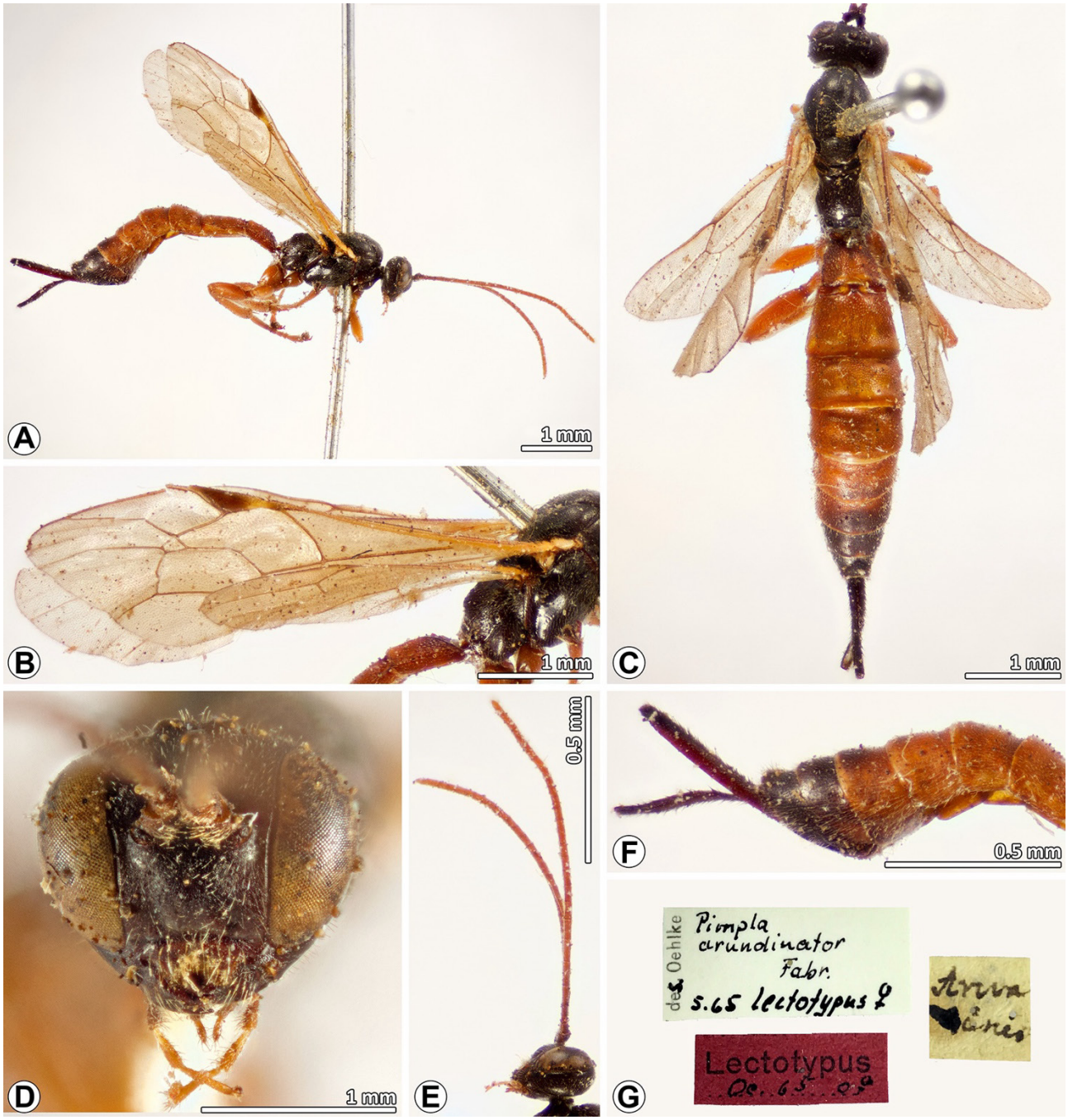


Figure 54. *Endromopoda arundinator* (Fabricius, 1804), lectotype female (ZMUC). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Wings; **D., E.** Head; **D.** Frontal view; **E.** Lateral view; **F.** Metasoma, lateral view; **G.** Lectotype labels.

Genus *Itoplectis* Förster, 1869

Itoplectis alternans (Gravenhorst, 1829)

Pimpla alternans Gravenhorst, 1829a:201.

[Fig. 62]

Type material. **Lectotype** (designated by Townes et al. 1965): country of type locality unknown • ♂; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 7 Nov. 2023[F]; swept from oak on edge of reserve by road; M. Storey leg.; MWS, to be deposited in

NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SU00; 8 Oct. 2020[C]; beaten from foliage of *Taxus baccata* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU02; 2 Oct. 2019[D]; visiting *Daucus carota* L.; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, OTL, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.



Figure 55. *Endromopoda arundinator* (Fabricius, 1804), paralectotype female (ZMUC). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Wings; **D.** Metasoma and hind leg, lateral view; **E.** Paralectotype labels.

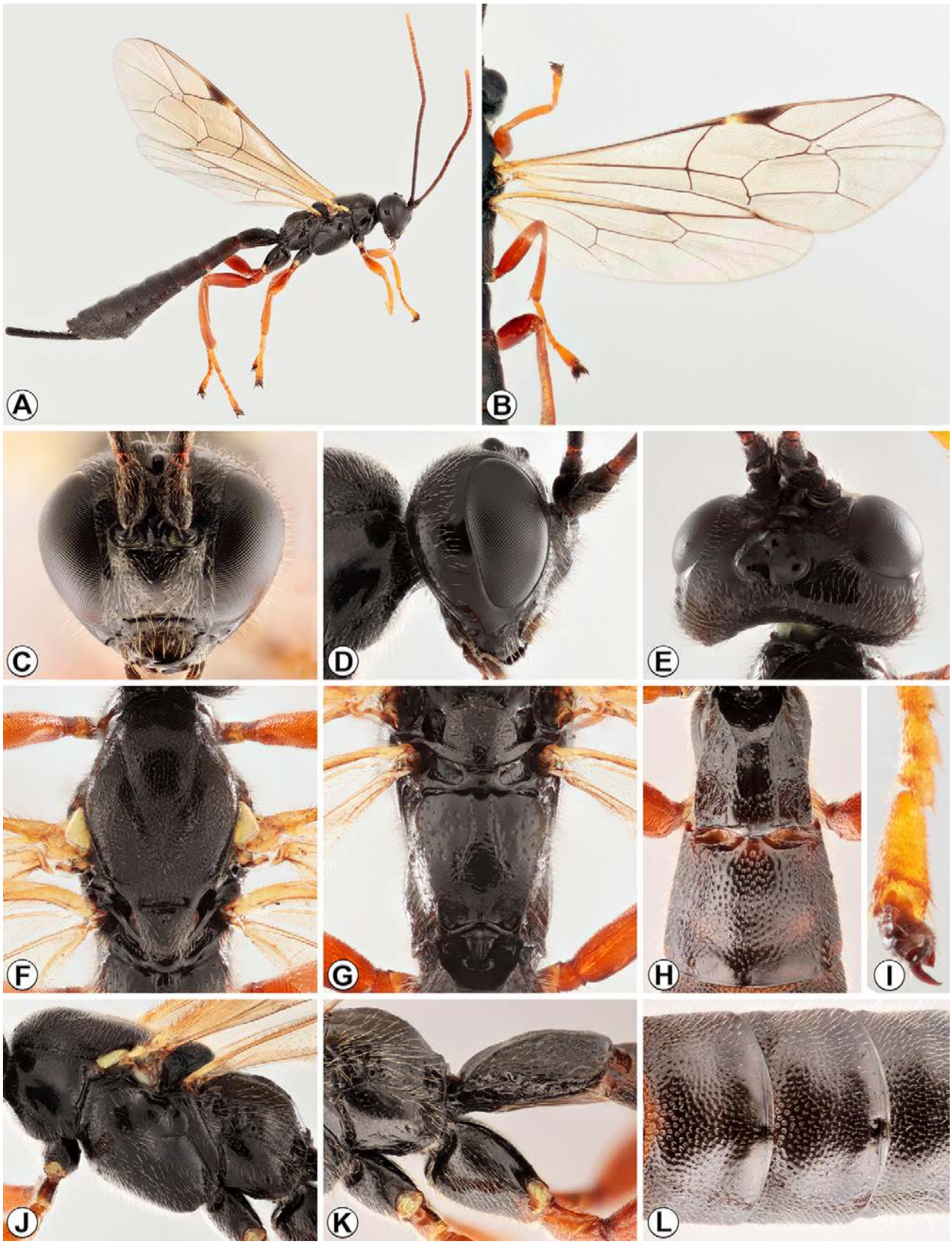


Figure 56. *Endromopoda arundinator* (Fabricius, 1804), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Metatarsus, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa lateral view; **L.** T3–T5, dorsal view. Body length: 9.8 mm.

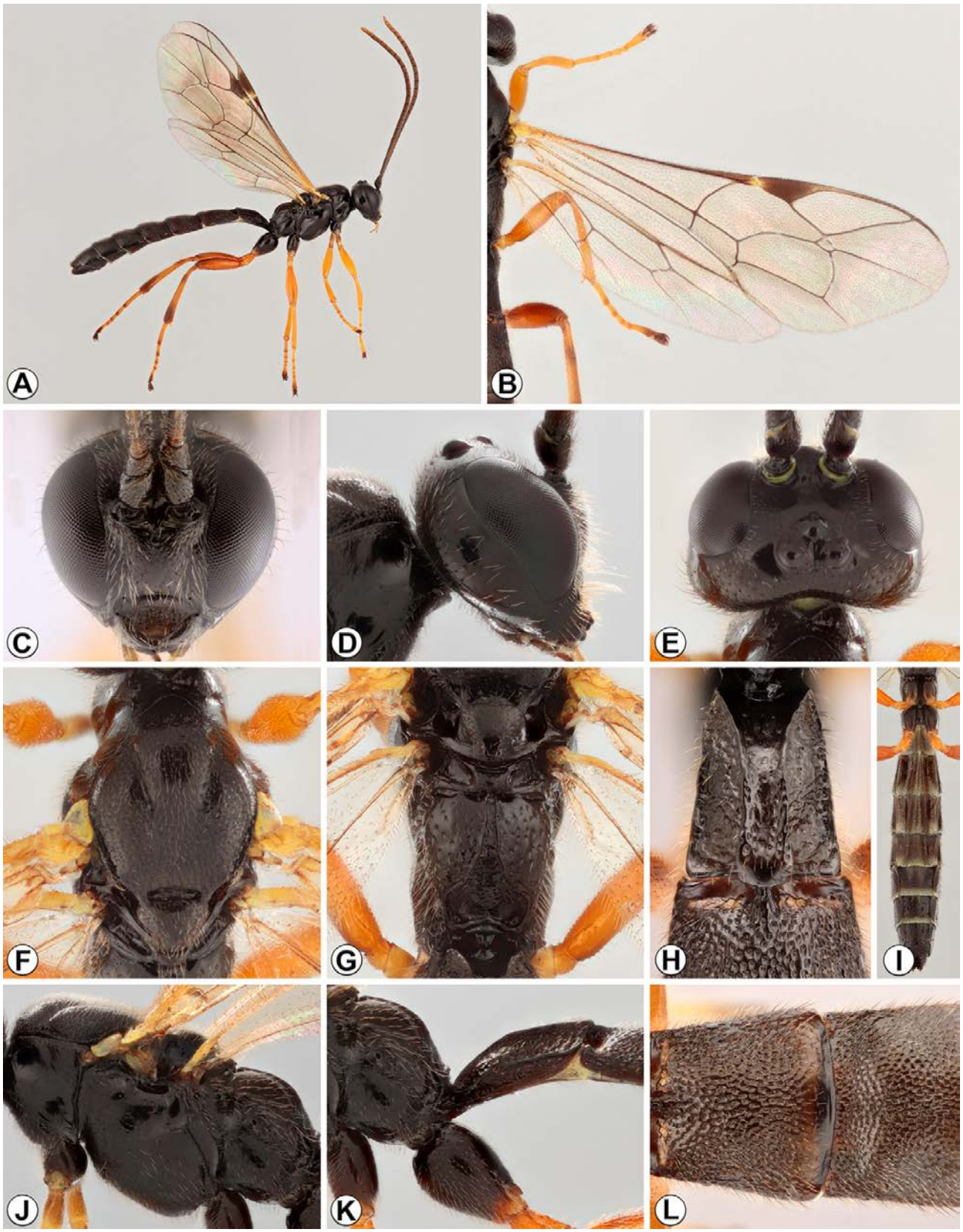


Figure 57. *Endromopoda arundinator* (Fabricius, 1804), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Metasoma, ventral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa lateral view; **L.** T2–T3, dorsal view. Body length: 7.7 mm.

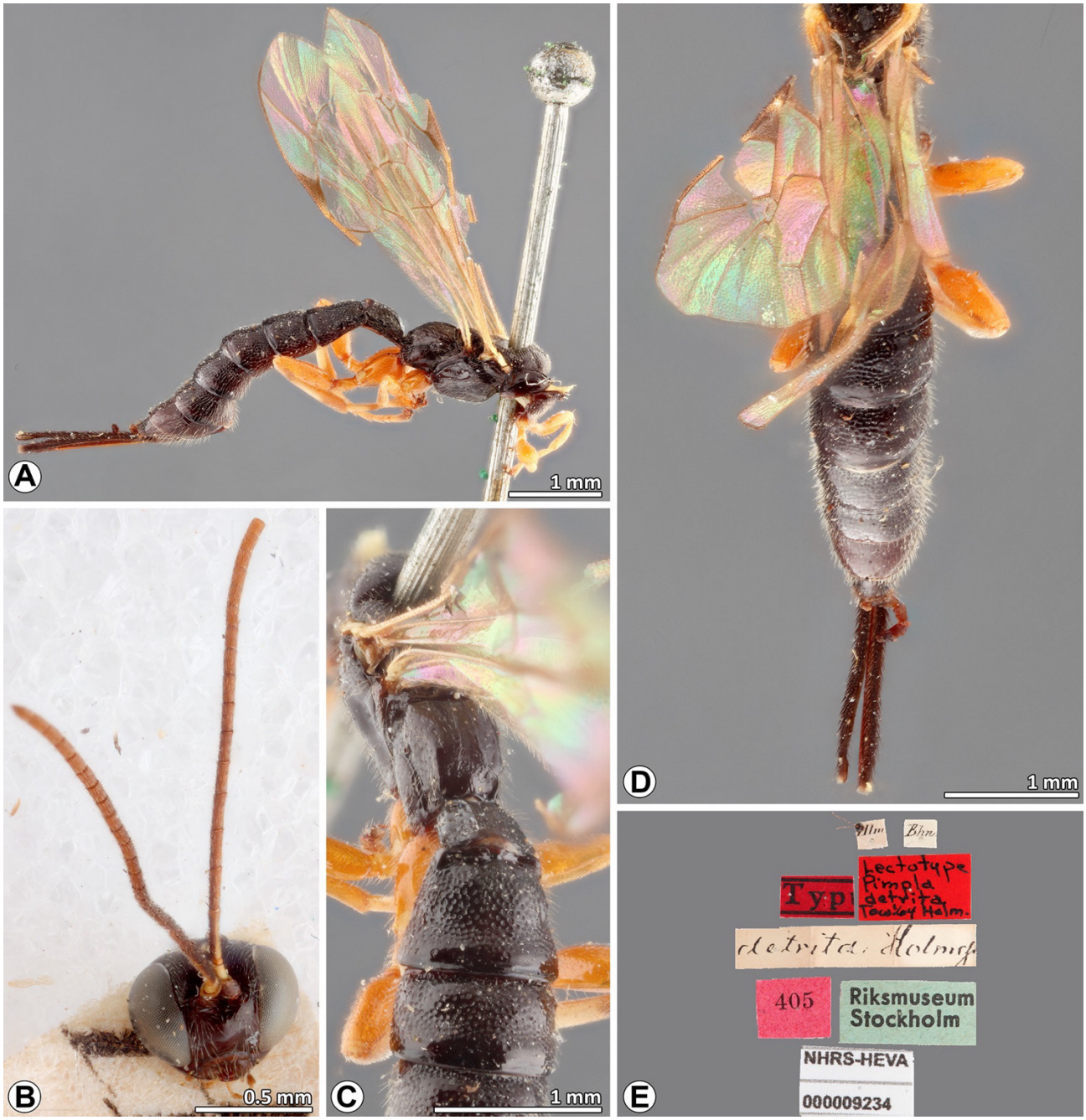


Figure 58. *Endromopoda detrita* (Holmgren, 1860), lectotype female (NHRS). **A.** Habitus, lateral view; **B.** Head, frontal view; **C.** Propodeum and metasoma, dorsal view; **D.** Metasoma, dorsal view; **E.** Lectotype labels.

Itoplectis maculator (Fabricius, 1775)

Ichneumon maculator Fabricius, 1775:332.

[Figs 63–64]

Type material. **Holotype**: GERMANY • ♀; ZMUC.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, Dorset, VC 9, OSGR ST71; 24 Jul. 2024[B]; swept from rushes; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SZ09; 31 May 2022[D]; netted while investigating nettle; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, East Kent, VC 15, OSGR TR01; 16 Jun. 2008[X]; emerged from pupal case of *Coleophora penella*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Berks, VC 22, OSGR SU56; 26 Nov. 2004[A]; attracted to house lights; M. Storey leg.; MWS, to be deposited in NHMUK.

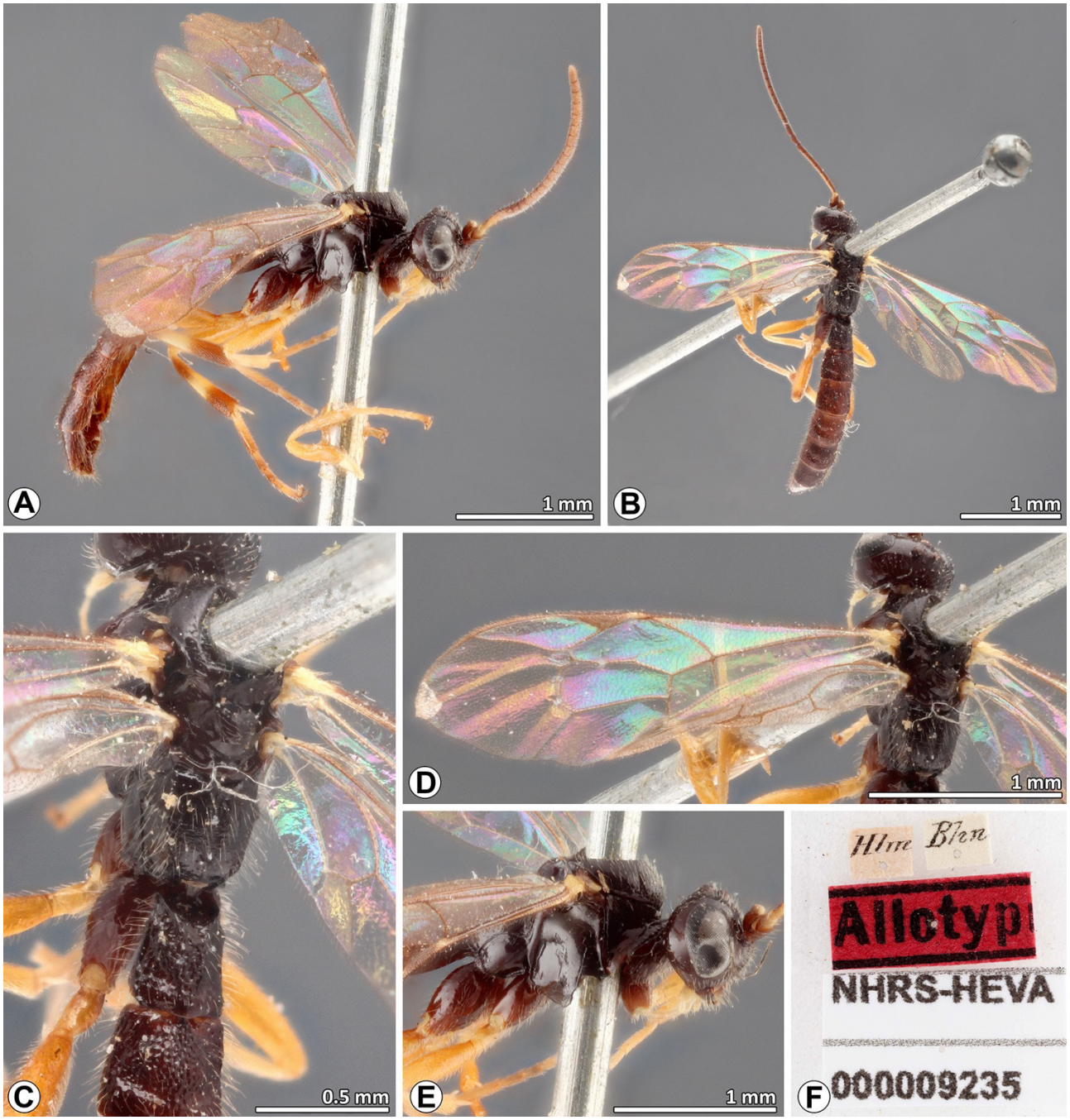


Figure 59. *Endromopoda detrita* (Holmgren, 1860), allotype male (NHRS). **A., B.** Habitus; **A.** Lateral view; **B.** Dorsolateral view; **C.** Mesosoma, T1, T2, and hind coxa, dorsolateral view; **D.** Wings; **E.** Head and mesosoma, lateral view; **F.** Allotype labels.

Label data of type. Labels (in order): (1) 'Holotypus / *Ichneumon* / *maculator* / Fab. ♀ / Horstm. [Klaus Horstmann] 1998' (medium-sized, rectangular, entirely red, handwritten); (2) '*maculator*' (small, rectangular, handwritten).

Type condition. Specimen pinned and in very poor condition, dirty and with several parts damaged or missing, including the head, both left wings, both fore legs, left hind leg, as well as the ventral portion of the metasoma; left mid leg lacking tibia and tarsomeres; right mid leg represented only by the coxa; right hind leg without tarsomeres.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, W-PAL.

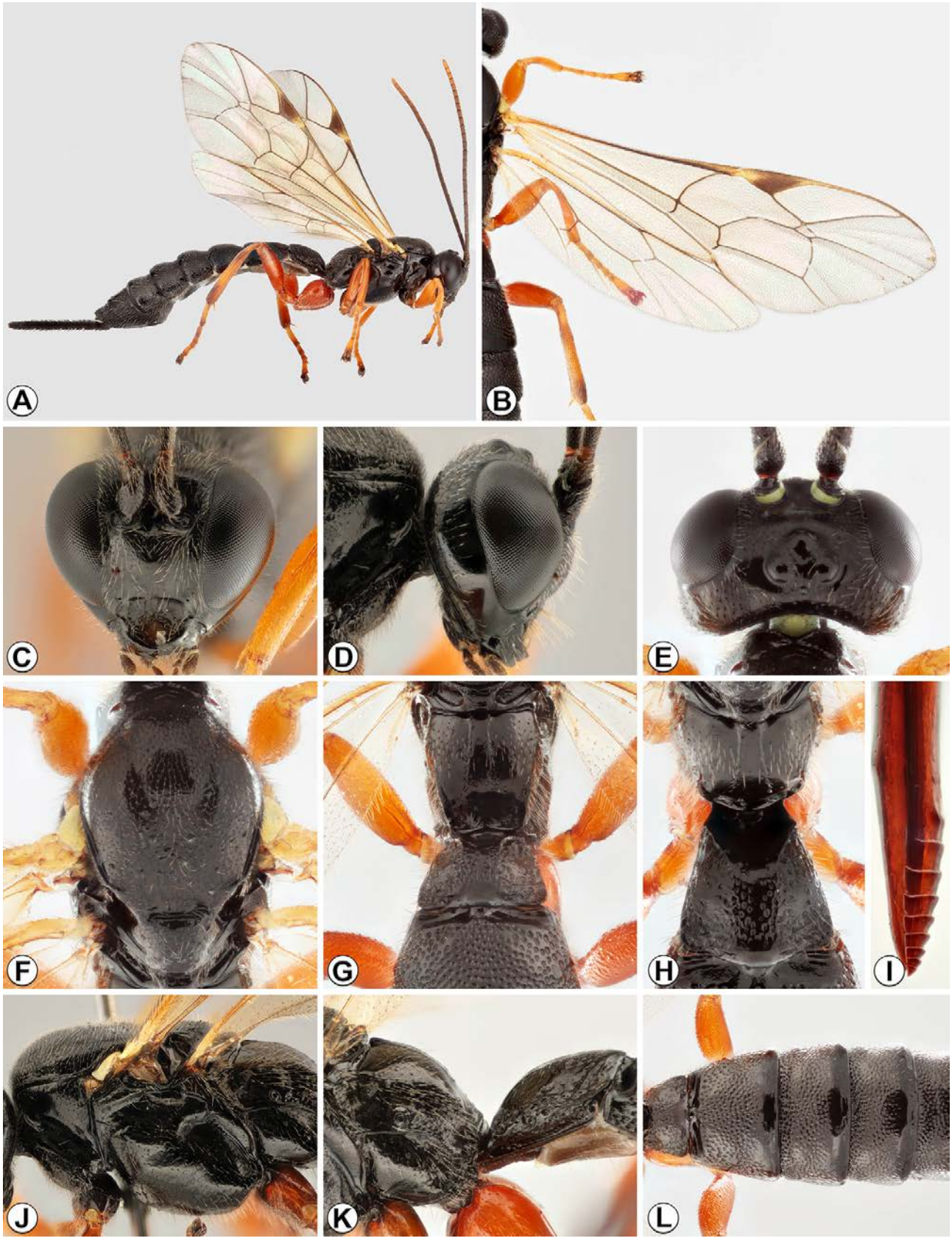


Figure 60. *Endromopoda detrita* (Holmgren, 1860), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum, propodeum, and T1–T2 dorsal view; **H.** Propodeum, and T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1, lateral view; **L.** T1–T5, dorsal view.

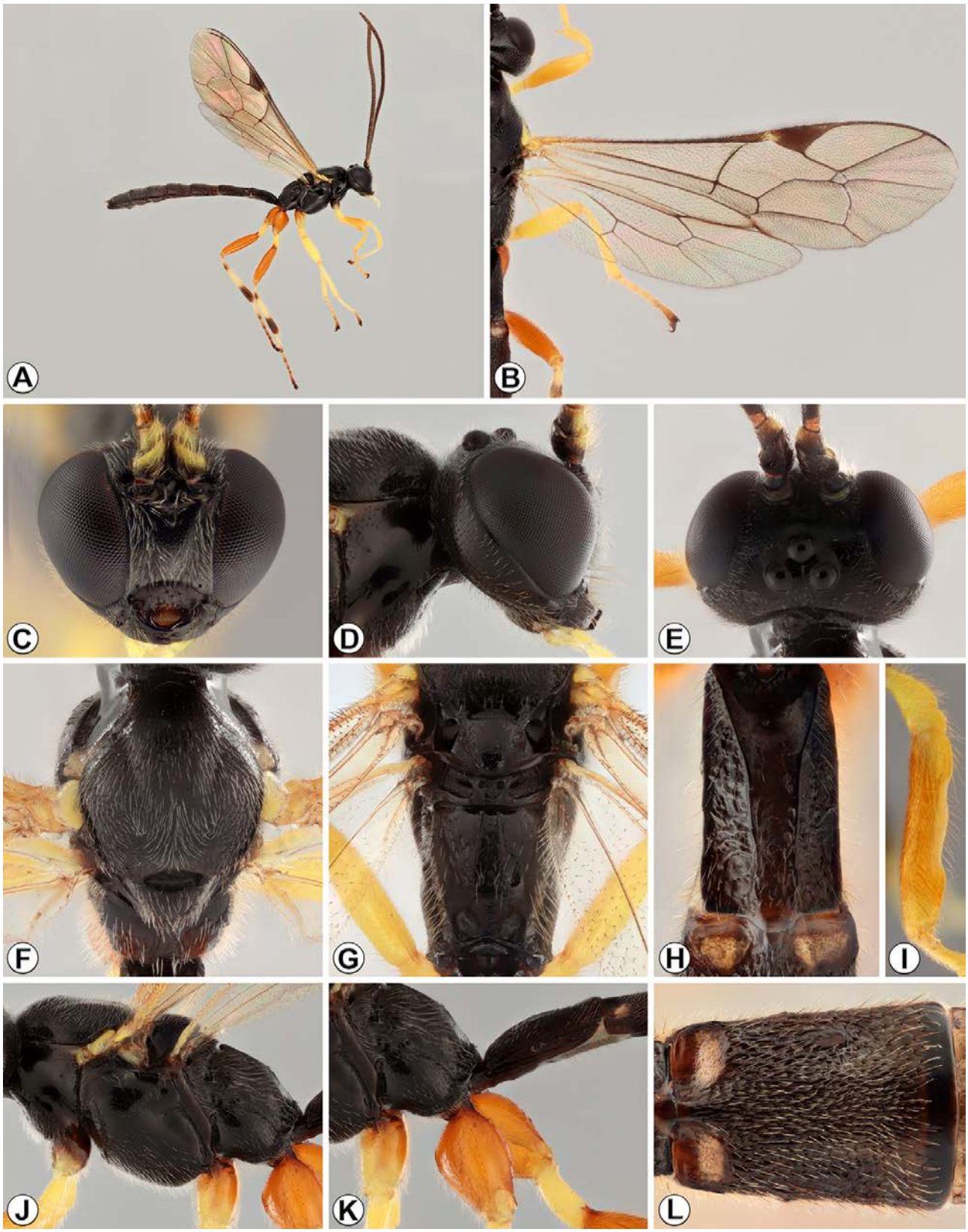


Figure 61. *Endromopoda detrita* (Holmgren, 1860), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum, and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Metafemur, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxal, lateral view; **L.** T2, dorsal view. Body length: 8.15 mm.

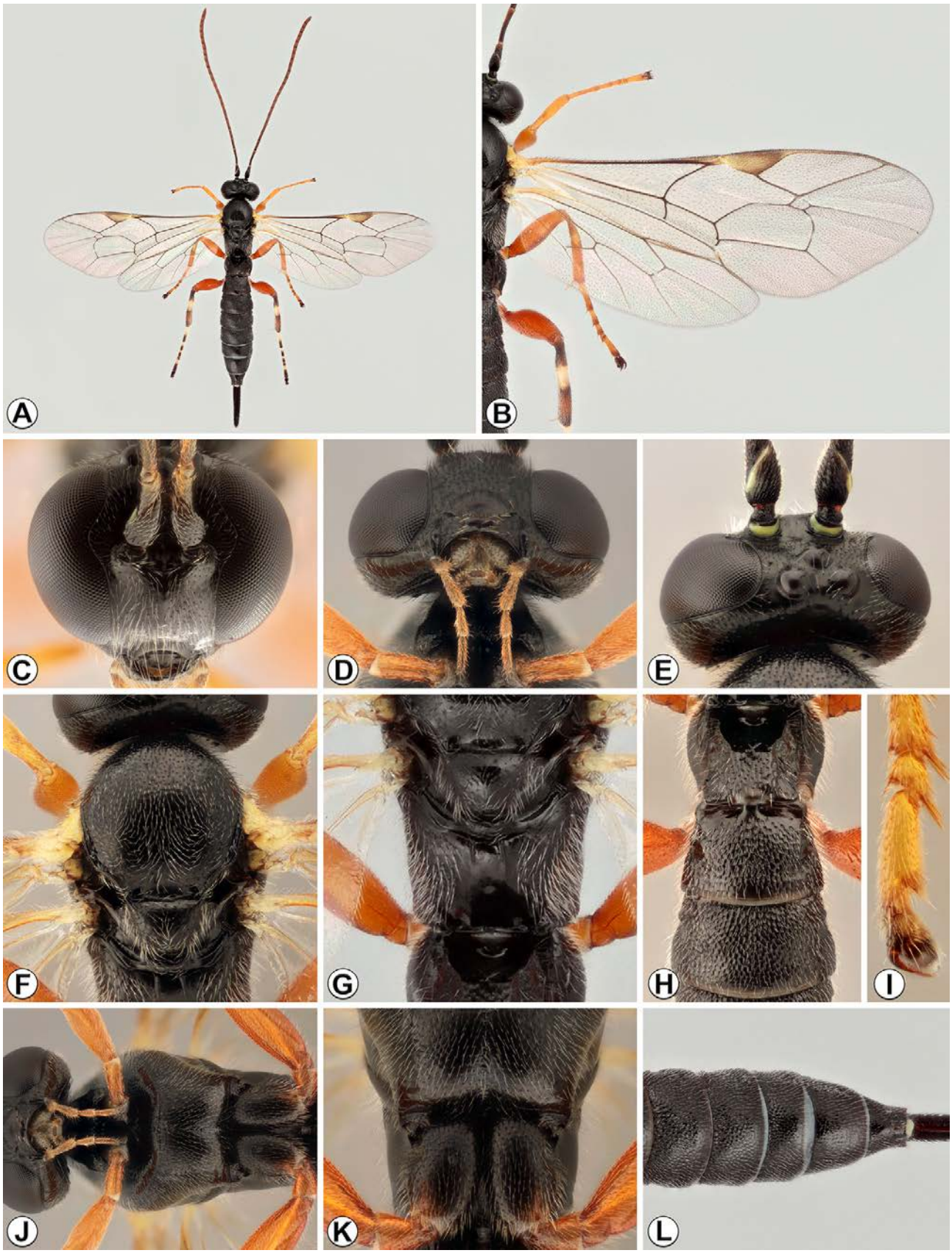


Figure 62. *Itoplectis alternans* (Gravenhorst, 1829), female from the United Kingdom (MWS). **A.** Habitus, dorsal view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum, and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Metatarsus, lateral view; **J.** Mesosoma, ventral view; **K.** Mesocoxa, ventral view; **L.** T4–T8, dorsal view.

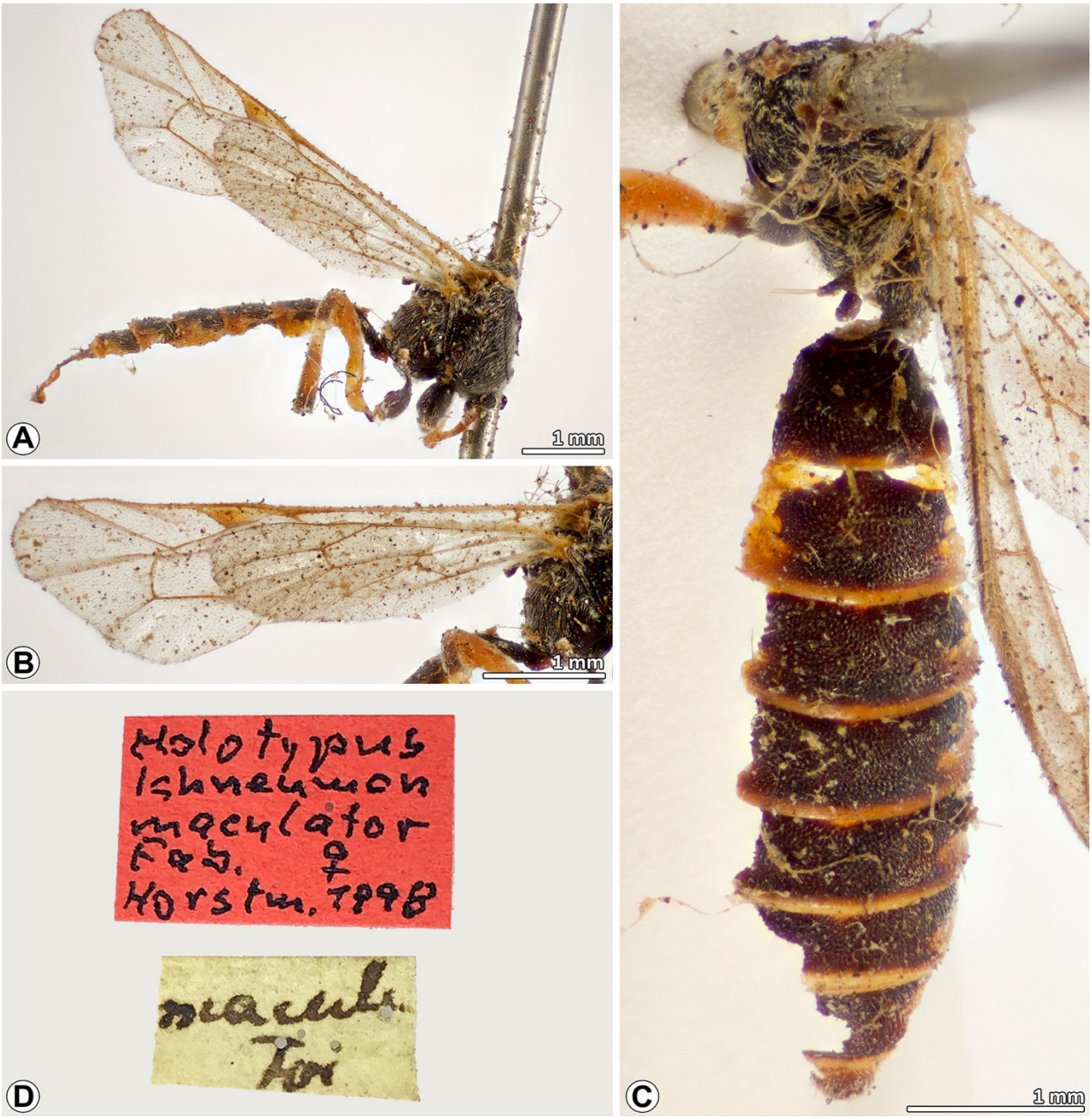


Figure 63. *Itoplectis maculator* (Fabricius, 1775), holotype female (ZMUC). **A., C.** Mesosoma and metasoma; A. Lateral view; **C.** Dorsal view; **B.** Wings; **D.** Holotype labels.

Itoplectis tunetana (Schmiedeknecht, 1914)

Pimpla tunetana Schmiedeknecht, 1914:428.

Type material. **Syntypes**: TUNISIA • ♀; depository unknown.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, W-PAL.

Remarks. Schmiedeknecht (1914: 428) did not mention the number of specimens examined, nor did he designate any individual as holotype. Therefore, in accordance with Article 73.2 (ICZN 1999), all specimens are to be regarded as syntypes.

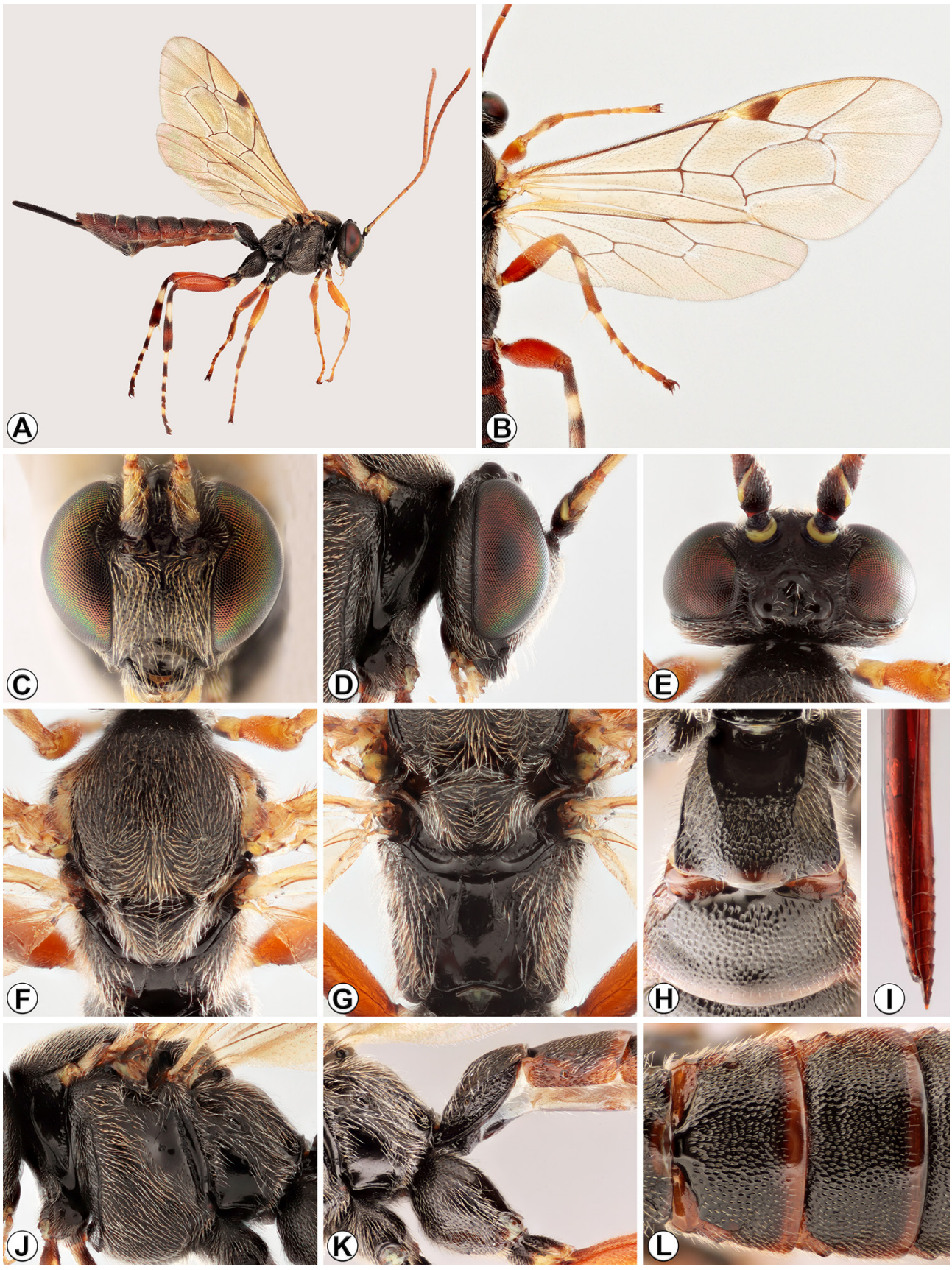


Figure 64. *Itoplectis maculator* (Fabricius, 1775), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, and metacoxa, lateral view; **L.** T2–T3, dorsal view.

Itoplectis viduata (Gravenhorst, 1829)

Pimpla viduata Gravenhorst, 1829a:214.

Type material. **Lectotype** (designated by Oehlke 1967): country of type locality unknown • ♂; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Genus *Liotryphon* Ashmead, 1900

Liotryphon caudatus (Ratzeburg, 1848)

Pimpla caudata Ratzeburg, 1848:93.

Type material. **Syntypes**: GERMANY • ♀; depository unknown.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. As-Suwayda and Latakia governorates (Aliyev & Maharramova 2009; Basheer et al. 2016).

World distribution. AUS, E-PAL, W-PAL.

Remarks. Ratzeburg (1848:93) did not mention the number of specimens examined, nor did he designate any individual as holotype. Therefore, in accordance with Article 73.2 (ICZN 1999), all specimens are to be regarded as syntypes.

Genus *Pimpla* Fabricius, 1804

Pimpla contemplator (Müller, 1776)

Ichneumon contemplator Müller, 1776:158.

[Figs 65–66]

Type material. **Syntypes**: GERMANY • sex and depository unknown.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, South Wilts, VC 8, OSGR SU23; 12 May 2021[K]; swept from flowering *Euphorbia amygdaloides* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR ST71; 18 May 2020[C]; general sweeping; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 18 May 2020[J]; netted around fallen sticks in sunny broadleaved woodland; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, W-PAL.

Remarks. Müller (1776:158) did not mention the number of specimens examined, nor did he designate any individual as holotype. Therefore, in accordance with Article 73.2 (ICZN 1999), all specimens are to be regarded as syntypes.

Pimpla rufipes (Miller, 1759)

Ichneumon rufipes Miller, 1759:10.

[Figs 67–68]

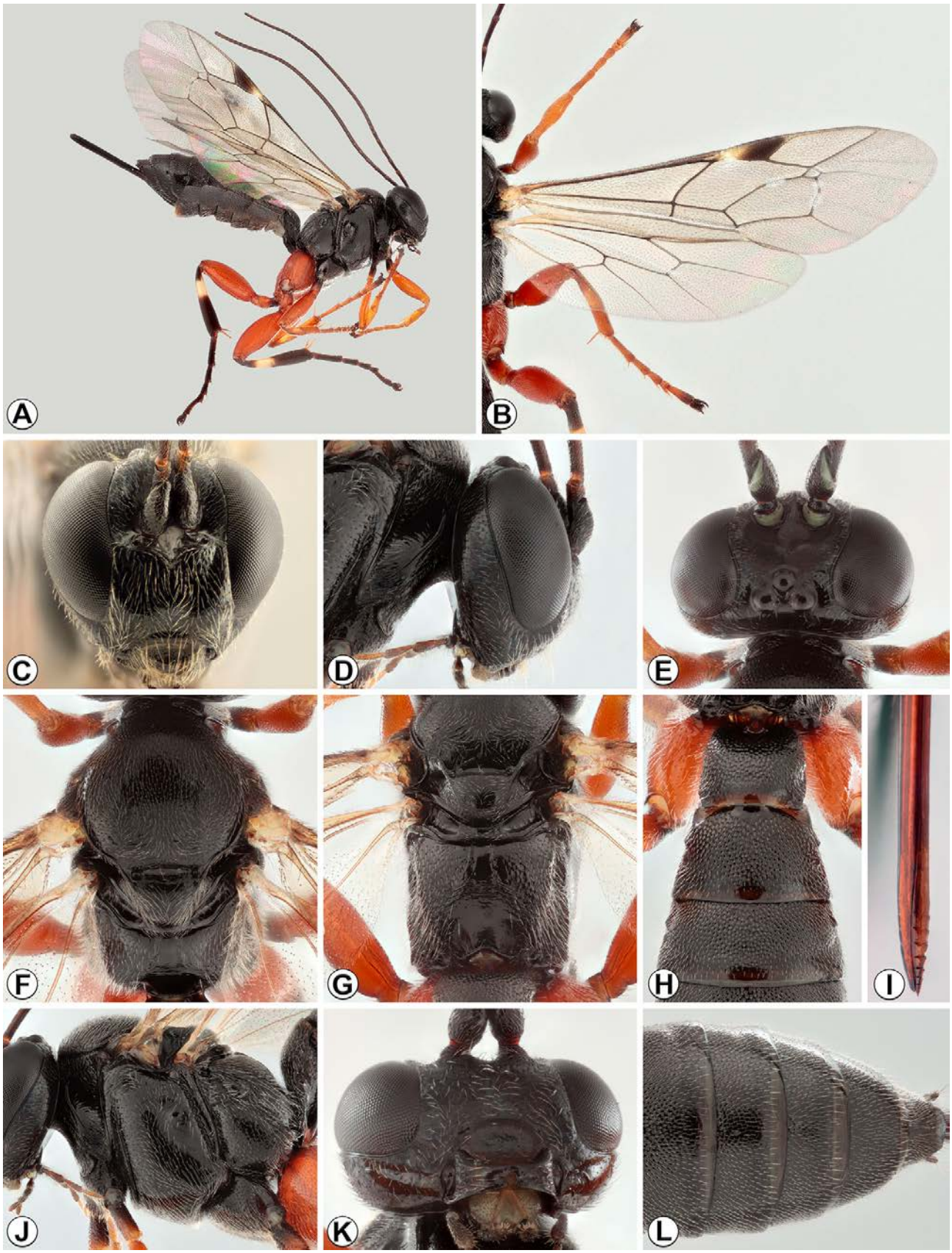


Figure 65. *Pimpla contemplator* (Müller, 1776), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Head, ventrofrontal view; **L.** T4–T8, dorsal view.

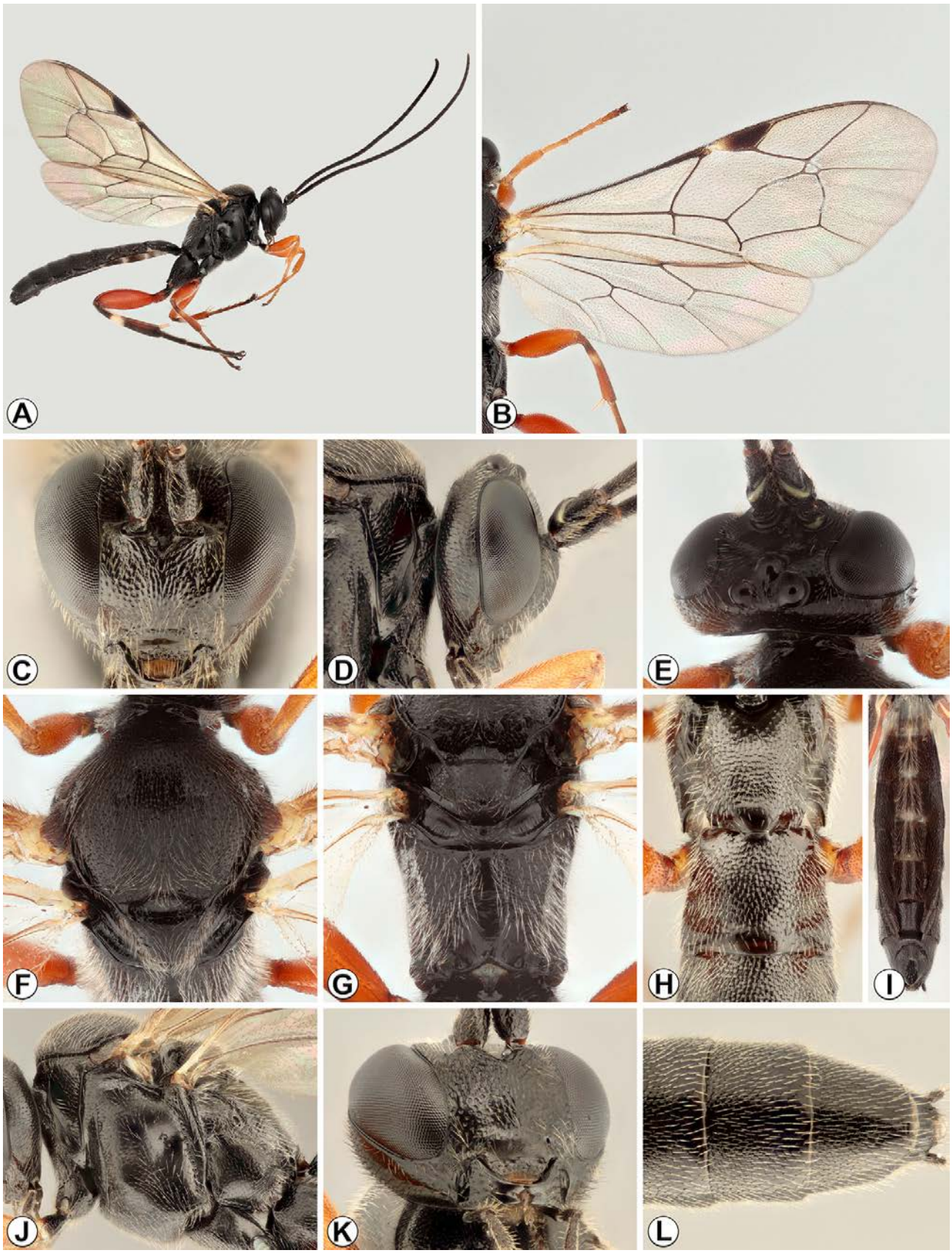


Figure 66. *Pimpla contemplator* (Müller, 1776), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Metasoma, ventral view; **J.** Mesosoma, lateral view; **K.** Head, ventrofrontal view; **L.** T5–T7, dorsal view.

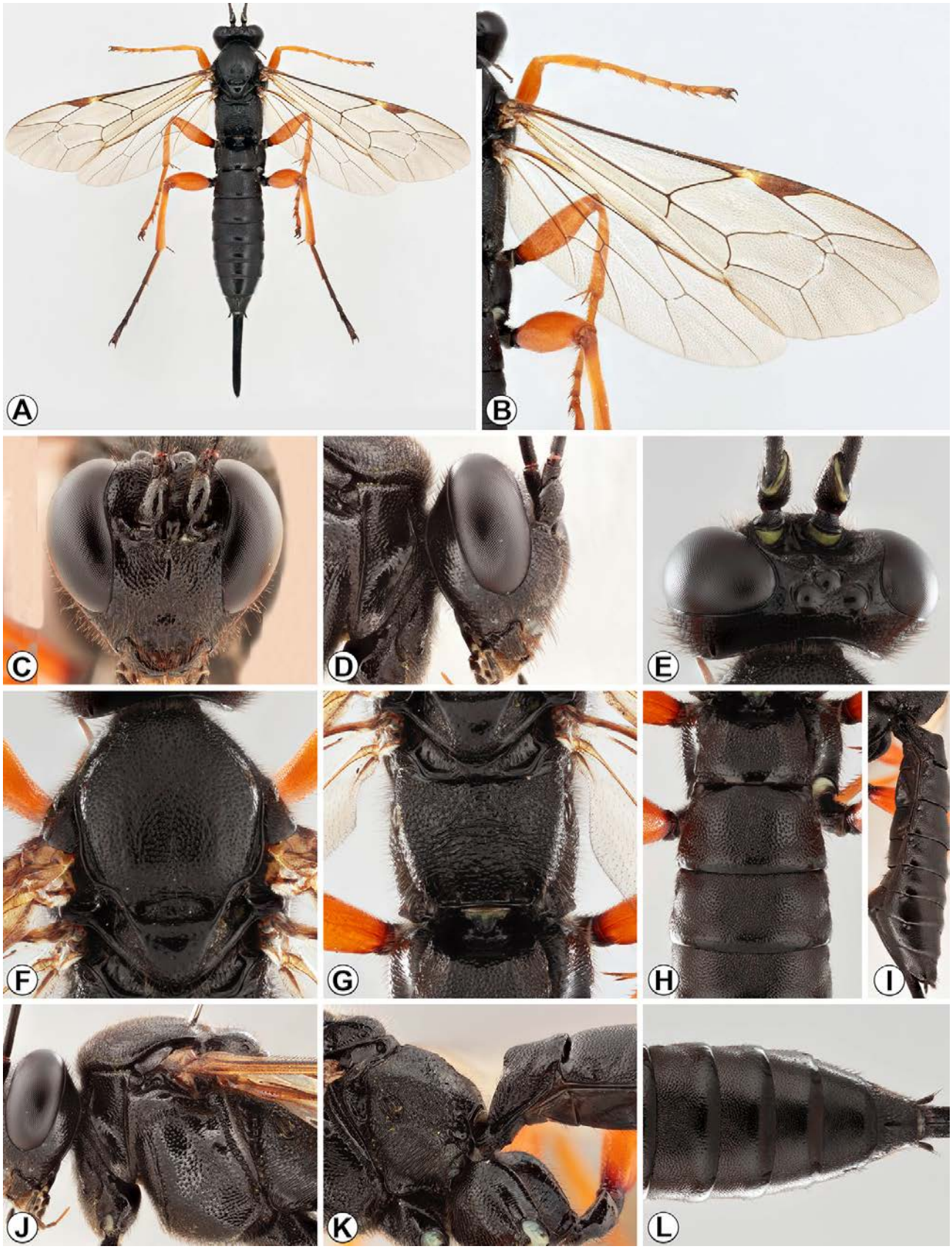


Figure 67. *Pimpla rufipes* (Miller, 1759), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T4, dorsal view; **I.** Metasoma, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, and metacoxa, lateral view; **L.** T3–T7, dorsal view.

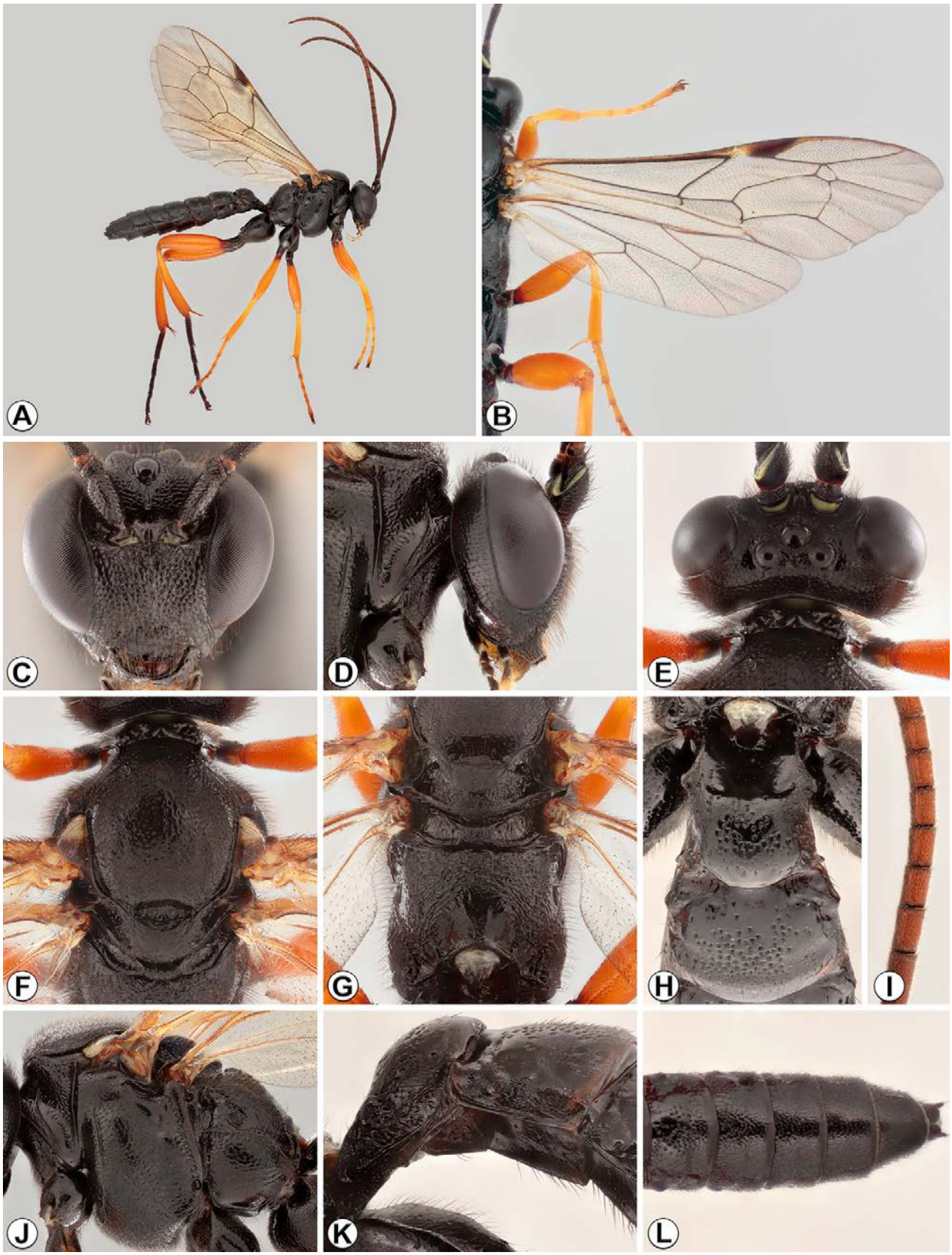


Figure 68. *Pimpla rufipes* (Miller, 1759), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Antenna, lateral view; **J.** Mesosoma, lateral view; **K.** T1–T2, lateral view; **L.** T2–T6, dorsal view. Body length: 11.5 mm.

Type material. **Syntypes**: UNITED KINGDOM • sex and depository unknown.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, Dorset, VC 9, OSGR SY67; 20 Aug. 2022[E]; swept from a small patch of *Phragmites australis*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 2 Oct. 2019; visiting *Daucus carota*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 22 Oct. 2017[A]; visiting *Pastinaca sativa*; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, OCE, OTL, W-PAL.

Pimpla spuria Gravenhorst, 1829

Pimpla spuria Gravenhorst, 1829a:179.

[Figs 69–70]

Type material. **Lectotype** (designated by Oehlke 1967): ITALY • ♀; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, Dorset, VC 9, OSGR SU00; 11 Aug. 2021[C]; garden Malaise trap; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 2 Oct. 2019[R]; visiting *Daucus carota* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, North Hants, VC 12, OSGR SU33; 7 Aug. 2019[X]; swept from flowering *Origanum vulgare* L. in the lee of scrub after rain; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, OTL, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Pimpla turionellae (Linnaeus, 1758)

Ichneumon turionellae Linnaeus, 1758:564.

[Figs 71–74]

Type material. **Lectotype** (designated by Fitton 1978): country of type locality unknown • ♀; LSUK. **Paralectotype** (designated by Fitton 1978): country of type locality unknown • ♂; LSUK.

Other material examined. **NON-TYPE:** Labels (in order): (1), '*turionellae*' (large, rectangular, handwritten); (2) 'THIS SPECIMEN / HAS NO / TYPE-STATUS / M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; all lines printed except fourth line handwritten). **NON-TYPE:** Labels (in order): (1) 'no label' (small, rectangular, printed); (2) '*turionellae* / THIS SPECIMEN / HAS NO / TYPE-STATUS / M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular, all lines printed except first and fifth handwritten).

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Wilts, VC 8, OSGR SU02; 7 May 2024[R]; visiting *Euphorbia amygdaloides* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SY67; 18 Apr. 2017[M]; visiting *Smyrnium olusatrum* L.; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'LECTO- / TYPE' (small, circular, red-bordered, printed); second label, '*I [Ichneumon] turionellae*' (small, rectangular, handwritten); (3) 'LECTOTYPE / *Ichneumon* ♀ / *turionellae* Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten; last one printed). **PARALECTOTYPE:** Labels (in order): (1) 'PARA- / LECTO- / TYPE' (small, circular, pale turquoise-rounded, printed); (2)

'no label' (small, rectangular, printed); (3) 'PARALECTOTYPE / *Ichneumon* ♂ / *turionellae* Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; first to third lines handwritten, fourth line printed).

Type condition. Pinned and in very good condition. Paralectotype: left antenna with only 8 flagellomeres; fore wings missing.

Distribution in Syria. Latakia governorate (Aliyev & Maharramova 2009; Basheer et al. 2016).

World distribution. E-PAL, NEA, OCE, OTL, W-PAL.

Remarks. In the Linnaean collection, additional data for the lectotype include genus number (244), species number (40), reference number (LINN 2633), and box number (HYM–9). For the paralectotype, the corresponding data are genus number (244), species number (40), reference number (LINN 2634), and box number (HYM–9). The two non-type specimens were examined to document historical material associated with *I. turionellae* and to clarify their status relative to the lectotype and paralectotype.

Genus *Scambus* Hartig, 1838

Scambus nigricans (Thomson, 1877)

Pimpla nigricans Thomson, 1877:754.

[Fig. 75]

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♀; Skåne; MZLU.

Label data of type. Labels (in order): (1), 'Scan [southernmost part of Sweden]' (tiny, rectangular, printed); (2) '1978 / 298' (small, square, all lines printed except the number 8 in 1978); (3) '1970 / 694' (small, square; all lines printed except the number 0 in 1970); (4) 'Lectotype / *Pimpla* / *nigricans* / Tow: 64 Thom. [Townes: 1964 Thomson]' (medium-sized, rectangular, entirely red, handwritten); (5) 'MZLU-HYM / 00065075' (small, rectangular, entirely yellow, printed); (6) 'MZLU / Type no. / 7001:1' (small, rectangular, white with laterally red bands, printed).

Type condition. Pinned and in good condition. Half of the left ovipositor sheath is broken, the left antenna is only with the first flagellomere, and right antenna only with three flagellomeres, the right fore leg without tibia and tarsomeres, and the left mid leg with all tarsomeres lost.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, W-PAL.

Genus *Schizopyga* Gravenhorst, 1829

Schizopyga frigida Cresson, 1870

Schizopyga frigida Cresson, 1870:159.

[Figs 76–77]

Type material. **Lectotype** (designated by Cresson 1916): CANADA • ♀; Hudson Bay; ANSP.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Wilts, VC 8, OSGR SU23; 12 May 2021[S]; swept from flowering *Euphorbia amygdaloides* L.; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Labels (in order): (1) '*Schizopyga* / *frigida* / Cress' (large, rectangular, red-ordered, handwritten); (2) 'TYPE No. / 1468–' (small, square, entirely red; first line printed, second handwritten); (3) 'HBT / 35' (small, rectangular, handwritten).

Type condition. Specimen pinned and in good condition; left antenna lost; both fore legs without tarsomeres; right hind leg bears only one tarsomere.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, W-PAL.

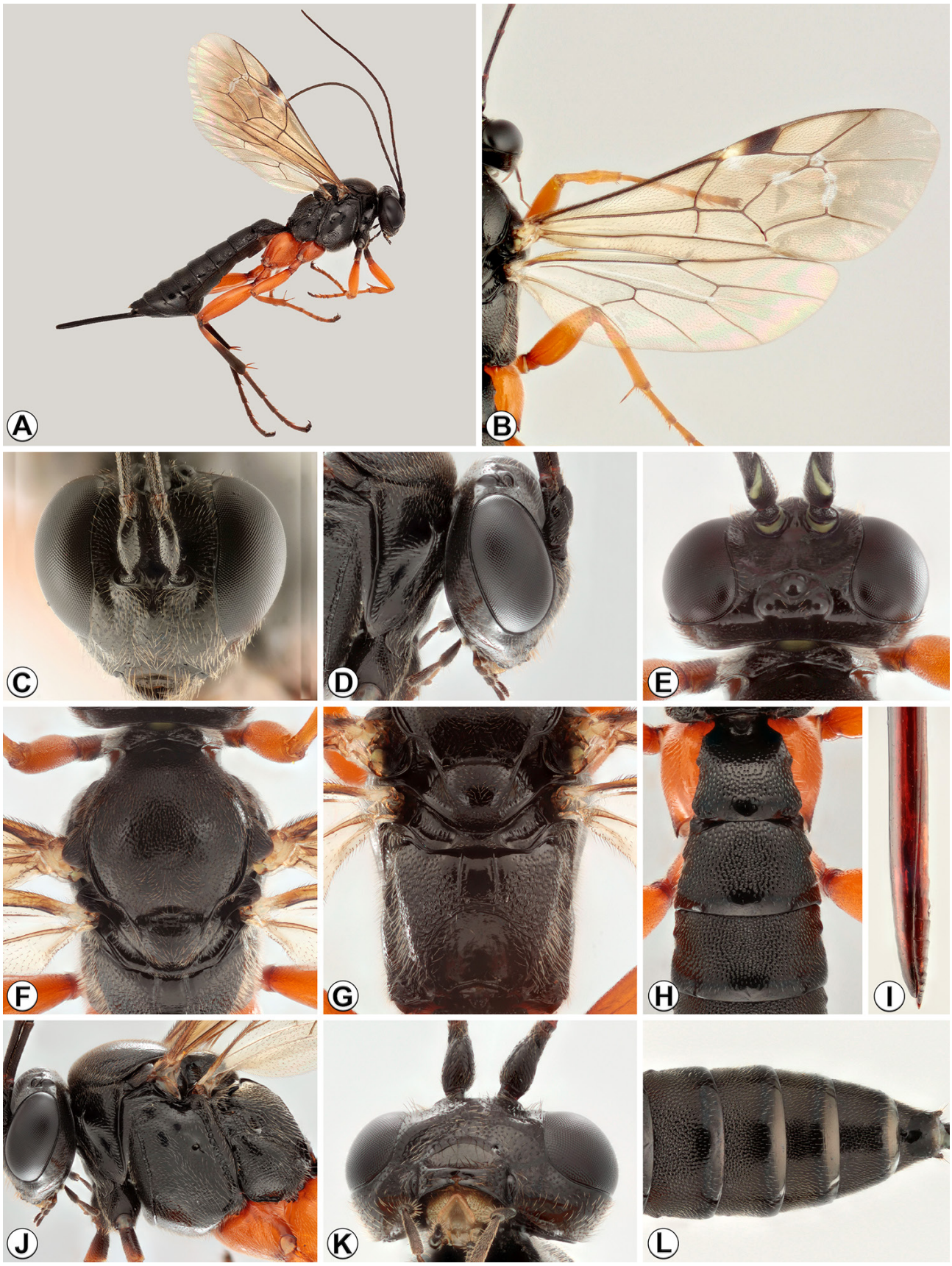


Figure 69. *Pimpla spuria* (Linnaeus, 1758), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Head, ventral view; **L.** T4–T8, dorsal view.

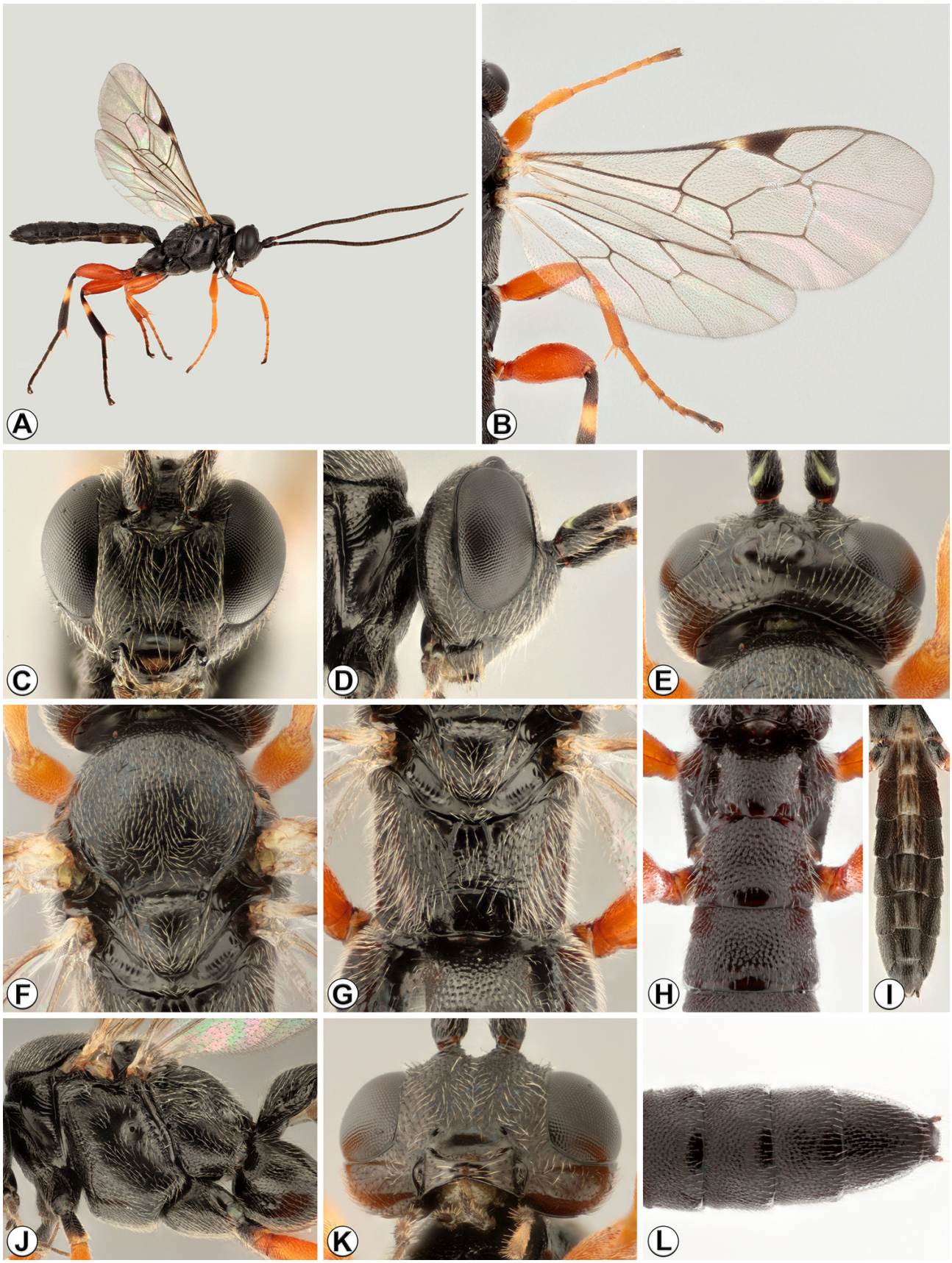


Figure 70. *Pimpla spuria* (Linnaeus, 1758), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Metasoma, ventral view; **J.** Mesosoma, lateral view; **K.** Head, ventral view; **L.** T4–T7, dorsal view. Body length: 5.4 mm.

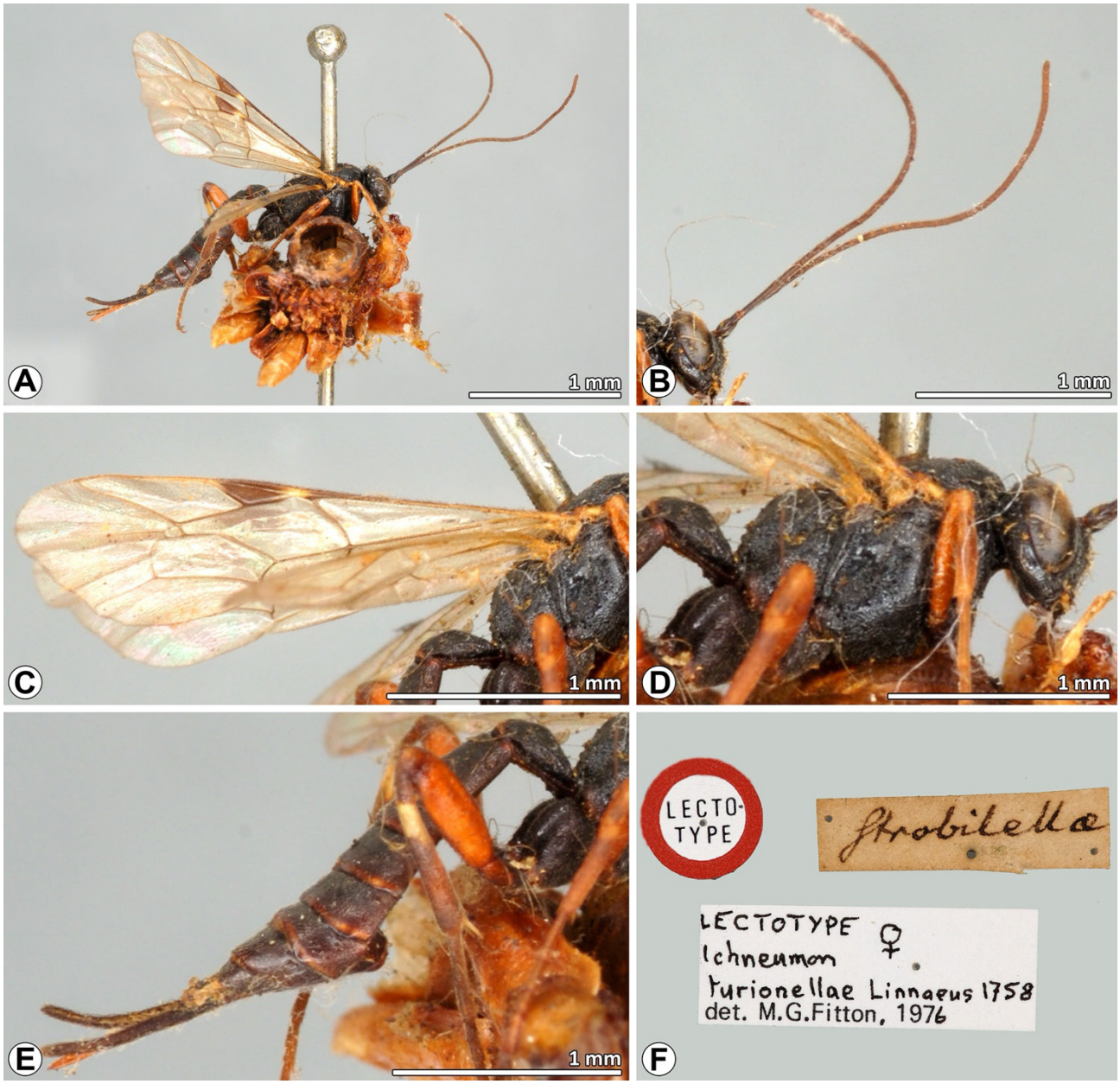


Figure 71. *Pimpla turionellae* (Linnaeus, 1758), lectotype female (LSUK). **A.** Habitus, lateral view; host cocoons; **B.** Head and antennae, lateral view; **C.** Wings; **D.** Head, mesosoma, and T1, lateral view; **E.** Metasoma and hind leg, lateral view; **F.** Lectotype labels.

Remarks. Initial examination of the type material was not possible due to restrictions imposed during the COVID-19 pandemic and the limited availability of curatorial staff at the museum collections at that time. Consequently, neither direct examination nor access to supplementary curatorial information could be undertaken. In the present study, however, low-quality images of the lectotypes are provided.

Genus *Tromatobia* Förster, 1869

Tromatobia variabilis (Holmgren, 1856)

Pimpla variabilis Holmgren, 1856:34.

[Figs 78–81]

Type material. **Lectotype** (designated by Townes et al. 1965): SWEDEN • ♂; Skåne; NHRS. **Allotype**: SWEDEN • ♀; Skåne; NHRS.

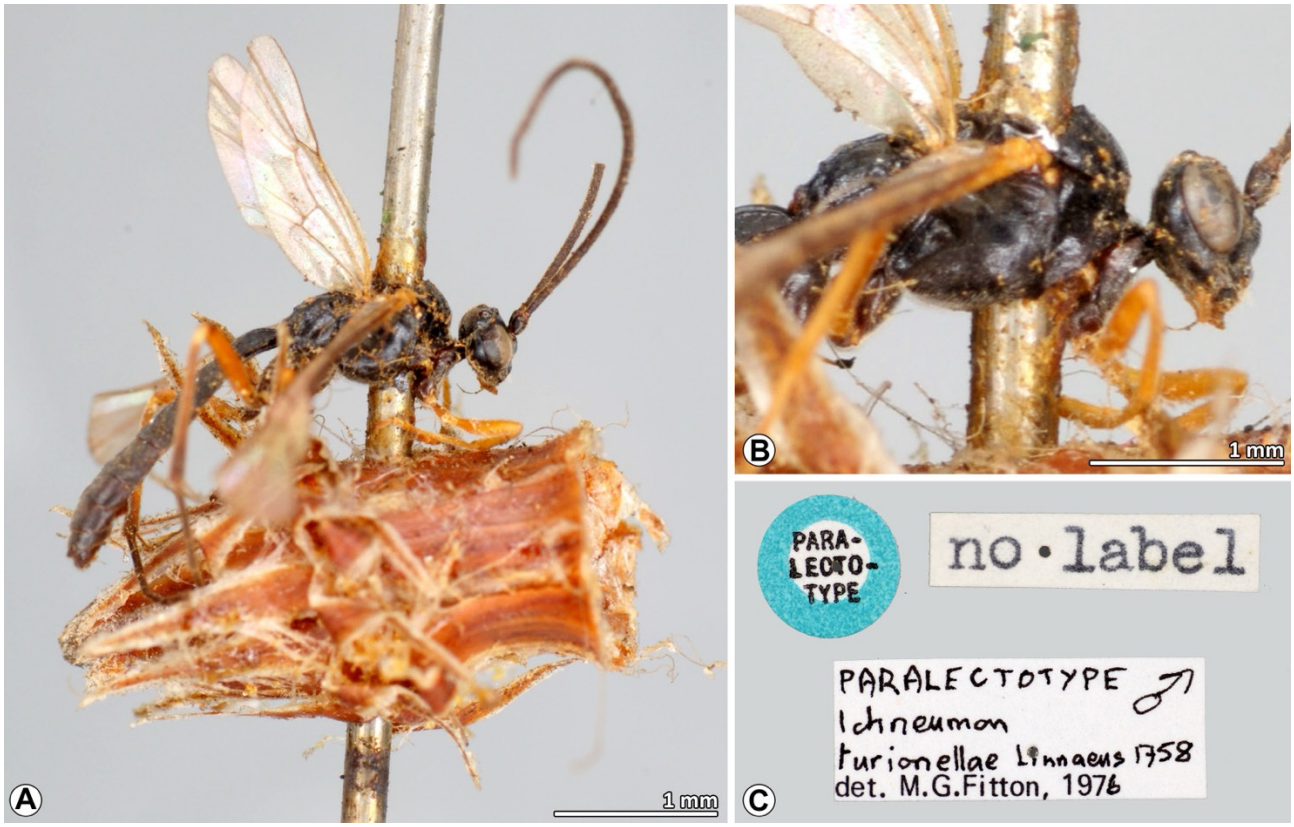


Figure 72. *Pimpla turionellae* (Linnaeus, 1758), paralectotype female (LSUK). **A.** Habitus, lateral view; host cocoons; **B.** Head and mesosoma, lateral view; **C.** Paralectotype labels.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Hants, VC 11, OSGR SZ19; 4 Aug. 2023[N]; swept from sparse *Phragmites australis*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR SY67; 20 Aug. 2022[K]; swept from a small patch of *Phragmites australis*; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. **LECTOTYPE:** Labels (in order): (1) 'Sc [Scania= southernmost part of Sweden]' (tiny, square, handwritten); (2) 'Hgn [August Emil Holmgren, collector of the specimens]' (tiny, square, handwritten); (3) '*variabilis*. Holmg.' (small, rectangular, handwritten); (4) 'Typ' (small, rectangular, entirely red, printed); (5) NHRS-HEVA / 000009240' (medium-sized, rectangular, printed). **ALLOTYPE:** Labels (in order): (1) 'Sc [Scania= southernmost part of Sweden]' (tiny, square, handwritten); (2) 'Hgn [August Emil Holmgren, collector of the specimens]' (tiny, square, handwritten); (3) 'Allotyp' (small, rectangular, entirely red, printed); (4) 'NHRS-HEVA / 000009241' (medium-sized, rectangular, printed).

Type condition. Specimens pinned and in good condition. Lectotype: fore legs with all tarsomeres lost. Allotype: wings partially damaged with portions torn; right antenna with only 10 flagellomeres; ovipositor sheath and ovipositor broken.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, W-PAL.

Genus *Theronia* Holmgren, 1859

Theronia atalantae (Poda, 1761)

Ichneumon atalantae Poda, 1761:106.

Type material. **Syntypes**: GREECE • ♀; depository unknown.

Label data of type. Unknown.

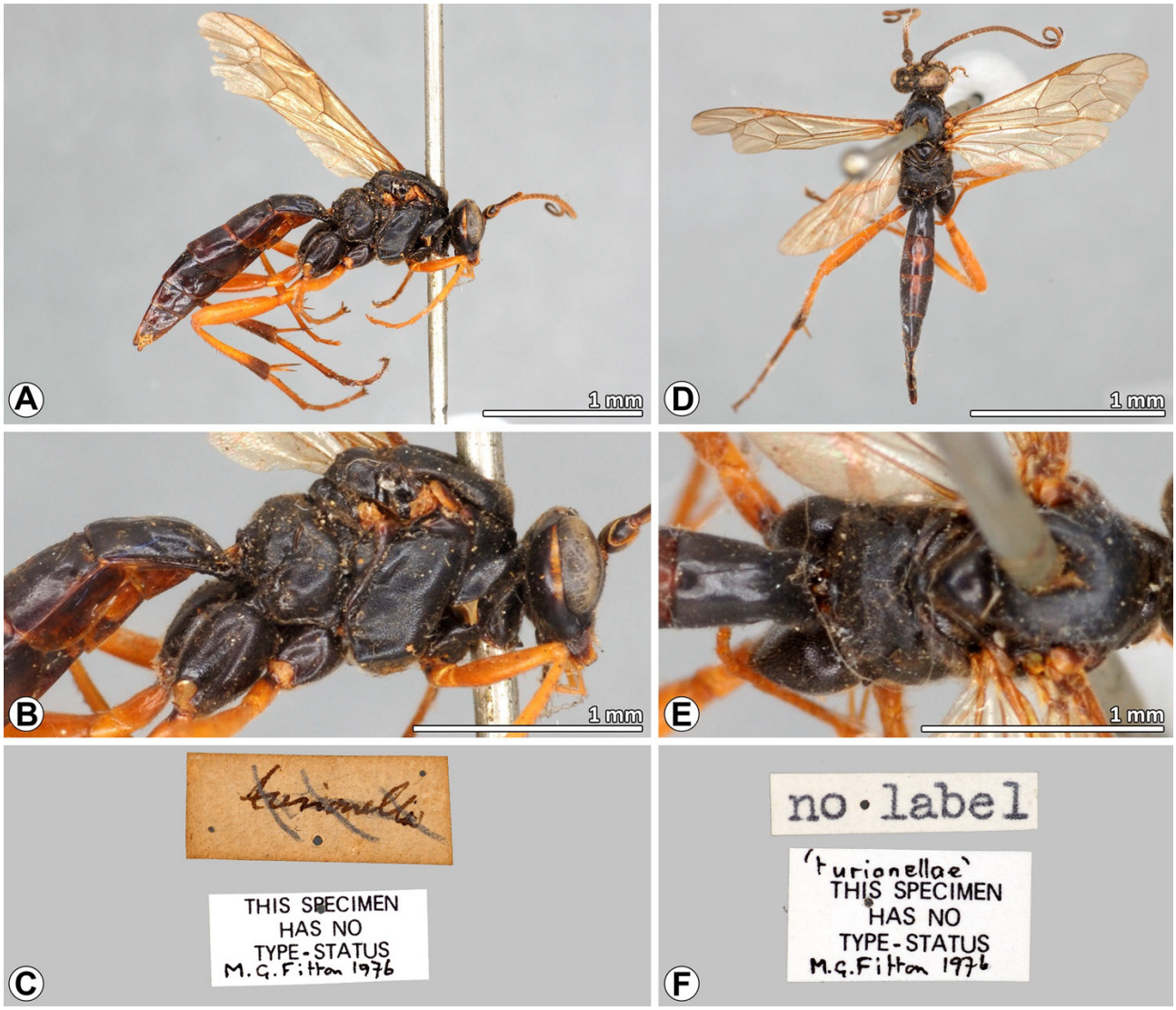


Figure 73. *Pimpla turionellae* (Linnaeus, 1758), non-type males (LSUK). **A., D.** Habitus; A. Lateral view; D. Dorsal view; **B.** Head, mesosoma, T1, and T2, lateral view; **C., F.** Non-type labels; **E.** Mesosoma and T1 tergite, dorsal view.

Type condition. Unknown.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. E-PAL, NEA, OTL, W-PAL.

Remarks. Poda (1761:106) did not mention the number of specimens examined, nor did he designate any individual as holotype. Therefore, all specimens are regarded as syntypes in accordance with Article 73.2 (ICZN 1999).

Subfamily Phygadeuontinae Förster, 1869

Genus *Chirotica* Förster, 1869

Chirotica meridionalis meridionalis Horstmann, 1983

Chirotica meridionalis Horstmann, 1983:12.

[Fig. 82]

Type material. **Holotype**: ITALY • ♀; Sicily; NHMW.

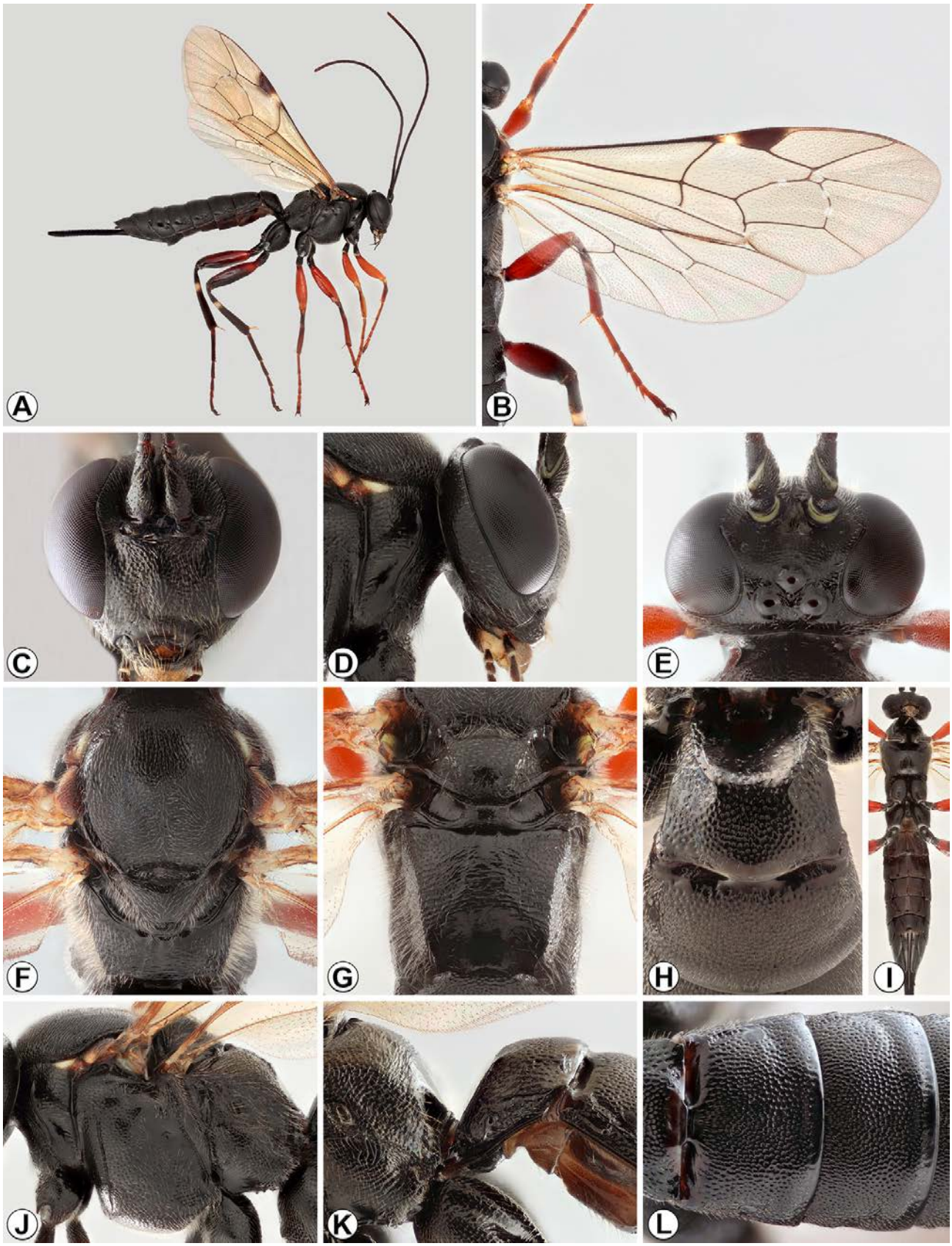


Figure 74. *Pimpla turionellae* (Linnaeus, 1758), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, and metacoxa, lateral view; **L.** T3–T4, dorsal view. Body length: 9.5 mm.

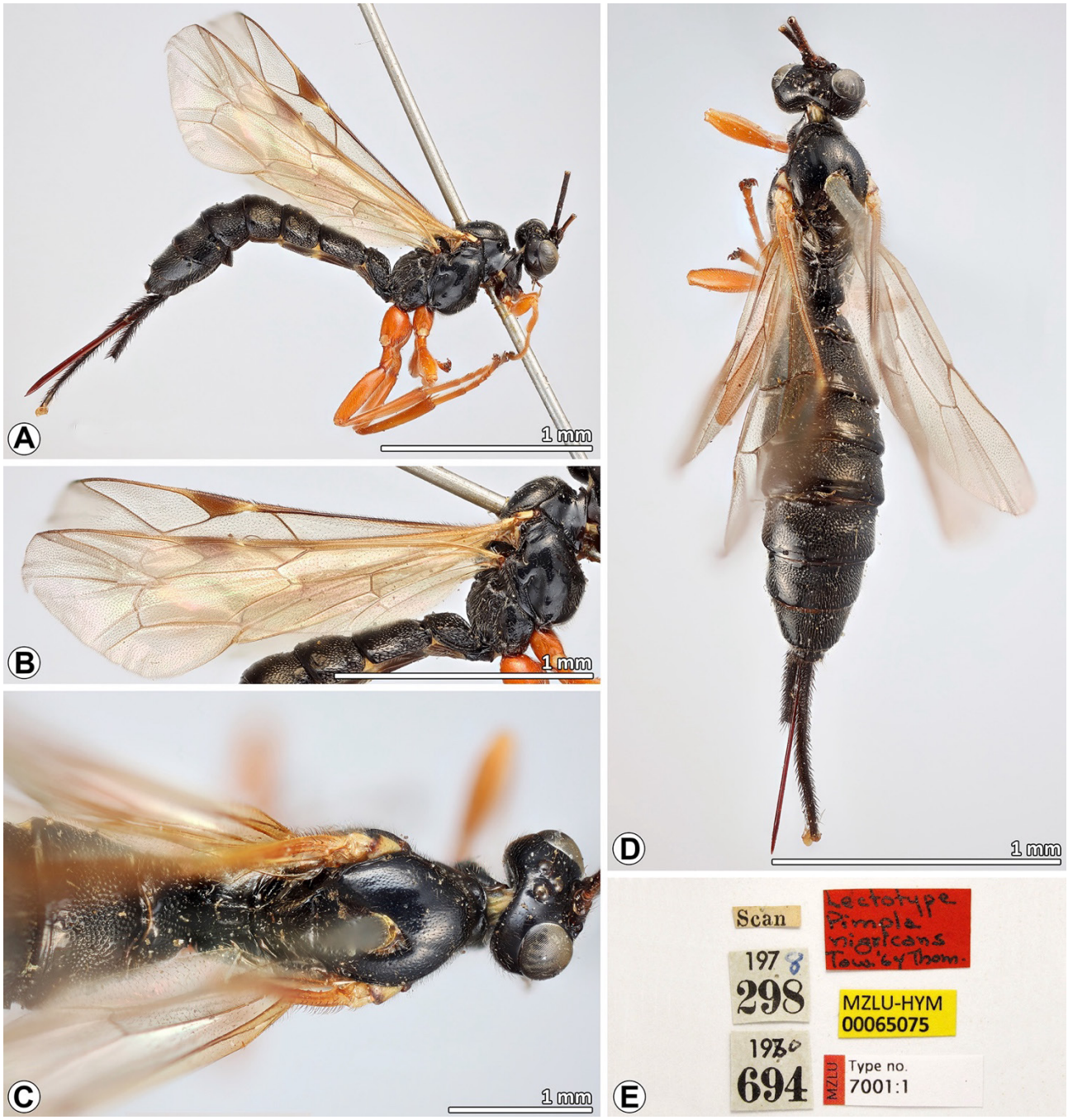


Figure 75. *Scambus nigricans* (Thomson, 1877), lectotype female (MZLU). **A., D.** Habitus; **A**. Lateral view; **D.** Dorsal view; **B.** Wings; **C.** Head, mesosoma, T1, and T2, dorsal view; **E.** Lectotype labels.

Label data of type. Labels (in order): (1) 'Holotypus ♀ / *Chirotica* / *meridionalis* / Horstm. [Klaus Horstmann] 1982' (medium-sized, rectangular, entirely red, handwritten); (2) 'Mann [possibly collector, Josef Johann Mann] / 1858 / Sicilia [Sicily, Italy]' (small, square, printed); (3) 'NHMW-HYM / #0002991' (small, rectangular, entirely yellow, printed).

Type condition. Pinned and in very good condition.

Distribution in Syria. Unknown locality (Kolarov 2008; Ghahari et al. 2026).

World distribution. W-PAL.

Remarks. Although Horstmann (1993) discussed this subspecies, no explicit record from Syria was provided in that work. The Syrian occurrence appears to originate from Kolarov (2008) and Yu et al.

(2016), who cited Horstmann (1993) under *Chirotica meridionalis* without reference to any subspecies. Consequently, the occurrence of this particular subspecies in Syria remains uncertain. Nevertheless, we provisionally retain the record herein because its distributional range may plausibly extend into Syria, pending additional material and further taxonomic investigation.

Chirotica meridionalis rubida Horstmann, 1993

Chirotica rubida Horstmann, 1993:12.

Type material. **Holotype**: ISRAEL • ♀; MZL.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Horstmann 1993).

World distribution. W-PAL.



Figure 76. *Schizopyga frigida* Cresson, 1870, lectotype female (ANSP). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; B. Lectotype labels.

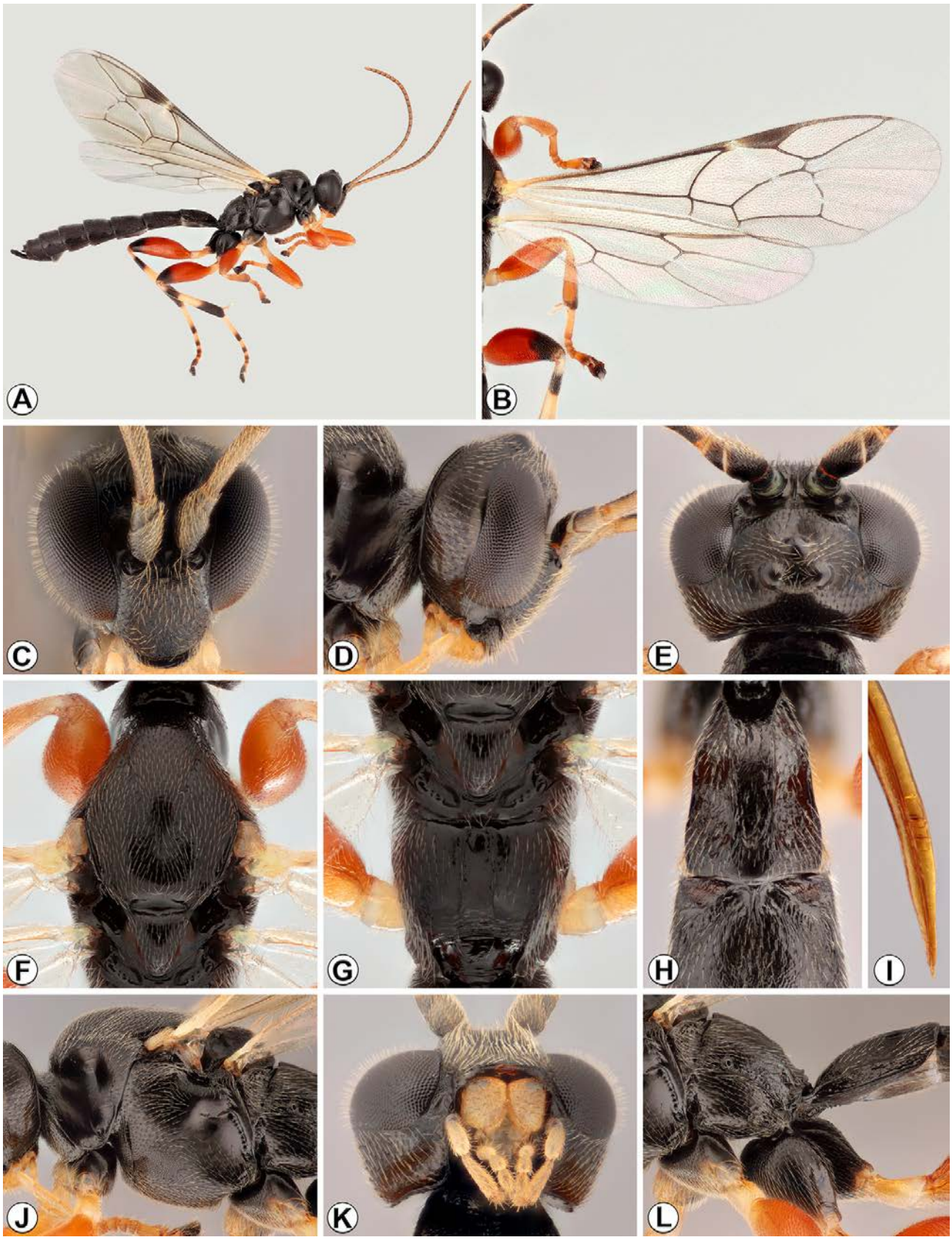


Figure 77. *Schizopyga frigida* Cresson, 1870, female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Head, ventral view; **L.** Propodeum, T1–T2, and metacoxa, lateral view. Body length: 7.7 mm.

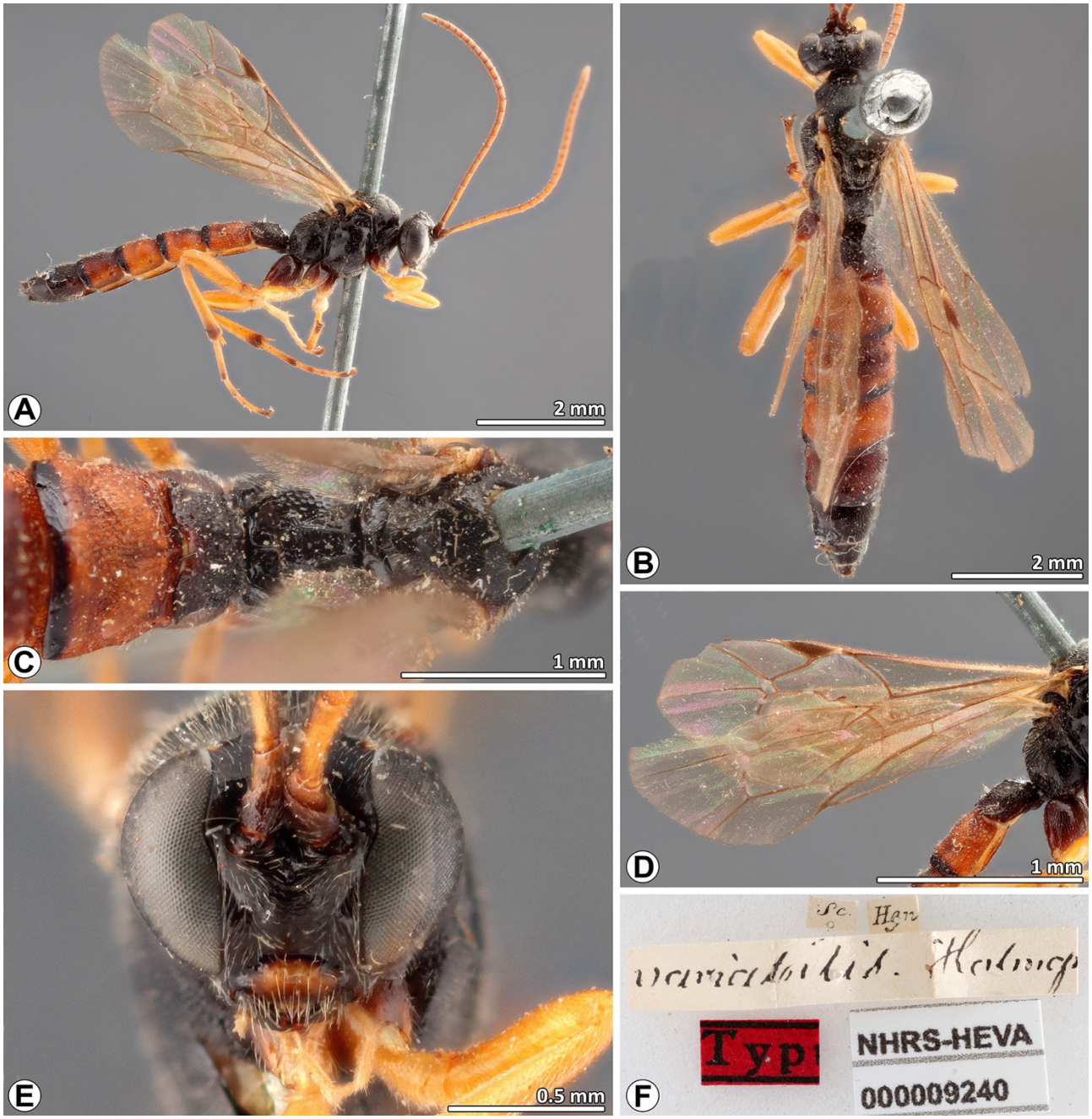


Figure 78. *Tromatobia variabilis* (Holmgren, 1856), lectotype male (NHRS). **A., B.** Habitus; **A.** Lateral view; **B.** Dorsal view; **C.** Scutellum, metanotum, propodeum, T1 and T2, dorsal view; **D.** Wings; **E.** Head, frontal view; **F.** Lectotype labels.

Genus *Gelis* Thunberg, 1827

Gelis imitatus Schwarz, 2016

Gelis imitatus Schwarz, 2016:1718–172.

[Fig. 83]

Type material. **Holotype**: ITALY • ♀; Upacchi NE Arezzo; Toscana; OLML.

Label data of type. **HOLOTYPE:** Labels (in order): (1) 'Italia, Toscana / Upacchi NE Arezzo / 43°30'N, 11°59'E / 26.8.2013 / Martin Schwarz' (small, rectangular, printed); (2) 'Holotypus' (medium-sized, rectangular, red, printed); (3) 'Holotypus / *Gelis* ♀ / *imitates* Schwarz / des. Mart. Schwarz '16' (medium-sized, rectangular, printed).

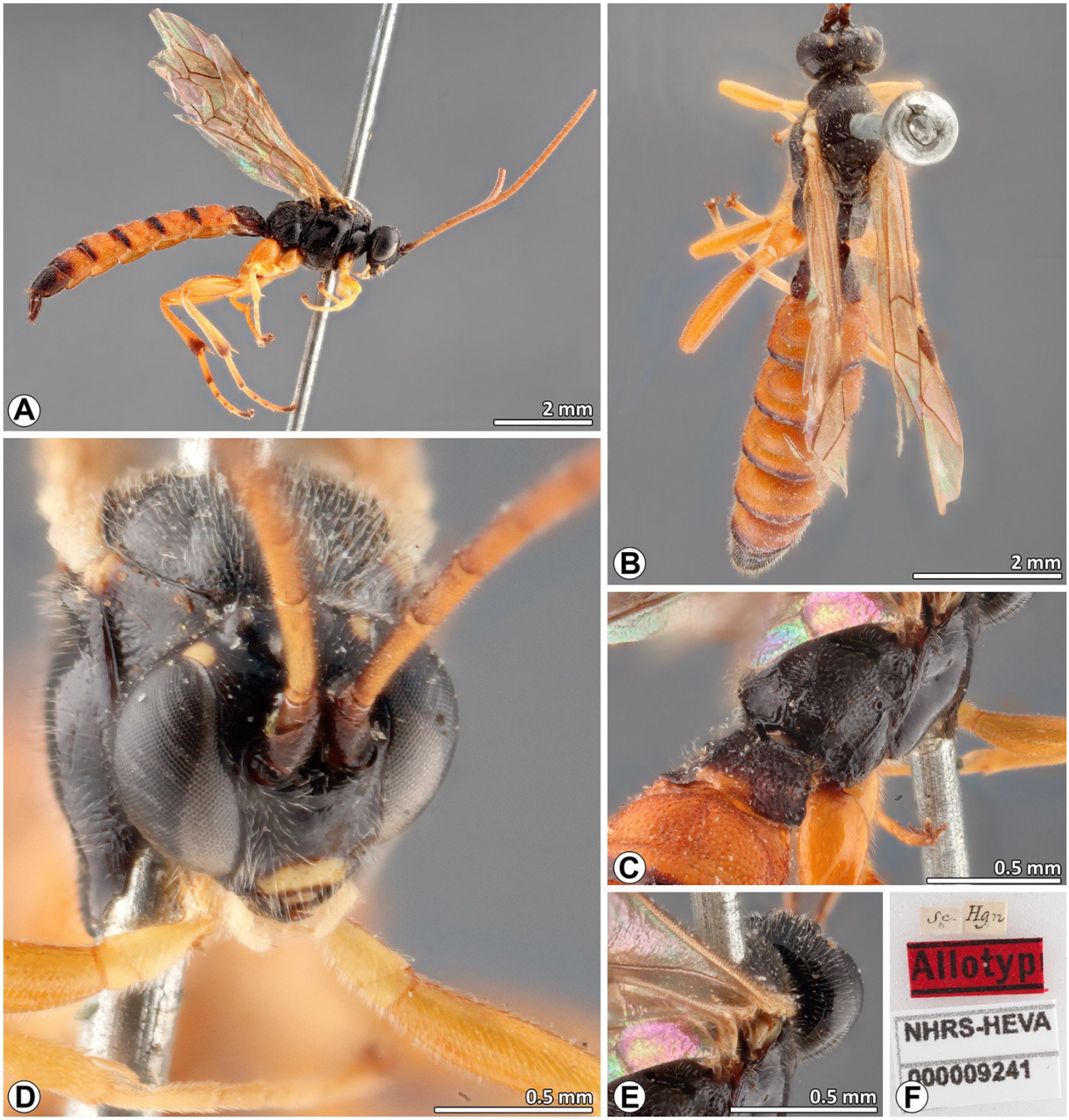


Figure 79. *Tromatobia variabilis* (Holmgren, 1856), allotype female (NHRS). **A., B.** Habitus; **A.** Lateral view; **B.** Dorsal view; **C.** Propodeum, T1 and T2, dorsolateral view; **D., E.** Head; **D.** Frontal view; **E.** Posterior view; **F.** Allotype labels.

Type condition. Pinned and in excellent condition.

Distribution in Syria. Damascus governorate (Schwarz 2016).

World distribution. W-PAL.

Gelis prospectus Schwarz, 1998

Gelis prospectus Schwarz, 1998:666–668.

[Fig. 84]

Type material. **Holotype**: SYRIA • ♀; Deir ez-Zor; ZSM.

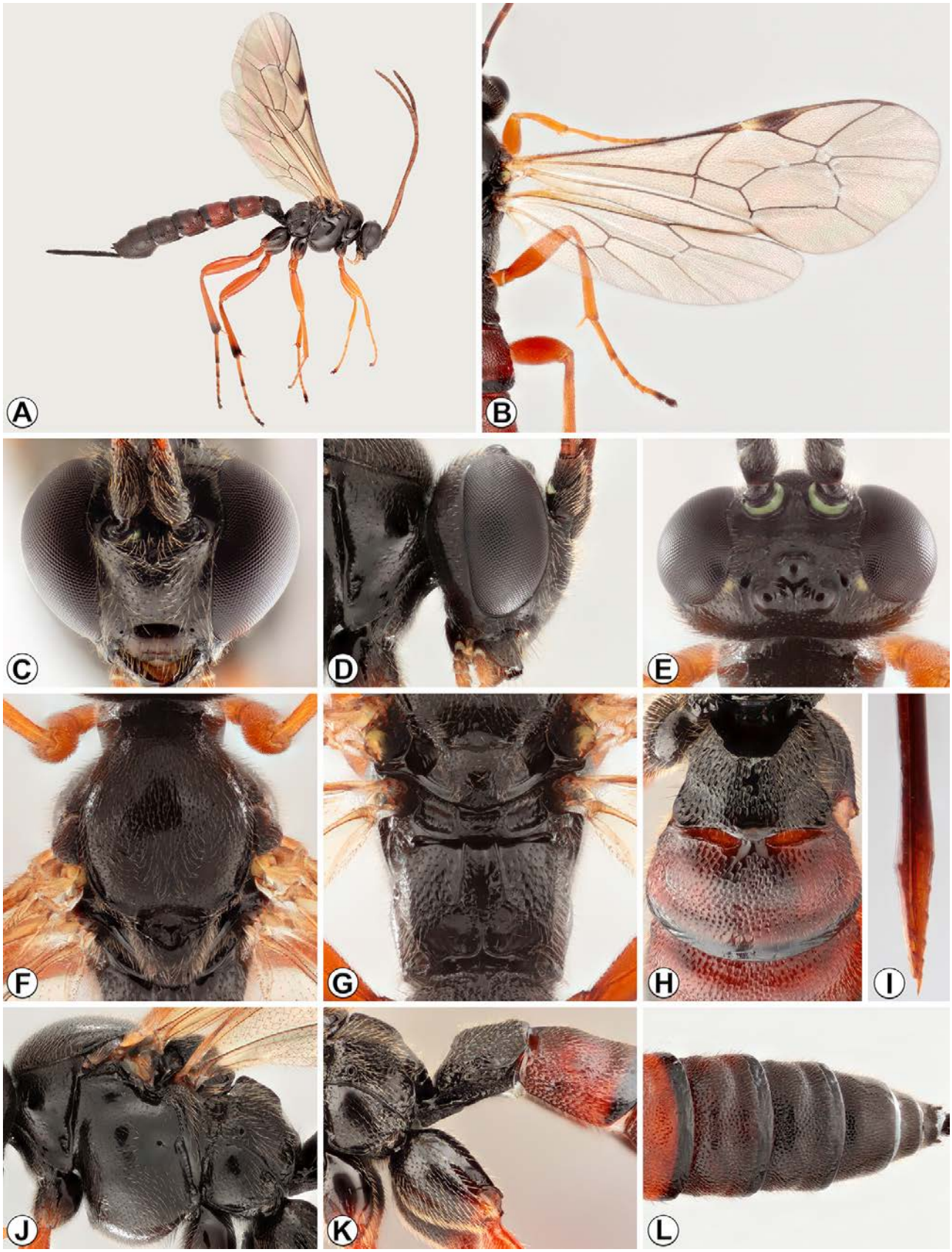


Figure 80. *Tromatobia variabilis* (Holmgren, 1856), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T3, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, and metacoxa, lateral view; **L.** T2–T7, dorsal view. Body length: 7.7 mm.

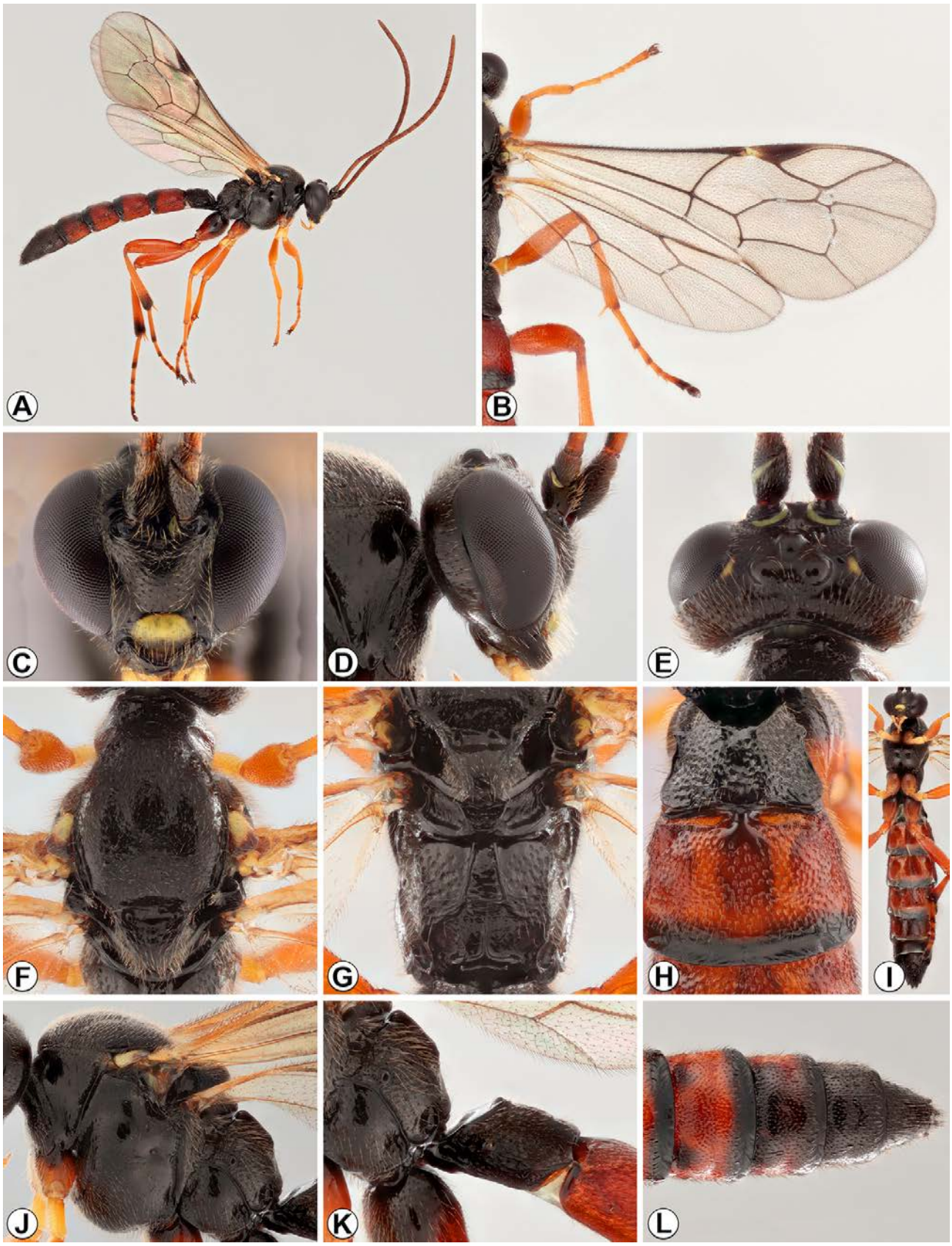


Figure 81. *Tromatobia variabilis* (Holmgren, 1856), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1, lateral view; **L.** T3–T6, dorsal view. Body length: 8 mm.

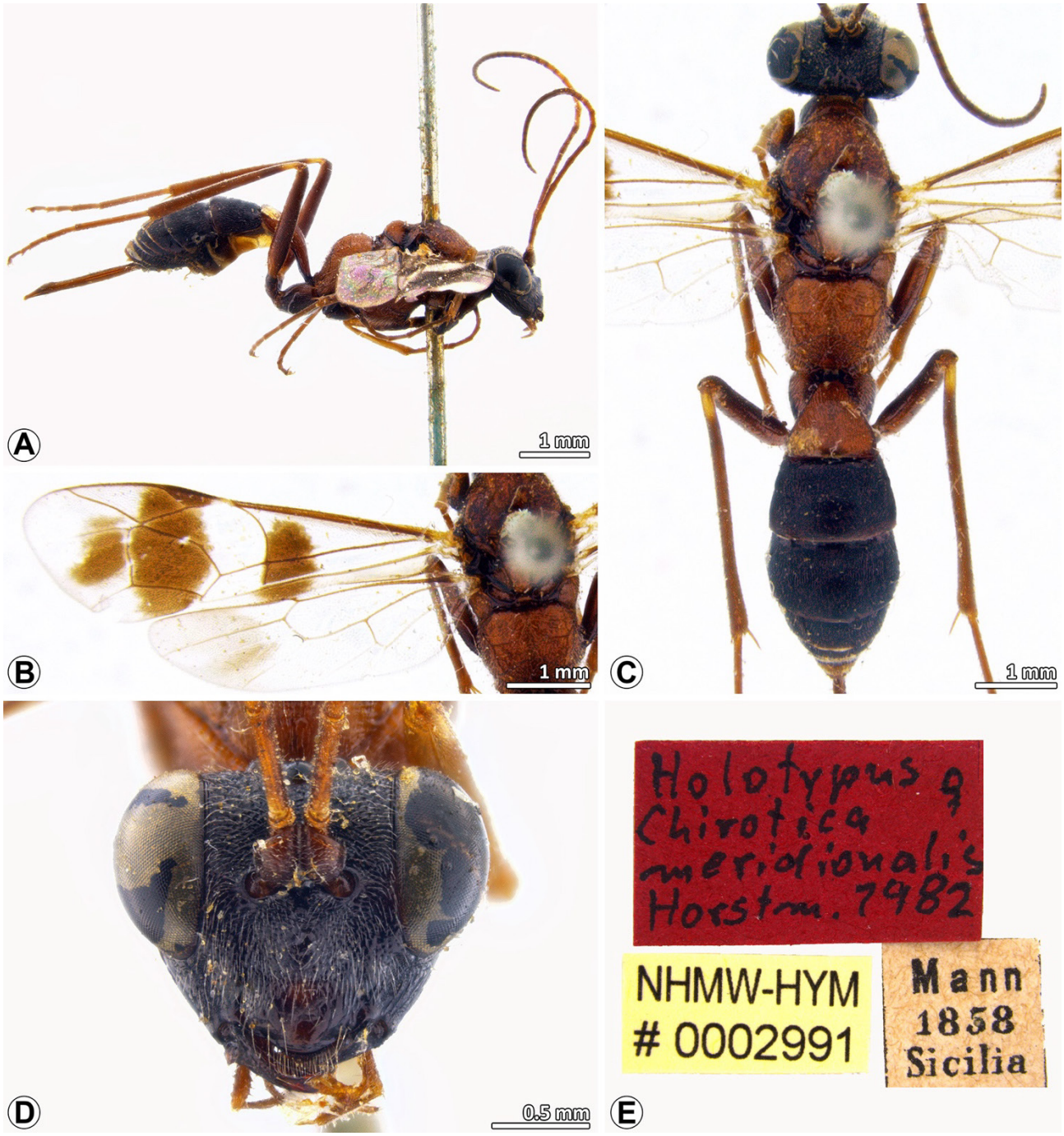


Figure 82. *Chirotica meridionalis* Horstmann, 1983, holotype female (NHMW). **A, C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Wings; **D.** Head, frontal view; **E.** Holotype labels.

Label data of type. Labels (in order): (1) 'SYR[Syria]: Qasr al-Hir / as-Sharqi (DAYR/AZ-ZOR [Deir ez-Zor]) l. Blank / 250m NN 23.3.88 [23.iii.1988]' (medium-sized, rectangular; all lines printed except 23 (day) and 3 (month), which are handwritten); (2) 'Holotypus ♀ / *Gelis* / *prospectus* Schwarz / des. [*designavit*] Mart. [Martin] Schwarz `98' (medium-sized, rectangular, entirely red, handwritten).

Type condition. Specimen pinned and in good condition; right antenna with apical flagellomere lost; right fore leg retains only the first tarsomere. Specimen ID: ZSM-HYM-25631 (Schmidt 2021b).

Distribution in Syria. Deir ez-Zor governorate (Schwarz 1998).

World distribution. W-PAL.

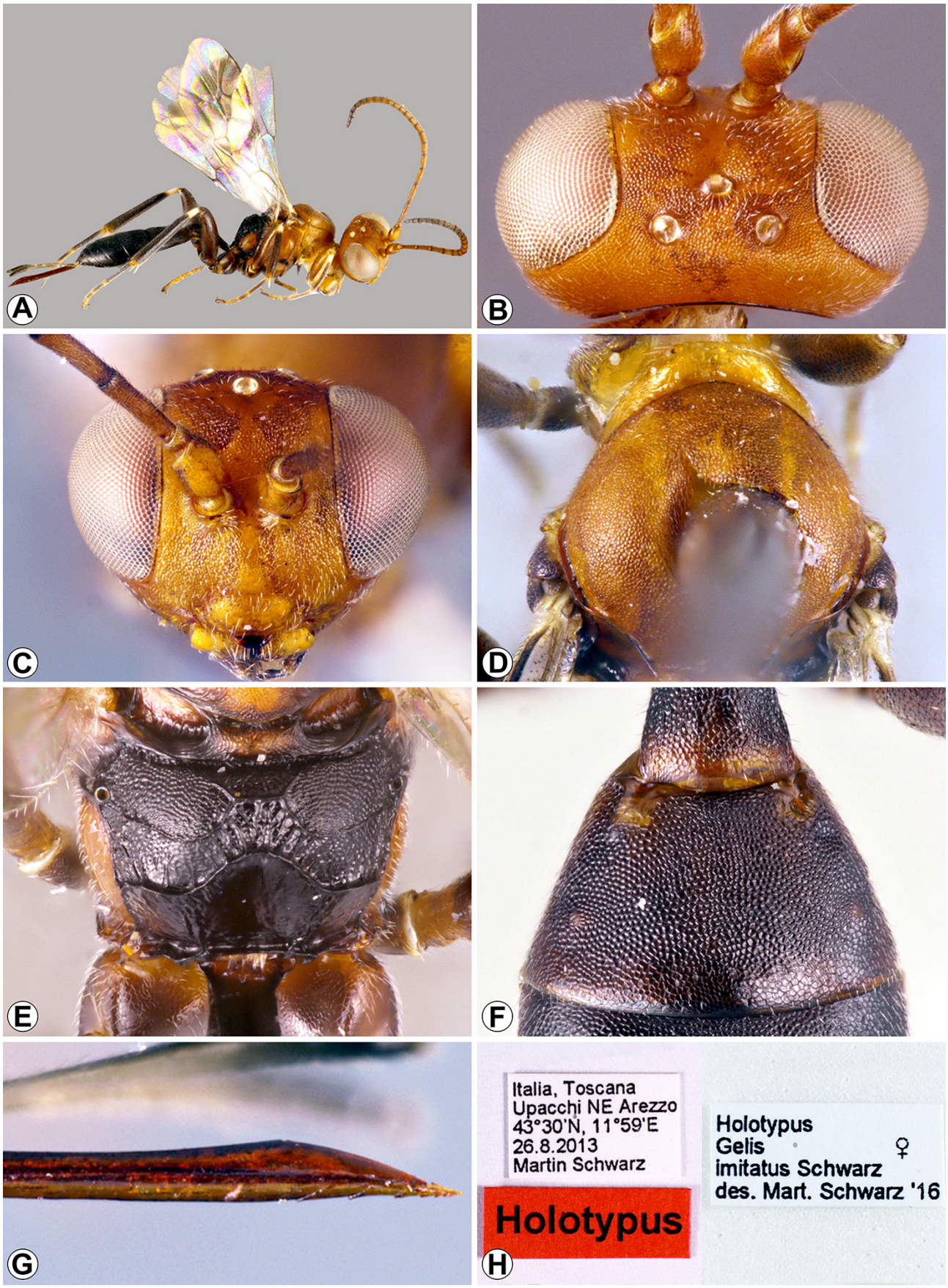


Figure 83. *Gelis imitatus* Schwarz, 2016, holotype female (OLML). **A.** Habitus, lateral view; **B.** Head, dorsal view; **C.** Head, frontal view; **D.** Mesoscutum, dorsal view; **E.** Metanotum and propodeum, dorsal view; **F.** T1–T3, dorsal view; **G.** Apex of ovipositor, lateral view; **H.** Holotype labels. Body length: 3.0–4.0 mm.

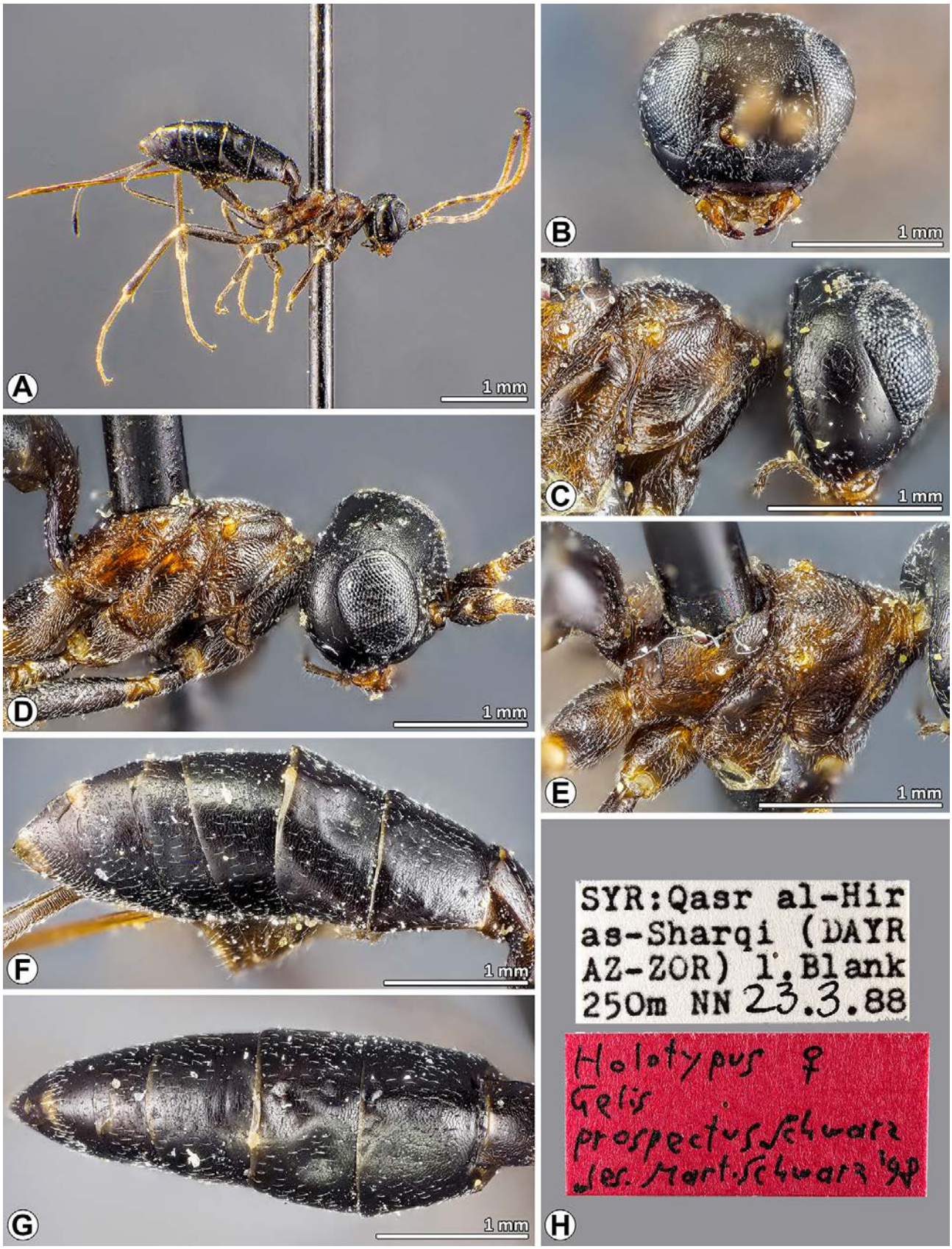


Figure 84. *Gelis prospectus* Schwarz, 1998, holotype female (ZSM). **A.** Habitus, lateral view; **B.** Head, frontal view; **C.** Head, pronotum, and mesopleuron, lateral view; **D.** Head and mesosoma, lateral view; **E.** Mesosoma, dorsolateral view; **F–G.** Metasoma; **F.** Lateral view; **G.** Dorsal view; **H.** Holotype labels.

Genus *Mastrus* Förster, 1869

Mastrus ridibundus (Gravenhorst, 1829)

Hemiteles ridibundus Gravenhorst, 1829b:844.

Type material. **Lectotype** (designated by Horstmann 1979a): ITALY • ♀; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Latakia governorate (Basheer et al. 2016).

World distribution. E-PAL, NEA, NEO, W-PAL.

Remark. See the remark for *Cryptus spinosus* Gravenhorst, 1829.

Genus *Stibeutes* Förster, 1850

Stibeutes rozsypali (Gregor, 1941)

Phygadeuon rozsypali Gregor, 1941:38.

[Fig. 85]

Type material. **Lectotype** (designated by Horstmann 2002): CZECH REPUBLIC • ♀; Moravia; NMP.

Label data of type. Labels (in order): (1) 'Mus. Nat. Pragae / Inv. 25.592' (small, rectangular, all lines printed except numbers handwritten); (2) 'LECTOTYPUS / det. [*determinavit*] J. Seolivy Ga' (small, rectangular, entirely red; first line printed, second handwritten); (3) 'Typus' (tiny, rectangular, entirely pale red, printed); (4) 'Moravia m. [*meridionalis*] / čeič [Czech Republic] / lgt. [*legit*] J. [Jan] Rozsypal' (small, rectangular, handwritten); (5) 'ex / *Stenocarus* / *fuliginosus* M. [Marsham] [Curculionidae]' (small, rectangular, handwritten); (6) '*Phygadeuon* / *rozsypali* / ♀ Shn[?] / Det. [*determinavit*] Fr. [František] Gregor' (medium-sized, rectangular; first and third lines handwritten, fourth printed).

Type condition. Specimen pinned and in good condition. Lectotype is mounted on a triangular card with the apical end of the metasoma resting on the card; wings bear traces of dust; tarsomeres of both mid and hind legs detached and affixed to the card; right antenna retains only two flagellomeres; right fore leg lacks all tarsomeres.

Distribution in Syria. Unknown locality (Horstmann 2010).

World distribution. W-PAL.

Subfamily Rhyssinae Morley, 1913

Genus *Rhyssa* Gravenhorst, 1829

Rhyssa persuasoria (Linnaeus, 1758)

Ichneumon persuasorius Linnaeus, 1758:562.

[Figs 86–87]

Type material. **Lectotype** (designated by Fitton 1978): country of type locality unknown • ♂; LSUK.

Comparative material examined. UNITED KINGDOM • 3 ♂♂♂; England, South Wilts, VC 8, OSGR SU22; 7 May 2023[C]; netted on conifer logs on woodpile; M. Storey leg.; MWS, to be deposited in NHMUK • 2 ♀♀; England, Worcestershire, VC 37, OSGR SO77; 1 Jul. 2021[A]; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Devon, VC 3, OSGR SX84; 3 Aug. 1971; ovipositing in cut wood; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.



Figure 85. *Stibeutes rozsypali* (Gregor, 1941), lectotype female (NMP). **A., B.** Habitus; **A.** Lateral view; **B.** Dorsal view; **C.** Scutellum, propodeum, and metasoma, dorsal view; **D.** Head and mesoscutum, dorsal view; **E.** Head, mesosoma, and T1, dorsal view; **F.** Lectotype labels.

Distribution in Syria. Unknown locality (Aliyev & Maharramova 2009).

World distribution. AUS, E-PAL, NEA, OCE, OTL, W-PAL.

Subfamily Tersilochinae Schmiedeknecht, 1910

Genus *Palpator* Khalaim, 2006

***Palpator* sp.**

Reported material. SYRIA • 1 ♀; Hama; OLML (Khalaim 2016).

Specimen condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hama governorate (Khalaim 2016).

World distribution. W-PAL.

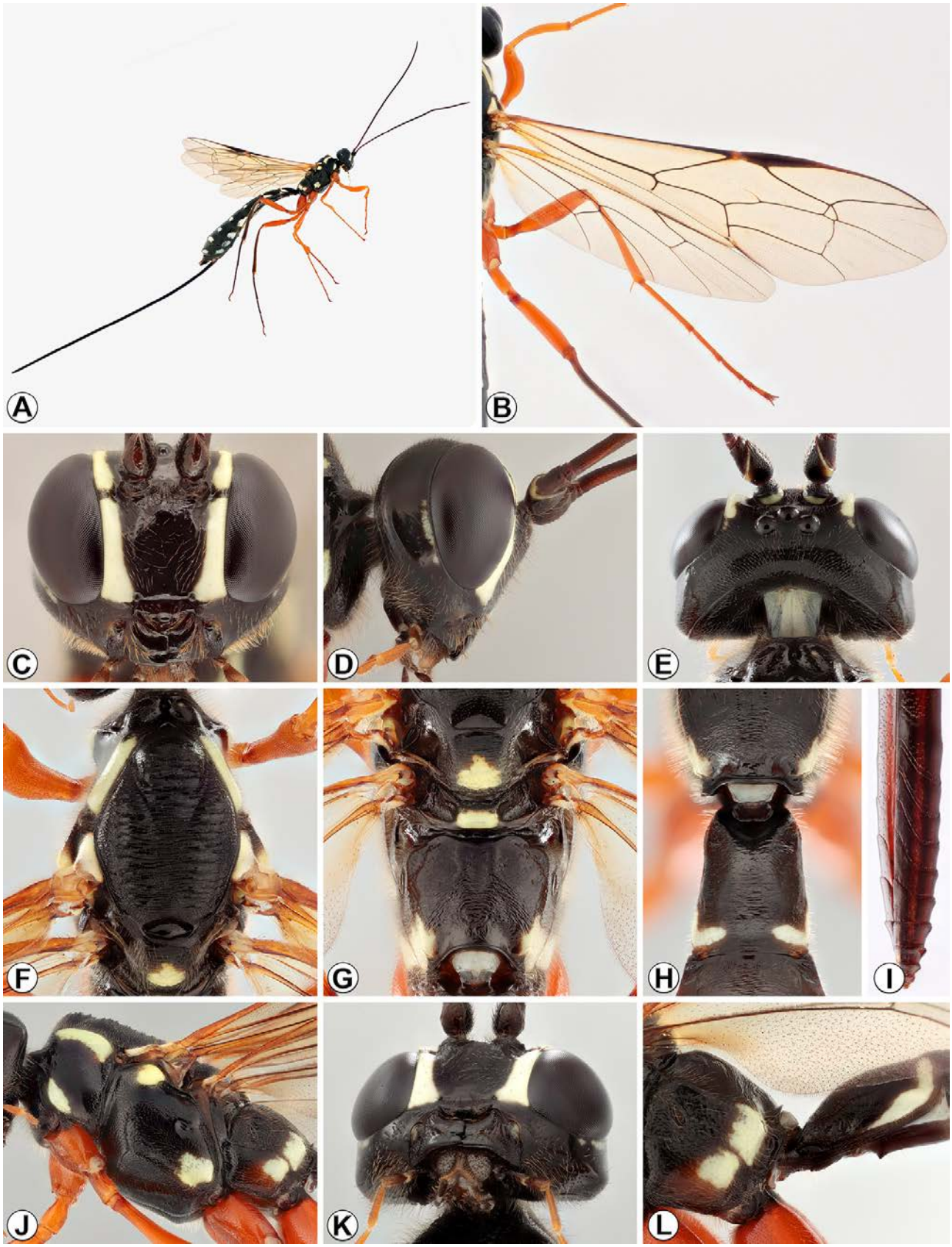


Figure 86. *Rhyssa persuasoria* (Linnaeus, 1758), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** Propodeum, and T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Head, Ventral view; **L.** Propodeum, and T1, lateral view.

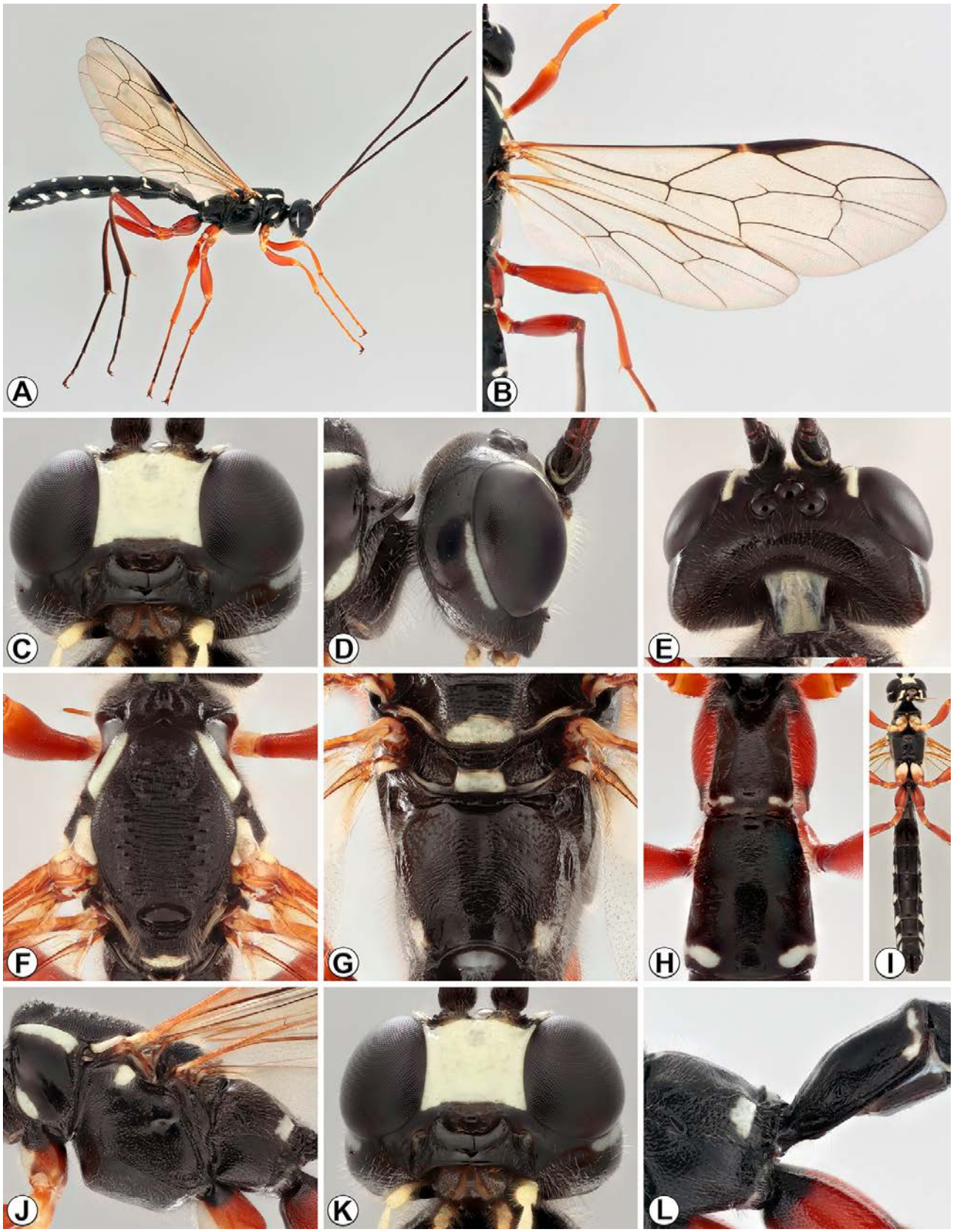


Figure 87. *Rhyssa persuasoria* (Linnaeus, 1758), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Head, Ventral view; **L.** Propodeum, T1, and metacoxa, lateral view. Body length: 18 mm.

Remarks. The specimen reported by Khalaim (2016) was identified only to genus level and remains unidentified to species. Because the available material is in very poor condition, its specific identity cannot presently be determined with confidence. Additional well-preserved material will be necessary to clarify its taxonomic status and determine whether it represents a described or an undescribed species.

Subfamily Tryphoninae Shuckard, 1840

Genus *Netelia* Gray, 1860

Netelia krishtali Tolkanitz, 1971

Netelia krishtali Tolkanitz, 1971:40.

Type material. **Neotype**: UKRAINE • ♂; SIZ.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Delrio 1975).

World distribution. E-PAL, W-PAL.

Remark. Access to the type material in Ukraine was not possible due to the ongoing Russia-Ukraine war, which prevented consultation of the relevant collection.

Netelia punctator Delrio, 1971

Netelia punctator Delrio, 1971:67.

[Fig. 88]

Type material. **Holotype**: FRANCE • ♂; MZL.

Label data of type. Labels (In order): (1) 'TYPE' (small, rectangular, entirely red, printed); (2) '*NETELIA* ♂ / *PUNCTATOR* Delrio' (small, rectangular, handwritten); (3) 'J. F. [Jean François] AUBERT / VI.1903 / DIGNE [Digne-les-Bains, southeastern France] (B.A.) [Basses-Alpes, now Alpes-de-Haute-Provence]' (small, rectangular; first line printed, second and third handwritten); (4) 'Holotype / *Netelia* / *punctator* / Delrio, 1971 / labelled by S. [Seraina] Klopfstein 2009' (medium-sized, rectangular, white with lateral red-orange bands, printed); (5) 'GBIFCH [Global Biodiversity Information Facility Confoederatio Helvetica] / 00890992' (small, rectangular, with a Quick Response (QR)code, printed).

Type condition. Specimen pinned and in very good condition; left antenna retains only the first flagellomere.

Distribution in Syria. Unknown locality (Delrio 1971).

World distribution. W-PAL.

Genus *Tryphon* Fallén, 1813

Tryphon rutilator (Linnaeus, 1761)

Ichneumon rutilator Linnaeus, 1761:399.

[Figs 89–91]

Type material. **Holotype**: SWEDEN • ♀; LSUK.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, South Wilts, VC 8, OSGR SU01; 13 May 2023[G]; swept from *Anthriscus sylvestris*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SZ09; 31 May 2022[L]; visiting *Heracleum sphondylium*; identification uncertain; M. Storey leg.; MWS, to be deposited in NHMUK • 2 ♀♀; England, South Wilts, VC 8, OSGR SU01; 17 Jun. 2019[B]; visiting *Heracleum sphondylium*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, South Wilts, VC 8, OSGR SU02; 5 Jun. 2019[A]; swept from rank grass; M. Storey leg.; MWS, to be deposited in NHMUK.

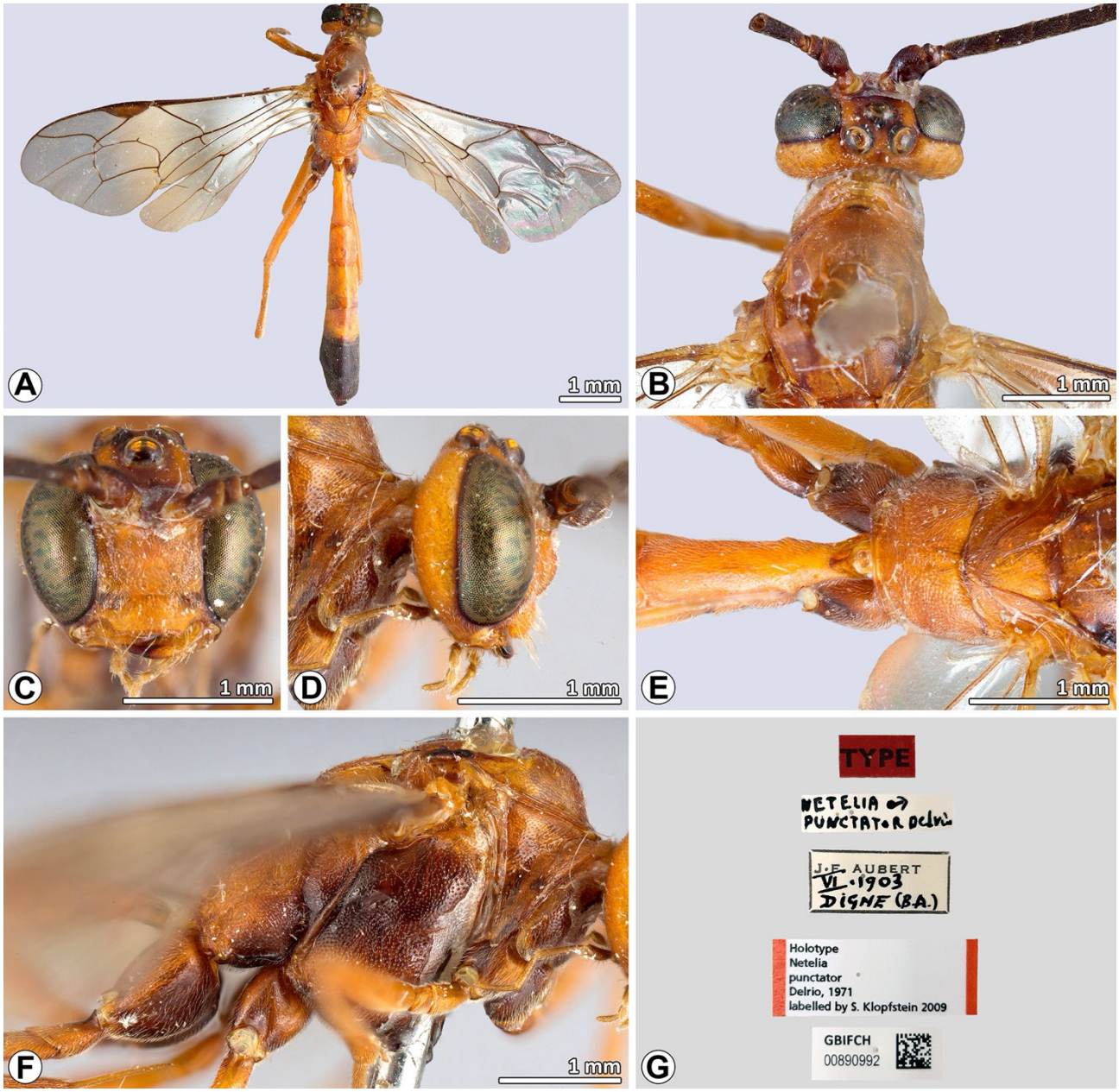


Figure 88. *Netelia punctator* Delrio, 1971, holotype male (MZL). **A.** Habitus, dorsal view; **B.** Head and mesoscutum, dorsal view; **C., D.** Head; **C.** Frontal view; **D.** Lateral view; **E.** Scutellum, propodeum, and T1, dorsal view; **F.** Mesosoma, lateral view; **G.** Holotype labels.

Label data of type. Labels (in order): (1), 'Holo- / type' (small, circular, red-bordered, printed); (2) '*rutilator*' (small, rectangular, handwritten); (3) '*rutilator* / 934' (medium-sized, rectangular, handwritten); (4) 'HOLOTYPE / *Ichneumon* / *rutilator* Linnaeus 1761 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (medium-sized, rectangular; all lines handwritten except the fourth, which is printed).

Type condition. Specimen pinned and in very good condition.

Distribution in Syria. Unknown locality (Magretti 1890).

World distribution. E-PAL, W-PAL.

Remark. Additional data recorded in the Linnaean collection include genus number (244), species number (30), reference number (LINN 2618), and box number (HYM–8).



Figure 89. *Tryphon rutilator* (Linnaeus, 1761), holotype male (LSUK). **A.** Habitus, lateral view; **B.** Head and antennae, lateral view; **C.** Metasoma, lateral view; **D.** Wings; **E.** Mesosoma, lateral view; **F.** Holotype labels.

Tryphon signator Gravenhorst, 1829

Tryphon signator Gravenhorst, 1829b:232.

[Figs 92–93]

Type material. **Syntype**: POLAND • ♂; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, South Wilts, VC 8, OSGR SU02; 12 May 2024[J]; swept from *Anthriscus sylvestris*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality and collecting method as for preceding; 12 May 2024[M]; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 17 May 2022[E]; swept from umbels of *Anthriscus sylvestris*; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

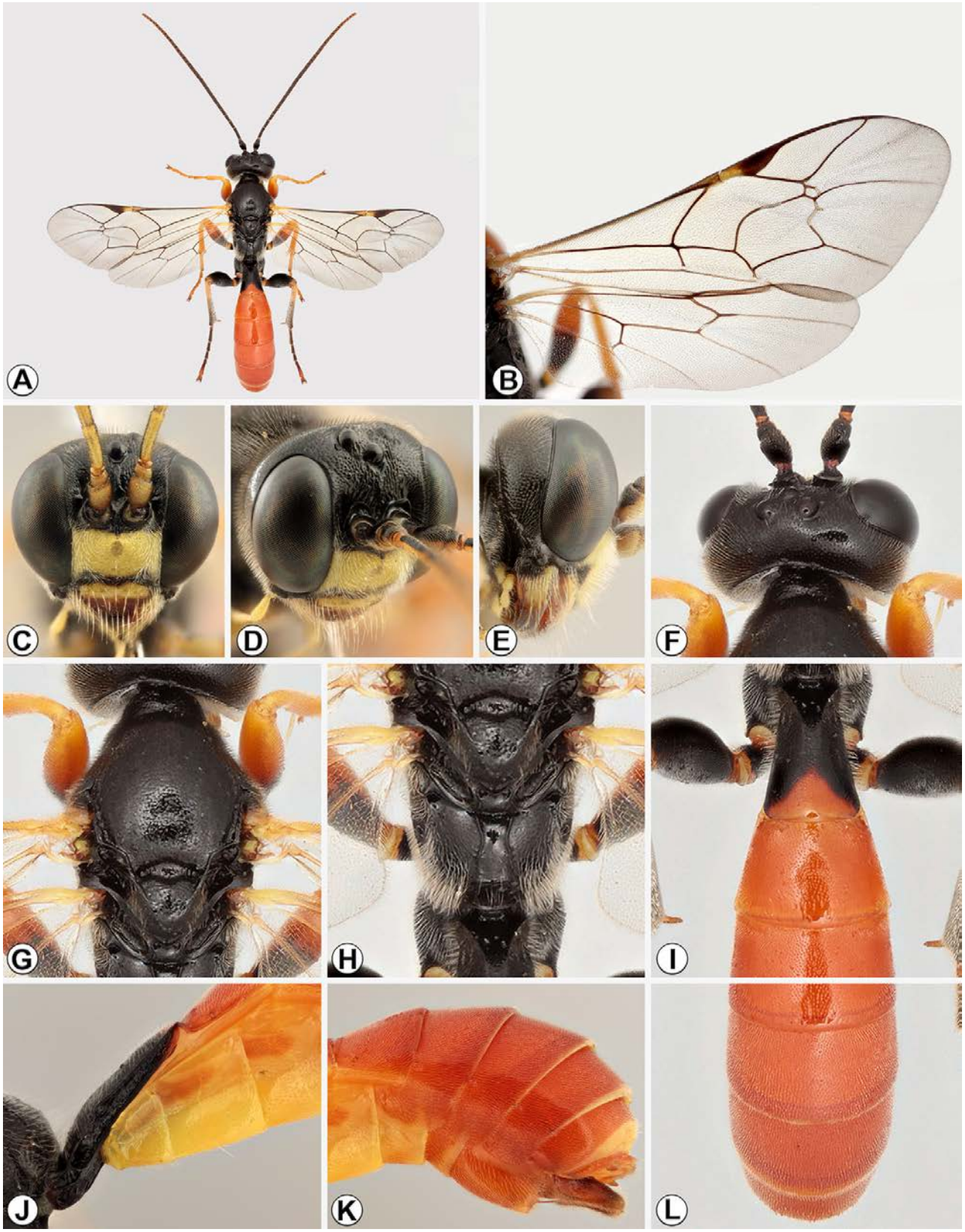


Figure 90. *Tryphon rutilator* (Linnaeus, 1761), female from the United Kingdom (MWS). **A.** Habitus, dorsal view; **B.** Wings; **C.** Head, frontal view; **D.** Head, frontolateral view; **E.** Head, ventrolateral view; **F.** Head, dorsal view; **G.** Mesoscutum and scutellum, dorsal view; **H.** Metanotum and propodeum, dorsal view; **I.** T1–T3, dorsal view; **J.** T1, lateral view; **K.** Metasoma, lateral view; **L.** T3–T6, dorsal view.

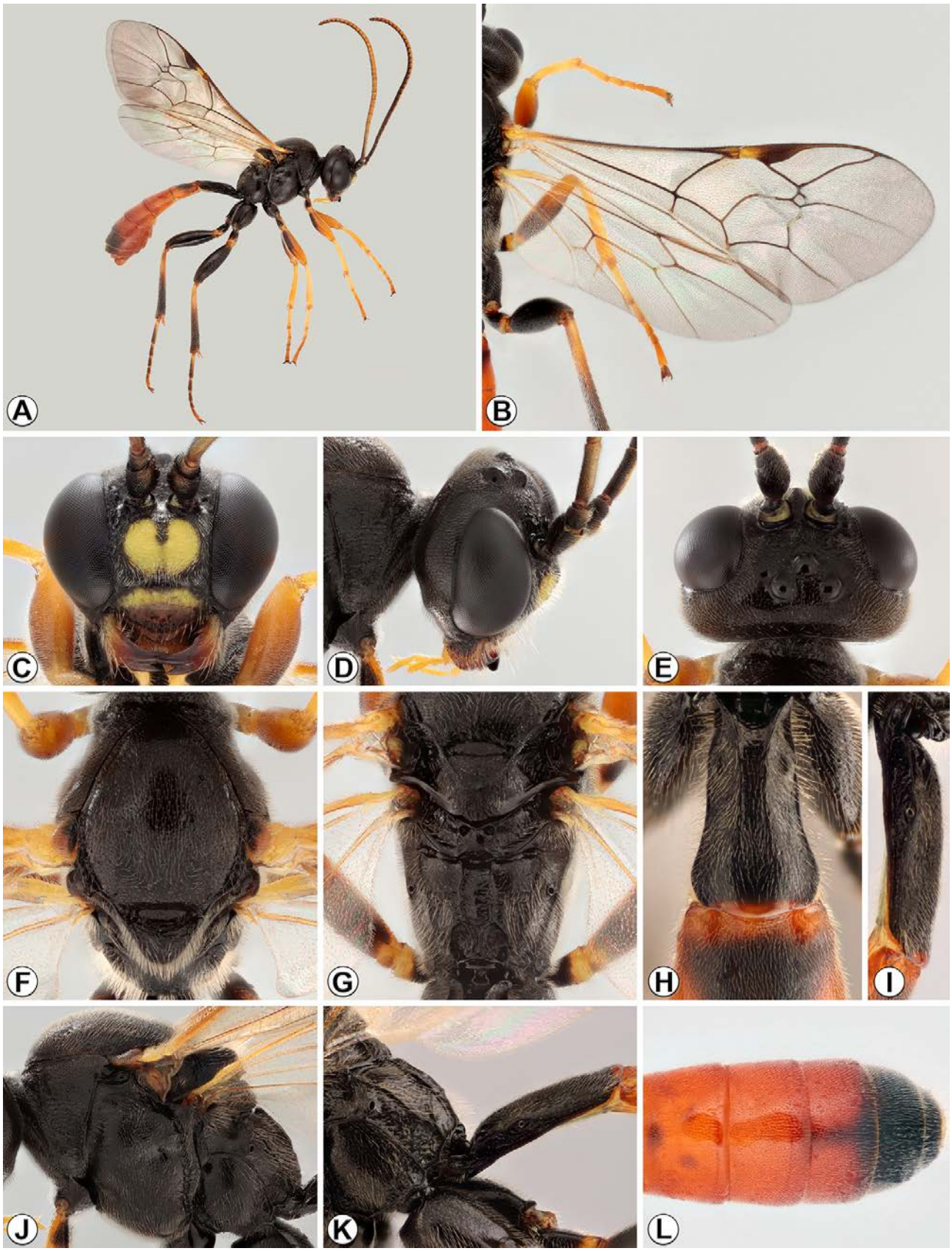


Figure 91. *Tryphon rutilator* (Linnaeus, 1761), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** T1, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa, lateral view; **L.** T3–T7, dorsal view. Body length: 7.7 mm.

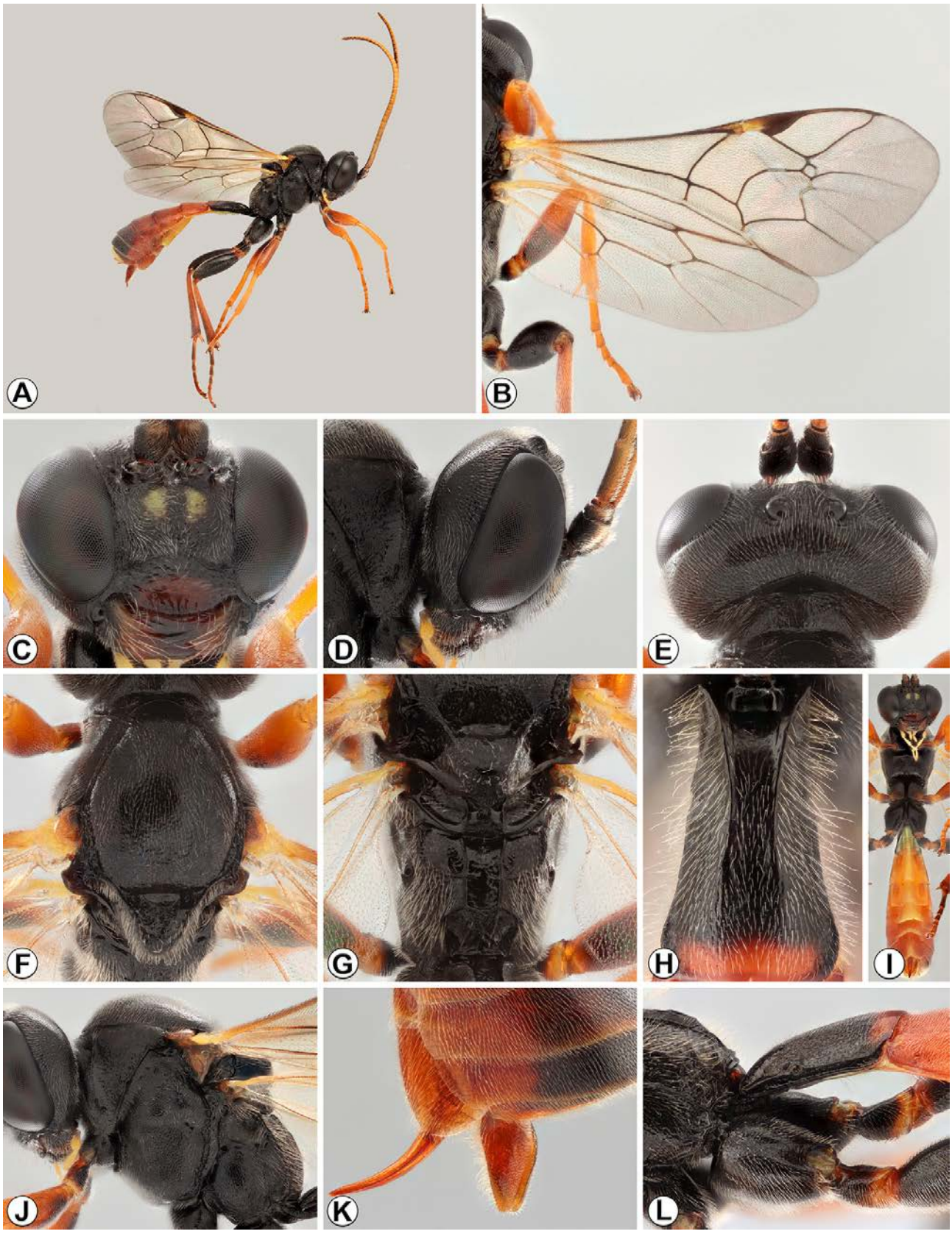


Figure 92. *Tryphon signator* Gravenhorst, 1829, female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Ovipositor, and ovipositor sheaths, lateral view; **L.** Propodeum, T1, and metacoxa, lateral view. Body length: 7.9 mm.

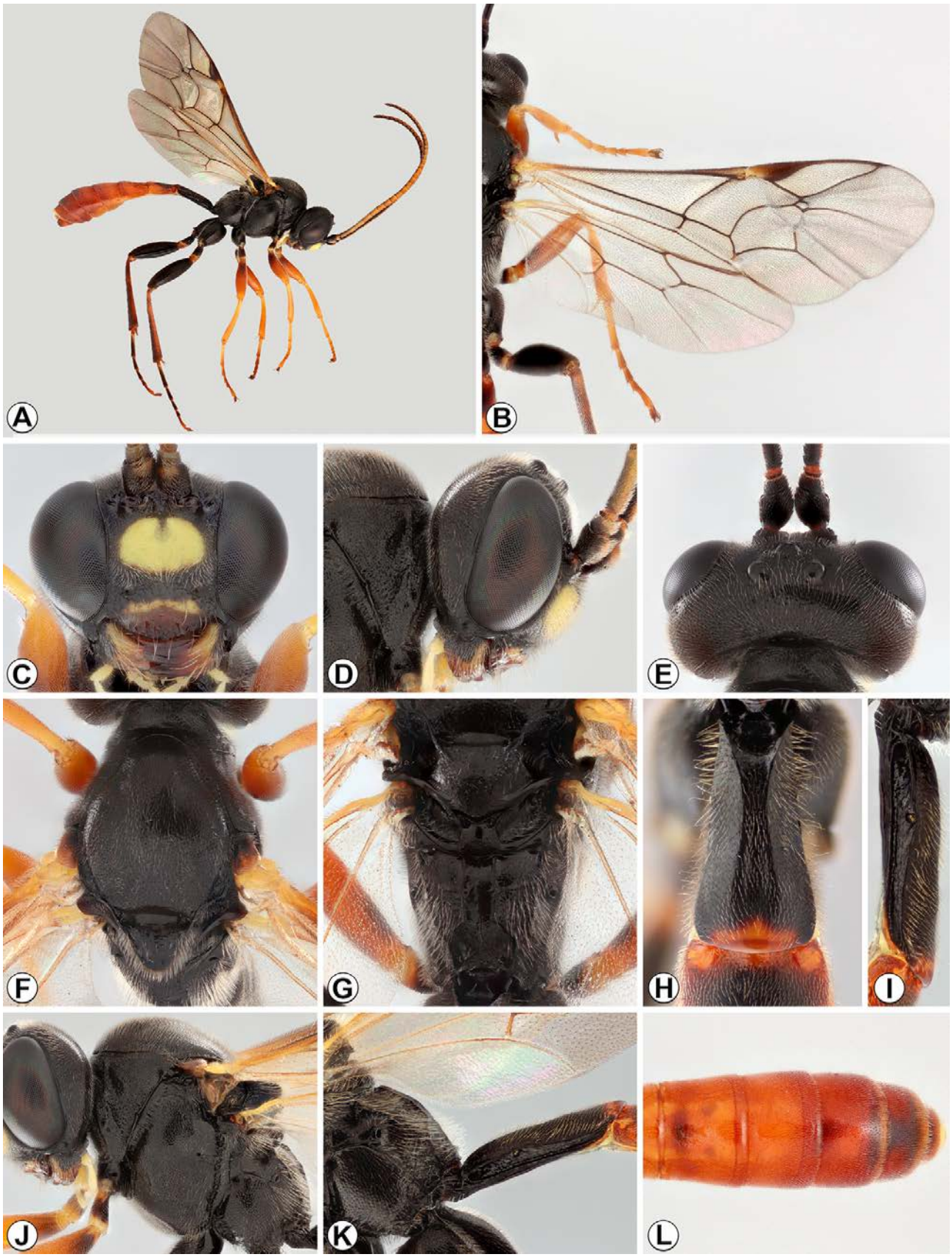


Figure 93. *Tryphon signator* Gravenhorst, 1829, male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** T1, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa, lateral view; **L.** T3–T7, dorsal view. Body length: 7.7 mm.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Unknown locality (Khalaim et al. 2019; Kasparyan 2024).

World distribution. E-PAL, W-PAL.

Excluded historical Syrian records from Hatay (Türkiye)

The following section documents Darwin wasp species originally recorded from Hatay that are excluded from the Syrian checklist under the geographical criteria outlined in Materials and Methods. Owing to Hatay's proximity to the current Syrian border, some of these species may nevertheless occur within present-day Syria. On the distribution map (Fig. 1), these records are represented by yellow circles.

Subfamily Anomaloninae Viereck, 1918

Genus *Erigorgus* Förster, 1869

Erigorgus cerinops (Gravenhorst, 1829)

Anomalon cerinops Gravenhorst, 1829a:658.

[Fig. 94]

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, Dorset, VC 9, OSGR SY59; 30 Sep. 2023[D]; general sweeping in rank, lodged grass in meadow; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Unknown.

Type condition. Unknown.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Genus *Therion* Curtis, 1829

Therion circumflexum (Linnaeus, 1758)

Ichneumon circumflexus Linnaeus, 1758:658.

[Fig. 95]

Type material. **Holotype**: country of type locality unknown • ♀; LSUK.

Comparative material examined. UNITED KINGDOM • 1 ♀; Scotland, East Inverness-shire, VC 96, OSGR NH33; 29 Sep. 2024[A]; mature heather, moss and bilberry in mature mixed woodland, predominantly Scots pine; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Labels (in order): (1) 'Holo-/type' (small, circular, red-bordered, printed); (2) '54. *circumflexum*' (medium-sized, rectangular, handwritten); (3) 'HOLOTYPE ♀ / *Ichneumon* / *circumflexum*' Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (small, rectangular; all lines handwritten except the fourth, which is printed).

Type condition. Specimen pinned and in good condition; both antennae missing; fifth tarsomere of both hind legs lost.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, NEA, OTL, W-PAL.

Remark. Data in the Linnaean collection include reference number (LINN 2662) and box number (HYM–10).

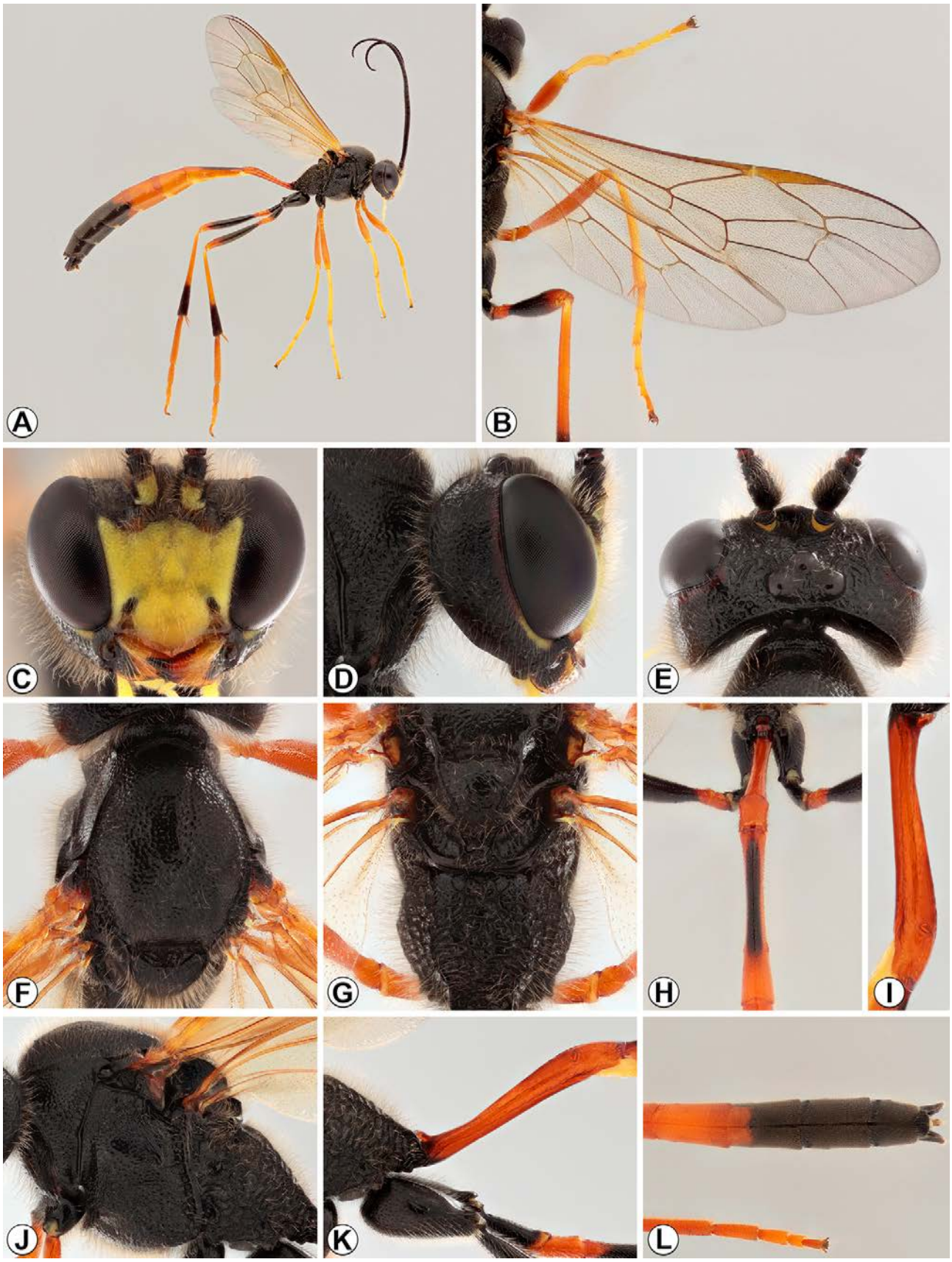


Figure 94. *Erigorgus cerinops* (Gravenhorst, 1829), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** T1, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1, and metacoxa, lateral view; **L.** T3–T7, dorsal view. Body length: 18 mm.

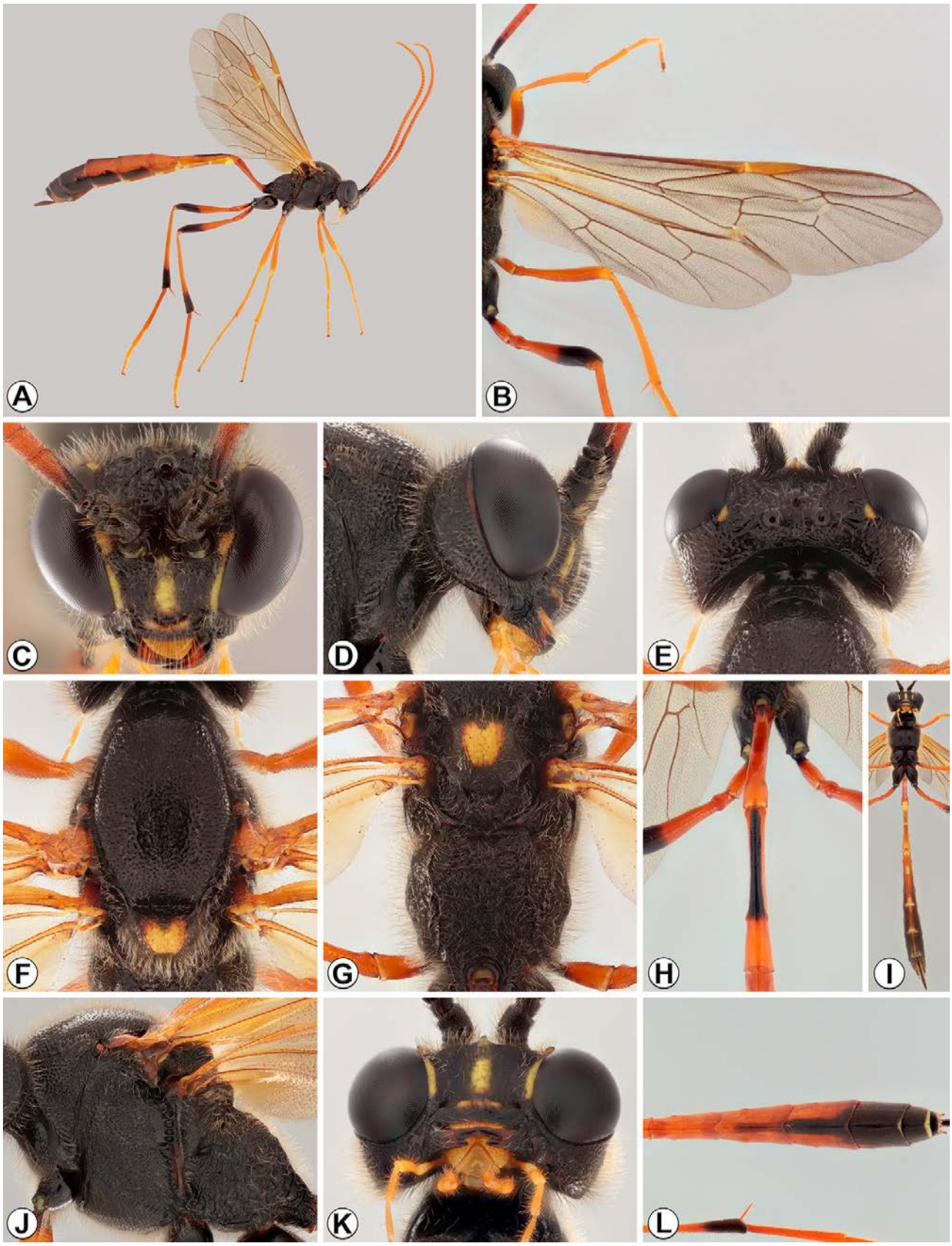


Figure 95. *Therion circumflexum* (Linnaeus, 1758), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Head, ventral view; **L.** T3–T8, dorsal view. Body length: 17 mm.

Subfamily Banchinae Wesmael, 1845

Genus *Banchus* Fabricius, 1798

Banchus falcatorius (Fabricius, 1775)

Ichneumon falcatorius Fabricius, 1775:332.

Type material. **Holotype**: DENMARK • ♂; ZMUC.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Subfamily Campopleginae Förster, 1869

Genus *Casinaria* Holmgren, 1859

Casinaria tenuiventris (Gravenhorst, 1829)

Campoplex tenuiventris Gravenhorst, 1829a:482.

Type material. **Lectotype** (designated by Townes et al. 1965): country of type locality unknown • ♂; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Genus *Dusona* Cameron, 1901

Dusona stragifex (Förster, 1868)

Campoplex stragifex Förster, 1868:811–812.

Type material. **Syntypes**: GERMANY • ♀♂; ZSM.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Förster (1868:811–812) did not specify the number of specimens examined, nor did he designate any individual as holotype. Accordingly, all specimens are to be regarded as syntypes, in accordance with Article 73.2 (ICZN 1999).

Subfamily Cryptinae Kirby, 1837

Genus *Agrothereutes* Förster, 1850

Agrothereutes abbreviatus (Fabricius, 1794)

Ichneumon abbreviatus Fabricius, 1794:323.

[Fig. 96]

Type material. **Lectotype** (designated by Horstmann 1992a): GERMANY • ♀; ZMUC.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, South Hants, VC 11, OSGR SZ19; 6 Oct. 2022[G]; swept from heather; M. Storey leg.; MWS, to be deposited in NHMUK.



Figure 96. *Agrothereutes abbreviatus* (Fabricius, 1794), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Mesosoma, and coxa, ventral view; **L.** T2–T3, dorsal view. Body length: 5.4 mm.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, NEA, W-PAL.

Genus *Polytribax* Förster, 1869

Polytribax rufipes (Gravenhorst, 1829)

Cryptus rufipes Gravenhorst, 1829b:453.

[Figs 97–98]

Type material. **Lectotype** (designated by Frilli 1978): ITALY • ♂; IZU.

Comparative material examined. UNITED KINGDOM • 1 ♂; England, Dorset, VC 9, OSGR SY66; 1 Jul. 2023[K]; netted while visiting *Daucus carota* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR SY67; 26 Jun. 2022[A]; visiting *Daucus carota* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 30 Jun. 2021[D]; visiting *Heracleum sphondylium* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; same locality as for preceding; 11 Sep. 2020[A]; visiting *Daucus carota* L.; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR SZ09; 23 Jul. 2019[D]; visiting *Heracleum sphondylium* L. at 20:30 h; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Dorset, VC 9, OSGR SY67; 21 Aug. 2016[A]; visiting *Daucus carota* subsp. *carota*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 19 Jul. 2016[D]; visiting *Daucus carota* subsp. *carota*; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. W-PAL.

Subfamily Ctenopelmatinae Förster, 1869

Genus *Opheltes* Holmgren, 1859

Opheltes glaucopterus (Linnaeus, 1758)

Ichneumon glaucopterus Linnaeus, 1758:566.

[Fig. 99]

Type material. **Holotype**: country of type locality unknown • ♀; LSUK.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, Dorset, VC 9, OSGR SU00; 26 Aug. 2016[A]; at actinic light sheet in front of cream-painted shed; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Labels (in order): (1) 'Holo-/type' (small, circular, red-bordered, printed); (2) '*glaucopterus*' (medium-sized, rectangular, handwritten); (3) 'HOLOTYPE [?sex] / *Ichneumon* / *glaucopterus*' Linnaeus 1758 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (small, rectangular; all lines handwritten except the fourth, which is printed).

Type condition. Specimen pinned and in fairly good condition; antennae with apical flagellomeres missing; fore legs with the second to fifth tarsomeres lost; left mid leg lacking all tarsomeres; right mid leg with the second to fifth tarsomeres lost; left hind leg lacking the fourth and fifth tarsomeres; right hind leg broken, retaining only the metacoxa; metasomal tergites T5–T8 missing.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

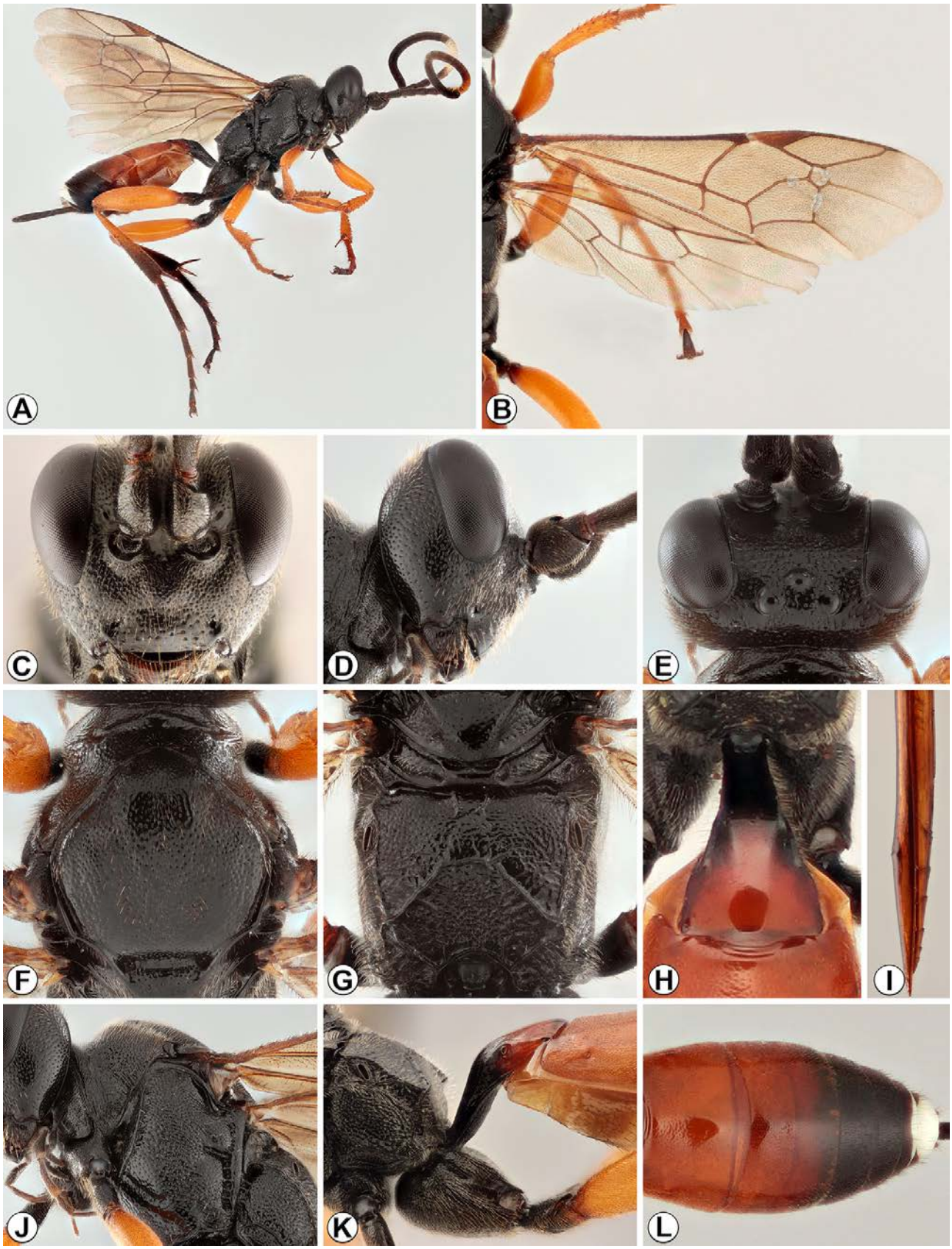


Figure 97. *Polytribax rufipes* (Gravenhorst, 1829), female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, meso- and metacoxal, lateral view; **L.** T2–T7, dorsal view.

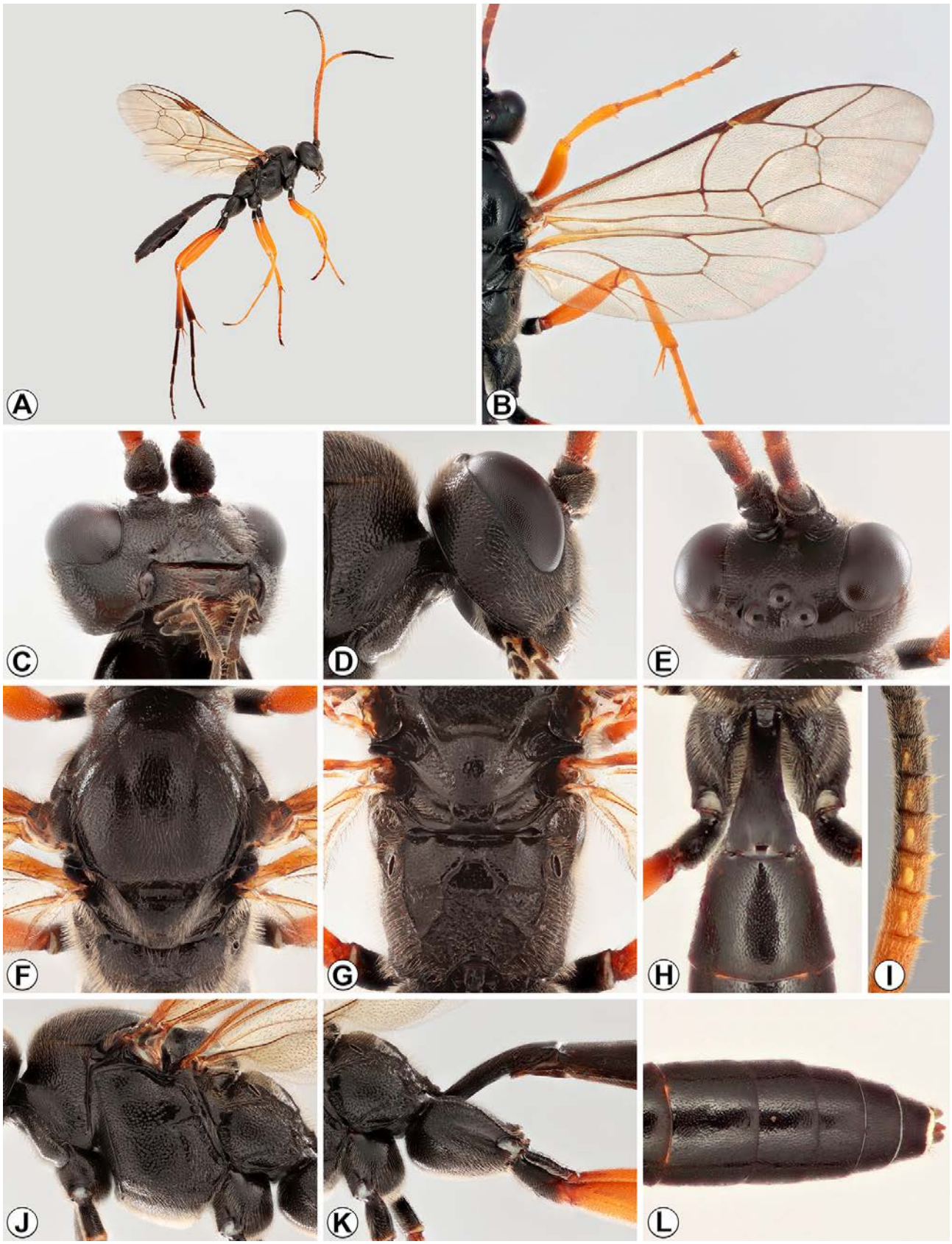


Figure 98. *Polytribax rufipes* (Gravenhorst, 1829), male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, dorsal view; **I.** Antenna (tyloids), lateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, T1–T2, meso- and metacoxal, lateral view; **L.** T3–T7, dorsal view. Body length: 10.6 mm.



Figure 99. *Opheltes glaucopterus* (Linnaeus, 1758), female from the United Kingdom (MWS). **A.** Habitus, dorsolateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1, dorsal view; **I.** Ovipositor apex, lateral view; **J.** Mesosoma, lateral view; **K.** Ovipositor, and ovipositor sheaths, lateral view; **L.** T1–T2, dorsal view; **M.** T1, lateral view.

World distribution. E-PAL, NEA, W-PAL.

Remark. Data in the Linnaean collection include reference number (LINN 2659) and box number (HYM–10).

Genus *Scolobates* Gravenhorst, 1829

Scolobates nigripennis Sichel, 1860

Scolobates nigripennis Sichel, 1860:763.

[Fig. 100]

Type material. **Holotype**: ITALY • ♀; MNHN.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. W-PAL.

Subfamily Ichneumoninae Latreille, 1802

Genus *Amblyteles* Wesmael, 1845

Amblyteles armatorius (Forster, 1771)

Ichneumon armatorius Forster, 1771:82.

[Figs 101–102]

Type material. **Holotype**: UNITED KINGDOM • ♂; LSUK.

Comparative material examined. UNITED KINGDOM • 1 ♀; England, Dorset, VC 9, OSGR SU00; 30 Nov. 2018; hibernating among dead leaves; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, South Hants, VC 11, OSGR SZ19; 15 Jun. 2018[Z]; at MV trap; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, South Wilts, VC 8, OSGR SU01; 14 Jul. 2016[J]; visiting *Pastinaca sativa*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR SY67; 11 Jun. 2016[H]; visiting *Heracleum sphondylium*; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Berks, VC 22, OSGR SU56; 22 Nov. 2004[A]; at lighted window, 21:30 h; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Labels (in order): (1) 'Holo-/type' (small, circular, red-bordered, printed); (2) '*armatorius*' (medium-sized, rectangular, handwritten); (3) 'HOLOTYPE ♂ / *Ichneumon* / *armatorius*' Forster 1771 / det. [*determinavit*] M. G. [Mark Gurney] Fitton, 1976' (small, rectangular; all lines handwritten except the fourth, which is printed).

Type condition. Specimen pinned and in good condition; left antenna with most flagellomeres missing; right antenna with apical flagellomeres missing, left hind legs lacking tarsomeres second to fifth.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remark. Data in the Linnaean collection include the reference number (LINN 2917) and box number (HYM–40).

Genus *Cratichneumon* Thomson, 1893

Cratichneumon coruscator (Linnaeus, 1758)

Ichneumon coruscator Linnaeus, 1758:563.

Type material. **Syntypes**: country of type locality and sex unknown; LSUK.

Label data of type. Not examined firsthand.

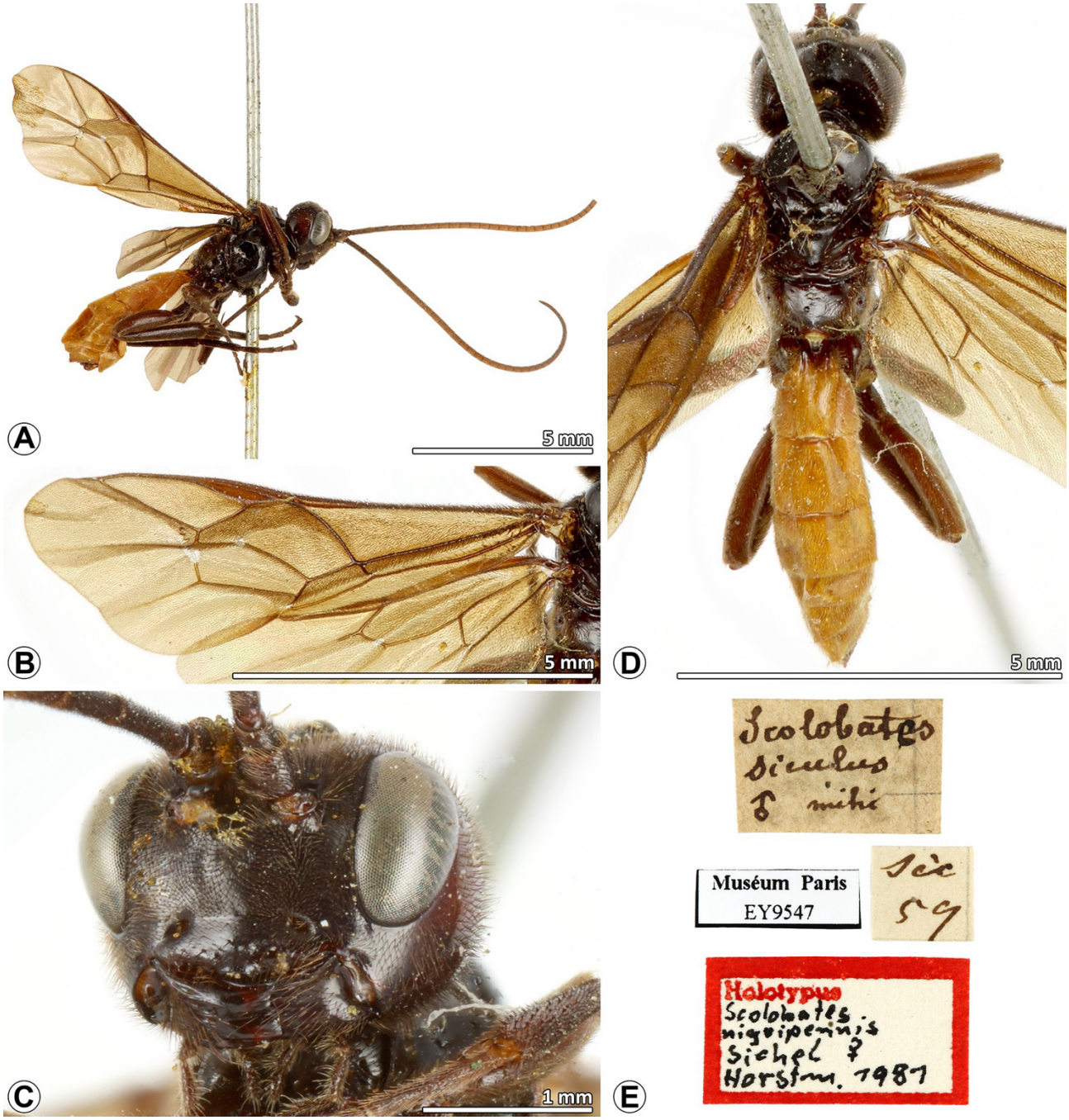


Figure 100. *Scolobates nigripennis* Sichel, 1860, holotype female (MNHN). **A., D.** Habitus; **A.** Lateral view; **D.** Dorsal view; **B.** Wings; **C.** Head, frontal view; **E.** Holotype labels.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Linnaeus (1758:563) did not specify the number of specimens examined, nor did he designate any individual as holotype. Accordingly, all specimens are to be regarded as syntypes, in accordance with Article 73.2 (ICZN 1999).

Cratichneumon culex (Müller, 1776)

Ichneumon culex Müller, 1776:155.



Figure 101. *Amblyteles armatorius* (Forster, 1771), female from the United Kingdom (MWS). **A.** Habitus, dorsal view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Propodeum, and T1, lateral view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Propodeum, and T1, dorsal view; **H.** T1–T2, and metacoxal, dorsal view; **I.** Metasoma, dorsal view; **J.** T1–T2, dorsal view.

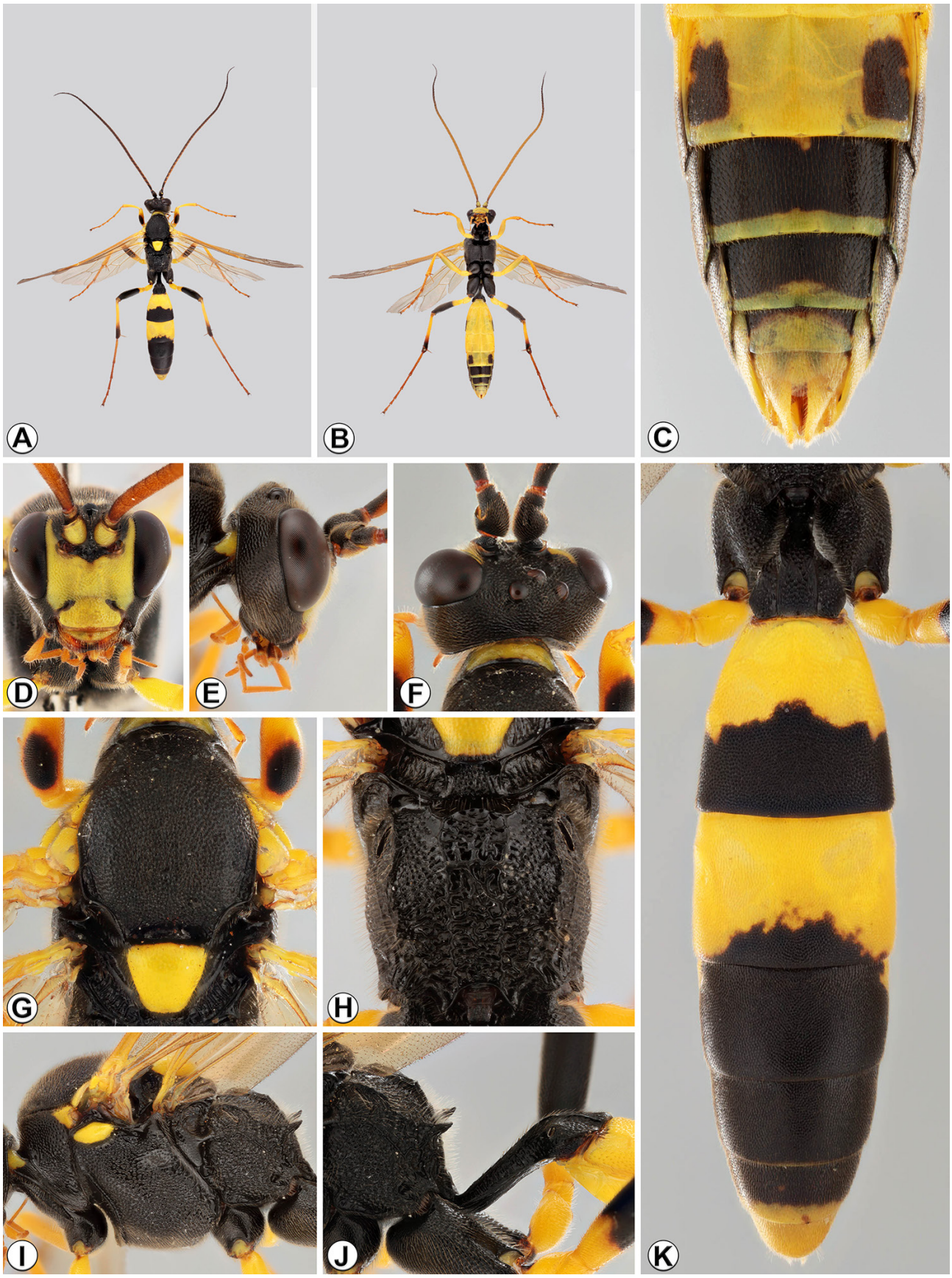


Figure 102. *Amblyteles armatorius* (Forster, 1771), male from the United Kingdom (MWS). **A.** Habitus, dorsal view; **B.** Habitus, ventral view; **C.** S3–S7, ventral view; **D.** Head, frontal view; **E.** Head, lateral view; **F.** Head, dorsal view; **G.** Mesoscutum and scutellum, dorsal view; **H.** Propodeum, and metanotum, dorsal view; **I.** Mesosoma, lateral view; **J.** Propodeum, T1, and metacoxa, lateral view; **K.** Metasoma, and metacoxa, dorsal view.

Type material. **Syntype(s)**: country of type locality, sex and depository unknown.

Label data of type. Unavailable.

Type condition. Type material presumed lost.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Müller (1776:155) did not specify the number of specimens examined, nor did he designate any individual as holotype. Accordingly, all specimens are to be regarded as syntypes, in accordance with Article 73.2 (ICZN 1999).

Genus *Diphyus* Kriechbaumer, 1890

Diphyus raptorius (Linnaeus, 1758)

Ichneumon raptorius Linnaeus, 1758:561.

Type material. **Syntypes**: country of type locality and sex unknown; LSUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Linnaeus (1758:561) did not specify the number of specimens examined, nor did he designate any individual as holotype. Accordingly, all specimens are to be regarded as syntypes, in accordance with Article 73.2 (ICZN 1999).

Genus *Ichneumon* Linnaeus, 1758

Ichneumon extensorius Linnaeus, 1758

Ichneumon extensorius Linnaeus, 1758: 561.

[Figs 103–104]

Type material. **Syntypes**: country of type locality and sex unknown; LSUK.

Comparative material examined. UNITED KINGDOM • 1 ♂; Scotland, West Perthshire, VC 87, OSGR NN80; 5 Aug. 2022[A]; netted from umbels beside pond; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, South Wilts, VC 8, OSGR SU21; 15 Sep. 2021[C]; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; Scotland, West Perthshire, VC 87, OSGR NN70; 9 Aug. 2021[C]; netted; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, Dorset, VC 9, OSGR SU00; 8 Oct. 2020; visiting Apiaceae; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; same locality as for preceding; 13 Sep. 2020[B]; in flight; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♂; England, South Wilts, VC 8, OSGR SU01; 11 Sep. 2020[B]; netted in flight; M. Storey leg.; MWS, to be deposited in NHMUK • 1 ♀; England, Berks, VC 22, OSGR SU67; 19 Nov. 2019[A]; tussocking in *Deschampsia cespitosa*; M. Storey leg.; MWS, to be deposited in NHMUK.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Linnaeus (1758:561) did not mention the number of specimens examined, nor did he designate any individual as holotype. Therefore, all specimens are to be regarded as syntypes, in accordance with Article 73.2 (ICZN 1999).

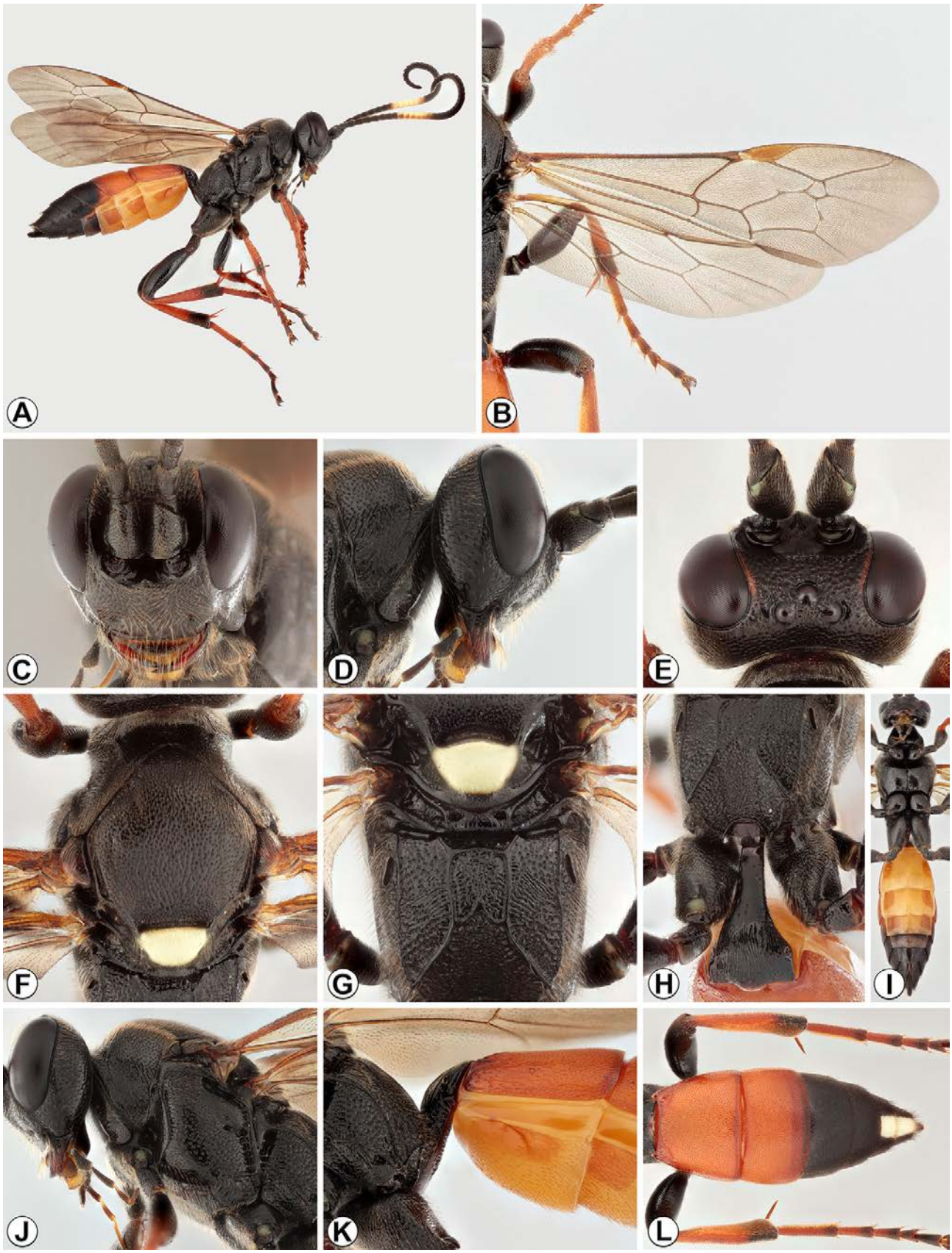


Figure 103. *Ichneumon extensorius* Linnaeus, 1758, female from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** Propodeum, and T1, dorsal view; **I.** Body, ventral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1–T2, lateral view; **L.** T2–T7, and hind leg, dorsal view.

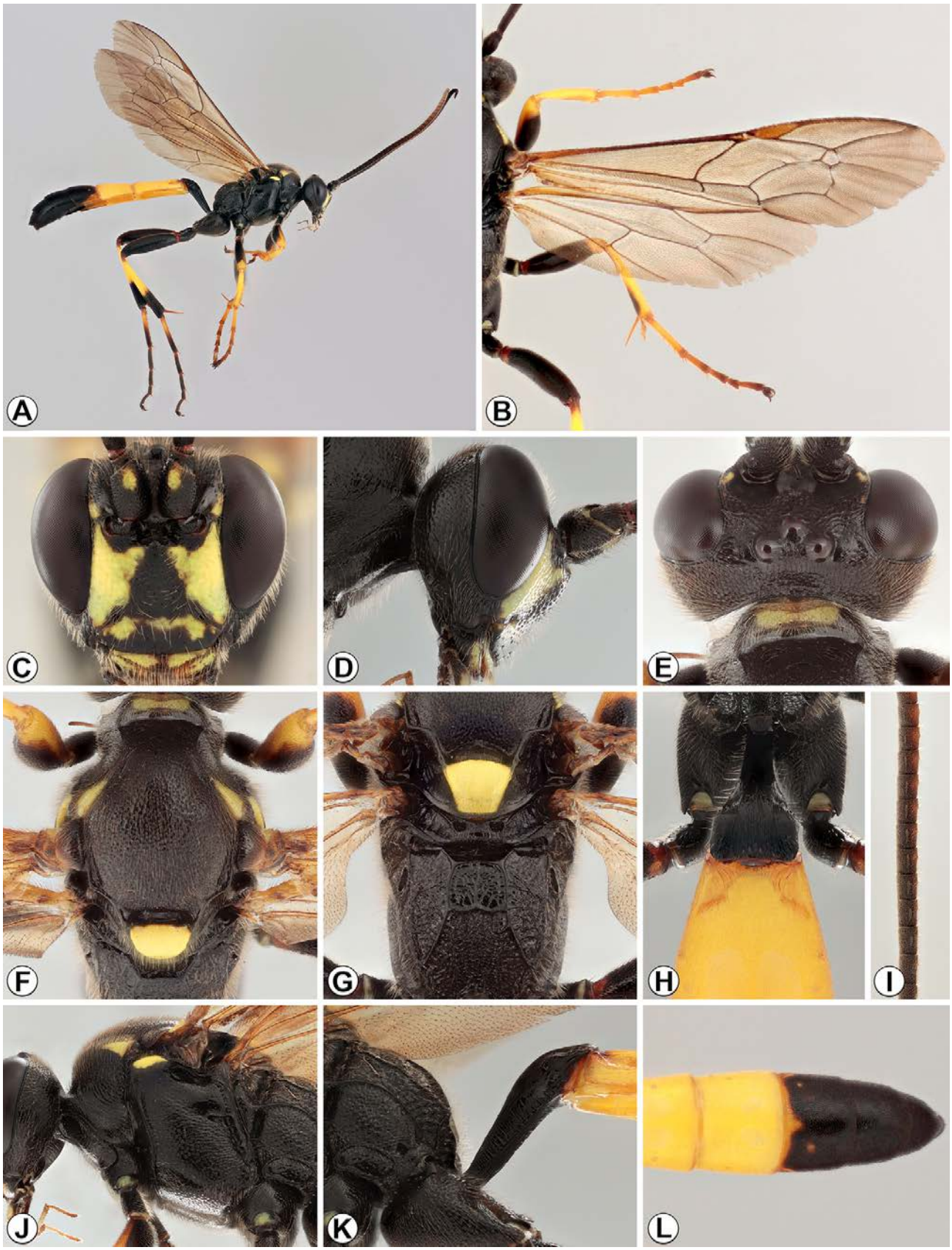


Figure 104. *Ichneumon extensorius* Linnaeus, 1758, male from the United Kingdom (MWS). **A.** Habitus, lateral view; **B.** Wings; **C.** Head, frontal view; **D.** Head, lateral view; **E.** Head, dorsal view; **F.** Mesoscutum and scutellum, dorsal view; **G.** Metanotum and propodeum, dorsal view; **H.** T1–T2, and metacoxa, dorsal view; **I.** Antenna, dorsolateral view; **J.** Mesosoma, lateral view; **K.** Propodeum, and T1, lateral view; **L.** T2–T6, dorsal view. Body length: 15 mm.

Ichneumon terminatorius Gravenhorst, 1820

Ichneumon terminatorius Gravenhorst, 1820:302.

Type material. **Lectotype** (designated by Rasnitsyn 1981): country of type locality unknown • ♀; IZU.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Subfamily Ophioninae Shuckard, 1840

Genus *Enicospilus* Stephens, 1835

Enicospilus merdarius (Gravenhorst, 1829)

Ophion merdarius Gravenhorst, 1829a:698.

Type material. **Lectotype** (designated by Fitton 1984): UNITED KINGDOM • ♂; OUMNH.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, NEA, NEO, OCE, OTL, W-PAL.

Subfamily Phygadeuontinae Förster, 1869

Genus *Chirotica* Förster, 1869

Chirotica orientalis Horstmann, 1983

Chirotica orientalis Horstmann, 1983:14.

[Fig. 105]

Type material. **Holotype**: TÜRKIYE • ♀; Hatay (Former Governorate of Syria); MNHN.

Label data of type. Labels (in order): (1) 'Holotypus / *Chirotica* ♀ / *orientalis* / Horstm. 1981' (large, rectangular, entirely red, handwritten); (2) 'Muséum Paris / EY10790' (medium-sized, rectangular, printed); (3) 'SYRIE [French for Syria] / AKBES [Akbez] / C.D. [possibly collector´s initials] 1891' (medium-sized, rectangular, printed); (4) 'MUSEUM PARIS / Coll. [collection] J [Jules] de GAULLE 1919' (medium-sized, rectangular, printed).

Type condition. Pinned and in good condition; without palpi, both right mid- and hind legs with only coxa and trochanter.

Distribution in Syria. Hatay province (former governorate of Syria) (Horstmann 1983).

World distribution. W-PAL.

Remarks. The holotype of *Ch. orientalis* was collected at Akbez, historically recorded as Syria but presently located in Hatay Province, Türkiye. Accordingly, the species is excluded from the Syrian checklist under the geographical criteria outlined in Materials and Methods. Horstmann (1983) nevertheless cited Syria as the country of origin. The female paratype was collected in Gaziantep Province (Türkiye) in 1963 and is deposited in the Zoologische Staatssammlung, Munich (Germany), while additional males were collected in Diyarbakır Province (Türkiye) in 1985 and is housed in the Institute of Introduction and Plant Resources Sadovo (Bulgaria) and the Department of Plant Protection, Faculty of Agriculture, University of Ege, Izmir (Türkiye). Because males of *Chirotica* cannot in most cases be reliably associated with females, the latter records are considered doubtful.

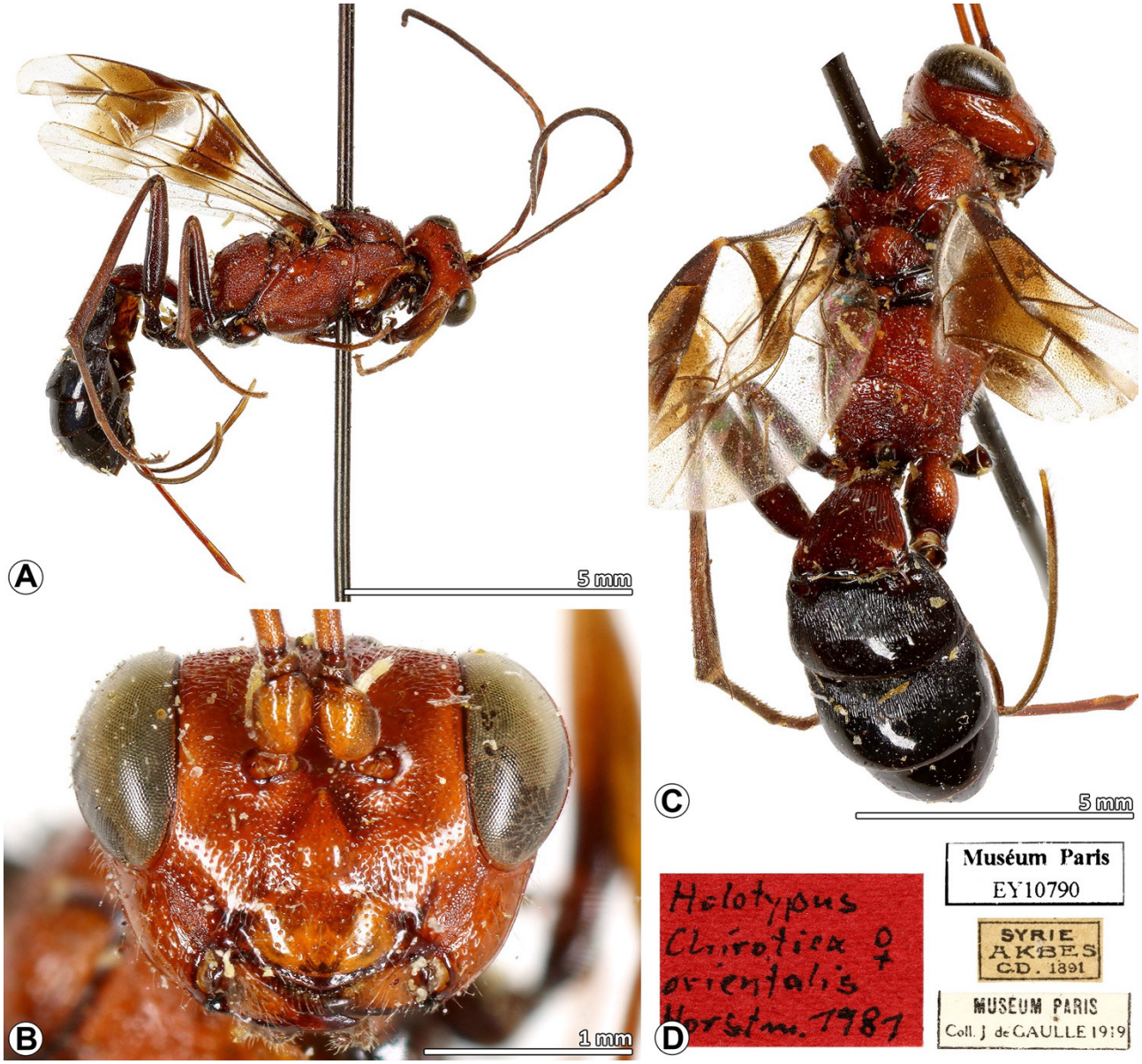


Figure 105. *Chirotica orientalis* Horstmann, 1983, holotype female (MNHN). **A., C.** Habitus; **A.** Lateral view; **C.** Dorsal view; **B.** Head, frontal view; **D.** Holotype labels.

Subfamily Tryphoninae Shuckard, 1840

Genus *Cosmoconus* Förster, 1869

Cosmoconus elongator (Fabricius, 1775)

Ichneumon elongator Fabricius, 1775:337.

Type material. **Syntypes:** UNITED KINGDOM • sex unknown; ZMUC.

Label data of type. Not examined firsthand.

Type condition. Not assessed because the specimen was not examined firsthand.

Distribution in Syria. Hatay (Former governorate of Syria) (Fahringer & Friese 1921).

World distribution. E-PAL, W-PAL.

Remarks. Fabricius (1775:337) did not specify the number of specimens examined, nor did he designate any individual as holotype. Therefore, in accordance with Article 73.2 (ICZN 1999), all specimens are to be regarded as syntypes.

DISCUSSION

From a biogeographic perspective, Syria occupies a transitional position at the intersection of Mediterranean, Irano-Turanian, and arid bioclimatic zones and encompasses several major terrestrial ecoregions, including the Eastern Mediterranean conifer-broadleaf forests, the Southern Anatolian montane conifer and deciduous forests, the Middle Eastern steppe, and the Mesopotamian shrub desert (e.g., Atallah 1977, 1978; Ghahari et al. 2026). This pronounced environmental heterogeneity, together with the ecological continuity of Syrian landscapes with adjacent parts of Türkiye, Iraq, Jordan, Lebanon, and Israel-Palestine, is consistent with substantial sharing of faunal elements across political boundaries. The ichneumonid fauna of Syria may therefore be expected to include numerous species shared with neighbouring countries, particularly where similar habitats and climatic conditions extend across national borders. Continued faunistic and taxonomic work elsewhere in Western Asia further demonstrates how rapidly documented parasitoid diversity and distributional ranges can expand with increased study. In Iran, numerous surveys and taxonomic revisions have added new records, clarified distributions, and improved knowledge of several ichneumonid groups (see references cited in the Introduction). In Türkiye, comparable advances have resulted from continued faunistic and taxonomic studies of Ichneumonidae (Riedel et al. 2014; Yurtcan & Kolarov 2015; Kolarov 2016; Khalaim 2018), while recent work has also continued to add records from Iraq (Hamad 2025) and Syria (Youssef & Lotfalizadeh 2021). Studies of other parasitoid Hymenoptera in the region likewise continue to reveal previously undocumented taxa, new distributional records, and taxonomic diversity (Ghafouri Moghaddam et al. 2018, 2019a, 2019b, 2021, 2022; Heraty et al. 2019; Rakhshani et al. 2019; Derafshan et al. 2020, 2021; Koldaş & Erdoğan 2022), reinforcing the view that regional parasitoid diversity remains incompletely documented. Additional sampling, particularly in poorly investigated montane, steppe, and desert-transition habitats, will be important for refining current interpretations of the distribution and regional affinities of the Syrian ichneumonid fauna.

Ghahari et al. (2026) regarded several Ichneumonidae species as endemic to Syria. These include *A. nigricator* (Aubert, 1964); *B. syriator* Aubert, 1993; *Ch. meridionalis rubida* Horstmann, 1993, *Ch. orientalis* Horstmann, 1983; *D. tricolorator* Aubert, 1970; *G. prospectus* Schwarz, 1998; *M. fulvicornis* Mocsáry, 1883, *M. syriacus* Clément, 1930; and *O. siderea* Schwarz, 2004. At present, however, the designation of these taxa as endemic appears premature and should be treated with caution. Under the definition adopted by the International Union for Conservation of Nature (IUCN 2012), an endemic taxon is one that is naturally restricted to a particular geographic area and occurs nowhere else. Consequently, endemism cannot be inferred merely from the fact that a taxon is currently known only from Syria or from a limited number of localities in the surrounding region. In Ichneumonidae, apparently narrow distributions frequently reflect incomplete sampling, uneven collecting intensity, or unresolved taxonomic knowledge rather than genuine biogeographic restriction. This issue corresponds to the so-called Wallacean shortfall, namely the insufficient knowledge of species distributions at regional and global scales (Hortal et al. 2015). Such caution is especially warranted in the Middle East, where the ichneumonid fauna remains incompletely documented and continues to expand through new country records, revisionary studies, and ongoing faunistic surveys (e.g., Ghahari et al. 2026). Several taxa previously considered geographically restricted in neighbouring countries have subsequently proven to possess considerably wider distributions following additional collecting and taxonomic reassessment. Consequently, the nine taxa listed above are more appropriately regarded, on present evidence, as currently known only from Syria rather than definitively endemic. Broader and more systematic sampling across Syria and adjacent regions, together with continued taxonomic revision, will be necessary before robust conclusions regarding true endemism can be established.

The ichneumonid fauna of Syria remains insufficiently documented, but the available data nevertheless place it in a comparatively prominent position within the current Middle Eastern inventory. Country-level richness is strongly uneven across the region, ranging from 1,692 recorded taxa in Iran and 1,374 in Türkiye to very small inventories in several countries. The remaining regional totals comprise 281 taxa in Israel-Palestine, 155 in Egypt, 89 in Syria, 79 in Cyprus, 50 in Jordan, 43 in Saudi Arabia, 29 in Lebanon, 28 in Iraq, 21 in Yemen, five in Oman, four in the United Arab Emirates, and one in Kuwait, whereas no records are currently represented for Qatar or Bahrain in the regional dataset (e.g., Riedel

2015; Ghafouri Moghaddam et al. 2016; Yu et al. 2016; Zardouei Heydari et al. 2020; Mohammadi-Khoramabadi & Riedel 2020; Bahremand et al. 2022; Karimi et al. 2024; Ghahari et al. 2026). Syria consequently ranks fifth among the 16 countries considered, below Iran, Türkiye, Israel-Palestine, and Egypt but above all other countries included in the comparison (Fig. 2B). Its 89 recorded taxa also place it above the regional median of 36 and above 68.75% of the countries represented in the dataset (Fig. 3A). These comparisons should, however, be interpreted as patterns of documented richness rather than directly comparable estimates of true national diversity, given the substantial differences in the history and intensity of taxonomic investigation among countries.

Museum and locality data provide additional evidence that the present Syrian inventory remains incomplete. During direct examination of Syrian material housed in the Hymenoptera Collection of the Hungarian Natural History Museum (HNHM), the first author encountered several unidentified ichneumonid specimens, indicating that additional taxa may remain unstudied or await formal identification. Historical Syrian material preserved in HNHM has likewise continued to yield previously unpublished faunistic records (e.g., Vas 2020), demonstrating the continuing value of museum collections for documenting the fauna. Moreover, published Syrian records are concentrated disproportionately in the western and south-western parts of the country, while many historical records lack sufficiently precise locality information for detailed spatial interpretation. Continued examination of museum holdings, together with geographically broader field sampling, is therefore likely to expand the documented fauna and improve understanding of its distribution within Syria.

The weak species-area relationship suggests that currently recorded richness of Ichneumonidae in the Middle East is not determined by land area alone (Fig. 2A). This interpretation is consistent with the broader species-area literature, where area is recognised as an important determinant of taxon richness, but one whose effects are frequently modified by historical sampling intensity, environmental heterogeneity, habitat diversity, accessibility, and variation in taxonomic effort (Arrhenius 1921; Rosenzweig 1995; Lomolino 2000). In regions where faunistic knowledge remains incomplete, observed richness patterns may therefore reflect the structure of available sampling and research activity as much as underlying ecological processes. Within this context, the above-line position of Syria (Fig. 2A) is noteworthy. Despite its moderate geographic extent, Syria currently possesses a comparatively substantial recorded ichneumonid fauna relative to several neighbouring countries. However, the low coefficient of determination (R^2) and the well-recognised spatial unevenness of biodiversity data indicate that the relationship should not be interpreted as a predictive ecological model of Ichneumonidae diversity. Rather, the plot more accurately reflects the present state of regional inventory completeness and historical documentation (Hortal et al. 2015; Meyer et al. 2015). The steep decline in species numbers from the first two countries to the remainder of the regional dataset reflects a strong concentration of records within a limited subset of countries (Fig. 2B). Such long-tail distributions are common in biodiversity inventories and typically emerge through the combined effects of genuine biogeographic variation, differences in habitat heterogeneity, unequal development of taxonomic tradition, and strongly uneven collecting effort (Preston 1962; Gaston 2000; Hortal et al. 2015). Syria's fifth-place position within the regional ranking is therefore notable (Fig. 2B), but it should not be interpreted as evidence that the Syrian fauna is more comprehensively known than that of all lower-ranked countries. Instead, it indicates that Syria currently represents one of the more visible and comparatively documented Ichneumonidae faunas within the Middle Eastern checklist framework, while several neighbouring countries almost certainly remain substantially under-inventoried.

The combined violin and box plot emphasises that Syria does not belong to the low-richness portion of the current Middle Eastern ichneumonid dataset, although it also falls well below the extreme richness values represented by Iran and Türkiye (Fig. 3A). This intermediate-to-upper position is faunistically meaningful because Syria occupies a geographically transitional region situated between several major biogeographic and climatic zones of the eastern Mediterranean and western Asia. Such a position could reasonably support relatively diverse ichneumonid assemblages through the overlap of different ecological influences and habitat types. However, because the dataset is based on checklist records rather than standardised sampling protocols, the figure should be interpreted as representing documented richness rather than true or fully comparable taxon richness among countries. The graphical approach follows

established principles of exploratory data analysis, in which box plots summarise central tendency and dispersion, while violin plots additionally illustrate the underlying distributional structure and density of observations (Tukey 1977; Hintze & Nelson 1998). In this context, the broader distributional spread visible among countries further highlights the strong heterogeneity in regional inventory completeness and faunistic knowledge. Richness density provides a complementary perspective to total taxon richness because it reflects the relationship between recorded diversity and geographic area. Syria's intermediate density ranking (Fig. 3B) indicates that its recorded ichneumonid fauna is neither exceptionally sparse nor exceptionally concentrated relative to country size. Nevertheless, this metric should be interpreted cautiously. Small countries may appear disproportionately species-rich when they have experienced intensive collecting or sustained taxonomic attention, whereas large or logistically inaccessible areas may appear artificially species-poor because of insufficient sampling coverage when their true fauna is large. This limitation is especially relevant for parasitoid wasps, including Ichneumonidae, whose known distributions are often strongly influenced by historical collecting patterns, availability of specialist taxonomic expertise, museum accessibility, and uneven preservation of reference material (Hortal et al. 2015; Meyer et al. 2015; Quicke 2015).

The contrast between the Syrian subfamily composition and the broader regional profile suggests that the Syrian Ichneumonidae fauna remains unevenly documented across major evolutionary lineages. Within the current dataset, Pimplinae is comparatively well represented in Syria relative to its proportion in the Middle Eastern fauna (Fig. 4A), whereas several globally and regionally species-rich subfamilies, particularly Ichneumoninae, Campopleginae, Cryptinae, and Phygadeuontinae (Fig. 4A), appear proportionally underrepresented. This pattern is most plausibly explained by a combination of genuine differences in local species composition, strong historical collecting bias, and variation in taxonomic accessibility among the subfamilies, since some groups are considerably more difficult to identify reliably without specialist revisionary work or well-curated reference material. Given that Ichneumonidae is among the most species-rich lineages of parasitoid Hymenoptera, subfamily-level disparities in recorded richness should be interpreted as indicators of uneven taxonomic and sampling coverage rather than definitive ecological signals. In practical terms, these gaps highlight clear priorities for future biodiversity work, including targeted field sampling in underrepresented habitats, systematic revision of museum material, and increasing involvement of specialists capable of resolving complex subfamily-level identification (Quicke 2015; Yu et al. 2016; Broad et al. 2018). The relatively high proportional representation of Collyriinae should be interpreted cautiously, as it likely reflects uneven taxonomic and sampling coverage rather than unusually high regional diversity. Species of this subfamily are comparatively distinctive and readily identifiable, and many available records derive from targeted faunistic studies and taxonomic revisions. Consequently, their apparent prominence in Syria may partly reflect preferential documentation of readily identifiable taxa, whereas many less easily identified ichneumonid species remain under-recorded (Fig. 4B). More informative is the combined pattern that both Pimplinae and Anomaloninae are relatively well represented in Syria, while several hyperdiverse regional subfamilies remain poorly represented in the Syrian checklist (Fig. 4B). This asymmetry indicates that future research should prioritise under-sampled and taxonomically challenging groups, while also building up the relatively better-documented subfamilies as a baseline for more refined faunistic, ecological, and biogeographical analyses (Quicke 2015; Hortal et al. 2015; Broad et al. 2018).

A total of ten subspecies are currently recognised within the Syrian fauna. The retention of subspecific names in Ichneumonidae from Syria is not unusual, as regional faunistic syntheses in the Middle East continue to catalogue species and subspecies concurrently, indicating that subspecific names remain in active use in the regional literature (Ghahari et al. 2026). In the western Palaearctic Cryptinae, Schwarz (2005) explicitly treated *Acroricnus seductor elegans*, *A. seductor syriacus*, and *Meringopus titillator rhodius* as valid subspecies, distinguishing them primarily by colour pattern, geographical distribution, and the limited occurrence of intermediate forms. He further noted that some taxa currently interpreted as subspecies could warrant recognition as distinct species. Similarly, Horstmann (1993) recognised *Ch. meridionalis rubida* as a geographically differentiated subspecies distinct from the nominotypical *Ch. meridionalis meridionalis*, rather than interpreting the observed variation as simple intraspecific colour polymorphism. Accordingly, the subspecies retained here for Syria are best interpreted as geographically differentiated taxonomic units rather than arbitrary colour morphs. Nevertheless, their status should be

regarded as provisional. Recent integrative studies in Ichneumonidae have demonstrated that combining morphological evidence with molecular data frequently reveals cryptic diversity and previously unrecognised species boundaries (Schwarzfeld & Sperling 2014; Shimizu et al. 2020). Some Syrian subspecies, especially those diagnosed primarily by colour pattern and allopatric distribution, may ultimately prove to represent distinct species, whereas others may instead fall within the range of normal geographic variation once more comprehensive morphological and molecular datasets become available.

To date, only seven DNA sequences derived from two gene markers (*COI* and *ITS2*) are publicly available for five ichneumonid species from Syria: *A. andalusiacum, B. delictor, D. semiclausum, K. ibera, and K. vicaria* (NCBI and BOLD). For a hyperdiverse family such as Ichneumonidae, this represents only a negligible fraction of the expected molecular diversity and severely limits the use of genetic evidence for species delimitation, biogeographic inference, and phylogenetic interpretation (Klopfstein et al. 2019; Ghahari et al. 2026). Beyond the provisional subspecific boundaries discussed above, the clearest unresolved species-level case in the present checklist is *Palpator* sp., currently the only Syrian record of this genus. The specimen reported by Khalaim (2016) was identified only to genus level and is in very poor condition, preventing confident assignment to a described species. Additional well-preserved material will therefore be necessary to determine its specific identity and whether it represents a described or potentially undescribed species. Expanding molecular coverage through renewed sampling, systematic DNA barcoding, and the integration of molecular and morphological evidence will be important for testing species boundaries and improving taxonomic resolution within the Syrian fauna (Meierotto et al. 2019; Shimizu et al. 2020).

For most ichneumonid genera, comprehensive taxonomic revision remains an urgent and ongoing requirement, reflecting both the exceptional taxon richness of the family and the enduring taxonomic impediment affecting hyperdiverse parasitoid wasps (Quicke 2015; Klopfstein et al. 2019; Meierotto et al. 2019). Access to type material constitutes an essential prerequisite for rigorous taxonomic work, as name-bearing types provide the objective standards for the application of zoological nomenclature (ICZN 1999). In practice, however, consultation of type specimens is often constrained by logistical, financial, and administrative barriers, including the need for travel, limited loan policies for fragile or highly valuable material, and extended processing times for inter-institutional requests (Novacek & Goldberg 2013). A further challenge arises from the frequently abbreviated and diagnostic-poor nature of many historical species descriptions, which has led to divergent interpretations of species limits (Quicke 2015). As a consequence, cases of historical misinterpretations, generic reassignments, and species-level confusion are well documented, contributing to an increasing proliferation of synonyms and unstable taxonomic concepts (Quicke 2015). Despite these constraints, progress has been substantially facilitated by the expanding availability of high-resolution digital images and the ongoing digitisation of natural history collections (Popov et al. 2021). Major institutions, including the Linnean Collections of the Linnean Society (London, UK), as well as other key European repositories such as the FMNH, MNHN, and ZMHUB, now provide online access to catalogue data and, increasingly, specimen-level imagery, thereby improving accessibility to critical type material for taxonomic work. The nomenclatural acts proposed herein should be interpreted within this broader taxonomic and historical context. The lectotype designations proposed herein provide an objective and unambiguous basis for the application of names and are recognised by the Code as an important mechanism for stabilising nomenclature in revisionary studies (ICZN 1999). These designations contribute to nomenclatural consistency and facilitate more stable usage in subsequent taxonomic, faunistic, and biodiversity-oriented research.

Priority should now shift from isolated faunistic additions toward coordinated revisionary research supported by targeted field sampling and rigorously documented voucher material. Continued efforts to locate, digitise, and examine currently inaccessible or untraced type material will be essential for resolving type status and refining the taxonomic interpretation of the Syrian ichneumonid fauna. Future surveys should be designed to encompass under-sampled habitats, seasonal periods, and geographic regions, particularly in northern, eastern, and southern Syria. Broader and more systematic sampling will allow distributional patterns, host associations, and taxonomic boundaries to be evaluated with greater precision and confidence. Such an integrative approach would provide a more robust framework for the recognition of additional records, the critical reassessment of species boundaries, and refinement of the overall composition and biogeographic structure of the Syrian ichneumonid fauna.

AUTHOR CONTRIBUTIONS

The authors confirm their contribution to the paper as follows: **M. Ghafouri Moghaddam:** conceptualization, data curation, formal analysis, investigation, methodology, project administration, funding acquisition, resources, software, validation, visualization, writing – original draft, writing – review & editing; **M. Heidari Latibari:** data curation, formal analysis, investigation, methodology, resources, software, validation, visualization, writing – review & editing; **D. Dal Pos:** investigation, resources, validation, writing – review & editing; **D.C. Arias-Penna:** investigation, validation, writing – review & editing; **M. Schwarz:** data curation, investigation, resources, validation, visualization, writing – review & editing; **M.W. Storey:** data curation, investigation, methodology, resources, validation, visualization, writing – review & editing; **B.A. Butcher:** investigation, validation, writing – review & editing; **S. Yaakop:** project administration, supervision, investigation, validation, writing – review & editing. All authors read and approved the final version of the manuscript.

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AVAILABILITY OF DATA AND MATERIAL

The specimens listed in this study are deposited in the institutions indicated in the checklist and are available from the respective curators upon request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study only included arthropod material, and all required ethical guidelines for the treatment and use of animals were strictly adhered to in accordance with international, national, and institutional regulations. No human participants were involved in any studies conducted by the authors for this article.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

GENERATIVE AI STATEMENT

The authors declare no generative AI tools were used in the preparation of this manuscript, nor in data analysis. All scientific content and final revisions were reviewed and approved by the authors.

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REFERENCES

Aliyev, A. & Maharramova, S. (2009) Ichneumonidae in the collection of the Institute of Zoology, NAS of Azerbaijan Republic. *Beiträge zur Entomologie,* 59 (2), 271–286. https://doi.org/10.21248/contrib.entomol.59.2.271-286

Amiri, A., Talebi, A.A., Jussila, R., Rakhshani, E. & Hajiqanbar, H. (2015) A study of the Iranian Cremastinae (Hymenoptera: Ichneumonidae). *Journal of Insect Biodiversity and Systematics,* 1 (2), 87–100.

Arrhenius, O. (1921) Species and area. *Journal of Ecology,* 9, 95–99. https://doi.org/10.2307/2255763

Ashmead, W.H. (1900) Some changes in generic names in Hymenoptera. *The Canadian Entomologist,* 32 (12), 368. https://doi.org/10.4039/Ent32368a-12

Atallah, S.I. (1977) Mammals of the Eastern Mediterranean Region: their ecology, systematics and zoogeographical relationships. *Säugetierkundliche Mitteilungen,* 25 (4), 241–320.

Atallah, S.I. (1978) Mammals of the Eastern Mediterranean Region: their ecology, systematics and zoogeographical relationships. Part 2. *Säugetierkundliche Mitteilungen,* 26 (1), 1–50.

Aubert, J.F. (1964) Ichneumonides de France et du Bassin méditerranéen appartenant un genre nouveau et neuf espèces nouvelles. Bulletin de la Société Entomologique de Mulhouse, 1964, 35–40.

Aubert, J.F. (1966) Description de dix espèces nouvelles s'ajoutant aux Ichneumonides de France et du Bassin méditerranéen. Bulletin de la Société Entomologique de Mulhouse, 1966, 37–46.

Aubert, J.F. (1967) Ichneumonides Banchinae (=Lissonotinae) inédites d'Europe et du Proche-Orient. Bulletin de la Société Entomologique de Mulhouse, (septembre-octobre), 65–69.

Aubert, J.F. (1970) Nouveau supplément aux Ichneumonides non pétiolées avec description d'un genre nouveau. *Bulletin de la Société Entomologique de Mulhouse,* 1970, 49–56.

Aubert, J.F. (1978) *Les Ichneumonides ouest-paléarctiques et leurs hôtes 2. Banchinae et Suppl. aux Pimplinae*. Laboratoire d'Evolution des Etres Organises et Edifat-Opida, Paris et Echauffour. 318 pp.

Aubert, J.F. (1979) Huit Ichneumonides [non] pétiolées inédites. Bulletin de la Société Entomologique de Mulhouse, 17–22.

Aubert, J.F. (1993) Note préliminaire sur quelques Barichneumon Ths. tricolorés. *Bulletin de la Société Entomologique de Mulhouse*, 37–44.

Aubert, J.F., Halperin, J. & Gerling, D. (1984) Les Ichneumonides d'Israel. *Entomophaga*, 29 (2), 211–235. https://doi.org/10.1007/BF02372110

Azidah, A.A., Fitton, M.G. & Quicke, D.L.J. (2000) Identification of the *Diadegma* species (Hymenoptera: Ichneumonidae, Campopleginae) attacking the diamondback moth, *Plutella xylostella* (Lepidoptera: Plutellidae). *Bulletin of Entomological Research,* 90, 375–389. https://doi.org/10.1017/S0007485300000511

Bahremand, N., Khayrandish, M., Mohammadi-Khoramabadi, A. & Riedel, M. (2022) On the Ophioniformes group (Hymenoptera: Ichneumonidae) from Kerman province with six new records to Iran. *Journal of Insect Biodiversity and Systematics,* 8 (1), 093–109. https://doi.org/10.52547/jibs.8.1.93

Banani Sarvestani, Z., Talebi, A.A., Mohammadi-Khoramabadi, A. & Feizi, A. (2026) New records and additional data on Anomaloninae (Hymenoptera: Ichneumonidae) from Iran. *Journal of Insect Biodiversity and Systematics*, 12 (03), 611–629. https://doi.org/10.48311/jibs.12.03.611

Basheer, A., Asslan, L., Rachhed, A., Abd Alrazaq, F., Saleh, A., Alshadidi, B. & Assad, R. (2014) Primary and secondary Hymenopteran parasitoids of scale insects (Homoptera: Coccoidea) in fruit orchards in Syria. *EPPO Bulletin,* 44 (1), 47–56. https://doi.org/10.1111/epp.12095

Basheer, A.M., Alhaj, S.I. & Asslan, L.H. (2016) Parasitoids on codling moth *Cydia pomonella* (Lepidoptera: Tortricidae) in apple and walnut orchards in Syria. *EPPO Bulletin,* 46 (2), 295–297.

Bennett, A.M.R., Cardinal, S., Gauld, I.D. & Wahl, D.B. (2019) Phylogeny of the subfamilies of Ichneumonidae (Hymenoptera). *Journal of Hymenoptera Research,* 71, 1–156. https://doi.org/10.3897/jhr.71.32375

Berthoumieu, V. (1900) 5e supplément aux Ichneumonides d'Europe (Hymen.). *Bulletin de la Société Entomologique de France*, 1900, 249–252. https://doi.org/10.3406/bsef.1900.22640

Berthoumieu, V. (1903) Supplément aux "Ichneumoniens" d'Europe. L'Échange, Revue Linnéenne, 19 (227), 147–149.

Berthoumieu, V. (1904) Hymenoptera. Fam. Ichneumonidae, Subfam. Ichneumoninae. In: Wytsman, P. (ed.) *Genera Insectorum, Fascicle* 18. V. Verteneuil & L. Desmet, Bruxelles, pp. 1–87.

Börner, J.C.H. (1782) Beschreibung eines neuen Insects, Ichneumon murarius. *Der Patriotischen Gesellschaft in Schlesien neue oekonomische Nachrichten,* 3, 165–172.

Boyer de Fonscolombe, E.L.J.H. (1847) Ichneumonologie provençale. *Annales de la Société Entomologique de France*, (2) 5, 397–420.

Broad, G.R. & Kuslitzky, W.S. (2019) A new species of *Rodrigama* Gauld (Hymenoptera: Ichneumonidae: Poemeniinae) from Israel: a significant range extension. *Zootaxa*, 4567 (1), 193–200. https://doi.org/10.11646/zootaxa.4567.1.12

Broad, G.R., Shaw, M.R. & Fitton, M.G. (2018) *Ichneumonid wasps (Hymenoptera: Ichneumonidae): their classification and biology. Handbooks for the Identification of British Insects* 7 (12). Royal Entomological Society / Field Studies Council. 418 pp. https://doi.org/10.1079/9781800625471.0000

Cameron, P. (1897) Hymenoptera Orientalia, or contributions to a knowledge of the Hymenoptera of the Oriental Zoological Region. Part V. *Memoirs and Proceedings of the Manchester Literary and Philosophical Society,* 41 (4), 1–144.

Cameron, P. (1901) On a collection of Hymenoptera made in the neighbourhood of Wellington by Mr. G. V. Hudson, with descriptions of new genera and species. *Transactions and Proceedings of the New Zealand Institute,* 33, 104–120.

Ceballos, G. (1957) Himenópteros nuevos para la fauna española. *Eos,* 33, 7–18, figs. 1–4.

Clément, E. (1930) Opuscula Hymenopterologica III. Die paläarktischen *Metopius*-Arten (Hym., Ichneumon.). *Konowia,* 8, 325–437.

Cresson, E.T. (1864) Descriptions of North American Hymenoptera in the collection of the Entomological Society of Philadelphia. *Proceedings of the Entomological Society of Philadelphia,* 3, 257–321.

Cresson, E.T. (1870) Descriptions of new species belonging to the subfamily Pimplariae found in America north of Mexico. *Transactions of the American Entomological Society,* 3, 143–172. https://doi.org/10.2307/25076242

Cresson, E.T. Jr. (1916) The Cresson types of Hymenoptera. *Memoirs of the American Entomological Society,* 1, 1–141.

Curtis, J. (1836) *British Entomology; being illustrations and descriptions of the genera of insects found in Great Britain and Ireland*. Vol. 13. Hurst., London. 625 pp.

Cushman, R.A. (1924) On the systematic position of the genera *Collyria* Schiødte and *Ischnoceros* Gravenhorst (Hymenoptera). *Proceedings of the Entomological Society of Washington,* 26 (9), 229–231.

Dalla Torre, C.G. de (1902) *Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus. Volumen III. Trigonalidae, Megalyridae, Stephanidae, Ichneumonidae, Agriotypidae, Evaniidae, Pelecinidae*. Sumptibus Guilelmi Engelmann. 1141 pp.

Dbar, R.S. (1985) New species of ichneumonids of the subfamily Campopleginae (Hymenoptera, Ichneumonidae) from the Caucasus. *Trudy Zoologicheskogo Instituta, Leningrad,* 132, 54–57. [In Russian]

Delrio, G. (1971) Prélude à une révision des Ichneumonides *Netelia* Gray ouest-paléarctiques. *Bulletin de la Société Entomologique de Mulhouse*, 1971, 67–72.

Delrio, G. (1975) Révision des espèces ouest-paléarctiques du genre *Netelia* Gray (Hym., Ichneumonidae) Studi Sassaresi sez. III. *Annali della Facolta di Agraria dell'Università di Sassari,* 23, 1–126.

Derafshan, H.A., Olmi, M., Ghafouri Moghaddam, M. & Rakhshani, E. (2020) Taxonomic study of the subfamily Gonatopodinae Kieffer (Hymenoptera, Chrysidoidea, Dryinidae) from Iran with the description of a new species. *Zootaxa,* 4789 (2), 371–402. https://doi.org/10.11646/zootaxa.4789.2.3

Derafshan, H.A., Olmi, M., Ghafouri Moghaddam, M., Nader, E. & Rakhshani, E. (2021) New records of Dryinidae (Hymenoptera, Chrysidoidea, Dryinidae) from Iran. *Zoosystema,* 43 (23), 563–583. https://doi.org/10.5252/zoosystema2021v43a23

Diller, E. & Horstmann, K. (1994) Typenrevision der von Victor Berthoumieu beschriebenen Phaeogenini (Insecta, Hymenoptera, Ichneumonidae, Ichneumoninae). *Spixiana*, 17 (3), 247–260.

Diller, E. & Horstmann, K. (1997) Typenrevision der von Victor Berthoumieu beschriebenen Ichneumoninae (ohne Phaeogenini) (Insecta, Hymenoptera, Ichneumonidae). *Spixiana,* 20 (1), 39–71.

Drewsen, C. & Boie, F. (1836) Beiträge zur Geschichte der Hymenopteren. *Archiv für Naturgeschichte,* 2 (1), 35–44.

Fabricius, J.C. (1775) *Systema entomologiae: sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Flensburgi et Lipsiae. https://doi.org/10.5962/bhl.title.36510

Fabricius, J.C. (1794) *Entomologia systematica emendata et aucta, secundum classes, ordines, genera, species, adjectis synonimis, locis, observationibus, descriptionibus. Tomus IV*. C.G. Proft, Hafniae.

Fabricius, J.C. (1798) *Supplementum entomologiae systematicae*. Proft et Storch, Hafniae. 572 pp. https://doi.org/10.5962/bhl.title.65803

Fabricius, J.C. (1804) *Systema Piezatorum: secundum ordines, genera, species, adiectis synonymis, locis, observationibus, descriptionibus*. Carolum Reichard, Brunsvigae. 439 pp. https://doi.org/10.5962/bhl.title.10490

Fahringer, J. & Friese, H. (1921) Eine Hymenopteren-Ausbeute aus dem Amanusgebirge (Kleinasien und Nord-Syrien, südl. Armenien). Archiv für Naturgeschichte. *Abteilung A,* 87 (3), 150–176.

Fallén, C.F. (1813) *Specimen novam Hymenoptera disponendi methodum exhibens*. Litteris Berlingianis, Lundae. 42 pp. https://doi.org/10.5962/bhl.title.106859

Feizi, A., Talebi, A.A., Riedel, M. & Rakhshani, E. (2026) Review of the genus *Casinaria* Holmgren (Hymenoptera, Ichneumonidae, Campopleginae) in Iran. *Journal of Insect Biodiversity and Systematics,* 12 (1), 41–58. https://doi.org/10.48311/jibs.12.01.41

Fitton, M.G. (1978) The species of "Ichneumon" (Hymenoptera) described by Linnaeus. *Biological Journal of the Linnean Society,* 10, 361–383. https://doi.org/10.1111/j.1095-8312.1978.tb00022.x

Fitton, M.G. (1982) A catalogue and reclassification of the Ichneumonidae (Hymenoptera) described by C.G. Thomson. *Bulletin of the British Museum (Natural History), Entomology Series,* 45 (1), 1–119.

Fitton, M.G. (1984) Gravenhorst Ichneumonidae (Hym.) in Oxford. *Entomologist's Monthly Magazine,* 120, 1–6.

Förster, A. (1850) Monographie der Gattung Pezomachus Grv. *Archiv für Naturgeschichte,* 16 (1), 49–232.

Förster, A. (1860) Die zweite Centurie neuer Hymenopteren. *Verhandlungen des Naturhistorischen Vereins der Preussischen Rheinlande und Westfalens,* 17, 147–153.

Förster, A. (1868) Monographie der Gattung Campoplex, Grv. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien,* 18, 761–876.

Förster, A. (1869) Synopsis der Familien und Gattungen der Ichneumonen. *Verhandlungen des Naturhistorischen Vereins der Preussischen Rheinlande und Westfalens,* 25 (1868), 135–221.

Forster, J.R. (1771) *Novæ species insectorum*. Centuria I. T. Davies and B. White, Londini. 108 pp. https://doi.org/10.5962/bhl.title.152194

Fourcroy, A.F. de (1785) *Entomologia Parisiensis; sive, Catalogus insectorum quae in agro Parisiensi reperiuntur*. Via et Aedibus Serpentineis, Parisiis. 552 pp. https://doi.org/10.5962/bhl.title.36528

Frilli, F. (1965) Studi sugli Imenotteri Ichneumonidi. II. Revisione delle specie europee e mediterranee del genere Acroricnus Ratzeburg (Cryptinae). *Entomologica*, 2, 1–20.

Frilli, F. (1978) Studies on Hymenoptera Ichneumonidae. VI. The types of *Cryptus* and other material in Gravenhorst's collection, Zoological Museum of Wroclaw University. *Polskie Pismo Entomologiczne,* 48, 147–175.

Gadallah, N.S., Soliman, A.M., Rousse, P. & Al Dhafer, H.M. (2017) The genus *Enicospilus* Stephens, 1835 (Hymenoptera, Ichneumonidae, Ophioninae) in Saudi Arabia, with twelve new species records and the description of five new species. *European Journal of Taxonomy*, 365, 1–69. https://doi.org/10.5852/ejt.2017.365

Gaston, K.J. (2000) Global patterns in biodiversity. *Nature,* 405, 220–227. https://doi.org/10.1038/35012228

Gauld, I.D. (1991) The Ichneumonidae of Costa Rica, 1. Introduction, keys to subfamilies, and keys to the species of the lower Pimpliform subfamilies Rhyssinae, Poemeniinae, Acaenitinae and Cylloceriinae. *Memoirs of the American Entomological Institute,* 47, 1–589.

Gauld, I.D., Sithole, R., Ugalde Gómez, J.A. & Godoy, C. (2002) The Ichneumonidae of Costa Rica, 4. Introduction and keys to species of the subfamilies Metopiinae, Banchinae: Atrophini, Banchini and Glyptini. *Memoirs of the American Entomological Institute,* 66, 1–768.

Geoffroy, E.L. (1785) [Descriptions of new taxa]. In: Fourcroy, A.F. de (ed.) *Entomologia Parisiensis, sive catalogus insectorum quae in agro Parisiensi reperiuntur; secundum methodum Geoffroeanam in sectiones, genera et species distributus: cui addita sunt nomina trivialia et fere trecentae novae species*. Via et Aedibus Serpentineis, Parisiis. 544 pp.

Ghafouri Moghaddam, M., Mokhtari, A., Barahoei, H., Amirinasab, N. & Rakhshani, E. (2016) A survey on the fauna of Ichneumonidae (Hymenoptera, Ichneumonoidea) associated with grasslands of Ardabil, with Key to species of *Homotropus* Förster, 1869 from Iran. *Journal of Insect Biodiversity and Systematics,* 2 (1), 103–120.

Ghafouri Moghaddam, M., Rakhshani, E., van Achterberg, C. & Mokhtari, A. (2018) A study of the Iranian species of *Choeras* Mason (Hymenoptera: Braconidae: Microgastrinae), with the description of a new species. *Zootaxa,* 4446 (4), 455–476. https://doi.org/10.11646/zootaxa.4446.4.3

Ghafouri Moghaddam, M., Rakhshani, E., Arabzadeh, M.A., Derafshan, H.A. & Kavallieratos, N.G. (2019a) The Stephanidae (Hymenoptera, Stephanoidea) of Iran with the description of a new species. *Insect Systematics & Evolution,* 50, 583–600. https://doi.org/10.1163/1876312X-00002191

Ghafouri Moghaddam, M., Rakhshani, E., van Achterberg, C. & Mokhtari, A. (2019b) A taxonomic review of the genus *Diolcogaster* Ashmead (Hymenoptera, Braconidae, Microgastrinae) in Iran, distribution and morphological variability. *Zootaxa,* 4590 (1), 95–124. https://doi.org/10.11646/zootaxa.4590.1.4

Ghafouri Moghaddam, M., Rakhshani, E., van Achterberg, C. & Mokhtari, A. (2021) Revision of the genus *Napamus* Papp (Hymenoptera, Braconidae, Microgastrinae). *International Journal of Tropical Insect Science,* 41, 2529–2542. https://doi.org/10.1007/s42690-021-00433-7

Ghafouri Moghaddam, M., Mohebban, S., Olmi, M., Rahmani, Z., Rakhshani, E., Arias-Penna, D.C. & Ahmad, Z. (2022) Revision of Embolemidae (Hymenoptera: Chrysidoidea) from the Middle East. *Zootaxa,* 5138 (3), 305–323. https://doi.org/10.11646/zootaxa.5138.3.5

Ghahari, H., Gadallah, N.S. & Shaw, S.R. (2026) *Darwin Wasps of the Middle East (Hymenoptera: Ichneumonidae)*. Springer, Cham. https://doi.org/10.1007/978-3-031-88200-5

Giraud, J. (1857) Description de quelques hyménopères nouveaux ou rares. *Verhandlungen des Zoologisch-Botanischen Vereins in Wien,* 7, 163–184, pls 3, 4.

Grace, A. (2010) *Introductory Biogeography to Bees of the Eastern Mediterranean and Near East*. 1st ed. Bexhill Museum, Bexhill-on-Sea, UK, 284 pp.

Gravenhorst, J.L.C. (1820) Monographia ichneumonum Pedemontanae regionis. *Memorie della Reale Accademia delle Scienze di Torino,* 24, 275–388.

Gravenhorst, J.L.C. (1829a) *Ichneumonologia Europaea*. Pars III. Vratislaviae. https://doi.org/10.5962/bhl.title.65750

Gravenhorst, J.L.C. (1829b) *Ichneumonologia Europaea. Pars II, continens Tryphones, Trogos, Alomyas et Cryptos*. Vratislaviae: Sumtibus Auctoris. 989 pp.

Gravenhorst, J.L.C. (1829c) *Ichneumonologia Europaea*. *Pars I.* Vratislaviae. 858 pp. https://doi.org/10.5962/bhl.title.65750

Gray, J.E. (1860) On the hooks on the front edge of the hinder wings of certain Hymenoptera. *Annals and Magazine of Natural History, Series 3,* 5, 339–342. https://doi.org/10.1080/00222936008697226

Gregor, F. (1941) *Thersilochus gibbus stenocari* n. sp. & *Phygadeuon rozsypali* n. sp. In: Rozsypal, J. (ed.) *Ein Beitrag zur Kenntnis des Mohnwurzelrüßlers Stenocarus fuliginosus Mrsh. Entomologische Listy*, 4, 34–60.

Györfi, J. (1953) Die *Metopius*-Arten des Ungarischen Naturwissenschaftlichen Museums. *Annales Historico-Naturales Musei Nationalis Hungarici,* 4, 161–167.

Hamad, S. (2025) Ichneumonidae species (Hymenoptera) new to Iraq recorded from Kurdistan. *Biodiversity Data Journal*, 13, e161156. https://doi.org/10.3897/BDJ.13.e161156

Harris, C.R., Millman, K.J., van der Walt, S.J., Gommers, R., Virtanen, P., Cournapeau, D., Wieser, E., Taylor, J., Berg, S., Smith, N.J., Kern, R., Picus, M., Hoyer, S., van Kerkwijk, M.H., Brett, M., Haldane, A., Fernández del Río, J., Wiebe, M., Peterson, P., Gérard-Marchant, P., Sheppard, K., Reddy, T., Weckesser, W., Abbasi, H., Gohlke, C. & Oliphant, T.E. (2020) Array programming with NumPy. *Nature*, 585, 357–362. https://doi.org/10.1038/s41586-020-2649-2

Hartig, T. (1838) Über den Raupenfraß im Königl. Charlottenburger Forste unfern Berlin, während des Sommers 1837. *Jahresberichte über die Fortschritte der Forstwissenschaft und forstlichen Naturkunde im Jahre 1836 und 1837,* 1, 246–274.

Hedwig, K. (1957) Ichneumoniden und Braconiden aus den Iran 1954 (Hymenoptera). *Jahresheft des Vereins für Vaterländische Naturkunde,* 112 (1), 103–117.

Heinrich, G.H. (1962) Synopsis of Nearctic Ichneumoninae Stenopneusticae with particular reference to the northeastern region (Hymenoptera). Part VII. Synopsis of the Trogini, Addenda and Corrigenda. *The Canadian Entomologist,* 29 (Suppl.), 803–886. https://doi.org/10.4039/entm9429fv

Hellén, W. (1939) Zur Ichneumonidenfauna Finnlands (Hym.). *Notulae Entomologicae,* 19, 52–63.

Hellén, W. (1949) Zur Kenntnis der Ichneumonidenfauna der Atlantischen Inseln. *Commentationes Biologicae Societas Scientiarum Fennica,* 8 (17), 1–23.

Heraty, J.M., Derafshan, H.A. & Ghafouri Moghaddam, M. (2019) Review of the Philomedinae Ruschka (Hymenoptera: Chalcidoidea: Perilampidae), with description of three new species. *Arthropod Systematics & Phylogeny,* 77, 39–56. https://doi.org/10.26049/ASP77-1-2019-03

Hintze, J.L. & Nelson, R.D. (1998) Violin plots: A box plot-density trace synergism. *The American Statistician,* 52, 181–184. https://doi.org/10.1080/00031305.1998.10480559

Holmgren, A.E. (1856) Entomologiska anteckningar under en resa i södra Sverige år 1854. *Kongliga Svenska Vetenskaps-Akademiens Handlingar,* 75 (1854), 1–104.

Holmgren, A.E. (1859) Sveriges Pimplariae. Conspectus generum Pimplariarum Sueciae. *Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar,* 16 (1), 121–132.

Holmgren, A.E. (1860) Försök till uppställning och beskrifning af Sveriges Ichneumonider. Tredje Serien. Fam. Pimplariae. Monographia Pimplariarum Sueciae. *Kongliga Svenska Vetenskaps-Akademiens Handlingar,* 3 (10), 1–76.

Horstmann, K. (1979a) Typenrevision der von Gravenhorst beschriebenen oder gedeuteten *Hemiteles*-Arten (Hymenoptera, Ichneumonidae). *Polskie Pismo Entomologiczne,* 49, 151–166.

Horstmann, K. (1979b) Revision der von Kokujev beschriebenen Campopleginae-Arten (mit Teiltabellen der Gattungen Venturia Schrottky, *Campoletis* Förster und *Diadegma* Förster). *Beiträge zur Entomologie,* 29, 195–199.

Horstmann, K. (1980) Über die Campopleginae der Makaronesischen Inseln (Hymenoptera, Ichneumonidae). *Spixiana,* 3, 121–136.

Horstmann, K. (1983) Die westpaläarktischen Arten der Gattung *Chirotica* Förster, 1869 (Hymenoptera, Ichneumonidae). *Entomofauna,* 4 (1), 1–33.

Horstmann, K. (1990) Revision einiger Typen der von Otto Schmiedeknecht beschriebenen paläarktischen Ichneumonidae (Hymenoptera). *Beiträge zur Entomologie,* 40, 31–61.

Horstmann, K. (1992a) Revisionen einiger von Linnaeus, Gmelin, Fabricius, Gravenhorst und Förster beschriebener Arten der Ichneumonidae (Hymenoptera, Ichneumonidae). *Mitteilungen Münchener Entomologischen Gesellschaft,* 82, 21–33.

Horstmann, K. (1992b) Typenverzeichnis der von Ernst Clément beschriebenen paläarktischen Ichneumonidae (Hymenoptera). *Zeitschrift Arbeitsgemeinschaft Österreichischer Entomologen,* 44, 49–55.

Horstmann, K. (1993) Nachträge zu Revisionen der Gattungen *Aclastus* Förster, *Ceratophygadeuon* Viereck, *Chirotica* Förster und *Gelis* Thunberg (Hymenoptera, Ichneumonidae, Cryptinae). *Nachrichtenblatt der Bayerischen Entomologen,* 42 (1), 7–15.

Horstmann, K. (2000) Typenrevisionen der von Gravenhorst beschriebenen oder gedeuteten Campoplex-Arten (Hymenoptera, Ichneumonidae). *Linzer biologische Beiträge,* 32 (2), 1203–1214.

Horstmann, K. (2002) Revisionen der von Gregor beschriebenen Ichneumonidae (Hymenoptera). *Linzer biologische Beiträge,* 34 (1), 377–382.

Horstmann, K. (2008a) Revision der europäischen Arten von *Ephialtes* Gravenhorst 1829: mit Bemerkungen zu weiteren holarktischen Arten (Hymenoptera, Ichneumonidae, Pimplinae). *Entomofauna,* 29 (9), 145–165.

Horstmann, K. (2008b) Revisionen von Schlupfwespen-Arten XII (Hymenoptera: Ichneumonidae). Mitteilungen der Münchner *Entomologischen Gesellschaft*, 98, 21–29.

Horstmann, K. (2010) Revision der europäischen Arten von *Stibeutes* Förster, 1850 (Hymenoptera, Ichneumonidae, Cryptinae). *Entomofauna,* 31 (15), 229–264.

Horstmann, K. (2011) Verbreitung und Wirte der *Dusona*-Arten in der Westpalaearktis (Hymenoptera. Ichneumonidae, Campopleginae). [Distribution and hosts of *Dusona* species in the West Palaearctic (Hymenoptera. Ichneumonidae, Campopleginae)]. *Linzer Biologische Beiträge,* 43 (2), 1295–1330.

Hortal, J., de Bello, F., Diniz-Filho, J.A.F., Lewinsohn, T.M., Lobo, J.M. & Ladle, R.J. (2015) Seven shortfalls that beset large-scale knowledge of biodiversity. *Annual Review of Ecology, Evolution, and Systematics,* 46, 523–549. https://doi.org/10.1146/annurev-es-46-120415-200001

Hunter, J.D. (2007) Matplotlib: A 2D graphics environment. *Computing in Science & Engineering,* 9, 90–95. https://doi.org/10.1109/MCSE.2007.55

ICZN [International Commission on Zoological Nomenclature] (1999) *International Code of Zoological Nomenclature*. 4th ed. International Trust for Zoological Nomenclature, London. Available from: https://code.iczn.org/ [Accessed 25th May 2026].

IUCN (2012) Guidelines for Application of IUCN Red List Criteria at Regional and National Levels. Version 4.0. IUCN, Gland and Cambridge. Available from: https://www.iucnredlist.org/resources/regionalguidelines

Johansson, N. (2024) Review of the Swedish species of *Lissonota* Gravenhorst (Hymenoptera: Ichneumonidae: Banchinae) with an illustrated key to the females of the Western Palaearctic. *Entomologisk Tidskrift*, Supplement 2024, 1–348.

Jonathan, J.K. (2000) Five new species of *Itamoplex* Foerster from India (Hymenoptera: Ichneumonidae). *Records of the Zoological Survey of India,* 98 (2), 173–184. https://doi.org/10.26515/rzsi/v98/i2/2000/159687

Karimi, S., Ghassemi-Kahrizeh, A., Hosseinzadeh, A. & Lotfalizadeh, H. (2023) New record and the updated list of Tersilochinae (Hym., Ichneumonidae) from Iran. *Journal of Insect Biodiversity and Systematics,* 9 (1), 49–57. https://doi.org/10.52547/jibs.9.1.49

Karimi, S., Ghassemi-Kahrizeh, A., Hosseinzadeh, A., Lotfalizadeh, H. & Mohammadi-Khoramabadi, A. (2024) Diplazontinae (Hymenoptera: Ichneumonidae) of the West Azarbaijan province with a new record for the Iranian fauna. *Journal of Insect Biodiversity and Systematics,* 10 (3), 571–580. https://doi.org/10.61186/jibs.10.3.571

Kasparyan, D.R. (2024) New Palaearctic taxa of Ichneumonids (Hymenoptera, Ichneumonidae: Tryphoninae): *Orthodolius* gen. n., *Praectenochira* subgen. n., and *Aderaeon* Townes 1949: stat. resurr. *Entomological Review,* 104 (1), 63–71. https://doi.org/10.1134/S001387382401007X

Kawas, H. & Basheer, A. (2018) First record of larval parasitoid *Bathyplectes anurus* (Thomson, 1887) (Hym., Ichneumonidae) on the larva of alfalfa weevil *Hypera postica* (Gyllenhal, 1813) in Syria. *Arab and Near East Plant Protection Newsletter,* 75, 8–9.

Khalaim, A. (2016) Faunistic records of Tersilochinae (Hymenoptera: Ichneumonidae) from the West Palaearctic region. *Zoosystematica Rossica,* 25 (2), 255–272. https://doi.org/10.31610/zsr/2016.25.2.255

Khalaim, A.I. (2018) Tersilochinae (Hymenoptera: Ichneumonidae) of Israel. Part 1. *Israel Journal of Entomology,* 48 (2), 113–121. https://doi.org/10.11646/zootaxa.4369.2.1

Khalaim, A.I., Kasparyan, D.R. & Humala, A.E. (2019) Family Ichneumonidae. In: Belokobylskij, S.A., Samartsev, K.G. & Il'inskaya, A.S. (eds.) Annotated catalogue of the Hymenoptera of Russia. Volume II. Apocrita: Parasitica. *Proceedings of the Zoological Institute of the Russian Academy of Sciences,* 8 (Suppl.), 340–443.

Kirby, W. (1837) The insects. In: Richardson, J. (ed.) *Fauna Boreali-Americana; or the zoology of the northern parts of British America.* Part 4. Josiah Fletcher, Norwich. 325 pp.

Klopfstein, S. & Baur, H. (2011) Catalogue of the type specimens of Ichneumonidae (Hymenoptera) in the Jacques F. Aubert collection at the Musée de Zoologie, Lausanne, Switzerland. *Zootaxa*, 3081 (1), 1–90. https://doi.org/10.11646/zootaxa.3081.1.1

Klopfstein, S., Santos, B.F., Shaw, M.R., Alvarado, M., Bennett, A.M.R., Dal Pos, D., Giannotta, M., Herrera Florez, A.F., Karlsson, D., Khalaim, A.I., Lima, A.R., Mikó, I., Sääksjärvi, I.E., Shimizu, S., Spasojevic, T., van Noort, S., Vilhelmsen, L. & Broad, G.R. (2019) Darwin wasps: new name heralds renewed efforts to unravel evolutionary history of Ichneumonidae. *Entomological Communications*, 1, ec01006. https://doi.org/10.37486/2675-1305.ec01006

Kolarov, J. (2008) A catalogue of the [former] Yugoslavian Ichneumonidae (Hymenoptera, Insecta). *Linzer biologische Beiträge,* 40 (2), 1585–1739.

Kolarov, J.A. (2016) Cremastinae (Hymenoptera, Ichneumonidae) from Turkey and adjacent countries with description of a new species. *Linzer Biologische Beiträge,* 48 (2), 1321–1326.

Kolarov, J.A. (2019) Catalogue of the Bulgarian Ichneumonidae (Hymenoptera: Insecta). *Journal of National Park Research,* 10 (1), 1–181.

Kolarov, J., Özbek, H. & Çoruh, S. (2002) New and little known Acaenitinae (hymenoptera, Ichneumonidae) from Turkey. *Türkiye Entomoloji Dergisi,* 26 (4), 277–281.

Kolarov, J., Ghahari, H., Di Giovanni, F. & Schwarz, M. (2024) New records of Ichneumonidae (Hymenoptera) from the Middle East. *Egyptian Journal of Plant Protection Research Institute,* 7 (4), 519–524. https://doi.org/10.4314/ejppri.v7i4.8

Koldaş, T. & Erdoğan, Ö.Ç. (2022) Considerations on the Brachistini fauna of Turkey (Hymenoptera: Braconidae: Brachistinae), with some taxonomic and distributional notes. *Biologia,* 77, 2207–2235. https://doi.org/10.1007/s11756-022-01108-5

Krell, F.-T. & Wheeler, Q.D. (2014) Specimen collection: plan for the future. *Science,* 344 (6186), 815–816. https://doi.org/10.1126/science.344.6186.815

Kriechbaumer, J. (1890) Ichneumoniden-Studien. 29–32. *Entomologische Nachrichten,* 16 (12), 181–185.

Kuslitzky, V.S. & Kasparyan, D.R. (2011) A new genus of ichneumonid flies of the subfamily Collyriinae (Hymenoptera: Ichneumonidae) from Syria and Israel. *Zoosystematica Rossica,* 20 (2), 319–324. https://doi.org/10.31610/zsr/2011.20.2.319

Latreille, P.A. (1802) *Histoire naturelle, générale et particulière des Crustacés et des Insectes. Tome troisième*. F. Dufart, Paris. 468 pp. [Ichneumonidae: 318–327]. https://doi.org/10.5962/bhl.title.15764

Linnaeus, C. (1758) *Systema naturae per regna tria naturae, secundum classes, ordines, genera, species cum characteribus, differentiis, synonymis locis*. Tomus I. Laurentii Salvii, Holmiae. 824 pp. https://doi.org/10.5962/bhl.title.542

Linnaeus, C. (1761) *Fauna svecica*. Editio altera, auctior. Laurentii Salvii, Stockholmiae. 626 pp.

Lomolino, M.V. (2000) Ecology's most general, yet protean pattern: The species-area relationship. *Journal of Biogeography,* 27, 17–26. https://doi.org/10.1046/j.1365-2699.2000.00377.x

Magretti, P. (1890) Imenotteri di Siria, raccolti dall'avv.to Augusto Medana, con descrizione di alcune specie nuove. *Annali del Museo Civico di Storia Naturale di Genova,* 9 (29), 522–548.

Mahyabadi, M., Khayrandish, M., Takalloozadeh, H.M. & Barahoei, H. (2017) A checklist of Iranian Cryptinae (Hymenoptera: Ichneumonidae). *Journal of Insect Biodiversity and Systematics,* 2 (4), 449–466.

McKinney, W. (2010) Data structures for statistical computing in Python. In: van der Walt, S. & Millman, J. (eds) *Proceedings of the 9th Python in Science Conference (SciPy 2010).* June 28–July 3, 2010. Austin, Texas, USA, pp. 51–56. https://doi.org/10.25080/Majora-92bf1922-00a

Meier, N., Gordon, M., van Noort, S., Reynolds, T., Rindos, M., Di Giovanni, F., Broad, G.R., Spasojevic, T., Bennett, A. & Dal Pos, D. & Klopfstein, S. (2024) Species richness estimation of the Afrotropical Darwin wasps (Hymenoptera, Ichneumonidae). *PLoS ONE,* 19 (7), e0307404. https://doi.org/10.1371/journal.pone.0307404

Meier, N., Viertler, A., Kapaale, M., Katongo, C. & Spasojevic, T. (2025) Spotlighting Darwin wasps (Hymenoptera, Ichneumonidae) in Zambia: a new species and the urgent need for further exploration. *ZooKeys,* 1234, 341–367. https://doi.org/10.3897/zookeys.1234.144751

Meierotto, S., Sharkey, M.J., Janzen, D.H., Hallwachs, W., Hebert, P.D.N., Chapman, E.G. & Smith, M.A. (2019) A revolutionary protocol to describe understudied hyperdiverse taxa and overcome the taxonomic impediment. *Deutsche Entomologische Zeitschrift,* 66 (2), 119–145. https://doi.org/10.3897/dez.66.34683

Meyer, C., Kreft, H., Guralnick, R. & Jetz, W. (2015) Global priorities for an effective information basis of biodiversity distributions. *Nature Communications,* 6, 8221. https://doi.org/10.1038/ncomms9221

Meyer, N.F. (1933) *Keys to parasitic Hymenoptera (family Ichneumonidae) of the USSR and adjacent countries*. Vol. 1: Introduction and Ichneumoninae. Zoological Institute of the Academy of Sciences of the USSR, 9 (1), 1–458.

Miller, J. (1759) *Engravings of insects, with descriptions*. London. 7 pp.

Miller, R.H., El-Masir, S. & Al-Jundi, K. (1992) Incidence of wheat stem sawflies and their natural enemies on wheat and barley in northern Syria. *Arab Journal of Plant Protection,* 10 (1), 25–30.

Mocsáry, A. (1883) Hymenoptera nova europaea et exotica. *Értekezések a Természettudományok Köréből,* 13 (11), 1–72.

Mohammadi-Khoramabadi, A. (2023) Assessing species richness of the subfamily Campopleginae (Hymenoptera, Ichneumonidae) community in Darab damask rose rain-fed plain, Fars province, Iran. *Journal of Insect Biodiversity and Systematics,* 9 (2), 193–205. https://doi.org/10.52547/jibs.9.2.193

Mohammadi-Khoramabadi, A. & Riedel, M. (2020) *Casinaria* Holmgren and *Dusona* Cameron (Hymenoptera: Ichneumonidae) in Iran: distribution extension. *Journal of Insect Biodiversity and Systematics,* 6 (3), 239–246. https://doi.org/10.52547/jibs.6.3.239

Mohebban, S., Barahoei, H., Takalloozadeh, H.M., Madjdzadeh, S.M. & Riedel, M. (2017) A survey of the Ichneumonidae (Hymenoptera, Ichneumonoidea) of Kerman province, south-east Iran. *Journal of Insect Biodiversity and Systematics,* 2 (4), 419–437. Available from: https://www.biotaxa.org/jibs/article/view/74348 [Accessed 25th May 2026]

Morley, C. (1913) *A revision of the Ichneumonidae based on the collection in the British Museum (Natural History), with descriptions of new genera and species.* Part II. Tribes Rhyssides, Echthromorphides, Anomalides and Paniscides. British Museum, London.

Morley, C. (1935) *Aglaojoppa rex*, sp.nov. In: Wiltshire, E.P. (ed.) *Notes on the early stages of some Syrian Lepidoptera. With the description of a new Ichneumon by Cl. Morley. The Entomologist's Record and Journal of Variation,* 47 (7–8), 4–5.

Müller, O.F. (1776) *Zoologiae Danicae prodromus, seu animalium Daniae et Norvegiae indigenarum characteres, nomina et synomyma imprimis popularium*. typis Hallageriis, Havniae. 282 pp. https://doi.org/10.5962/bhl.title.63795

Novacek, M.J. & Goldberg, S.L. (2013) Museums and institutions, role of. In: Levin, S.A. (ed.) *Encyclopedia of Biodiversity*. 2nd ed., Vol. 5, Academic Press, Waltham, MA, pp. 404–420. https://doi.org/10.1016/B978-0-12-384719-5.00420-2

Oehlke, J. (1967) Westpaläartische Ichneumonidae I. Ephialtinae. *Hymenopterorum Catalogus (nova editio),* 2, 1–49.

Oehlke, J. & Townes, H.K. (1969) Schmiedeknechts Ichneumonidentypen aus der Kollektion des Museums Rudolstadt. *Beiträge zur Entomologie,* 19, 395–412.

Panzer, G.W.F. (1786) Die Forlphalaene (*Phal. Noct. Piniperda*) nebst den der Larve derselben nachstellenden. In: Kob, J.A. (ed.) *Die wahre Ursache der Baumtrockniss der Nadelwälder, durch die Naturgeschichte der Forlphalaene (Phalaene Noct. Piniperda) erwiesen und durch einige Versuche erörtert.* Bischoff, Nürnberg, pp. 50–58.

Panzer, G.W.F. (1799) Heft 70–72. In: Panzer, G.W.F. (ed.) *Faunae Insectorum Germanicae.* Felseckerschen Buchhandlung, Nürnberg, pp. 1–24.

Panzer, G.W.F. (1804) Faunae Insectorum Germanicae initia oder Deutschlands Insecten. Felsecker, Nürnberg, Heft, 94, 1–24.

Panzer, G.W.F. (1806) *Kritische Revision der Insektenfaune Deutschlands nach dem System bearbeitet*. II. Bändchen. Felsseckersche Buchhandlung, Nürnberg. 270. pp. https://doi.org/10.5962/bhl.title.6539

Patiny, S. & Michez, D. (2007) Biogeography of bees (Hymenoptera, Apoidea) in Sahara and the Arabian deserts. Insect *Systematics & Evolution*, 38 (1), 19–34. https://doi.org/10.1163/187631207788784012

Pérez, J. (1895) Voyage de M. Ch. Alluaud aux îles Canaries (Novembre 1889–Juin 1890). 4e mémoire. Hyménoptères. *Annales de la Société Entomologique de France,* 64, 191–204.

Pic, M. (1903) Les types d'Ichneumoniens de ma collection. *L'Échange, Revue Linnéenne,* 18–19, 62–136.

Pic, M. (1923) Hyménoptères français et algériens. *L'Échange, Revue Linnéenne*, 39 (412), 14–15.

Poda, N. (1761) *Insecta musei Graecensis*. J.B. Dietrich, Graecii. 148 pp.

Popov, D., Roychoudhury, P., Hardy, H., Livermore, L. & Norris, K. (2021) The Value of Digitising Natural History Collections. *Research Ideas and Outcomes,* 7, e78844. https://doi.org/10.3897/rio.7.e78844

Pourhaji, A., Lotfalizadeh, H., Farshbaf-Pourabad, R., Gharali, B. & Mohammadi-Khoramabadi, A. (2016) Ichneumonid parasitoids (Hymenoptera: Ichneumonidae) of fruit flies (Diptera: Tephritidae) in the northwest of Iran. *Journal of Insect Biodiversity and Systematics,* 2 (2), 193–202.

Preston, F.W. (1962) The canonical distribution of commonness and rarity: Part I. *Ecology,* 43, 185–215. https://doi.org/10.2307/1931976

Quicke, D.L.J. (2015) *The Braconid and Ichneumonid Parasitoid Wasps: Biology, Systematics, Evolution and Ecology*. Wiley-Blackwell, Oxford. 704 pp. https://doi.org/10.1002/9781118907085

Rakhshani, E., Barahoei, H., Ahmad, Z., Starý, P., Ghafouri Moghaddam, M., Mehrparvar, M., Kavallieratos, N.G., Čkrkić, J. & Tomanović, Ž. (2019) Review of Aphidiinae parasitoids (Hymenoptera: Braconidae) of the Middle East and North Africa: key to species and host associations. *European Journal of Taxonomy,* 552, 1–132. https://doi.org/10.5852/ejt.2019.552

Rasnitsyn, A.P. (1981) Gravenhorst's and Berthoumieu's types of Ichneumoninae Stenopneusticae preserved in Wroclaw and Cracow, Poland (Hymenoptera, Ichneumonidae). *Polskie Pismo Entomologiczne,* 51 (1), 101–145.

Ratzeburg, J.T.C. (1848) *Die Ichneumonen der Forstinsecten in forstlicher und entomologischer Beziehung. Ein Anhang zur Abbildung und Beschreibung der Forstinsecten.* Zweiter Band. Nicolaische Buchhandlung, Berlin.

Reynolds Berry, T. & van Noort, S. (2020). Revision of the endemic Afrotropical genus *Tetractenion* (Hymenoptera, Ichneumonidae) with an identification key to genera of Banchinae for the region. *ZooKeys*, 1007, 49–84. https://doi.org/10.3897/zookeys.1007.55543

Riedel, M. (2008) Revision der westpaläarktischen Platylabini 1. Die Gattung *Platylabus* Wesmael, 1845 (Hymenoptera, Ichneumonidae, Ichneumoninae). *Spixiana,* 31 (1), 105–172.

Riedel, M. (2015) Die paläarktischen Arten der Gattung *Exetastes* Gravenhorst, 1829 (Hymenoptera, Ichneumonidae, Banchinae) des Biologiezentrums Linz, Austria. *Linzer Biologische Beiträge,* 47 (2), 1467–1500.

Riedel, M. (2017) Die westpaläarktischen Arten der Gattung *Campoletis* Förster. *Spixiana,* 40 (1), 95–137.

Riedel, M. (2021) The genus *Syzeuctus* Förster in the Western Palaearctic region and Central Asia (Hymenoptera, Ichneumonidae, Banchinae), with descriptions of 17 new species. *Linzer Biologische Beiträge,* 52 (2), 1013–1098.

Riedel, M., Kolarov, J.A., Çoruh, S. & Özbek, H. (2014) A contribution to the Mesochorinae (Hymenoptera: Ichneumonidae) of Turkey. *Zoology in the Middle East,* 60 (3), 217–221. https://doi.org/10.1080/09397140.2014.939815

Rosenzweig, M.L. (1995) *Species diversity in space and time*. Cambridge University Press, Cambridge. 460 pp. https://doi.org/10.1017/CBO9780511623387

Rossi, P. (1790) *Fauna Etrusca: sistens insecta quae in provinciis Florentina et Pisana praesertim collegit Petrus Rossius.* Tomus secundus. Typis Thomae Masi & Sociorum, Liburni. 348 pp. https://doi.org/10.5962/bhl.title.15771

Saoud, A.H., Ftayeh, M.A., Samara, F. & Al-Hamidi, M. (1989) Biological study on *Heliocoverpa armigera* (Hb.) on chickpea in southern Syria. *Majallat wiqa: yat al-naba, tal-3arabiyyat*, 7 (2), 133–137.

Sayers, E.W., Cavanaugh, M., Clark, K., Pruitt, K.D., Sherry, S.T., Yankie, L. & Karsch-Mizrachi, I. (2024) GenBank 2024 update. *Nucleic Acids Research,* 52 (D1), D134–D137. https://doi.org/10.1093/nar/gkad903

Schiødte, J.C. (1839) Ichneumonidarum, ad faunam Daniae pertinentium genera et species novae. *Magasin de Zoologie, d'anatomie comparée et de Paléontologie, Insectes,* 9, 1–27.

Schmidt, E. (1954) Über den *Acroricnus syriacus* Mocs., 1883. *Deutsche Entomologische Zeitschrift,* 1, 194–199. https://doi.org/10.1002/mmnd.19540010307

Schmidt, E. (2021a) *Barichneumon syriator* Aubert 1993: type. figshare. Figure. https://doi.org/10.6084/m9.figshare.13734850

Schmidt, E. (2021b) *Gelis prospectus* Schwarz, 1998: holotype [Figure]. figshare. https://doi.org/10.6084/m9.figshare.14068766

Schmiedeknecht, O. (1900) Neue Hymenopteren aus Nord-Afrika. *Természetrajzi Füzetek,* 23, 220–247.

Schmiedeknecht, O. (1904) *Opuscula Ichneumonologica*. II. Band. Fasc. VI–VII. Cryptinae. Blankenburg in Thüringen. pp. 411–562.

Schmiedeknecht, O. (1910) *Opuscula Ichneumonologica*. IV. Band. Fasc. XXIV–XXVI. Ophioninae. Blankenburg in Thüringen. pp. 1841–2080.

Schmiedeknecht, O. (1914) Die Ichneumonidengattung *Pimpla* F. *Zeitschrift für Angewandte Entomologie,* 1, 396–478. https://doi.org/10.1111/j.1439-0418.1914.tb01143.x

Schnee, H. (1989) Revision der von Gravenhorst beschriebenen und redeskribierten Anomaloninae mit Beschreibung zweier neuer Arten (Hymenoptera, Ichneumonidae). *Deutsche Entomologische Zeitschrift,* 36, 241–266. https://doi.org/10.1002/mmnd.19890360405

Schnee, H. (1993) Deutung der von Boie, Hartig und Ratzeburg beschriebenen Anomaloninae (Hymenoptera, Ichneumonidae). *Beiträge zur Entomologie,* 43, 39–51.

Schnee, H. (2014) Anomaloninae aus Israel und Palästina mit Beschreibung einer neuen Anomalon-Art (Hymenoptera: Ichneumonidae). *Entomologische Zeitschrift,* 124, 97–107.

Schwarz, M. (1997) Revision der Gattung *Synechocryptus* Schmiedeknecht (Hymenoptera, Ichneumonidae, Cryptinae). *Linzer biologische Beiträge,* 29 (2), 855–882.

Schwarz, M. (1998) Revision der westpaläarktischen Arten der Gattungen *Gelis* Thunberg mit apteren Weibchen und Thaumatogelis Schmiedeknecht (Hymenoptera, Ichneumonidae). Teil 2. *Linzer Biologische Beiträge,* 30 (2), 629–704.

Schwarz, M. (2004) Die Gattung *Odinophora* Förster sowie Anmerkung zu Rynchobanchus Kriechbaumer (Hymenoptera, Ichneumonidae, Banchinae). *Linzer Biologische Beiträge,* 36 (2), 1061–1073.

Schwarz, M. (2005) Revisionen und Neubeschreibungen von Cryptinae (Hymenoptera, Ichneumonidae) 1. *Linzer Biologische Beiträge,* 37, 1641–1710.

Schwarz, M. (2007) Revision der westpaläarktischen Arten der Gattung *Hoplocryptus* Thomson (Hymenoptera, Ichneumonidae). *Linzer Biologische Beiträge,* 39 (2), 1161–1219.

Schwarz, M. (2015) Zur Kenntnis paläarktischer *Cryptus*-Arten (Hymenoptera, Ichneumonidae, Cryptinae). *Linzer Biologische Beiträge,* 47 (1), 749–896.

Schwarz, M. (2016) Die Schlupfwespengattung *Gelis* (Hymenoptera, Ichneumonidae, Cryptinae) mit macropteren Weibchen in der Westpaläarktis. *Linzer biologische Beiträge,* 48 (2), 1677–1752.

Schwarz, M. (2020) Zur Kenntnis der paläarktischen *Meringopus*-Arten (Hymenoptera, Ichneumonidae, Cryptinae). *Linzer Biologische Beiträge,* 52 (1), 583–682.

Schwarzfeld, M.D. & Sperling, F.A.H. (2014) Species delimitation using morphology, morphometrics, and molecules: definition of the *Ophion scutellaris* Thomson species group, with descriptions of six new species (Hymenoptera, Ichneumonidae). *ZooKeys,* 462, 59–114. https://doi.org/10.3897/zookeys.462.8229

Scopoli, J.A. (1786) *Deliciae florae et faunae Insubricae seu novae, aut minus cognitae species plantarum et animalium.* Pars I. Ex Typographia Reg. & Imp. Monasterii S. Salvatoris, Ticini.

Shebl, M.A., Ben Abdelkader, F., Bendifallah, L., Benachour, K., Bataw, A.A., Bufliga, E.M., Osman, M.A. & Kamel, S.M. (2021) The melittology research in Northern Africa and the Middle East: past and present situations. *The Journal of Basic and Applied Zoology,* 82, 18. https://doi.org/10.1186/s41936-021-00217-y

Shestakov, A. (1926) Ad cognitionem specierum tribus Ophionini. *Konowia,* 5, 256–263.

Shimizu, S., Broad, G.R. & Maeto, K. (2020) Integrative taxonomy and analysis of species richness patterns of nocturnal Darwin wasps of the genus *Enicospilus* Stephens (Hymenoptera, Ichneumonidae, Ophioninae) in Japan. *ZooKeys,* 990, 1–144. https://doi.org/10.3897/zookeys.990.55542

Shirzadegan, F., Talebi, A.A., Riedel, M. & Hajiqanbar, H. (2021) A new species and new records of Ichneumonini (Hymenoptera: Ichneumonidae, Ichneumoninae) from Iran. *Journal of Insect Biodiversity and Systematics,* 7 (3), 287–322. https://doi.org/10.52547/jibs.7.3.287

Shuckard, W.E. (1840) Ichneumonides. In: Swainson, W. & Shuckard, W.E. (eds.) *The Cabinet Cyclopaedia: On the History and Natural Arrangement of Insects, pp. 185–187.* Longman, Orme, Brown, Green & Longmans, London. 406 pp.

Sichel, J. (1860) Liste des Hyménoptères recueillis en Sicile par M. E. Bellier de la Chavignerie pendant les mois d'Août à Septembre 1859. *Annales de la Société Entomologique de France, Série 3,* 8, 749–764.

Smith, F. (1877) Descriptions of four new species of Ichneumonidae in the collection of the British Museum. *Proceedings of the Zoological Society of London,* 1877, 410–413.

Stephens, J.F. (1835) *Illustrations of British Entomology; or, a Synopsis of Indigenous Insects.* Mandibulata, Vol. VII. Baldwin and Cradock, London.

Strobl, G. (1904) Ichneumoniden Steiermarks (und der Nachbarländer). V. Fam. Ophionidae. *Mitteilungen des Naturwissenschaftlichen Vereines für Steiermark,* 40, 43–160. [1903].

Szépligeti, G. (1916) Ichneumoniden aus der Sammlung des ungarischen National-Museums. II. *Annales Musei Nationalis Hungarici,* 14, 225–380.

Thomson, C.G. (1873) XXI. Försök till gruppering och beskrifning af Crypti. *Opuscula Entomologica,* 5, 455–527.

Thomson, C.G. (1877) XXVII. Bidrag till kännedom om Sveriges Pimpler. *Opuscula Entomologica,* 8, 732–777.

Thomson, C.G. (1887) XXXV. Försök till uppställning och beskrifning af arterna inom slägtet Campoplex (Grav.). *Opuscula Entomologica,* 11, 1043–1182. Lundae.

Thomson, C.G. (1893) Anmärkningar öfver Ichneumoner, särskildt med hänsyn till några af A. E. Holmgrens typer. *Opuscula Entomologica,* 18, 1889–1967.

Thunberg, C.P. (1822) Ichneumonidea, Insecta Hymenoptera, illustrata a C. P. Thunberg. Mémoires de l'Académie Impériale des Sciences de St. *Pétersbourg,* 8, 249–281.

Thunberg, C.P. (1827) *Gelis*, insecti genus descriptum. *Nova Acta Regiae Societatis Scientiarum Upsaliensis,* 9, 199–204.

Tischbein, P.F. (1879) Zusätze und Bemerkungen zu der Uebersicht der europäischen Arten des Genus Ichneumon. *Entomologische Zeitung (Stettin),* 40, 20–40.

Tolkanitz, V.I. (1971) Dva novykh vida naezdnikov roda *Netelia* Gray (Hymenoptera, Ichneumonidae) [Two new species of the ichneumonid genus *Netelia* Gray (Hymenoptera, Ichneumonidae)]. *Vestnik Zoologii*, 1971 (4), 38–41.

Townes, H.K. (1969) *The genera of Ichneumonidae.* Part 1. *Memoirs of the American Entomological Institute, No. 11*. American Entomological Institute, Ann Arbor. 300 pp.

Townes, H.K., Momoi, S. & Townes, M. (1965) A catalogue and reclassification of the eastern Palearctic Ichneumonidae. *Memoirs of the American Entomological Institute,* 5, 1–661.

Tschek, C. (1871) Ichneumonologische Fragmente I. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien,* 21, 37–68.

Tschek, C. (1872) Ueber einige Cryptoiden, meist aus der österreichischen Fauna. *Verhandlungen der kaiserlich-königlichen Zoologisch-botanischen Gesellschaft in Wien,* 22 (1–2), 231–252.

Tukey, J.W. (1977) *Exploratory data analysis*. Addison-Wesley. Reading, MA.

Uchida, T. (1957) Ein neuer Schmarotzer der Kartoffelmotte in Japan (Hymenoptera, Ichneumonidae). *Mushi,* 30, 29–30.

Van Rossem, G. (1969a) A revision of the genus *Cryptus* Fabricius *s. str.* in the western Palearctic region, with keys to genera of Cryptina and species of *Cryptus* (Hym. Ichneumonidae). *Tijdschrift voor Entomologie,* 112 (9), 299–374.

Van Rossem, G. (1969b) A study of the genus *Meringopus* Foerster in Europe and of some related species from Asia (Hymenoptera, Ichneumonidae, Cryptinae). *Tijdschrift voor Entomologie,* 112, 165–196.

Vas, Z. (2019) Contributions to the taxonomy, identification, and biogeography of the Western Palaearctic species of *Campoletis* Förster (Ichneumonidae: Campopleginae). *Zootaxa,* 4565 (3), 373–382. https://doi.org/10.11646/zootaxa.4565.3.4

Vas, Z. (2020) New species and records of Ichneumonidae (Hymenoptera). *Folia Entomologica Hungarica,* 81, 95–104. https://doi.org/10.17112/FoliaEntHung.2020.81.95

Vas, Z. (2023) Contribution to the taxonomy, identification, and biogeography of the Palaearctic species of *Bathyplectes* Förster and *Leptoperilissus* Schmiedeknecht (Hymenoptera: Ichneumonidae: Campopleginae). *Zootaxa,* 5270 (1), 105–114. https://doi.org/10.11646/zootaxa.5270.1.5

Vidal, S. (1997) Determination list of entomophagous insects. Nr. 13. International Organization for Biological and Integrated Control of Noxious Animals and Plants. *West Palaearctic Regional Section Bulletin,* 20, 53 pp.

Viereck, H.L. (1918) A list of families and subfamilies of the Ichneumon-flies in the superfamily Ichneumonoidea. *Proceedings of the Biological Society of Washington,* 31, 69–74.

Viktorov, G.A. & Atanasov, A.Z. (1974) Contribution to a revision of Palearctic Ichneumonids of the tribe Theriini (Hymenoptera, Ichneumonidae). *Entomologicheskoye Obozreniye,* 53, 374–381.

Villers, C.J. (1789) *Caroli Linnaei entomologia, faunae Suecicae descriptionibus aucta*. Vol. 3. Piestre et Delamolliere, Lugduni. 657 pp.

Virtanen, P., Gommers, R., Oliphant, T.E., Haberland, M., Reddy, T., Cournapeau, D., Burovski, E., Peterson, P., Weckesser, W., Bright, J., van der Walt, S.J., Brett, M., Wilson, J., Millman, K.J., Mayorov, N., Nelson, A.R.J., Jones, E., Kern, R., Larson, E., Carey, C.J., Polat, İ., Feng, Y., Moore, E.W., VanderPlas, J., Laxalde, D., Perktold, J., Cimrman, R., Henriksen, I., Quintero, E.A., Harris, C.R., Archibald, A.M., Ribeiro, A.H., Pedregosa, F., van Mulbregt, P. & SciPy 1.0 Contributors (2020) SciPy 1.0: Fundamental algorithms for scientific computing in Python. *Nature Methods*, 17 (3), 261–272. https://doi.org/10.1038/s41592-019-0686-2

Wahl, D.B. (1993) Key to subfamilies of Holarctic and Neotropical Ichneumonidae. In: Goulet, H. & Huber, J.T. (eds.) *Hymenoptera of the World: An Identification Guide to Families*, pp. 396–509. Agriculture Canada Research Branch, Publication 1894/E, Ottawa. 668 pp.

Watanabe, K. & Maeto, K. (2012). A new species of the genus *Himertosoma* from the Ryukyus, Japan, with a key to species from the Palaearctic and Oriental Regions (Hymenoptera, Ichneumonidae, Banchinae). *ZooKeys*, 234, 59–66. https://doi.org/10.3897/zookeys.234.3794

Wesmael, C. (1845) Tentamen dispositionis methodicae. Ichneumonum Belgii. *Nouveaux Mémoires de l'Académie royale des Sciences, des Lettres et Beaux-Arts de Belgique,* 18 (1844), 1–239. https://doi.org/10.3406/marb.1845.3439

Wesmael, C. (1849) Revue des *Anomalons* de Belgique. *Bulletin de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,* 16 (2), 115–139.

Wood, T.J. (2020) Description of a remarkable new Andrena species (Hymenoptera: Andrenidae) from Syria. *Zoology in the Middle East,* 66 (3), 262–268. https://doi.org/10.1080/09397140.2020.1782580

Youssef, R.M. & Lotfalizadeh, H. (2021) First record of the genus *Anomalon* Panzer, 1804 (Hymenoptera: Ichneumonidae: Anomaloninae) in Syria. *Journal of Insect Biodiversity and Systematics,* 7 (3), 225–229. https://doi.org/10.52547/jibs.7.3.225

Yu, D.S.K., van Achterberg, C. & Horstmann, K. (2016) *Taxapad 2016 – World Ichneumonoidea 2015: Taxonomy, Biology, Morphology and Distribution*. Database on USB flash drive. Nepean, Ontario, Canada.

Yurtcan, M. & Kolarov, J. (2015) A new species and additional records of the genus *Collyria* Schiødte, 1839 (Hymenoptera, Ichneumonidae) from Turkey. *Zootaxa,* 3985 (1), 117–124. https://doi.org/10.11646/zootaxa.3985.1.6

Zardouei Heydari, M., Rakhshani, E. & Mokhtari, A. (2019) Occurrence of the genus *Erigorgus* Forster (Hym., Ichneumonidae, Anomaloninae) in Eastern part of Iran with key to species. *Journal of Insect Biodiversity and Systematics,* 5 (1), 69–78. https://doi.org/10.52547/jibs.5.1.69

Zardouei Heydari, M., Rakhshani, E., Mokhtari, A. & Schwarz, M. (2020) New data on the genus *Latibulus* Gistel, 1848 (Hym., Ichneumonidae, Cryptinae, Cryptini) in Iran. *Journal of Insect Biodiversity and Systematics,* 6 (2), 157–165. https://doi.org/10.52547/jibs.6.2.157

زنبورهای داروین (Hymenoptera, Ichneumonidae) سوریه: فهرست گونه‌ها همراه با تصاویر نمونه‌های تایپ، اقدامات نام‌گذاری و تحلیل‌های منطقه‌ای فون

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چکیـده: نخستین فهرست جامع زنبورهای داروین (Hymenoptera, Ichneumonidae) سوریه، همراه با اطلاعات نمونه‌های تایپ آن‌ها، ارایه شد. این فهرست شامل ۸۹ تاکسون شامل ۷۹ مورد در سطح گونه (۷۸ گونه شناسایی‌شده و یک گونهٔ شناسایی‌نشده) و ۱۰ زیرگونه، در قالب ۵۴ سرده و ۱۵ زیرخانواده است. غنی‌ترین زیرخانواده‌ها از نظر تعداد تاکسون در فون سوریه Pimplinae Wesmael, 1845 (با ۱۸ تاکسون)، Cryptinae Kirby, 1837 (با ۱۶ تاکسون) و Campopleginae Förster, 1869 و Ichneumoninae Latreille, 1802 (هرکدام با ۹ تاکسون) بودند. تیپ‌های حامل نامِ مرتبط با تاکسون‌های سوریه در ۲۵ مؤسسه در سراسر جهان نگهداری می‌شوند؛ از این میان، ۲۲ مؤسسه در اروپا، دو مؤسسه در آسیا و یک مؤسسه در آمریکای شمالی قرار دارند. برای پشتیبانی از ارزیابی‌های رده‌شناختی، نمونه‌های بیشتری که تیپ نیستند و نیز نمونه‌های مقایسه‌ای بررسی و تصویربرداری شدند؛ بااین‌حال، داده‌های مربوط به انتشار آنها در سوریه مستقل از مواد مقایسه‌ایِ خارج از این کشور نیز تعیین شدند. محل‌های تیپ و داده‌های پراکنش برحسب شاخص‌های جغرافیایی و در داخل سوریه، در سطح استان (در صورت وجود) ارایه شدند. همچنین نقشهٔ پراکنشِ رکوردهای سوریه که امکان زیست‌جغرافیایی آن‌ها وجود داشته، ارایه شد. تحلیل‌های مقایسه‌ای منطقه‌ای جایگاه سوریه را در فون ایکنومونیدهای خاورمیانه مشخص می‌کنند و ضمن نشان‌دادن غنای ثبت‌شدهٔ متوسط آن، بر ناقص‌بودن فهرست‌های کنونی نیز تأکید دارد. برای این مقایسه‌ها دو سنجهٔ توصیفی شامل تراکم غنای ثبت‌شده به‌ازای هر ۱۰۰٬۰۰۰ کیلومتر مربع و سهم نسبی غنای زیرخانواده‌های سوریه از غنای زیرخانواده‌ها در خاورمیانه تدوین شد. افزون بر این، انتخاب شش نمونهٔ تیپ ثانویه شامل *Collyria nigricator* Aubert, 1964 [=*Aubertiella nigricator*] و Collyria orientator Aubert, 1979 (هر دو از Collyriinae Cushman, 1924)، *Barichneumon syriator* Aubert, 1993 (از Ichneumoninae)، *Dusona intelligator* Aubert, 1966 (از Campopleginae Förster, 1869)، *Exetastes segmentarius* Pérez, 1895 و *Lissonota superbator* Aubert, 1967 (هر دو از Banchinae Wesmael, 1845) پیشنهاد شد. همچنین، سه سرده و چهار گونه شامل *Agrypon andalusiacum* (Strobl, 1904)، *Barylypa delictor* (Thunberg, 1822)، *Kokujewiella ibera* (Ceballos, 1957) و *Kokujewiella vicaria* Shestakov, 1926. برای نخستین‌بار از سوریه گزارش شدند. داده‌های مولکولی برای چهار گونهٔ تازه‌گزارش‌شده از سوریه و نیز برای *Diadegma semiclausum* (Hellén, 1949)، که پیش‌تر از این کشور گزارش شده بود، ارایه شدند. این فهرست، بنیانی برای پژوهش‌های آینده در زمینهٔ فون، رده‌بندی و بررسی‌های مولکولی Ichneumonidae سوریه فراهم می‌کند و مبنایی ضروری برای مطالعات منطقه‌ای و تطبیقی تنوع زیستی ارایه می‌دهد.

واژگـان کلیدی: فونستیک، تعیین لکتوتایپ، گزارش‌های جدید، غنای تاکسون‌ها، آسیای غربی