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Monograph

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A world review of the bee fly tribe Usiini (Diptera, Bombyliidae) — Part 3: *Parageron* Paramonov s. lat.

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Abstract. This review covers *Parageron* Paramonov s. lat., including 36 species. Three new genera are proposed: *Ectopusia* gen. nov., *Protypusia* gen. nov. and *Parusia* gen. nov.; *Parageron* s. str. more narrowly defined. Eleven new species are described: *Parageron longilingua* sp. nov., *Protypusia argentata* gen. et sp. nov., *Pro. separata* Gibbs & Theodor gen. et sp. nov., *Pro. flavipalpis* gen. et sp. nov., *Pro. kerkini* gen. et sp. nov., *Pro. strymonas* gen. et sp. nov., *Parusia almeria* gen. et sp. nov., *Pru. benoisti* gen. et sp. nov., *Pru. cyrenaica* gen. et sp. nov., *Pru. faesae* gen. et sp. nov. and *Pru. propinqua* gen. et sp. nov. Two species raised from synonymy *Par. orientalis* Paramonov stat. rev. and *Pru. taeniolata* (Costa) stat. rev. Two species synonymised *Pro. major* Macquart syn. nov. and *Usia arida* Báez syn. nov. Eight species removed from Usiini to Apolysini, *Apolysis bicolor* (Efllatoun) comb. nov., *A. elbae* (Efllatoun) comb. nov., *A. flavipes* (Efllatoun) comb. nov., *A. marginata* (Brunetti) comb. nov., *A. minuscula* (Efllatoun) comb. nov., *A. parvula* (Efllatoun) comb. nov., *A. turkmenica* (Paramonov) comb. nov. and *A. volkovitshi* (Zaitzev) comb. nov. *Apolysis melanderi* Gibbs nom. nov. replaces *A. bicolor* (Melander) (was in *Oligodranes*) and *A. hessei* Gibbs nom. nov. replaces *A. minuscula* Hesse. Two neotypes and nine lectotypes are designated.

Keywords. Diptera, Bombyliidae, Usiini, *Parageron*, taxonomy.

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Introduction

This is the third part of a world revision of the bee fly tribe Usiini Becker, 1913, the first two parts covered the subgenus *Micrusia* Evenhuis, 1990, with the species *Usia martini* François, 1969 and *U. versicolor* (Fabricius, 1787) (Gibbs 2011), and the genus *Usia* Latreille, 1802 s. str. (Gibbs 2014). This final part on *Parageron* Paramonov, 1929 s. lat. has been by far the most complex due to the greater diversity of morphology and differing definitions of this genus. Additionally, seeing or borrowing type material was often fraught, and in many instances, I have had to work from photographs, type descriptions or make inferences from non-type material. In one case where type material could not be seen, it has proved impossible from keys and descriptions alone to decide if the taxon belongs in *Parageron* s. lat. or *Apolysis* Loew, 1860. For these reasons, I am calling this a review rather than a revision because it cannot be considered definitive or complete. Much improvement will be possible if the type material I have been unable to examine is studied. This work is not intended to be a full phylogenetic treatment, and yet it has proved necessary to erect three new genera. The main aim is to provide an identification resource for museum workers and especially field workers such that these interesting flies can become useful in monitoring habitats and in other studies. Although this study describes 11 new species, the potential to discover more species must be considerable. With the description of *Pro. raydahensis* El-Hawagry & Al Dhafer, 2016, the Arabian Peninsula can be included within the range of *Parageron* s. lat. and yet only two species have been reported from this huge area: *Pro. raydahensis* and *Usia aurata* (Fabricius, 1794) (Greathead 1988). The latter will need redetermining because *aurata* does not occur in the region. The Arabian Peninsula is more than 3 million km², this is more than seven times the area of Morocco with 11 species of *Parageron* s. lat. so far confirmed. The Middle East and Central Asia are very likely to be a rich source of new taxa belonging in *Parageron* s. lat.

Material and methods

After gathering material from numerous sources, particularly the private collection of Jos Dils who loaned many hundreds of specimens, I set about studying and illustrating the male and female genitalia. Having got as far as possible with this material, types were requested and most type depositories responded very positively. MNHN went further and sent nearly all their material belonging in Usiini. Further non-type material was sent from ZMUM, MNCN and a very large collection from TAU. All material that could be found in British museums was studied and a visit was made to MNHN to study the DuMerle collection. Museums and personal collections from which studied material is derived or is deposited are listed below.

Museum codes

- CAU = China Agricultural University, Beijing, China
 CNBFVR = Centro Nazionale per lo Studio e la Conservazione della Biodiversità, Marmirolo, Italy
 EFC = Eflatoun Collection, Faculty of Science, Cairo University, Cairo, Egypt

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|--------|--|
| ESEC | = Entomological Society of Egypt, Cairo, Egypt |
| HMUG | = Glasgow University, Hunterian Museum, Glasgow, UK |
| KSMA | = King Saud University, Museum of Arthropods, Riyadh, Saudi Arabia |
| MHNG | = Muséum d'Histoire Naturelle, Genève, Switzerland |
| MNCN | = Museo Nacional de Ciencias Naturales, Madrid, Spain |
| MNHN | = Muséum national d'histoire naturelle, Paris, France |
| MSNM | = Museo Civico di Storia Naturale, Milano, Italy |
| NHMUK | = the Natural History Museum, London, UK |
| NMBA | = Naturhistorisches Museum der Benediktiner-Abtei, Admont, Austria |
| NMW | = Naturhistorisches Museum Wien, Vienna, Austria |
| NMWC | = National Museum of Cardiff, Cardiff, UK |
| NZSI | = National Zoological Collection, Zoological Survey of India, Calcutta, India |
| OUMNH | = Oxford University Museum of Natural History, Oxford, UK |
| PCDG | = Personal Collection of David Gibbs, Weston-super-Mare, UK |
| PCJD | = Personal Collection of Jos Dils, Hoevenen, Belgium |
| PCMB | = Personal Collection of Marcos Báez, Dept. Zool., Universidad de la Laguna, Tenerife, Islas Canarias, Spain |
| PCMC-T | = Personal Collection of Miguel Carles-Tolrá, Barcelona, Spain |
| PCME | = Personal Collection of Martin J. Ebejer, Cowbridge, UK |
| SIZK | = Schmalhausen Institute of Zoology, Kiev, Ukraine |
| TAU | = Steinhardt Museum of Natural History, Tel Aviv University, Tel Aviv, Israel |
| ZIN | = Russian Academy of Sciences, Zoological Institute, St. Petersburg, Russia |
| ZMHB | = Museum für Naturkunde, Humboldt-Universität, Berlin, Germany |
| ZMUC | = Zoological Museum – University of Copenhagen (formerly Natural History Museum of Denmark), Copenhagen, Denmark |
| ZMUM | = Moscow State University, Moscow, Russia |
| ZSM | = Zoologische Staatssammlung des Bayern, Munich, Germany |

Dissection of the genitalia involved humidifying the specimen for a few hours (depending on size and age of specimen) until they could be manipulated without danger of the specimen disintegrating. In the case of males, the genital capsule could usually be removed without damage to the rest of the abdomen, especially in larger specimens. For females it was necessary to remove the apical half of the abdomen to be sure that the spermathecal ducts were not severed. The removed parts were then placed in a small tube of 10% KOH and simmered in a water bath for a few minutes (depending on size and age of specimen). After washing in deionised water, the genitalia were placed in a drop of glycerine on a cavity slide and dissected. In the case of males, the epandrium was separated from the gonocoxite, then the epiphallallic complex was separated from the gonocoxite by carefully cutting through the gonocoxal apodeme close to the margin of the gonocoxite. In females the tergites and sternites were separated by carefully cutting along the lateral membrane. With the tergites removed, the genital fork could be cut away from the apical sternite and superfluous tissue removed.

The separated parts of the genitalia and the female apical sternite were photographed to aid illustration. Each part was placed in a clean drop of glycerine in a cavity slide (or larger container for large parts) and photographed from the needed angles down a transmitted light microscope using a Nikon Coolpix 4500 digital camera or Brunel Digital Eyecam. The photographs were cropped and contrast enhanced before being printed and used as a template to trace the structure, details being filled in by direct observation down an incident light microscope. In the case of the female genitalia, these were often flattened under a cover slip before photographing. Each illustration was scanned at 600 dpi and compiled into figures using Photo Impact ver. 3.02.

The dissected genitalia were preserved in several ways according to the wishes of the owners of the specimens. In the case of males, this was usually in glycerine in a microvial retained on the same pin. The female parts are often too delicate and transparent to be treated like this because they are easily lost even in a small microvial. For this reason, they were preserved in a drop of dimethyl hydantoin formaldehyde resin (DMHF) on a coverslip glued to a punched card that was retained on the same pin as the specimen. In a few cases, when requested (e.g., NHML), seccotine was used instead of DMHF.

The images used to illustrate the key were taken through a Meiji trinocular Microscope with a Brunel Digital Eyecam. The images were stacked using Combine ZM. Type material has been examined and the data listed except where indicated by stating “Type material (not examined)”. This was due to some museum’s policy on loans, or the inability to visit type repositories for various reasons.

Details of specimen labels are generally set out as they appear on the labels with a comma separating lines of text on the same label. Different labels are separated by a forward slash (/) while information of importance that is not on the labels is enclosed in square brackets. Some Israeli locality names include underlines e.g., Hermon. These are a form of diacritic indicating the “H” is aspirated when pronounced, in this case “^hermon”. Where these appear on data labels that have been listed in the materials examined section, they have been written as they appear on the data label.

In the following keys and species accounts, as far as is practical, morphological terminology follows Cumming & Wood (2017). In some cases of characters specific to Usinii not covered in Cumming & Wood (2017), then reference is made to figs 1–6 in part 1 of this Usinii work (Gibbs 2011). Features of the male and female genitalia, especially internal structures, are particularly important in the taxonomy of Usinii and not completely illustrated in Cumming & Wood (2017). The terminology used in this review relating to the male and female genitalia is illustrated in Figs 69 and 70 in the Appendix. The term ‘dusting’ or ‘dust spots’ has been used to refer to silvery, white, grey, pale yellowish or brown surface structures that to a greater or lesser extent obscure the ground colour of the cuticle. This dusting in fact comprises minute hairs, sometimes semi-erect, often closely adpressed to the cuticle and occasionally more scale-like. This microvestiture is sometimes also referred to as pollinosity, but in this work the term dusting has been used throughout. Often this dusting is clear and dense, at low power appearing as a pale covering obscuring the cuticle ground colour. When dusting is less obvious, either because the microscopic vestiture is more widely spaced, finer or more erect, then this is indicated by qualifiers such as ‘thin dusting’, ‘slight dusting’ or ‘light dusting’.

Historical overview of *Parageron* s. lat.

A discussion of the taxonomic history of the tribe Usiini can be found in Part one (Gibbs 2011) so here I will deal only with the species treated in this part. The species covered in this review have had a checkered history, being placed in either *Parageron*, *Usia* or *Apolysis* in recent times. The difficulty that has been experienced in placing them is exemplified by *Pru. loewi* (Becker, 1906) and *Pru. aurata*. These are very closely related taxa and almost impossible to separate on external morphology but in the most recent checklist (Evenhuis & Greathead 2015) they are placed in *Parageron* and *Usia* (*Micrusia*) respectively. This confusion is understandable as these two species fit *Usia* much better than *Parageron* s. str., and yet do not fit the definition of *Usia* either. It was this conundrum that convinced me that *Parageron* as formerly constituted could not stand as defined if *Usia* was to remain a separate genus. The most parsimonious option was to split *Parageron* s. lat. into four genera of equal standing to *Usia*.

Parageron was first introduced by Paramonov (1929) for his new species *Par. orientalis* Paramonov, 1929. It was not long before Engel (1932) decided that *Par. orientalis* was conspecific with *Par. lutescens* (Bezzi, 1925) so he synonymised it, but retained *Parageron* as a subgenus to include *Pro. ornata* (Engel, 1932), *Pro. incisa* (Wiedemann, 1830) (with synonym *Pro. major* (Macquart, 1840)), *Pro. grata* (Loew,

1856), *Pro. punctipennis* (Loew, 1846) and *Pro. vagans* (Becker, 1906). He defined this subgenus by males sometimes holoptic and some part of body yellow, at least in part rendered matt by dense dusting. Although this definition should include *Pru. aurata*, *Pru. loewi* and *Pro. inornata* (Engel, 1932), and all these species are keyed amongst *Parageron*, he appears not to have included them in the subgenus *Parageron*.

Efflatoun (1945) followed Engel (1932), retaining the synonymy of *Par. orientalis* and describing all his species in *Usia*, not attempting to segregate any as subgenus *Parageron*. At this time *Apolysis* was defined by the lack of crossvein m-m closing the discal cell, so those species with a closed discal cell that would now be placed in *Apolysis* based on antennal characteristics, would often run to *Usia* in Engel (1932).

In 1947, Paramonov published the first part of his work on the genus *Usia* and related genera. Here he treated *Parageron* as a full genus, raising his *Par. orientalis* from synonymy and also including *Par. lutescens*, *Pro. zimini* (Paramonov, 1947), *Apolysis turkmenicus* (Paramonov, 1947), *Pro. griseus* (Paramonov, 1947) and *Pro. ornatus*. In his key he placed male *Pro. ornatus* in *Oligodranes* Loew, 1844, but this is presumably an error probably arising from an earlier draft. Paramonov (1947) excluded a number of what are now recognised as *Parageron* s. lat., placing them in his *incisa*-group. He defined them as having abdomen as wide as thorax, yellow margins to tergites and long hair on frons. Subsequently, he (Paramonov 1950) included *Pro. incisa* in the *aurata*-group, this group he placed within *Usia* and included *U. transcaspica* Paramonov, 1950, *A. marginata* Brunetti, 1909, *A. sedophila* Brunetti, 1909, *Pro. grata*, *Pro. major* (raised from synonymy with *Pro. incisa*), *Pro. incisa*, *Pru. loewi*, *Pru. aurata* and *Pro. inornata*. Although not listed under the *aurata*-group, he also keyed *Pro. punctipennis* and *Pro. vagans* within this part of his key.

Between his 1947 and 1950 works, Paramonov seems to have added more species to his *incisa*-group, renaming it the *aurata*-group, and confining the diagnosis to yellow apical margins to the tergites. Several of the included species keyed in his 1950 work would more readily run to *Parageron-Oligodranes-Dagestania* Paramonov, 1929 complex in his 1947 key. Nevertheless, Paramonov's keys successfully segregate all species now placed in *Usia* except for *U. transcaspica* which is unusual for *Usia* in having yellow apical margins to the tergites. All the species that are now considered to be *Parageron* s. lat. key to couplet 6 in Paramonov (1947) and before couplet 13 in his 1950 work. Paramonov (1950) also recognised that most of the species treated by Efflatoun (1945) properly belong in *Parageron* and not *Usia*, and within the definition of these genera at the time he was correct. In an addendum to his 1950 paper he wrote that Efflatoun's (1945) works need to be used with much caution.

Zaitzev (1966) in his work on the Bombyliidae Latreille, 1802 of Transcaucasia treated *Parageron* as a full genus in line with Paramonov (1947). Zaitzev continued to treat *Parageron* as a genus for the rest of his career, describing in it *Pro. emeljanovi* (Zaitzev, 1975), *Pro. dimonica* (Zaitzev, 1996) and *Pro. negevi* (Zaitzev, 1996).

In other parts of the world, Paramonov's and Zaitzev's opinions were not followed, with the typical *Parageron erythraeus* (Greathead, 1967) being described in *Usia*. Engel's (1932) opinion that *Parageron* should be a subgenus was followed by Hull (1973) stating that the possession of holoptic eyes and smaller genitalia alone was insufficient to justify genus status. If these were the only differences then he would be correct, but he seems not to have considered the many other differences from typical *Usia*. Hull (1973) described the genitalia of an un-named species of *Parageron* from Spain in support of his retention of subgenus status for *Parageron*. His description is very difficult to align with any known *Parageron* or *Usia* but assuming this is the same as depicted in figs 852–854 then he was looking at *Pro.*

incisus. He places in subgenus *Parageron*; *Pro. grisea*, *Pro. incisa* (synonym *Pro. major*), *Par. lutescens* (synonym *Par. orientalis*), *Par. lutescens minor* Efflatoun, 1945, *A. turkmenica* and *Pro. zimini*.

For a long period of time, the status of *Parageron* had been subject to varied opinions of specialists, with no detailed cladistic analysis to support their positions. This was to change with the work by Evenhuis (1990) which finally provided the evidence to give *Parageron* genus status. Evenhuis (1990) defined *Parageron* as being holoptic or nearly so, with male eyes divided into larger-faceted upper part and small-faceted lower ommatidia and broad gena lateral to oral margin. Unfortunately, there are many exceptions to this, *Pro. striata* (Báez, 1982) is dichoptic and has uniform ommatidia, but does have the broad gena, *Pro. punctipennis* is both dichoptic and has a very narrow linear gena, so better fits *Usia*. However, this definition does work for the narrower concept of *Parageron* s. str. used in this review, although *Par. erythraeus* is just dichoptic, it still has differentiated ommatidia.

By the time the *World Catalog of Bee Flies* was published (Evenhuis & Greathead 1999) *Parageron* was established with 17 species listed, of which 13 are included in *Parageron* s. lat. in this review. The remaining four include three removed to *Apolysis* and one synonymised. Additionally, seven species placed in *Usia* in Evenhuis & Greathead (1999) are recognised as belonging in *Parageron* s. lat. in this review.

While doing the groundwork for the first and second parts of my revision of the Usiini (Gibbs 2011, 2014), particularly the study of types and a large amount of material loaned to me, I further refined the definition of *Parageron* s. lat. Through the dissection of both sexes of all taxa available to me it was possible to better understand the affinities of species within *Parageron* s. lat. and its relationship with *Usia*.

Results

Diagnosis of Parageron s. lat.

The tribe Usiini, Becker, 1913 (Insecta Linnaeus, 1758; Diptera Linnaeus, 1758; Bombyliidae Latreille, 1802; Usiinae Becker, 1913) can be distinguished from all other Bombyliidae by the following combination of characters. Two M-veins issuing from discal cell. Palps of a single segment. Antennae placed at upper margin of mouth cavity such that there is no distinct 'face'. Postpedicel (third antennal segment) usually blunt-ended and with a dorsal hollow (sulcus) at or very close to the tip of the segment. Subapical antennal sulcus with a tiny basal sensilla (often referred to as a stylus) but without an apical articulating arista (sometimes referred to as a flagellomere or flagellum 2).

Parageron s. lat. is diagnosed by the following characters.

Tergites not strongly sclerotised, not perfectly retaining their shape on drying (this is the only character that by itself separates *Parageron* s. lat. from *Usia*, but *Usia martini* François is intermediate, and specimens recovered from spirit might be softer than fresh-pinned material.)

Tergites smooth with simple circular hair insertions (distinct surface sculpture in *Usia*, even if only stellate hair insertions except *U. martini*.)

Mesonotum and tergites dusted obscuring cuticle in nearly all species, at least tergites dusted on recurved lateral margins.

Abdomen narrower than thorax, conical in most species, can be broader in species with hairy gena. In females the abdomen can dry in such a way to render this feature difficult to interpret.

Most species with gena wider than breadth of tip of palp.

Anal lobe well developed and broadly convex, wider or as wide as anal cell (the best feature to exclude *U. martini* in which anal lobe is narrower than anal cell in both sexes).

Many species with yellow apical margins of tergites (in *Usia* only *U. transcaspica* shows this, which has strongly sclerotised, sculptured tergites, shiny and lacking dusting laterally).

All species with hairy gena belong here.

All holoptic species belong here.

Key to genera of *Parageron* s. lat.

1. Either a distinct additional crossvein between veins R_{2+3} and R_4 or discrete round or oval brown to shiny black spots on either side of the mesonotum on the thoracic suture (Gibbs 2011) (can be small and inconspicuous in some pale yellow species, do not confuse with brown spot behind thoracic suture above wing base in some species). Gonostyli with distinct thumb-like lobe on inner side. Genital fork largely membranous, usually only arms clearly sclerotized 2
 - Venation normal, no R_{2+3} – R_4 crossvein, mesonotum variously patterned or uniformly dusted, never with discrete dark spots on thoracic suture. Gonostyli very variable, usually sigmoid, curved with basal boss, hooked or with small apical projections. Genital fork usually well sclerotized centrally, at least a sclerotized arch connecting arms of genital fork present 3
2. An extra crossvein between veins R_{2+3} and R_4 , all crossveins shaded brown *Ectopusia* gen. nov.
 One species *E. additivaneura* gen. et comb. nov. (Carles-Tolrá, 2009)
 - No crossvein in this position, wing membrane adjacent to crossveins entirely hyaline
 *Parageron* Paramonov, 1929
3. At least front knees marked with yellow and/or, if legs entirely black, dusted genal area between eye and undusted mouth margin conspicuously broader than the palp at its broadest. Male genitalia often small, contracted into apical tergites, if relatively large, then tibia yellow *Protypusia* gen. nov.
 - Legs entirely black and dusted genal area between eye and undusted mouth margin, approximately at level of palp, very narrow, not wider than tip of palp at its broadest. Male genitalia relatively large, about a third to half as large as rest of abdomen *Parusia* gen. nov.

Key to the species of *Parageron*, *Parusia* and *Protypusia*

[♂ *Protypusia emeljanovi*, ♂ *Protypusia modesta* (Loew, 1873), ♂ *Protypusia tewfiki* (Efflatoun, 1945), ♂ *Protypusia xizangensis* (Yang & Tang, 1994) unknown]

1. Males 2
 - Females 32
2. A discrete round or oval brown to shiny black spot on either side of the mesonotum on the thoracic suture (Fig. 2, pt. 1-TSS) (can be small and inconspicuous in some pale-yellow species, do not confuse with brown spot behind thoracic suture above wing base in some species) 3
 - Without these discrete spots on thoracic suture, mesonotum either uniformly dusted or with longitudinal vittae of various forms, sometimes a vague brown spot behind the thoracic suture 6
3. Proboscis about 1–2 × head length (excluding antennae); predominantly yellow, darkened at most on apical third of labium/labella, labrum swollen basally (Fig. 1) (only slightly in pale yellow variant and specimens from Israel which probably belong here) [very variable and possibly more than one species] ♂ *Parageron lutescens* (Bezzi, 1925)



Fig. 1. *Parageron lutescens* (Bezzi, 1925), ♂.



Fig. 2. *Parageron longilingua* sp. nov., ♂.

- Proboscis 2.5–4× head length (excluding antennae); predominantly black, particularly labium/labella, labrum dark up to the point where it starts to widen basally, basal swelling less striking, never wider than distance between outer edges of scape (Fig. 2) 4
- 4. Eyes very narrowly separated, by less than the diameter of an adjacent facet, proboscis black, 2.5–3.5× head length, not swollen basally. Thorax, including post pronotal lobe and scutellum, dark in ground colour under whitish dust; legs, including coxae, darkened with paler knees ♂ *Parageron erythraeus* (Greathead, 1967)
- Eyes confluent for a distance equal or more than length of ocellar triangle, proboscis black, 2–4× head length, dark yellow and slightly swollen basally. Thorax yellow with darker disc beneath whitish dust, post pronotal lobe and scutellum yellow in ground colour; legs, including coxae, yellow 5

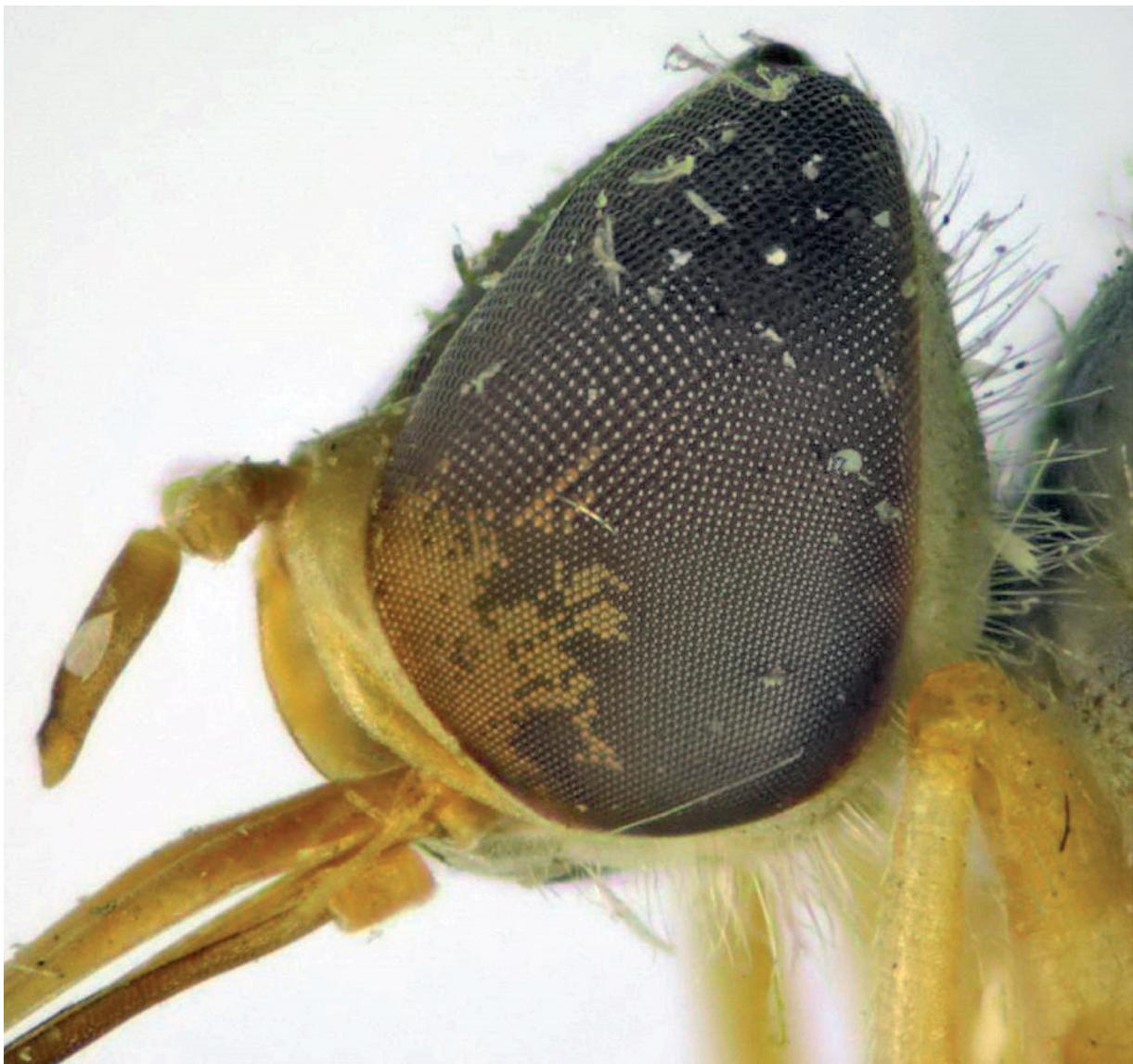


Fig. 3. *Parageron orientalis* Paramonov, 1929 stat. rev., ♂.

5. In ventral view apex of epiphallus pickaxe-shaped, epandrium more elongate and parallel-sided (Fig. 38a, e). The limited material seen larger, frons almost bare, the longest hairs much shorter than pedicel, dorsal hairs on scape and pedicel longer, postpedicel lacking accessory points (Fig. 3). Central Asia ♂ *Parageron orientalis* Paramonov, 1929 stat. rev.
- In ventral view apex of epiphallus simply rounded, without pointed lateral extensions, epandrium less elongate, trapezoidal, widest at base (Fig. 37a, e). Frons clearly pubescent, the longest hairs almost as long as the pedicel, dorsal hairs on scape and pedicel quite evident, some almost as long as pedicel, postpedicel usually bifid apically with a dorsally directed point just beyond the sulcus (Fig. 4). Eastern Mediterranean (including Cyprus) ♂ *Parageron longilingua* sp. nov.
6. Eyes touching (holoptic) 7
- Eyes separated (dichoptic), sometimes only narrowly so 20
7. Frons and gena with conspicuous long hairs, some longer than the basal antennal segment (scape) (Fig. 5) 8
- Frons and gena practically bare, lacking hairs longer than the basal antennal segment (scape), if some hairs nearly as long as scape these confined to frons, gena below insertion of antennae bare (Fig. 6) 10
8. Silvery-grey species, tergites basally matt black contrasting with dove-grey apical half or more, margins narrowly yellow. Morocco ♂ *Protypusia argentata* gen. et sp. nov.
- Tergites matt black, dorsally no grey dusting divides the blackish colour from the clear yellow apical margins. Algeria, Morocco, Tunisia, Spain and France 9



Fig. 4. *Parageron longilingua* sp. nov., ♂.



Fig. 5. *Protypusia grata* (Loew, 1859) comb. nov., ♂.



Fig. 6. *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov., ♂.

9. Smaller species, long hairs on frons and gena erect, black to brown (sometimes pale brown), the longest hairs almost reach the tip of the antennae (Fig. 5). Mesonotum matt black with three grey dusted stripes, acrostichal line short, dorsocentral lines almost reaching scutellum ♂ *Protypusia grata* (Loew, 1859) gen. et comb. nov.
- Larger species, hairs on frons and gena tending to be more down-curved or wavy-tipped, silky white, falling well short of antennal length (although exceeding scape plus pedicel length) (Fig. 7). Grey dusted mesonotal stripes bolder, acrostichal line extending beyond middle, dorsocentral lines coalescing in front of scutellum ♂ *Protypusia incisa* (Wiedemann, 1830) gen. et comb. nov.
10. Wing with inconspicuous brown shades around fork of R_{2+3} and R_{4+5} , fork of R_4 and R_5 and the crossveins r-m, m-m and m-cu (Fig. 8). Morocco and Tunisia ♂ *Protypusia vagans* (Becker, 1906) gen. et comb. nov.
- Wing clear 11
11. Paramedian vittae blackish or brown and confluent on disc, any dusted acrostichal line only apparent anteriorly, fading out and becoming indistinct approximately at thoracic suture (Figs 9, 11–12). [Halteres with clear dark dorsal spot.] 12
- Mesonotum densely grey, brownish or olive dusted paramedian and antehumeral vittae either poorly defined, or if darker and distinct, dusted acrostichal line clear and merging with general dusting behind end of paramedian vittae (Fig. 10). Halteres with knob pale or infuscated. [Scutellum grey dusted, concolourous with paler parts of mesonotum.] 14



Fig. 7. *Protypusia incisa* (Wiedemann, 1830) gen. et comb. nov., ♂.

12. Velvety black species, legs black, grey dusted dorsocentral lines barely reaching level of wing bases, tergites matt black without paler apical margins, scutellum matt black (Fig. 9) ♂ *Protypusia ornata* (Engel, 1932) gen. et comb. nov.
- Dark brown species, knees obscurely paler reddish-brown, grey or brown dusted dorsocentral lines exceeding level of wing bases, continuing to the scutellum (sometimes only faintly) (Figs 11–12), tergites dark brown or olive-grey dusted, sternites and often tergites with very narrow paler apical margins, scutellum may be dark brown dusted in part or entirely 13



Fig. 8. *Protypusia vagans* (Becker, 1906) gen. et comb. nov., ♂.



Fig. 9. *Protypusia ornata* (Engel, 1932) gen. et comb. nov., ♂.



Fig. 10. *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov., ♂.



Fig. 11. *Protypusia hyalipennis* (Séguy, 1941) gen. et comb. nov., ♂.

13. Palps tiny, brownish, slender with a few fine apical hairs. Dorsal surface of scape and pedicel with pubescence shorter than length of these segments. Mesonotum blackish or brown dusted with three paler greyish dusted lines, the dorsocentral ones continuing faintly to scutellum (Fig. 11). Tergites with very narrow paler apical margins ♂ *Protypusia hyalipennis* (Séguy, 1941) gen. et comb. nov.
- Palps conspicuously larger, yellow, clavate with a fan of long apical hairs. Dorsal surface of scape and pedicel with pubescence longer than length of these segments. Mesonotum blackish brown dusted with two clear paler brown dorsocentral lines continuing strongly to scutellum (Fig. 12). Tergites lacking paler apical margins ♂ *Protypusia flavipalpis* gen. et sp. nov.

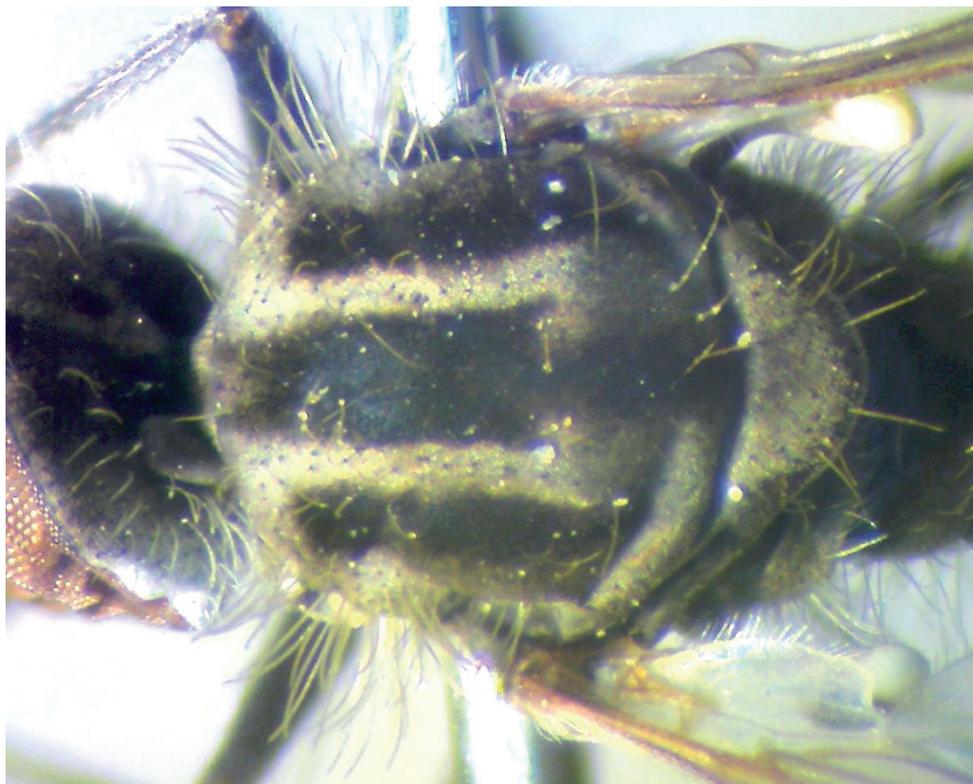


Fig. 12. *Protypusia flavipalpis* gen. et sp. nov., ♂.

14. Palps white. A very small dove-grey dusted species from Central Asia. [Reflexed lateral margin of tergite one predominantly yellow, reflexed margin of remaining tergites not contrasting with brown dusted disc, this possibly an artefact of the condition of the holotype ♂ examined? Epandrium dark in ground colour or only narrowly yellow.] Genitalia very different to the following species
 ♂ *Protypusia grisea* (Paramonov, 1947) gen. et comb. nov.
- N.B.** From here on several species are included where specimens could not be examined and genitalia have not been studied. Characters for these are taken from type descriptions and photographs. Always double check by dissection and comparison with reference material.
- Palps black to brownish, at least partially (if palps very small can be impossible to see in poor specimens). If palps partly pale yellowish then larger species with wing length >4 mm. Small to medium species from North Africa, Central Asia and the Middle East 15
 [♂ *Protypusia xizangensis* (Yang & Yang, 1994) gen. et comb. nov. will probably run here but ♂ unknown]
 [♂ *Protypusia modesta* (Loew, 1873) gen. et sp. nov. will probably run here but ♂ unknown]

15. Postpedicel relatively robust, ratio of depth:length 1:1.9–2.6. Ventral margin usually convex throughout (sometimes straight basally) curving dorsally evenly to tip in apical half so narrowly blunt-ended (Fig. 13) 16
– Postpedicel elongate length:depth 1:2.4–3.1. Ventral margin straight or even slightly concave in apical half, abruptly curved up at tip so broadly blunt-ended (Fig. 14) 17

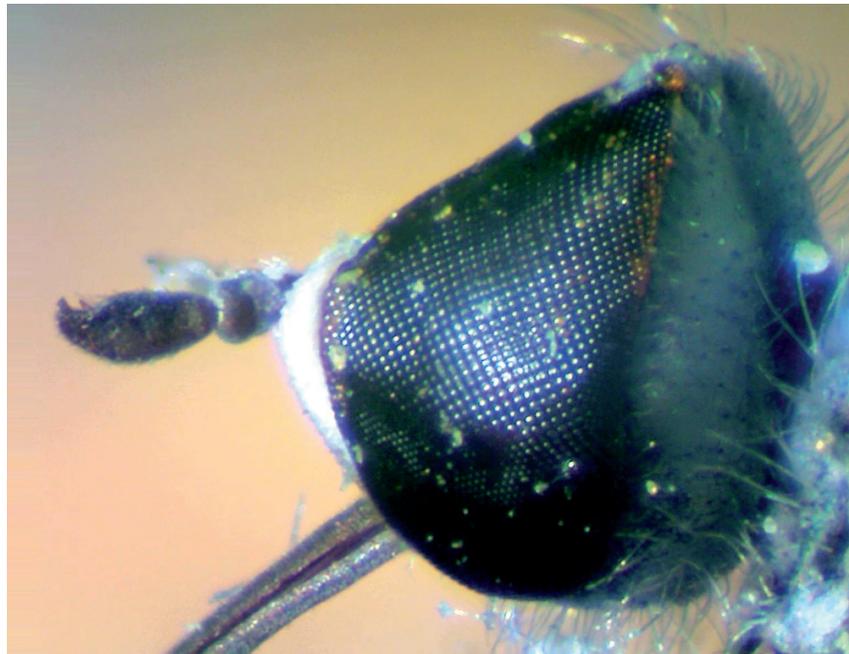


Fig. 13. *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov., ♂.



Fig. 14. *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov., ♂.

16. Mesonotum densely dove-grey dusted with paramedian and antehumeral vittae indistinct, slightly darker grey. Moroccan specimens have middle of mesonotum browner. Frons typical. Wing hyaline ♂ *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov.
- Mesonotum brownish-grey to deep olive-buff dusted with paramedian and antehumeral vittae better defined, darker brown. Frons more prominent [by extrapolation from female distance from antennal insertion to eye greater than depth of postpedicel but no male specimen examined]. Wings with distinct light brownish tinge ♂ *Protypusia deserticola* (Efflatoun, 1945) gen. et comb. nov.
 [The unknown ♂ of *Protypusia tewfiki* (Efflatoun, 1945) gen. et comb. nov. from Egypt will probably key here. Should be readily identified if it has same unique abdominal pattern seen in the ♀. See Fig. 57]
17. Mesonotum densely pale dove-grey dusted with poorly defined paramedian and antehumeral vittae where dusting a little thinner so only slightly subshining (Fig. 10). Pale creamy apical margins to tergites about as wide as width of basitarsus. Haltere yellowish-white, unmarked 18
- Mesonotum more brownish-grey dusted with darker blackish-brown paramedian and antehumeral vittae much more obvious, thinly dusted and clearly shining. Pale margins to tergites often narrower than basitarsus. Haltere knob either pale or brown infuscated 19
18. Tibia clear yellow, or at least in basal quarter dorsally, hind pair with greatest tendency to be infuscated apically and dorsally, especially so in Iranian specimens. The slightly darker paramedian vittae distinctly wider than acrostichal line (at least in Iranian specimens). Slightly larger species wing length usually >4 mm. Central Asia, Iran
 ♂ *Protypusia zimini* (Paramonov, 1947) gen. et comb. nov.
 [♂ *Protypusia emeljanovi* (Zaitzev, 1975) gen. et comb. nov. will probably run here but ♂ unknown]
- Legs black or dark brown with yellow colour of knees very narrow, extending down tibia less than median width of tibia. The slightly darker paramedian vittae distinctly narrower than acrostichal line. Slightly smaller species, wing length <4 mm. Israel
 ♂ *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov.
19. Smaller species, body length <4 mm. Mesonotum relatively thinly grey-brown dusted, the blackish-brown paramedian vittae very thinly dusted and clearly shining. Paramedian vittae on disc as wide or wider than acrostichal line. Pale colour on tibia often more extensive, extending one quarter to one third down from base dorsally. Haltere often with distinct brown dorsal spot or at least brown infuscation at base of knob. Saudi Arabia
 ♂ *Protypusia raydahensis* (El-Hawagry & Al Dhafer, 2016) gen. et comb. nov.
- [From Plate (Fig. 49) and original description, no specimen seen.] Larger species, body length >4 mm. Mesonotum relatively more densely grey dusted, the blackish paramedian vittae narrower than the acrostichal line on the disc. Pale colour on tibia very narrow, confined to extreme base. Knob of haltere whitish, unmarked. Egypt and (?Senegal)
 ♂ *Protypusia inornata* (Engel, 1932) gen. et comb. nov.
 [♂ *Usia grisea* Efflatoun, 1945 will probably run here if it belongs in Usiini. Haltere knob with brown spot, very small species from Egypt. See Fig. 68.]
20. Hairs of frons continuing on to gena, below level of insertion of antennae at least a few hairs conspicuously longer than the basal two antennal segments (scape and pedicel) (Fig. 5) 21
- Hairs of frons not continuing down gena, stopping at about the level of insertion of antennae, any hairs below this conspicuously shorter than the basal two antennal segments (scape and pedicel) (Fig. 6) 22
21. Acrostichal line grey dusted similar to the dorsocentral lines, viewed from directly above, scutellum dark matt brown concolourous with darker parts of mesonotum. Canary Islands
 ♂ *Protypusia striata* (Báez, 1982) gen. et comb. nov.

- Acrostichal line brown dusted contrasting with the grey dusted dorsocentral lines, viewed from directly above, scutellum grey-brown dusted decidedly paler than the darker parts of mesonotum. Eastern Mediterranean (Egypt, Israel)♂ *Protypusia separata* Gibbs & Theodor gen. et sp. nov.
 - 22. At least tips of femora and bases of tibia (knees) yellow 23
 - Legs entirely black 25
 - 23. Wings with brownish spots at base of R_{2+3} , base of R_{4+5} and over crossveins r-m, m-m and m-cu; eyes clearly separated, usually by more than the diameter of the front ocellus; genitalia larger ♂ *Protypusia punctipennis* (Loew, 1846) gen. et comb. nov.
 - Wings clear, unmarked; genitalia smaller; eyes usually separated by no more than the diameter of front ocellus 24
- N.B. The reliability of characters used to separate the following two species is uncertain so best to check epiphallic complex
- 24. Knob of halteres white; a narrow, defined, dark prescutellar vittae present; hairs on tergites 2–4 longer than respective tergite ♂ *Protypusia kerkini* gen. et sp. nov.
 - Knob of halteres with distinct dorsal brown spot; area of mesonotum immediately in front of scutellum with broad, diffuse darker patch; hairs on tergites 2–4 shorter than respective tergite ♂ *Protypusia strymonas* gen. et sp. nov.
- N.B. In the following species external characters are subtle, difficult to interpret and could easily be lost through damage or wear. Close examination of epiphallus in situ or after dissection needed to confirm identity.
- 25. Epandrium with apico-lateral corners exerted (often visible in undissected insect), hypopygium very large relative to size of insect, as large as remainder of abdomen (Fig. 15) [paramedian vittae narrower than median line, hairs on frons variable, on average a smaller insect] ♂ *Parusia faesae* gen. et sp. nov.

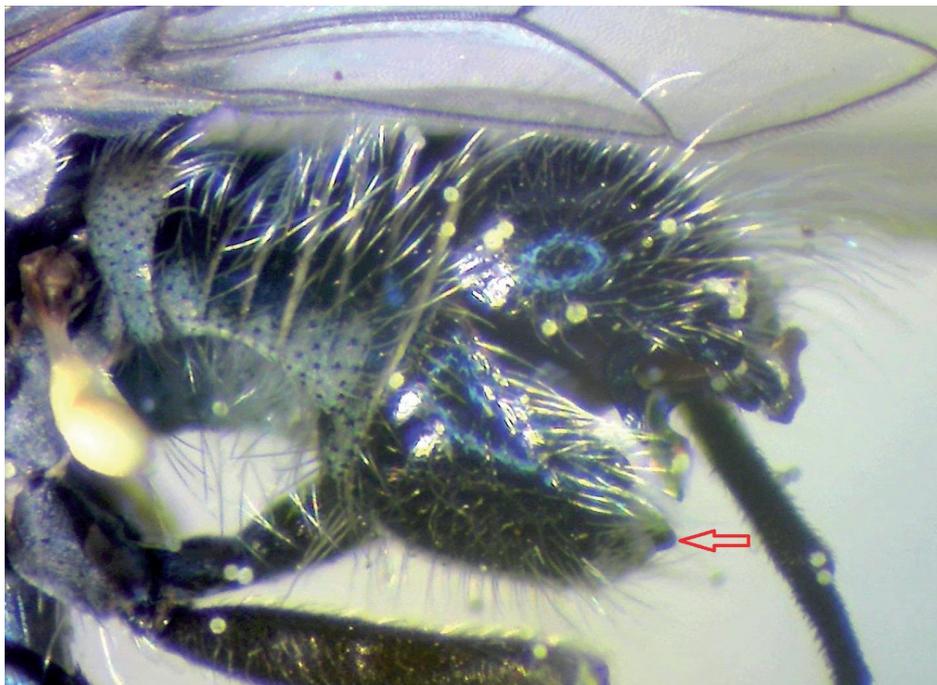


Fig. 15. *Parusia faesae* gen. et sp. nov., ♂.

- Epanthrium with apico-lateral corners rounded, hypopygium smaller relative to size of insect, not as large as remainder of abdomen (Fig. 16) [paramedian vittae often equal to or wider than median line, on average a larger insect] 26



Fig. 16. *Parusia almeria* gen. et sp. nov., ♂.

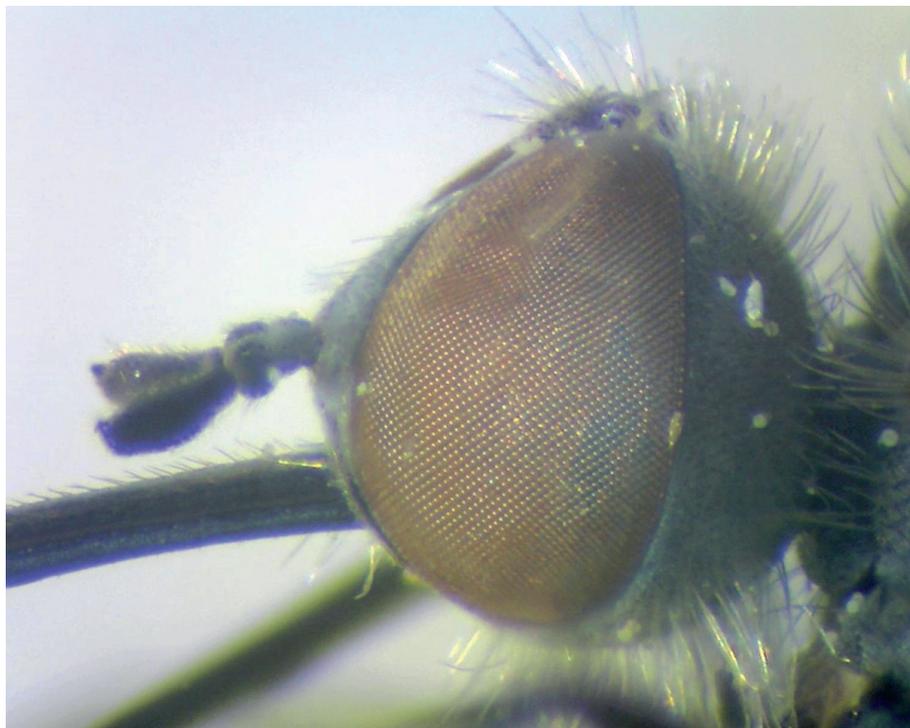


Fig. 17. *Parusia loewi* (Becker, 1906) gen. et comb. nov., ♂.

26. Hairs on front part of frons short and inconspicuous, shorter than scape and pedicel together (Fig. 17) (if anal lobe very narrow check ♂ *Usia martini* François, 1969 see Gibbs 2011) 27
 – At least some hairs on front part of frons longer than the scape and pedicel together (Fig. 18) 29



Fig. 18. *Parusia aurata* (Fabricius, 1794) gen. et comb. nov., ♂.

27. Tip of epiphallus viewed laterally rather slender, only slightly expanded apically (Fig. 65a). [Paramedian and antehumeral vittae usually with no more than a faint sprinkling of brownish dust, the shining black integument of the mesonotum clearly evident] ♂ *Parusia loewi* (Becker, 1906) gen. et comb. nov.
 27a. A much darker insect with the grey dusting of the mesonotum much reduced and thinner ♂ *Parusia loewi* dark form
 27b. A paler insect looking much more like typical *aurata*; grey dusting on mesonotum more extensive and denser such that shining paramedian and antehumeral vittae narrower than the grey dusted median and dorsocentral lines ♂ *Parusia loewi* pale form
 – Tip of epiphallus viewed laterally conspicuously expanded apically, either T-shaped or fish-tailed with thick stem. Paramedian and antehumeral vittae dark brown dusted, completely or largely obscuring the shining black integument of the mesonotum, at most subshining 28
28. Eyes separated by at least twice the diameter of the front ocellus. Genitalia characteristic, particularly the shape of the epiphallus (Fig. 67a–b). Algeria, Tunisia, Corsica, Sardinia ♂ *Parusia taeniolata* (Costa, 1883) stat. rev., gen. et comb. nov.
 – Eyes separated by little more than the diameter of the front ocellus. Genitalia characteristic, particularly the shape of the epiphallus (Fig. 66a–b). Spain ♂ *Parusia propinqua* gen. et sp. nov.

29. Inner margin of gonostylus at base strongly incised, more or less a semicircle (Fig. 20). Frons narrower, eyes separated by about the depth (height) of the postpedicel. Hairs on front of frons clearly shorter than those on ocellar tubercle (Fig. 19) 30
- Inner margin of gonostylus at base straighter, much less than a semicircle (but may be sharply bent in apical half) (Fig. 22). Frons wider, eyes separated by almost twice the depth (height) of the postpedicel. Some hairs on front of frons as long as those on ocellar tubercle (Fig. 21) 31



Fig. 19. *Parusia benoisti* gen. et sp. nov., ♂.

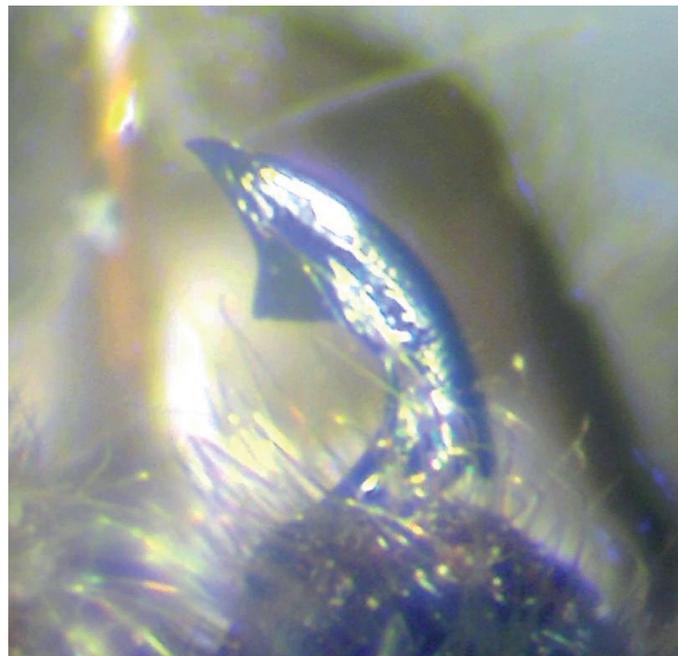


Fig. 20. *Parusia almeria* gen. et sp. nov., ♂.



Fig. 21. *Parusia aurata* (Fabricius, 1794) gen. et comb. nov., ♂.

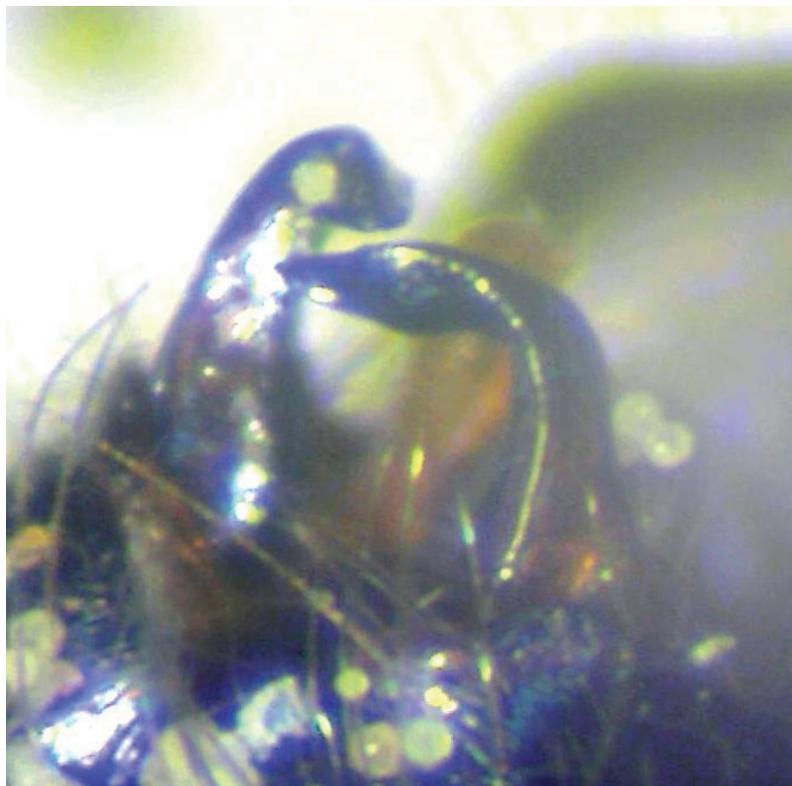


Fig. 22. *Parusia aurata* (Fabricius, 1794) gen. et comb. nov., ♂.

30. Dark thoracic vittae relatively poorly marked, thinly dusted so only a little more shining than the rest of the thorax. Genitalia characteristic (Fig. 60a–d). Spain ♂ *Parusia almeria* gen. et sp. nov.
 – Dark thoracic vittae relatively well marked, hardly dusted so shining cuticle clearly visible. Genitalia characteristic (Fig. 62a–e). Morocco ♂ *Parusia benoisti* gen. et sp. nov.
31. Apical third of gonostylus bent in almost at a right angle (Fig. 22). Epiphallus diagnostic (Fig. 61a–b) [genitalia smaller, yellow band on tergite one wider and paler yellow]. Morocco/Algeria
 ♂ *Parusia aurata* (Fabricius, 1794) gen. et comb. nov.
 – External curve of gonostylus more even, only sharply bent at tip. Epiphallus diagnostic (Fig. 63a–b) [genitalia larger, yellow band on tergite one narrower and darker yellow]. Libya
 ♂ *Parusia cyrenaica* gen. et sp. nov.

FEMALES [*Usia grisea* could possibly belong here, ♀ unknown]

32. Frons hairs continuing on to gena, some of the hairs below the antennal insertion longer than the scape (Fig. 23) 33
 – Any pubescence on frons not usually extending on to gena, any hairs below the antennal insertion shorter than the scape (Fig. 24) 37



Fig. 23. *Protypusia grata* (Loew, 1859) gen. et comb. nov., ♀.

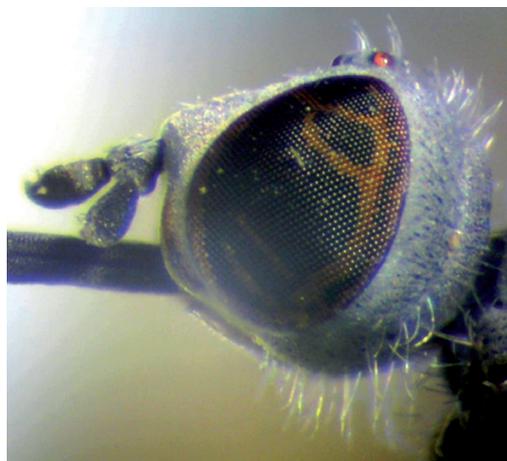


Fig. 24. *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov., ♀.

33. Gena (dusted area not including more shiny mouth margin) at its narrowest part as wide as or wider than width of proboscis level with the tips of the palps (Fig. 25) 34
 – Gena at its narrowest part narrower than width of proboscis level with the tips of the palps (Fig. 26) 36

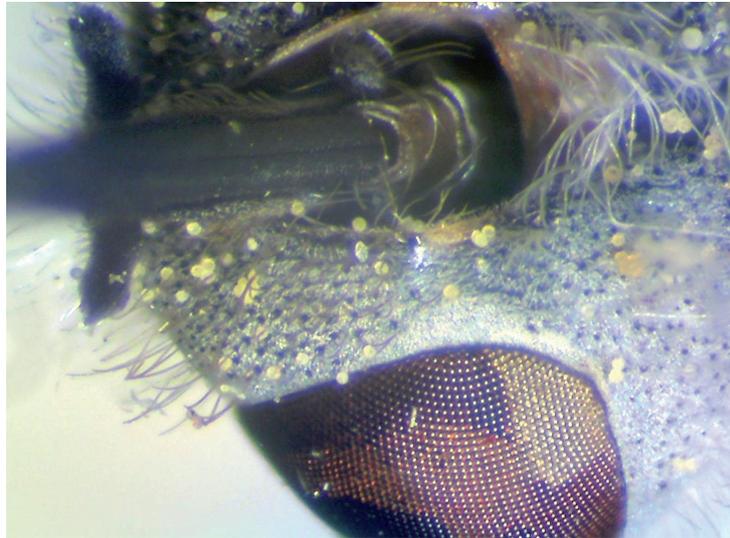


Fig. 25. *Protypusia argentata* gen. et sp. nov., ♀.

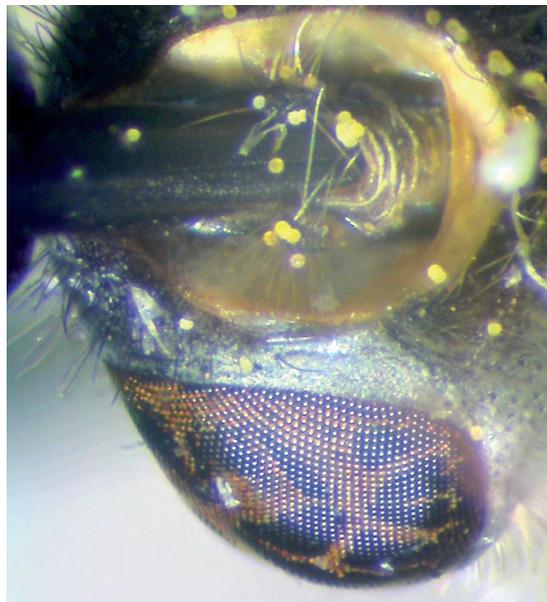


Fig. 26. *Protypusia striata* (Báez, 1982) gen. et comb. nov., ♀.

- 34 Hairs on frons and gena silky white, somewhat shaggy and barely longer than scape and pedicel combined, continuing unbroken all the way to the ventral side of the head; hairs on dorsolateral surface of proboscis minute ♀ *Protypusia incisa* (Wiedemann, 1830) gen. et comb. nov.
 – Hairs on frons and gena dark brown to almost white, some clearly longer than scape and pedicel combined, lower part of the gena hairless or almost so (Fig. 23); hairs on dorsolateral surface of proboscis basally longer and conspicuous 35

35. Hairs on frons and gena blackish to brown; mesonotum with conspicuous, darker brown to blackish paramedian and antehumeral vittae; tergites dorsally dull black with sharply defined yellow apical margins ♀ *Protypusia grata* (Loew, 1859) gen. et comb. nov.
 – Hairs on frons whitish, on gena tinged yellowish or white; mesonotum with paramedian and antehumeral vittae faint, just perceptibly darker grey than general pale grey dusting; abdomen pale grey dusted, each tergite more or less dull black basally with sharply defined yellow apical margins ♀ *Protypusia argentata* gen. et sp. nov.
36. Dark paramedian vittae no wider than median acrostichal line, antehumeral spot in front of thoracic suture narrower than grey dusted dorsocentral lines. Canary Islands ♀ *Protypusia striata* (Báez, 1982) gen. et comb. nov.
 – Dark paramedian vittae wider than median acrostichal line, antehumeral spot in front of thoracic suture wider than grey dusted dorsocentral lines. Eastern Mediterranean, Egypt ♀ *Protypusia separata* Gibbs & Theodor gen. et sp. nov.
37. Disc of mesonotum either yellow or the disc darkened under the pale dust and with a discrete, velvet-black to brown spot either side on the thoracic suture (do not confuse with less discrete spot sometimes present behind the thoracic suture above wing base) 38
 – Mesonotum either uniformly pale grey dusted, or with longitudinal darker vittae, lacking discrete velvety spots on the thoracic suture 41
38. Viewed dorsally, proboscis entirely black, no perceptible swelling basally. Scape whitish, contrasting with darker pedicel and blackish postpedicel. Eritrea ♀ *Parageron erythraeus* (Greathead, 1967)
 – Viewed dorsally, proboscis not entirely black, at least yellowish basally where distinctly, although often only slightly swollen. Scape yellow, hardly contrasting with pedicel and postpedicel, latter might be a shade darker 39
- N.B. Some females of the next three species may not be reliably separable without associated males. Intergrades appear to occur and there could be unrecognised species here.
39. Proboscis short, 1–2× head length (excluding antennae); proboscis almost entirely yellow, only darkened on apical quarter of labium/labella; base of labium often conspicuously swollen ♀ *Parageron lutescens* (Bezzi, 1925)
 – Proboscis longer, 2.5–4× head length (excluding antennae), mostly black, only yellow basally and never strongly swollen, from above narrower than width across basal antennal segments 40
40. Larger, hairs on frons finer, shorter and more steeply inclined. Third antennal segment pointed, no obvious accessory point beyond sulcus (based on single specimen) (Fig. 27). Iran, Central Asia ♀ *Parageron orientalis* Paramonov, 1929 stat. rev.
 – Smaller, hairs on frons a little longer and inclined closer to 45°, more bristle-like. Third antennal segment usually bifid apically, a more or less conspicuous point dorsally immediately beyond sulcus (can be missing and simply pointed as in *Par. orientalis*, best identified by associated males) (Fig. 28). Eastern Mediterranean (including Cyprus) ♀ *Parageron longilingua* sp. nov.
41. Tibia largely or entirely yellow 42
 – Tibia largely darkened, base and apex sometimes paler, sometimes basal half of front- and mid-tibia yellow 46
42. Mesonotum pale grey dusted with slightly darker paramedian and antehumeral vittae only faintly indicated 43
 – Mesonotum yellow to greyish-brown dusted with clear dark brown paramedian and antehumeral vittae 44

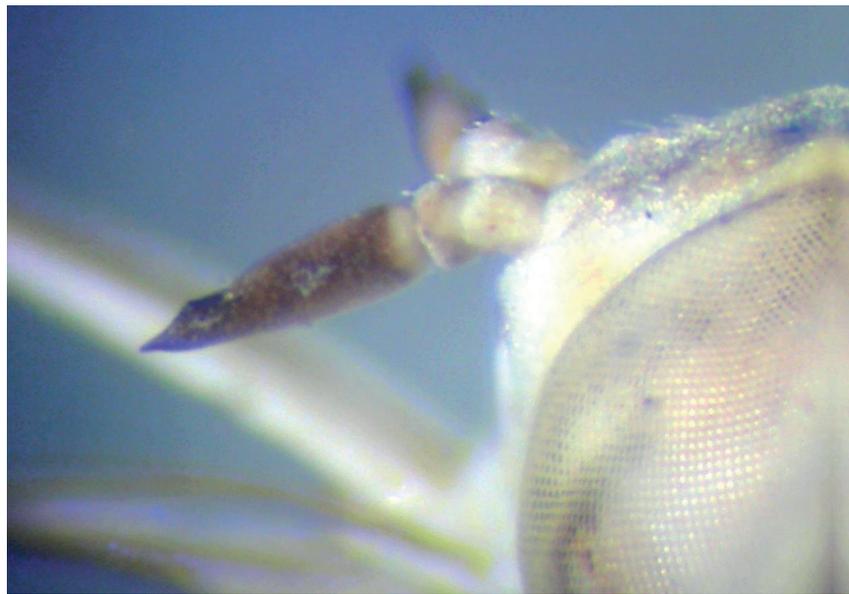


Fig. 27. *Parageron orientalis* Paramonov, 1929 stat. rev., ♀.

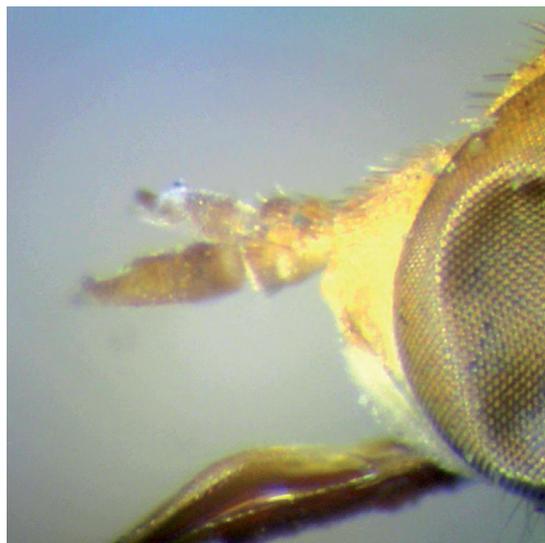


Fig. 28. *Parageron longilingua* sp. nov., ♀.

43. Scape dark, coxae with at least base dark, mesonotum and scutellum dark in ground colour
 ♀ *Protypusia zimini* (Paramonov, 1947) gen. et comb. nov.
 – Scape yellow, front coxae yellow, mid and hind coxae dark, mesonotum laterally and scutellum
 wholly yellow in ground colour ♀ *Protypusia emeljanovi* (Zaitzev, 1975) gen. et comb. nov.
 [Based on type description, no specimens seen.]
44. Wings with brownish spots at base of R_{2+3} , base of R_4 , and over crossveins r-m, m-m and m-cu
 ♀ *Protypusia punctipennis* (Loew, 1846) gen. et comb. nov.
 – Wing clear, without brown spots over veins 45

45. Halteres with white knob; mesonotum immediately in front of scutellum with well demarcated narrow dark prescutellar vittae ♀ *Protypusia kerkini* gen. et sp. nov.
– Haltere knob with distinct dark brown spot dorsally; mesonotum immediately in front of scutellum with diffuse darker area ♀ *Protypusia strymonas* gen. et sp. nov.
46. Tergites 2–4 blackish with broad whitish-grey dusted median longitudinal stripe and whitish-grey lateral dusting visible in dorsal view. [All tergites with narrow pale apical margins, haltere white.] (Fig. 57) Egypt ♀ *Protypusia tewfiki* (Efflatoun, 1945) gen. et comb. nov.
– Tergites 2–4 uniformly coloured in dorsal view, either entirely dusted or entirely matt or velvety black other than yellow apical margins and occasionally grey dusting on recurved lateral margins of tergites can be visible from above 47
47. Mesonotum relatively densely pale grey dusted with no more than faintly darker paramedian and antehumeral vittae (Fig. 29); if browner with evident mesonotal vittae then either wing infuscated on forks and cross-veins or palp pale yellowish 48
– Mesonotum more thinly dusted grey or brown with contrastingly darker, more shining, brown or blackish paramedian and antehumeral vittae (Fig. 30) 51
[If anal lobe very narrow check *Usia martini* François, 1969 see part 1 Gibbs 2011.]



Fig. 29. *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov., ♀.



Fig. 30. *Protypusia* sp. cf. *inornata* (Engel, 1932) gen. et comb. nov., ♀.

48. Halteres with discrete dark-brownish infuscation on one side where stem meets knob 49
 – Halteres entirely white to pale yellow 50
49. Wings with faint but distinct brownish infuscation over cross-veins and forks; palps black; a browner dusted species ♀ *Protypusia vagans* (Becker, 1906) gen. et comb. nov.
 – Wings clear, cross-veins and forks unmarked; palps pale yellowish; a greyer dusted species
 ♀ *Protypusia flavipalpis* gen. et sp. nov.

N.B. The following four are all dove-grey species, often rather variable, and in two cases very little material is available. Not certainly separable on external characters; genitalia provide good characters but these do not divide dichotomously so **read all four alternatives** and check illustrations.

50. Tip of genital fork weakly sclerotised, although curved dorsally naturally, easily straightened and flattened. Vaginal plate large, patchily sclerotised, attached to genital fork by membranes only (Fig. 45f–g) ♀ *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov.
 – Tip of genital fork sclerotised such that it cannot be easily bent flat, but not strongly pigmented, curved back on itself and coming to a blunt point. Vaginal plate small and not pigmented, attached to genital fork by membrane only. Basal spermathecal duct swollen close to vaginal plate (Fig. 51a–b) ♀ *Protypusia modesta* (Loew, 1873) gen. et comb. nov.
 – Tip of genital fork strongly sclerotised and at least partly pigmented, strongly bent back on itself such that it cannot be flattened out, tip of genital fork ending bluntly, truncated. Arms of genital fork relatively short compared to the other three species. Vaginal plate small but strongly pigmented, attached to genital fork by membrane. Basal spermathecal duct not swollen close to vaginal plate (Fig. 47e–f) ♀ *Protypusia grisea* (Paramonov, 1947) gen. et comb. nov.
 – Tip of genital fork strongly sclerotised and brown pigmented, strongly bent back on itself such that it cannot be flattened out, tip of genital fork ending bluntly or tapering to a point. Vaginal plate relatively large and strongly pigmented, attached to sclerotised parts of the genital fork. Basal spermathecal duct not swollen close to vaginal plate (Fig. 52f–g)
 ♀ *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov.
51. Legs with contrasting paler knees. Abdomen with clear, if in some cases narrow pale yellow apical margins to the middle tergites 52
 – Legs entirely black, lacking paler knees. Tergites with or without pale apical margins 55

N.B. From here on several species are included where specimens could not be examined and genitalia have not been studied. Characters for these are taken from type descriptions and photographs. Always double check by dissection and comparison with reference material.

52. Postpedicel elongate, parallel sided with broadly roundly blunt tip, often ventral margin of postpedicel in apical half concave, even if only slightly (similar to male Fig. 14). All tergites with clear pale brownish to yellow apical margins, even if narrow 53
 – Postpedicel short and deep, ventral margin convex and curving dorsally at tip to form a narrowly blunt tip (similar to male Fig. 13). In doubtful cases tergites with narrow, dull yellow apical margins from second to seventh tergites, broadest laterally, very obscure dorsally 54
 [*Usia grisea* Efflatoun, 1945, if it belongs in *Protypusia*, will probably run here. ♀ unknown.]
53. Larger species, body length >4 mm. Tergites all with very broad yellow apical margins, often occupying a half or more of the visible length of respective tergite. Mesonotum greyer with paramedian and antehumeral vittae clearly visible by virtue of thinner dusting so more blackish than general dusting. Mesonotum anterior to scutellum lacking prescutellar vittae. Egypt and (?Senegal) ♀ *Protypusia inornata* (Engel, 1932) gen. et comb. nov.
 – Smaller species, body length <4 mm. Tergites with narrower pale apical margins, less than a half the length of the respective tergite. Mesonotum browner dusted, the paramedian and antehumeral vittae

strongly marked dark brownish, relatively shiny. Mesonotum often with brown prescutellar vittae. Saudi Arabia ♀ *Protypusia raydahensis* (El-Hawagry & Al Dhafer, 2016) gen. et comb. nov.

54. Postpedicel very robust, deep and strongly convex below. Frons more hairy, hairs on ocellar tubercle longer than distance between hind ocelli. Frons more prominent than typical, distance from base of antennae to eye greater than length of scape and pedicel combined [genital fork unknown]. Egypt ♀ *Protypusia deserticola* (Efllatoun, 1945) gen. et comb. nov.
- Postpedicel less deep, but still with more or less convex ventral margin. Frons less hairy, hairs on ocellar tubercle barely longer than distance between posterior ocelli. [Genital fork only gently curved dorsally, weakly sclerotised apically, vaginal plate separated from main part of genital fork]. Morocco ♀ *Protypusia hyalipennis* (Séguy, 1941) gen. et comb. nov.
55. Abdomen densely grey dusted, tergites 2–4 variably blackish basally, any very narrow pale apical margins confined to tergite one and apical tergites. Frons about a third head width, eye margins straight and diverging uniformly. Dusted gena clearly evident, together with more shining mouth margin approximately equal to the depth of the postpedicel ♀ *Protypusia ornata* (Engel, 1932) gen. et comb. nov.
- Abdomen matt black with grey dusting confined to reflexed lateral parts of tergites, all tergites with sharply demarcated yellow margins, even if narrow. Frons about a quarter head width, eye margins sinuate, more parallel sided near vertex. Dusted gena very narrow, together with more shining mouth margin obviously narrower than the depth of the postpedicel 56
- N.B.** The following species are not certainly separable if associated males are not available, even genitalia might not distinguish all specimens.
56. Basal spermathecal ducts thickened, about 2–3 × the diameter of the apical spermathecal ducts, if only 2 × then much longer than ejection apparatus (Fig. 61e–f). Not Iberian 57
- Basal spermathecal ducts not thickened same diameter as the apical spermathecal ducts. Iberia 61
57. Basal spermathecal duct only slightly thickened, about 2 × diameter of apical spermathecal duct. Proximal part of genital fork ‘waisted’ narrower at mid-point than at base and tip (Fig. 61e–f) ♀ *Parusia aurata* (Fabricius, 1794) gen. et comb. nov.
- Basal spermathecal duct much thickened, about 3 × diameter of apical spermathecal duct 58
58. Proximal part of genital fork in lateral view in line with or only shallowly angled relative to arms 59
- Proximal part of genital fork in lateral view strongly angled relative to arms 60
59. Proximal part of genital fork simple, rod shaped (only one specimen). Basal spermathecal ducts longer than ejection apparatus and, if stretched out, exceeding tip of genital fork (Fig. 63f). Only known from type series from Al Jabal al Akhdar Mountains, Libya ♀ *Parusia cyrenaica* gen. et sp. nov.
- Proximal part of genital fork distally broad, converging proximally to a rounded tip. Basal spermathecal duct only a little longer than ejection apparatus and, if stretched out, not exceeding tip of genital fork (Fig. 67e). Tyrrhenian Islands and north Algeria and Tunisia ♀ *Parusia taeniolata* (Costa, 1883) stat. rev., gen. et comb. nov.
60. Proximal part of genital fork at an angle of less than 90° relative to arms. Proximal part of genital fork relatively narrow, tapering to a point. Arms relatively slender (Fig. 62f–g). Confined to northwest Morocco ♀ *Parusia benoisti* gen. et sp. nov.

- Proximal part of genital fork at an angle of 90° or a little more relative to arms. Proximal part of genital fork broadest beyond middle, bluntly pointed. Arms relatively robust (Fig. 64f–g). Only known from northeast Morocco ♀ *Parusia faesae* gen. et sp. nov.
- 61. Paramedian and antehumeral vittae shining, undusted or subshining, blackish, with a thin coating of dust ♀ *Parusia loewi* (Becker, 1906) gen. et comb. nov. [part]
 - Paramedian and antehumeral vittae dusted, not shining 62
- 62. Hairs on front part of frons short, much shorter than hairs on ocellar tubercle and shorter than length of scape and pedicel combined (Fig. 31)
 - ♀ *Parusia loewi* [part], ♀ *Parusia propinqua* gen. et sp. nov. (not reliably separated)
 - Hairs on front part of frons relatively long, some almost as long as those on ocellar tubercle and as long as length of scape and pedicel combined (Fig. 32) ♀ *Parusia almeria* gen. et sp. nov.



Fig. 31. *Parusia loewi* (Becker, 1906) gen. et comb. nov., ♀.



Fig. 32. *Parusia almeria* gen. et sp. nov., ♀.

Systematic part

Class Insecta Linnaeus, 1758
Order Diptera Linnaeus, 1758
Family Bombyliidae Latreille, 1802
Subfamily Usiinae Becker, 1913

Genus *Ectopusia* gen. nov.

urn:lsid:zoobank.org:act:1FEEB48E-72B5-431E-8C35-B7A199A88A00

Type species

Ectopusia additivaneura (Carles-Tolrá, 2009) gen. et comb. nov. by monotypy.

Diagnosis

Easily distinguished from all other genera in Usiini by the presence of an extra crossvein between veins R_{2+3} and R_4 . Of the species with poorly sclerotised genital fork and unpigmented vaginal plate, *Ectopusia* gen. nov. is the only one with widely separated eyes in the male.

Etymology

‘Ectopo-’ Greek, ‘out of place’, and genus *Usia*. Refers to the unusual features that put this species outside the typical ‘*Parageron*’-type.

Ectopusia additivaneura (Carles-Tolrá, 2009) gen. et comb. nov.

Fig. 33

Parageron additivaneura Carles-Tolrá, 2009: 64.

Etymology

The specific name refers to the distinct additional crossvein present between veins R_{2+3} and R_4 (‘*additivus*’ = ‘additional’ in Latin; ‘*neuron*’ = ‘vein’ in Greek).

Type material

Holotype

SPAIN • ♂; “Almería, 10-5-2004 Parque Natural Cabo de Gata –Níjar, pitfall, A. Aguirre leg./*Parageron additivaneura* sp. n. ♂ Holotipo M. Carles-Tolrá det.”; PCMC-T.

Paratype

SPAIN • 1 ♀; “Almería, 3-5-2004 Parque Natural Cabo de Gata –Níjar, pitfall, A. Aguirre leg./*Parageron additivaneura* sp. n. ♀ Paratipo M. Carles-Tolrá det.”; PCMC-T.

Redescription (from two specimens in spirit, so some details will not be comparable with descriptions from pinned material)

MEASUREMENTS. Body length: 2.9–4.4 mm. Wing length: 3.4 mm.

Male

HEAD. Gena relatively narrow, at narrowest point about as broad as scape is long, broadening above into frons, entirely yellow in ground colour, a very narrow shinier border to the oral opening below. Frons converging dorsally to its narrowest point just in front of front ocellus where it is separated by four times the diameter of front ocellus. Frons yellowish-white with short adpressed white hairs anteriorly. Ocellar tubercle darker brownish, ocelli arranged in an equilateral triangle, the hind ocelli a little more

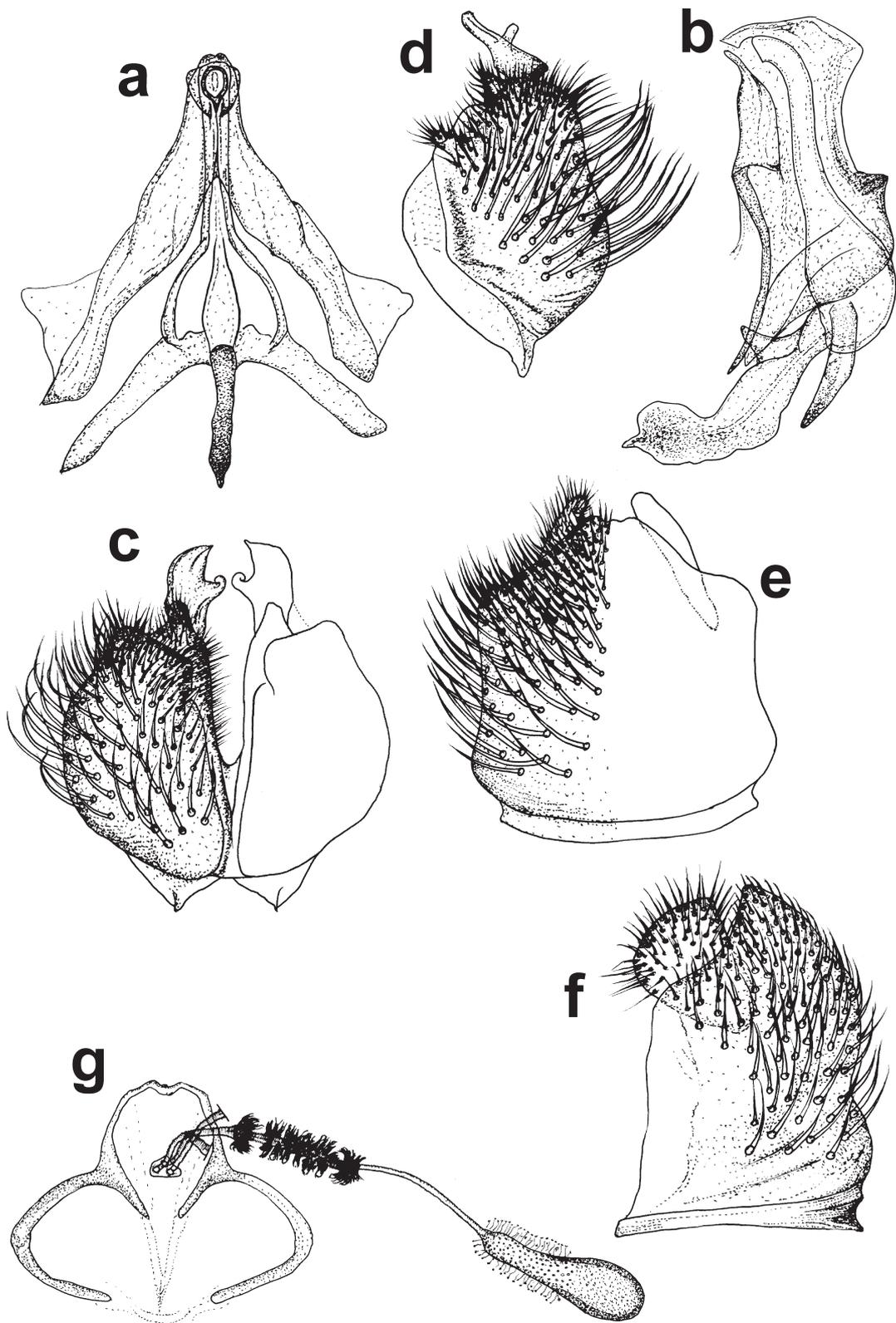


Fig. 33. *Ectopusia additivaneura* (Carles-Tolrá, 2009) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Epandrium lateral. **g.** Female genitalia ventral.

than the diameter of that ocellus from eye margin, a few short, white hairs close to hind ocelli. All eye facets small. Occiput dark brown becoming blacker towards neck; covered with long white hairs longer than length of scape and pedicel combined, especially dense and ‘shaggy’ below. Antennae with scape and pedicel light brown a little darker than frons, third segment lighter, yellowish, especially apically. Scape quadrate, pedicel a little deeper than long, postpedicel, a little less than twice as long as scape and pedicel together, swollen basally with narrow, parallel-sided tip. Scape and pedicel with numerous short white hairs, third segment sparsely haired towards tip on dorsal side. Palps small but readily visible, slightly swollen apically, whitish-yellow with conspicuous white apical hairs about three quarters the length of the palp. Proboscis moderate, about twice frons length, brown, tapering but without swollen base, naked, the basoventral membrane pale brown.

THORAX. Mesonotum blackish in ground-colour, yellowish post pronotal lobe, notopleuron and post alar calli; densely coated with grey dust, no darker or undusted vittae apparent. Mesonotum largely naked but white hairs on post pronotal lobe, anterior slope of mesonotum, notopleuron and a very few near scutellum. Scutellum as mesonotum but disc yellower, long white hairs present basally. Pleura yellowish-brown, a little darker on ventral parts of katepisternum and meron with long white hairs on katepisternum dorsally and anepisternum dorso-medially.

WING. Additional crossvein present between veins R_{2+3} and R_4 . Membrane clear and veins whitish except where infuscated. Fork R_{2+3}/R_{4+5} , base of R_4 and crossveins $R_{2+3}-R_4$, r-m, m-m and m-cu infuscated brownish on vein and narrowly on to adjacent membrane. Crossvein r-m a little beyond middle of the discal cell, conspicuously beyond m-cu. Anal lobe well developed with conspicuously convex margin, obviously broader than anal cell.

HALTERE. Knob whitish, stem slightly infuscated, especially at base.

LEGS. Coxae slightly paler brown than pleura. Femora, tibia and tarsi yellowish-brown. Legs covered with white hairs, longer and more erect on the coxae and femora posteriorly, tibia hairs short and adpressed.

ABDOMEN. Tergites brownish on basal two thirds, with fairly well demarcated yellow posterior margins on remainder. All tergites with pale hairs from a half to equalling the length of each tergite longer laterally. Sternites similar but paler and yellower, infuscated basally, hairing as on tergites.

GENITALIA. Brown, paler apically, pale gonostyli, covered in fairly long white hairs as on tergites.

Female

As male except gena a little broader and frons wider, evenly narrowed from front to vertex, eyes smaller, lateral ocelli a little more distant from eye margin. Frons infuscated medially so less clear yellow than in male. Antennae a little shorter, not so abruptly contracted apically. Mesonotum with slightly paler paramedian vittae separated by a narrow, dark acrostichal stripe. Abdomen tapering to a point.

Remarks

This recently discovered species is clearly distinct from all other Usiini and it is difficult to know where its affinities may lie. The female genitalia suggest affinity with *Parageron* s. str., with rather weakly sclerotised genital fork and unpigmented vaginal plate. However, males of this genus are holoptic or nearly so with differentiated eye facets. The gonostyli also show some similarity to those seen in *Parageron* s. str., with a prominent internal ‘thumb’-like process, but the epiphallus really does not conform, being closest to *Protypusia flavipalpis* gen. et sp. nov., otherwise a quite different species. It seems most probable that *Ectopusia* gen. nov. is basal to *Parageron* s. lat.

Distribution

So far only known from the type locality in Almería, Southern Spain.

Genus *Parageron* Paramonov, 1929

Type species

Parageron orientalis Paramonov, 1929 by monotypy.

Diagnosis

Rather delicate pale yellow species (*Par. erythraeus* darker), male eyes holoptic (or very narrowly separated in *Par. erythraeus*) with upper facets enlarged. The single feature differentiating this genus from all others in *Parageron* s. lat. is the presence of a round blackish (sometimes velvety) spot placed on the thoracic suture above the notopleuron (see TSS in Gibbs 2011: fig. 2).

Etymology

‘Near *Geron*’, referring to similarity with the genus *Geron* (from ‘Para’, ‘Παρά’ Greek prefix = ‘near’ and ‘geron’, from Greek ‘γέρων’ = ‘old man’).

Included species

Parageron erythraeus (Greathead, 1967)

Parageron lutescens (Bezzi, 1925)

Parageron longilingua sp. nov.

Parageron orientalis Paramonov, 1929

Parageron erythraeus (Greathead, 1967)

Fig. 34

Usia erythraea Greathead, 1967: 231.

Etymology

‘Reddish’, from Greek ‘ypérythros’.

Type material

Holotype

ERITREA • ♂; “near Jebel Gheddem 9 April 1958 (leg. D.J. Greathead), 014587152”; NHMUK.

Paratypes

ERITREA • 4 ♀♀; “near Jebel Gheddem 9 April 1958 (leg. D.J. Greathead) 014587153, 014587154, 014587156 & 014587157”; NHMUK • 3 ♀♀; “near Jebel Gheddem 9 April 1958 (leg. D.J. Greathead)”; NHMUK • 2 ♀♀; “near Jebel Gheddem 2 April 1958 (leg. D.J. Greathead)”; NHMUK • 1 ♀; “near Jebel Gheddem 2 April 1958 (leg. D.J. Greathead)” 014587155; NHMUK.

Redescription

MEASUREMENTS. Body length: 2.7–3.8 mm. Wing length: 2.4–4.6 mm.

Male

Only one male available, previously dissected.

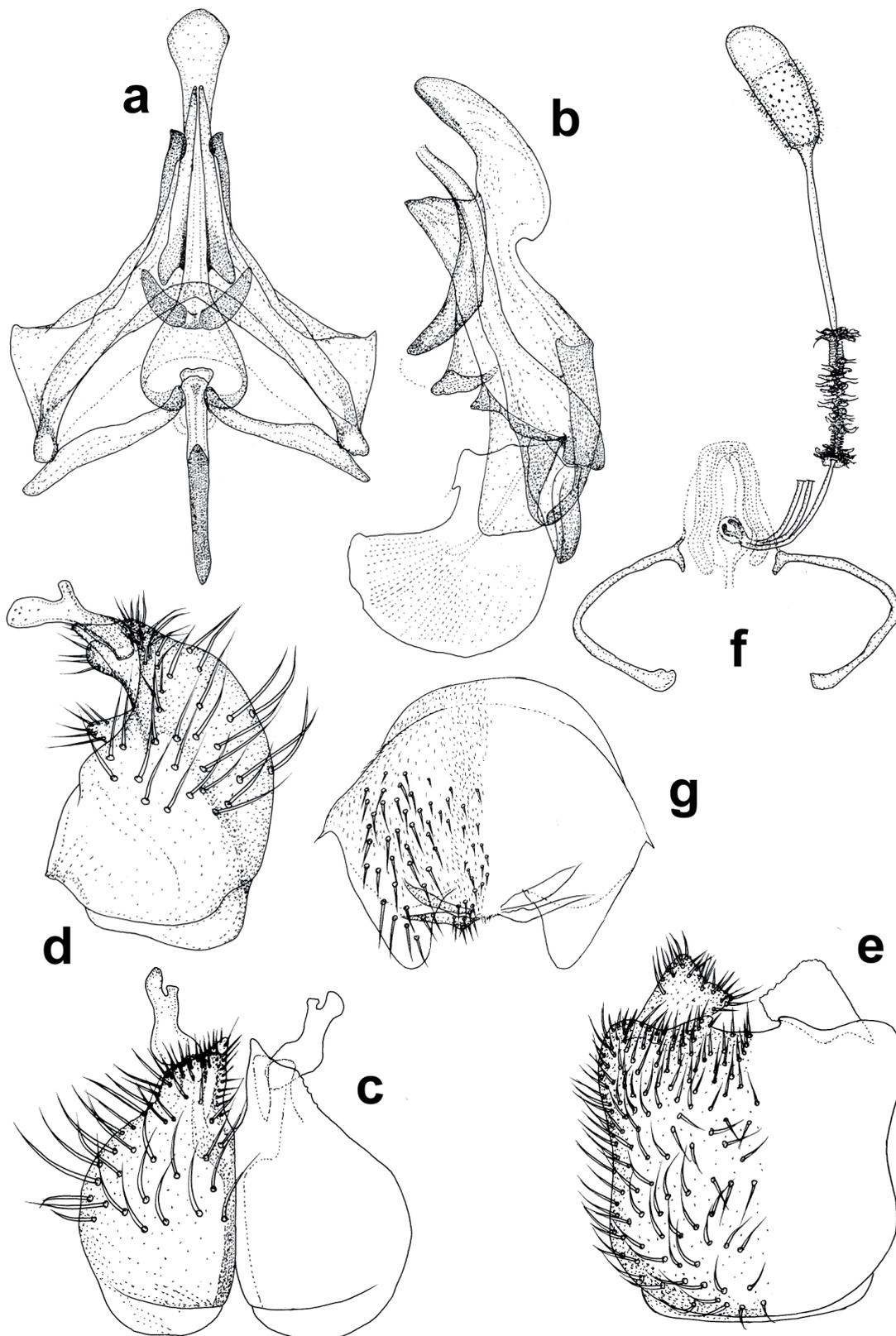


Fig. 34. *Parageron erythraeus* (Greathead, 1967). **a.** Epiphallic complex ventral, **b.** Epiphallic complex lateral, **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female sternite 8 ventral.

HEAD. Mouth margin relatively broad, almost as wide as width of proboscis at base, broadening out slightly into frons, entirely yellow in ground colour with thin coating of silky white dust, a slightly shinier border to the oral opening below. Frons approximately an equilateral triangle, lacking erect hairs. Eyes very narrowly separated by less than the diameter of an adjacent eye facet, thus linear, yellow strip broadening and becoming abruptly dark grey just in front of the front ocellus. Ocellar tubercle dark blackish, densely dusted silvery-grey, all ocelli in direct contact with the eyes; ocelli make an equilateral triangle. Very short, pale brown proclinate hairs on ocellar tubercle no longer than diameter of an ocellus. Eye facets in the central part of the upper two fifths enlarged, at least twice the size of those in lower part and around the margin. Occiput dark in ground colour except for narrow yellow strip next to eye in lower half; densely coated with grey dust and covered with white hairs longer than length of scape and pedicel combined. Antennae with scape yellow as frons, pedicel and postpedicel blackish, latter significantly longer than scape and pedicel together, the apical sulcus cut away such that the tip of the segment is much narrowed. Erect hairs on antennae almost absent or very short and inconspicuous. Palps very small and short, not swollen apically, pale yellow with short yellowish hairs. Proboscis moderately long, about equal to the mesonotum plus scutellum, black, tapering evenly, not swollen at base, naked, the basoventral membrane contrastingly yellow.

THORAX. Mesonotum blackish in ground-colour, yellowish only on post alar calli; densely coated with grey dust except for the two dust-free, roundish black spots on the thoracic suture laterally. Dark paramedian vittae also apparent from the very front of the mesonotum widening rearward to beyond wing bases, becoming difficult to see from some angles. Hairs of mesonotum white, absent on acrostichal line and paramedian vittae (except for a few acrostichals at rear), short on disc, longer on notopleuron where hairs are longer than scape and pedicel combined. Scutellum as mesonotum but ground colour vaguely yellow apically, white hairs short like dorsocentrals. Pleura concolourous with sides of mesonotum, grey dusted, pronotum and dorsum and posterior half of the anepisternum with white hairs like those on notopleuron.

WING. Membrane with a very faint yellow tinge, the veins pale yellowish. Crossvein r-m between basal third and middle of the discal cell, a little beyond m-cu. Anal lobe well developed with conspicuously convex margin, notably broader than anal cell.

HALTERE. Knob yellowish, stem slightly infuscated, especially at base.

LEGS. Coxae concolourous with pleura. Femora and tibia dark brown with tips of femora and very narrow bases of tibia yellow, trochanters and bases of femora also more yellowish. Front tibia paler brown than mid tibia, thinly silvery dusted. Legs covered with short white hairs, longest on the coxae and femora (hind legs missing but type description suggests they are as mid-legs).

ABDOMEN (MOSTLY REMOVED FOR DISSECTION SO REDESCRIPTION BARELY POSSIBLE). Tergites brownish, very thinly pale dusted. All tergites with dark basal colour shading into yellow posterior margins. All tergites with short pale hairs barely a quarter the length of each tergite (only basal tergites could be examined properly; sternites likewise but mostly creamy-yellow, narrowly dark basally, hairing as tergites).

GENITALIA. Largely dark brown, dusting and hairing similar to tergites.

Female

Seems to be very variable. Generally much more yellow in ground colour than male. Head mostly pale yellow with variable blackish areas on occiput and ocellar tubercle. Frons at narrowest wider than length of postpedicel, broadening towards front. Gena broader, shinier mouth margin slightly protuberant and raised at 45° relative to gena. Scape also sometimes pale below, postpedicel pointed, blunt-ended or with a double point, one forward, one dorsally situated. Eye facets all small. Hairing on occiput shorter.

Dark spots on thoracic suture contrast more with the paler yellow ground colour, more or less dark striped medially and laterally, often leaving yellow dorsocentral areas, on other specimens these dark areas coalescing (in one case disc all dark). Scutellum yellow, pleura yellow, variably darkened. Thorax covered with yellowish dust and shorter pale hairs. Legs yellow, coxae variably darkened basally, hind tibia in apical half and tarsi blackish, fore and mid-basitarsus apically and remaining tarsal segments blackish (one specimen with legs more extensively infuscated). Abdomen usually more yellow than in male. 8th sternite contrastingly dark brown apically.

Remarks

Only known from the type series, of which only one is a male. The 10 females are rather variable in colour and shape of postpedicel. The closely related *Par. lutescens* Bezzi and *Par. orientalis* Paramonov also display considerable variation in these characters. It is conceivable that the type series of *Par. erythraeus* consists of more than one species but I consider this to be unlikely. Until more specimens, including males, become available, there is insufficient reason to think that this variability is other than intraspecific.

Distribution

Eritrea.

Parageron lutescens (Bezzi, 1925) Figs 1, 35–36

Usia lutescens Bezzi, 1925: 180.

Usia lutescens var. *minor* Efflatoun, 1945: 223.

Etymology

‘Yellow-coloured’ from Latin ‘*luteus*’.

Type material of *Par. lutescens* (not examined)

Holotype in ESEC, other types in EFC. Type locality: Egypt, Kerdacé (Bezzi 1925).

Not seen. Photos of the draws show six specimens standing over *lutescens*, three of them with red labels, in ESEC. At the time the photo was taken the three specimens with red labels appeared to be in good condition so the holotype probably still exists. Seven more mounts in EFC, two with red labels.

Type material of *Par. lutescens* var. *minor* (not examined)

Holotype in ESEC. Not seen. Type locality: Egypt, Mallaha 1927 (Efflatoun 1945). Photos of the draw in ESEC show two mounts, both with red labels, one of which is lost, just pin remaining, the other survives but condition cannot be assessed from the available photos.

Other material examined

GAMBIA • 1 ♀; “W. Div., Yundum, 19 November 1993 J.C. Deeming”; NHMUK.

NIGERIA • 1 ♂; “Bauchi, Yankari Game Reserve 7-8 March 1981 ♂ Transitional zone, Woodland to Savanna (leg. R. Dransfield, NMW.Z 1981-125)”; NHMUK • 1 ♂; “same data as for preceding”; NHMUK • 1 ♂; “29 March 1980/WT4, 14/standing over *lutescens* Bezzi in J. Bowden Coll., BMNH(E) 2003-159”; NHMUK.

SENEGAL • 2 ♂♂, 2 ♀♀; “Mereto, Terres-Neuves, April 1976, G. Couturier leg./*Usia lutescens* Bezzi det. J. Bowden 1982”; MNHN • 1 ♀; “Forêt de Bandia 3 March 1976, G. Couturier leg./Piège coloré/*Usia lutescens* Bezzi det. J. Bowden 1982”; MNHN.

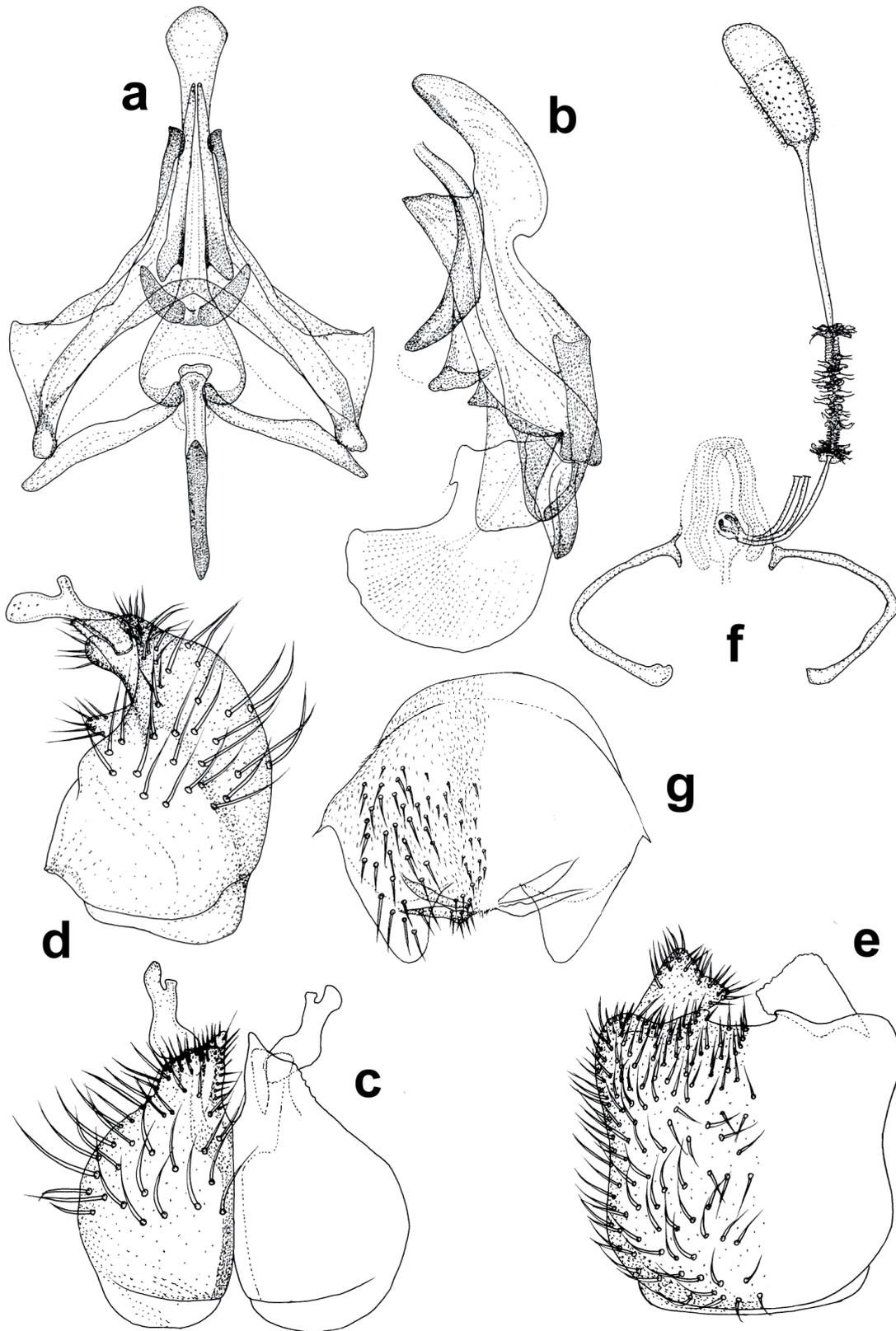


Fig. 35. *Parageron lutescens* (Bezzi, 1925), typical form. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female sternite 8 ventral.

Redescription

MEASUREMENTS. Body length: 3.3–4.7 mm. Wing length: 2.9–4.8 mm.

Male

A rather variable species, possibly a complex of sibling species (see section below). This description is based on Senegalese specimens that seem to closely agree with Efflatoun's (1945) description of Bezzi's type.

HEAD. Gena relatively broad, at level of proboscis wider than depth of postpedicel, broadening out slightly but noticeably on to frons, entirely yellow in ground colour with thin coating of silky white dust, a slightly shinier border to the oral opening below. Frons in dorsal view approximately equilateral but concave along eye margin, lacking erect hairs. Eyes confluent for a length about equal to the long axis of ocellar tubercle, about 10 facets. Ocellar tubercle dark blackish, thinly grey dusted, all ocelli in direct contact with the eyes; a narrow, acute yellow triangle in front of front ocelli. Very short, pale yellow proclinate hairs on ocellar tubercle no longer than diameter of an ocellus. Eye facets in the upper three fifths enlarged, at least twice the size of those in lower part, rather sharply demarcated. Occiput, darker yellow than frons, variably dark in ground colour around neck, thinly whitish dusted and covered with white hairs longer than length of scape and pedicel combined. Antennae with scape and pedicel yellow, a little darker than frons, postpedicel variably brownish to brown-yellow a little darker than pedicel, significantly longer than scape and pedicel together. The tip of this segment is remarkably variable, simply pointed or with a double point, the lower one sometimes spine-like; erect pale hairs very short and inconspicuous along dorsum of segments. Palps small and slender, not swollen apically, pale yellow with short yellowish hairs. Proboscis relatively short, shorter than tibia and basitarsus combined, yellow, labrum conspicuously swollen basally equal to twice width of pedicel, labium brownish often with labella darker blackish-brown, the basoventral membrane yellow.

THORAX. Yellow in ground colour, mesonotum with three variable black vittae, sometimes clearly separated by yellow dorsocentral lines, the paramedian vittae ending before reaching the scutellum, often these black vittae coalescing, reaching the scutellum and more or less obscured by whitish dust. On each side of the thorax are dust-free, velvety, roundish to elongate-oval black spots on the thoracic suture. Just behind the suture and above the wing base is an often obscure, roundish dark spot, occasionally coalescing with the dark antehumeral vittae. In more densely dusted individuals, three narrow, darker vittae can be apparent superimposed on the median black ground-colour vittae. Hairs of mesonotum very pale yellow, absent on paramedian vittae, otherwise evenly distributed, relatively short and uniform in length, longest about half the length of scutellum, anteriorly reclinate, in hind third proclinate. Scutellum yellow, very pale yellow hairs a little longer than on mesonotum. Pleura yellow in ground colour, katepisternum black ventrally, meron black postero-ventrally, anepisternum often with a slightly darker, brownish antero-ventral corner, all thinly white dusted. Pronotum and anepisternum with white hairs like those on notopleuron.

WING. Membrane with a very faint yellow tinge, the veins pale yellowish. Crossvein r-m between basal third and middle of the discal cell, a little to distinctly beyond m-cu. Anal lobe well developed with conspicuously convex margin, noticeably broader than anal cell.

HALTERE. Knob whitish, stem slightly darker yellowish, especially at base.

LEGS. Predominantly yellow except for apical tarsal segments which are variably browner. In darkest specimens hind femora mottled and spotted with brown. Claws yellow basally with black apical half. Legs covered with short white hairs, longest on the coxae and femora, very short and adpressed on tibia and tarsi.

ABDOMEN. Tergites predominantly yellow with paler creamy-yellow apical margins occupying about a third to half the length of each tergite, less on tergite one. Darker specimens can be variably brownish on base of tergites, all very thinly pale dusted. All tergites with mid-length pale hairs those on disc about half the length of respective tergite, laterally hairs longer. Sternites similar but mostly creamy-yellow, hairing as tergites.

GENITALIA. Entirely pale yellow, small but quite conspicuous, the epandrium rectangular, dusting and hairing similar to tergites.

Female

Generally paler than associated males, the dark mesonotal vittae and pleural patches more often red-brown rather than black. Eye facets uniformly small, frons at its narrowest wider than the length of the postpedicel, hind ocelli separated from eye margin by about 1.5 times the diameter of that ocellus. Frons broadening evenly anteriorly, front of frons rather protuberant, gena rather broader than in male. Hairing generally shorter than in male, most conspicuously so on abdomen. Eighth sternite yellow with broad apical emargination bounded by protrusions.

Remarks

Unfortunately, it was not possible to study the material examined by Efflatoun and no more recently collected specimens from Egypt have come to my notice. Photographs of the collection in the Entomological Society of Egypt (ESEC), Cairo, show six specimens, of which 2–3 have red “type” labels. There are a further seven specimens in EFC, of which two have red “type” labels. As far as can be ascertained from the photos available most of these specimens are in reasonable condition, although one of the types in the EFC collection is probably lost. Of the two specimens of var. *minor* in ESEC, one appears to have been destroyed. However, Efflatoun’s (1945) very full description and illustrations fit the paler examples from Senegal very closely so there can be little doubt that these are the same species. Also, specimens from the Gambia fit very closely with Efflatoun’s description and I treat these as conspecific.

Specimens from Nigeria and Kenya are more confusing. The Nigerian specimens include three males that can be identified as *Par. lutescens* with confidence as they hardly differ from the Senegalese specimens. However, two specimens differ sufficiently to make identification uncertain so these, together with four females from Kenya are discussed separately below.

Variation or potential sibling species (Fig. 36)

The following three forms are all known from a single sex and in two cases, single specimens. It is quite possible that they are merely extreme examples of intraspecific variation, but with such limited material it is as yet not possible to reach a conclusion.

Swollen proboscis form (Fig. 36a–e)

Material examined

NIGERIA • 1 ♂; “Transitional zone, Woodland to Savanna/Bauchi, Yankari Game Reserve 7-8 March 1981. R. Dransfield, NMW.Z 1981-125/WT12, 14, 15, 16/*Usia lutescens* Bezzi det. J. Bowden 1982”; NHMUK.

MEASUREMENTS. Body length: 4.6 mm. Wing length: 5.2 mm.

Remarks

This single male was collected in association with typical *Par. lutescens* males (however, label data suggests that four water trap samples have been bulked so it is not certain if all three specimens with the same data were collected at the same precise locality). It differs from typical *Par. lutescens* most obviously in the much more strongly swollen base of the labrum, broader than the femora and about twice as wide as the gena. Point of frons extended back to a very fine point such that eyes touching for only 6–8 facets. Thorax rather densely white dusted thus obscuring black vittae and pleural patches. The genitalia exhibit small differences, apex of gonocoxite coming to a blunt point (sharply pointed in typical *Par. lutescens*), in lateral view lacking easily visible subapical process (a setose process visible in typical *Par. lutescens*) epandrium more parallel sided (expanded apically in typical *Par. lutescens*) and tip of epiphallus different.

Large pale yellow form (Fig. 36f–g)

Material examined

NIGERIA • 1 ♀; “Bauchi, Yankari Game Reserve 28 March 1980. R. Dransfield, NMW.Z 1981-125/wt 5 (9)/*Usia lutescens* Bezzi det. J. Bowden 1982”; NHMUK.

MEASUREMENTS. Wing length: 4.1 mm.

Remarks

This single female specimen was captured the day before a typical male (the label data of these two differ only in date and water trap code numbers so it is clear that these two are not directly associated but were flying at the same time and in approximately the same area). It differs from typical *Par. lutescens* in being very pallid yellow, the dark mesonotal vittae and pleural patches hardly visible, just vaguely darker reddish-yellow. Even the undusted spots on the thoracic suture are more brown than black. It is possible that this female is merely a teneral example, however, the proximal part of the genital fork also differs slightly. The form of the eighth sternite is so close to typical *Par. lutescens* as to be essentially identical.

Small pale yellow form

Material examined

KENYA • 4 ♀♀; “Kora National Reserve, nr. S. bank of Tana River pitfall trap, July-August 1983, N.M. Collins & J.M. Ritchie/*Usia (Parageron) lutescens* Bezzi det. J. Bowden 1985/NMW.Z.2007.035”; NHMUK.

MEASUREMENTS. Body length: 2.5–3.0 mm. Wing length: 2.7–3.0 mm.

Remarks

This small series of four female specimens from Kenya represent the most southerly examples of this genus known. They are superficially rather strikingly different from typical *Par. lutescens* being conspicuously smaller and very pale, washed-out yellow. The most important difference is the form of the proboscis, as long as head and thorax together it is conspicuously longer than in typical *Par. lutescens*. Additionally the labrum is only slightly swollen basally, about as wide as gena. Mesonotal vittae red-brown, only median one readily visible, antehumeral vittae very vague and pleura hardly darkened at all. The spots on the thoracic sutures reddish brown. The genitalia do not differ in any meaningful way from the ‘large pale yellow form’ described above and the eighth sternite is also closely similar.

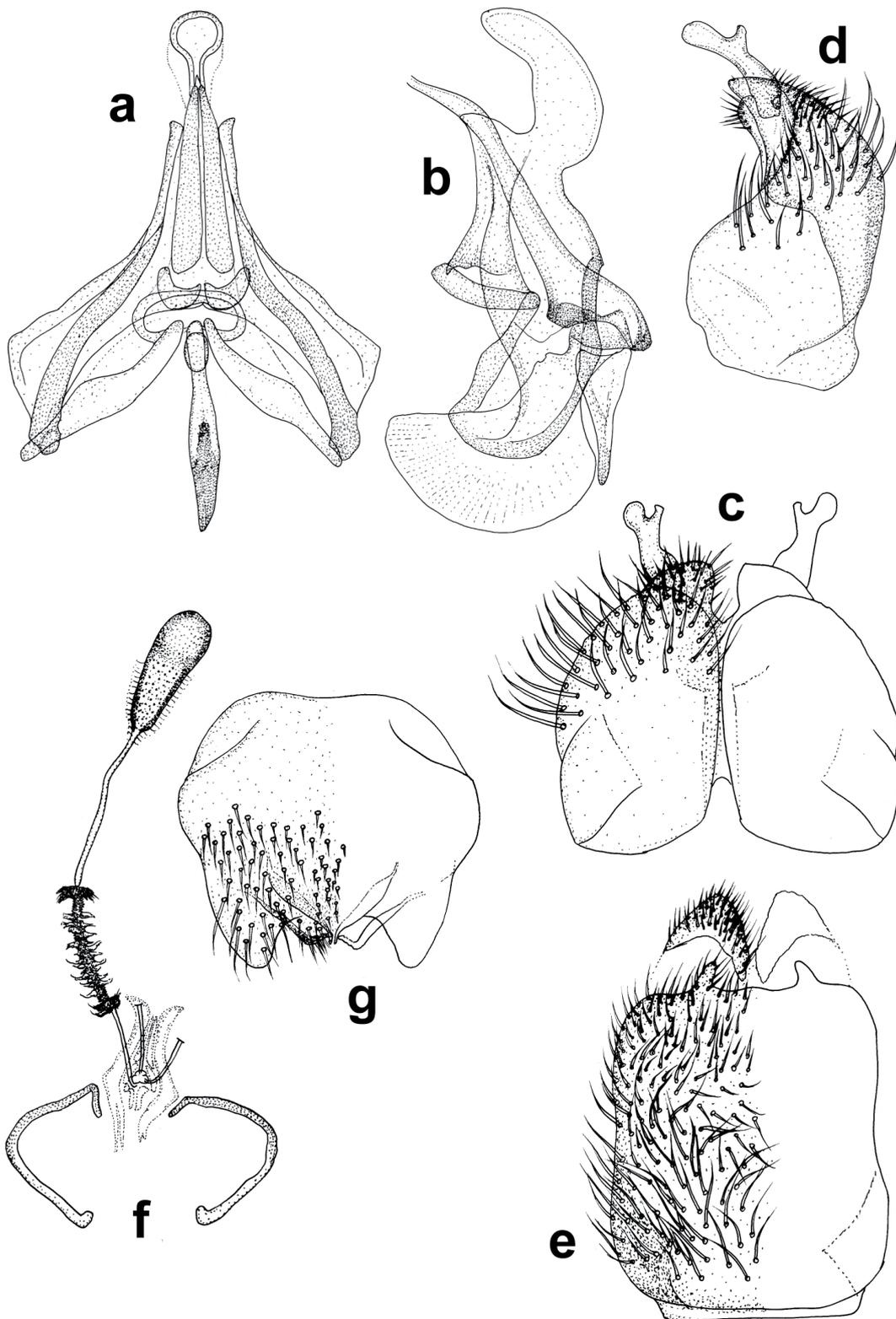


Fig. 36. *Parageron lutescens* (Bezzi, 1925), Nigerian specimens. **a–e.** Swollen proboscis form. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f–g.** Large pale yellow form. **f.** Female genitalia ventral. **g.** Female sternite 8 ventral.

Like the ‘large pale yellow form’, these specimens might be merely teneral specimens. However, the fact that all four are identical in colour and the form of the proboscis suggests that these specimens could be an undescribed species. Certainly, of the three forms described in this section, the ‘small pale yellow form’ is by far the most distinct. Given the apparent variability of *Par. lutescens*, it is safer to wait for male specimens to become available before this form is formally described.

Distribution

Gambia, Egypt, Nigeria, Senegal (and possibly Kenya).

Parageron longilingua sp. nov.

urn:lsid:zoobank.org:act:AC56250F-6D06-4590-B32D-9FFBCF92D90B

Figs 2, 4, 28, 37

Etymology

Noun in apposition, ‘long tongue’, ‘*longus*’ = ‘long’ and ‘*lingua*’ = ‘tongue’ from Latin.

Type material

Holotype

CYPRUS • ♂; “Nicosea 16 August 1933 ♂ leg. T. Shiakides [NHMUK014064125]”; NHMUK.

Paratypes

CYPRUS • 1 ♂; “Nicosea 16 August 1933 ♂ leg. T. Shiakides [NHMUK014064126]”; NHMUK • 1 ♀; “Cherkes 18 June 1934 leg. G. Mavromoustakis [NHMUK014064127]”; NHMUK • 1 ♀; “Limassol (ZW), Akrotiri 25 June 2000 leg. J. Janssens”; PCJD.

ISRAEL • 1 ♂, 2 ♀♀; “Berekhat Ya’ar, 7 July 2005, L. Friedman”; TAU • 4 ♀♀; “Herzliyya, hill, 32°11’N 34°49’E, 18 August 2007, A. Freidberg”; TAU • 1 ♂; 22 August 2007”; TAU • 1 ♀; “Sedi Boqer, 20 June 1970, leg Kulger”; TAU • 1 ♀; “Ein Akev, 8 August 1977, A. Freidberg”; TAU • 1 ♀; “Tel-Aviv, 3 October 1977, A. Freidberg”; TAU.

Other material examined

Intermediate *Par. lutescens*/*Par. longilingua* sp. nov. material.

ISRAEL • 1 ♂; “Jerico, Palestine, 23 August 1973, leg. Bytinski-Salz”; TAU • 1 ♂; “Arad, Israel, 30 June 1970, leg. Kugler [♂]”; TAU.

Description

MEASUREMENTS. Body length: 2.5–4.5 mm. Wing length: 2.8–4.8 mm.

Male

A variable species, possibly a species complex or even an extreme variety of *Par. lutescens* (see discussion below). This description is based on Israeli specimens, with reference to Cypriot specimens where different.

HEAD. Gena relatively broad, at level of proboscis wider than depth of postpedicel, remaining almost parallel sided onto frons, entirely yellow in ground colour with thin coating of silky white dust, a slightly shinier border to the oral opening below. Frons in dorsal view approximately equilateral, almost straight laterally, with short but distinct erect pale brown hairs, longer than pedicel (a little shorter in Cypriot specimens). Eyes confluent for longer than long axis of ocellar tubercle, about 13 facets and a little longer than the frons (about equal in Cypriot specimens). Ocellar tubercle dark brown to blackish, brown

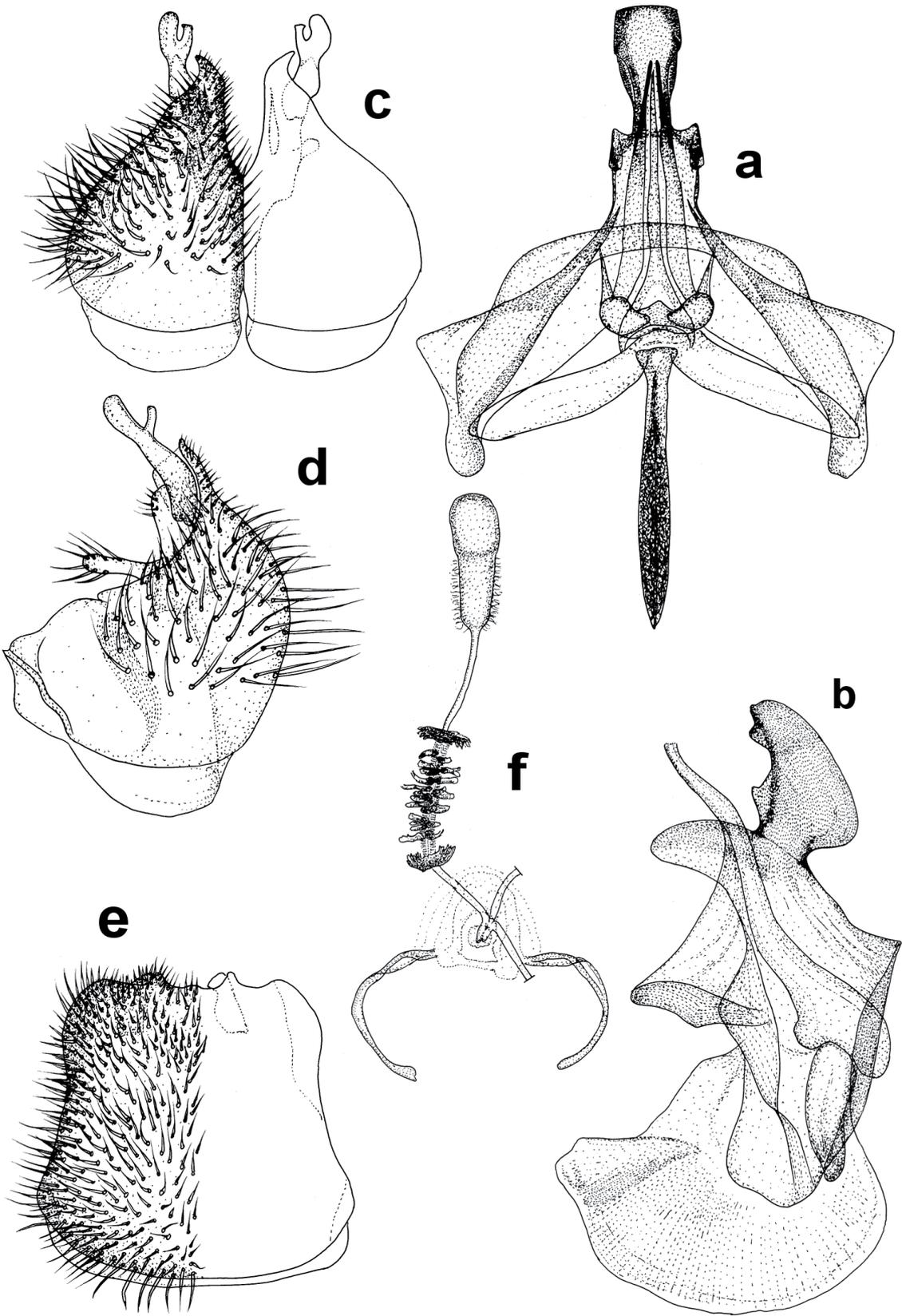


Fig. 37. *Parageron longilingua* sp. nov. **a.** Epiphallial complex ventral. **b.** Epiphallial complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral.

dusted (grey in Cypriot specimens), all ocelli in direct contact with the eyes; a narrow, acute dark triangle in front of front ocelli. Longish, pale yellow proclinate hairs on ocellar tubercle, a little longer than the distance across the hind ocelli. Eye facets in the upper two thirds (three fifths in Cypriot specimens) enlarged, at least twice the size of those in lower part, rather sharply demarcated. Occiput, darker yellow than frons, variably dark in ground colour around neck, thinly yellowish dusted and covered with pale yellow hairs longer than length of scape and pedicel combined (white dusted and haired in Cypriot specimens). Antennae with scape and pedicel yellow, a little darker than frons, postpedicel variably brownish to brown-yellow little darker than pedicel, significantly longer than scape and pedicel together. The tip of this segment variable, simply pointed (Cypriot specimens) or with a double point, the lower one long or short; erect pale hairs along dorsum of segments, especially scape and pedicel. Palps small and slender, not swollen apically, pale yellow with short yellowish hairs. Proboscis conspicuously long, a little variable but often longer than the remainder of the body, swollen base yellow, the rest blackish. Labrum swollen basally but less so than in most *Par. lutescens*, labium brownish shading into blackish apical half and labella, the basoventral membrane dark yellow.

THORAX. Yellow in ground colour, mesonotum with three variable black vittae, sometimes clearly separated by yellow dorsocentral lines (Cypriot specimens) and the mid-vittae ending before reaching the scutellum, often the black vittae coalescing such that the mesonotum is entirely dark on the disc (Israeli specimens) obscured by rather dense golden (whitish in Cypriot specimens) dust. On each side of the thorax are dust-free, velvety, roundish black spots on the thoracic suture. Just behind the suture and above the wing base is an often obscure (missing in one Cypriot specimen), roundish dark spot, occasionally coalescing with lateral dark vittae. In more densely dusted individuals, viewed from behind, three narrow, darker vittae can be apparent superimposed on the median black ground-colour. Hairs of mesonotum very pale yellow, narrowly absent on paramedian vittae, denser on anterior half, rather sparse on disc behind thoracic suture, mid-length, longest laterally, longest hairs almost as long as postpedicel, anteriorly reclinate, in hind third erect to slightly proclinate. Scutellum dull brown (yellow in Cypriot specimens), pale yellow hairs as on mesonotum. Pleura dark yellow in ground colour, katepisternum black ventrally, meron black postero-ventrally, anepisternum with a darker, blackish lower half, all densely yellow dusted (Cypriot specimens paler and white dusted). Pronotum and anepisternum with yellow hairs like those on notopleuron.

WING. Membrane with a very faint yellow tinge, the veins brown, yellow basally (entirely yellow in Cypriot specimens). Crossvein r-m at basal third of the discal cell, distinctly beyond m-cu. Anal lobe well developed with conspicuously convex margin, noticeably broader than anal cell.

HALTERE. Knob whitish with a distinct brown spot dorsally, stem yellowish, slightly darker at base (knob all white in Cypriot specimens).

LEGS. Predominantly yellow except for apical tarsal segments which are variably blackish. In darkest specimens femora infuscated laterally and hind tibia apically brownish. Claws yellow basally with black apical half. Legs covered with short pale yellow hairs, longest on the coxae and femora, very short and adpressed on tibia and tarsi.

ABDOMEN. Tergites brownish-yellow on disc, paler laterally and on tergite one, each tergite with a pale ivory apical margin occupying about a quarter to a third the length of the visible tergite, narrower on tergite one (Cypriot specimens much paler, like *Par. lutescens*). All tergites yellow dusted, less densely than on mesonotum (white dusted in Cypriot specimens) with mid-length pale hairs those on disc about as long as the respective tergite, laterally hairs hardly longer, hairs tending to be distinctly curved towards the tip of the abdomen apically. Sternites similar but mostly creamy-yellow, hairing as tergites.

GENITALIA. Mostly dark yellow, gonocoxite basally blackish, small but quite conspicuous, the epandrium rectangular, dusting and hairing similar to tergites but conspicuously shorter. The two forms treated above differ in their epiphallus, Israeli specimens hardly differing from *Par. lutescens*, Cypriot specimens darker, more sclerotised and slightly different in shape.

Female

As male but generally paler with more limited areas of blackish ground colour and generally shorter hairs. Gena a little broader than in male, broadening towards frons. Frons about one third head width, conspicuously narrowing towards vertex, dark yellow-brown with golden dusting and very short yellow-brown hairs. Ocellar triangle equilateral to slightly acute, hind ocelli separated from eye margin by 1.5 to two times diameter of that ocellus. Hairs on ocellar tubercle no longer than those on adjacent part of frons.

Remarks

It has in common with *Par. lutescens*, a large amount of variability, even within the limited series available from Cyprus and Israel. Initially, when only Cypriot *Par. longilingua* sp. nov. and West African *Par. lutescens* were available for study, and the holotype of *Par. orientalis* had not been seen, these two taxa seemed to be abundantly distinct, with external morphology correlating with genitalia structure. Photos of the holotype of *Par. orientalis* combined with specimens of *Par. orientalis* from northern Iran showed that this taxon could not be *Par. orientalis*. However, material from Israel considerably confused the issue. These specimens share the very long, black proboscis, only slightly swollen basally, with Cypriot specimens but are darker and dusted golden brown rather than white. As such they look more distinct from *Par. lutescens* than do Cypriot specimens. However, on dissection, while the epandrium proved to be similar to that of Cypriot specimens (a subtle character) the epiphallus is clearly of the *Par. lutescens* form.

The situation is further complicated by two male specimens from Israel which have the pale yellow cuticle and genitalia of *Par. lutescens*. However, their proboscis is about half the length of other *Par. longilingua* sp. nov. specimens but twice that of typical *Par. lutescens*. Also, these specimens have the base of the proboscis only slightly swollen, just as in *Par. longilingua*. While the possibility exists that these two represent hybrids between *Par. lutescens* and *Par. longilingua*, I suspect that they are merely examples of extreme variation in *Par. longilingua*.

With the material available to me during this study, it does not seem possible to satisfactorily resolve the intricacies of the *Par. lutescens-longilingua* complex. More detailed investigation might conclude that it is a single very labile taxon or six or more distinct species, only more material and probably molecular techniques will resolve it.

Distribution

Cyprus and Israel.

Parageron orientalis Paramonov, 1929 stat. rev.
Figs 3, 27, 38

Parageron orientalis Paramonov, 1929: 189(127).

Etymology

From Latin '*orientis*' meaning 'morning' or 'east'.

Type material (not examined, photo only)

Holotype

TURKMENISTAN • ♂; “Bachaselin, piap., Askhabad, Transcaspia, 10 July 1926/*Parageron orientalis* n.gen. et sp ♂ Typus Paramonov/N276.”; SIKZ. [Good quality photos only from Valery Korneyev.]

Other material examined

IRAN • 1 ♂; “Ghazvin, Barajin 8km N of city, 1512m, N36°20'50" E50°4'15" 13 June 2009 pan trap Leg. Babak Gharali”; PCDG • 1 ♀; “Tarom City, Olive research station, N36°40' E49°25', 339m, 30 June 2009, pan trap, Leg Babak Gharali”; PCDG.

Redescription

MEASUREMENTS. Body length: 6.0 mm. Wing length: 3.4–4.5 mm.

Very little variation in the three specimens examined. Descriptions from pinned specimens recovered from spirit so colours may differ a little from fresh material.

Male

HEAD. Gena relatively broad, at level of proboscis wider than depth of postpedicel, broadening out onto frons, entirely pale yellow in ground colour with thin coating of white dust, a slightly shinier border to the oral opening below. Frons in dorsal view acute, drawn into narrow point between eyes a few short silky-white hairs longer than the general pile. Eyes confluent for about twice the width across hind ocellus, about seven facets. Ocellar tubercle dark brown, more blackish adjacent to ocelli, thinly grey dusted, all ocelli narrowly but distinctly separated from eyes; a narrow, acute yellow triangle in front of front ocellus. Distinct, fairly long, very pale yellow proclinate hairs on ocellar tubercle at least twice as long as diameter of a lateral ocellus. Eye facets in the upper three fifths enlarged, at least twice the size of those in lower part, rather sharply demarcated. Occiput darker yellow than frons, infuscated above neck and along seams of occipital callosities, thinly whitish dusted and covered with fine white hairs longer than length of scape and pedicel combined. Antennae with scape and pedicel yellow, a little darker than frons, postpedicel variably brownish to brown-yellow a little darker than pedicel, significantly longer than scape and pedicel together. The tip of postpedicel simply pointed, almost devoid of hairs, subapical sulcus small and inconspicuous. Scape and pedicel with fine white hairs dorsally and externally. Palps small and slender, not swollen apically, pale yellow with short yellowish hairs. Proboscis relatively long, longer than femur and tibia combined, and about three times head length, yellow, labrum conspicuously swollen basally equal to twice width of pedicel, becoming darker apically, labium contrastingly black, the basoventral membrane yellow.

THORAX. Yellow in ground colour, mesonotum with three broad black vittae, sometimes clearly but narrowly separated by yellow dorsocentral lines, the mid-vittae continuing back to the scutellum, antehumeral vittae shorter, all dulled by a coating of whitish-grey dust. On each side of the thorax are dust-free, velvety, roundish to elongate-oval black spots on the thoracic suture. Just behind the suture and above the wing base is a vague, roundish dark spot. Hairs of mesonotum very pale yellow, narrowly absent on paramedian vittae, otherwise evenly distributed, relatively short and uniform in length, longest about half length of scutellum, anteriorly reclinate to upright, in hind third proclinate. Scutellum yellow, a little paler than adjacent yellow parts of mesonotum, very pale yellow hairs very similar to those on mesonotum. Pleura yellow in ground colour, katapisternum black ventrally, meron black postero-ventrally, anepisternum with a darker, brownish antero-ventral corner, all thinly white dusted. Pronotum and anepisternum with white hairs like those on notopleuron, other pleural sclerites hairless.

WING. Membrane hyaline, the veins yellow, becoming browner distally and towards hind margin. Crossvein r-m at or a little before middle of the discal cell, well beyond m-cu. Anal lobe well developed with evenly convex margin, noticeably broader than anal cell.

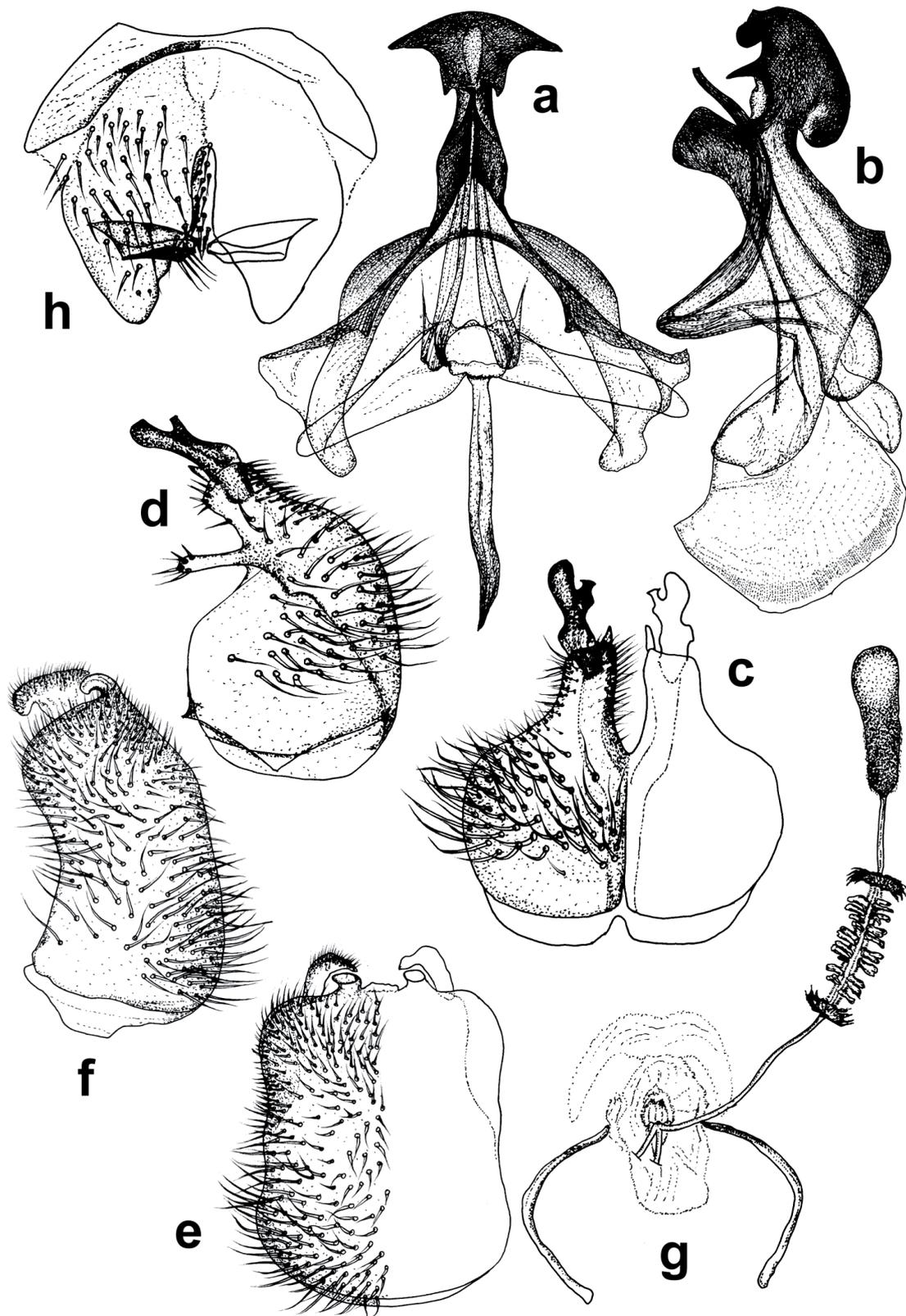


Fig. 38. *Parageron orientalis* Paramonov, 1929 stat. rev. **a.** Epiphallallic complex ventral. **b.** Epiphallallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Epandrium lateral. **g.** Female genitalia ventral. **h.** Female sternite 8 ventral.

HALTERE. Knob whitish with a faint yellow suffusion dorsally, stem yellowish, very slightly darker at base.

LEGS. Predominantly yellow except for apical tarsal segments which become progressively darker to fifth segment. Hind coxae vaguely brown-marked basally. Claws yellow basally with well demarcated black apical half. Legs covered with short pale yellow hairs, longest on the coxae and femora, very short and adpressed on tibia and tarsi. Basal three tarsal segments and mid- and hind-tibia apically with black spicules ventrally.

ABDOMEN. Basal tergite yellow with distinctly whiter apical margin, remaining tergites brown on disc, yellow apically and laterally. All tergites very pale yellow dusted, less densely than on mesonotum with mid-length pale hairs those on disc of mid-tergites about as long as the respective tergite, laterally hairs hardly longer, hairs tending to be distinctly curved towards the tip of the abdomen. Sternites similar but lacking dark brown colour basally but mostly creamy-yellow, hairing as tergites, or a little shorter.

GENITALIA. Mostly brownish yellow, gonocoxite basally a little darker, gonostyli darkened apically. Hairing similar to tergites but shorter. [Only dissected male available so colours of epandrium and gonocoxite may differ in dry specimens, dusting not discernible.]

Female

Very like male in colour and patterning, but vestiture generally shorter on head, mesonotum and abdomen, most obviously so on tergites. Gena and mouth margin almost identical to male, but broadening more widely towards frons. Frons about one fifth to a quarter head width, conspicuously narrowing towards vertex, yellow centrally with some brown patches, paler yellow along eye margin anteriorly, hairs very short and largely adpressed. Ocellar triangle equilateral to slightly acute, hind ocelli separated from eye margin by about twice the diameter of that ocellus. Hairs on ocellar tubercle a little longer than those on adjacent part of frons.

Remarks

Engel (1932) synonymised this species with *Par. lutescens* Bezzi. He wrote that he had compared a female specimen borrowed from Paramonov with a female example of *Par. lutescens* sent by Professor Efflatoun Bey and concluded [translated from original German]: “It resembles the female *Parageron orientalis* Param.so completely that the identity of both species cannot be doubted”. In his work on the Usiini Paramonov (1947) stated that he considered this action to be premature, going on to point out several clear differences that Engel (1932) seems to have dismissed. Unfortunately, Paramonov’s opinion was ignored and thus *Par. orientalis* has remained a synonym since Engel (1932) sunk it.

Had the male aedeagus been examined then this conflation could never have happened. On receiving specimens from Iran that were clearly identical in external appearance to the photos of the type of *Par. orientalis* in Kiev, it was immediately apparent that this was not only a good species, but clearly distinct from *Par. lutescens*.

Distribution

Northern Iran, southern Kazakhstan, Turkmenistan and Uzbekistan.

Genus *Protypusia* gen. nov.

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Type species

Usia incisa Wiedemann, 1830.

Diagnosis

This large genus of 23 species is rather heterogeneous and no one character distinguishes them from the other genera in *Parageron* s. lat. However, they are diagnosable from a combination of characters,

especially in the male and female genitalia. Most are small, delicate species, although *Pro. incisa* is the largest of all the *Parageron* s. lat., with relatively small hypopygium that in many species can be partially retracted into abdomen and inconspicuous. The epiphallic complex is relatively simple, with the tip of the epiphallus in most species having a membranous tip armed with small spines (exceptions are *Pro. flavipalpis* gen. et sp. nov. and *Pro. grisea*). In all cases the basal ejaculatory apodeme is relatively small (a feature shared with the very different *Ectopusia* gen. nov.) compared to *Parageron* and *Parusia*. Female genital fork usually well sclerotised, with the tip of the genital fork bent dorsally at 90° or even more. Vaginal plate usually well sclerotised, often contiguous with the genital fork, arms of genital fork sclerotised but usually uniformly narrow. *Protypusia flavipalpis* and *Pro. vagans* exhibit the least sclerotisation of the genital fork, but seem to belong here on a suite of other characters. Within *Protypusia* gen. nov., several species are clearly very close, and these have been separated out as the *incisa* species group, the remainder placed in the *punctipennis* species group.

Etymology

From the Greek ‘πρότυπο’ ‘*prótypo-*’ meaning ‘standard’ and genus *Usia*. Chosen because these are the most familiar members of the “*Parageron*” lineage with the highest diversity.

Included species

Protypusia argentata gen. et sp. nov.
Protypusia deserticola (Eflatoun, 1945) gen. et comb. nov.
Protypusia dimonica (Zaitzev, 1996) gen. et comb. nov.
Protypusia emeljanovi (Zaitzev, 1975) gen. et comb. nov.
Protypusia flavipalpis gen. et sp. nov.
Protypusia grata (Loew, 1856) gen. et comb. nov.
Protypusia grisea (Paramonov, 1947) gen. et comb. nov.
Protypusia hyalipennis (Séguy, 1941) gen. et comb. nov.
Protypusia incisa (Wiedemann, 1830) gen. et comb. nov.
Protypusia inornata (Engel, 1932) gen. et comb. nov.
Protypusia kerkini gen. et sp. nov.
Protypusia modesta (Loew, 1873) gen. et comb. nov.
Protypusia negevi (Zaitzev, 1996) gen. et comb. nov.
Protypusia ornata (Engel, 1932) gen. et comb. nov.
Protypusia punctipennis (Loew, 1846) gen. et comb. nov.
Protypusia raydahensis (El-Hawagry & Al Dhafer, 2016) gen. et comb. nov.
Protypusia separata Gibbs & Theodor gen. et sp. nov.
Protypusia striata (Báez, 1982) gen. et comb. nov.
Protypusia strymonas gen. et sp. nov.
Protypusia tewfiki (Eflatoun, 1945) gen. et comb. nov.
Protypusia vagans (Becker, 1906) gen. et comb. nov.
Protypusia xizangensis (Yang & Yang, 1994) gen. et comb. nov.
Protypusia zimini (Paramonov, 1947) gen. et comb. nov.

incisa – species group

Diagnosis

This small group of five species seems to be monophyletic, all with very similar male and female genitalia. Distinguished from all other *Parageron* s. lat. by the conspicuously long hairs on the frons in both sexes that extend down the gena below the level of the insertion of the antennae. That this closely related group of species includes both holoptic and dichoptic males suggests that this state can evolve rapidly and is not useful in these genera.

Included species

Protypusia argentata gen. et sp. nov.

Protypusia grata (Loew, 1856) gen. et comb. nov.

Protypusia incisa (Wiedemann, 1830) gen. et comb. nov.

Protypusia separata Gibbs & Theodor gen. et sp. nov.

Protypusia striata (Báez, 1982) gen. et comb. nov.

Protypusia argentata gen. et sp. nov.

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Figs 25, 39

Etymology

From Latin ‘*argentum*’ meaning ‘silver’, refers to the silver-grey dusting and white hairs covering much of the bodies of both sexes.

Type material

Holotype

MOROCCO • ♂; “21 March 2006, Tiznit, Arbaa-sahel 320 m, N29°39'26.5" W09°52'11.4" Leg, Dils, J.-Faes, J.”; NHMUK.

Paratypes

MOROCCO • 1 ♀; “21 March 2006, Tiznit, Arbaa-sahel 320 m, N29°39'26.5" W09°52'11.4"”; NHMUK • 1 ♂, 7 ♀♀; “21 March 2006, Tiznit, Arbaa-sahel 320 m, N29°39'26.5" W09°52'11.4"”; PCJD • 1 ♀; “22 March 2006, Tiznit, Arbaa-sahel 330 m, N29°40'19.7" W09°51'18.5"”; PCJD • 2 ♂♂, 3 ♀♀; “25 March 2009, Ouarzazate, Amerzgane 1350 m, N31°01'02.9" W07°13'45.9"”; PCDG • 1 ♀; “16 March 2009, Tiznit 330 m, Arbaa sahel N29°39'26.4" W09°52'11.5" Leg, Dils, J.-Faes, J.”; PCJD.

Description

MEASUREMENTS. Body length: 4.0–5.6 mm. Wing length: 4.1–6.0 mm.

Male

HEAD. Gena broad, wider than width of proboscis at base, broadening out above into frons, and somewhat inflated, all silvery-grey dusted except for a very narrow, blackish border to the oral opening level with proboscis. Frons covered with long, dark-brown to blackish hairs, the longest equalling the length of the postpedicel, these hairs, after a glabrous area laterally, continuing down to level with proboscis, leaving a narrow, glabrous gap before the silvery occiput hairs start. Holoptic, but eyes only touching for about three facets, the frons drawn out to a fine point. Ocellar tubercle black, subshining but with grey dusting apparent from some angles, a small silvery-grey triangle in front of anterior ocellus, the hind ocelli almost in contact with hind corners of eyes; ocelli form an equilateral triangle. Silvery hairs on ocellar tubercle about as long as scape and pedicel combined. Eye facets clearly enlarged in upper two thirds, about twice the size of lower facets. Occiput densely coated with silver-grey dust except for a triangular patch behind ocellar tubercle which is more thinly dusted. Either side of this triangular area, above neck, are darker brown dusted areas, the occipital callosities almost black. The whole occiput with a long, silvery vestiture, the hairs becoming longer below forming a ‘beard’ below the eye. Post occipital hairs dorsally not differentiated, not over-topping hairs on ocellar tubercle, from front extending above eyes hardly more than height of ocellar tubercle. Antennae blackish, grey dusted, especially on the scape, postpedicel significantly longer than scape and pedicel together, the sensilla in the apical sulcus contrastingly white. Scape and pedicel clothed with silvery hairs, the longest on the scape longer than its diameter; silvery hairs on postpedicel confined to dorsum and usually shorter, longest just before the sulcus. Palps short,

claviform, black, thickly clothed with long silvery hairs. Proboscis long, about equal to the head and mesonotum combined, black, including basal membrane, laterally with short brown hairs along its base.

THORAX. Mesonotum with blackish ground-colour variably obscured by pale silver-grey dust covering postpronotal lobe, notopleuron, above wing bases, and thinly in front of scutellum (smaller specimens from higher altitude) to densely covered with yellow-grey dust, more thinly on paramedian and antehumeral vittae (larger specimens from lower altitude). Hairs of mesonotum silvery, almost as long as antennae, relatively dense, especially anteriorly, sparser on paramedian vittae and close to scutellum. Scutellum varying from subshining blackish, dusted grey laterally, to densely yellow-grey dusted, with darker, more brownish disc, covered with long silvery hairs dorsally as long, peripherally longer than those on mesonotum. Pleura densely pale grey dusted, pronotum and anepisternum with long, silvery hairs, katepisternum with long silvery hairs ventrally and on anterior half.

WING. Membrane hyaline, very faintly yellowish basally, the veins yellowish-brown, paler basally, the subcosta entirely yellow. Crossvein r-m between basal third and middle of the discal cell, clearly beyond m-cu, a little variable. Anal lobe well developed with conspicuously convex margin, broader than anal cell.

HALTERE. Pale yellowish-white, base of stem infuscated.

LEGS. Coxae concolourous with pleura and with the same long, silvery hairs. Femora and tibia silvery-grey dusted, from some angles appearing darker on apices of tibia and tarsi. Femora covered with white hairs, long and dense on fore and mid-femora posteriorly, even longer but less dense on hind-femora. Tibia and tarsi covered with short, silver hairs, the tibia also with longer hairs in proximal halves, especially dorsally.

ABDOMEN. Tergites subshining blackish on disc, more or less dusted silvery-grey apically and laterally, Extent of dusting varies from complete on apical segment to a narrow apical rim and on reflexed sites basally in smaller examples from higher altitude. Some specimens have very narrow, sharply defined yellow posterior margins, disappearing laterally. All tergites with long silvery hairs up to about twice as long as the length of each tergite. Sternites densely silver-grey dusted, pale apical margins distinct, becoming broader distally, hairs as long as those on tergites.

GENITALIA. Small, similar to *Pro. grata*, somewhat ventrally deflected, dark ground colour completely obscured by silver-grey dust, slightly less so on tips of gonocoxite, cerci brown, gonostyli black. Hypopygium clothed with silvery hairs, longest on gonocoxite.

Female

Differs from the male in its broadly separated eyes, frons about one third head width, densely grey dusted, slightly less so on ocellar tubercle. Hairs on frons rather shorter, extending back to level of hind ocelli, the hairs extending down the gena silvery to yellowish-brown rather than black. Silvery post ocellar hairs a little shorter but still exhibits the 'bearded' effect below eyes. Hairs on mesonotum, tergites and legs a little shorter, especially dorsally. Mesonotum more densely grey dusted with paramedian and antehumeral vittae vaguely indicated in some specimens. Scutellum uniformly grey dusted. Tergite similar but with broader, more conspicuous apical yellow margins.

Remarks

Very similar to the sympatric *Pro. grata*, including the male and female genitalia, and the two species have been collected together at the same site in Morocco. Males are distinctive due to the coating of silvery dusting and largely very long silvery hairs. Females can be very similar to female *Pro. grata*, but are more uniformly grey dusted on mesonotum and abdomen, hardly showing the darker mesonotal vittae of female *Pro. grata*.

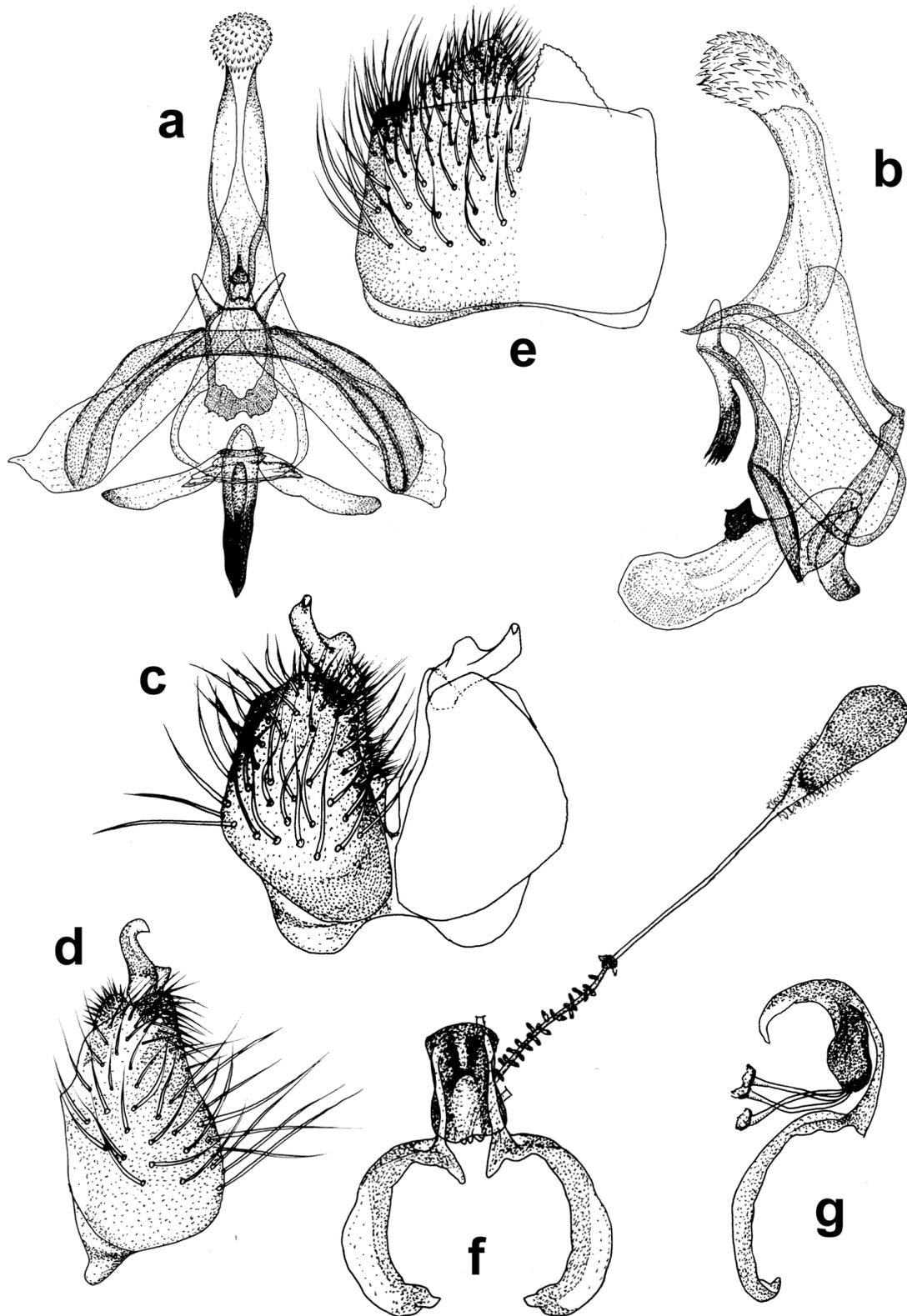


Fig. 39. *Protypusia argentata* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

Distribution

Morocco.

Protypusia grata (Loew, 1856) gen. et comb. nov.
Figs 5, 23, 40

Usia grata Loew in Rosenhauer, 1856: 380.

Usia aurata – Efflatoun 1945: 202, pl. 19 figs 298–299, misident.

Usia sp. no. 2 (holoptic male) – Theodor 1983: 55, figs 135–137.

Etymology

From Latin ‘*gratis*’ meaning ‘for nothing’, ‘free’.

Type material (not examined)

Not seen, apparently lost? Type locality: Spain.

Other material examined

ISRAEL • 1 ♂; “Jerusalem, Israel, Loc: Mishot Rotem, Date: 14 February 1965, Col: M. Weichselfich/574, 1400/HOLOTYPE, *Usia holoptica*, Theodor, det. O. Theodor 1985 495, 1300”; TAU • 1 ♂; “PARATYPE, *Usia holoptica*, Theodor, det. O. Theodor 1985”; TAU • 1 ♂; “same data 564, 1300”; • 1 ♂; “same data 578, 1330”; TAU • 1 ♂; “N. Revirim, 12 March 1974, D. Furth/PARATYPE, *Usia holoptica*, Theodor, det. O. Theodor 1985”; TAU • 1 ♂; “Kfar Adumim, 3 March 1981, F. Kaplan”; TAU • 1 ♂; “Kalia, 3 March 1981, A. Freidberg”; TAU • 1 ♀; “13 February 1975”; TAU • 2 ♂♂; “6 February 1978”; TAU • 1 ♂; “Mashabe Sade, 16 February 1976, A. Freidberg”; TAU • 1 ♂; “Jerico, 8 March 1976, M. Kaplan”; TAU • 1 ♂; “Shivta, 13 March 1977, A. Freidberg”; TAU • 2 ♂♂; “Arad, 5 January 1971, leg. Kugler”; TAU • 2 ♂♂, 3 ♀♀; “Tel. Jerucham, 4 April 1962”; TAU • 3 ♂♂, 1 ♀; “Ma’agar Yeroḥam, 7 March 2007, A. Freidberg”; TAU • 1 ♂, 1 ♀; “Merhav’Am, Nahal Hazaz, 7 March 2007, A. Freidberg”; TAU • 1 ♂; “Nahal Shahaq, Shezaf Nat. Res., 30 44’83N 35 15’10E, 12 March 1997 O. Niehuis”; TAU • 1 ♂, 2 ♀♀; “Har Horesha, 30°36’N 34°31’E, 6 April 2005, A. Freidberg”; TAU • 3 ♂♂; “Sedé Boqér, 18 March 2007, L. Friedman”; TAU • 1 ♂; “30 March 2004”; TAU • 1 ♂; “Jerico-Ein Gedi, 23 February 1983, A. Freidberg”; TAU • 1 ♂; “Bkaot, 15 February 1984, Y. Zvik”; TAU • 3 ♂♂; “W. Faria 4 March 1985, Ian Susman”; TAU.

MOROCCO • 1 ♀; “Museum Paris, Maroc, Dar Kaïd M’Tougui, P. Pallary 1914”; MNHN.

PORTUGAL • 1 ♂; “Algarve, St Vincents Cape, 13 ii 2004 (leg. A. Godfrey)”; PCDG.

SPAIN • 1 ♀; “Madrid, Dusmet”; MNHN • 2 ♂♂, 7 ♀♀; “Mosa Trajectum, nr. Murcia 26 February 2007, on flower of yellow composite nr. waterworks (leg. C.E. Dyte)”; PCDG • 2 ♂♂, 13 ♀♀; “Cordoba, 15 km NW Hwy N432, 2 April 1996, I. Yarom”; TAU.

TUNISIA • 1 ♀; “Bou Hedma, C. Dumont 1929, March”; MNHN.

Redescription

MEASUREMENTS. Body length: 2.3–7.5 mm. Wing length: 2.8–7.4 mm.

Male

HEAD. Gena relatively broad, twice as wide as width of proboscis at base, broadening out and inflated above into frons, all grey dusted, a narrow, slightly shinier, margin to the oral opening. Dust coating

shifting according to view, from some angles completely obscuring ground colour, from other black cuticle apparent, subshining. Frons slightly convex covered with long, blackish hairs, the longest exceeding the length of the postpedicel. Often a glabrous area separates these hairs from the equally long black hairs extending down the gena to the level of the proboscis where narrowly separated by bare strip from paler hairs below eyes. Eyes holoptic, contiguous for about seven facets, frons extending up in narrow point. Ocellar tubercle black, subshining, barely brownish dusted, the hind ocelli in contact with hind corners of eyes or very narrowly separated; ocelli form an equilateral triangle. Blackish hairs on ocellar tubercle as long as scape and pedicel combined, a little shorter than frons hairs. Eye facets enlarged in upper two thirds, about twice the size of lower facets. Occiput blackish in ground colour, very thinly dusted dorsally, becoming distinctly yellow-grey dusted below and on to jowls. An irregular bi- to tri-serial row of long, dark post ocellars extending to just below middle of eye, as long as hairs on ocellar tubercle. Behind and below these the occiput is covered with shorter pale-yellowish hairs, becoming longer below eyes. Antennae blackish, the scape and pedicel grey dusted, postpedicel significantly longer than scape and pedicel together. Scape and pedicel clothed with blackish hairs, the longest on the scape longer than its diameter, postpedicel with series of short hairs along dorsal surface becoming longer distally. Palps short, claviform, black, thickly clothed with long yellowish hairs. Proboscis moderately long, about equal to the mesonotum, brown, laterally with short curved hairs on basal third to half.

THORAX. Mesonotum with blackish ground-colour obscured by pale-grey dust on postpronotal lobe, notopleuron, above wing bases, anterior slope of mesonotum which extend backwards as dorsocentral lines that more or less diverge rearwards, and a short acrostichal line stopping one quarter to third way from the front. Area in front of scutellum more or less grey dusted and may or may not be connected to the dorsocentral lines. Hairs of mesonotum pale yellowish, as long as postpedicel, evenly distributed, denser anteriorly, sparse in front of scutellum. Scutellum variably grey-brown dusted, often browner, more densely dusted, than adjacent mesonotum, yellowish hairs dorsally as long, peripherally longer than those on mesonotum. Pleura blackish with thin coating of yellow-grey dust, anepisternum and pronotum with long, pale yellow hairs, katepisternum with a scattering of pale yellow hairs anteriorly and ventrally.

WING. Membrane with a faint yellow-brown tinge, the veins yellowish-brown, paler basally, subcosta all yellow. Crossvein r-m between basal third and middle of the discal cell, clearly beyond m-cu, a little variable. Anal lobe well developed with evenly convex margin, a little broader than anal cell.

HALTERE. Knob dark brown with variable yellowish dorsal spot, stem yellowish with dark brown base.

LEGS. Coxae black, concolourous with pleura and similarly dusted. Femora and tibia uniformly black, thinly yellow-grey dusted not obscuring ground colour. Legs covered with pale yellow hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally. Tibia and tarsi with short, pale hairs, tibia also with longer hairs basally, continuing to tip antero-dorsally on hind tibia. Black spicules present beneath mid basitarsus and tip of mid-tibia ventrally.

ABDOMEN. Tergites matt black on disc, only grey dusted on reflexed lateral margins. All tergites with narrow, sharply delimited yellow posterior margins, narrowing to a point on reflexed lateral margins. All tergites with long pale yellow hairs longer than the length of each tergite, even longer laterally. Sternites grey dusted obscuring ground colour, pale apical margins broader than on tergites, dulled by grey dusting, hairs as long as those on tergites.

GENITALIA. Small, typical of genus, somewhat ventrally deflected, black in ground colour, gonocoxite with thin grey dusting, subshining and long, curve-tipped, pale yellow hairs. Epandrium more densely grey dusted, clothed with pale yellow hairs, shorter than on gonocoxite, apical margin of epandrium with distinct fringe of yellow-brown hairs.

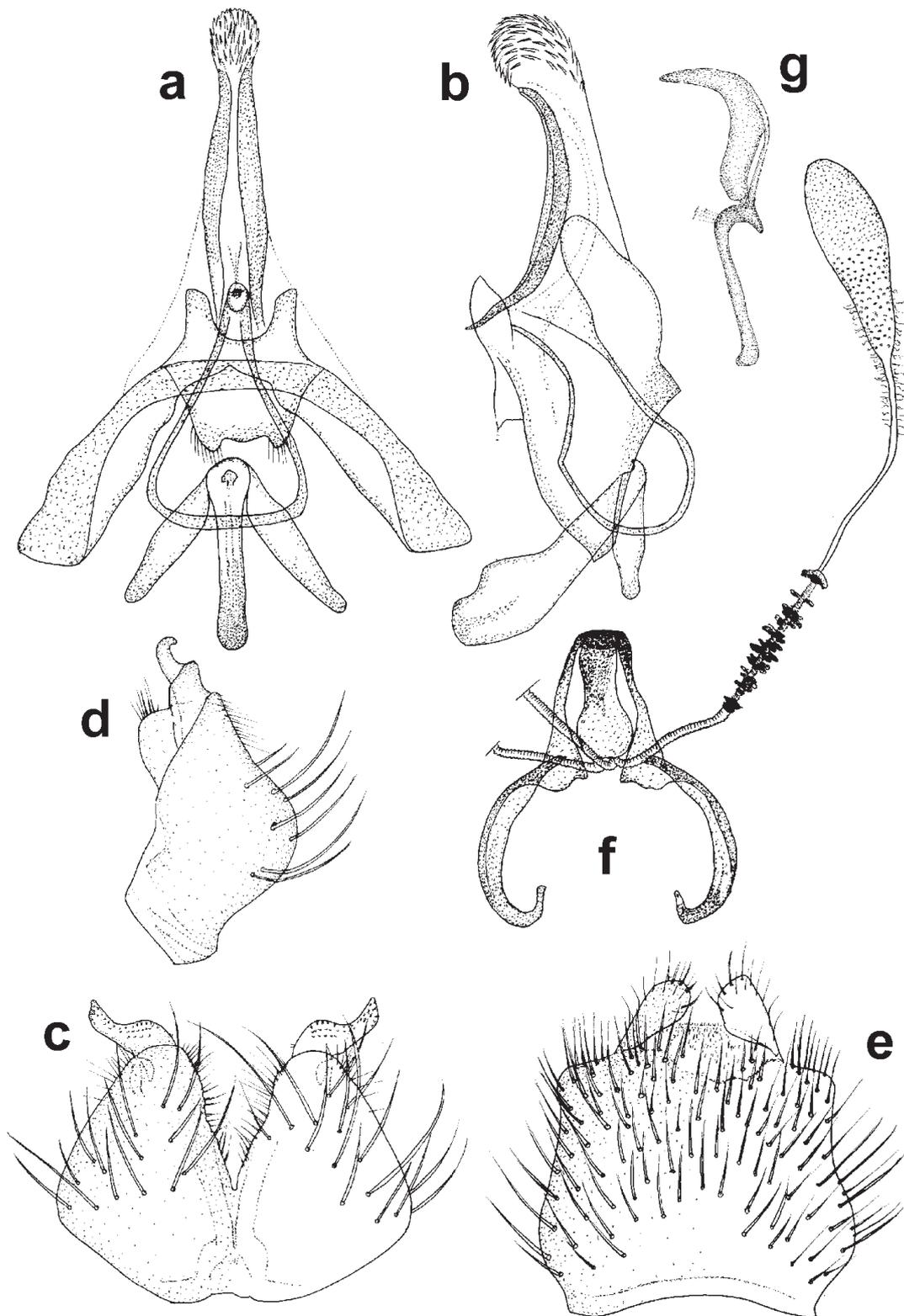


Fig. 40. *Protypusia grata* (Loew, 1856) comb. nov. **a.** Epiphallallic complex ventral. **b.** Epiphallallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

Female

Differs from the male in its broadly separated eyes, the frons densely grey dusted except for subshining ocellar tubercle and down the center of the frons which is slightly more thinly dusted than laterally. At its narrowest part frons is noticeably wider than length of postpedicel, about one third head width. Hairs on frons rather shorter, extending back to level of front ocellus, paler and browner than in male. Dark post ocellar hairs lacking, all hairs behind eyes shorter and pale yellow-white, not longer than hairs on ocellar tubercle. Mesonotum more extensively and densely grey dusted, often leaving just dark, less dusted paramedian and antehumeral vittae (variable and very obscure in some individuals). Hairs on tergites a little shorter, especially dorsally. First tergite basally and centrally grey dusted.

Remarks

Becker's (1906) treatment of *Pro. grata* is at first sight peculiar, tentatively synonymising it with his *Pru. loewi*. However, it is clear that he recognised that Loew's description was at variance with the only specimens he could find that seemed to have the correct provenance, so he correctly described these specimens as a new species. The type of Loew's *Pro. grata* still could not be located during this study.

This is the most widely distributed of all the Usiini, and the only species to occur at both ends of the Mediterranean and in both North Africa and Europe. Records from Italy and the Canary Islands are almost certainly misidentifications. Across its range *Pro. grata* is widely sympatric with close congeners, *Pro. separata* gen. et sp. nov. in Israel, *Pro. argentata* gen. et sp. nov. in Morocco and *Pro. incisa* in Iberia and northeast Africa. A damaged female specimen from northeast Turkey might also be this species, and if so this would greatly extend its known range. However, the genitalia differ in some respects so it could equally represent an undescribed taxon.

Distribution

Egypt, Israel, Morocco, Portugal, Spain, Tunisia.

Protypusia incisa (Wiedemann, 1830) gen. et comb. nov.

Figs 7, 41

Usia incisa Wiedemann, 1830: 617.

Usia major Macquart, 1840: 104 **syn. nov.**

Etymology

From Latin 'inc̄idō' to 'cut open'.

Type material of *incisa*

Holotype

SPAIN • ♂; "[Andalusia], *incisus* Wied., Hispania/Coll. Winthem/Type/*incisa*, det. Becker"; NMW.

Type material of *major*

Lectotype (here designated)

ALGERIA • [♂ good condition, slightly mouldy]; "Oran, Museum Paris, Algérie, Coll. H. Lucas 78-49/Oran [on reverse of round blue label]/*U. major*, H. Lucas det."; MNHN.

Paralectotypes

ALGERIA • [1 ♀]; "Oran, Museum Paris, Algérie, Coll. H. Lucas 78-49/1215. [on reverse of round blue label]/*U. major*, H. Lucas det.; Museum Paris"; MNHN • [1 ♀, abdomen missing]; "Oran, Mittre 4184-34/4184, 34 [on reverse of round blue label]/m: 894, *Usia major*/TYPE"; MNHN • [1 ♀]; "Constantine/

Museum Paris, Algérie, Coll. H. Lucas 78-49/707. [on reverse of round blue label]/*Usia major* Macq.?”; MNHN • [1 ♀]; “La Calle/Museum Paris, Algérie, Coll. H. Lucas 78-49/1261 [on reverse of round blue label]/*U. major* H. Lucas det.”; MNHN.

Other material examined

ALGERIA • 1 ♂; “Atlas, Mecheria, N33°35'12" W00°14'48" 10 April 1994 (leg. J. Janssens)”; PCJD.

FRANCE • [1 ♂, 1 ♀]; “Museum Paris, Pyrénées-Orient, Banyuls-sur-Mer, L. Berland 1914”; MNHN.

MOROCCO • [4 ♀♀]; “Museum Paris, Maroc, Forêt des Zaers, Aïn Sferguila, R. Benoist 1928, 22 May 1928”; MNHN • [3 ♂♂, 3 ♀♀]; “Sidi Bettache, R. Benoist 1928, May”; MNHN.

PORTUGAL • 1 ♂, 1 ♀; “Guarda, Piornos (Covilhã) 15 vi 1999 (leg. J.M. Grosso-Silva)”; PCDG.

SPAIN • 1 ♀; “6 km N of Villar de Ciervo, 26 May–2 June 1999 (SA), yellow pan trap (leg. P. Tschorsnig)”; PCDG • 1 ♂; “Pto de Pena Negra, S of Piedrahita, Prov. Avila, 1900 m, 7 June 1995 ♂ (leg. J.P. Duffels); PCJD • 1 ♀; “Monasterio de Yuso, SW of Najera, Prov. Logrono, 1300 m, 14 June 1995 ♀ (leg. J.P. Duffels)”; PCJD • 1 ♀; “Leon, La Pola de Gordon, 1050 m 18 June 2001 (leg. H. & I.V. Oorschot); PCJD • 1 ♀; “Palencia, Aguilar de Campou 19 June 1980 (leg. P.J. Chandler)”; PCDG.

TUNISIA • 1 ♂; “Dj. Chambi, 3300' 9 June 1980 ♂ (leg. K. Guichard)”; NHML.

Redescription

MEASUREMENTS. Body length: 8.0–10.0 mm. Wing length: 7.1–9.8 mm.

Male

HEAD. Gena relatively broad, one and half to twice as wide as width of proboscis at base, broadening out onto frons, all blue-grey dusted except for a narrow, shiny, mouth margin where black ground colour shows through. Frons convex or inflated, uniformly covered with mid-length, silky white hairs, the longest exceeding the length of the scape and pedicel combined. Silky white hairs extending down the gena to merge with hairs below eyes, hairs tending to be decurved or wavy-tipped. Eyes holoptic, contiguous for about 11–12 facets (at high magnification the eyes of a specimen from Algeria appear to be very narrowly separated by less than the width of a facet), frons extending up in narrow point. Ocellar tubercle black, subshining, barely brownish dusted, the hind ocelli in contact with hind corners of eyes; ocelli make an equilateral triangle or slightly acute. White hairs on ocellar tubercle at most as long as scape and pedicel combined, shorter than longest frons hairs. Eye facets enlarged in upper two thirds to three fifths about twice the size of lower facets. Occiput blackish in ground colour, quite thickly dusted except sometimes on acute triangle behind ocellar tubercle which is thinly dusted in some specimens. Occiput evenly and thickly covered with silky white to pale yellow hairs, merging into longer and usually whiter hairs below eyes. Antennae blackish, the scape and pedicel grey dusted, postpedicel significantly longer than scape and pedicel together. Scape and pedicel clothed with silky-white hairs, the longest on the scape much longer than its diameter, postpedicel with series of short hairs along dorsal surface becoming longer distally. Palps short, claviform, blackish, thickly clothed with long yellowish-white hairs. Proboscis moderately long, about equal to the mesonotum and scutellum, black, laterally with no more than tiny setulae on basal third.

THORAX. Mesonotum with blackish ground-colour obscured by greenish-grey dust on postpronotal lobe, notopleuron, above wing bases, post alar callus and anterior slope of mesonotum from which issue paler blue-grey dorsocentral lines that run the length of the mesonotum, between is a pale acrostichal

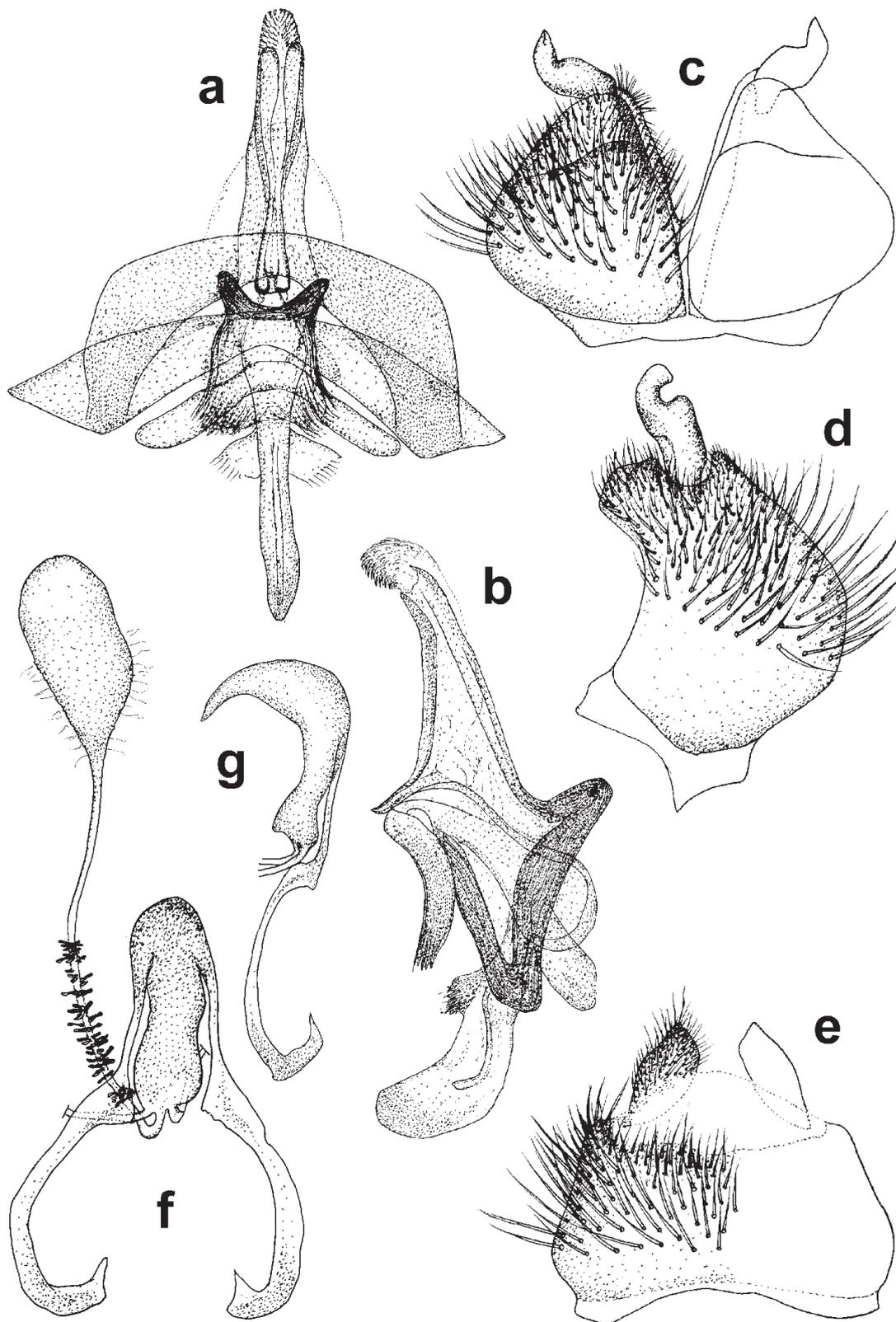


Fig. 41. *Protypusia incisa* (Wiedemann, 1830) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

line which may be complete or only clear anteriorly. The dense dusting leaves clear black paramedian and antehumeral vittae, latter contiguous, not divided at suture. Area in front of scutellum grey dusted connected to dorsocentral lines and sometime acrostichal line. In more or less greased specimens the patterning of the mesonotum may be obscured. Hairs of mesonotum pale yellowish, as long as postpedicel in places, hairs sparser and shorter, often paler, on disc, long and dense anteriorly and on notopleuron. Scutellum variably grey-brown dusted, similar to base of mesonotum or less dense, subshining, yellowish hairs dorsally as long, peripherally longer than those on mesonotum. Pleura densely coated with grey dust, anepisternum and pronotum with long, pale yellow hairs, katepisternum less densely hairy dorsally and anteriorly, anepimeron also with soft pale hairs (Spanish specimens only), a tuft of white hairs on metepimeron below haltere behind spiracle (African specimens only).

WING. Membrane with a yellow-brown tinge, especially anteriorly and close to veins, the veins brown, subcosta yellow. Crossvein r-m close to middle of the discal cell, well beyond m-cu. Anal lobe well developed with conspicuously convex margin, broader than anal cell.

HALTERE. Almost entirely yellow or white, base of stem slightly infuscated.

LEGS. Coxae concolourous with pleura, pale grey dusted with long silky white hairs. Femora and tibia black, apices of femora very narrowly (Spanish specimens) more distinctly (African specimens) yellow; a little less densely dusted, especially tibia and tarsi, variable, in some shining black ground colour discernible. Legs covered with silky white hairs, longest on fore and mid-femora posteriorly, hind femora antero-ventrally, tibia mostly short-haired, longer basally, especially mid-femora.

ABDOMEN. Tergites matt black on disc, only grey dusted on reflexed lateral margins. All tergites with broad, sharply delimited yellow posterior margins, narrowing to a point on reflexed lateral margins, in some continuing to sternites. All tergites with long silky-white hairs longer than the length of each tergite, rather denser laterally. Sternites pale grey dusted obscuring ground colour, pale apical margins broader and paler than on tergites, dulled by grey dusting, white hairs as long as those on tergites.

GENITALIA. Small, typical of genus, usually tucked under tip of abdomen, often retracted and ventrally deflected, black in ground colour, gonocoxite and epandrium with grey dusting, subshining, apices of both yellow, tip of gonocoxite shining, undusted, cerci yellow. Gonocoxite and epandrium with long silvery hairs with those on gonocoxite having tips curved in. Gonostyli black to brownish, shining.

Female

Differs from the male in its broadly separated eyes, the frons densely grey dusted except on subshining ocellar tubercle and frons anterior to ocellar tubercle which is slightly more thinly dusted. At its narrowest part frons is noticeably wider than length of postpedicel, about two-fifths head width. Hairs on frons rather shorter, extending back to level of front ocellus, somewhat adpressed, hairs more erect on front of frons and down gena. Shiny oral margin wider and often yellow or brownish. Hairs on occiput shorter, bearded effect on gena not as obvious. Mesonotum as male but vestiture generally shorter. Hairs on tergites significantly shorter, especially dorsally, Legs very similar except vestiture shorter.

Remarks

Specimens from northeast Africa, were described as *Usia major* by Macquart (1840). This population differs from Iberian *Pro. incisa* in showing more yellow on the knees and the distribution of hairs on the pleura. However, both of these characters are variable, and given the similarity in male and female genitalia, I place *Pro. major* as a synonym of *Pro. incisa*.

Distribution

Algeria, southern France (rare specimens north to Fontainebleau), Morocco, Spain, Tunisia.

Protypusia separata Gibbs & Theodor gen. et sp. nov.
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Fig. 42

Usia aurata – Efflatoun 1945: 202, pl. 19 figs 298–299, misident.

Usia sp. No. 1 (near *aurata*) – Theodor 1983: 54, figs 131–134.

Etymology

From Latin ‘*sēparātus*’ meaning ‘separate’, referring to the male eyes being separated on the frons in contrast to the closely related holoptic species *Pro. grata*.

Type material

Holotype

ISRAEL • ♂; “N. Poleg, Israel, 26 January 1979, leg. Kugler/HOLOTYPE, *Usia separata*, Theodor, det. O. Theodor 1985”; TAU.

Paratypes

ISRAEL • 4 ♂♂; 1 ♀; “N. Poleg, Israel, 26 January 1979, leg. Kugler/PARATYPE, *Usia separata*, Theodor, det. O. Theodor 1985”; TAU • 1 ♂, 1 ♀; “Bet Qama, Israel, 6 February 1968, leg. Kugler/PARATYPE, *Usia separata*, Theodor, det. O. Theodor 1985”; TAU • 5 ♂♂, 5 ♀♀; “Beth Hakerem, Jerusalem, Palestine, 22 March 1948 and 26 March 1949, O. Theodor/PARATYPE, *Usia separata*, Theodor, det. O. Theodor 1985”; TAU • 1 ♂, 1 ♀; “12 April 1940, Judaeen highlands, Palestine/*Usia aurata* F.”; TAU • 1 ♂; “Jerusalem, Palestine, O. Theodor”; TAU • 1 ♂; “13 February 1961, Tel-Aviv, coll. Jsikoviz, Israel”; TAU • 2 ♂♂; “15 March 1950 Jerusalem; TAU • 1 ♂; “[in Hebrew], 14 March 1990, A. Shmida”; TAU • 3 ♂♂, 1 ♀; “W. Falin, 27 February 1968, leg. Kugler”; TAU • 2 ♂♂; “10 February 1959”; TAU • 1 ♂, 1 ♀; “M. Tel-Aviv, T-A Univ., 19 February 1962”; TAU • 2 ♂♂; “Eshtaol, 2 February 1972, coll. M. Kaplan”; TAU • 4 ♂♂; “Jerusalem, 6 March 1988, R. Kasher, R3817-20/*Anemone coronaria*”; TAU • 3 ♂♂, 7 ♀♀; “Jerusalem, 4 April 1962, VS”; TAU • 1 ♂, 2 ♀♀; “Jerusalem 31 January 1988 R1839-41 R. Kasher”; TAU • 3 ♂♂, 1 ♀; “Qedumim, 20 February 2006, L. Friedman”; TAU • 2 ♀♀; “25 February 2005”; TAU • 1 ♂; “Bkaot, 15 February 1984, Y. Zvik”; TAU • 1 ♂; “Savyon, 30 January 1982, Y. Zvik”; TAU • 1 ♀; “Nahal Poleg, 30 January 1970, M. Kaplan”; TAU • 1 ♂; “Nahal Shilo, 7 February 1982, I. Nussbaum”; TAU • 1 ♂; “Migdal Afeq, 13 January 1982 I. Nussbaum”; TAU • 1 ♂, 1 ♀; “Sha’alavim, 12 February 1983”; TAU • 2 ♀♀; “Bet Guvrin Forest, 28 February 1981”; TAU • 1 ♀; “N. Ezyona, 26 March 1974, D. Furth”; TAU • 1 ♀; “W. Falik, 23 February 1965, leg. Kugler”; TAU • 1 ♀; “Rehoboth bei, Jaffa 11 March 1935, J Aharoni coll./*Usia aurata* loewi Beck., Lindner det.”; TAU • 1 ♂; “Nahal Oren, 32°43’N 35°01’E, 22 February 2008, A. Freidberg”; TAU • 1 ♂, 1 ♀; “Palestine, B.M. 1931-391”; NHMUK • 1 ♂; “[indecipherable] 9 February 1939/Palestine (leg. Dr. A. Shulov)/Pres. By Imp. Inst. Ent. B.M. 1940-74”; NHMUK • 1 ♂, 1 ♀; “Palestine/Wadi ?Sonai, Judaeen highlands 15 February 1922 (leg P.A. Buxton), (coll. BMNH)”; NHMUK.

EGYPT • 1 ♀; “Mariout: El Borg, 13-16 February 1925/*Usia aurata* F., Det. Efflatoun”; TAU • 1 ♂; “Burg, 25 February 1932/Zool. Dep’. Collection, Egyptian University, Collector H.C.E. & M.T.”; TAU.

Description

MEASUREMENTS. Body length: 2.9–4.2 mm. Wing length: 3.2–4.4 mm.

Male

HEAD. Gena relatively broad, as wide as width of proboscis at base, broadening out above onto frons, all grey dusted except for a narrow, slightly shinier, mouth margin. Frons convex covered with long, dark-

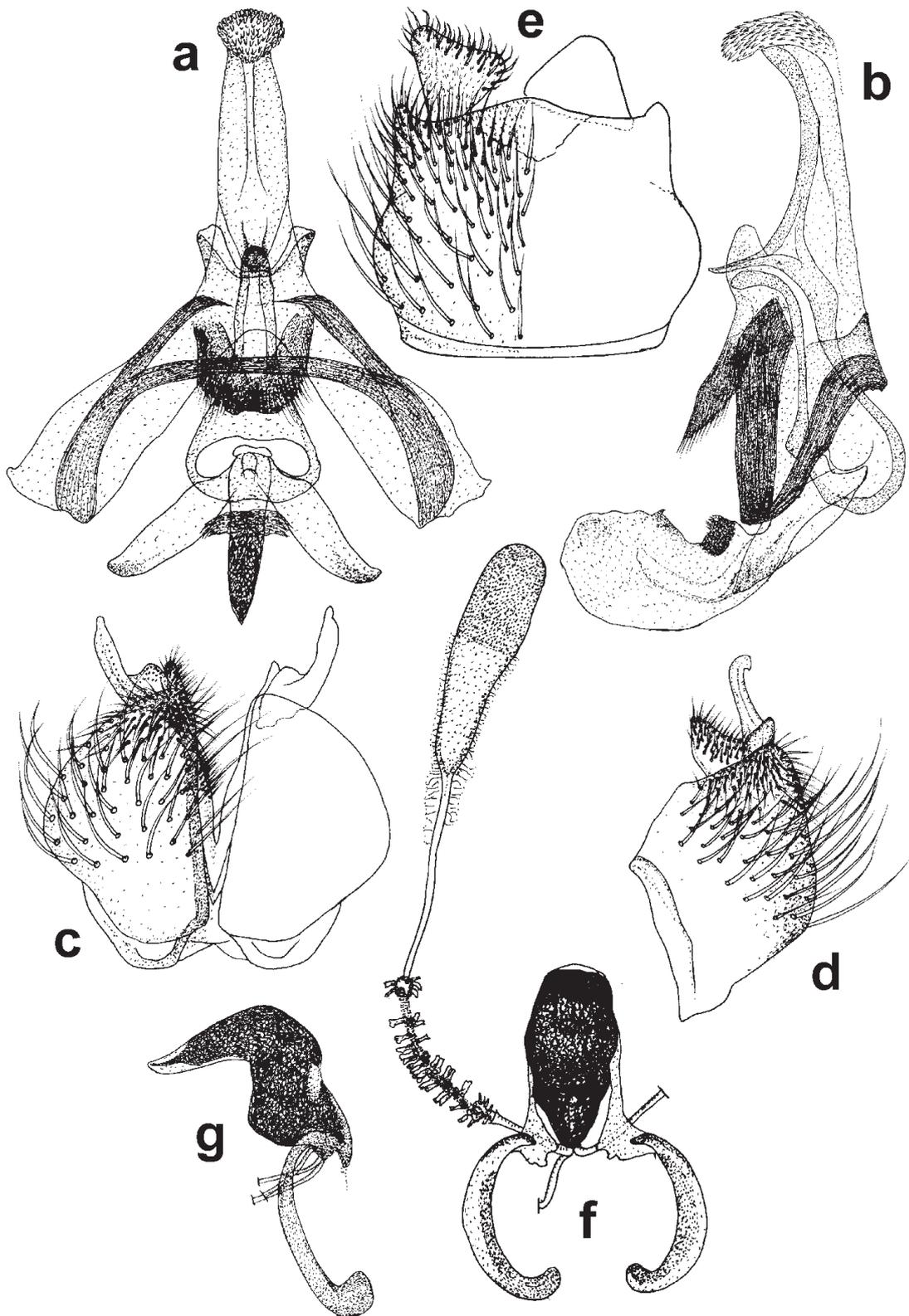


Fig. 42. *Protypusia separata* Gibbs & Theodor gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

brown hairs, the longest equalling the length of the antennae. Separation of eyes variable, from about the diameter of the front ocellus to a little less than twice the diameter of front ocellus, this narrow part of the frons darker than the rest, obviously grey dusted but rather matt. Ocellar tubercle dark brown to black, subshining, barely dusted, the hind ocelli in contact with hind corners of the eyes; ocelli form an equilateral triangle. Dark brown hairs on ocellar tubercle as long as scape and pedicel combined. Eye facets the same size throughout (rare examples of *Pro. grata* with slightly separated eyes still have some enlarged ommatidia in upper half). Occiput dark in ground colour, densely coated with brown dust except for a triangular patch behind ocellar tubercle, an irregular bi- to tri-serial row of long, dark post ocellars extending to just below middle of eye, behind and below these, occiput covered with shorter pale hairs. Antennae blackish, the scape slightly more brownish, grey dusted, postpedicel significantly longer than scape and pedicel together, the sensilla in the apical sulcus contrastingly white. Scape and pedicel clothed with brown hairs, the longest on the scape longer than its diameter; hairs on postpedicel confined to dorsum, distal ones the longest, as long as this segment is deep. Palps short, claviform, dark brown, thickly clothed with long yellowish hairs. Proboscis moderately long, about equal to the mesonotum, blackish-brown, laterally with short hairs along its base.

THORAX. Mesonotum with blackish ground-colour obscured by pale-grey dust on postpronotal lobe, notopleuron, above wing bases, dorsocentral line widening abruptly in front to join with the postpronotal lobe, these grey dorsocentral lines usually connected in front of scutellum, sometimes only faintly so. Acrostichal line brown to grey dusted, narrowing behind, sometimes reaching grey dusted area in front of scutellum. The paramedian vittae narrowed in front, running onto anterior slope, broadening behind, in some individuals coalescing, in others stopping square-ended about a quarter length of mesonotum from scutellum. Antehumeral vittae not divided at suture, dark spot between wing base and posterior antehumeral vittae, just behind thoracic suture, may be present. Hairs of mesonotum white to faintly yellowish, as long as antennae, acrostichals and dorsocentrals irregularly triserial, hairs on hind third and laterad of dorsocentrals more general. Scutellum brown dusted, usually concolourous with adjacent mesonotum, yellowish hairs dorsally as long, peripherally longer than those on mesonotum. Pleura concolourous with sides of mesonotum, pale grey dusted, dorsum and posterior two-thirds of the anepisternum with long, very pale yellow hairs. Katepisternum with a scattering of very pale yellow hairs.

WING. Membrane with a faint yellow-brown tinge, the veins yellowish-brown. Crossvein r-m between basal third and middle of the discal cell, clearly beyond m-cu, a little variable. Anal lobe well developed with conspicuously convex margin, a little broader than anal cell.

HALTERE. Whitish, base of stem slightly infuscated.

LEGS. Coxae concolourous with pleura. Femora and tibia uniformly dark brown, not so densely dusted as to obscure ground colour. Legs covered with white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally and hind tibia dorsally.

ABDOMEN. Tergites blackish, somewhat dark brown dusted on tergite one laterally. All tergites with narrow, sharply delimited yellow posterior margins, narrowing laterally. All tergites with long pale yellow hairs longer than the length of each tergite, even longer laterally. Sternites densely grey dusted, pale apical margins narrower and obscured by dust, hairs as long as those on tergites.

GENITALIA. Relatively large, larger than in *Pro. grata*, somewhat ventrally deflected, dark brown in ground colour, covered in brown dust, shiny on apical corners of epandrium, clothed with pale yellow hairs, longest on gonocoxite.

Female

Differs from the male in its broadly separated eyes, the frons densely grey dusted except on subshining ocellar tubercle. At its narrowest part frons is noticeably wider than length of postpedicel. Hairs on

frons rather shorter, extending back to level of front ocellus. Dark post ocellar hairs shorter and fewer in number, confined to upper part of occiput, often pale. Hairs on tergites a little shorter, especially dorsally. First tergite basally and centrally grey dusted.

Remarks

Oskar Theodor had already recognised this as a probable undescribed species and had published illustrations of the male and female genitalia as *Usia* sp. no. 1 (near *aurata*) (Theodor 1983: figs 131–234). Before he died in 1987, Theodor had already started a manuscript that included this species, including characters to define it, which are used here. He chose the name used here and designated a holotype and 12 paratypes that have been examined for this study. In recognition of Theodor's work on Israeli Bombyliidae I have included him as co-author of this species.

Distribution

Egypt, Israel.

Protypusia striata (Báez, 1982) comb gen. et. nov.
Figs 26, 43

Usia striata Báez, 1982: 254.

Usia arida Báez, 1982: 256 **syn. nov.**

Etymology

From Latin '*striāta*' meaning 'striped' referring to pattern on the mesonotum.

Type material of *Pro. striata*

Holotype

SPAIN • ♂; "Fuertev., La Asomada, 21-II-80, M. Báez /Holotipo M. Baez/*Usia striata* Báez, M Báez det."; PCMB.

Paratypes

SPAIN • 1 ♀; "Fuertev., Villarverde, 18-II-80 M. Báez"; PCMB • 1 ♂; "Vega de Rio Palmas 12-II-77; 20-II-80"; PCMB • 1 ♀; "Madre del Agua 8-V-74"; PCMB • 1 ♂; "Betancuria 12-V-74"; PCMB • 1 ♂; "Fuertev. Tesiate 22-II-80 M. Báez /Paratipo M. Báez"; PCDG.

Type material of *Pro. arida*

Holotype

SPAIN • ♂; "Fuertev. La Oliva 18-II-80 M. Báez /Holotipo M. Báez /*Usia arida* Báez, M. Báez det."; PCMB.

Paratype

SPAIN • 1 ♂; "Fuertev. Titr 21-II-80 M. Báez /Paratipo M. Báez"; PCDG.

Other material examined

SPAIN • 6 ♂♂, 5 ♀♀; "Islas Canarias, Lanzarote, Teguisse 235 m N29°3'44" W13°32'16" 24 February 2000 (leg. J. Dils & J. Faes)"; PCJD • 5 ♂♂, 3 ♀♀; "Islas Canarias, Lanzarote, Los Valles 515 m N29°6'23" W13°30'52" 24 February 2000 (leg. J. Dils & J. Faes)"; PCJD • 6 ♂♂, 3 ♀♀; "Islas Canarias, Lanzarote, Los Valles (parque eólico) 450 m N29°5'45" W13°30'39" 28 February 2000 (leg. J. Dils & J. Faes)"; PCJD • 12 ♂♂, 5 ♀♀, pair in cop.; "Islas Canarias, Lanzarote, Mojon 160 m N29°3'57" W13°31'19" 26 February 2000 (leg. J. Dils & J. Faes)"; PCJD • 1 ♂, 3 ♀♀; "Islas Canarias, Lanzarote,

Haria 350 m N29°8'44" W13°31'01" 29 February 2000 (leg. J. Dils & J. Faes)"; PCJD • 1 ♂; "Islas Canarias, Lanzarote, Famara 150 m N29°4'52" W13°33'56" 27 February 2000 (leg. J. Dils & J. Faes)"; PCJD.

Redescription

MEASUREMENTS. Body length: 2.5–6.3 mm. Wing length: 2.4–6.2 mm.

Male

HEAD. Gena clearly evident but narrower than other species in the *incisa*-group, about two thirds width of proboscis at base, broadening out above onto frons, all sparingly grey dusted (not obscuring ground colour) except for a slightly shinier, mouth margin. Frons a little convex, grey dusted, but subshining from some angles, with long, black hairs, the longest equalling the length of the postpedicel. Black hairs, sometimes with a few brown ones, continuing down gena to level of proboscis, but a bare gap separates them from occiput hairs. Separation of eyes variable from slightly less than diameter of front ocellus to a little more, narrowest point near frons, widening rearwards or sometimes almost parallel, this narrow part of the frons blackish, darker than frons, or grey like frons depending on angle of view. Ocellar tubercle dark blackish, shining, undusted to sparsely dusted, the hind ocelli distinctly but narrowly separated from hind corners of eyes; ocelli form an acute triangle. Blackish hairs on ocellar tubercle about as long as scape and pedicel combined, shorter than frons hairs. Eye facets the same size throughout. Occiput dark in ground colour, thinly coated with grey to brown dust subshining, denser below where ground colour largely obscured. Behind eyes an irregular uni- to tri-serial row of long, dark post ocellars extending to a little above middle of eye, smaller individuals with fewer post-ocellars. Remaining hairs on occiput finer and paler, forming a dense beard of white hairs on lower occiput below eye, much less conspicuous in small individuals. Antennae black, the scape slightly more greyish from dust, postpedicel variable but always longer than scape and pedicel together, the sensilla in the apical sulcus often contrastingly white. Scape and pedicel clothed with black hairs, the longest on the scape longer than its diameter; hairs on postpedicel sparser ventrally, postpedicel with series of hairs dorsally, longest just before sulcus. Palps short, claviform, black, thickly clothed with long yellowish hairs. Proboscis moderately long, about equal to the mesonotum, black, laterally with variable hairs along its base.

THORAX. Mesonotum with matt blackish ground-colour obscured by grey or brownish dust on postpronotal lobe, notopleuron, above wing bases, broad dorsocentral line extending back behind wing bases, in some merging with dusting anterior to scutellum. A more or less distinct acrostichal line, narrowing behind and disappearing before middle, often obsolete. Hairs of mesonotum white to faintly yellowish, variable in length and density, tending to be sparser and whiter in smaller males. Scutellum brown dusted, usually concolourous with base of mesonotum, yellowish hairs dorsally as long as those on mesonotum. Pleura concolourous with sides of mesonotum, or rather greyer dusted, anepisternum and pronotum with long, very pale yellow hairs. Katepisternum with pale yellow hairs anteriorly and ventrally.

WING. Membrane with a very faint yellow-brown tinge, the veins yellowish-brown, basally yellower, subcosta yellow. Crossvein r-m variable between basal third and just beyond middle of the discal cell, clearly beyond m-cu. Anal lobe well developed with conspicuously convex margin, a little broader than anal cell.

HALTERE. Yellowish, base of stem infuscated.

LEGS. Coxae concolourous with pleura. Femora and tibia uniformly blackish, thinly dusted subshining, tips of femora undusted, shining. Legs clothed with white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally. Tibia mainly short-haired, but with variable extent of longer erect hair basally.

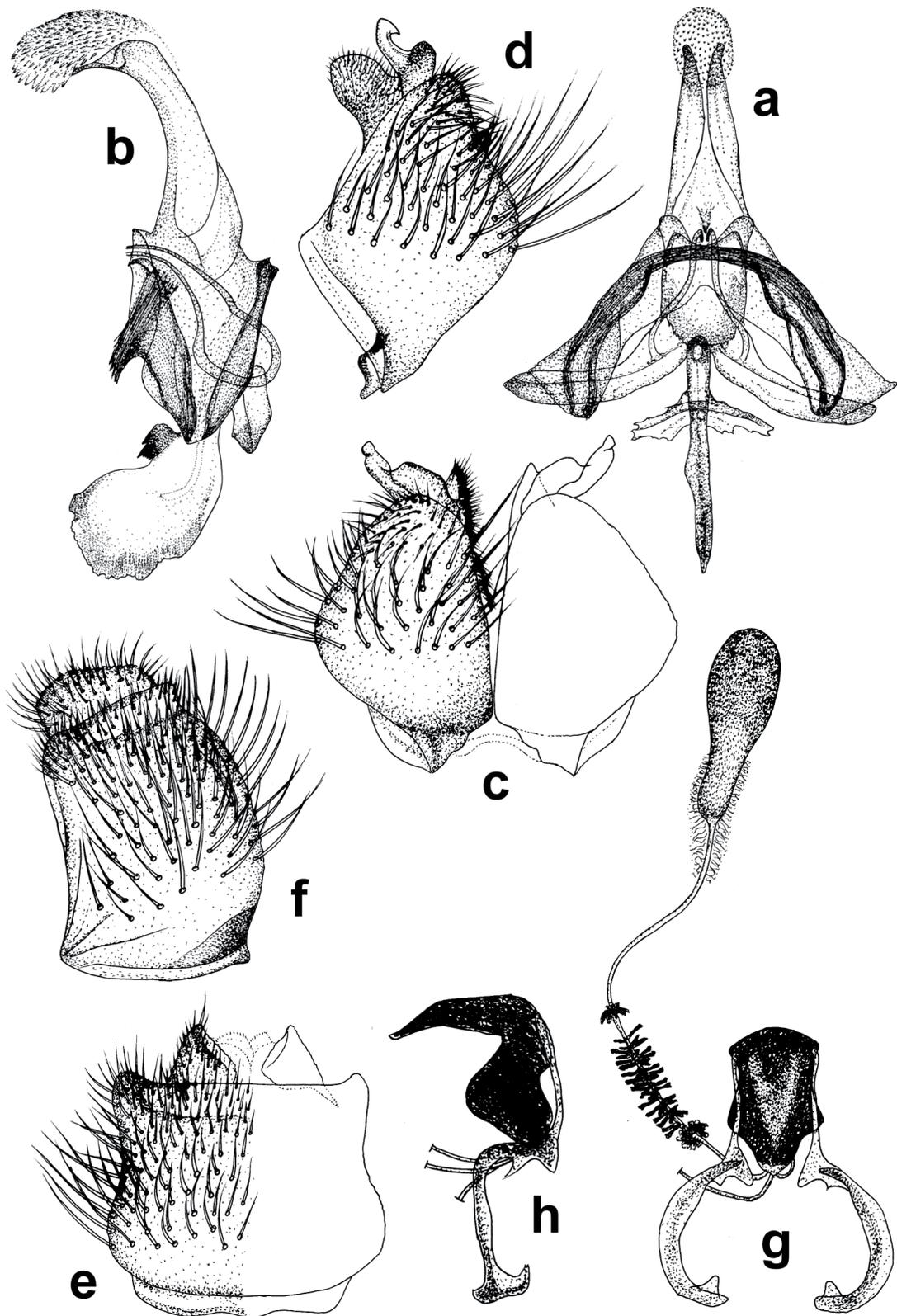


Fig. 43. *Protypusia striata* (Báez, 1982) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epanthrium dorsal. **f.** Epanthrium lateral. **g.** Female genitalia ventral. **h.** Female genitalia lateral.

ABDOMEN. Tergites matt blackish, grey dusted only laterally, most conspicuously on first tergite, on reflexed margin only on proceeding tergites. Tergites often with variable, sharply delimited yellow posterior margins, narrowing laterally and disappearing ventrally, these yellow margins often obscure or wanting in smaller specimens. All tergites with long pale yellow hairs longer than the length of each tergite, even longer laterally. Sternites densely grey dusted, pale apical margins wider than on tergites, hairs even longer than those on tergites, often whiter.

GENITALIA. Relatively large compared to *Pro. grata*, especially so in small individuals where it is almost the size of the abdomen, more or less deflected ventrally. Blackish in ground colour, covered in grey dust, very thinly so on gonocoxite which can be quite shiny, clothed with pale yellow to white hairs, longest on gonocoxite.

Female

Differs from the male in its broadly separated eyes, the frons densely grey dusted except on subshining black ocellar tubercle. At its narrowest part frons is a little wider than length of postpedicel, about one-fourth head width. Hairs on frons rather shorter, and more brownish, extending back to level of front ocellus and down gena to proboscis. Post ocellar hairs shorter all pale, none as long as hairs on ocellar tubercle. Mesonotum much more densely grey dusted, often only paramedian and antehumeral vittae largely undusted, blackish. Smaller specimens less densely and extensively dusted, pattern more like male but less well defined. Hairs on tergites are conspicuously shorter, especially dorsally.

Remarks

When Marcos Báez described this species in 1982, he described *Usia arida* in the same paper, also from Fuerteventura and Lanzarote, with both forms often found at the same site. Báez (1982) separated them on size, vestiture colour, yellow apical margins of tergites and relative size of male hypopygium compared to abdomen size. When comparing a very small individual with a large one, these characters seem clear, and the relative size of the genital capsule is particularly convincing. However, when examining a series of mid-sized specimens with wing-lengths from 3–4 mm it becomes less clear and many specimens will not fall comfortably into one form or the other. The relative size of the hypopygium is intermediate and all the other characters variable. Given that I can find no differences in the form of the male or female genitalia, I conclude that *Pro. arida* is conspecific with *Pro. striata* and that the characters noted by Báez are a function of the size of the fly.

Distribution

Spain (Canary Islands, Fuerteventura and Lanzarote).

***punctipennis* – species group**

Diagnosis

The 18 species in this species group are less coherent than but most similar to the *incisa*-group, in having the same type male and female genitalia, but differing from it in a glabrous frons, or if with hairs then these not long and erect or extending down the gena. Gena and oral margin combined narrower, sometimes gena very narrow, linear on lower part. The group includes one species not seen at all (*Pro. emeljanovi*), four where only photographs of type material has been seen (*Pro. deserticola*, *Pro. inornata*, *Pro. tewfiki* and *Pro. xizangensis*) and one species where the male is unknown (*Pro. modesta*). These species are placed here provisionally, as are two species (*Pro. flavipalpis* gen. et sp. nov. and *Pro. grisea*), where either the male or female genitalia do not conform closely to the typical form of *Protypusia* gen. nov.

Included species

- Protypusia deserticola* (Efflatoun, 1945) gen. et comb. nov.
Protypusia dimonica (Zaitzev, 1996) gen. et comb. nov.
Protypusia emeljanovi (Zaitzev, 1975) gen. et comb. nov.
Protypusia flavipalpis gen. et sp. nov.
Protypusia grisea (Paramonov, 1947) gen. et comb. nov.
Protypusia hyalipennis (Séguy, 1941) gen. et comb. nov.
Protypusia inornata (Engel, 1934) gen. et comb. nov.
Protypusia kerkini gen. et sp. nov.
Protypusia modesta (Loew, 1873) gen. et comb. nov.
Protypusia negevi (Zaitzev, 1996) gen. et comb. nov.
Protypusia ornata (Engel, 1932) gen. et comb. nov.
Protypusia punctipennis (Loew, 1846) gen. et comb. nov.
Protypusia raydahensis (El-Hawagry & Al Dhafer, 2016) gen. et comb. nov.
Protypusia strymonas gen. et sp. nov.
Protypusia tewfiki (Efflatoun, 1945) gen. et comb. nov.
Protypusia vagans (Becker, 1906) gen. et comb. nov.
Protypusia xizangensis (Yang & Yang, 1994) gen. et comb. nov.
Protypusia zimini (Paramonov, 1947) gen. et comb. nov.

Protypusia deserticola (Efflatoun, 1945) gen. et comb. nov.

Fig. 44

Usia deserticola Efflatoun, 1945: 208.

Etymology

From Latin ‘*dēsertum*’ = ‘desert’ and ‘*colō*’ = ‘to inhabit’, ‘desert dwelling’.

Type material (not examined)

Holotype male in ESEC not seen. Type locality: Wadi El-Lega, South Sinai, 1750 m, 19–27 April 1939 (Efflatoun 1945).

Photographs show six specimens, two with red labels, at least one of which appears intact or partly so. It is not known if the intact specimen is the holotype. Another ten paratypes in EFC, three with red labels, are in good condition. Photographs of one female paratype from EFC were made available to me during this study by Professor Magdi S. El-Hawagry.

Redescription

MEASUREMENTS. Body length: 2.7–3.6 mm.

Male (based on Efflatoun 1945).

HEAD. Rather triangular, frons produced forward more than in other species. Frons glistening greyish-white, this colour extending down the gena. Ocellar tubercle blackish-brown and well raised, occiput brownish-grey to deep olive-buff in upper third, lower two thirds and jowls greyish white. Pubescence sparse, hairs on ocellar tubercle longish, tufted, greyish, shorter greyish hairs on occiput, longer and more shaggy on jowls. Eyes confluent for relatively short distance, less than length of frons. Antennae black, scape and pedicel paler due to thin whitish dust more conspicuous than on postpedicel. Postpedicel relatively stout and deep with convex ventral margin, only a little longer than deep and hardly twice the length of scape and pedicel combined. Palps minute, thin and short, blackish bearing a very few very

short, erect yellowish hairs apically. Proboscis rather short, about one and a half times as long as head (including antennae), black except for the obscure yellowish-brown baso-ventral membrane.

THORAX. Dark ground colour obscured by dense dust varying from brownish-grey to deep olive-buff. Mesonotum with poorly defined paramedian vittae. [Antehumeral vittae not described but are clear on female so probably present in male.] Whole of mesonotum and scutellum covered with long but not dense, erect pale greyish-yellow hair, sparser and shorter on disc, longer, denser and coarser on the postpronotal lobe and notopleuron. Mesonotum very finely punctured with black pits at points of hair attachments. Scutellum deep olive-buff dusted as on mesonotum with some long, erect pale greyish-yellow hairs around the margin, the longer coarser hairs issuing from minute black pits. Pleura dusted as mesonotum, pale brownish-grey, almost glabrous but for a very few soft, longish white hairs on upper part of the anepisternum.

WING. Membrane hyaline with a weak but characteristic and distinct opaque light brownish tinge, the veins brownish, paler yellowish-brown basally. Crossvein r-m at or before basal third of discal cell, m-m almost straight. Anal cell closed a short distance from wing margin so with short but distinct petiole. Squamae with brown margin and short white fringe.

HALTERE. Ivory white, basal half of stem blackish.

LEGS. Femora, tibia and tarsi, blackish with extreme tips of femora and narrow bases of tibia brownish-red, very thinly white dusted giving them a greyish-black appearance. Femora furnished with moderately long whitish hairs, legs otherwise covered with very short, adpressed fairly dense whitish hairs.

ABDOMEN. Tergites dark, the ground colour obscured by uniformly deep olive-buff dust, not quite as dense as on mesonotum. Each tergite with a very narrow pale cream apical margin. Sternites whitish dusted with pale cream-buff apical margins. Tergites and sternites covered with very sparse, short, whitish pubescence, longer and somewhat tufted basally and laterally.

GENITALIA. Relatively small not bulbous [compared to what? difficult to know what Efflatoun means here]. Gonocoxites broad and short, black with thin white dusting and sparse, soft whitish hairs. Epandrium obscure blackish with very short, dense white pubescence. Tips of gonostylus and epiphallus reddish-brown, the former [sic] with microscopic erect reddish-yellow pubescence [pubescent gonostyli would be a completely unique feature, it seems probable that either Efflatoun's "hooks" are not the gonostyli or he meant "latter" not former and is referring to apex of epiphallus which would make sense].

Female (based on Efflatoun 1945 and photographs of EFC specimen)

Similar to male, abdomen shorter and broader.

Head as long as broad, frons rather prominent, in lateral view distance from eye to base of antennae greater than depth of postpedicel and about twice diameter of scape apically. Frons deep olive-buff dusted, gradually widening from vertex to front of frons, rather less than one third head width at vertex. Frons with small discrete dark spot centrally where dusting thinner so dark cuticle shows through. Gena yellowish-white, narrow, the more shining mouth margin rather protuberant, wider than dusted gena. Lateral ocelli separated from corner of eye by about twice the diameter of that ocellus. The white to yellowish-grey pubescence on frons rather longer than in related species, scattered along the eye margins and a longer tuft on the feebly raised ocellar tubercle, hairs shorter on front of frons [this from photograph, seems to be contrary to Efflatoun's description so probably variable]. Minute black punctures visible at hair insertions. Dusting of thorax sometimes deeper, darker colour, paramedian vittae more apparent. Pubescence of thorax much shorter than in male, many hair insertion points visible as minute black punctures. Wings in some specimens with opaque brownish tinge deeper and more pronounced. Legs as male but sometimes



Fig. 44. *Protypusia deserticola* (Efferoun, 1945) gen. et comb. nov. Smithsonian Institution Archives. Image SIA2012-7880.

with extreme base of basitarsi cream-buff to brownish-red. Paler tips to femora confined to ventral surface. Pubescence as male but a little shorter. Abdomen broader than in male as typical for genus, pubescence whitish and sparser and very short, minute black punctures at points of hair attachments. Ovipositor (apical sternite?) black, covered with white dust and very short, erect whitish hairs.

Remarks

As with most of the species described in *Usia* by Efflatoun in 1945 with specimens in ESEC, it has not been possible to borrow or visit the types. Photographs of the collection suggest that some specimens survive, at least partially, but also that some of the type series is partially or entirely destroyed. Two specimens in ESEC have red labels, presumably one of these is the male holotype but the resolution of the photograph is insufficient to know. There are also 10 specimens in EFC all of which appear to be in good condition, three with red labels.

Of the eight species described in *Usia* by Efflatoun (1945), *Pro. deserticola* is the one that can be placed in *Protypusia* gen. nov. with greatest confidence. It is larger than any of the species of Efflatoun that can be confidently assigned to *Apolysis*. Other *Parageron*-like characters are the relatively short, robust postpedicel, relatively long mesonotal vestiture and wing venation showing relatively short discal cell (from photographs and plate for Efflatoun's ms but not made explicit in type description) and anal cell closed close to wing margin. Also, Efflatoun's (1945: pl. 19 fig. 305) illustration shows no sign of an arista arising from the dorsal sulcus of the antennae, and this is borne out in photographs of the postpedicel and confirmed by Professor Magdi El-Hawagry.

In the absence of the opportunity to closely examine the male and female genitalia it is impossible to be confident of the affinities of this species. However, the short, robust postpedicel seems to place it very close to *Pro. dimonica*. Given that this species is known from Morocco and Israel, it will almost certainly be present in Egypt. *Protypusia dimonica* is a small pale dove-grey dusted species with barely evident antehumeral vittae. However, across its range there is a degree of variation so *Pro. deserticola* could potentially be conspecific with *Pro. dimonica*.

Distribution

Egypt (Wadis Wirak and Agramieh, North Galala Plateau; Wadi El-Lega, South Sinai 1750 m).

Protypusia dimonica (Zaitzev, 1996) gen. et comb. nov.
Figs 13, 24, 29, 45

Parageron dimonicus Zaitzev, 1996: 693.

Parageron dominicus, error for *dimonicus* Zaitzev, 1996 – Evenhuis & Greathead 1999 (acting as First Revisers). In his type description, Zaitzev (1996) used the name “*dominicus*” throughout except in the abstract where he used *dimonicus*. The spelling of *dimonicus* was selected as the correct original spelling because it derives from the town of Dimona where the types were collected.

Etymology

Named after the town of Dimona in the Israeli Negev close to the type location.

Type material

Holotype

ISRAEL • ♀; “Loc. No. 18, C. Negev, N. 'Negarot 11 km SE, Mizpe Ramon 17 April 1994, Volkovitsh & Dolgovskaya leg./Holotypus, *Parageron dimonicus* V. Zaitzev 96”; TAU.

Paratype

ISRAEL 1 ♀; “Loc. No. 18, Central Negev, N. Negarot 11 km SE, Mizpe Ramon 17 April 1994, V. Zaitzev leg./Paratypus, *Parageron dimonicus* V. Zaitzev 96”;TAU.

Other material examined

ISRAEL • 1 ♀; “Ein Mur, 19 April 1975 A. Freidberg/*griseola*”; TAU • 1 ♀; “Avdat, 11 April 1975 A. Freidberg”; TAU • 2 ♀♀; “19 April 1975”; TAU • 1 ♀; “Ein Mur, 31 March 1981, F. Kaplan”; TAU • 1 ♂; “Jerusalem, Mishot Rotem, 7 March [19]65, M. Weichselfish”; TAU.

MOROCCO • 9 ♂♂, 5 ♀♀; “Ouarzazate, Tizi-n-Bachkoum 1500 m N30°49'06.0" W07°15'33.4" 16 April 2008, leg. J. Dils & J. Faes”; PCJD • 6 ♀♀; “Tafraout, Tafraout 1000 m N29°44'19.0" W08°57'51.4" 13 April 2008 leg. J. Dils & J. Faes”; PCMB • 1 ♂; “3 May 1961, Maroc Sahar, Taidelt/[leg.] P. duMerle 4333/*Parageron griseus* Param, V. Zaitzev det. 2002”; MNHN.

Redescription

MEASUREMENTS. Body length: 2.6–3 mm. Wing length: 1.9–3.2 mm.

Male

HEAD. Frons and mouth margin silvery grey, ground colour completely obscured, lacking longer erect hairs. Silvery dusted gena very narrow, almost linear below, much narrower than the rather protuberant, shiny black to brown mouth margin (in Israeli specimens dusted gena a little broader). Occiput and ocellar tubercle dark in ground colour densely and evenly covered with grey dust and outstanding white hairs, those on ocellar tubercle hardly longer than width of vertex across hind ocelli, longer in Israeli specimens. Hairs on occiput relatively short, in face view only just visible, becoming longer below onto jowls. All ocelli in contact with eye margin, making an equilateral triangle. Eyes confluent for slightly longer than the length of vertex (difficulty to assess because the eyes come together at very acute angles both above and below). Ommatidia conspicuously enlarged in the upper half to three fifths of the eyes, the transition to the smaller ones occupying the lower part distinct but not very abrupt. Antennae black, postpedicel mid-length, rather convex below, deepest beyond middle, with a small point dorsally immediately beyond the subapical sulcus, about one and a half times as long as scape and pedicel together. Antennae sparsely and very short-haired above, a few longer but inconspicuous ones immediately before the subapical sulcus. Palps minute and slender, slightly clavate, dark brown to blackish, the white apical setae shorter than the length of the palps. Proboscis moderately long, a little more than head-thorax length (including scutellum), naked dorsally, black except for the dirty-white basoventral membrane in some examples.

THORAX. Dark ground colour obscured by grey dust, tending to be browner on disc in Moroccan specimens. Mesonotum with distinct darker paramedian vittae from front to just beyond wing bases (often darker anteriorly in Moroccan specimens) and more diffuse darker antehumeral vittae widely divided at thoracic suture (anterior one blackish in Moroccan specimens). Behind thoracic suture, and below the antehumeral vittae is a vague, roundish darker spot, barely visible in Israeli specimens. Whole of mesonotum and scutellum with variably long, white hair (longer in Israeli specimens), tending to form acrostichal and dorsocentral lines, more generally distributed laterally. Paramedian and antehumeral vittae mostly hairless. Scutellar hairs apically almost as long as scutellum and confined to periphery, naked on disc. Pleura concolourous with mesonotum, with similar hairs on pronotum and posterior two-thirds of the anepisternum.

WING. Membrane hyaline, at most very faintly brown tinged, the veins pale yellow-brown, yellower basally, subcosta yellow. Crossvein r-m very close to the base of the discal cell, barely beyond m-cu. Anal lobe broad with triangularly convex margin, obviously broader than anal cell.

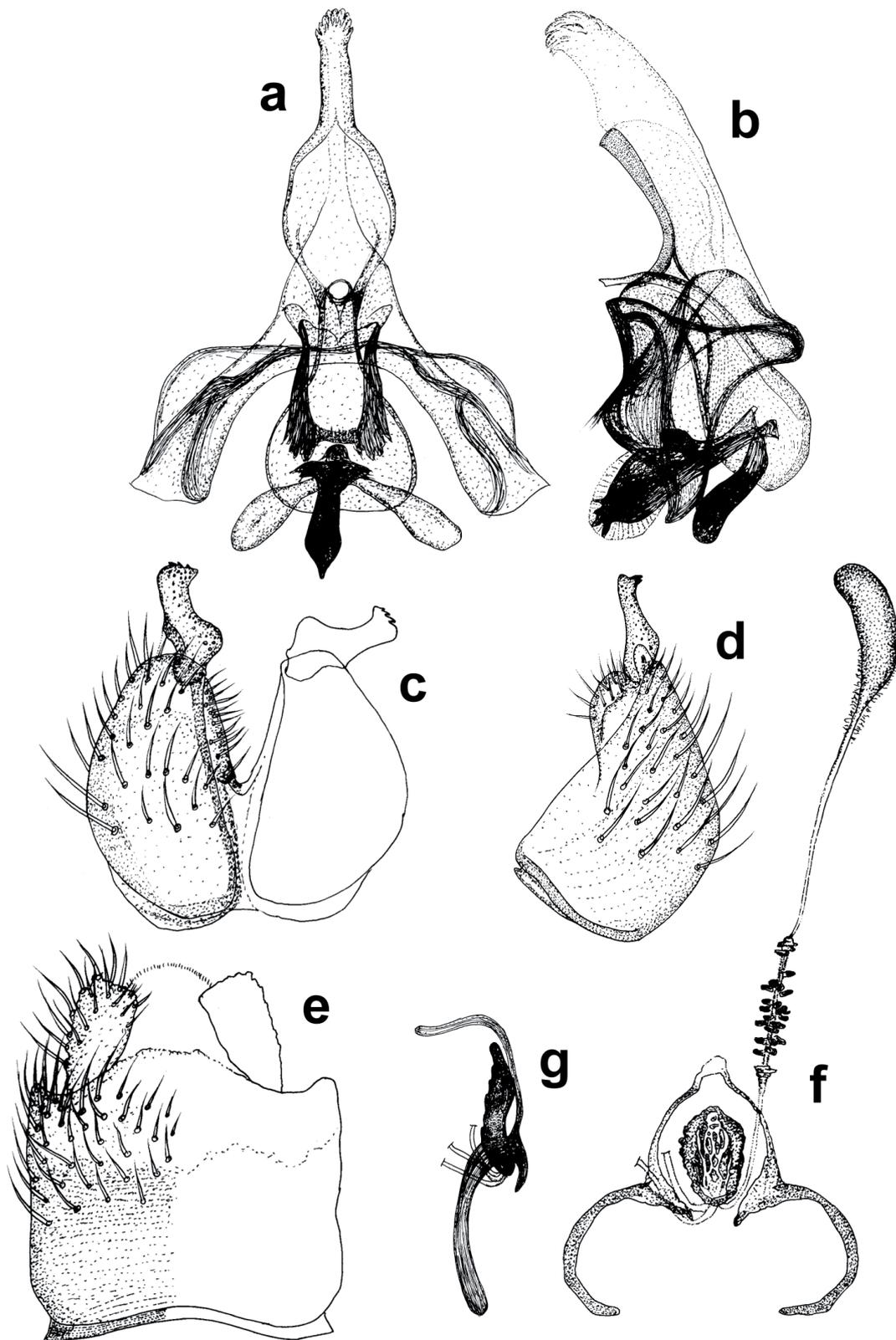


Fig. 45. *Protypusia dimonica* (Zaitzev, 1996) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

HALTERE. Pale yellow, base of stem slightly infuscated.

LEGS. Coxae blackish with coating of grey dust same as pleura. Femora predominantly blackish or dark brown with a covering of grey dust, the tip yellow, more brownish on hind femora. Tibia and tarsi blackish or brown, base narrowly yellow. Coxae and front four femora furnished with moderately long white posterior hairs, hind femora with rather shorter anterior hairs, legs otherwise covered with short, adpressed white hairs.

ABDOMEN. Tergites dark blackish-brown with dense grey dusting tending to be darker, subshining on disc of first two tergites, laterally. Each tergite with sharply demarcated pale yellow apical margins, sometimes broader on central tergites, tapering to a point on reflexed lateral margins. On average yellow apical margins narrower than width of hind basitarsus, often conspicuously so. Sternites similar to tergites. Tergites and sternites all covered with fairly long, erect white hairs, longest on lateral margins of tergites.

GENITALIA. Small often partially contracted into apical tergites. Gonocoxites black, grey dusted with tips shinier and browner, covered in long white hairs. Epandrium basally black, grey dusted, with very broad yellow apical margin, covered in short, dense white hairs, erect medially, apically directed on yellow part. Cerci brown.

Female

Differs from the male in its broadly separated eyes, the frons dark in ground colour, densely grey dusted with short, white hairs anteriorly, a small dark undusted spot centrally. Frons about one third head width. Ocelli forming an equilateral triangle. Antennae tending to be shorter than in male. Eye facets equal-sized throughout. Mesonotal dusting rather more yellowish, darker vittae tending to be less conspicuous. Hairing of thorax, legs and abdomen shorter, significantly so on the abdomen. Yellow apical margins on tergites tending to broaden towards tip. Vaginal plate smaller and less pigmented in Israeli specimens than in Moroccan specimens.

Remarks

Despite the wide distribution from Israel to Morocco, there is very little variation between populations. Moroccan specimens tend to have less clearly pale knees, males have longer vestiture and a rather browner mesonotum. There are minor differences in the genitalia of the few specimens dissected but no more than can often be found within populations.

Using the key in Efflatoun (1945), this species will run to *Pro. tewfiki* (Efflatoun), but Efflatoun's choice of characters in his key is bizarre and *Pro. tewfiki* can readily be eliminated on abdominal pattern. Based on Efflatoun's descriptions, the Smithsonian Archives plates, and the photos from EFC, it is probably closest to *Pro. deserticola* (Efflatoun). The possibility that *Pro. dimonica* is a synonym of this species has to be considered. Unfortunately, I have been unable to examine the types of *Pro. deserticola* held in Cairo, but photographs suggest that it differs in colour of dusting and has more strongly marked paramedian and antehumeral vittae. The genitalia of both sexes of *Pro. deserticola* need to be studied to confirm its conspecificity or otherwise with *Pro. dimonica*.

Distribution

Israel, Morocco.

Protypusia emeljanovi (Zaitzev, 1975) gen. et comb. nov.

Parageron emeljanovi Zaitzev, 1975: 554.

Etymology

Named after Alexandr Fedorovich Emeljanov (1936–) who collected the holotype.

Type material

Holotype (not examined)

MONGOLIA • ♀; “Bayan-Khongorskiy Aimag, [ur]. Ekhin-gol, 50 km [SSE] Mt. Tsagan-Bogdo, 1 IX 1970 (leg. Emeljanov) [translated from Cyrillic]; Голотип: ♀, Баян-Хонгорский аймак, ур. Эхин-Гол, 50 км ССВ г. Цаган-Богдо, 1 IX 1970 (Емельянов)”; ZIN.

Other material examined

None seen.

Redescription

MEASUREMENTS. Body length: 3.0 mm. Wing length: 2.5 mm.

Male

Unknown.

Female (taken from type description in Zaitzev 1975).

Zaitzev had only 1 female specimen in bad condition at his disposal. But the specimen exhibits clear features that make it possible to distinguish it from all known taxa of the genus *Parageron* s. lat. and to describe it as a new species. Characterised by the yellow scutellum, yellow edges of mesonotum, yellow tibia and head. Body black, vertex, frons and face brownish-yellow, occiput black, vestiture of the head is white. Scape yellow; pedicel and postpedicel black, the latter segment is two times as long as the total length of the basal two segments. The palps are yellowish-grey, short, one-segmented, hardly protruding beyond the edge of mouth. Proboscis long, three times as long as the head. Thorax black, lateral margins of the mesonotum, and also some parts of the anepisternum and katapisternum yellow. Scutellum yellow. Hair on the thorax and the scutellum white. Fore coxae yellow, mid and hind coxae black. Femora black, apex of each femora, of the tibia and the basal tarsal segments yellow, the apical tarsal segments darkened. Wings hayline, all veins yellow. First basal cell longer than second basal cell (i.e., r-m distal to m-cu crossveins). Halteres white. The abdomen is black, the hind margins of all tergites with a yellow border, which occupies one third to one quarter the length of each tergite. Sternites black.

Remarks

Unfortunately, it was not possible to borrow the holotype of this species, nor could I visit the depository or obtain any photos. Zaitzev’s (1975) description is very brief, includes no figures, and does not discuss any characters that could definitively eliminate other genera within the Usiinae, particularly *Apolysis*. However, on the balance of probability, from the characters given, it probably does belong here. Further specimens and dissections of both sexes are much needed.

Distribution

Mongolia.

Protypusia flavipalpis gen. et sp. nov.

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Figs 12, 46

Etymology

From Latin '*flavus*' = 'yellow' and '*palpare*' = 'to feel', referring to the relatively large, club-shaped yellow palps.

Type material

Holotype

MOROCCO • ♂; "17 March 2009, Agadir, Temsia 60 m, N 30°21'13.6" E 09°23'47.9", leg. J. Dils & J. Faes"; NHMUK.

Paratypes

MOROCCO • 1 ♂; "8 April 2009, Essaouira, Ouassane 70 m, N31°23'6.6" W09°46'34.6", leg. J. Dils & J. Faes"; PCJD • 1 ♀; "17 March 2009, Agadir, Temsia 60 m, N30°21'13.6" W09°23'47.9", leg. J. Dils & J. Faes"; NHMUK • 6 ♀♀; "same data"; PCJD • 1 ♂; "9 April 2009, Agadir, Imsouane 270 m N30°53'09" W9°46'49.4" leg. Dils J. Faes J."; PCJD • 1 ♀; "18 March 2011, Tiznit, Aglou 30 m N29.76253 W9.87466 leg. Dils J. Faes J."; PCJD.

Description

MEASUREMENTS. Body length: 2.3–3.0 mm. Wing length: 2.3–2.9 mm.

Male

HEAD. Gena viewed ventrally a little broader than the apical diameter of the scape, in lateral view almost invisible, the shining brownish mouth margin narrower than gena but visible in lateral view. Frons relatively narrow, at antennal insertions narrower than the depth of the postpedicel, covered with silky grey dust, narrowing down eye margin to merge with darker grey dusted occiput. Frons also with a tuft of relatively long white hairs close to eyes opposite antennal insertions. Eyes meeting for a length approximately equal to the length of the frons medially and significantly more than the length of the vertex (difficult to be certain because heads of the three males are partially collapsed). Ocellar tubercle dark in ground colour, grey-brown dusted, all ocelli contiguous with the eye margins. Pale brown hairs on ocellar tubercle almost twice as long as width of vertex at its broadest. Eye facets large in upper half, small in lower half, the division between them fairly well marked. Occiput dark in ground colour, densely coated with dark grey dust laterally blackish over middle two thirds. Occipital callosities well developed, relatively strongly convex. Occiput covered with relatively long whitish hairs, upper ones not much shorter than those on ventral side of head which are as long as the median depth of the fore femora. Antennae black with a grey cast, postpedicel significantly longer than scape and pedicel together, straight dorsally, convex below tapering to blunt tip. Scape and pedicel with relatively long silvery hairs dorsally, longer than length of respective segment; postpedicel with shorter pale hairs mid-dorsally and immediately before subapical sulcus. Palps conspicuously larger than in related species, easily seen due to their contrastingly yellow colour, swollen apically, club-shaped, clearly produced beyond the basoventral membrane of the proboscis, with several relatively long white hairs apically. Proboscis not exceptional, about as long as the head and thorax (without scutellum), hairless dorsally, black, the basoventral membrane yellow.

THORAX. Dark ground colour obscured by dense blackish brown dust, anterior slope of mesonotum, post pronotal lobe, notopleuron, supra alar and post alar areas conspicuously grey-brown dusted. This grey-brown dusted area extends rearwards along the dorsocentral lines to the scutellum, narrowest at the thoracic suture, so forming three dark mesonotal vittae, middle vittae (equals coalesced paramedian

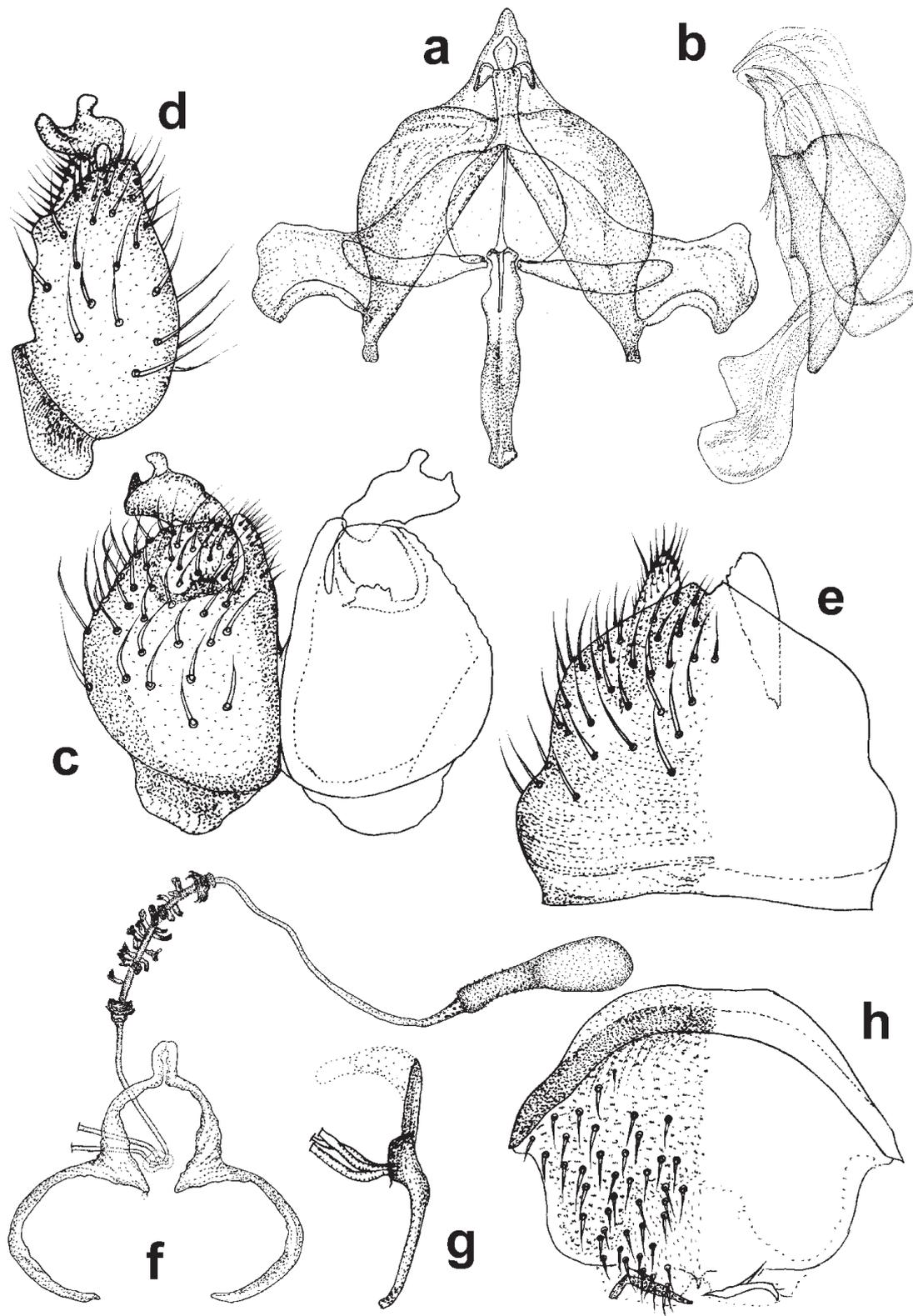


Fig. 46. *Protypusia flavipalpis* gen. et sp. nov. **a.** Epiphallallic complex ventral. **b.** Epiphallallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral. **h.** Female sternite 8 ventral.

and acrostichal areas) reaching scutellum. Sometimes a short acrostichal line present anteriorly. Hairs of mesonotum pale yellow, as long as the mid-length of the scutellum, acrostichals few and irregular, dorsocentrals irregularly biserial, anterior hairs reclinate, those on hind third proclinate, laterally hairs more generally distributed, relatively dense on notopleuron and post pronotal lobe. Scutellum variably dark blackish-brown on disc (darkened area very small in some), dusted lighter brown elsewhere, long pale yellow hairs scattered across disc and arranged in irregular row around margin. Pleura uniformly grey dusted, greyer than notopleuron, pronotum and posterior two-thirds of the anepisternum with long pale yellow to white hairs.

WING. Membrane hyaline, no more than the slightest yellowish tinge, the veins brown, yellower basally, subcosta yellow. Crossvein r-m near base of the discal cell, almost opposite m-cu. Anal lobe well developed with convex margin, almost triangular, conspicuously broader than anal cell.

HALTERE. Pale yellow, base of stem clearly infuscated, knob with a clear blackish-brown dorsal spot.

LEGS. Black, coxae grey dusted like pleura. Femora and tibia rather less densely grey dusted, very tip of femora inconspicuously reddish-brown, difficult to see in anything but very good light. Legs sparsely clothed with white hairs, rather long on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally. Tibia and tarsi with short adpressed white hairs, tarsi rather long, 1.5 times tibia length, basitarsi spinose ventrally.

ABDOMEN. Dark olive-grey dusted, decidedly browner on disc, greyer laterally, tergite two blackish basally. No visible paler apical margins to any tergites. All tergites with long white erect hairs longer than the length of respective tergite laterally, on disc hairs much shorter, confined to apical third of each tergite and decidedly reclinate. Sternites grey dusted with narrow paler yellow apical margins and evenly distributed long white hairs.

GENITALIA. Rather small and retracted into tip of abdomen, densely grey dusted, gonocoxite and epandrium with a covering of short white silky hairs. Cerci yellowish.

Female

Differs from the male in its more uniformly golden-brown dusted head mesonotum and abdomen. Eyes rather broadly separated, frons about a third head width golden-grey with relatively long pale yellow hairs laterally and anteriorly. Hairing elsewhere generally shorter but still longer haired than similar species, particularly on dorsum of antennae where very like male. Palp as male but even more swollen apically, baso-ventral membrane dirty yellow. Occiput golden-grey dusted, greyer on occipital callosities. Proboscis often more robust than in male. Mesonotum and scutellum very uniformly golden-brown dusted, lacking the dark vittae of male, no more than slight hint of darker paramedian vittae. Pleura a little greyer than mesonotum. Tergites uniformly golden-brown dusted with obscure paler apical margins on tergites two to seven. Sternites a little greyer with paler apical margins more noticeable. Knob of haltere lacks the dark dorsal spot, or is slightly infuscated dorsally. Reddish colour of knees a little more extensive but still obscure.

Remarks

This small delicate species is currently known from just three males and eight females. In external appearance it is very similar to other species in the *punctipennis*-species group of *Protypusia* gen. nov. However, its male and female genitalia are somewhat divergent, suggesting that it is not very closely related to other members of this group.

Distribution

Morocco.

Protypusia grisea (Paramonov, 1947) gen. et comb. nov.

Fig. 47

Parageron griseus Paramonov, 1947: 218 [preoccupied by *Usia grisea* Efflatoun, 1945].

Usia glauca Evenhuis, 1978: 103 (replacement name for *Parageron griseus* Paramonov, 1947, at the time preoccupied by *Usia grisea* Efflatoun, 1945 when transferred to *Parageron* by Evenhuis 1978: 103; the latter now of indeterminate genus in unplaced Usiinae).

Etymology

From Latin ‘*griseo*’ = ‘grey’.

Type material

Lectotype (here designated)

TURKMENISTAN • ♂; “Utsh-Adzhi, distr. Merv., 3 May [19]26 1 ♂ (leg. S.J. Paramonov)/*Parageron griseus* sp. nov. ♂ S. Paramonov det./*Typus*/Zool. Mus. Berlin”; ZMHB.

Paralectotype

UZBEKISTAN • 1 ♀; “C.3. Byxapa [northwest Bukhara], Tshangyr [in Cyrillic, not readable, translation taken from type description], 27 May [1]930 1 ♀ (leg. L.S. Zimin [in Cyrillic])/*Typus*/Zool. Mus. Berlin”; ZMHB.

Other material examined

None.

Redescription

MEASUREMENTS. Body length: 2.9–3.4 mm. Wing length: 2.5–3.0 mm.

Male

HEAD. Gena about as broad as the depth of the postpedicel, very pale matt yellow-white. Frons somewhat swollen, silky white with a yellowish tinge, lacking long hairs. Eyes meeting for about seven facets, less than the length of the vertex. Ocellar tubercle dark in ground colour, densely dove-grey dusted, all ocelli contiguous with the eye margins. White hairs on ocellar tubercle about as long as width of vertex at its broadest. Eye facets large in upper half, small in lower half, the division between them fairly well marked. Occiput dark in ground colour, densely coated with dove-grey dust, laterally with whitish hairs, those below twice as long as the upper ones. Antennae blackish with a rather grey cast, postpedicel significantly longer than scape and pedicel together, a distinct sharp, triangular point dorsally immediately beyond the subapical sulcus (this could be mistaken for an articulating style as seen in *Apolysis*). Palps small and slender, white with a few inconspicuous white hairs apically. Proboscis very long, a little shorter than the body length, hairless dorsally, the baso-ventral membrane dirty white.

THORAX. Dark ground colour obscured by dove-grey dust, the paramedian vittae extending back two thirds the length of the mesonotum, also faint, obscurely defined, darker antehumeral vittae broken at thoracic suture. Hairs of mesonotum white, fairly long, acrostichals and dorsocentrals irregularly biserial, hairs on hind third and lateral parts of mesonotum more general, but area above wing bare. Scutellum concolourous with mesonotum, white hairs longer than those on mesonotum, a longitudinal middle part

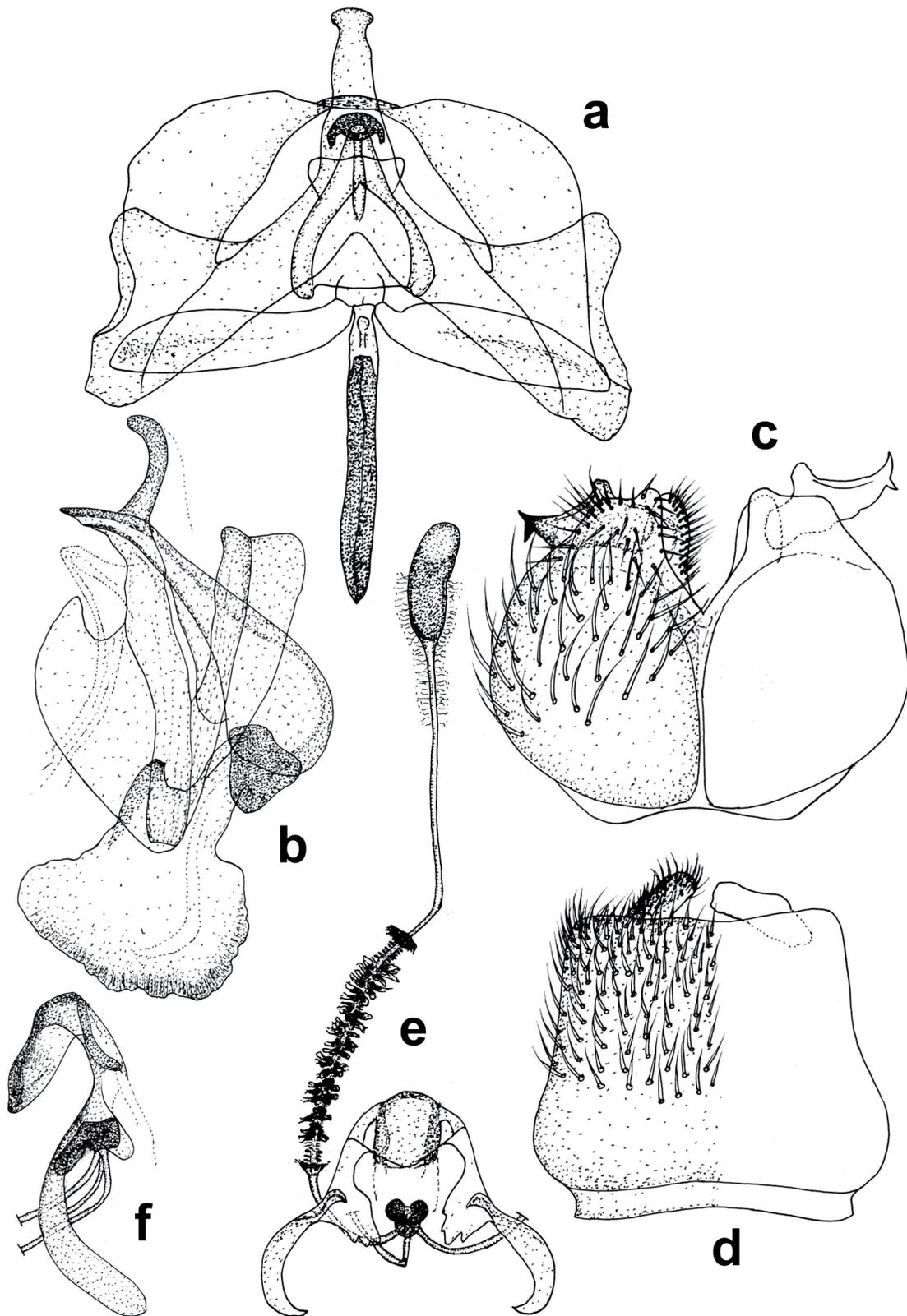


Fig. 47. *Protypusia grisea* (Paramonov, 1947) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Epandrium dorsal. **e.** Female genitalia ventral. **f.** Female genitalia lateral.

of scutellum bare. Pleura concolourous with mesonotum, posterior two-thirds of the anepisternum with long, white hairs. Metepimeron becoming dirty yellow posteriorly, hairless.

WING. Membrane hyaline, the veins pale yellow. Crossvein r-m a little beyond basal third of the discal cell, clearly beyond m-cu. Anal lobe very well developed with conspicuously convex margin, much broader than anal cell.

HALTERE. Pale yellow, base of stem slightly infuscated.

LEGS. Coxae concolourous with pleura. Femora and tibia rather more brown, not densely dusted, very tip of femora and narrow base of tibia yellow. Legs covered with white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally and hind tibia dorsally.

ABDOMEN. Tergite one yellow laterally, dark brownish grey with clear yellow margins dorsally, remaining tergites brownish-grey with narrow dull yellow posterior margins. All tergites with long white hairs on reflexed lateral margins, dorsally hairs shorter and largely confined to the posterior half of each tergite. Sternites similar to tergites.

GENITALIA. Mid-size compared to other *Protypusia* gen. nov., dark in ground colour, tip of gonocoxite yellower, densely covered in grey dust, covered in white hairs.

Female

Differs from the male in its broadly separated eyes, the frons dove-grey becoming more yellow anteriorly. At its narrowest part frons as wide as (or slightly wider than) length of postpedicel. Yellow margins to tergite less well defined, hairs on tergites and sternites conspicuously shorter. Hairs on legs shorter, hind femora and tibia lacking longer hairs.

Remarks

Only the male holotype and female paratype seen. A very small species, conforming closely in external characters to many species of *Protypusia* gen. nov. The female genitalia are typical of *Protypusia* with well sclerotised, sharply bent tip of genital fork and sclerotised vaginal plate. However, male genitalia rather divergent from the typical *Protypusia*, tip of epiphallus lacking the spiny membranous structure. Possibly allied to *Pro. flavipalpis* gen. et sp. nov. based on genitalia, but not very closely. Likely to be close to *Pro. modesta* but the male of that species is not known so this cannot be confirmed.

Zaitzev (1966) reported this species from Georgia, but the accompanying illustrations show that this is an error. Zaitzev's material almost certainly belongs with either *Pro. negevi* or the closely related *Pro. zimini*.

Distribution

Turkmenistan, Uzbekistan.

Protypusia hyalipennis (Séguy, 1941) gen. et comb. nov.

Figs 11, 48

Oligodranes hyalipennis Séguy, 1941: 9.

Etymology

From Latin; '*hyalinus*' = 'glassy' and '*penna*' = 'feather' or 'wing'; 'clear wings'.

Type material

Lectotype (here designated)

MOROCCO • ♂; “Avril/Maroc, env. D’Agadir, foret d’Ademime/Museum Paris, 1939, L. Berland/*Oligodranes hyalipennis* ♂ E. Séguay vid., Type.”; MNHN.

Paralectotypes

MOROCCO • 1 ♀; “Avril/Maroc, env. D’Agadir, forêt d’Ademime/Museum Paris, 1939, L. Berland/*Oligodranes hyalipennis* ♀ E. Séguay vid., Cotype/Genitalia slide, No. 870801-9”; MNHN • 1 ♀; “Avril/Maroc, Agadir/Museum Paris, 1939, L. Berland/*Oligodranes hyalipennis* ♀ E. Séguay vid., Cotype”; MNHN.

Other material examined

MOROCCO • 1 ♂; “1899, Tanger/*Oligodranes* ?, det. Becker/*Parageron pleskei* sp. nov. ♂, S. Paramonov/Zool. Mus., Berlin”; ZMHB.

Redescription

MEASUREMENTS. Body length: 2.3–2.4 mm. Wing length: 2.5 mm.

Male

HEAD. Gena plus mouth margin about as broad as the apical diameter of the scape, the shining brownish mouth margin broader than the narrow dusted gena. Frons relatively narrow, at antennal insertions about as deep as the depth of the postpedicel, covered with silky grey dust, narrowing down eye margin to merge with darker grey dusted occiput. Eyes meeting for about 10–12 facets, significantly more than the length of the vertex. Ocellar tubercle dark in ground colour, dark brown dusted, all ocelli contiguous with the eye margins. White hairs on ocellar tubercle about as long as width of vertex at its broadest. Eye facets large in upper half, small in lower half, the division between them fairly well marked. Occiput dark in ground colour, densely coated with dark grey-brown dust, a blackish triangle behind ocelli. Occiput covered with silvery hairs, upper ones short, those on ventral side of head as long as length of postpedicel. Antennae blackish with a brown cast, postpedicel significantly longer than scape and pedicel together, a small sharp, triangular point dorsally immediately beyond the subapical sulcus (this could be mistaken for an articulating style as seen in *Apolysis*). Palps small and slender, brownish-yellow with a few inconspicuous white hairs apically. Proboscis not exceptional, about twice as long as the head, hairless dorsally, the basoventral membrane brownish-yellow.

THORAX. Dark ground colour obscured by dense brown dust, notopleuron and anterior slope of mesonotum conspicuously grey dusted. This grey dusted area extends rearwards along the acrostichal lines fading out at level of transverse suture and along the dorsocentral lines to the scutellum, fading slightly. The dark brown paramedian vittae narrower than the grey acrostichal and dorsocentral lines. Dark brown antehumeral vittae not interrupted at thoracic suture. Hairs of mesonotum white, fairly long, acrostichals and dorsocentrals irregularly biserial, hairs on hind third and lateral parts of mesonotum more general, but area above wing sparsely haired. Scutellum dark brown dusted similar to adjacent parts of mesonotum, sparse white hairs as those on front of mesonotum, disc of scutellum bare. Pleura grey concolourous with notopleuron and occiput, posterior two-thirds of the anepisternum, with white hairs.

WING. Membrane with faint brownish tinge, the veins brown. Crossvein r-m near base of the discal cell, opposite m-cu. Anal lobe very well developed with conspicuously convex margin, much broader than anal cell.

HALTERE. Pale yellow, base of stem slightly infuscated, knob with a clear dark brown dorsal spot.

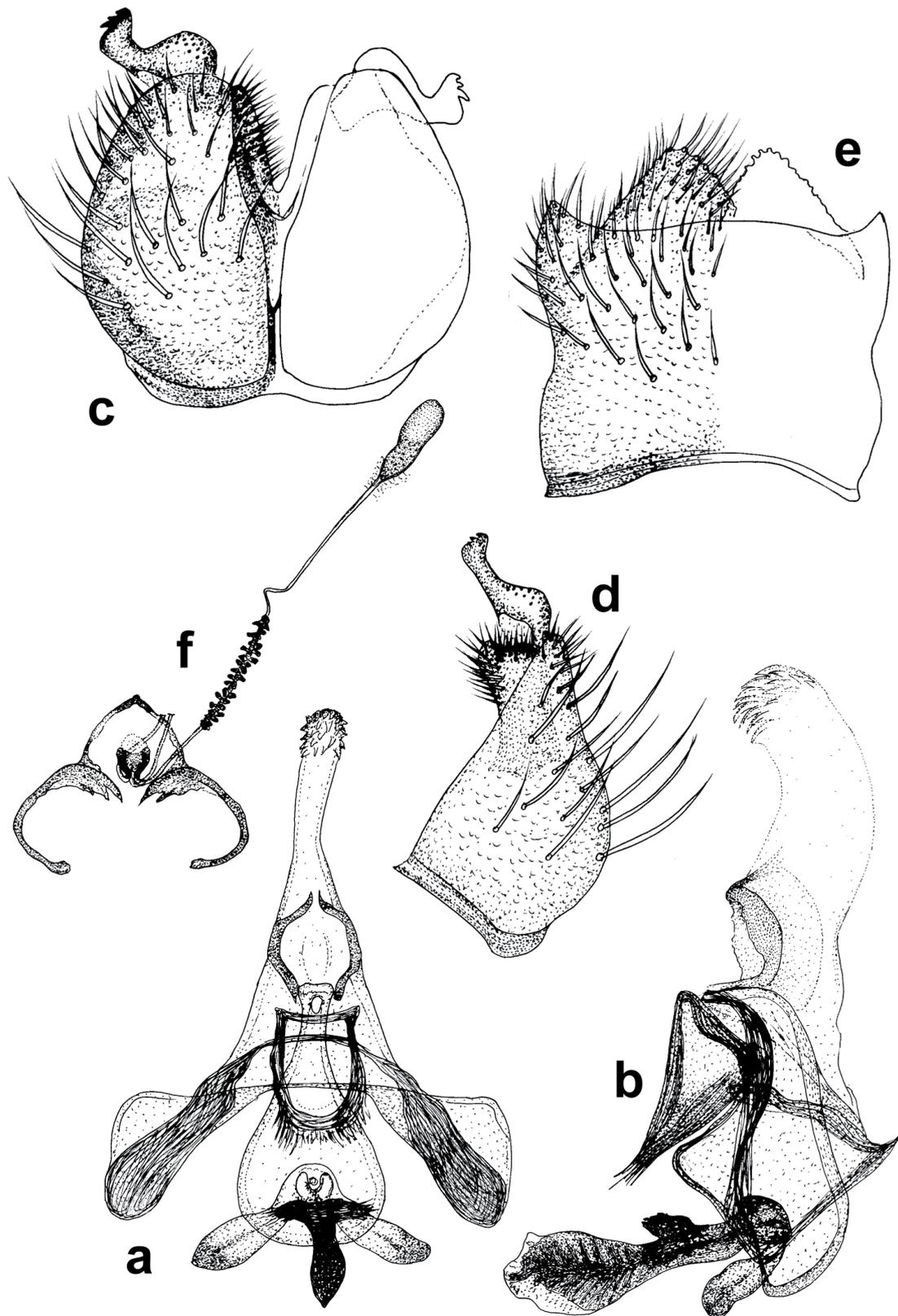


Fig. 48. *Protypusia hyalipennis* (Séguy, 1941) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral.

LEGS. Dark brown, coxae grey dusted like pleura. Femora and tibia rather less densely dusted, very tip of femora and narrow base of tibia yellow, very inconspicuously so on hind legs. Legs sparsely clothed with white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally. Tibia and tarsi with short adpressed white hairs.

ABDOMEN. Dark brown dusted with second to seventh tergites with narrow, dull yellow margins, broadest laterally, very obscure dorsally. All tergites with white hairs longer than the length of respective tergite, longest laterally, shorter and sparser on disc. Sternites similar to tergites but distinctly more grey dusted.

GENITALIA. Typical size for holoptic *Protypusia* gen. nov., concolourous with abdomen, densely brown dusted, tip of epandrium dull yellow-brown, gonocoxite long-haired (like tergites), epandrium short-haired (like tibia).

Female

Distinctly dichromatic. Gena yellow, frons wider than postpedicel, almost as wide as the three antennal segments together. Hairs on ocellar tubercle shorter, barely as long as distance between hind ocelli. Mesonotum paler grey brown with well-marked narrow dark brown paramedian vittae extending back to level of wing bases. Laterally are fainter brown antehumeral vittae interrupted at the transverse suture. Apical yellow margins of tergites a little broader, hairing of thorax, legs and abdomen significantly shorter than in male.

Remarks

A small, delicate species known from just four specimens, two males and two females. The male epiphallic complex is typical of the genus, the gonostyli suggest a close affinity with *Pro. vagans*. The female genitalia diverge from the most common type within *Protypusia* gen. nov., the tip of the genital fork being poorly sclerotised and not strongly angled. Female *Pro. vagans* also has this type of genitalia further supporting the affinity of these two species.

Distribution

Morocco.

Protypusia inornata (Engel, 1932) gen. et comb. nov.

Fig. 49

Usia inornata Engel, 1932: 74.

Etymology

From Latin '*inōrnātus*' = 'unadorned'.

Type material

Syntype (not examined)

EGYPT • ♀; "Gebel Elba (Wadi Edeib), South-Eastern Desert, January 1930 ♀ leg Efflatoun Bey, (Engel 1932)"; ESEC.

Up to two specimens in ESEC but it was not possible to borrow any or obtain high quality photos. However, good photos of a homeotype preserved in EFC (collected from type locality and in same time frame and compared with the syntypes by the late Efflatoun Bey) were made available to me by Dr Magdi S. El-Hawagry. Gebel Elba January 1933 det H.C. Efflatoun [♀].

Non-type material examined

Two female specimens in MNHS that fit the description of this taxon in Engel (1932) and Efflatoun (1945) are potentially this species.

SENEGAL • 1 ♀; “Ross Bethio, 2 March 1977, G. Couturier leg./butinant sur *Momordica balsamina* [nectaring on *Momordica balsamina*]/*Oligodranes* sp.”; MNHN • 1 ♀; “M’Bour, St Orstom, 2 February-December 1980, B. Sigwalt leg./Piège de Malaise”; MNHN.

Redescription

MEASUREMENTS. Body length. 4.2–5.4 mm.

Male (based on Efflatoun (1945) and plate in Smithsonian Archives)

HEAD. Frons glistening white with faintly yellow tinge, this colour extending down the gena, lacking erect hairs. Occiput and ocellar tubercle dark in ground colour densely covered with grey-white dust and outstanding yellowish-grey hairs, those on ocellar tubercle short, longer and denser on occiput. All ocelli in contact with eye margin (from plate). Eyes confluent for a little longer than half the length of the head (looks shorter than this in plate). Antennae black, scape and pedicel paler due to greyish dust more conspicuous than on postpedicel. Postpedicel somewhat swollen below basally, contracted in apical third, a little less than twice the length of scape and pedicel combined. Antennae sparsely haired above, short pale yellowish hairs on scape and pedicel. Palps very small and short, slightly clavate, yellowish-brown apically bearing one short, stiff, whitish hair. Proboscis relatively long, about twice as long as head (including antennae), black except for the creamy-buff basoventral membrane.

THORAX. Dark ground colour obscured by dense dust varying from pale brownish-grey to light greyish-brown. Mesonotum with well-defined blackish-brown paramedian vittae from anterior slope to rear quarter, acrostichal grey stripe about one and a half times as wide as darker paramedian vittae. Antehumeral vittae less well defined but similar in colour, divided at thoracic suture, anterior to suture rather oval, behind suture either similar but longer or a narrow stripe. Whole of mesonotum and scutellum covered with short, erect, not dense pale yellowish hair, whiter and longer on the front of the mesonotum, postpronotal lobe and notopleuron. Mesonotum very finely punctured with black pits at points of hair attachments. Scutellum uniformly rather densely brownish-grey to greyish-brown dust, finely punctured as mesonotum, the hairs rather longer and pale yellowish. Pleura dusted as mesonotum, anepisternum with fine longish white hairs all over.

WING. Membrane hyaline, the veins pale yellow-brown, sometimes with a short, backwards projecting appendix near the base of R_4 . Crossvein r-m at or before basal third of the discal cell, sometimes duplicated m-m cross-vein not straight, undulating or absent (aberration). Anal lobe broad with conspicuously convex margin, clearly broader than anal cell.

HALTERE. Ivory yellow to light cream-buff, base of stem obscure blackish-brown.

LEGS. Coxae blackish, yellowish apically. Trochanters obscure brownish-yellow. Femora, tibia and tarsi, more or less dark yellowish-brown to blackish-brown with extreme tips of femora and narrow bases of tibia reddish-yellow. Front and mid-tibia also paler apically, sometimes tarsi of these legs paler. Coxae and front four femora furnished with moderately long glistening yellowish-white hairs, legs otherwise covered with very short, adpressed fairly dense hairs.

ABDOMEN. Not short, tergites dark brownish-olive with well demarcated pale yellow-buff apical margins about one third to one fourth the depth of the segment. All tergites except the first blackish-grey and finely

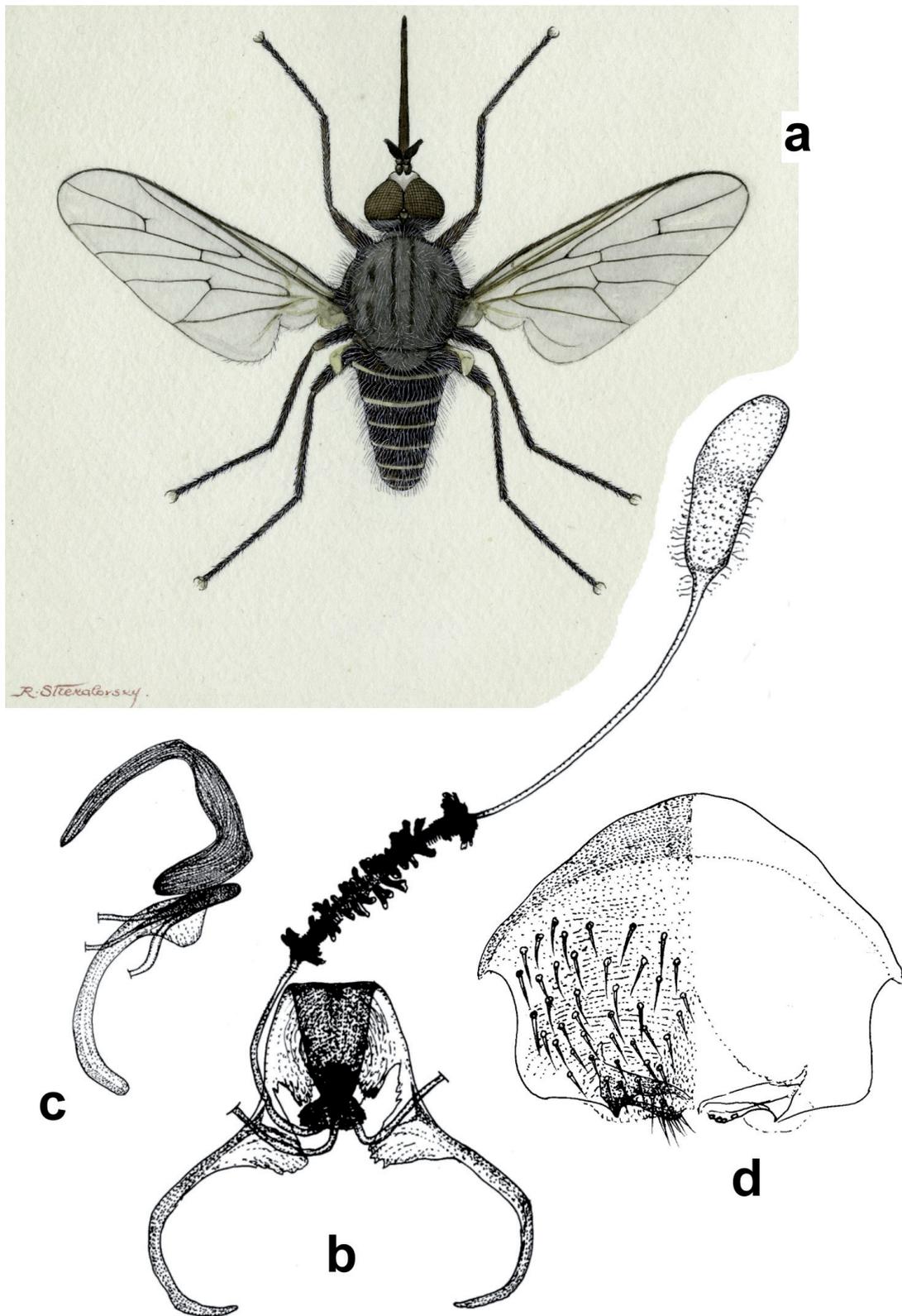


Fig. 49. *Protypusia inornata* (Engel, 1932) gen. et comb. nov. **a.** Habitus male, Smithsonian Institution Archives Image SIA2012-7885-wing venation aberrant. **b–d.** *Protypusia* cf. *inornata*, Senegal specimen **b.** Female genitalia ventral. **c.** Female genitalia lateral. **d.** Female sternite 8 ventral.

punctured. Sternites similar with pale apical margins. Tergites and sternites covered with short, sub-erect, not dense pale yellowish hairs, longer and rather more dense laterally and towards base.

GENITALIA. Relatively large when compared to other holoptic species. Gonocoxites blackish-brown with yellowish hairs. Epandrium yellowish-red with very short, erect yellowish hair.

Female (based on Engel (1932), Efflatoun (1945) and photographs of EFC specimen)

Similar to male, general colour of dusting on the head and thorax varying from pure white to light greyish-brown, abdomen broader and pubescence shorter. Frons close to parallel, only slightly widening from vertex to front of frons, about one third head width at vertex. Frons with small dark spot centrally where dusting thinner so dark cuticle shows through. Gena moderately narrow, about the same as the more shining mouth margin. Lateral ocelli separated from corner of eye by about twice the diameter of that ocellus. In the EFC specimen, in addition to the dark brown paramedian and antehumeral vittae, there is a round spot of similar colour behind the transverse suture above the wing base. In all the three female specimens known venation typical with no duplicated or missing veins. Legs with pale areas a little more extensive, especially on the front and middle legs, front and middle tibia have apical quarter or third reddish-yellow. Abdomen broader than in male as typical for genus, tergites ash-grey dusted, the apical margins of the tergites broader, up to half the length of the tergite. Colour varying from deep buff to honey-yellow, that on tergite one can occupy whole segment. Ovipositor (apical sternite?) reddish-yellow, obscurely brown at apex bearing microscopic pale yellow hairs.

Two female specimens from Senegal probably belong here.

Female cf. *Pro. inornata* Senegal

MEASUREMENTS. Body length: 3.5 mm. Wing length: 3.5 mm.

HEAD. Gena and mouth margin conspicuously narrower than in female *Par. erythraea* but wider than in *Pro. punctipennis*, about as wide as width of scape, broadening out into frons, dull yellow-grey, darker on ocellar tubercle and middle of front of frons, in ground colour. Rather densely coated with cinereous-yellow dusting, a shinier border to the oral opening below. Frons about as wide at vertex as length of postpedicel, broadening anteriorly only slightly. Very short, pale brown proclinate hairs on ocellar tubercle and rear of frons laterally, hardly longer than diameter of an ocellus. Eye facets all small and equal. Occiput dark in ground colour; densely coated with cinereous-yellow dust and covered with white hairs as long as length of scape and pedicel combined. Antennae black, postpedicel significantly longer than scape and pedicel together, rather oblong and parallel sided, a tiny upwardly directed point marking distal edge of the subapical sulcus. Short, pale erect hairs along dorsum of all three segments, longest ones just before subapical sulcus. Palps small, short and clavate, dark brown with long pale hairs apically. Proboscis moderately long, about equal to the mesonotum plus scutellum, black, tapering evenly, not swollen at base, naked, the basoventral membrane yellow-white.

THORAX. Mesonotum dark in ground colour, vaguely paler on post pronotal lobe; densely coated with grey dust (cinereous to yellow-grey). Disc of mesonotum with pattern of vittae very similar to *Pro. punctipennis*; clear, dark grey-brown paramedian vittae from the very front of the mesonotum widening rearward to above wing bases, where they end a similarly coloured prescutellar vittae continues to the scutellum. Laterally clear antehumeral vittae, broken at thoracic suture, anterior one broader than posterior part. In the supra-alar area is a dusted spot very similar in colour to the mesonotal vittae placed behind the thoracic suture by about the diameter of the spot. In many species that also have this spot it is variable and missing in some individuals so is likely to be variable in this species. Hairs of mesonotum very short, white, sparse and biserial on acrostichal lines, more abundant, tri- to quadriserial on dorsocentral lines, longer on notopleuron where hairs longer than scape and pedicel combined. Scutellum as mesonotum, ground colour vaguely darker basally, pale yellow-white hairs similar in length

to those on the notopleuron. Pleura concolourous with sides of mesonotum, grey dusted, pronotum and dorsum and posterior half of the anepisternum with white hairs like those on notopleuron.

WING. Membrane with a very faint paler brown tinge, the veins brownish-yellow. Crossvein r-m at basal quarter to third of the discal cell, level with or a little beyond m-cu. Anal lobe well developed with conspicuously convex margin, notably broader than anal cell.

HALTERE. Knob variable, yellow-white in one specimen, brown infuscated in the other, stem slightly infuscated, especially at base.

LEGS. Coxae concolourous with pleura. Femora and tibia dark brown with tips of femora and very narrow bases of tibia yellow, trochanters and bases of femora also more yellowish. Front tibia paler brown than mid tibia, all legs thinly silvery dusted. Legs covered with short white hairs, longest on the coxae and femora.

ABDOMEN. Tergites basally blackish-brown, shading rather abruptly into broad yellow apical margins, wider laterally. All tergites very thinly pale dusted, and with short pale hairs barely a quarter the length of basal tergites, becoming longer on apical tergites. Sternites very like tergite but more densely grey dusted, that part of sternite eight visible in pinned specimens all dark brown, grey dusted. The proximal part of the genital fork is strongly sclerotised, triangular and hooked, coming to a sharp point (this point is not readily seen in Fig. 49b being obscured by the sclerotised area around the spermathecal opercula).

Remarks

Engel (1932) described *Pro. inornata* from the female sex only, captured at Gebel Elba, South-East Desert, Egypt in January 1930 (Efflatoun Bey). Neither Engel (1932) nor Efflatoun (1945) said how many female specimens were used for the type description, but as only five specimens are known, two being male; and one female in EFC was collected in 1933 (Magdi El-Hawagry pers. com.), there cannot have been more than two. The five known specimens were all collected at the same location between late January and early March, but over a nine-year span from 1930 to 1938. Presumably, if a male had been available before 1932, Efflatoun would have sent one with the female to Engel, so these are unlikely to have been collected alongside the type. Efflatoun (1945) does not explain why he associated the males he described with Engel's *Pro. inornata*, presumably just propinquity.

Without being able to dissect both sexes, it is impossible to be certain of the affinities of this species. However, on external morphology it is very close to *Pro. negevi*, and could well be synonymous. I have retained it as a separate species based on subtle characters such as having browner colour, better defined paramedian and antehumeral vittae, and the wider buffy-yellow apical margins of tergites in female. It is also very close to *Pro. raydahensis* (El-Hawagry & Al Dhafer 2016) from Saudi Arabia, again retained as separate based on subtle characters such as smaller size, more extensively yellow bases to fore and mid-tibia, and more thinly dusted, the last character resulting in a more shining mesonotum.

The specimens examined from Senegal that could be conspecific with *Pro. inornata* are exceedingly close to the EFC specimen of *Pro. inornata*. The only character that can be discerned from the Senegal specimens that differs from the EFC specimen is a dark prescutellar vittae reaching forward to the end of the paramedian vittae and of similar colour. Also, the Senegal specimens have a darker base to tergite one, whereas the EFC *Pro. inornata* appears to have a largely pale tergite one. Both of these characters can be variable in other *Protypusia* gen. nov., so are insufficient to conclude that these specimens are not *Pro. inornata*. The female genitalia point towards an affinity with *Pro. negevi*, but the mesonotal and abdominal pattern are strongly suggestive of *Pro. inornata*.

Distribution

Egypt and (?Senegal).

Protypusia kerkini gen. et sp. nov.

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Fig. 50

Etymology

Noun in apposition, after the type locality, Kerkini, in Northern Greece.

Type material

Holotype

GREECE • ♂; “Kerkini, Midway site 750 m, N41°18'49.8" E23°16'35.6", 23-29 June 2008, leg. G. Ramel Malaise”; NHMUK.

Paratypes

GREECE • 1 ♂; “Kerkini, Lithotopos site, N41°13'40" E23°21'14", 20-26 June 2005, leg. G. Ramel Malaise”; NHMUK • 1 ♀; “Kerkini site, N41°15'18.1" E23°19'8.6", 20-26 June 2005, leg. G. Ramel Malaise”; NHMUK • 3 ♂♂, 3 ♀♀; “Tree 4 330 m, N41°16'33.4" E23°12'49.8", 14-20 July 2008, leg. G. Ramel pan trap”; OUMNH • 1 ♂, 1 ♀; “Krouisia Mts. Site 190 m, N41°11'32" E23°3'59", 27 June-3 July 2007, leg. G. Ramel Malaise”; PCDG • 2 ♂♂, 1 ♀; “Krouisia Site 190 m, N41°11'32.4" E23°3'59.5", 11-17 July 2007, leg. G. Ramel Malaise”; PCDG • 3 ♂♂, 3 ♀♀ (pinned); “Strymon F-Plain 55 m, N41°16'09" E23°19'39", 21 May 2009, leg. G. Ramel Yellow Pan traps”; PCDG • 1 ♂, 2 ♀♀ (pinned); “same data”; NHMUK • 24 ♂♂, 10 ♀♀ (in spirit); “same data”; NHMUK • 1 ♂, 1 ♀; “Roupel's Gorge 60 m N41°17'32" E23°19'35", 7 June 2009, leg. G. Ramel Yellow Pan trap”; PCDG.

Description

MEASUREMENTS. Body length: 1.7–2.8 mm. Wing length: 1.7–3.0 mm.

Male

HEAD. Gena very narrow, linear, almost invisible, the shining yellow mouth margin significantly broader than gena, about as wide as width of front ocellus. Gena broadening abruptly just below antennae, running into long narrow frons, at antennal insertions hardly as wide as scape, covered with whitish-grey dust, a little darker and browner centrally. Eyes very narrowly separated by about half the diameter of anterior ocellus. Vertex between the eyes densely brown dusted, a little darker than the frons. Ocellar tubercle dark in ground colour, dark brown dusted, all ocelli contiguous with the eye. Pale hairs on ocellar tubercle about as long as width across hind ocelli, often sparse or even absent. White hairs on frons also short and inconspicuous. Eye facets small and equal throughout. Occiput dark in ground colour, densely coated with grey-brown dust, area behind ocelli a little darker. Occiput covered with pale yellow to white hairs, upper ones short, those on ventral side of head a little longer. Antennae black with a brown or grey cast on scape and pedicel, postpedicel conspicuously longer than scape and pedicel together, obviously contracted below in apical third, convex, swollen below in basal two thirds, tip truncate. Palps small but larger than in many related species, easily seen, pale whitish with a few inconspicuous pale hairs apically. Proboscis black, fairly long, about equal to head-thorax length (with scutellum), hairless dorsally, the basoventral membrane pale whitish.

THORAX. Dark ground colour obscured by dense grey to brown dust, often with an olive tinge, patterned with sharply defined dark brown paramedian vittae back to just rear of wing bases and antehumeral vittae, the latter broadly separated at thoracic suture. Area in front of scutellum with a clear prescutellar vittae

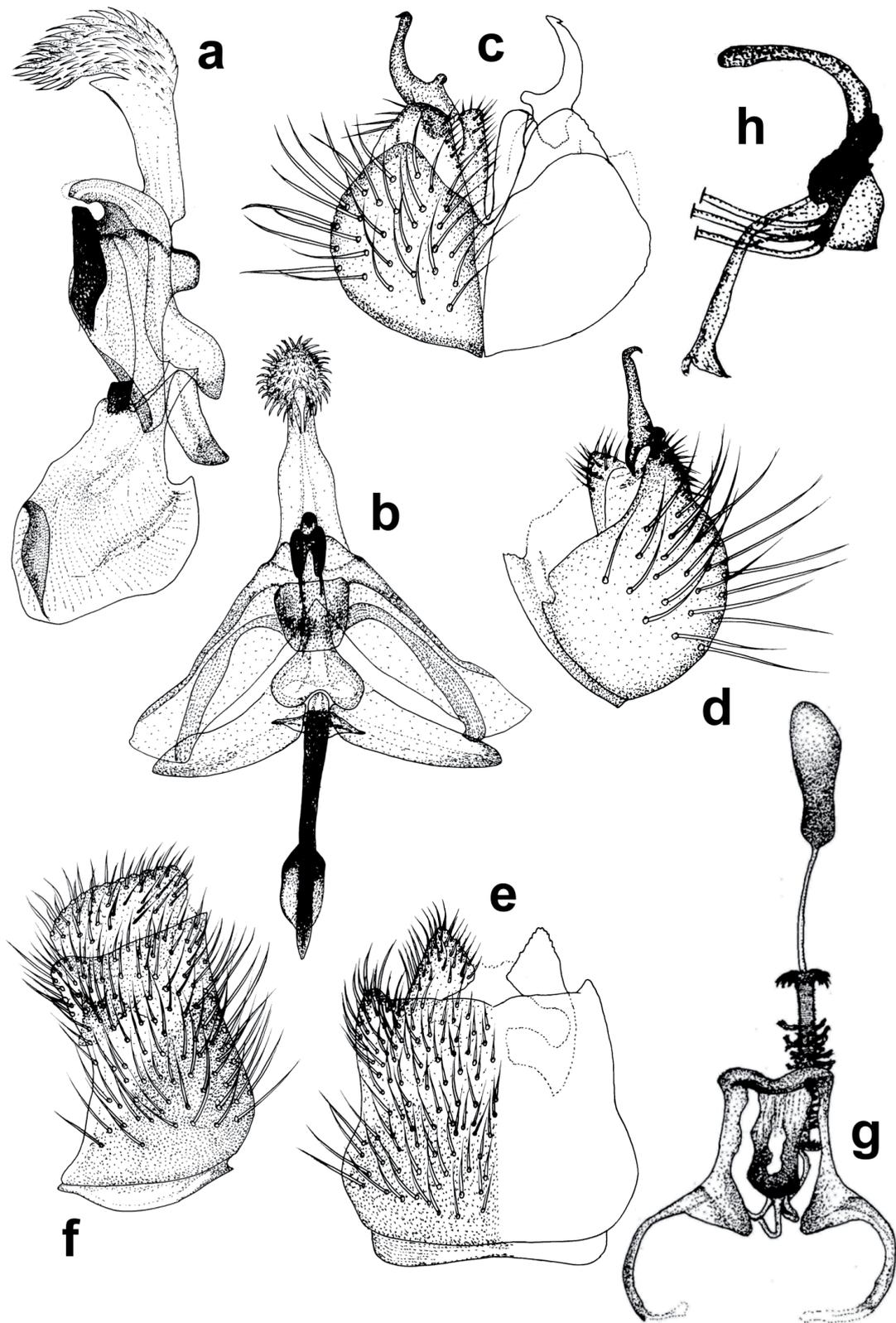


Fig. 50. *Protypusia kerkini* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Epandrium lateral. **g.** Female genitalia ventral. **h.** Female genitalia lateral.

running forward almost to paramedian pair; supra-alar area just behind transverse suture lacking any defined spot. Hairs of mesonotum white to very pale yellow, relatively short, arranged along acrostichal and dorsocentral lines irregularly bi- to tri-serial more general on lateral parts of mesonotum. Scutellum dark grey-brown dusting similar to adjacent parts of mesonotum, yellowish to white hairs sparse on disc longer around margin. Pleura greyer dusted than mesonotum, pronotum and posterior two-thirds of the anepisternum, with short white hairs.

WING. Membrane hyaline with the faintest brownish tinge, the veins brown, yellower basally. Crossvein r-m between one third and mid-point of discal cell, distinctly beyond m-cu. Anal lobe well developed with evenly convex margin, clearly broader than anal cell.

HALTERE. Clear white knob lacking defined brown dorsal spot, stem slightly infuscated especially at base.

LEGS. Femora and coxae brown to black with trochanters yellow, hind ones more or less darkened, base and tips of femora narrowly yellow, tibia and base of basitarsi yellow, apical tarsal segment black. Coxae grey dusted like pleura, femora also grey-dusted but more thinly so. Coxae, femora and tibia clothed with short white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally.

ABDOMEN. Dark brown dusted with greyer dust laterally with all tergites with broad, conspicuous yellow margins, broadest on basal tergites and laterally, extending right to edge of tergites. All tergites with white to pale yellow hairs mainly longer than the length of respective tergite, longest laterally, shorter and sparser on disc. Sternites similar to tergites but distinctly more grey-dusted, pale apical margins more obscure.

GENITALIA. Large for the genus, but still not quite as large as in *Pro. punctipennis*, dusting similar to lateral part of abdomen, epandrium shining apically, yellow to brownish or blackish. Gonocoxite also shining and more brownish apically. Both epandrium and gonocoxite with long hairs as on tergites, or even longer on gonocoxites.

Female

Differs from the male in its broadly separated eyes, about one fifth head width, hind ocelli separated from eye margin by a little more than their diameter. Frons dusted as occiput, a little greyer, a darker brown line down middle from front ocellus to antennae, short sparse hairs antero-laterally. Postpedicel averages a little shorter. Hairing of thorax, legs and abdomen shorter, significantly so on the abdomen. Femora often much paler, almost as yellow as tibia.

Remarks

This species forms a distinct group with *Pro. punctipennis* and *Pro. strymonas* gen. et sp. nov., all of which are clearly very closely related. They are characterised by their relatively large male genitalia, approaching the condition seen in *Parusia* gen. nov. However, the epiphallic complex and female genitalia are very much of the same type as seen in more typical members of *Protypusia* gen. nov. These three species are confined to the eastern Mediterranean, and while *Pro. punctipennis* is widespread, the other two are currently only known from the vicinity of Lake Kerkini in Northern Greece, an example of the propensity for endemism within the Usiini.

Distribution

Greece.

Protypusia modesta (Loew, 1873) gen. et comb. nov.

Fig. 51

Oligodranes modestus Loew, 1873: 200.

Etymology

From Latin '*modestus*' = 'sober', 'modest', 'unassuming'.

Type material

Lectotype (here designated)

KAZAKHSTAN • ♀; "Узуната [Uzun-Ata]/Kisilkum, Fedchenko/9641/Typus/*Oligodranes modestus* Lw/*Usia* sp. Dr. E.O. Engel det/Zool. Mus. Berlin"; ZMHB.

Paralectotype

UZBEKISTAN • 1 ♀; "Kisilkum, Fedchenko/Coll. H.Loew/Typus/*modestus* Lw/*Usia* sp. Dr. E.O. Engel det/[detached wing in paper fold]/Zool. Mus. Berlin"; ZMHB.

Syntype

UZBEKISTAN • 1 ♀; "Kisilkum, Fedchenko/Coll. H.Loew/Typus/*Oligodranes modestus* cotypus Lw ♀/Кизилькумъ [Kizilkum]/*Usia* sp. Dr. E.O. Engel det/Zool. Mus. Berlin"; ZMHB. [This specimen belongs with *Apolysis* and could possibly be the female of *A. turkmenicus* Paramonov].

Redescription

Male

Not seen.

Female

MEASUREMENTS. Body length: 2.5 mm. Wing length: 2.2 mm.

HEAD. Gena about as broad as the diameter of the pedicel, very pale matt yellow-white. Front half of the frons also yellow-white, slightly dusky centrally, contrasting with the grey-dusted dark ground colour of the posterior half of the frons. At its narrowest point, level with the hind ocelli, frons about 2.5 times the width of the distance between the hind ocelli. Pale hairs on ocellar tubercle very short, barely longer than the diameter of the front ocellus. Occiput dark in ground colour, densely coated with dove-grey dust, laterally with whitish hairs, those below a little longer than the upper ones. Antennae blackish with a rather grey cast, postpedicel a little longer than scape and pedicel together, a distinct sharp, triangular point dorsally immediately beyond the subapical sulcus (this could be mistaken for an articulating style as seen in *Apolysis*). Palps not visible in either of the types examined. Proboscis moderately long, a little shorter than the body length, hairless dorsally, the basoventral membrane dirty white to blackish.

THORAX. Dark ground colour obscured by dove-grey dust, two very faint, narrow, slightly darker paramedian vittae extending back two thirds the length of the mesonotum, also even more faint, antehumeral vittae broken at thoracic suture. Hairs of mesonotum white, short and fine, generally scattered, not in obviously defined acrostichal or dorsocentral lines. Scutellum concolourous with mesonotum, white hairs longer than those on mesonotum, a longitudinal central area of scutellum bare. Pleura concolourous with mesonotum, posterior two-thirds of the anepisternum, with white hairs.

WING. Membrane hyaline, the veins pale yellow. Crossvein r-m a little beyond basal third of the discal cell, clearly beyond m-cu. Anal lobe well developed with conspicuously convex margin, much broader than anal cell.

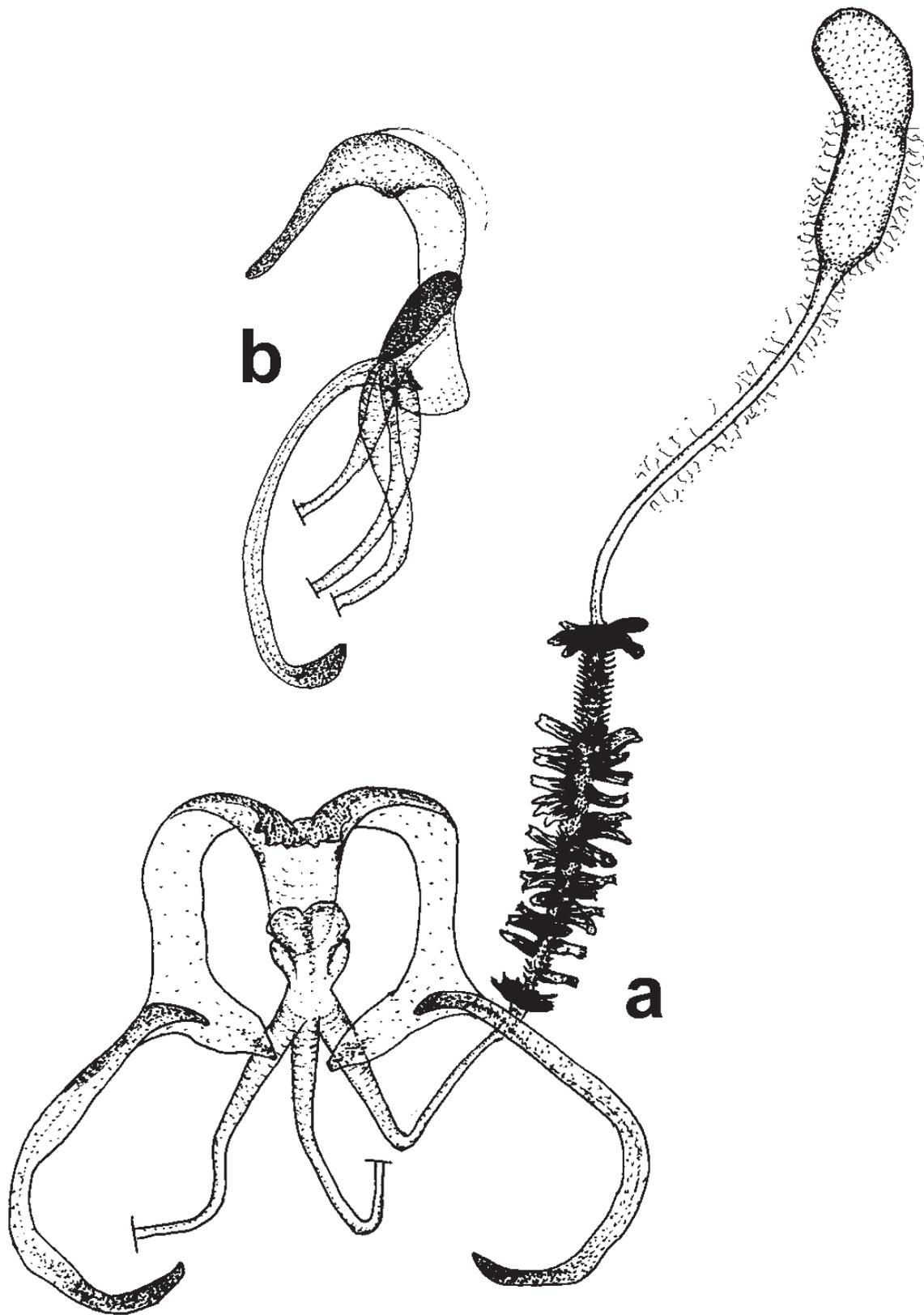


Fig. 51. *Protypusia modesta* (Loew, 1873) gen. et comb. nov. **a.** Female genitalia ventral. **b.** Female genitalia lateral.

HALTERE. Pale yellow, base of stem slightly infuscated.

LEGS. Coxae concolourous with pleura. Femora, tibia and tarsi blackish-brown, grey dusted especially on femora, extreme tip of femora and narrow base of tibia yellow. Legs covered with white hairs, longer on the coxae.

ABDOMEN. Tergite one yellow laterally, disc dark grey with paler dust and clear, narrow yellow margins dorsally, remaining tergites similar with apical yellow margins becoming progressively broader and paler. All tergites with the longest white hairs on reflexed lateral margins, dorsally hairs shorter and, on the three basal tergites, largely absent basally. Sternites similar to tergites although yellow margins less conspicuous.

GENITALIA. No distinctive features externally, genital fork well sclerotised, the tip strongly recurved.

Remarks

A tiny, delicate species, superficially similar to species of *Apolysis* and indeed one of the syntypes proved to be *Apolysis*. Without examining the male genitalia it is not possible to know where the affinities of this species lie. The female genitalia are well within the range of variation seen for this genus but do not suggest any very close relationship with known species.

Distribution

Kazakhstan, Uzbekistan.

Protypusia negevi (Zaitzev, 1996) gen. et comb. nov.
Figs 6, 10, 14, 52

Parageron negevi Zaitzev, 1996: 691.

?*Parageron griseus* – Zaitzev 1966: 149, figs 428–430 ? misidentification.

Etymology

After collecting locality, Negev Desert, Israel.

Type material

Holotype

ISRAEL • ♂; “Loc. No. 12, South Negev. N. Hazera, 20 km ESE, of Dimona, 13 April [1]994 Volkovitsh & Dolgovskaya leg./Holotypus, *Parageron negevi* V. Zaitzev 96”; TAU.

Paratypes

ISRAEL • 4 ♂♂, 2 ♀♀; “Loc. No. 12, South Negev. N. Hazera, 20 km ESE, of Dimona, 13 April [1]994 Volkovitsh & Dolgovskaya leg./Paratypus, *Parageron negevi* V. Zaitzev 96”; TAU • 1 ♂; “same data”; ZIN.

Other material examined

ISRAEL • 1 ♀; “Shezaf N.R., Naḥal Shaḥaq, 30°45.10N 35°15.32E, 22 March 1999 I. Yarom. Malaise trap”; TAU.

Redescription

MEASUREMENTS. Body length: 2.4–3.9 mm. Wing length: 2.5–4.0 mm.

Male

HEAD. Frons and gena pale yellow in ground colour, the frons slightly tumescent covered with silky white dusting not entirely obscuring ground colour from some angles, lacking longer erect hairs. Eye margin at frons sigmoid when viewed from directly above. Gena plus mouth margin moderately broad, at narrowest a little narrower than postpedicel, widening into frons. The shiny mouth margin yellow, averaging about as wide as dusted gena, wider ventrally, narrower dorsally. Occiput and ocellar tubercle dark in ground colour densely covered with grey dust and outstanding white hairs, those on ocellar tubercle hardly longer than width of vertex across hind ocelli. All ocelli in contact with eye margin. Eyes confluent for slightly longer than the length of vertex (difficult to assess because the eyes come together at very acute angles both above and below). Ommatidia conspicuously enlarged in the upper two fifths to half of the eyes, the transition to the smaller ones occupying the lower part distinct but not very abrupt. Antennae black, postpedicel rather long, parallel-sided, square-ended, with a small point dorsally immediately beyond the subapical sulcus, almost twice as long as scape and pedicel together. Antennae sparsely haired above, short silvery hairs on scape and pedicel, postpedicel with a few longer hairs immediately before the subapical sulcus. Palps small and slender, slightly clavate, yellowish-brown to blackish, darker apically, the white apical setae shorter than the length of the palps. Proboscis relatively long, a little more than head-thorax length (including scutellum), naked dorsally, black except for the dirty-white basoventral membrane.

THORAX. Dark ground colour obscured by dove-grey dust, becoming vaguely browner in front of scutellum. Mesonotum with faint but distinct darker paramedian vittae from front to above wing bases and more diffuse darker antehumeral vittae widely divided at thoracic suture. Behind thoracic suture, and below the posterior antehumeral patch is a vague, roundish darker spot. Whole of mesonotum and scutellum covered with moderately long, white hair, on the front of the mesonotum almost as long as fore femora is thick at its mid-point. Anterior of mesonotum centrally and paramedian vittae hairless, middle of mesonotum a little shorter and more sparsely haired, anterior mesonotal hairs reclinate, posterior ones erect-proclinate. Scutellar hairs apically almost as long as scutellum. Pleura with similar hairs on pronotum, posterior two-thirds of the anepisternum, and a few in upper middle of katapisternum.

WING. Membrane faintly tinted yellow-brown, the veins pale yellow-brown. Crossvein r-m variable, very close to the base of the discal cell in some to basal third in others, barely beyond m-cu to clearly beyond. Anal lobe broad with conspicuously convex margin, clearly broader than anal cell.

HALTERE. Pale yellow, base of stem slightly infuscated.

LEGS. Coxae dark with a dense coating of grey dust. Femora predominantly dark with a covering of grey dust, the tip clear yellow, more brownish on hind femora. Front and mid-tibia blackish, base and tip very narrowly yellow, hind tibia similar but tip hardly paler. Tarsi black to dark brown with the basitarsi more or less yellow basally. Coxae and front four femora furnished with moderately long white posterior hairs, hind femora with long anterior hairs, legs otherwise covered with rather short, adpressed white hairs.

ABDOMEN. Tergites dark blackish-brown with grey dusting conspicuously thinner on disc than on mesonotum. Tergite one and reflexed lateral margins of all tergites densely grey dusted similar to that on mesonotum. Each tergite with sharply demarcated pale yellow apical margins, these becoming narrower and slightly darker rearwards, on average yellow apical margins occupy about one fifth of the length of respective tergite, continuing and hardly narrowing to lateral margins. Sternites similar but uniformly densely grey dusted, pale apical margins a little paler. Tergites and sternites all covered with fairly long, erect white hairs, shorter on disc of tergites.

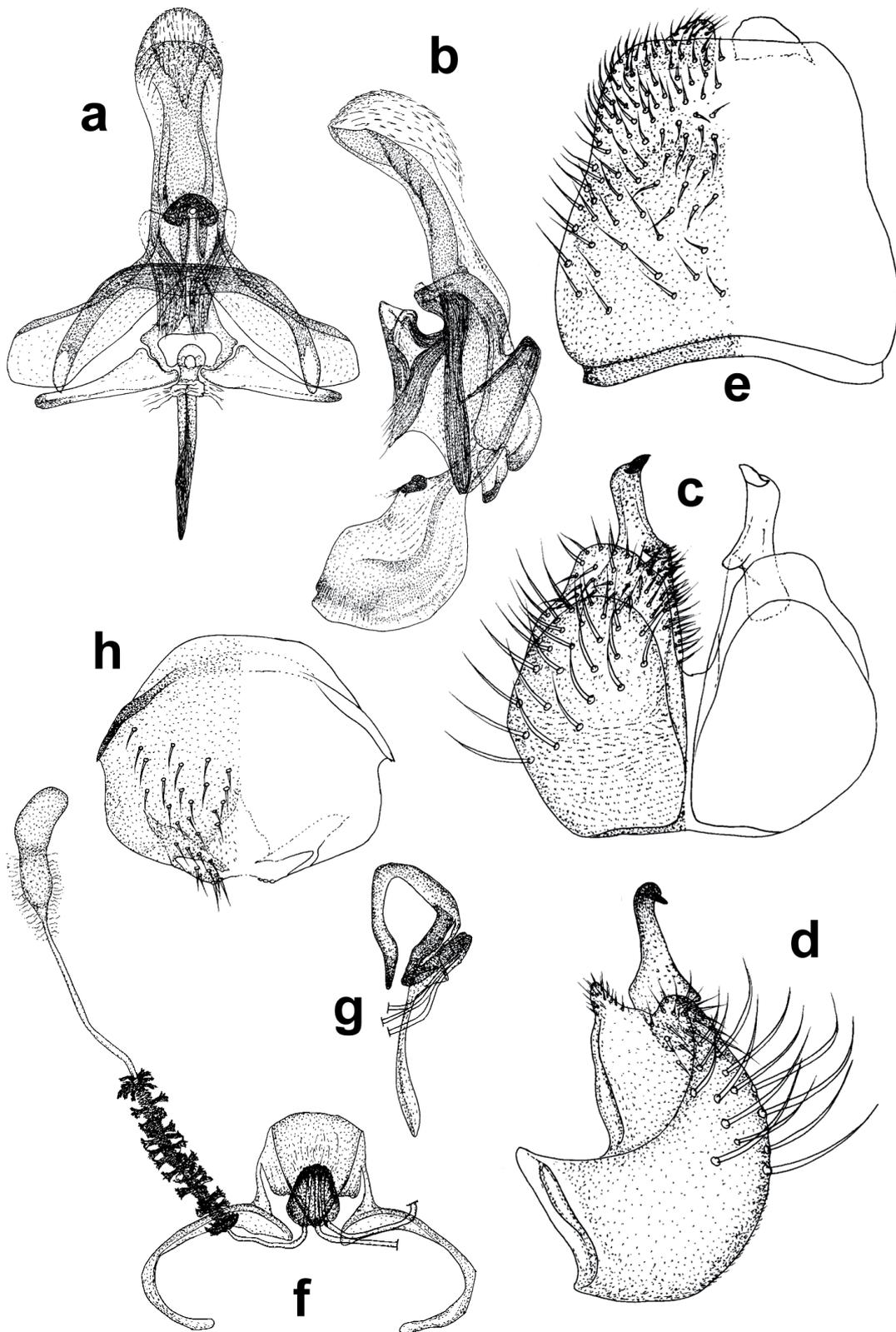


Fig. 52. *Protypusia negevi* (Zaitzev, 1996) gen. et comb. nov. **a.** Epiphallallic complex ventral. **b.** Epiphallallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral. **h.** Female sternite 8 ventral.

GENITALIA. Relatively large when compared to other holoptic species. Gonocoxites black, grey dusted with narrow yellow tips, covered in long whitish hairs. Epandrium basally black, grey dusted, with very broad yellow apical margin, covered in short, dense white hairs, erect medially, apically directed on yellow part.

Female

Differs from the male in its broadly separated eyes, the frons dark in ground colour, densely grey dusted and hairless anteriorly, a small dark undusted spot centrally. Hind ocelli separated from eye-margin by about twice the diameter of that ocellus. Frons about a quarter to two fifths head width. Mesonotum with darker vittae less conspicuous, the antehumeral vittae very obscure. Hairing of thorax, legs and abdomen shorter, significantly so on the abdomen.

Remarks

In the keys provided by Engel (1932) and Eflatoun (1945) this taxon runs to *Pro. inornata* (Engel, 1932). Eflatoun provides a very full description of both sexes and some illustrations, which fit very closely with the specimens of *Pro. negevi* gen. et comb. nov. available to me. I was unable to see the types of *Pro. inornata* in ESEC, but good photographs of a female *Pro. inornata* preserved in EFC were sent to me by Professor Magdi El-Hawagry. This specimen had been collected at the type locality in January 1933, so within the time scale that the types were collected and determined by Professor Eflatoun Bey. Although it does not have a red type label, so was presumably not one that was sent to Engel, it is very likely to have been compared to the types by Eflatoun so can be considered a homoeotype. As far as can be seen from the photographs of this female specimen, while very similar to female *Pro. negevi*, it differs in the wider brownish-yellow apical margins to the tergites, better defined and darker paramedian and antehumeral vittae, slightly wider frons and wider gena. These differences are small and could all be attributable to variation so it will only be possible to know if these taxa are conspecific when more material becomes available that can be directly compared and dissected.

When describing *Pro. negevi*, Zaitzev (1996) compared this taxon only with the other two species that he described in *Parageron* in the same paper. He does not point out differences from known species, nor does he cite Engel (1932) or Eflatoun (1945).

The illustrations provided by Zaitzev (1966) and ascribed to *Pro. grisea* (Paramonov) are certainly not *Pro. grisea* and appear to be very similar to this species or, perhaps more likely, the closely related *Pro. zimini* (Paramonov). The description, while brief, could fit either species, closer to *Pro. negevi* on size but more likely to be *Pro. zimini* on range. Without seeing the specimens, it is not possible to be confident what species Zaitzev had before him.

Distribution

Israel.

Protypusia ornata (Engel, 1932) gen. et comb. nov.
Figs 9, 53

Usia ornata Engel, 1932: 76.

Usia tomentosa Engel, 1932: 78.

Etymology

From Latin ‘*ōrnātus*’ = ‘ornamented’, ‘embellished’.

Type material (not examined)**Syntype**

EGYPT • ♂; “Burg El-Arab (Mariout) 25 March 1927 (Eflatoun 1945)”; formerly ESEC. Destroyed.

Photographs show 15 mounts standing over *Pro. ornata* in ESEC, two with red labels one of which is likely to be the type of *Pro. ornata*. Neither Engel (1932) nor Eflatoun (1945) state explicitly how many specimens were used in the type description, just that male sex only was available. Of these two mounts with red labels, one is just a pin, the other had some fragmentary remains at the time the photo was taken. Whichever of the two specimens with red labels is the type of *Pro. ornata*, it is either entirely destroyed or so damaged as to be unidentifiable.

Neotype (here designated)

EGYPT • ♂; “Mariout, 25 March [19]27/Coll. Eflatoun, Egypt/*Usia ornata* Eng., Det. Eflatoun”; TAU.

Because the type specimens are destroyed, it is necessary to designate a neotype to clarify the taxonomic status of *Pro. ornata* Engel, 1932. Characters differentiating this species are set out in the key above and redescription below. At the time of its description this taxon was known from more than 25 males and 30 females, all collected at the same locality on the same date (Eflatoun 1945). The neotype here designated is a male from the same series as Engel’s original type and transferred to TAU where it survived and was studied for this review.

Type material of *U. tomentosa***Syntype**

EGYPT • ♀; “Burg El-Arab (Mariout) 25 March 1927 (Eflatoun 1945)”; formerly ESEC. Destroyed.

Photographs of the draws show that there are now no specimens standing over *Pro. tomentosa* Engel in ESEC. Eflatoun (1945) reports that Engel (1932) described this taxon from two specimens sent from his collection, but Engel (1932) lists just 1 ♀. Eflatoun (1945) was soon aware that *Pro. tomentosa* was the same species as *Pro. ornata* because he had taken specimens in copula. As such it is possible that he placed Engel’s type of *Pro. tomentosa* with *Pro. ornata*. Photographs show 15 mounts standing over *ornata* in ESEC, two with red labels so it is possible one of these was a *tomentosa* type although now destroyed or nearly so.

Other material examined

ISRAEL • 12 ♀♀; “km E. Zikim, Holot-Zikim Reserve; +300ft., hand netted on stable dunes, 2 May 1996 M.E. Irwin, 31°36’53”N 34°32’35”E”; TAU • 3 ♂♂, 2 ♀♀; “Nizzanim Reserve, 21 April 2008, A. Freidberg”; TAU • 3 ♂♂, 1 ♀; “18 April 2007”; TAU • 4 ♂♂, 4 ♀♀; “dunes, Ashkolon, Coastal plain, Palestine, 25 April 1954, O. Theodor”; TAU • 1 ♀; “19 May 1959, Ceasavea (dunes), coll. Krystal J.”; TAU.

MOROCCO • 1 ♂, 1 ♀; “Agadir, Imsouane 280 m N30°53’9” W9°46’49.4” 28 March 2006”; PCJD • 4 ♂♂, 5 ♀♀; “270 m 9 April 2009”; PCJD • 1 ♂; “Tiznit, Aglou 50 m N29°45’23” W9°53’0.7” 22 March 2006”; PCJD • 1 ♀; “30 m N29.76253 W9.87466, 18 March 2011”; PCJD • 1 ♂; “Essaouira, Ouassane, 70 m N31°23’6.6” W9°46’34.6”, 8 April 2009 (leg. J. Dils & J. Faes)”; PCJD.

Redescription

MEASUREMENTS. Body length: 2.5–4.0 mm. Wing length: 3.2–4.0 mm.

Male

HEAD. Gena relatively broad, about as broad as the proboscis, the shining black mouth margin approximately half width of the gena (can vary depending on angle of view). Frons relatively narrow,

at antennal insertions distance from antennae to eye about a wide as diameter of scape apically, covered with silky grey dust although appearing darker from some angles, narrowing down gena to merge with darker grey dusted jowls and occiput. Frons also with inconspicuous short pale hairs across much of width. Eyes meeting for a length clearly longer than the length of the frons medially and more than twice as long as length of the vertex, about 12 facets. Ocellar tubercle black in ground colour, thinly brown dusted, all ocelli contiguous with the eye margins or narrowly separated. Pale hairs on ocellar tubercle clearly longer than width of vertex at hind ocelli. Eye facets large in upper half, small in lower half, the division between them fairly well marked. Occiput black in ground colour, subshining and hardly dusted dorsally, a band of dense grey dust laterally behind eyes in lower half. Occipital callosities well developed, black and subshining like occiput, relatively strongly convex. Occiput covered with short pale yellowish hairs dorsally, not over-topping ocellar tubercle, becoming longer and more silvery-white ventrally and on jowls where hairs tend to be wavy-tipped. Antennae black, grey dusting on scape and pedicel, especially in dorsal view, postpedicel significantly longer than scape and pedicel together, straight dorsally, convex below tapering to blunt tip. Scape and pedicel with relatively short silvery hairs dorsally (very short in Israeli specimens), shorter than length of respective segment; postpedicel with shorter pale hairs mid-dorsally and immediately before preapical sulcus. Palps moderately large, clearly longer than width of gena, black and strongly clavate, with clear tuft of relatively long white hairs apically and ventrally. Proboscis not exceptional, about as long as the head and thorax (without scutellum), hairy dorso-laterally at base (especially in Morocco), black, including the basoventral membrane.

THORAX. Disc of mesonotum matt black only obscured by dense grey dust along dorsocentral lines from anterior slope of mesonotum to transverse suture and along acrostichal line from anterior slope to about two thirds distance to transverse suture, often faint and obscure. Post pronotal lobe, notopleuron, supra alar and post alar areas also more thinly grey-brown dusted. Hairs of mesonotum pale yellow, as long as the mid-length of the scutellum, acrostichals and dorsocentrals irregularly quadriserial, paramedian vittae narrowly devoid of hairs. Anterior hairs reclinate, those on hind third upright to proclinate, laterally hairs more generally distributed, relatively dense on notopleuron and post pronotal lobe. Scutellum matt-black, in some dusted lighter ventrally, long pale yellow hairs scattered across disc and arranged in irregular row around margin. Pleura black more or less grey-brown dusted, the ground colour showing through, most obviously on anepisternum and ventral half of katapisternum, pronotum and posterior two-thirds of the anepisternum with long white hairs, katapisternum also with long white hairs in upper anterior third.

WING. Membrane hyaline, with brownish-yellow tinge, pterostigma a little darker, the veins brown, yellower basally, subcosta yellow. Crossvein r-m near base of the discal cell, almost opposite m-cu or a little beyond. Anal lobe well developed with semi circularly convex margin, broader than anal cell.

HALTERE. Variable, yellowish with stem clearly infuscated, often this extends on to knob forming a dorsal spot, most obviously so in Moroccan specimens, Israeli specimens mostly have clear yellow-white knob. Egyptian specimens somewhat intermediate.

LEGS. Black, coxae grey dusted like pleura, most obviously on anterior coxae. Femora and tibia and tarsi very thinly grey dusted, subshining, not obscuring ground colour. Fore and hind coxae clothed with long white antero-lateral hairs, mid-coxae with much shorter hairs on anterior face only. Fore and mid-femora posteriorly, hind femora antero-ventrally with long silky-white hairs. Tibia and tarsi with short adpressed white hairs, sometimes longer and more erect on bases of tibia.

ABDOMEN. Subshining velvety black, tergites grey dusted only on reflexed lateral margins, not visible from above. No visible paler apical margins to any tergites. All tergites with long white erect hairs

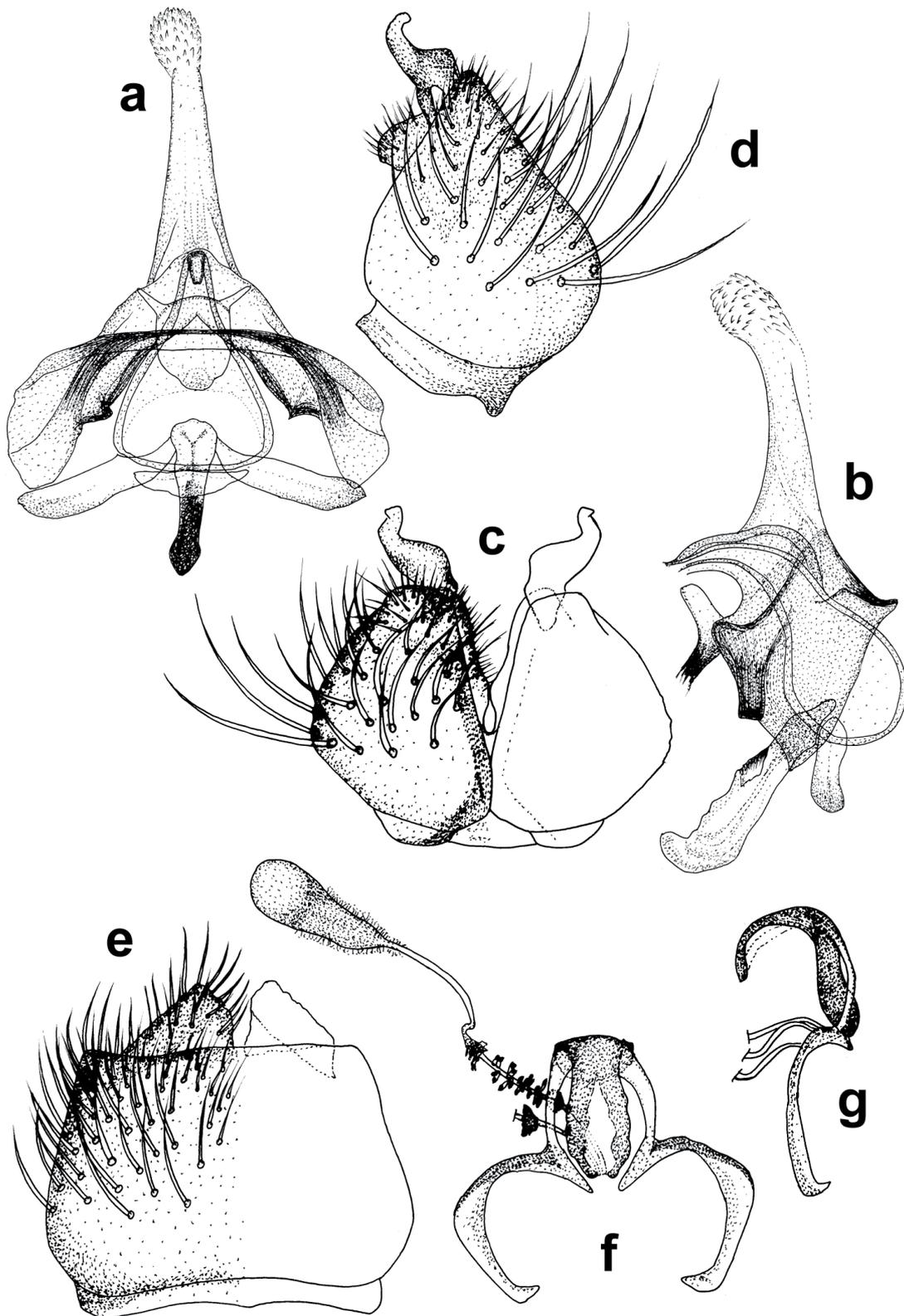


Fig. 53. *Protypusia ornata* (Engel, 1932) gen. et comb. nov. **a.** Epiphallal complex ventral. **b.** Epiphallal complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

longer than the length of respective tergite, even longer laterally, except tergite one which is bare on disc centrally. Sternites densely grey dusted with paler inter-segmental membrane often apparent, clothed with long white hairs, a little shorter than on tergites.

GENITALIA. Rather small and retracted into tip of abdomen, black, grey dusted much the same as lateral margins of tergites, gonocoxite with shiny, undusted tips. Gonocoxite with a covering of long silky white hairs, epandrium with much shorter hairs.

Female

Strikingly different to male, so much so that Engel (1932) described it as a separate species. Whole of body densely grey dusted, often with a distinct brown or even golden tone depending on angle of view. Eyes well separated, frons wider than length of postpedicel, about two fifths head width. Frons, gena, occiput and jowls densely grey-brown dusted, mouth margin shining black and almost as wide as gena, a small shining black spot in middle of frons where dusting absent, area behind ocellar tubercle and occipital callosities more thinly dusted. Hairs on frons short and inconspicuous anteriorly, longer and more conspicuous along eye margins posteriorly. Proboscis bare or short haired dorsally at base, hairs on antennae less conspicuous. Mesonotum densely grey dusted, often browner centrally and towards rear, boldly marked with narrow well defined blackish paramedian vittae extending back to level of wing bases, and antehumeral vittae interrupted at the transverse suture and prescutellar vittae running forward to level of paramedian vittae (faint or absent in some, especially Israeli specimens). Scutellum and pleura densely grey-brown dusted. Legs a little more clearly dusted than male. Hairs of thorax and legs generally shorter. Haltere with clear yellow knob. All tergites densely grey dusted, tergite one pale grey concolourous with disc of scutellum, remaining tergites darker blackish basally forming more or less distinct bands. Very narrow pale apical margins can be present. Sternites densely grey dusted with narrow pale apical margins. All abdominal sclerites clothed with white hairs, about two-thirds the length of those on the male abdomen.

Remarks

Although a very distinctive and readily identified species, especially males, it conforms well with the genus in the form of both male and female genitalia. No obvious close affinities with other species, genitalia and relatively broad mouth margin suggest it might be intermediate between the *incisus* and *punctipennis*-groups.

Distribution

Egypt, Israel, Morocco.

Protypusia punctipennis (Loew, 1846) gen. et comb. nov.

Fig. 54

Usia punctipennis Loew, 1846: 417.

Etymology

From Latin ‘*punctus*’ = ‘pierced’ and ‘*penna*’ = ‘feather’, ‘wing’; ‘spotted-wings’.

Type material

Lectotype (here designated)

[TURKEY] • ♂; “[headless, front left and hind right legs missing; otherwise in good condition.] Small square blank label/*Usia punctipennis* m./9691/Coll. H. Loew/Type/Zool. Mus. Berlin”; ZMHB.

Paralectotype

UNKNOWN • 1 ♀; “[antennae missing; otherwise in good condition.] Small square blank label/*Typus*/ Zool. Mus. Berlin”; ZMHB.

Other material examined

GREECE • 7 ♂♂, 13 ♀♀; “Fokida, Itea 0 m, N38°25'53" E22°23'49" 15 May 2001”; PCJD.

TURKEY • 4 ♂♂, 3 ♀♀; “Icel, Karakütük, 549 m, N37°8'28.7" E34°50'20.1" 3 June 2005”; PCJD • 7 ♂♂, 6 ♀♀; “663 m N37°8'27.6" E34°50'23.6" 5 June 2005”; PCJD • 8 ♂♂, 5 ♀♀; “Calaman, 683 m N37°11'33.1" E34°48'33.9" 5 June 2005 (leg. J. Dils & J. Faes)”; PCJD.

ISRAEL • 1 ♀; “Tel Aviv beach, 10 June 1996 (leg. B. Merz & A. Freidberg)”; TAU • 1 ♀; “Merzliya, 28 August 1977, F. Kaplan”; TAU • 2 ♂♂; “5 km E, No'omi, saline, 31°54'N 35°30'E, 16 March 2005, L. Friedman”; TAU.

CYPRUS • 1 ♂, 1 ♀; “Akamas Peninsular, Lara beach 0 m 28 April 2002/2t.28 dunes, meadow (leg. B. Merz, J. Deeming, M. Ebejer & P. Gatt)”; NMWC.

Redescription

MEASUREMENTS. Body length: 2.0–3.0 mm. Wing length: 1.9–3.6 mm.

Male

HEAD. Gena plus mouth margin very narrow, no wider than anterior ocellus, the shining yellow mouth margin significantly broader than linear, often hardly visible dusted gena. Gena broadening abruptly just below antennae, running into long narrow frons, at antennal insertions hardly as wide as scape is long, covered with whitish-grey or brown dust, often a little darker and browner centrally, frons paler dusted in Israeli specimens. Eyes clearly separated, by distinctly more than half diameter of anterior ocellus. Vertex between the eyes densely brown dusted, often a little darker than the frons, but paler and uniform in Israeli specimens. Ocellar tubercle dark in ground colour, dark brown dusted, hind ocelli contiguous with the eye, front ocellus narrowly separated. Pale hairs on ocellar tubercle rather longer than the width across hind ocelli. White hairs on anterior part of frons short and inconspicuous. Eye facets small and equal throughout. Occiput dark in ground colour, densely coated with brown to grey-brown dust. Occiput covered with pale yellow to white hairs, upper ones short, falling well short of tips of hairs on ocellar tubercle, those on ventral side of head a little longer but not dense. Antennae black with a brown or grey cast on scape and pedicel, postpedicel variable, longer than scape and pedicel together, obviously contracted below in apical third, convex, swollen below in basal two thirds, tip truncate. Palps relatively large, easily seen, pale yellow with a few very inconspicuous pale hairs apically. Proboscis black, rather short, about equal to thorax length (with scutellum), but longer in Israeli specimens where longer than head plus thorax, hairless dorsally, the basoventral membrane pale-whitish.

THORAX. Dark ground colour obscured by dense grey to brown dust, often with an olive tinge, patterned with sharply defined dark brown paramedian vittae back to just rear of wing bases and antehumeral vittae, the latter broadly separated at thoracic suture. A dark prescutellar vittae running forward almost to paramedian pair, less clear but still present in some specimens; supra-alar area just behind transverse suture lacking any defined marking in many, but clear in some. Hairs of mesonotum white to very pale yellow, relatively short, arranged along acrostichal and dorsocentral lines irregularly bi- to tri-serial more general on lateral parts of mesonotum. Scutellum dark grey-brown dusted similar to adjacent parts of mesonotum, often with darker longitudinal mid-vittae, sparse yellowish to white hairs on disc longer around margin. Pleura greyer dusted than mesonotum, pronotum and posterior two-thirds of the anepisternum, with short white hairs.

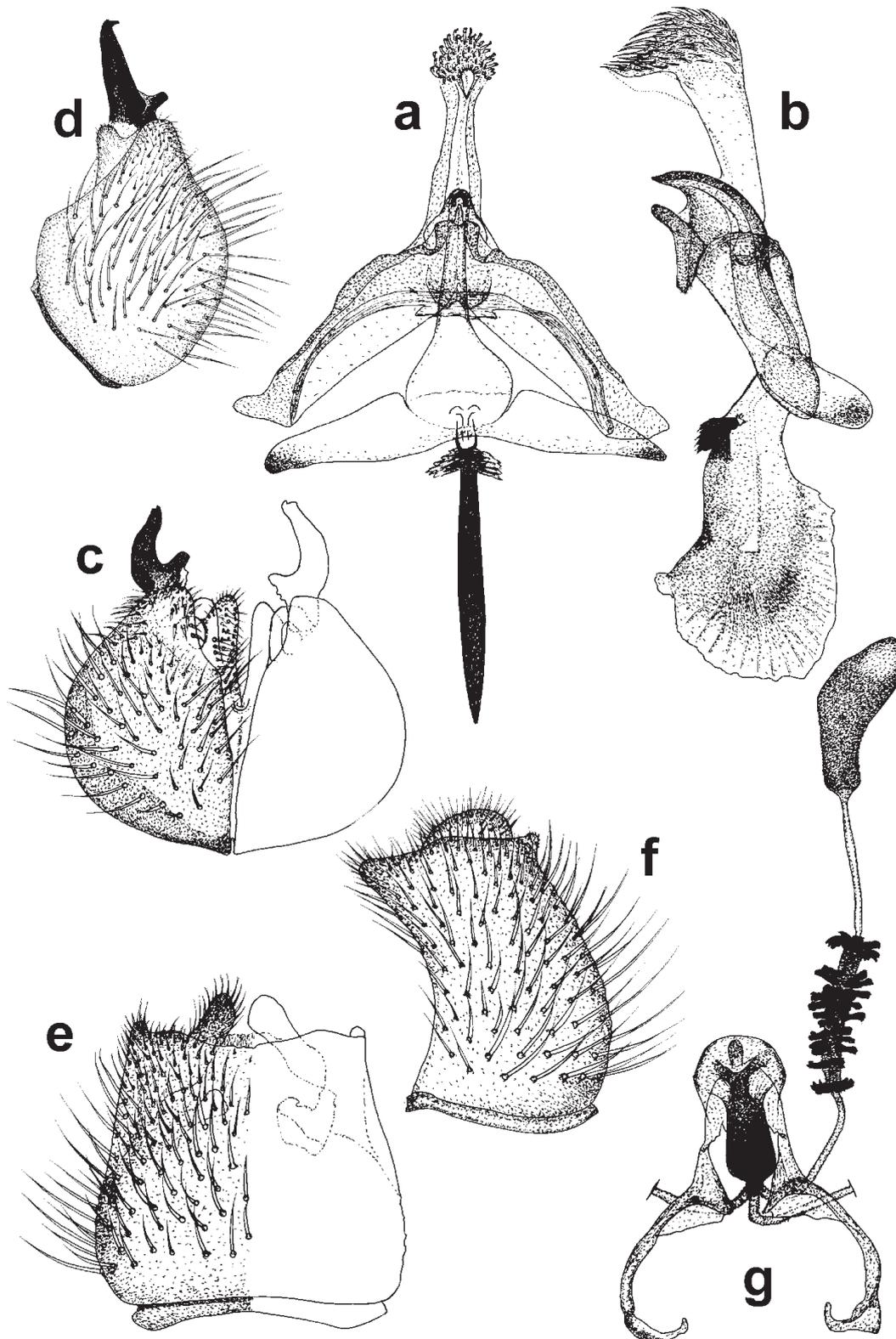


Fig. 54. *Protypusia punctipennis* (Loew, 1846) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Epandrium lateral. **g.** Female genitalia ventral.

WING. Membrane apart from faint brownish tinge, with clear brown spots over junctions of R_{2+3} and R_{4+5} , base of R_4 , r-m, m-m and m-cu. Veins brown, subcosta yellower basally. Crossvein r-m approximately at mid-point of discal cell, or even beyond, well beyond m-cu. Anal lobe moderately developed with evenly convex margin, equal or a little broader than anal cell.

HALTERE. Knob variable, from clear white (some Israeli specimens) to more or less dark brown dorsally (Greece and Turkey), stem slightly infuscated especially at base.

LEGS. Femora and coxae brown to black, coxae with narrow yellow apical rim, femora sometimes yellowish basally, tips of femora yellow. Trochanters dark black to brown. Tibia and base of basitarsi yellow, apical tarsal segments black, hind tibia sometimes infuscated dorsally and apically. Coxae grey dusted like pleura; femora also grey-dusted but more thinly so. Coxae, femora and tibia clothed with short white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally.

ABDOMEN. Dark brown dusted with greyer dust laterally on reflexed margins, all tergites with conspicuous yellow apical margins, broadest on basal tergites and laterally, narrowing to edge of tergites (margins broader and brighter in Israeli specimens). All tergites with white to pale yellow hairs mainly longer than the length of respective tergite, longest laterally, shorter and sparser on disc. Sternites similar to tergites but distinctly more grey-dusted, pale apical margins more obscure.

GENITALIA. Large for the genus, only some members of *Parusia* gen. nov. with proportionately larger male genitalia, dusting similar to lateral part of abdomen, epandrium shining apically, yellow to brownish or blackish. Gonocoxite also shining and more brownish apically. Both epandrium and gonocoxite with long hairs as on tergites, or even longer on gonocoxites.

Female

Differs from the male in its broadly separated eyes, about one fifth head width (a little wider in Israeli specimen), hind ocelli separated from eye margin by a little more than their diameter (more in Israeli specimen). Frons dusted as occiput, a darker brown line down middle from front ocellus to antennae, short sparse hairs antero-laterally. Postpedicel averages a little shorter. Hairing of thorax, legs and abdomen shorter. Femora often much paler, brown or sometimes almost as yellow as tibia. Wing spotting often more distinct and can include a spot at tip of anal cell. Haltere variable, knob with dark infuscation in Israeli specimen.

Remarks

Very closely allied to *Pro. kerkini* gen. et sp. nov. and *Pro. strymonas* gen. et sp. nov. Relatively widely distributed and so exhibiting some variability with more southern examples (Israel) being generally paler and with entirely white knob to haltere (2 males), or brown infuscated (1 female) and longer proboscis. No significant differences could be found in the epiphallic complex between Greek/Turkish and Israeli specimens.

Distribution

Cyprus, Greece, Israel, Turkey.

Protypusia raydahensis (El-Hawagry & Al Dhafer, 2016) gen. et comb. nov.

Fig. 55

Parageron raydahensis El-Hawagry & Al Dhafer, 2016: 1307.

Etymology

After the locality “Garf Raydah” where the types were collected.

Type material

Holotype

KINGDOM OF SAUDI ARABIA • ♂; “Not seen but photographs studied. Asir. Abha. Raydah, 1811.884’ N, 4224.435’ E, Alt. 2387 m asl, 8 June 2014, Sweep-net Leg. El-Hawagry”; KSMA.

Paratypes

KINGDOM OF SAUDI ARABIA • 1 ♂; “not seen but photographs of EFC specimens studied Asir. Abha. Raydah, 1811.884’ N, 4224.435’ E, Alt. 2387 m asl, 7 June 2014, Sweep-net Leg. El-Hawagry”; EFC • 2 ♀♀; “Asir. Abha. Raydah, 1811.884’ N, 4224.435’ E, Alt. 2387 m asl, 7 June 2014, Malaise Leg. Al Dhafer, H; Fadl, H; Abdel Dayem, M; El Torkey, A; El Gharbawy, A”; KSMA • 1 ♀; “same data”; EFC.

Other material examined

Metatypes

KINGDOM OF SAUDI ARABIA • 1 ♂; “Asir. Abha. Raydah, 18°11.749’ N, 42°23.345’ E, Alt. 1614 m asl, 5 September 2015, M.T.9 [Malaise Trap 9] Leg. Al Dhafer, H; Fadl, H; Abdeldayem, M; El Torkey, A; El Gharbawy, A; Soliman, A/*Parageron raydahensis* El-Hawagry & Al Dhafer, 2016 ♂”; PCDG • 1 ♀; “same data. *Parageron raydahensis* El-Hawagry & Al Dhafer, 2016 ♀”; PCDG (donated by KSMA).

Redescription

MEASUREMENTS. Body length: 2.7–3.2 mm. Wing length: 3.6–4.0 mm.

Male

HEAD. Frons and gena densely silvery dusted entirely obscuring ground colour, longer erect hairs almost absent, can look more yellowish from some angles. Eye margin of frons sigmoid when viewed from directly above. Silvery dusted gena narrowing below antennae, at narrowest point narrower than the more shining, yellowish mouth margin, slightly protuberant. Occiput and ocellar tubercle dark in ground colour fairly densely covered with whitish dust, browner between ocelli, slightly thinner and more shining on elongate triangle behind ocelli. Ocellar tubercle with fine, pale yellow hairs about as long as width across hind ocelli, occiput with fine white, dorsally not over-topping ocellar tubercle, becoming longer ventrally but not particularly dense. All ocelli in contact with eye margin. Eyes confluent for slightly longer than the length of vertex (from photos about 1:1.1). Ommatidia conspicuously enlarged in the upper half to two fifths of the eyes, the transition to the smaller ones occupying the lower part distinct but not very abrupt. Antennae blackish, sparsely whitish dusted, scape approximately as long as broad, pedicel shorter, approximately one and a half times as broad as long. Postpedicel rather elongate, parallel-sided, roundly blunt-ended, with a small point dorsally immediately beyond the subapical sulcus, almost twice as long as scape and pedicel together and three times as long as deep. Sensilla in subapical sulcus whitish translucent so relatively conspicuous. Short, sparse whitish hairs on scape and pedicel, postpedicel with very short, sparse hairs dorsally, longer and more frequent before sub-apical sulcus. Palps small, slightly clavate, dark brown to black with a few short white hairs apically. Proboscis relatively long, approximately three to three and a half times the length of the head, longer than head, thorax and scutellum combined, dorsally entirely devoid of hairs, black, basoventral membrane brownish-yellow to dirty white.

THORAX. Dark ground colour obscured by whitish-grey to brownish dust. Mesonotum with pronounced dark-brown to blackish, subshining paramedian and antehumeral vittae the latter widely divided at thoracic suture a very faint round dark spot between wing base and posterior antehumeral vittae. The

grey acrostichal line is narrower than to about as wide as the paramedian vittae at their widest (about middle), anterior antehumeral vittae as broad or broader than the grey dusted area between paramedian and antehumeral vittae. Whole of mesonotum and scutellum covered with fine, whitish hairs, coarser and longer laterally. Paramedian and antehumeral vittae bare, acrostichal hairs bi-triserial, dorsocentrals in four to fine irregular lines. Scutellar hairs rather longer, especially laterally. Dusting of scutellum as mesonotum but thinner so shining cuticle visible centrally and in posterior view distinct paler grey dusting baso laterally. Pleura grey dusted as notopleuron, a little greyer and denser than on disc of mesonotum with similar hairs on pronotum, sparsely scattered across hind half of anepisternum and in antero-dorsal corner of katepisternum.

WING. Membrane hyaline, faintly brown tinted, the veins brown, paler on subcosta and basally. Crossvein r-m within or at basal third of the discal cell just a little beyond m-cu. Anal lobe broad with conspicuously convex margin, clearly broader than anal cell.

HALTERE. White to pale yellow, base of stem slightly infuscated, in some a clear brown infuscation on base of knob dorsally. In other examples with base of knob more or less infuscated with brown.

LEGS. Largely black with a coating of thin white dust, denser, similar to pleura, on coxae. Femora with the tips narrowly clear yellowish, a little redder on hind femora. Hind tibia narrowly yellow at extreme base, other tibia more extensively yellow, especially mid tibia dorsally. Adpressed fine whitish hairs clothe legs, rather longer, hairs on four anterior femora posteroventrally, on hind pair anteroventrally and on coxae. Hind tibia with a fairly regular uniserial row of darker setae dorsally on apical half.

ABDOMEN. Tergites dark brown to black, tending to be blacker basally, browner close to pale apical margins, thinly brownish-grey dusted, subshining, laterally and on reflexed margins much more densely yellow-grey dusted, denser than that on pleura and almost obscuring ground colour. Tergite one with dusting on reflexed lateral margins not strongly delimited, merging into dusting of disc which is a little more densely dusted than tergite two. Each tergite with sharply demarcated pale yellowish apical margins, mostly narrower than the thickness of a tibia. Sternites densely grey dusted as reflexed margins of tergites with pale apical margins paler and narrower than those on respective tergites. Tergites and sternites all covered with sparse, fine, silky whitish hairs, longest on lateral margins of tergites, tergite one hairless on disc except pale apical margin which has relatively short, adpressed hairs. Tergites two and three also bare basally, much of disc only sparsely haired.

GENITALIA. Relatively large when compared to other holoptic species. Gonocoxites black to dark brown, apices reddish brown, yellowish grey dusted, subshining, paler tips shining, undusted, with whitish hairs similar to those on lateral margins of tergites. Epaandrium rectangular when viewed laterally, blackish brown basally with broad yellow apical margin, especially the triangularly pointed apical corners, covered with short, adpressed whitish hairs similar to those on tibia. Gonostyli and epiphallic complex essentially identical to *Pro. negevi* gen. et comb. nov. as far as can be seen in undissected specimen.

Female

Differs from the male in its broadly separated eyes, the frons dark in ground colour, except anteriorly between antenna where brownish yellow, densely grey-brown dusted, any hairs minute and confined to anterior third and lateral margins, a small dark shining spot centrally. Hind ocelli separated from eye-margin by about twice the diameter of that ocellus. Frons about a quarter to two-fifths head width. Mesonotum darker markings can be less conspicuous, the antehumeral vittae very obscure, or as male. Hairing of thorax, legs and abdomen shorter, significantly so on the abdomen. In dried specimen apical sternite strongly convex, sharply ridged apically, fairly thinly yellow-grey dusted, subshining.

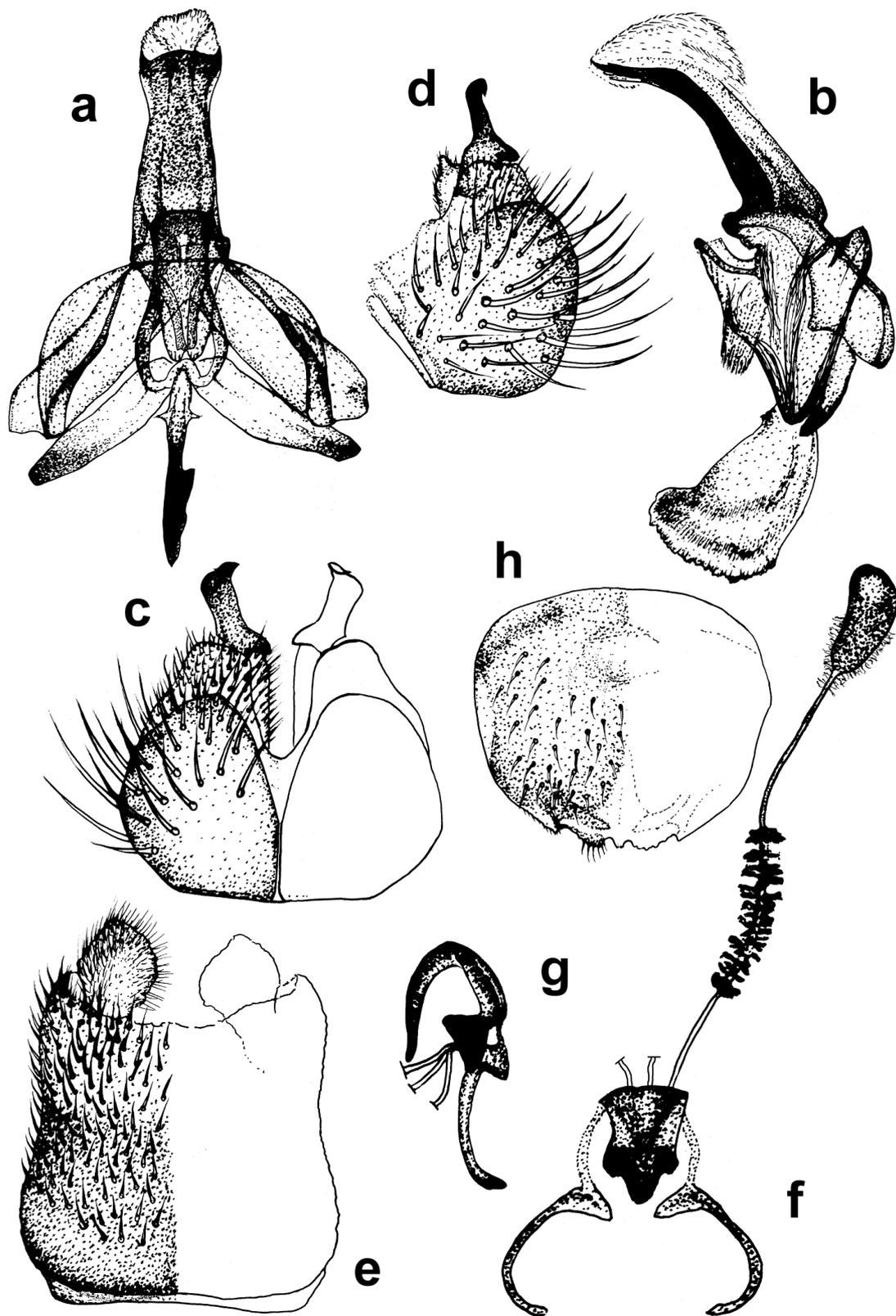


Fig. 55. *Protypusia raydahensis* (El-Hawagry & AlDhafer, 2016) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral. **h.** Female sternite 8 ventral.

Remarks

In the key provided by Engel (1932) this taxon runs to *Pro. inornata*; and to *Usia grisea* Efflatoun with the key in Efflatoun (1945). It has not been possible to study male specimens of either species, but from Efflatoun's (1945) descriptions, *Pro. raydahensis* gen. et comb. nov. is significantly smaller than *Pro. inornata* and larger than *Usia grisea*, and from both by more extensive pale bases to the four anterior tibia and more thinly dusted mesonotum with shining paramedian and antehumeral vittae. Also, it seems likely that *Usia grisea* in fact belongs in *Apolysis* based on its very small size and Efflatoun's (1945: pl. 20 fig. 319) illustration of the antennae but is currently retained in unplaced *Usia*.

Protypusia raydahensis gen. et comb. nov. is very closely allied to *Pro. negevi* gen. et comb. nov., the male and female genitalia being exceedingly similar. *Protypusia negevi* is a much paler, densely dove-grey dusted species with very inconspicuous, vaguely darker paramedian and antehumeral vittae.

Distribution

Kingdom of Saudi Arabia, mountains of the Asir province in the southwest of the country.

Protypusia strymonas gen. et sp. nov.

urn:lsid:zoobank.org:act:5D2D1180-1764-4057-9044-52869C88F438

Fig. 56

Etymology

Noun in apposition, named after the River Strymonas that flows through Lake Kerkini, Northern Greece.

Type material**Holotype**

GREECE • ♂; "Kerkini, Ecotourism site 65 m, N41°8'15.6" E23°13'1", 19 June 2008, leg. G. Ramel pan trap"; NHMUK.

Paratypes

GREECE • 2 ♂♂, 2 ♀♀; "Kerkini, Ecotourism site 65 m, N41°8'15.6" E23°13'1", 19 June 2008, leg. G. Ramel pan trap"; NHMUK • 1 ♂, 1 ♀; "same data"; PCDG • 1 ♀; "1–7 August 2006, leg. G. Ramel Malaise"; PCDG • 1 ♂; "15–21 August 2006, leg. G. Ramel Malaise"; PCDG • 1 ♀; "Lithotoposite, N41°13'40" E23°21'14", 20–26 June 2005, leg. G. Ramel Malaise"; NHMUK • 1 ♀; "Krousia Site 190 m, N41°11'32.4" E23°3'59.5", 8–14 August 2007, leg. G. Ramel Malaise"; PCDG • 1 ♀; "11–17 July 2007, leg. G. Ramel Malaise"; PCDG.

Description

MEASUREMENTS. Body length: 1.8–2.4 mm. Wing length: 1.8–2.2 mm.

Male

HEAD. Gena plus mouth margin very narrow, no wider than anterior ocellus, the shining yellowish mouth margin significantly broader than the linear, often hardly visible dusted gena. Gena broadening fairly abruptly just below antennae, running into long narrow frons, at antennal insertions no wider than scape, covered with grey to brown dust. Eyes narrowly separated by about half the diameter of the anterior ocellus or even less. Vertex between the eyes densely grey-brown dusted, similar to frons. Ocellar tubercle dark in ground colour, dark brown dusted, all ocelli contiguous with the eye margins or narrowly separated, especially anterior ocellus. Yellow hairs on ocellar tubercle about as long as width of vertex at its broadest, often sparse or even absent. Eye facets small and equal throughout. Occiput dark in ground colour, densely coated with grey-brown dust. Occiput covered with pale yellow to white

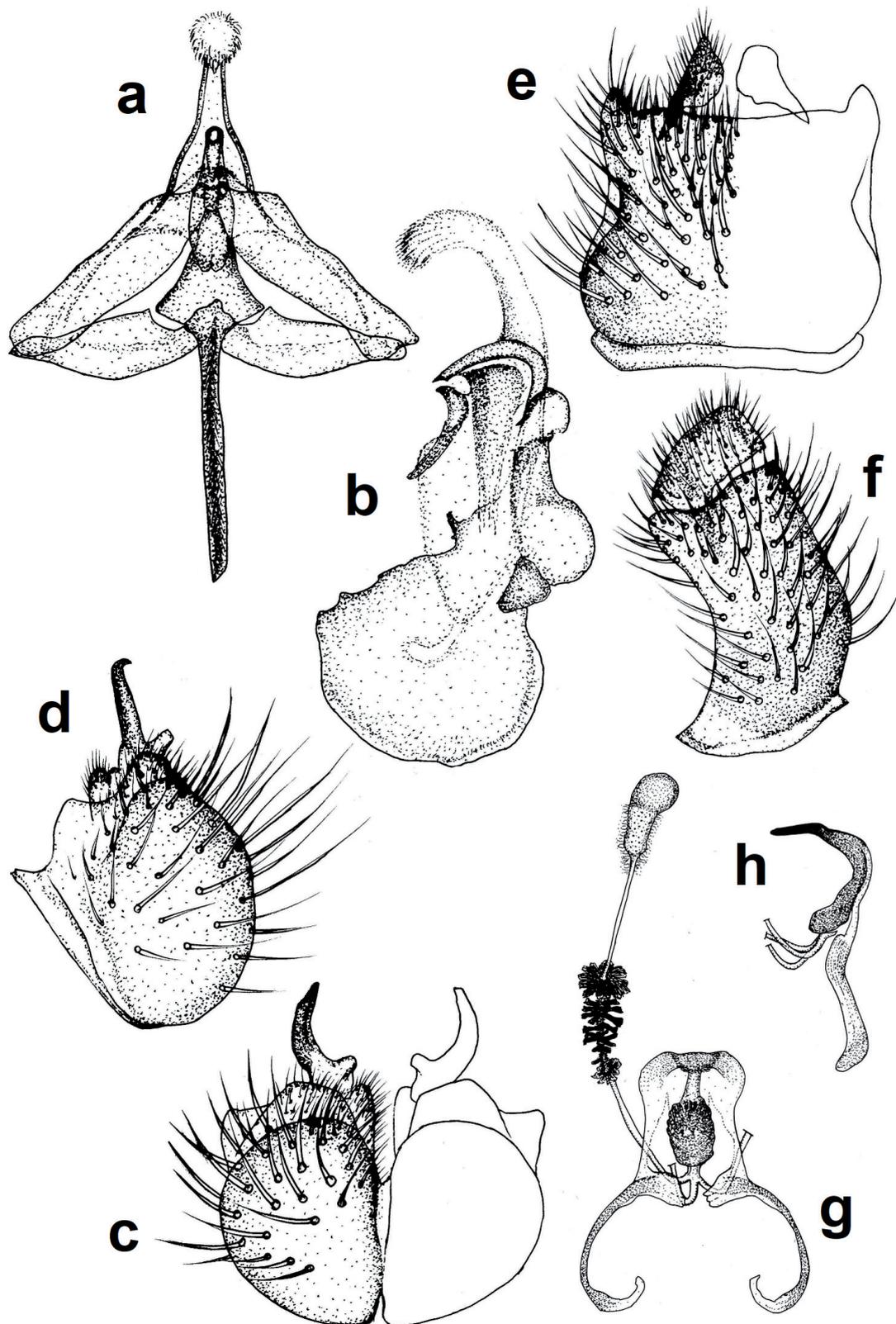


Fig. 56. *Protypusia strymonas* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Epandrium lateral. **g.** Female genitalia ventral. **h.** Female genitalia lateral.

hairs, upper ones just behind eyes relatively long, almost equalling hairs on ocellar tubercle, those on ventral side of head similar only a little longer. Antennae black with a brown or grey cast on scape and pedicel, postpedicel a little longer than scape and pedicel together, conspicuously contracted below in apical third, tip truncate (postpedicel rather variable in size and shape). Palps small but readily seen, pale greyish-white with a few inconspicuous pale hairs apically. Proboscis black, not exceptionally long, about equal to thorax including scutellum, hairless dorsally, the basoventral membrane pale-whitish.

THORAX. Dark ground colour obscured by dense grey to brown dust, often with a golden or olive tinge, patterned with sharply defined dark brown paramedian vittae back to just rear of wing bases and antehumeral vittae, the latter broadly separated at thoracic suture. The median area in front of scutellum and posterior to the paramedian vittae with darker brown, poorly defined area; often a well-defined dark brown spot on supra-alar area just behind transverse suture (obscure in some). Hairs of mesonotum white to pale yellow, rather sparse, relatively short, arranged biserially along acrostichal and uniserially along dorsocentral lines, more general on lateral parts of mesonotum. Scutellum dark grey-brown, dusting similar to adjacent parts of mesonotum, more or less darker longitudinal mid-line, yellowish to white hairs very scant on disc longer around margin. Pleura greyer dusted than mesonotum, pronotum and posterior two-thirds of the anepisternum, with short yellow to white hairs. Anterior spiracle conspicuously white.

WING. Membrane hyaline with the faintest brownish tinge, the veins brown, yellower basally. Crossvein r-m between one third and mid-point of discal cell, distinctly beyond m-cu. Anal lobe fairly well developed with evenly convex margin, about as broad as anal cell.

HALTERE. Whitish, stem slightly infuscated especially at base, knob with a clear dark brown dorsal spot.

LEGS. Dark brown, coxae variable with dull yellow apices, trochanters murky yellow to brown, hind ones often with blackish rim, femora narrowly yellow basally and apically, often obscure, tibia and base of basitarsi dull yellow tending to be infuscated dorsally, remainder of tarsi blackish. Coxae grey dusted like pleura, femora more thinly grey dusted. Coxae, femora and tibia clothed with short white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally often also a little longer haired.

ABDOMEN. Dark brown dusted with greyer dust laterally all tergites with narrow but clear yellow apical margins, broadest on middle tergites and laterally, extending right to edge of tergites. All tergites with variable white to pale yellow hairs shorter than the length of respective tergite especially on basal tergites, hairs a little longer laterally. Sternites similar to tergites but more evenly grey dusted, apical margins whiter, hairing short and sparse.

GENITALIA. Large for *Protypusia* gen. nov., but a little smaller than in *Pro. punctipennis*, concolourous with abdomen, but more obviously grey dusted, tip of epandrium dull yellow-brown, less dusted so shinier, gonocoxite also with shiny yellow apices, much longer-haired than tergites, epandrium shorter-haired but still slightly longer-haired than tergites.

Female

Differs from the male in its broadly separated eyes, about one fifth head width, hind ocelli separated from eye margin by a one and a half times their diameter. Frons dusted as occiput, a little greyer, a darker brown line down middle from front ocellus to antennae, this dark area continued behind ocellar tubercle onto occiput. Frons with short sparse hairs antero-laterally. Postpedicel averages a little shorter. Hairing of thorax and legs shorter. Abdomen also short haired but not much different to male. Legs very similar to male, in some more extensively yellow.

Remarks

See *Pro. punctipennis* and *Pro. kerkini* gen. et sp. nov. Only eight specimens known from two samples at almost the same location in the village of Lithotopos to the south of Lake Kerkini, Northern Greece. Presumably more widely distributed but *Usiini* have a tendency towards endemism so could be very restricted.

Distribution

Greece (Lake Kerkini).

Protypusia tewfiki (Efllatoun, 1945) gen. et comb. nov.

Fig. 57

Usia tewfiki Efllatoun, 1945: 230.

Etymology

Named after the collector of the three type specimens, Mohamed Tewfik Effendi.

Type material (not examined)

Two female syntypes in ESEC and one in EFC, all three at least partially present, two appearing intact from available photos. No specimens examined but photographs of the syntype in EFC was made available by Professor Magdi El-Hawagry.

Syntypes

EGYPT • 2 ♀♀; “Bir Abrag, between Km-Ombo and Bir Shalatein, Red Sea Coast and Wadi Ibib 50 km SE of latter locality”; ESEC • 1 ♀; “same data”; EFC.

Redescription

Male

Unknown.

Female (based on Efllatoun (1945), Smithsonian Archives plate, and photographs of EFC specimen)

A small species readily identified (in female at least) by the unique abdominal pattern, tergite dark with whitish-grey dusted longitudinal stripe medially and laterally, the latter just visible dorsally at least on basal tergites.

MEASUREMENTS. Body length: 2.6–3.2 mm.

HEAD. Dark in ground colour obscured by dense glistening whitish dust, this colour extending down the gena as a very narrow dusted strip, much narrower than the more shining, and yellowish mouth margin that is rather protuberant (from EFC specimen). Frons about one third head width at the vertex, lateral ocelli rather distant from eye margin, approximately two and a half to three times ocellar diameter (from EFC specimen). Frons medially with a distinct brownish tinge to the dusting, centrally with a small shining black spot where cuticle shows through. Pubescence of frons sparse, the hairs very short, whitish and scattered along the eye margins. Ocellar tubercle and occiput dusted as frons with short pale-yellowish hairs, the occiput rather densely punctured, hairs on jowls sparse, soft, short and white. Antennae black, scape and pedicel paler due to white dust more conspicuous than on postpedicel. Postpedicel relatively robust, evenly convex ventrally, less strongly convex dorsally up to subapical sulcus, a little less than twice the length of scape and pedicel combined. Antennae sparsely white haired above, especially on scape and pedicel. Palps yellow and apparently glabrous. Proboscis fairly long, more than twice as long as head (including antennae), black except for the yellow baso-ventral membrane.



Fig. 57. *Protypusia tewfiki* (Eflatoun, 1945) gen. et comb. nov., habitus, Smithsonian Institution Archives. Image SIA2012-7892.

THORAX. Dark ground colour obscured by dense whitish dust conferring its overall greyish-white appearance. Mesonotum with relatively poorly defined darker paramedian vittae from anterior slope to rear third, acrostichal grey stripe about twice as wide as darker paramedian vittae. Antehumeral vittae are less well defined but similar colour, interrupted at thoracic suture, rather narrow and parallel sided both anterior to and behind thoracic suture. Mesonotal dusting faintly but distinctly brownish on disc, the EFC specimens shows a small, round dark spot between wing base and antehumeral vittae. Mesonotum covered with short, sparse, pale yellowish hairs arising from fine punctures. Scutellum uniformly grey as mesonotum, the hairs rather longer pale yellowish. Dusting on pleura rather thinner and so a little darker than on mesonotum, anepisternum with short, erect, soft, glistening whitish hairs.

WING. Membrane hyaline, the veins pale yellow-brown. Crossvein r-m at or before basal third of the discal cell, m-m cross-vein not straight, feebly bent (looks almost straight in EFC specimen). Anal cell with relatively long petiole, approximately equalling r-m. Anal lobe broad with conspicuously convex margin wider than anal cell. Squamae with a pale yellow margin and short whitish fringe.

HALTERE. Very pale ivory yellow to light ochraceous-buff, base of stem obscure brownish-black.

LEGS. Coxae blackish, dusted as pleura. Femora, tibia and tarsi, very dark reddish-brown, almost blackish with tips of femora and narrow bases yellowish-red, tips of tibia and extreme base of basitarsi brownish-red. Legs covered with minute, adpressed, sparse and glistening white hairs.

ABDOMEN. Dull brownish-black with somewhat dense white dusting along a fairly broad mid-dorsal longitudinal stripe and laterally extending onto recurved sides of tergites. Tergite one more generally grey dusted, darker areas only indicated laterally. Each tergite with well demarcated but narrow, very pale cream apical margins. Sternites similar with light cream-buff apical margins. Tergites and sternites covered with short, not dense, very pale yellowish hairs, appearing longer and more conspicuous laterally and towards the tip of the abdomen (EFC specimen).

GENITALIA. Ovipositor (apical sternite?) pale yellowish with short erect pale yellowish hairs.

Remarks

Efflatoun (1945) keyed this species next to *A. minusculus* which can be assigned to *Apolysis* with confidence. Oddly, Efflatoun (1945) makes no mention in his key or the diagnosis section of the type description of the unique abdominal pattern that distinguishes this species from all other *Parageron* s. lat. In his type description he describes this feature, but does not suggest it is variable, and it is quite obvious in the photographs of the EFC specimen and in the Smithsonian archives plate. Although this is a tiny species it has the general appearance of *Parageron* s. lat., notably wing venation, the short robust postpedicel and the illustrations in Efflatoun (1945: pl. 21 fig. 355) which shows no sign of the arista diagnostic of *Apolysis*. Professor Magdi El-Hawagry has confirmed that it lacks the apical arista of *Apolysis* and belongs in *Usiini*.

It is impossible to be confident of the affinities of this species without examination of the genitalia, including those of the unknown male. The unique abdominal pattern suggests that it could be a taxonomically isolated species, but almost certainly within *Protypusia* gen. nov.

Distribution

Egypt (Bir Abrug, between Km-Ombo and Bir Shalatein, Red Sea Coast and Wadi Ibib 50 km SE of latter locality).

Protypusia vagans (Becker, 1906) gen. et comb. nov.
Figs 8, 58

Usia vagans Becker, 1906: 221.

Etymology

From Latin ‘*vagus*’ = ‘wandering’, ‘vague’.

Type material

Lectotype

TUNISIA • ♂; “Gafsa, Biró/*vagans* Beck. ♂ det. Becker/*Lectotypus*/Zool. Mus. Berlin [leg. Lajos Biró, abdomen greased, head glued back on upside down]” ZMHB.

Other material examined

MOROCCO • 4 ♀♀; “Oujda, Plateau du Rekkam 100 km E Ain-Benimathar 1150 m N33°44.254 W2°59.095, 25 April 2010, Leg. Dils J. Faes J.” PCJD.

Redescription

MEASUREMENTS. Body length. 2.2–2.6 mm. Wing length: 2.3–3.0 mm.

Male

HEAD. Gena and mouth margin narrow, about as broad as the length of the pedicel with pale grey-dusted gena barely wider than the tip of the palps, mouth margin shiny. Frons rather small, triangular and not tumid, silky white without outstanding hairs. Eyes meeting for about 9–10 facets, equal to or greater than the length of the vertex. Ocellar tubercle dark in ground colour, densely grey-brown dusted, all ocelli contiguous with the eye margins. White hairs on ocellar tubercle noticeably longer than the width of vertex at its broadest. Eye facets large in upper half, small in lower half, the division between them, just below the antennal insertion, not well marked. Occiput dark in ground colour, densely coated with grey-brown dust, covered with whitish hairs about half as long as those on ocellar tubercle, becoming longer and silky below. Antennae blackish with scape and pedicel more brownish, postpedicel about 1.4 times as long as scape and pedicel together, rather oval in shape with no more than a slight point dorsally immediately beyond the subapical sulcus. Palps small, subclavate, pale brown with several white hairs apically as long as palp. Proboscis moderate, about as long as thorax and scutellum, hairless dorsally, the basoventral membrane blackish-brown.

THORAX. Dark ground colour obscured by brownish-grey dust, with vaguely darker paramedian vittae extending back two thirds the length of the mesonotum, also faint, obscurely defined, darker antehumeral vittae broken at thoracic suture. Hairs of mesonotum pale yellow-white, rather long, longer than ocellar hairs, acrostichals irregular, dorsocentrals irregularly uniserial, hairs on hind third and lateral parts of mesonotum more general, more dense on notopleuron, area above wing bare. Scutellum rather more yellowish brown dusted than mesonotum, hairs equal in length to those on mesonotum, generally scattered dorsally but lateral margins bare. Pleura concolourous with mesonotum, pronotum and posterior two-thirds of the anepisternum, with long, white hairs.

WING. Membrane somewhat milky with inconspicuous brown shades around fork of R_{2+3} and R_{4+5} , fork of R_4 and R_5 and the crossveins r-m, m-m and m-cu the veins pale yellow basally, darker in rather more than apical half. Crossvein r-m a little beyond basal third of the discal cell, clearly beyond m-cu. Anal lobe very well developed with conspicuously convex margin, much broader than anal cell.

HALTERE. Yellow, stem and base of knob clearly suffused with brown.

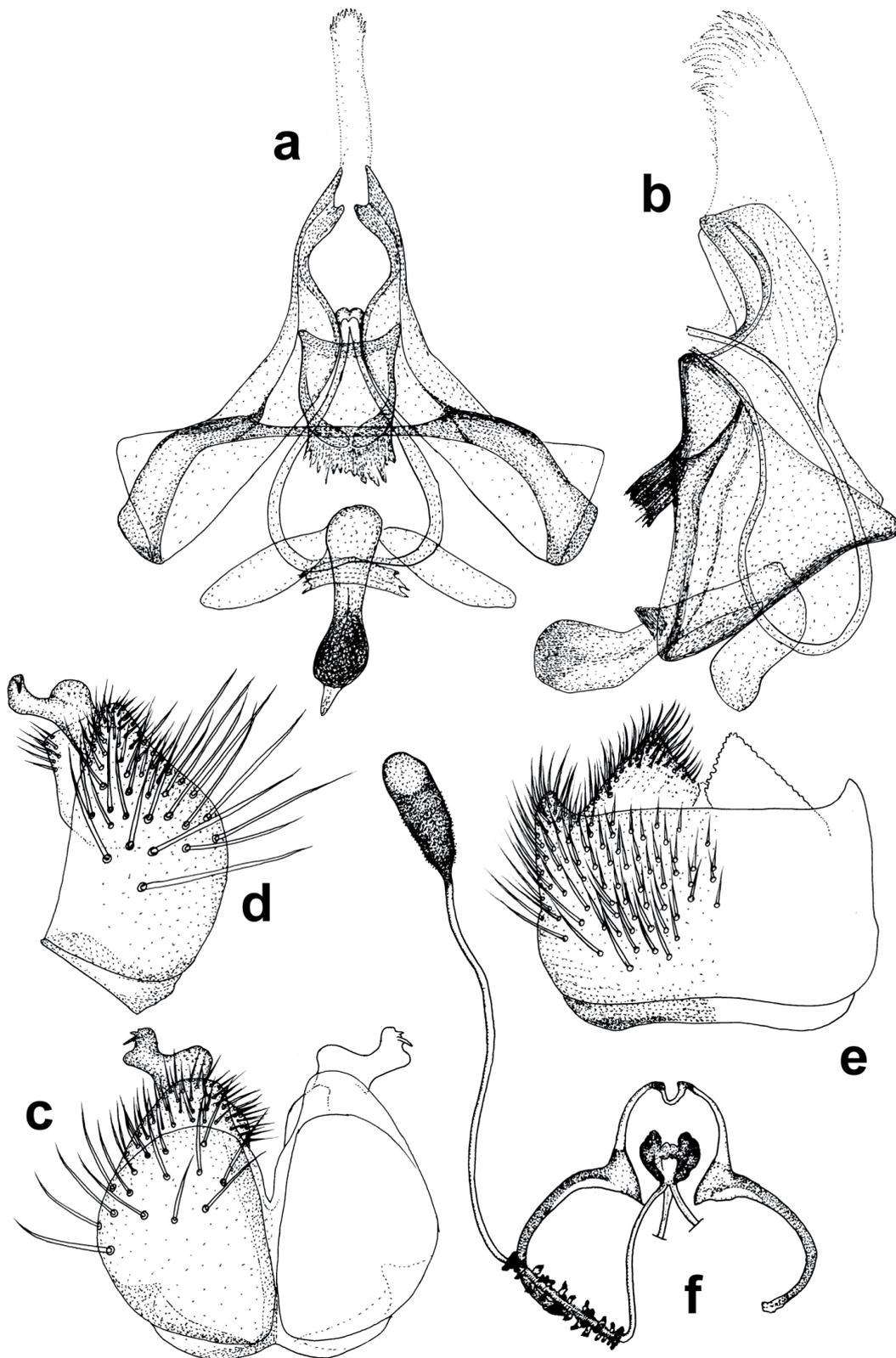


Fig. 58. *Protypusia vagans* (Becker, 1906) gen. et comb. nov. **a.** Epiphallallic complex ventral. **b.** Epiphallallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral.

LEGS. Coxae concolourous with pleura. Femora and tibia rather browner, not densely dusted, very tip of femora and narrow base of tibia yellow. Legs covered with white hairs, longer on the coxae, fore and mid-femora posteriorly, hind femora antero-ventrally and hind tibia dorsally.

ABDOMEN. Greased but probably grey-brown dusted similar to thorax. Tergite one brownish laterally and along apical margin, remaining tergites also with narrow dull brownish posterior margins. All tergites with long white hairs on reflexed lateral margins, dorsally hairs shorter and largely confined to the posterior half of each tergite. Sternites similar to tergites.

GENITALIA. Small even for holoptic *Protypusia* gen. nov., dark in ground colour, tip of gonocoxite yellower, densely covered in brown dust, covered in white hairs.

Female

Differs from male in having widely separated eyes, frons almost a third head width, densely olive-grey dusted with small median black spot. Laterally, close to eyes and level with anterior ocellus, is a uniserial row of relatively long, proclinate hairs, front half of frons with more generally distributed shorter hairs. Hairs on ocellar tubercle shorter, a little longer than distance across hind ocelli. Hairs of mesonotum, pleura and scutellum very much shorter and rather sparser, dusting with a definite yellow-brown colour. Legs generally with shorter hairs. Infuscation on wing veins can be rather obscure, most conspicuous on crossveins. Abdomen with apical yellow margins of tergites a little broader and more obvious, hairing of tergites and sternites significantly shorter than in male.

Remarks

The male and female genitalia suggest close affinities with *Pro. dimonica* and *Pro. hyalipennis*, the shape of the gonostyli especially being very similar in these three species. *Protypusia hyalipennis* especially is very similar, but the mesonotal pattern and hyaline wings readily distinguish it. Although both species occur in Morocco, *Pro. hyalipennis* is known north of the Atlas Mountains while *Pro. vagans* to the south. *Protypusia dimonica* also occurs on the Saharan side of the Atlas Mountains in Morocco, so could be sympatric with *Pro. vagans*, but is readily identified by its general blue-grey colour and entirely hyaline wings.

Distribution

Morocco, Tunisia.

Protypusia xizangensis (Yang & Yang, 1994) gen. et comb. nov.

Usia xizangensis Yang & Yang, 1994: 272.

Etymology

Named after the type locality Xiang, Langkazi in Tibet.

Type material (not examined)

Holotype (specimen not seen but photographs of holotype examined)

CHINA • ♀; “Xizang [Tibet], Langkazi (4300 m), 30 August 1978, [Leg.] Fasheng Li”; CAU.

Other material examined

None.

Redescription

Male

Unknown.

Female (based upon the type description and photographs of holotype)

MEASUREMENTS. Body length: 3.0 mm. Wing length: 3.5 mm.

HEAD. Dark in ground colour, obscured by grey dust. Gena plus mouth margin relatively broad, in part yellowish in ground colour, a little less than width of proboscis, the dusted gena narrower than the more shining mouth margin. Frons a little less than a third of head width, widening out towards front, densely grey dusted, small central dark spot. Occiput as frons well furnished with yellow hairs. Ocellar triangle equilateral, lateral ocelli well separated from eyes by more than twice diameter of these ocelli. Antenna black (postpedicel missing). Proboscis black, moderately long a little longer than thorax including scutellum, or twice head length, palps black.

THORAX. Blackish ground colour, densely covered with grey-brown dust. Mesonotum with blurry brown paramedian vittae and obscure darker antehumeral vittae broken at transverse suture. Scutellum similarly dusted, or a little greyer. Mesonotum and scutellum with yellow hairs. Pleura densely dusted, greyer than on mesonotum

WING. Hyaline, veins dark brown to black, yellower towards base, and subcosta entirely yellow. Crossvein r-m in basal third of discal cell, just a little beyond m-cu.

HALTERE. Yellow, except brownish base of stem, and a clear brown spot on dorsum of knob.

LEGS. Black with abruptly yellow apices to all femora and narrowly at base of all tibia. Coxae and femora covered with grey dust, as are tibia and tarsi [more thinly so?], all with short yellow hairs.

ABDOMEN. Black covered with olive-grey dust, denser laterally, disc of basal tergites subshining as if thinly dusted. All tergites with clear yellow apical margins approximately a quarter the length of respective tergites, narrowing on reflexed lateral margins. Yellow hairs on tergites and sternites.

Remarks

Based on available keys, Yang & Yang (1994) compared this species with *U. aenea* (Rossi), a quite different species with shining, strongly sclerotised cuticle lacking yellow on legs and abdomen. Within *Usia* s. str. it is superficially much closer to *U. transcaspica* of central Asia, which has yellow on legs and apices of tergites, but like *U. aenea*, this species also has the tergites and disc of mesonotum shining, undusted. Yang & Yang's *Usia xizangensis* clearly belongs in *Protypusia* gen. nov. and not *Usia* based on the heavily dusted mesonotum and abdomen and the tergites not strongly sclerotised so not holding their shape on drying. Based on what can be seen in the available photographs, it seems to be closest to *Pro. negevi*, but this species has a longer proboscis, clear white knob of haltere and generally pale blue-grey dusting. None of these characters, either individually or together, absolutely eliminate the possibility that these taxa are conspecific, similar variation can be seen across populations of other species of Usiini. However, it would be remarkable if the distribution of *Pro. negevi* stretched all the way from the Negev Desert to the high plateau of Tibet, far more likely that *Pro. xizangensis* is a distinct species.

Distribution

China (Tibet).

Protypusia zimini (Paramonov, 1947) gen. et comb. nov.

Fig. 59

Parageron zimini Paramonov, 1947: 216.

Etymology

Named in memory of Leonid Sergeevich Zimin (1902–1970), who collected the types.

Type material

Lectotype (here designated)

UZBEKISTAN • ♂; “Tschangyr, northwest Bukhara, 13 June 1930 1 ♂ (leg. L.S. Zimin)/*Parageron zimini* sp. nov. ♂ S. Paramonov det. Syntypus/Zool. Mus. Berlin.” ZMHB.

Paralectotypes

UZBEKISTAN • 2 ♀♀; “locality as lectotype 10 June 1930”; ZMHB • 1 ♂ [dissected], 1 ♀; “same locality 13 June 1930”; ZMHB • 1 ♀; “same data 17 June 1930”; ZMHB • ♂♀ in copula, 2 ♀♀; “same data 20 June 1930”; ZMHB.

Other material examined

IRAN • 1 ♂, 1 ♀; “Ghazvin, road to Zereshk 1682 m, N36°24'128" E50°5'434" 28 June-7 July 2009, pan trap Leg. B. Gharali”; PCDG.

Redescription

MEASUREMENTS. Body length; 3.9–5.1 mm. Wing length: 4.1–5.2 mm.

Male

HEAD. Frons and gena pale yellow in ground colour, the frons slightly tumescent covered with silky off-white dusting, lacking longer hairs. Gena moderately broad, at narrowest point about as broad as length of pedicel, more shining mouth margin a little narrower, together almost as broad as scape length. Occiput and ocellar tubercle dark in ground colour densely covered with grey dust and outstanding white hairs, ocelli contiguous with eyes. Eyes confluent for slightly longer than the length of vertex. Ommatidia conspicuously enlarged in the upper half of the eyes, sharply contrasting with the smaller ones occupying the lower half. Antennae blackish, tip of pedicel can be paler, postpedicel rather long with a small point dorsally immediately beyond the subapical sulcus. Palps small and slender, yellowish to brown, darker apically, the white apical setae shorter than the length of the palps. Proboscis very long, about equal to body length, naked dorsally, the basoventral membrane yellow.

THORAX. Dark ground colour obscured by dove-grey dust, in some becoming more yellowish on posterior of mesonotum and scutellum, very faint darker paramedian vittae on anterior half or slightly more of mesonotum, antehumeral vittae may be indicated. Whole of mesonotum and scutellum evenly covered with moderately long, silky white hair, largely absent on darker vittae, on the front of the mesonotum hairs longer than tibia is thick at its mid-point. Pleura with similar hairs on pronotum, posterior two-thirds of the anepisternum, and a few in upper middle of katapisternum. Metepimeron naked, can be yellow (Uzbekistan).

WING. Membrane hyaline, the veins pale yellow, or becoming brown apically. Crossvein r-m from basal quarter to third of the discal cell, opposite or a little beyond m-cu. Anal lobe broad with conspicuously convex margin, broader than anal cell.

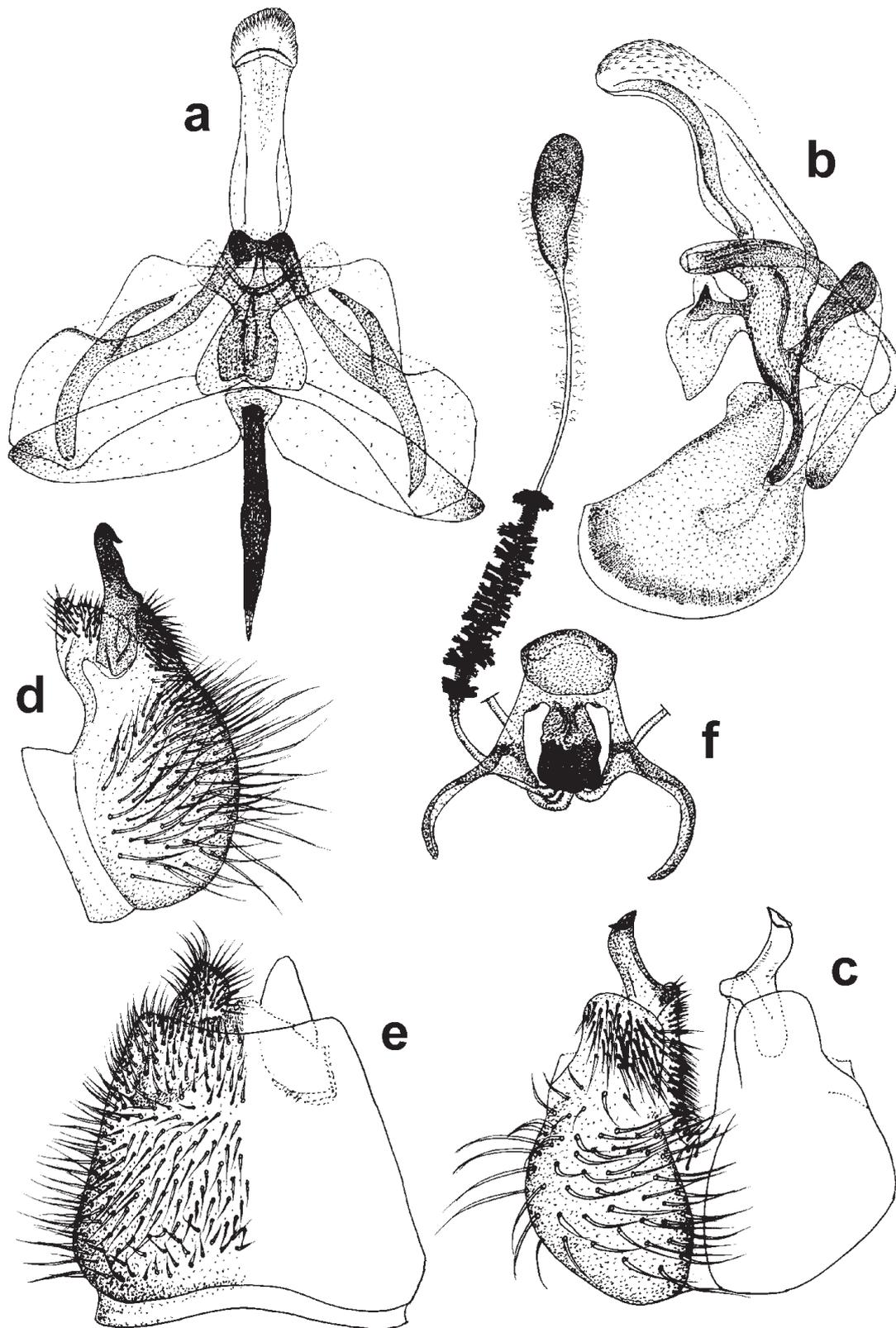


Fig. 59. *Protypusia zimini* (Paramonov, 1947) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral.

HALTERE. Pale yellow, base of stem slightly infuscated.

LEGS. Coxae dark with a dense coating of grey dust. Femora predominantly dark with a covering of grey dust, up to apical quarter clear yellow (Uzbekistan specimens) or just narrowly yellow (Iranian specimens). Front and mid-tibia clear yellow, hind tibia infuscated apically (Uzbekistan specimens) or infuscation more extensive (Iranian specimens). Tarsi black with the basitarsi more or less yellow basally in some. Legs covered with silky white hairs, rather variable, longer on Iranian male.

ABDOMEN. Tergite one entirely yellow (Uzbekistan specimens) or with just apical margin yellow (Iranian specimens), remaining tergites black with dense grey dusting and sharply demarcated apical yellow margins (Uzbekistan specimens) or poorly defined pale margins (Iranian specimens), these becoming narrower rearwards. Sternites similar but yellow apical margins clearer. Tergites and sternites all covered with fairly long, erect white to very pale yellow, rather wavy hairs.

GENITALIA. Relatively large when compared to other holoptic species. Gonocoxites black, grey dusted with broad yellow tips, covered in long whitish hairs. Epandrium basally black, grey dusted, with very broad yellow apical margin and narrow lateral margins, covered in short whitish hairs.

Female

Differs from the male in its broadly separated eyes, the frons pale yellow and hairless anteriorly, densely pale-grey dusted on hind half, laterally with 1–2 rows of tiny hairs. Legs yellow except for coxae basally (Uzbekistan specimens) or similar to the male, grey dusted, more or less infuscated tarsi largely blackish. Abdomen much more extensively yellow than in the male with less well defined blackish-brown bases to the tergites (except T1) and sternites (Uzbekistan specimens) or similar to male. Hairs on the thorax and abdomen a little shorter, most clearly on the tergites.

Remarks

Although twelve specimens were available, they originate from just two widely separated localities, 10 from the type locality and two from Iran. There is quite a degree of variation between these two locations notably in the extent of yellow on tergites and legs. Uzbekistan specimens have much yellower tergites and legs compared to the two specimens from Iran. However, in most features, including the structure of both male and female genitalia, they differ very little so I am as confident as I can be that they are conspecific.

The illustrations provided by Zaitzev (1966) and ascribed to *Pro. grisea* (Paramonov) are certainly not *Pro. grisea* and appear very similar to this species or, perhaps the closely related *Pro. negevi*. The description, while brief, could fit either species, closer to *Pro. negevi* on size but more likely to be *Pro. zimini* on range. Without seeing the specimens it is not possible to be confident what species Zaitzev had before him.

Distribution

(?Georgia), Iran, Uzbekistan.

Genus *Parusia* gen. nov.

urn:lsid:zoobank.org:act:4A91131A-1CA0-4BC3-AF37-39A8E764C56A

Type species

Voluccella aurata Fabricius, 1794.

Diagnosis

The combination of dichoptic males, very narrow gena plus oral margin, relatively short proboscis, entirely black legs, relatively weakly sclerotised matt-black tergites with yellow apical margins and large, globular genitalia in the male should serve to distinguish this genus from other *Parageron* s. lat. and *Usia*. However, all these characteristics are variable, and are found at least in part in other *Usia* and *Parageron* s. lat. The most convincing characters are found in the male epiphallic complex and the female genitalia. Males have a strongly sclerotised epiphallus and very large basal ejaculatory apodeme enclosed within a very large, strongly sclerotised and shining black hypopygium. The female genital fork is strongly sclerotised, often flat, sometimes bent dorsally, sometimes strongly angled with the arms. Compared to other Usiini, there is no obviously separate vaginal plate, it appears to be contiguous with the genital fork body. In many *Protypusia* gen. nov. the genital fork is also strongly sclerotised, but the vaginal plate is always discernible, even when sclerotised and fused with the genital fork.

Etymology

‘par(a)-’ and ‘usia’ meaning ‘near to the genus *Usia*’.

Remarks

This genus encompasses the former ‘*aurata*’-complex including *Pru. loewi*. It is a very coherent group, all very closely related to each other and clearly monophyletic, but with no obvious affinities within the rest of the Usiini. The group might arguably be closer to *Usia*, and it has often been placed here rather than in *Parageron*. While there are some members of *Parageron* s. lat. that share some of the features of the ‘*aurata*’-complex, the *Parageron* s. str. are really quite different, and it became apparent that if the separation of *Usia* and *Parageron* were to be maintained, then *Parageron* in its former sense needed to be subdivided.

Parusia gen. nov., like other Usiini, exhibits a strong tendency for endemism, in this case with many cryptic species superficially very similar and differing predominantly in the structure of male and female genitalia. During this study, it has been possible to show that the two formerly recognised species *Pru. aurata* and *Pru. loewi* (with *Pru. taeniolata* a synonym of the former) in fact comprise no less than eight species. All of these have been found within a small part of the previously published range of the ‘*aurata*’-complex in the western Mediterranean east to Libya. Records of *Pru. aurata* and *Pru. loewi* come from many countries north to France, east to Kyrgyzstan and south to Kuwait (Evenhuis & Greathead 2015). During this study no specimens from the eastern Mediterranean or Central Asia have been seen so it seems likely that these are all misidentifications in the literature. The lack of any specimens from mainland Italy or Sicily is somewhat surprising, so it could well occur there (probably *Pru. taeniolata*). Given the number of cryptic species found during this study, it is highly likely that more local endemics remain to be found.

Included species

Parusia almeria gen. et sp. nov.

Parusia aurata (Fabricius, 1794) gen. et comb. nov.

Parusia benoisti gen. et sp. nov.

Parusia cyrenaica gen. et sp. nov.

Parusia faesae gen. et sp. nov.

Parusia loewi (Becker, 1906) gen. et comb. nov.

Parusia propinqua gen. et sp. nov.

Parusia taeniolata (Costa, 1883) stat. rev., gen. et comb. nov.

Parusia almeria gen. et sp. nov.

urn:lsid:zoobank.org:act:22C73CC7-88D1-4CE0-821A-1B3C795625DD

Figs 16, 20, 32, 60

Etymology

Noun in apposition, after Almeria, the region of southeast Spain where the type material was collected.

Type material

Holotype

SPAIN • ♂; “Almeria, Bird observatory of the Salinas del Cabo de Gata, N 36°45'39" W 02°13'15", dunes near salines, 9 April 2004 leg. Antonio Aguirre”; NHMUK.

Paratypes

SPAIN • 1 ♀; “Almeria, Bird observatory of the Salinas del Cabo de Gata, N 36°45'39" W 02°13'15", dunes near salines, 9 April 2004, leg. Antonio Aguirre”; NHMUK • 1 ♂ (in spirit); “same data”; PCMC-T • 1 ♂; “Carboneros N36°59'39.7" W01°56'29.6" 100 m 19 March 2003, leg. J. Dils & J. Faes”; PCJD • 1 ♂, 1 ♀ (in spirit); “near Torregarcía, N 36°49'58" W 02°17'29" zone with *Ziziphus lotus* and dunes, 13 April 2004 Moericke trap 1, leg. Antonio Aguirre”; PCMC-T • 1 ♂, 1 ♀; “Moericke Trap 3 Base del Cerro del Barronal, N 36°44'01" W 02°08'29", very sandy zone with *Pitas*, *Rhamnus* sp., and *Ammophila areanaria*, 12 March 2004 pitfall trap 5, leg. Antonio Aguirre”; PCDG.

Description

MEASUREMENTS. Body length: 4.4–6.6 mm. Wing length: 3.7–5.8 mm.

Male

HEAD. Gena plus mouth margin black in ground colour, much narrower than the apical breadth of a palp, grey dusted gena very narrow, linear, more shining mouth margin a little wider. Frons black in ground colour, hind half narrowing distinctly from hind corners to just in front of anterior ocellus where eyes start to diverge before abruptly widening on anterior part before running parallel down mouth margins. Eyes separated at their narrowest by 1.5–2.5 times the diameter of the front ocellus, hind ocellus narrowly separated from the eye margin. Ocellar tubercle shining, barely dusted, narrow part of frons lightly grey dusted, subshining blackish, white dusted on front half, more thinly so medially where dark ground colour shows from some angles. Yellow-brown hairs on ocellar tubercle almost twice as long as the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous white hairs some of which are as long as scape and pedicel combined, inclined at 45°. Occiput dark in ground colour with fairly dense grey dust but ground colour still apparent, subshining, more shining on triangular area behind ocellar tubercle. Yellow to white hairs dorsally only just overtopping ocellar tubercle, tips curved anteriorly, hairs significantly longer below and rather wavy. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable but usually relatively short, less than twice length of scape and pedicel together, sensilla in subapical sulcus can be white and conspicuous. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, strongly clavate, brown to black, the pale yellow apical setae as long as the length of the palps. Proboscis short, only about twice head length, dorsally clothed with short, adpressed brown setae basolaterally. Basoventral membrane dirty brownish-white.

THORAX. Shining black cuticle dulled by relatively thin blue-grey dust except sometimes along paramedian and antehumeral vittae where the shining black cuticle can show through to a greater or lesser extent. Where paramedian vittae are clear they are approximately equal to median dusted stripe anteriorly, widening rearward where tending to fade. Antehumeral vittae interrupted at the thoracic suture. Mesonotum covered with moderately long, pale yellow hair, the longest hairs longer than those

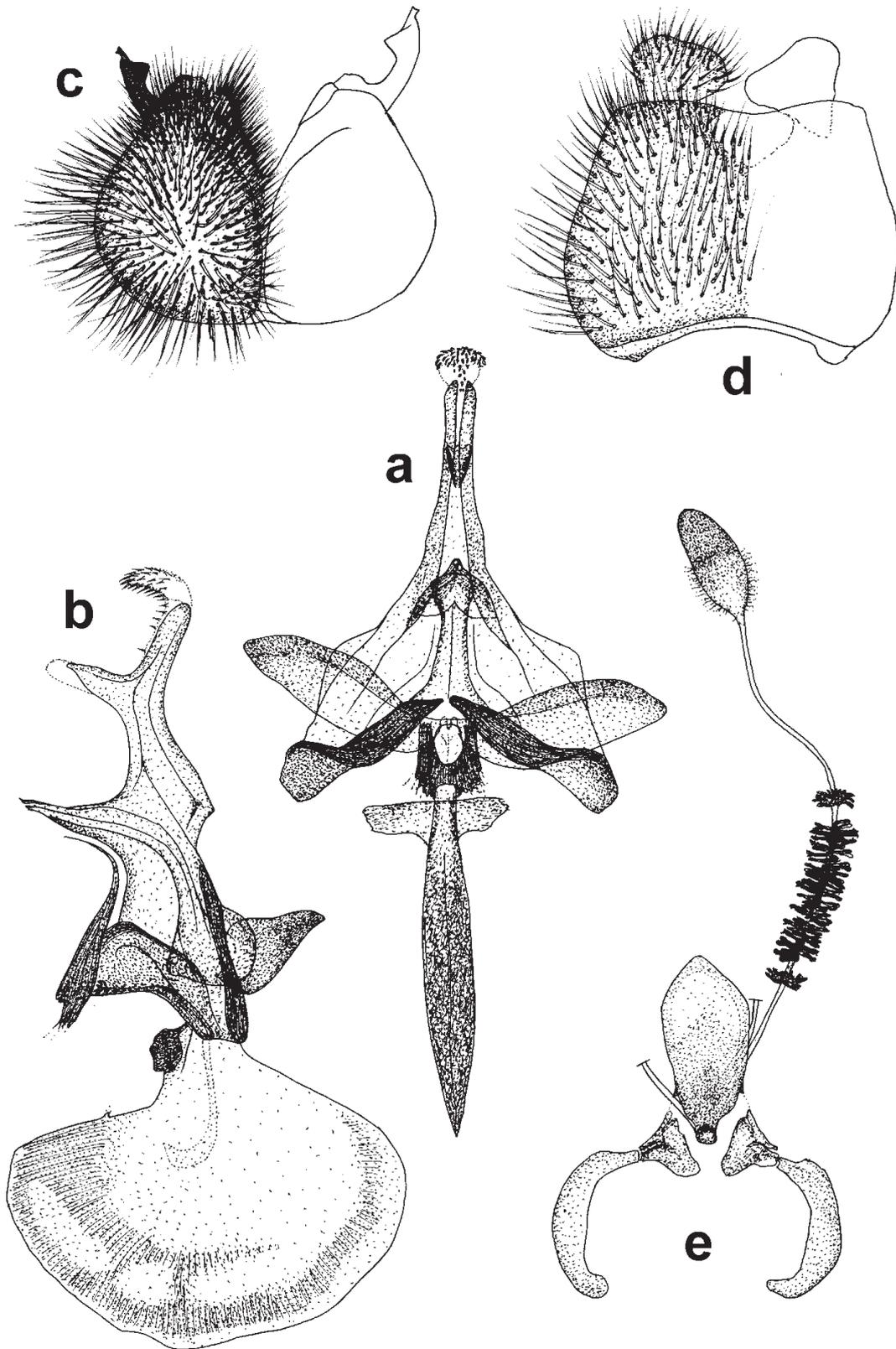


Fig. 60. *Parusia almeria* sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Epandrium dorsal. **e.** Female genitalia ventral.

on the ocellar tubercle. Scutellum more thinly dusted centrally, long-haired on the disc, hairs fringing the apical margin longer than those on mesonotum. Pleura similar to mesonotum laterally, or a little more densely dusted, white hairs on pronotum, posterior half of the anepisternum and much of katepisternum.

WING. Membrane faintly brown tinged, the veins brown. Crossvein r-m beyond basal third but before mid-point of discal cell conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

HALTERE. Pale yellow to white, base of stem slightly brownish.

LEGS. Coxae black with a coating of grey dust like that on the pleura, not entirely obscuring ground colour. Remainder of legs black or very dark brown, essentially undusted so the shining cuticle is not dulled. Coxae externally and femora ventrally covered with rather long, pale yellow hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with both short adpressed white hairs, and on tibia a few longer, semi-erect hairs, especially at base.

ABDOMEN. All tergites subshining black, dusting on disc obscure and dark, laterally, on the reflexed margin, densely grey dusted mostly obscuring the ground colour, most extensive on tergite one. Middle tergites with narrow but conspicuous and sharply demarcated yellow apical margins; on tergite one this margin disappears laterally, on remaining tergites it tapers away on reflexed margin, tergites seven and eight with yellow apices very narrow or lacking. Sternites black cuticle with grey dusting dulling but not entirely obscuring the ground colour, apical yellow margins obscure. Tergites and sternites all covered with relatively short pale yellow hairs, mostly erect but on basal tergites tending to be inclined towards mid-line.

GENITALIA. Conspicuously large and globular. Gonocoxites black to dark brown, shining, composed of two rounded hemispheres separated by a deep sulcus. Epandrium shining black to dark brown. Both gonocoxite and epandrium covered in long yellow hairs, denser than on tergites, especially so on gonocoxite.

Female

Very similar to male except for broader frons, narrowest at rear where one fifth to one quarter head width, hind ocellus separated from eye by about one and a half times the diameter of that ocellus. Frons widening more evenly towards the front, hairs more extensive, biserial along eye margins to rear of front ocellus. Thorax very similar, hairing tending to be rather shorter. Yellow apical margins to the tergites relatively broader. Abdominal hairing a little sparser and shorter. Proximal part of genital fork more or less in line with angle of the arms, attached membranously, broadest towards pointed tip, basal spermathecal ducts normal, fusing at or just before the vaginal plate which is contiguous with the genital fork and not differentiated.

Remarks

Within this genus of eight species there is considerable uniformity in external characters, differences between the species being subtle and not likely to be much use in deducing affinities within the genus. The female genitalia suggest that this species is most closely allied to the other two *Parusia* gen. nov. that occur in Spain *Pru. loewi* and *Pru. propinqua* gen. et sp. nov. Of the African-Tyrrhenian species probably related to *Pru. aurata*, in which the male and female genitalia are closest to the Iberian species.

Distribution

Southeast Spain.

Parusia aurata (Fabricius, 1794) gen. et comb. nov.
Figs 18, 21–22, 61

Volucella aurata Fabricius, 1794: 413.

Etymology

From Latin ‘*aurātus*’ = ‘gilded’, ‘golden’, presumably referring to the yellow apical margins of the tergites.

Type material

Lectotype (here designated)

“Barbariae floribus” [= MOROCCO, ALGERIA or TUNISIA] • ♀; “Museum Paris, Barbarie, Coll Bosc 1828 [accession date]/*V. aurata*. Fab. [in Bosc’s handwriting], florea [=?floribus, almost illegible] Barbariae/*aurata* f.”; MNHN.

In his original description Fabricius states “Barbariae floribus Mus. Desfontaines” for this species. The Desfontaines collection was acquired by MNHN in 1826. The “Bosc” specimen with the Fabrician locality here designated as lectotype is dated 1828. That means it was not accessioned from the Desfontaines collection but was a specimen from the Bosc collection. It is presumed that a unique specimen would not have been exchanged thus this specimen is here not considered to be a holotype but a syntype that was exchanged with Bosc. The fate of the Desfontaines “type” is not known. (N. Evenhuis pers. com.)

A single female specimen with appropriate data was located in the general collection at MNHN. Although the labels are in Bosc’s handwriting and not Fabricius’, the pin through the insect is of the same type as seen with other Fabrician types. It was not uncommon for collectors of the time to replace labels with their own. Therefore it is concluded that this specimen is a syntype of *aurata*.

Other material examined

ALGERIA • 1 ♀; “Mascara 29 April”; MNHN • 1 ♀; “21 April 1 ♀ ex. Coll. B. Aldgren”; MNHN • 1 ♀; “NE of Saida, Ain el Hannach 29 June 1983 1 ♀ (leg. J. Hutsebaut)”; MNHN • [♂♀ in cop. 3 ♂♂]; “Rouiba, J. Surcouf May-June 1911, Museum Paris”; MNHN • 2 ♂♀ in cop.; “same data 15 May 1913”; MNHN • 1 ♂; “Rocher Blanc, J. Surcouf, Museum Paris 1919”; MNHN • 5 ♂♂, 6 ♀♀; “March-April 1913”; MNHN • 1 ♀; “Oran, J. Surcouf Museum Paris 1919” MNHN • 4 ♀♀; “Museum Paris, Env. D’Alger Bové 126-38, *Usia aurata*”; MNHN.

MOROCCO • 2 ♂♂, 1 ♀; “Guelmin, 11 km N. Guelmin, N29°08’30” W10°05’48.4” 430 m 23 March 2006”; PCJD • 1 ♂, 1 ♀; “Azilal, Afouer N31°11’32.8” W06°31’20.4” 880 m 8 April 2006”; PCJD • 1 ♀; “Marrakech, W of Demnate N31°43’58.2” W07°16’58.9” 700 m 6 April 2006” PCJD • 1 ♀; “Agadir, Tioulit N29°53’28” W09°00’00.2” 1200 m 27 March 2006 (leg. J. Dils & J. Faes)”; PCJD.

TUNISIA • 2 ♀♀; “Sfax Plage 30 April [18]99, Museum Paris, Tunisie, Museum Paris, Bleuse 1899”; MNHN.

Redescription

MEASUREMENTS. Body length: 2.3–5.2 mm. Wing length: 2.5–5.2 mm.

Male

HEAD. Gena and mouth margin black in ground colour, narrower than the apical breadth of a palp, grey dusted gena linear, mouth margin more shining. Frons black in ground colour, hind half narrowing distinctly from hind corners to just in front of anterior ocellus where eyes start to increasingly diverge

gradually, then narrowing down gena. Eyes separated at their narrowest by 2.5–3 times the diameter of the front ocellus, hind ocelli separated from the eye margin by about half diameter of respective ocellus. Ocellar tubercle shining, barely dusted, narrow part of frons velvety black, appearing lightly grey or brown dusted from some angle, this colour narrowly continued down eye margins in some specimens. Anterior part of frons grey-white dusted, often more thinly so medially where dark ground colour shows from some angles. Yellow-brown hairs on ocellar tubercle almost twice as long as the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous white hairs some of which are longer than scape and pedicel combined, almost as long as postpedicel, inclined at 45°. Occiput dark in ground colour densely covered with grey dust largely obscuring ground colour, only slightly subshining, except on triangular area behind ocellar tubercle which is shining, thinly dusted. Yellow to white hairs dorsally not or only just overtopping ocellar tubercle, tips curved anteriorly, hairs much longer below, often wavy-tipped. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable about twice length of scape and pedicel together (tends to be relatively smaller in small individuals), sensilla in subapical sulcus can be pale and conspicuous. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, strongly clavate, brown to black, the pale yellow apical setae as long as the length of the palps or even longer. Proboscis short, only about twice head length, often less, basolaterally on dorsal surface with abundant, semi-erect brown hairs, diminishing in size towards tip. Basoventral membrane dark brown to brownish-white.

THORAX. Black cuticle dulled by dense olive-brown to grey dust except along well defined paramedian and antehumeral vittae where the underlying cuticle shows through and is dulled by black dusting, often subshining in smaller individuals. Paramedian vittae clear to just behind wings, widening rearwards, dusted acrostichal stripe approximately equal width throughout. Antehumeral vittae interrupted at the thoracic suture. Mesonotum covered with moderately long, pale yellow hair, the longest hairs longer than those on the ocellar tubercle. Scutellum more thinly dusted centrally, long-haired on the disc, hairs fringing the apical margin longer than those on mesonotum. Pleura similar to mesonotum laterally, white hairs on pronotum, posterior half of the anepisternum and much of katepisternum (can be sparse in smaller individuals).

WING. Membrane faintly brown tinged, the veins brown. Crossvein r-m beyond basal third but before mid-point of discal cell conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

HALTERE. Pale yellow to white, base of stem infuscated.

LEGS. Coxae black with a coating of grey dust like that on the pleura, obscuring ground colour. Remainder of legs black, essentially undusted so the shining cuticle is not dulled. Coxae externally and femora ventrally and posteriorly on front femora, covered with rather long, pale yellow or white hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with both short adpressed white hairs, and on tibia a few longer, semi-erect hairs, especially at base.

ABDOMEN. All tergites velvety black, dusting on disc black, laterally on the reflexed margin dark grey-brown dusted mostly obscuring the ground colour, most extensive on tergite one. Middle tergites with narrow but conspicuous and sharply demarcated yellow apical margins, these variable and can be absent on small individuals; on tergite one this margin disappears laterally, on remaining tergites it tapers away on reflexed margin. Sternites black, grey dusted like sides of tergites, largely obscuring the ground colour, apical yellow margins narrow and obscure. Tergites and sternites all covered with relatively long pale yellow hairs, mostly longer than length of respective tergite.

GENITALIA. Very large and globular, as deep as abdomen and up to a third its length (including genitalia), relatively even larger in small individuals. Gonocoxites shining black, composed of two rounded

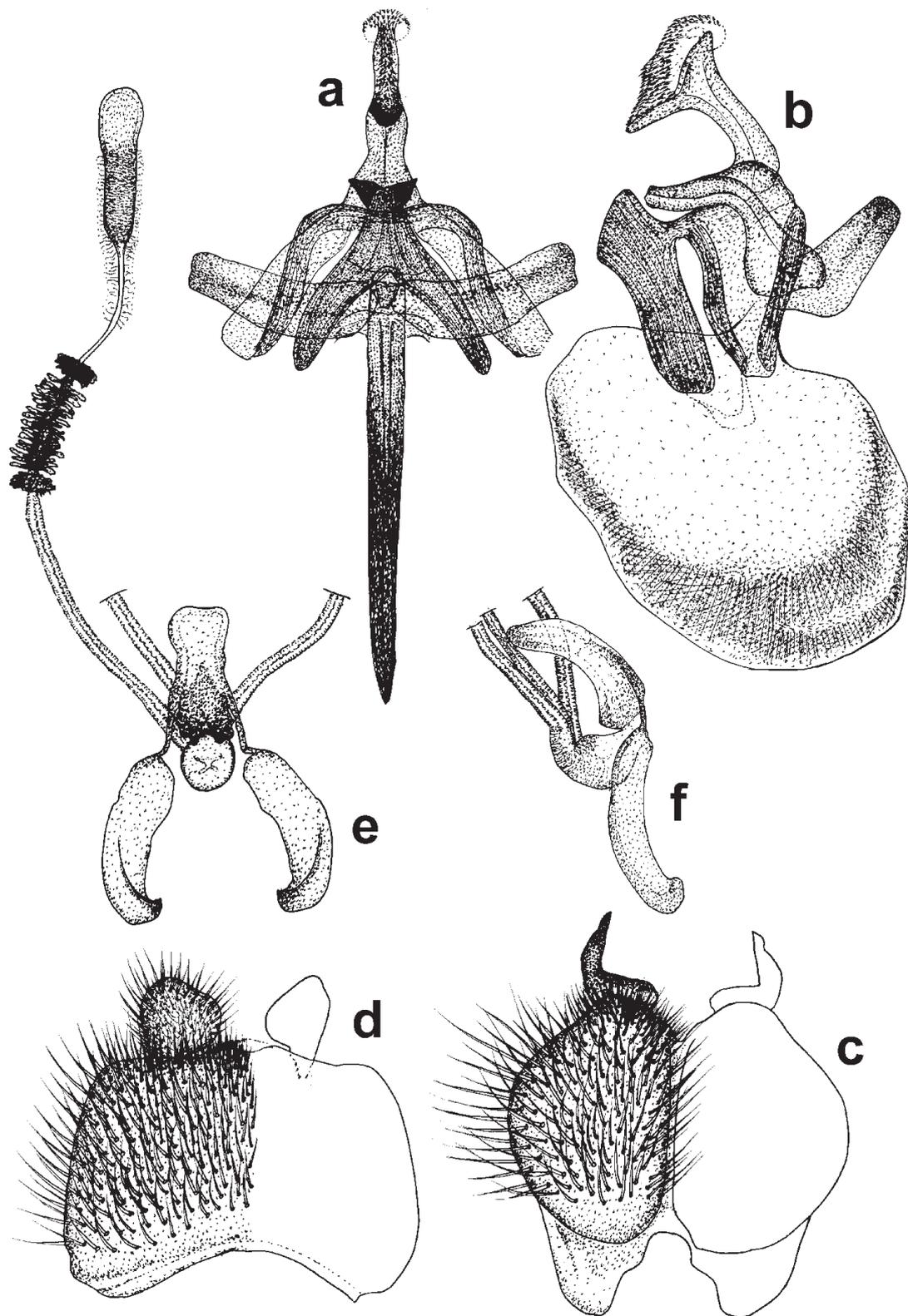


Fig. 61. *Parusia aurata* (Fabricius, 1794) gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Epandrium dorsal. **e.** Female genitalia ventral. **f.** Female genitalia lateral.

hemispheres separated by a deep sulcus. Epandrium also shining black. Both gonocoxite and epandrium covered in long yellow hairs, longer than on tergites, especially so on gonocoxite.

Female

Very similar to male except for broader frons, narrowest at rear, being one-fifth to one-fourth head width, hind ocellus separated from eye by about one to one and a half times the diameter of that ocellus. Frons widening more evenly towards the front, hairs more extensive, irregularly uniserial along eye margins to rear of front ocellus. Thorax very similar, hairing tending to be rather shorter. Yellow apical margins to the tergites relatively broader, especially on tergites seven and eight, latter shining and undusted, tergite nine also shining but lacking yellow margin. Abdominal hairing distinctly shorter. Proximal part of genital fork only moderately at an angle with the arms, attached to arms by thin, linear sclerotised strip, broadest closest to tip, blunt ended. Arms of genital fork very broad. Basal spermathecal ducts expanded relative to apical ducts, fusing at proximal tip of the vaginal plate that is not differentiated from the genital fork.

Remarks

Based on female genitalia seems to show affinities with both the other African/Tyrrhenian species and the three Iberian species. The development of the basal spermathecal duct is intermediate between these two groupings. The male genitalia and external characters do not offer any clues as to its affinities.

Distribution

Algeria, Morocco, Tunisia.

Parusia benoisti gen. et sp. nov.

urn:lsid:zoobank.org:act:5989CE0E-4EE5-43D7-8267-C52411B4F5AB

Figs 19, 62

Etymology

Named after French botanist and entomologist Raymond Benoist (1881–1970) who collected the majority of the type series.

Type material

Holotype

MOROCCO • ♂; “Oued Yquem, Alluud [19]62/*Usia aurata* F, det J. Bowden”; MNHN.

Paratypes

MOROCCO • 1 ♂; “Museum Paris, Maroc, Rabat, R Benoist 1928/7 Mai 1928”; MNHN • 1 ♂, 1 ♀; “same location 8 Mai 1928”; MNHN • 1 ♂; “Oued Yquem, Alluud 62”; MNHN • 1 ♂, 2 ♀♀; “Museum Paris, Maroc, de M’rirt à El Hadjeb, R Benoist 1919”; MNHN • 3 ♀♀; “Mai/Museum Paris, Maroc, Sidi Bettache, R Benoit [sic] 1928”; MNHN • 1 ♀; “Museum Paris, Tanger (Env.), Favier 113-59”; MNHN • 1 ♀; “Rabat, 30 May [19]34, Surcouf”; MNHN • 2 ♂♂, 2 ♀♀; “Env♂. Tanger, 4 May 1970, [leg.] P. duMerle”; MNHM • 1 ♀; “Kenitra, N34°17'30.4" W06°30'18.2" 0 m 8 May 2008, leg. Dils J. & Faes J.”; PCJD.

Description

MEASUREMENTS. Body length: 3.7–5.7 mm. Wing length: 4.0–5.0 mm.

Male

HEAD. Gena and mouth margin black in ground colour, narrower than the apical breadth of a palp, grey dusted gena linear, narrower than shining mouth margin. Frons black in ground colour, hind half

narrowing slightly from hind corners to well in front of anterior ocellus then widening fairly abruptly and evenly to front of frons. Eyes separated at their narrowest by 1.5–2.0 times the diameter of the front ocellus, hind ocelli contiguous with the eye margins or very narrowly separated. Ocellar tubercle shining, barely dusted, narrow part of frons grey dusted in front of front ocellus, darker, slightly shining at narrowest part, white dusted on front half, more thinly so medially. White hairs on ocellar tubercle about twice as long as the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous white hairs some of which are almost as long as those on the ocellar tubercle (variable and hairs easily lost). Occiput dark in ground colour densely covered with grey dust and outstanding white hairs, longest below; except on thinly dusted, hairless, shining triangular area behind ocellar tubercle. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable but usually relatively short, less than twice length of scape and pedicel together, sensilla in apical sulcus brown so not conspicuous. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, clavate, black, the pale yellow apical setae as long as the length of the palps. Proboscis not very long, a little shorter than twice head length, dorsally clothed with short, adpressed brown setae extending about three quarters its length. Basoventral membrane dirty brownish-white.

THORAX. Black ground colour largely obscured by blue-grey dust except along the conspicuous paramedian and antehumeral vittae where the shining black cuticle shows through, dulled by a variably thin coating of brownish to black dust dulling shine in some individuals. Paramedian vittae a little narrower than median dusted acrostichal stripe anteriorly, widening rearward stopping rather abruptly above the wing base. Antehumeral vittae interrupted at the thoracic suture, a vague blackish spot between wing base and hind part of antehumeral vittae. Occasionally a vague median darker, shinier prescutellar vittae present. Mesonotum covered with moderately long, pale yellow hair, the longest hairs as long as those on the ocellar tubercle. Scutellum more thinly dusted centrally, relatively sparsely haired on the disc, long hairs fringing the apical margin longer than those on mesonotum. Pleura dusted as on notopleuron and with similar hairs on pronotum, posterior half of the anepisternum and a few in upper middle of katepisternum.

WING. Membrane faintly brown tinged, the veins brown. Crossvein r-m a little beyond basal third of discal cell, conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

HALTERE. Pale yellow to white, base of stem slightly brownish.

LEGS. Coxae black with a coating of grey dust like that on the pleura. Remainder of legs black or very dark brown, essentially undusted so the shining cuticle is not dulled. Coxae externally and femora ventrally covered with rather long, pale yellow hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with both short adpressed white hairs, and on tibia longer, semi-erect hairs, those in basal half of tibia as long as tibia is wide.

ABDOMEN. All tergites black subshining on disc dulled by black dust, laterally on the reflexed margins densely grey dusted obscuring the ground colour, most extensive on tergite one where visible dorsally. All tergites with narrow but conspicuous and sharply demarcated yellow apical margins, on tergite one this margin disappears laterally, on remaining tergites it broadens laterally then tapers away on reflexed margin. Sternites black and densely grey dusted obscuring the ground colour, apical yellow margins obscure. Tergites and sternites all covered with fairly long, dense, erect pale to golden yellow hairs.

GENITALIA. Conspicuously large and globular. Gonocoxites black to dark brown, shining, composed of two rounded hemispheres separated by a deep sulcus. Epandrium shining black to dark brown, relatively broad compared to length. Both gonocoxite and epandrium covered in long yellow hairs. The

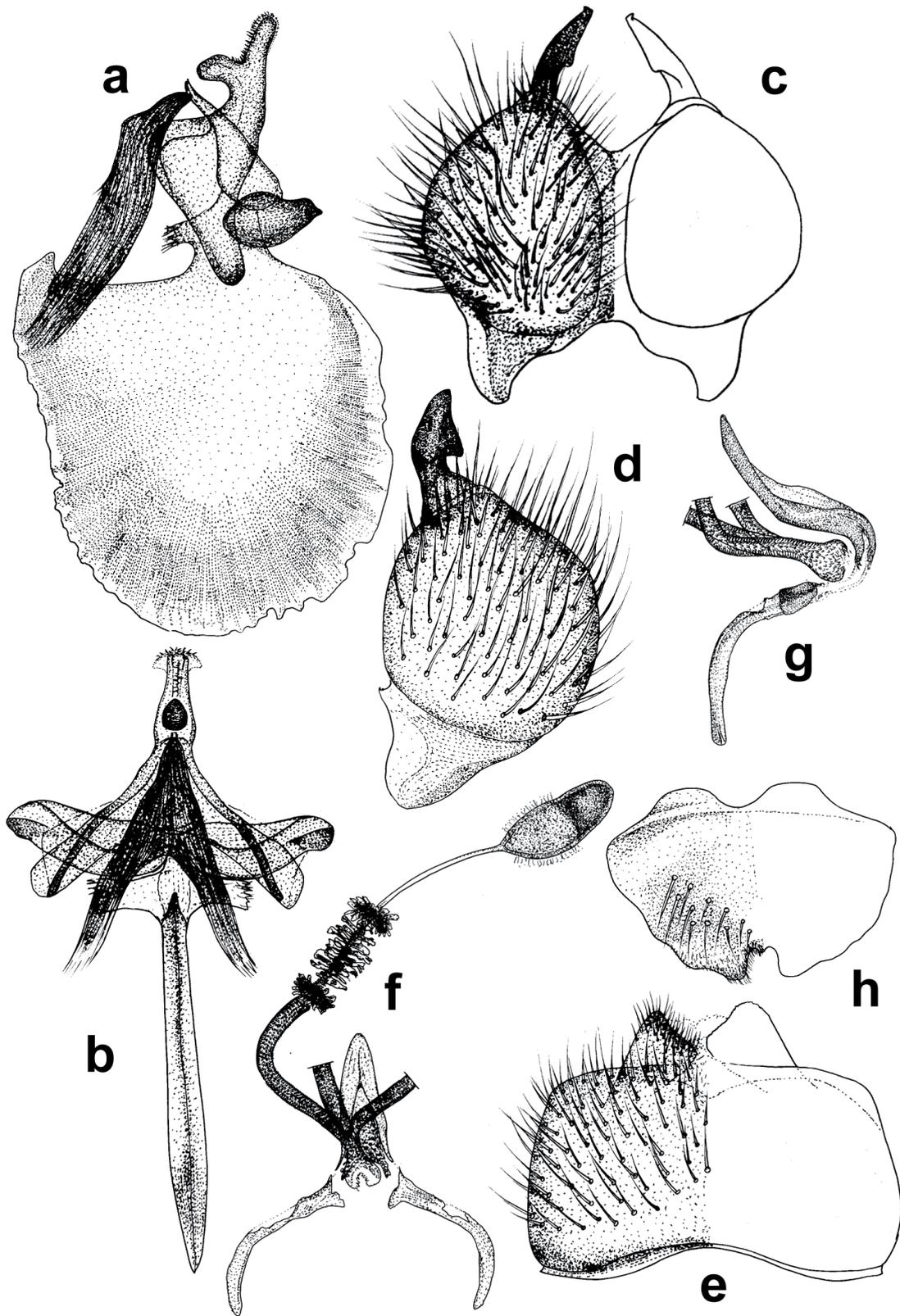


Fig. 62. *Parusia benoisti* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral. **h.** Female sternite 8 ventral.

black gonostyli can often be seen without dissection enabling the deeply incised inner basal margin, delimited proximally by a triangular tooth to be seen.

Female

Very similar to male except for broader frons, narrowest at front ocellus where it is three times or more as wide as the diameter of that ocellus. Frons widening very slightly in rear half, almost parallel before widening out in anterior half, hairs more extensive along eye margins almost to the level of the front ocellus. Hind ocellus separated from eye margin by about a third of the diameter of that ocellus. Thorax with a tendency to be browner dusted, especially along acrostichal line and margins of the dark vittae. Yellow apical margins to the tergite relatively broader, tergite eight shining with broad yellow margin, tergite nine all black. Abdominal hairing a little sparser and shorter. Proximal part of genital fork at about 45° angle to the arms, shaped like an elongate spoon, basal spermathecal ducts greatly expanded and fusing conspicuously before the common vaginal plate/genital fork forming a common duct.

Remarks

A cryptic species that seems to replace *Pru. aurata* in the northwest of Morocco. Abundantly distinct on characters of both male and female genitalia, the very broadly expanded basal spermathecal duct suggests it is closer to *Pru. cyrenaica* gen. et sp. nov. and *Pru. taeniolata* than the parapatric *Pru. aurata*.

Distribution

Northwestern Morocco (Tangiers to Casablanca).

Parusia cyrenaica gen. et sp. nov.

urn:lsid:zoobank.org:act:86B4C22C-807D-4B74-A9B1-302D5B582605

Fig. 63

Etymology

Treated as a noun in apposition, named after the former Libyan, and before that Roman, province Cyrenaica in eastern Libya where the type series was collected.

Type material

Holotype

LIBYA • ♂; “Cyrenaica, Nr. Barce [Al Mari], 14 March 1958, leg. K.M. Guichard”; NHMUK.

Paratypes

LIBYA • 2 ♂♂, 1 ♀; “Cyrenaica, Nr. Barce [Al Mari], 14 March 1958, leg. K.M. Guichard”; NHMUK.

Description

MEASUREMENTS. Body length: 4.5–5.1 mm. Wing length: 4.3–5.0 mm.

Male

HEAD. Gena and mouth margin black in ground colour, narrower than the apical breadth of a palp, gena very narrow, linear, more shining mouth margin a little wider. Frons black in ground colour hind half narrowing slightly from hind corners to just in front of the front ocellus, then widening fairly abruptly, the eye margin a little concave. Eyes separated at their narrowest by approximately twice the diameter of the front ocellus, hind ocelli narrowly separated from eye margin, less than half diameter of ocellus. Ocellar tubercle shining, thinly dusted, narrow part of frons densely blackish dusted, grey dusted on front half from point where it starts to widen, slightly paler laterally and down past antennal bases. Pale yellow to white hairs on ocellar tubercle about twice as long as the width of the frons, narrow part of frons bare, anterior

part of frons with numerous pale yellow hairs, some of which are almost as long as those on the ocellar tubercle (variable and hairs easily lost). Occiput dark in ground colour densely covered with grey dust including area behind ocellar tubercle, and outstanding pale yellow hairs, short dorsally, not overtopping ocellar tubercle, much longer ventrally where hairs are as long as those on front of mesonotum and wavy-tipped. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable but usually about twice length of scape and pedicel together, sensilla in subapical sulcus brown so not conspicuous. All antennal segments with short yellow hairs above, longest and rather dense just before subapical sulcus. Palps short but easily visible, strongly clavate, black, the yellow apical setae as long as the length of the palps and rather tufted. Proboscis not very long, approximately twice head length, dorso-laterally clothed with short, adpressed brown setae. Basoventral membrane dark brown to blackish.

THORAX. Black ground colour largely obscured by dark grey dust, paramedian and antehumeral vittae conspicuously matt black dusted, cuticle obscured. Paramedian vittae a little narrower than dusted acrostichal line anteriorly, widening rearward stopping rather abruptly above the wing base. Antehumeral vittae narrowed, but not entirely interrupted at the thoracic suture. Mesonotum rather uniformly covered with long, pale yellow hairs, the longest longer than those on the ocellar tubercle. Scutellum dark grey dusted as on mesonotum, slightly more thinly dusted medially, relatively densely haired, hairs longer than those on mesonotum especially marginally. Pleura with similar dark grey dusting, hairs on pronotum, all but lower anterior corner of anepisternum and all but rear third of katepisternum.

WING. Membrane faintly brown tinged, rather more infuscated in costal cell, cell r_1 and first basal cell, the veins dark brown. Crossvein r-m a little before middle of discal cell, conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, a little broader than the anal cell.

HALTERE. Pale yellow, base of stem slightly brownish.

LEGS. Coxae black with a coating of dark grey dust like that on the pleura. Remainder of legs black or very dark brown, essentially undusted so the shining cuticle is not dulled. Coxae externally with rather long, pale yellow hairs, anterior four femora ventrally and posteriorly similarly haired, hind femora with similar long pale yellow hairs on anterior and ventral faces, longer than the greatest depth of the femora. Femora elsewhere and tibia rather densely covered with short steeply inclined pale yellow hairs, and on tibia with some longer hairs dorsally.

ABDOMEN. All tergites black dusted, matt, becoming thinly dusted and more or less shining on tergites six and seven, laterally on the reflexed margin densely grey dusted obscuring the ground colour, most extensive on tergite one. Hairs on disc arising from small, shining circles, contrasting with the matt black remainder of disc. All tergites with very narrow but conspicuous and sharply demarcated dark yellow apical margins, on tergite one this margin barely visible laterally, on remaining tergites it broadens laterally then tapers away on reflexed margin and occasionally obscure medially. Sternites black and densely grey dusted obscuring the ground colour, apically any yellow margins very obscure, hardly visible. Tergites and sternites all covered with long, erect golden-yellow hairs.

GENITALIA. Conspicuously large and globular, even larger than closely related species (except *Pru. faesae* gen. et sp. nov.). Gonocoxites black, shining, composed of two rounded hemispheres separated by a deep sulcus. Epandrium shining black, corners rounded. Gonostyli long and relatively straight, very slightly curving in basal two thirds, curving inward more sharply in apical third, twisted, apical flange small. Both gonocoxite and epandrium covered in long yellow hairs, those on gonocoxite even longer than those on tergites.

Female

Only one specimen available, with missing head. Very similar to male except hairing generally a little shorter and paler. Proximal part of genital fork a simple sclerotised rod, basal spermathecal ducts greatly

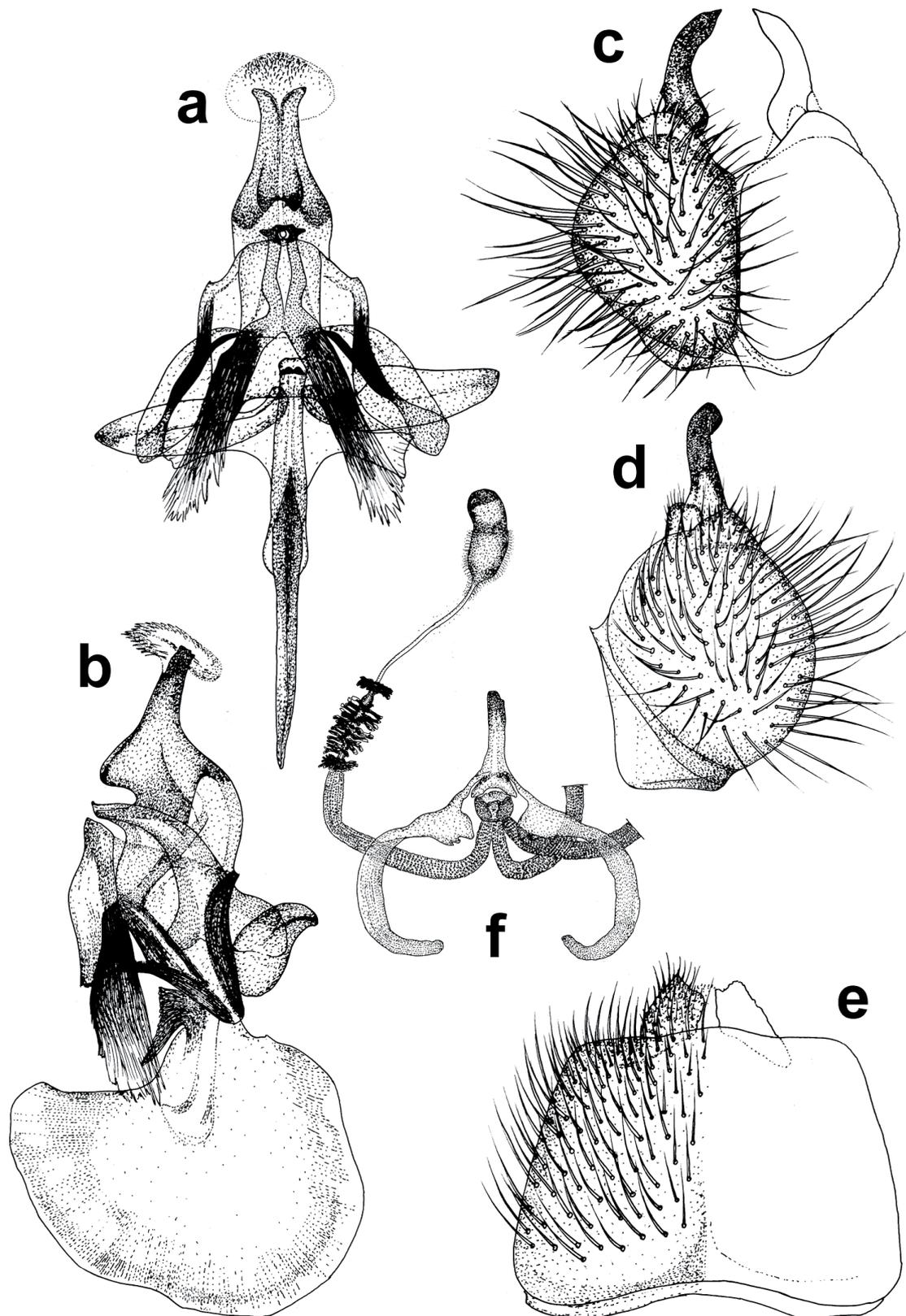


Fig. 63. *Parusia cyrenaica* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral.

expanded and joining just before the fused vaginal plate/genital fork, conspicuously long, exceeding the tip of the genital fork.

Remarks

This distinctive *Parusia* sp. represents the most westerly known extension of the genus, and is isolated from its nearest congener by more than 1000 km of Libyan and Tunisian desert. The thick basal spermathecal ducts shows an affinity with the other four species of *Parusia* gen. nov. occurring in Africa, but not obviously closest to any one of these species.

Distribution

Northeastern Libya

Parusia faesae gen. et sp. nov.

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Figs 15, 64

Etymology

Named after Jeannine Faes who, together with Jos Dils, collected a large proportion of the material used during this study.

Type material

Holotype

MOROCCO • ♂; “Guercif 500 m N34°13.838 W03°39.979 27 April 2010 Leg. Dils J. Faes J.”; NHMUK.

Paratypes

MOROCCO • 2 ♀♀; “Guercif 500 m N34°13.838 W03°39.979 27 April 2010 Leg. Dils J. Faes J.”
NHMUK • 3 ♂♂, 9 ♀♀; “Guercif 500 m N34°13.838 W03°39.979 27 April 2010 Leg. Dils J. Faes J.”;
PCJD.

Other material examined

MOROCCO • 1 ♂; “Guercif 500 m N34°13.838 W03°39.979 27 April 2010 Leg. Dils J. Faes J.”; PCJD
(excluded from type series because mostly destroyed in transit).

Description

MEASUREMENTS. Body length: 2.2–3.1 mm. Wing length: 2.2–3.2 mm.

Male

HEAD. Gena and mouth margin black to dark brown in ground colour, approximately equal to the apical breadth of a palp, grey-dusted gena exceedingly narrow, almost disappearing below, more shining mouth margin broader. Frons black to dark brown in ground colour, hind half of frons narrowing relatively abruptly, almost in line with angle of hind and front ocelli, from hind corners to just in front of the front ocellus, then widening but no abrupt change of direction, gently curved, the eye margin a little concave. Eyes separated at their narrowest by a little more than the diameter of the front ocellus, hind ocellus very narrowly separated from eye margin, almost contiguous. Ocellar tubercle shining, hardly dusted, narrow part of frons blackish dusted, greyer from some angles, grey dusted on front half from point where it starts to widen, and down past antennal bases. White hairs on ocellar tubercle a little less than twice as long as the width of the frons, narrow part of frons bare, anterior part of frons with numerous white hairs, some of which are almost as long as scape plus pedicel combined (variable and hairs easily lost). Occiput dark in ground colour grey-brown dusted, not entirely obscuring ground colour, slightly

subshining, area behind ocellar tubercle more thinly dusted, shining. Outstanding pale yellow hairs to white hairs of occiput, short dorsally, hardly overtopping ocellar tubercle, longer ventrally where hairs are as long as those on front of mesonotum but not very dense. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable but usually from one and a half to twice length of scape and pedicel together, sensilla in subapical sulcus can be pale and so conspicuous. All antennal segments with short yellow hairs above, longest just before subapical sulcus, fewer and shorter than in related species. Palps short but easily visible, less strongly clavate than related species, black, the yellow apical setae as long as the length of the palps. Proboscis relatively short, approximately one and a half times head length, dorso-laterally clothed with short, inconspicuous, adpressed brown setae. Basoventral membrane dark murky brown.

THORAX. Black ground colour largely obscured by dark grey dust, more brownish on disc, paramedian and antehumeral vittae conspicuously more thinly black dusted, cuticle not entirely obscured, subshining. Paramedian vittae narrower than dusted acrostichal line, sometimes conspicuously so, widening rearward stopping rather abruptly above the wing base, at this point equal or wider than acrostichal line. Antehumeral vittae either completely separated or narrowed, but not entirely interrupted at the thoracic suture. Mesonotum rather uniformly covered with long, pale yellow hairs, the longest longer than those on the ocellar tubercle, rather less dense than in many related species. Scutellum grey to brown dusted as on mesonotum, scantily haired, hairs similar to those on mesonotum, a little longer marginally. Pleura with similar grey dusting to the notopleuron, hairs on pronotum, dorsal and hind third of anepisternum and a few fine hairs in dorsal part of katepisternum.

WING. Membrane faintly brown tinged, the veins brown. Crossvein r-m a little beyond basal third of discal cell but before middle, conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, equal to the anal cell.

HALTERE. Pale yellow, base of stem slightly brownish.

LEGS. Coxae black with a coating of dark grey dust similar to that on the pleura. Remainder of legs black or very dark brown, very thinly dusted so the shining cuticle is hardly dulled. Coxae externally with rather long, pale yellow or white hairs, anterior four femora ventrally and posteriorly similarly haired, hind femora with similar long white hairs on anterior and ventral faces, longer than the greatest depth of the femora, although sparser than in related species. Femora elsewhere and tibia rather densely covered with short steeply inclined pale yellow or white hairs.

ABDOMEN. All tergites thinly black dusted subshining, especially on apical tergite, laterally, on the reflexed margin, densely grey-brown dusted obscuring the ground colour, most extensive on tergite one where it covers whole disc. Tergites two and three also with the brownish dust laterally more extensive and visible from above. All tergites with very narrow more or less well demarcated pale yellow apical margins, at least laterally. On tergite one this margin is obsolete laterally, but well-marked medially. On the remaining tergites it tends to be broader laterally then tapering away on reflexed margin and often obscure medially, usually darker and browner. Sternites black and densely grey dusted obscuring the ground colour, apically any yellow margins very obscure, hardly visible. Tergites and sternites all covered with long, erect white hairs.

GENITALIA. Conspicuously large and globular, approximately as voluminous as the abdomen, larger than in related species (only *cyrenaica* gen. et sp. nov. approaches these proportions). Gonocoxites black, shining, composed of two rounded hemispheres separated by a deep sulcus. Epandrium shining black, apico-lateral corners distinctly produced unlike any other member of the genus, usually visible in dried specimens. Gonostyli strongly bent inwards, outer curve almost forming a semi-circle. Apical third with

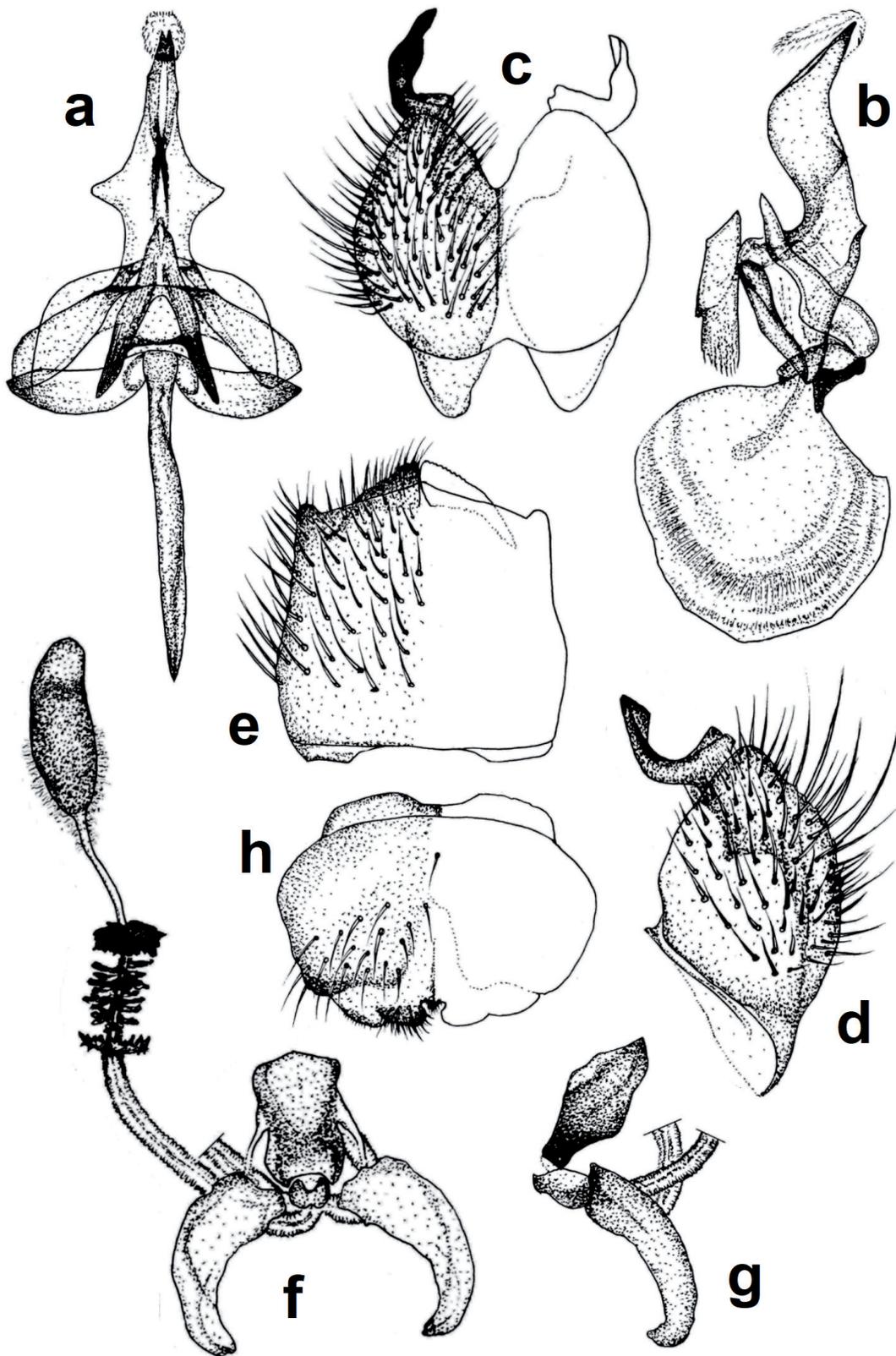


Fig. 64. *Parusia faesae* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral. **g.** Female genitalia lateral.

twisted apical flange relatively large and sub-triangular. Both gonocoxite and epandrium covered in long pale yellow to white hairs, those on gonocoxite even longer than those on tergites.

Female

Very similar to male except for broader frons, narrowest at front ocellus where it is three times or more as wide as the diameter of that ocellus. Rear half of frons widening very slightly, almost parallel before widening out in anterior half. Hind ocellus separated from eye margin by about the diameter of that ocellus. Hairs more extensive along eye margins in a single row almost to the level of the front ocellus, on anterior part of frons scattered white hairs, rarely much longer than scape. Yellow apical margins to the tergites relatively broader, although still obsolete centrally in some individuals, tergite eight shining with broad yellow margin. Sternites more obviously with yellow apical margins. Abdominal hairing a little sparser and shorter. Proximal part of genital fork at about 90° angle to the arms, rather boat-shaped, bluntly pointed, arms very robust, basal spermathecal ducts greatly expanded and fusing before the fused vaginal plate/genital fork forming a short common duct.

Remarks

Thus far only known from the type locality in Guercif Province, northeastern Morocco. A relatively small species with exceptionally large globular male genitalia, perhaps showing affinity with *Pru. benoisti* gen. et sp. nov., but could be equally closely related to several other *Parusia* gen. nov. It is another remarkable example of the strong propensity for endemism within the Usiini, and more cryptic species within the genus can be expected.

Distribution

Northeastern Morocco (Guercif).

Parusia loewi (Becker, 1906) gen. et comb. nov.
Figs 17, 31, 65

Usia loewi Becker, 1906: 219.

Etymology

Named after Friedrich Hermann Loew (1807–1879).

Type material

Lectotype (here designated)

SPAIN • ♂; “Andalusia, Rosenhauer/Coll. H. Loew/Zool. Mus. Berlin/95719 *Typus*”; ZMHB.

Paralectotype

SPAIN • 1 ♀ [on same pin. A second label, not on the pin when examined but associated with these specimens]; “*grata* Lw. ♀ det Becker”; ZMHB.

Other material examined

SPAIN • 2 ♂♂, 4 ♀♀; “Malaga Province, Marbella 29, 30 April 1983”; NHMUK • 6 ♂♂, 10 ♀♀; “2–6 May 1983 (leg. J. Bowden)[dark form]”; NHMUK • 1 ♂, 1 ♀; “Salamanca, Villar de Ciervo, Las Coronas 23–25 May 1999 yellow pan”; PCDG • 1 ♀; “6 km N. of Villar de Ciervo 26.v–2.vi.1999 1 ♀ (leg. H.-P. Tschorsnig)”; PCDG • 1 ♀; “Andalusia, Veer de la Frontera 29 March 2000 1 ♀ (leg. D.J. Greathead)”; NHMUK • 1 ♂; “Malaga (Espagne), Don José Maria, de la Fuentes”; MNHN • 2 ♀♀; “Museum Paris, Espagne, coll. Dufouri/*Usia aurata*”; MNHN • 1 ♂; “Madrid, Maniola[?], G. Sharma/*Usia/Usia aurata* Em’s/Museum Paris, Coll. J. Surcouf 1919”; MNHN • 5 ♂♂, 2 ♀♀; “Andalusia, near Padul, 783 m,

N37°01'40" W3°37'3" 2 May 2008, Leg. D.J. Gibbs"; PCDG • ♂♀ in cop.; "780 m N37°01'42" W3°37'5" 2 May 2008, Leg. D.J. Gibbs"; PCDG • 2 ♀♀; "840 m N37°02'47" W3°38'43" 1 May 2008, Leg. D.J. Gibbs"; PCDG.

Redescription

MEASUREMENTS. Body length: 2.4–5.0 mm. Wing length: 2.5–5.1 mm.

Male

HEAD. Gena and mouth margin brownish black to black in ground colour, narrower than the apical breadth of a palp, grey dusted gena narrow, linear, more shining mouth margin broader, sometimes yellowish. Eyes separated at their narrowest by twice the diameter of the front ocellus, hind ocellus separated from the eye margin by less than half the diameter of that ocellus. Frons brownish black to black in ground colour, ocellar tubercle shining, barely dusted, narrow part of frons matt blackish, noticeably converging from hind corners to well in front of anterior ocellus, then widening relatively abruptly onto anterior of frons. Front part of frons densely blue-grey dusted, rather more thinly so centrally. White hairs on ocellar tubercle conspicuously longer than the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous white hairs which are no more than half the length of those on the ocellar tubercle. Occiput dark in ground colour densely covered with grey or brownish dust, triangular area behind ocelli more thinly dusted, subshining. The whole covered with erect pale yellow to white hairs, short above just overtopping ocellar tubercle, much longer below, silky, slightly wavy but not very dense. Ommatidia uniform in size across the eyes. Antennae blackish, tip of pedicel somewhat paler in lectotype, postpedicel variable but usually approximately twice length of scape and pedicel together, sensilla in subapical sulcus sometimes whitish so conspicuous. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, strongly clavate, brown to black, the pale yellow apical setae as long as the length of the palps. Proboscis not very long, approximately one and a half head lengths, dorso-laterally clothed with short, adpressed brown setae. Basoventral membrane brown.

THORAX. Blackish ground colour largely obscured by blue-grey dust except along the conspicuous paramedian and antehumeral vittae where the shining black cuticle shows through, dulled by a variably very thin coating of brownish dust, subshining or even shining. Paramedian vittae variable a little narrower to a little broader than acrostichal dusted stripe, extending from very front of mesonotum to three quarters the way back. Antehumeral vittae divided at thoracic suture, sometimes a vague darker spot above wing base, area in front of scutellum usually darker, more thinly dusted. Mesonotum covered with moderately long, pale yellow hair, the longest hairs as long as those on the ocellar tubercle. Scutellum relatively sparsely haired on the disc, long hairs fringing the apical margin. Pleura dusted as notopleuron, with similar hairs on pronotum, posterior half of the anepisternum and a few scattered across katepisternum. Metepimeron partly yellow in lectotype, entirely dark in other specimens, glabrous.

WING. Membrane faintly brown tinged, especially in first basal cell, the veins brown. Crossvein r-m a little beyond basal third of discal cell, conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

HALTERE. Pale yellow to white, base of stem slightly brownish.

LEGS. Coxae dark with a coating of grey dust like that on the pleura. Remainder of legs black or very dark brown, only thinly dusted so not obscuring the shining cuticle. Coxae externally and femora ventrally covered with rather long, white hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with short, white hairs.

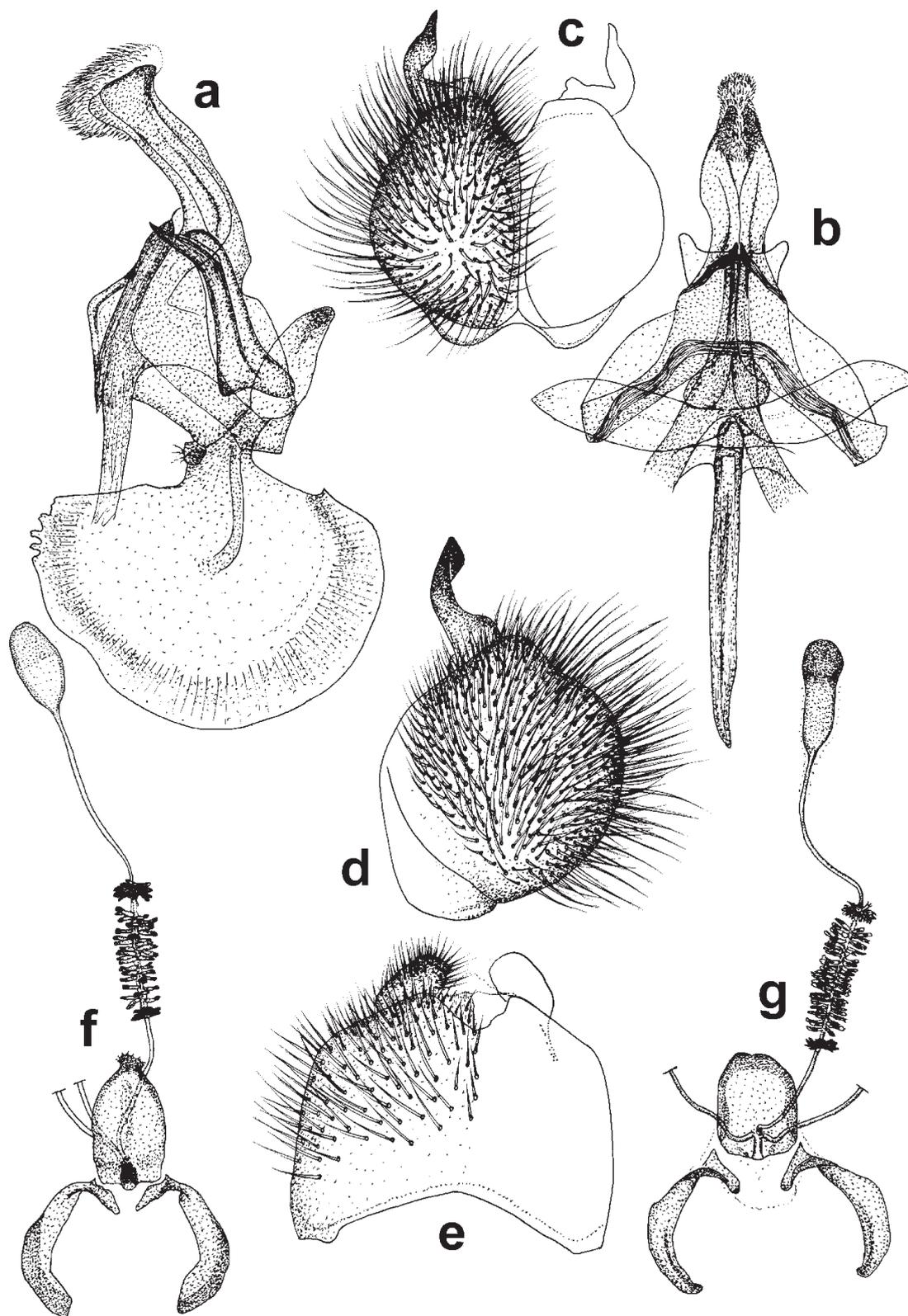


Fig. 65. *Parusia loewi* (Becker, 1906) gen. et sp. nov. **a.** Epiphallial complex ventral. **b.** Epiphallial complex lateral. **c.** Gonocoxite ventral. **d.** Gonocoxite lateral. **e.** Epandrium dorsal. **f.** Female genitalia ventral (Marbella). **g.** Female genitalia ventral (Salamanca).

ABDOMEN. All tergites black appearing undusted but rendered matt by thin dark brown dusting, dully shining on disc, tergite seven undusted, shining. Laterally on the reflexed margin densely grey dusted obscuring the ground colour, most extensive on tergite one where it extends to the scutellum. All tergites with narrow to quite broad, conspicuous and sharply demarcated yellow apical margins, narrowing laterally but even clear on tergite one here. Sternites black and densely grey dusted obscuring the ground colour, apical yellow margins less well defined. Tergites and sternites all covered with fairly long, erect white to very pale yellow hairs, longest on sternites.

GENITALIA. Conspicuously large and globular compared to most *Protypusia* gen. nov., but typical for *Parusia* gen. nov. Gonocoxites black to dark brown, shining, composed of two rounded hemispheres separated by a deep sulcus. Gonostylus sharply curved, tip at right angles to base and twisted, often visible in dried specimens. Epandrium shining black to dark brown, apico-lateral corners rounded. Both gonocoxite and epandrium covered in long whitish to pale yellow hairs, longest and densest on gonocoxite.

Female

Differs from the male in its more broadly separated eyes, three to three and a half times the diameter of the front ocellus, about one-fifth head width at narrowest point, hind ocelli separated from the eye margins by approximately twice the diameter of these ocelli. A few hairs on the middle part of the frons laterally. Hairs on legs and abdomen shorter, conspicuously so on the abdomen. Apical yellow margins to tergites rather broader, tergite eight not noticeably more shining than preceding tergites. Proximal part of genital fork strongly curved, sometimes at more than a right-angle when viewed laterally. Common spermathecal duct attached to distal end of main sclerotised part of genital fork at an acute angle so pointing towards base of abdomen or at right angles so pointing dorsally.

Dark form

A series from Malaga Province, southern Spain is significantly darker than the typical form and gives the appearance of being a different species. However, this darker appearance is due to no more than the dusting on the mesonotum being less extensive and thinner such that the ground colour shows through. In some individuals the dust also looks darker and browner but some in the series have dusting very like the typical form, just slightly less extensive. The paramedian vittae are much broader, divided by a narrow dusted acrostichal line which almost disappears posteriorly. Antehumeral vittae also more extensive, dusting on posterior part of mesonotum and scutellum inconspicuous such that these areas are subshining black. Dusting on occiput can be darker and browner. Tergites with narrower yellow apical margins. The male genitalia and female genital fork show some slight differences from the typical form but these are not sufficient to justify specific separation.

Remarks

This species seems to be the commonest and most widespread of the genus in Iberia, the other two Spanish species so far only known in Andalusia. The female genitalia suggest that it is closest to the other two Iberian species, with *Pru. aurata* showing the closest affinities in North Africa.

Distribution

Southern Spain north to Salamanca.

Parusia propinqua gen. et sp. nov.

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Fig. 66

Etymology

From Latin '*propinquus*' = 'near', 'neighbouring', 'related'; refers to the great similarity of this species to other members of the *aurata*-species group.

Type material

Holotype

SPAIN • ♂; “Andalusia, Sierra Nevada, above Padul, 1341 m, N37°02.732' W3°36.321', 1 May 2008, leg. D.J. Gibbs”; NHMUK.

Paratypes

SPAIN • 1 ♂; “Andalusia, Sierra Nevada, above Padul, 1346 m, N37°02.736' W3°36.324', 2 May 2008, leg. D.J. Gibbs”; PCDG • 1 ♂, 1 ♀; “Almeria, Uleila N37°11'56" W02°12'07" 740 m 25 March 2001, leg. J. Dils & J. Faes”; PCJD • 2 ♀♀; “Baños y Mendigo, 13 km S of Murcia, Mosa Trajectum 14 May 2004 leg. C.E. Dyte”; NHMUK • 1 ♀; “same data”; PCDG.

Description

MEASUREMENTS. Body length: 2.6–3.9 mm. Wing length: 2.7–4.2 mm.

Male

HEAD. Gena and mouth margin brownish black to black in ground colour, narrower than the apical breadth of a palp, grey dusted gena narrow, linear, more shining mouth margin broader. Eyes separated at their narrowest by two to three times the diameter of the front ocellus, hind ocellus separated from the eye margin by about half the diameter of that ocellus (on average more widely separated than in *Pru. loewi*). Ocellar tubercle shining, barely dusted, frons brownish black to black in ground colour, narrow part matt grey dusted, more blackish at narrowest part from some angles, noticeably converging from hind corners to well in front of anterior ocellus, then widening relatively abruptly onto anterior of frons. Front part of frons densely blue-grey dusted, rather more thinly so centrally. White hairs on ocellar tubercle conspicuously longer than the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous white hairs which are no more than half the length of those on the ocellar tubercle, mostly much shorter. Occiput dark in ground colour densely covered with grey or brownish dust, triangular area behind ocelli equally dusted. The whole covered with erect pale yellow to white hairs, short above just overtopping ocellar tubercle, much longer below, silky, slightly wavy but not very dense. Ommatidia uniform in size across the eyes. Antennae blackish, postpedicel variable but usually a little less than twice length of scape and pedicel together, sensilla in subapical sulcus white and conspicuous in the three male types. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, strongly clavate, brown to black, the pale yellow apical setae as long as the length of the palps. Proboscis not very long, approximately one and a half head lengths, dorso-laterally clothed with short, inclined brown setae, basoventral membrane brown.

THORAX. Black ground colour largely obscured by grey to brown dust except along the conspicuous paramedian and antehumeral vittae where the shining black cuticle shows through, dulled by a thin coating of brownish dust, subshining. Paramedian vittae variable a little narrower to a little broader than dusted acrostichal stripe, extending from very front of mesonotum to three quarters of the way back. Antehumeral vittae usually divided at thoracic suture, lacking darker spot above wing base, area in front of scutellum can be darker, more thinly dusted. Mesonotum covered with moderately long, pale yellow hair, the longest hairs as long as those on the ocellar tubercle. Scutellum relatively sparsely haired on the disc, long hairs fringing the apical margin. Pleura dusted as notopleuron, with similar hairs on pronotum, posterior half of the anepisternum and a few scattered across katapisternum. Metepimeron dark in specimens so far seen.

WING. Membrane faintly brown tinged, the veins brown, yellower basally. Crossvein r-m a little beyond basal third of discal cell, conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

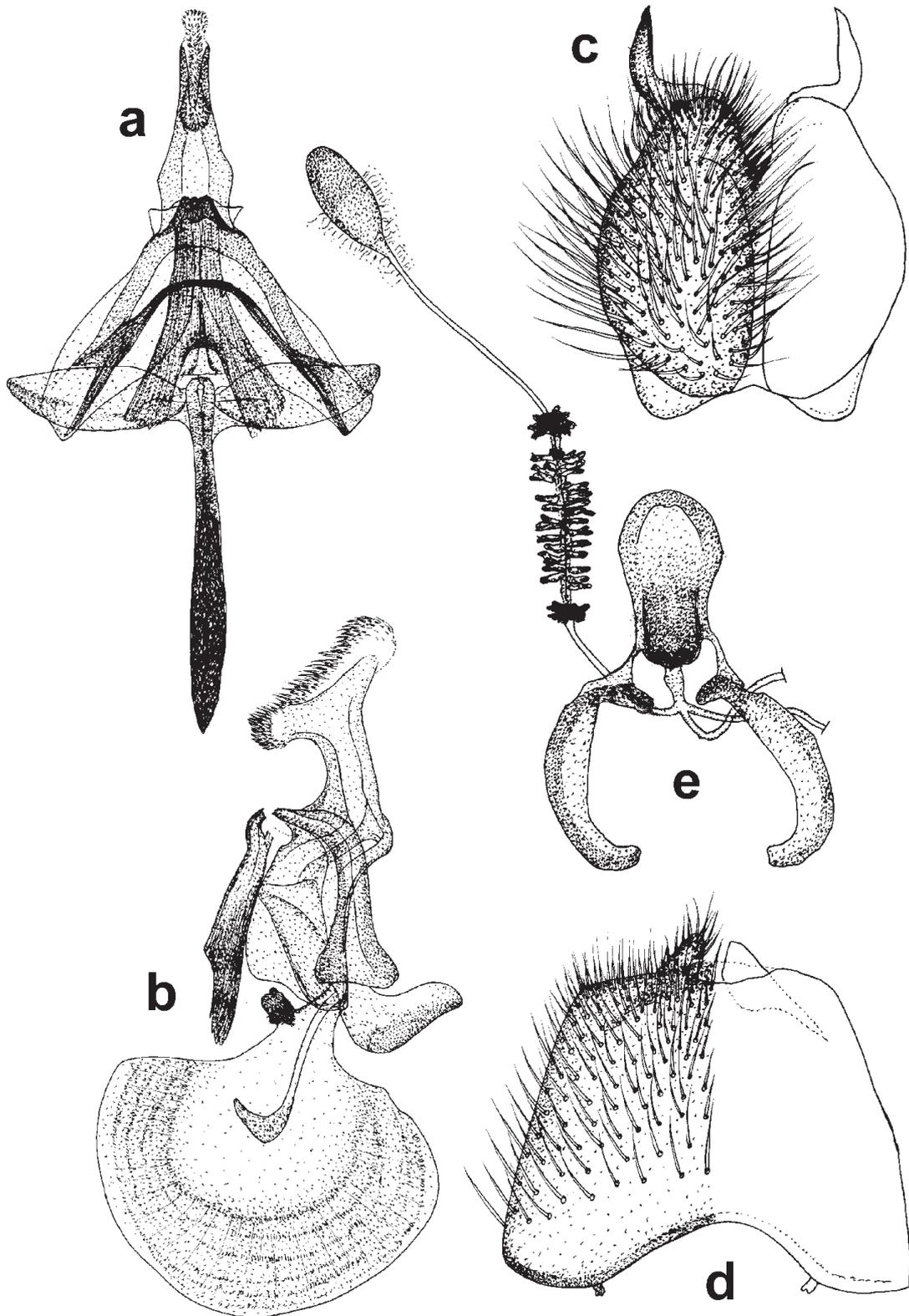


Fig. 66. *Parusia propinqua* gen. et sp. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Epaandrium dorsal. **e.** Female genitalia ventral.

HALTERE. Pale yellow to white, base of stem slightly brownish.

LEGS. Coxae dark with a coating of grey dust like that on the pleura. Remainder of legs black or very dark brown, only thinly dusted so not obscuring the shining cuticle. Coxae externally and femora ventrally covered with rather long, white hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with short, white hairs.

ABDOMEN. All tergites black and shining, but very inconspicuously dusted so not as glossy as completely undusted cuticle would be (compare gonocoxite). Tergite one more densely brown dusted so not shining, laterally reflexed margins of all tergites densely grey dusted obscuring the ground colour. All tergites with narrow to very narrow, sharply demarcated yellow apical margins, visible at least laterally even if dull yellow, often obsolete on disc and tapering away towards sternites. Sternites black and densely grey dusted obscuring the ground colour, apical yellow margins absent or very obscure. Tergites and sternites all covered with fairly long, erect yellow hairs, longest on sternites.

GENITALIA. Conspicuously large and globular compared to most *Protypusia* gen. nov., but typical for *Parusia* gen. nov. Gonocoxites black to dark brown, shining, composed of two rounded hemispheres separated by a deep sulcus. Gonostylus sharply curved, apical three-fifths at right angles to basal two-fifths. Epandrium shining black to dark brown, apico-lateral corners rounded. Both gonocoxite and epandrium covered in long whitish to pale yellow hairs, longest and densest on gonocoxite.

Female

Differs from the male in its more broadly separated eyes, about five times the diameter of the front ocellus, about one-fifth head width at narrowest point, hind ocellus separated from the eye margin by approximately one and a half times the diameter of that ocellus. A few hairs on the middle part of the frons laterally (sometimes very inconspicuous). Hairs on legs and abdomen shorter, conspicuously so on the abdomen. Apical yellow margins to tergites significantly broader and brighter, not or hardly narrowing medially, tergite eight not noticeably more shining than preceding tergites. Proximal part of genital fork flat (only two dissected specimens), spatulate, bluntly pointed. Common spermathecal duct attached to distal end of main sclerotized part of genital fork at an obtuse angle or at right angles so pointing towards tip of abdomen or dorsally.

Remarks

Very closely allied to *Pru. loewi* and occurring alongside it at the type locality although at a higher altitude. Differs mainly in the form of the epiphallus, non-genitalic features being very subtle. Based on the few specimens available, this species is smaller, darker, with less shining thoracic vittae and reduced yellow apical margins to the tergites. Females differ subtly in the form of the genital fork but may not always be reliably determinable. However, in the specimens dissected so far the form of the genital fork and attachment of the common spermathecal duct is consistent.

Distribution

Southeastern Spain.

Parusia taeniolata (Costa, 1883) stat. rev., gen. et comb. nov.

Fig. 67

Usia taeniolata Costa, 1883: 103.

Etymology

From Latin '*taenia*' = 'ribbon', 'stripe' and '*lātē*' = 'broad', 'wide'; possibly referring to yellow stripes on abdomen.

Type material

None seen, but as only one species of the “*aurata*”-group is recorded on Sardinia (type locality of *Pru. taeniolata*), it is assumed that the material cited below is conspecific with the holotype (type locality: Italy, Sardinia).

Other material examined

ALGERIA • 1 ♂; “Oran, Mékalis 1 ♂ ex. Coll. B. Aldgren (leg. L. Bleuse)”; MNHN • 1 ♂, 2 ♀♀; “Tarfaia, Algérie, A. Thery, Museum Paris, Algérie, Tarfaia, A. Théry 1902”; MNHN.

FRANCE • 2 ♂♂, 3 ♀♀; “Corsica, Ajaccio, 27 May 1951 coll. A. Bayard, *Usia aurata* Fabric, Sadt., Museum Paris ex coll. Hesse”; MNHN • 1 ♂; “Bonifacio 17/596, Museum Paris, Coll. Abeille de Perrin 1919, *Usia aurata*”; MNHN.

ITALY • 1 ♀; “Sardegna, Cagliari, Domus de Maria N38°56'02" E08°52'14" 50 m 14 May 1998”; PCJD • 5 ♂♂, 1 ♀; “Camisa N39°18'06" E09°31'24" 50 m 16 May 1998”; PCJD • 1 ♂, 3 ♀♀; “Oristano, Sènéghe N40°06'44" E08°36'48" 600 m 19 May 1998”; PCJD • 1 ♂; “Nuoro, Burruiles N40°43'46" E09°39'24" 50 m 12 May 1998”; PCJD • 4 ♂♂, 6 ♀♀; “Escalaplano N39°38'31" E09°21'11" 350 m 16 May 1998”; PCJD • 1 ♂, 3 ♀♀; “Seùlo N39°53'32" E09°11'29" 400 m 17 May 1998”; PCJD • 1 ♂, 1 ♀; “Ortueri N40°00'21" E09°02'41" 450 m 18 May 1998”; PCJD • 1 ♂; “Desulo N40°01'55" E09°14'56" 1350 m 20 May 1998”; PCJD • 1 ♀; “Tertenia N39°34'56" E09°35'39" 100 m 21 May 1998”; PCJD • 2 ♂♂, 2 ♀♀; “Talana N39°59'34" E09°36'22" 50 m 22 May 1998”; PCJD • 1 ♂; “Ulassai N39°46'05" E09°30'37" 750 m 22 May 1998”; PCJD • 1 ♂; “Cardedu N39°46'47" E09°40'06" 0 m 22 May 1998 (leg. J. Dils & J. Faes)”; PCJD • 1 ♂, 3 ♀♀; “Sardegna (Cagliari) Isola, San Pietro Aprile 2000, M. Zillich legit”; CNBFVR • 1 ♀; “Sardegna (Cagliaei), Seulo dintorni Sardali 780 m, UTM 32 S 0523700 4408453, 17 May 2008 retino, G. Nardi P. Audisio, M. Bardiani M. Trizzino leg., Progetto Sardegna”; CNBFVR.

TUNISIA • 1 ♂, 1 ♀; “Fernana oued [valley], meadow 14 May 1995 (leg. M.J. Ebejer)”; PCME.

Redescription

MEASUREMENTS. Body length: 2.8–4.8 mm. Wing length: 2.6–4.6 mm.

Male

HEAD. Gena and mouth margin black or dark brown in ground colour, narrower than the apical breadth of a palp, grey dusted gena narrow, linear, more shining mouth margin a little broader. Frons black or dark brown in ground colour, hind half narrowing distinctly from hind corners to just in front of anterior ocellus where more or less parallel, until eyes diverge fairly abruptly on to anterior part, then narrowing down past antennae. Eyes separated at their narrowest by two to two and a half times the diameter of the front ocellus, frons at narrowest one seventh to one eighth head width, hind ocellus separated from the eye margin less than half diameter of respective ocellus, almost touching in some. Ocellar tubercle shining to subshining, thinly dusted but rather variable, narrow part of frons grey or brownish dusted, but blackish in part from some angles, this colour narrowly continued down gena in some specimens. Anterior part of frons grey-white dusted, often more thinly so medially where dark ground colour shows from some angles. Whitish-yellow hairs on ocellar tubercle relatively short, a little longer than the width of the frons at rear, narrow part of frons bare, anterior part of frons with numerous inconspicuous short white hairs mostly barely longer than scape, inclined at 45°. Occiput dark in ground colour densely covered with grey dust, brownish tinged dorsally, completely obscuring ground colour, thinner and subshining on triangular area behind ocellar tubercle. Yellow to white hairs dorsally not or only just overtopping ocellar tubercle, tips curved anteriorly, hairs rather longer below, silky white, often wavy-tipped. Ommatidia uniform in size across the eyes. Antennae black, postpedicel variable but relatively

long, a little more than twice length of scape and pedicel together (tends to be relatively smaller in small individuals), sensilla in subapical sulcus can be pale and conspicuous. All antennal segments with short pale brown hairs above, longest just before subapical sulcus. Palps short but easily visible, strongly clavate, brown to black, the pale yellow apical setae as long as the length of the palps or even longer. Proboscis short, only about twice head length, often less, baso-laterally on dorsal surface with abundant, semi-erect brown hairs, diminishing in size towards tip. Basoventral membrane murky brown.

THORAX. Black cuticle dulled by dense grey-brown dust, often with a golden tinge, except along well defined paramedian and antehumeral vittae where the dusting is more blackish to brownish, only slightly subshining. Paramedian vittae clear to just behind wings, diverging slightly but hardly widening rearwards, dusted acrostichal stripe approximately same width as paramedian vittae, slightly widening rearwards. Antehumeral vittae interrupted at the thoracic suture, usually completely. Mesonotum covered with moderately long, white to pale yellow hair, the longest hairs longer than those on the ocellar tubercle but rather variable. Scutellum dusted as mesonotum, sparsely haired on the disc, hairs fringing the apical margin longer than those on mesonotum. Pleura dusted as mesonotum laterally, white hairs on pronotum, posterior half of the anepisternum and katepisternum dorsally.

WING. Membrane hyaline, hardly yellow-brown tinged, the veins brown, yellower basally and on subcosta. Crossvein r-m beyond basal third of discal cell, sometimes almost at mid-point conspicuously beyond m-cu. Anal lobe moderately developed with evenly convex margin, about as broad as the anal cell.

HALTERE. Pale yellow to white, base of stem infuscated.

LEGS. Coxae black with a coating of grey dust like that on the pleura, obscuring ground colour. Remainder of legs dark brown to black, essentially undusted so the shining cuticle is not much dulled. Coxae externally and femora ventrally and posteriorly on front femora, covered with rather long, pale yellow or white hairs, on the femora longer than the greatest depth of the femora. Femora dorsally and tibia rather densely covered with both short adpressed white hairs, and on tibia a few longer, semi-erect hairs, especially at base.

ABDOMEN. All tergites velvety black, dusting on disc black, laterally on the reflexed margin blue-grey dusted obscuring the ground colour, most extensive on tergite one where it just extends on to disc which is browner than remaining tergites. Middle tergites with relatively broad, conspicuous and sharply demarcated bright yellow apical margins, can be narrower and duller in smaller individuals, but clear at least laterally. These yellow margins can be narrower on middle tergites, but on average are equally broad throughout on all tergites, laterally tapering away on reflexed margin. Sternites black, grey dusted like sides of tergites, obscuring the ground colour, apical yellow margins while less striking than on tergites, complete and almost as broad. Tergites and sternites all covered with relatively long pale yellow hairs, mostly longer than length of respective tergite, longest on sternites.

GENITALIA. Very large and globular, as deep as abdomen and up to a third its length (including genitalia), relatively even larger in small individuals. Gonocoxites shining black, composed of two rounded hemispheres separated by a deep sulcus. Epandrium also shining black, corners rounded, medially membranous and yellow-brown (often difficult to see in dried material). Gonostylus, short, sharply bent inwards but not quite at a right angle, basal and apical part approximately equal. Both gonocoxite and epandrium covered in long yellow hairs, longer than on tergites, especially so on gonocoxite.

Female

Very similar to male except for broader frons, narrowest at rear, being one-fifth to one-fourth head width, hind ocellus separated from eye by about diameter of hind ocellus. Frons widening more evenly

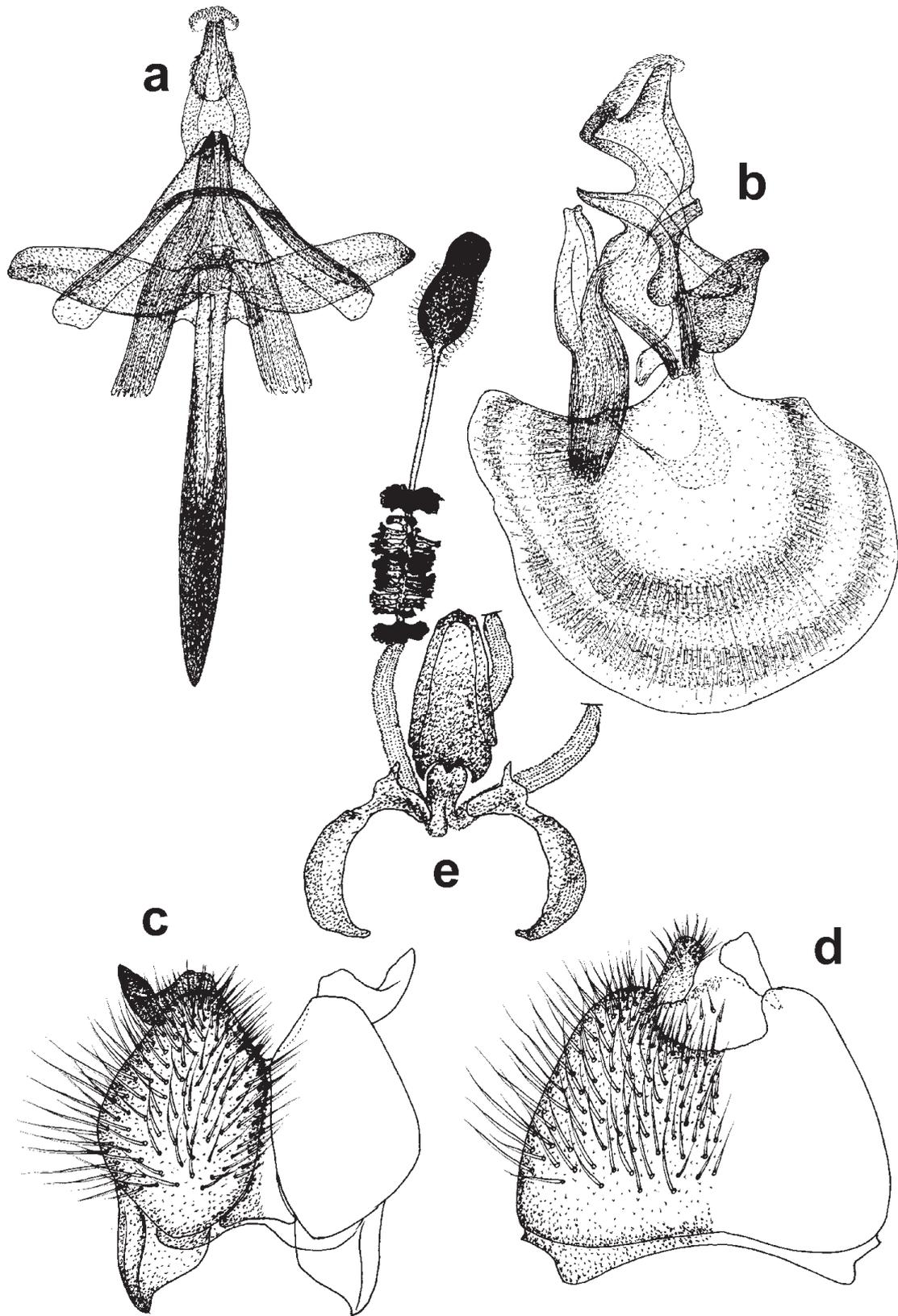


Fig. 67. *Parusia taeniolata* (Costa, 1883) stat. rev., gen. et comb. nov. **a.** Epiphallic complex ventral. **b.** Epiphallic complex lateral. **c.** Gonocoxite ventral. **d.** Epandrium dorsal. **e.** Female genitalia ventral.

towards the front, hairs more extensive, irregularly uniserial along eye margins to level of front ocellus. Gena and mouth margin conspicuously wider, especially the shining mouth margin, about as wide as palp apically. Thorax very similar, tending to be rather more yellowish-brown dusted, hairing almost identical. Yellow apical margins to the tergite as striking as in male, or even broader especially on apical tergites, continuing broadly onto reflexed margin where abruptly narrow close to edge. Abdominal hairing distinctly shorter. Proximal part of genital fork almost flat, not strongly angled with the arms, broadest closest to base, blunt ended attached to arms by thin, linear unsclerotised strip. Basal spermathecal ducts much expanded relative to apical ducts, short, not extending beyond tip of genital fork.

Remarks

Becker's (1906) synonymisation of *Pru. taeniolata* is entirely understandable given that the type is a female and he did not examine the genitalia. However, both male and female genitalia show that this species is quite distinct from *Pru. aurata*. Perhaps closest to *Pru. benoisti* gen. et sp. nov. or *Pru. cyrenaica* gen. et sp. nov., and furthest from the three Iberian species, suggesting it is derived from an ancestor that arrived on the Tyrrhenian Islands from Africa.

The distribution of this species is rather surprising being on both the Tyrrhenian Islands and in northern Tunisia and Algeria. There is no reason to doubt these records, although some are very old, they are numerous, and the two from Tunisia are recent. It appears that having differentiated on the Tyrrhenian Islands, this species has reinvaded North Africa.

Distribution

Algeria, France (Corsica), Italy (Sardinia), Tunisia.

Excluded species

Most of the following species were included in *Usia* or *Parageron* s. lat. by Evenhuis & Greathead (1999) but have been found during the course of this study not, or almost certainly not, to belong here. Included in the following list are notes on other species already recognised as *Apolysis* but new information worth bringing to light was found while examining types for this review.

Apolysis beijingensis (Yang & Yang, 1994)

Parageron beijingensis Yang & Yang, 1994: 273.

Type material (not examined)

Holotype

CHINA • 1 ♂; “Beijing, Haidian, China Agriculture University (N 40° 01' 26" E 116° 16' 50"), 4. V. 1955, Jikun Yang”; CAU.

Remarks

It is clear from the type description that this taxon belongs in *Apolysis* and was removed to this genus by Yao *et al.* (2010: 21).

Distribution

China (Beijing).

Apolysis bicolor (Eflatoun, 1945) comb. nov.

Usia bicolor Eflatoun, 1945: 206.

Usia eflatouni Venturi, 1948: 129 (new replacement name, preoccupied by *bicolor* Macquart, 1855 when in *Usia*).

Type material (not examined)

Syntypes

EGYPT • 2 ♀♀; “Kewal El Nedayet (S.E. Desert), 23 February 1938 (Eflatoun 1945)”; ESEC.

Photographs indicate that both are destroyed or almost so.

Remarks

Because Eflatoun (1945) described this species from two females only, and the key uses characters that are highly likely to be variable (leg colour), identifying any non-type material with *A. bicolor* is exceedingly problematical.

None of the specimens available to me can confidently be assigned to this species, although some are exceedingly close, agreeing in nearly all features. It seems clear that this tiny fly with very short mesonotal vestiture has many of the characters of *Apolysis* but few characters that would point towards *Parageron* s. lat. The illustration of the head laterally in Eflatoun (1945: pl. 19 fig. 303) clearly seems to show the apico-dorsal arista diagnostic of *Apolysis*. This tiny feature, often going unnoticed by former workers, and difficult to see even in specimens under the microscope, could be dismissed as an artefact. However, in pls 19–21, where heads of certain *Apolysis* are depicted this arista is apparent, but where certain *Protypusia* gen. nov. are depicted it is absent. In some illustrations the basal sensilla can be seen (e.g., pl. 20 figs 322, 327, *Usia (Micrusia) ignorata* Becker) illustrated quite differently to the apical arista of *Apolysis*. At the time, *Apolysis* included only species lacking vein m-m, species with this cross-vein being placed in *Oligodranes* or *Usia* and the taxonomic importance of the articulating arista had not been recognised. It would seem that even if Eflatoun was unaware of the value of this character, such was his attention to detail that he illustrated it.

Judging from the type description and the plate in the Smithsonian Institution Archives [Image no. SIA2012-7879], specimens from Israel that were examined are very close to this species and certainly belong in *Apolysis*, and so I am confident *A. bicolor* should also be placed there.

This action causes the preoccupation of *Oligodranes bicolor* Melander, 1946, currently in *Apolysis*, so a new replacement name for the former is erected in the next section.

Distribution

Egypt (Kewal El Nedayet, Southeast Desert)

Apolysis elbae (Eflatoun, 1945) comb. nov.

Usia elbae Eflatoun, 1945: 210.

Type material

Lectotype (here designated)

EGYPT • ♂ (pinned through circular card, in good condition); “Gebel Elba, South Eastern Desert, 15,3 to end April 1929/Zool. Dep. Collection, Egyptian University, Collection Tewfik/*Usia elbae* Effl., Det. Eflatoun”; TAU.

Paralectotype

EGYPT • 1 ♀ (pinned through circular card, in good condition, thorax partially greasy); “Gebel Elba, South Eastern Desert, 15,3 to end April 1929/Zool. Dep. Collection, Egyptian University, Collection Tewfik/*Usia elbae* Effl., Det. Eflatoun”; TAU.

Remarks

Efflatoun (1945) based his description of this species on more than 40 males and 50 females, mostly from Gebel Elba, southwestern Egypt, and two males from Wadi Feran [sic = Feiran], South Sinai. While it has not been possible to visit the collections in Egypt, where many of the syntypes still survive, two syntypes in TAU were loaned to me and are here designated as lectotype and paralectotype.

A very small species, readily diagnosed as *Apolysis* from the distal arista in the apico-dorsal sulcus of the postpedicel, sparsely short-haired disc of mesonotum, elongate discal cell, A1 running dead straight to wing margin, A1+CuA₂ (petiole of anal cell) long, slender short-haired palps and form of the form and orientation of the male hypopygium. Neither the lectotype or paralectotype has been dissected as this would not increase confidence of generic placement in *Apolysis* as currently understood.

Distribution

Egypt (Gebel Elba, Wadi Edeib and Wadi Kansissrob, Southwestern Desert, and Wadi Feran [sic = Feiran], South Sinai).

Apolysis flavipes (Efflatoun, 1945) comb. nov.

Usia flavipes Efflatoun, 1945: 212.

Type material

Holotype (not examined)

EGYPT • ♀; “Wadi El-Lega (South Sanai) June 1941 leg. Efflatoun (Efflatoun 1945)”; ESEC.

The female holotype in ESEC is destroyed, photos show that only the pin, mount and labels exist.

Other material examined

Neotype (here designated)

ISRAEL • ♀ (glued to small white card point, in perfect condition); “Arava Valley, Iddan, side wadi below date orchard, -640ft. el., malaise, 17-IV-1996, M.E. Irwin, 30°49’05”N 35°16’55”E”; TAU.

Additional specimens (from Neotype locality)

ISRAEL • 1 ♀; “Arava Valley, Iddan, side wadi below date orchard, -640ft. el., malaise, 12-IV-1996”
TAU • 1 ♀; “same location 14-IV-1996”; TAU • 1 ♀; “same location 17-IV-1996”; TAU • 2 ♂♂; “same location 18/19-IV-1996”; TAU • 1 ♂, 2 ♀♀; “same location 22-IV-1996”; TAU • 1 ♂; “same location 25-IV-1996”; TAU • 2 ♀♀; “same location 28-IV-1996”; TAU • 2 ♀♀; “same location 30-IV-1996”; TAU.

Remarks

Efflatoun (1945) described this species from just one female specimen, now unfortunately destroyed, although not before a plate was completed of it. Searching for the type, photographs of the relevant drawers from the Egyptian Entomological Society collection were made and show just a pin, mount and labels standing over this name. I thus conclude the holotype is destroyed and propose a neotype for it to fix the name and help avoid confusion with other similar-looking species in this genus.

Efflatoun’s (1945) original description plus the plate in the Smithsonian Institution Archives [Image no. SIA2012-7882] refer to a distinctive species, most particularly the contrasting ivory-white scape is a feature not seen in other species. The neotype and all other specimens in the series cited above share this unusual feature and fit very closely with Efflatoun’s description and the plate in the Smithsonian archives. There is a degree of variation in the series (as would be expected) that Efflatoun could not have appreciated

from his single specimen. The legs vary in the degree of infuscation, in some front femora and tibia not quite clear yellow. Pleura often more extensively yellow than is suggested from the type description. Base of postpedicel externally often pale (as in Efflatoun's type), but in some this is not apparent.

Efflatoun's holotype was collected in Wadi El-Lega (South Sinai). This is about 320 km south of the collecting locality of the neotype in the Negev. Although not close, the situation is very comparable, a wadi in rocky desert with sparse vegetation (from Google Maps) so a similar biotope.

Distribution

Egypt (Sinai), Israel (Negev).

Usia grisea Efflatoun, 1945, unplaced Usiinae
Fig. 68

Usia grisea Efflatoun, 1945: 214.

Type material

Holotype (not examined)

EGYPT • ♂; "Wadi Ehameib (West Elba Mountain). 28 February 1938, leg. Mohamed Tewfik Effendi (Efflatoun 1945)"; ESEC.

The holotype male is in ESEC, photographs suggest that it still exists but are not sufficient to read the data labels.

Remarks

With the holotype being inaccessible, and no non-type material running to this species nor fitting Efflatoun's (1945) description, the placement of this taxon is difficult. The plate in the Smithsonian archive [Image no. SIA2012-7883] (Fig. 68) seems to show a typical *Parageron* s. lat. (*Protypusia* gen. nov.), relatively robust, short postpedicel, long hair across mesonotum, short discal cell, $A_1 + CuA_2$ (petiole of anal cell) short and A_1 angled where it meets CuA_2 just before wing margin (left wing only). On the other hand, it is a tiny species and Efflatoun keyed it close to *A. elbae*, compares it to *A. elbae* in the description, and appears to illustrate the *Apolysis* articulating arista in Efflatoun (1945: pl. 20 fig. 319).

Given the contradictory evidence, and the fact that the holotype persists, assigning it to a genus here cannot be justified. The possibility that it is conspecific with one of the species of *Protypusia* gen. nov. treated above has been researched, but none fit the description of *U. grisea* very closely. However, it could well belong in *Protypusia* and this is accounted for in the key.

Distribution

The single male was collected in Wadi Ehameib, West Elba Mountain, close to the Sudanese border.

Apolysis marginata (Brunetti, 1909) comb. nov.

Usia marginata Brunetti, 1909: 228.

Type material

Holotype (not examined)

INDIA • ♂; "Simla [= Shimla], Himachal Pradesh 16 May [19]09 leg. Dr. Annandale (Brunetti 1909)"; NZSI.

Remarks

Very likely belongs in *Apolysis*, non-type material probably of this taxon in the NHMUK was examined and belongs in *Apolysis*. Examination of the type to confirm this combination is desirable. Removed to unplaced species of Usiinae in Evenhuis (2015).



Fig. 68. *Usia grisea* Efflatoun, 1945, habitus, Smithsonian Institution Archives. Image SIA2012-7883.

Distribution

India (Himachal Pradesh).

Apolysis minuscula (Efflatoun, 1945) comb. nov.

Usia minuscula Efflatoun, 1945: 224.

Type material (not examined)

Syntypes

EGYPT • “Gebel Elba (Wadi Edeib and Wadi Kanssissrob), south Eastern Desert. Mid-March to end-April 1928 (Efflatoun 1945)”; ESEC.

Syntypes in ESEC and EFC not seen but low-resolution photograph of the draw containing them obtained.

Remarks

Efflatoun (1945) described this species from four males and 25 females collected in 1928. Of these 29, 12 remain in ESEC (several mounts still apparently with intact specimens) and 14 in EFC (most still more or less intact) making 26, the whereabouts of the remaining three is unknown. It is a very small species that Efflatoun (1945) compares to *A. elbae*, differing largely in the extent of yellow, colour of mesonotal dusting and in the male only the dark spot on haltere knob missing in *A. minuscula*, all characters that can be variable in *Usiinae*. Eight specimens from Israel key to this species in Efflatoun (1945) and closely agree with his description and these certainly belong in *Apolysis*. Additionally, Efflatoun (1945: pl 21 fig. 341) illustrates the hypopygium in lateral view which is of the *Apolysis* type and not of *Parageron* s. lat. type.

Small discrepancies with the type description and illustrations suggest that the Israeli specimens are in fact an undescribed species closely allied to *A. minuscula* rather than *A. minuscula* itself. Additionally, the considerable distance between the type locality of *A. minuscula* at Gabel Elba in the South-eastern Desert of Egypt and the collecting locality of the Israeli specimens in the Negev Desert, makes it likely they are different species.

Removing this species to *Apolysis* causes the preoccupation of *Apolysis minuscula* Hess, 1975 so this species is given a new replacement name below.

Distribution

Egypt (Gebel Elba (Wadi Edeib and Wadi Kanssissrob, South-eastern Desert).

Apolysis parvula (Efflatoun, 1945) comb. nov.

Usia parvula Efflatoun, 1945: 229.

Type material (not examined)

Syntypes

EGYPT • 2 ♂♂; “Wadi Ehameib (West Gebel Elba, South-Eastern Desert) 28 February 1938 Leg. Mohamed Tewfik Effendi”; ESEC.

Photograph of the draw in ESEC shows two specimens with red labels standing over this name. At the time the photograph was taken they both appear to be intact, but the resolution is insufficient to be sure of their condition.

Remarks

This very small species keys next to *A. elbae* in Efflatoun (1945) and is compared to this species in the original description. The diagnostic characters Efflatoun (1945) uses to identify his two specimens from *A. elbae* are smaller head and darker legs with yellow-red colour of knees less extensive. Characters apparent in the illustrations in Efflatoun (1945) and the Smithsonian Archives plate [Image no. SIA2012-7891] also show this taxon to be *Apolysis*, eyes extensively confluent, A_1 running straight to wing margin with long petiole to anal cell, shape of postpedicel apparently with apical arista and type of hypopygium.

Distribution

Egypt (Wadi Ehameib, West Gebel Elba, South-eastern Desert).

Apolysis sedophila (Brunetti, 1909)

Usia sedophila Brunetti, 1909: 227.

Type material

Syntypes

INDIA • 3 ♀♀; “Syntype/*Usia sedophila* Brunetti, Cotype/Syntype *Usia sedophila* Brunetti. det. J.E. Chainey 1986/[leg.] Annandale, Simla, Alt. 7000ft., 16 May [19]09/On flowers of *Sedum rosulatum*/Recd. in exch., from, Indian Museum., Calcutta., 1910-14/*Usia sedophila* Brun ♂♀”; NHMUK.

Other material examined

INDIA • 7 ♀♀; “On *Sedum* flowers/India, Phagu to Kufri, Simla Hills, 8-9000ft., 21 May 1916/[leg.] Annandale & Kemp/Standing over *sedophila* Brunetti, in J. Bowden Coll., BMNH(E) 2003-159”; NHMUK.

Remarks

Although originally described in *Usia* this species was moved to *Apolysis* by Evenhuis & Greathead (1999) and this is confirmed here with some notes on the syntypes.

Despite the suggestion on one label, all specimens in the NHMUK, both syntypes and non-type material, are females. While all the seven non-type specimens are conspecific, and are the same species as two of the syntypes, the third (with the cotype label) seems to be a different taxon. All 10 specimens are *Apolysis* as this genus is currently defined so it is reasonable to assume that any other syntypes in Indian museums will also be *Apolysis*. Thus, although the specific identity of *A. sedophila* is currently uncertain, that it belongs in *Apolysis* is certain.

Distribution

India (Himachal Pradesh), Pakistan.

Apolysis turkmenica (Paramonov, 1947) comb. nov.

Parageron turkmenicus Paramonov, 1947: 218.

Type material

Holotype

TURKMENISTAN • ♂; “Askhabad, Transcaspia 23 April 1926 1 ♂ (leg. S.J. Paramonov)/*Oligodranes modestus* Lw. S. Paramonov det. ♂/*Parageron turkmenicus* sp. Nov ♂ S. Paramonov det./Holotypus/Zool. Mus. Berlin”; ZMHB.

Other material examined

UZBEKISTAN • 1 ♂; “Samarkand, along river Zeravshan N39°38' E67°04' 22 May 1989 1 ♂”; NHMUK
 • 1 ♂; “2 km E, pasture N39°39' E67°01' 22 May 1989 1 ♂ (leg. Barták, coll. D.J. Greathead)”; NHMUK
 • 1 ♀; “Kizilkum, Fedchenko/Coll. H.Loew/Typus/*Oligodranes modestus* cotypus Lw ♀/Кизилькумъ [Kizilkum]/*Usia* sp. Dr. E.O. Engel det/Zool. Mus. Berlin [this specimen is part of the type series of *Oligodranes modestus* Loew, 1873 (placed in *Parageron* by Evenhuis & Greathead (1999), Evenhuis & Greathead (2015) and in *Protypusia* in this review) but is certainly an *Apolysis* and very likely an example of *A. turkmenicus*”]; ZMHB.

Remarks

Unfortunately, the holotype now lacks antennae making a generic diagnosis difficult. However, it is a very small, slender-bodied species with holoptic eyes, a long, narrow discal cell and broadly developed anal lobe, all characters typical of *Apolysis*. The genitalia are very small and in the undissected specimen were retracted into the apical tergites rendering them invisible. Upon dissection, it became evident that the genitalia are of the *Apolysis* type, rotated 90°, gonostylus sub-bifurcate, and epiphallus simple. A particularly interesting feature is the apparent absence of the lateral ejaculatory apodeme, a condition found in other *Apolysis* but never in *Usiini*. Comparison with two further males from the Greathead collection (in NHMUK) and dissection of a probable female provide further evidence for the placing of this species in *Apolysis*.

Distribution

Turkmenistan, Uzbekistan.

Apolysis volkovitshi (Zaitzev, 1996) comb. nov.

Parageron volkovitshi Zaitzev, 1996: 693.

Type material (not examined)**Holotype**

ISRAEL • ♀; “loc. No. 31, Upper Galilee, N. Hermon, 10 km E of Qiryat Shemona 2-3 May 1994 1 ♀ Leg. M.G. Volkovitsh and M.Yu. Dolgovskaya (Zaitzev 1996)”; ZIN.

Other material examined

ISRAEL • 1 ♀; “Ben Shemen, 19 March 2002, L. Friedman”; TAU • 1 ♀; “Gilboa’, HarShaul, 4 April 2007, L. Friedman”; TAU.

GREECE • 4 ♀♀; “Metora, 26 May [19]75, D.J. Greathead”; NHMUK.

Remarks

Unfortunately, I have not been able to see the holotype in St Petersburg (ZIN), nor obtain any photographs. However, in his type description of the single female available Zaitzev (1996: 1080, fig. 21) illustrated the postpedicel quite clearly showing the arista in the subapical sulcus. This is after Evenhuis & Greathead (1990) had redefined the *Usiinae* so it should have been described in *Apolysis*.

Non-type material from Israel agrees closely with the type description and one of these specimens is from Lower Galilee, only about 100 km from the type locality of *A. volkovitshi*. Four female specimens from Greece determined by D.J. Greathead as *Apolysis fumipennis* Loew, are conspecific with the two from Israel. Zaitzev (1996) compared his female specimen only with the other two *Parageron* he described in the same paper, making no mention of any previously described *Parageron* or *Apolysis*.

Distribution

Greece, Israel.

Replacement names

Apolysis melanderi nom. nov.

Oligodranes bicolor Melander, 1946: 473. Type locality: USA (California) [Lectotype designated by Evenhuis & Greathead (1999: 667) in USNM]. [Preoccupied by *Apolysis bicolor* (Eflatoun, 1945)].

Distribution

Nearctic: USA (California).

Apolysis hessei nom. nov.

Apolysis minuscula Hesse, 1975: 285. Type locality: South Africa (Northern Cape) [Holotype in SAMC]. [Preoccupied by *Apolysis minuscula* Eflatoun, 1945].

Distribution

Afrotropical: South Africa (Northern Cape).

Discussion

Since first erected by Paramonov in 1929, *Parageron* s. lat. has been defined in various ways. As more species were described, or transferred from other genera to *Parageron* s. lat., then the definition had to be refined, but always remained rather awkward. *Usia* s. lat. are more uniform, and relatively easy to define, but almost all of the characters used in the past to define *Parageron* s. lat. are beset by exceptions. In the keys to the genera in parts one and two of my Usiini revision (Gibbs 2011, 2014) I was forced to use rather unsatisfactory combinations of characters and either/or to account for exceptions. The difficulty of finding a clear definition of *Parageron* s. lat. suggested that some species did not really belong here and either needed moving to *Usia* or placing in new genera.

Of all the species covered in this review, the *aurata*-group is closest to fulfilling the definition of *Usia* and have often been placed there by previous authors (Evenhuis & Greathead 1999). This group of species are all dichoptic, have almost invisible, linear gena, anal lobe not so strongly convex, large hypopygium and (in one species) can have a shiny, undusted, mesonotum, all pointing towards *Usia*. On the other hand, they have relatively weakly sclerotised tergites, yellow apical margins at least indicated and in most specimens densely dusted mesonotum. The male and, perhaps especially, female genitalia provide much information to indicate the relationships between species. The epiphallic complex of the *aurata*-group very much aligns with external morphology to confirm the close affinity of these species. The most distinctive feature is the large, strongly sclerotised and brown-pigmented epiphallus with a small, membranous tip furnished with inconspicuous spines. While a few *Usia* have the epiphallus extended well apicad of the aedeagus, it is never topped with a membranous spiny structure. *Parageron* s. lat. not belonging in the *aurata*-group usually have a well-developed epiphallus with a spiny apical structure, although the epiphallus is usually less strongly sclerotised, simpler, occasionally rudimentary. The female genital fork in the *aurata*-group is very strongly sclerotised and confluent with the vaginal plate to the extent that it is not discernable as a separate structure. This is very different to the simple Λ - or Ω -shaped structure in *Usia*, usually bent dorsally but easily flattened once dissected out, and with vaginal plate membranous or if sclerotised and pigmented, not rigidly attached to the genital fork. In the majority of *Parageron* s. lat., the genital fork is strongly sclerotised, bent dorsally by 90° or even more, cannot be easily straightened and flattened, with the vaginal plate pigmented and rigidly attached

to the genital fork. On balance the *aurata*-group does seem to be closest to *Parageron* s. lat. overall, but probably represents an early radiation soon after splitting from *Usia*.

While the *aurata*-group seems to fall closest to *Parageron* s. lat. when comparing with the *incisa*- and *punctipennis*-groups, this is not the case when compared with *Parageron* s. str. *Parageron* s. str. is a small, cohesive genus, again not easily defined on external morphology, but with recognisably different male and female genitalia. The hypopygium are small, with elongate epandrium, a more or less developed digitate process on gonocoxite apico-laterally, gonostylus bifurcate, epiphallus more or less sclerotised but lacking membranous, spiny structure apically. The latter state is closer to *Usia* than to most *Parageron* s. lat., but otherwise the male genitalia do not suggest a close affinity with any other *Usia* or *Parageron* s. lat. The female genital fork is quite unlike most *Parageron* s. lat., being very poorly sclerotised, only the arms pigmented, the genital fork body and vaginal plate entirely membranous. This condition is reminiscent of the genital fork of many *Usia*, but in detail is rather different, for example the long, thin curved arms are very much in line with many *Parageron* s. lat.

Of the remaining *Parageron* s. lat., *E. additivaneura* is very aberrant, not only the odd wing venation, but male and female genitalia do not suggest a close affinity with other known species. The male hypopygium resembles that of *Parageron* s. str., with a digitate process on gonocoxite and bifurcate gonostyli. However, the epiphallic complex and female genital fork share features with some *Usia*. On external morphology this species clearly can't belong in *Usia*, abdomen narrow, tergites not strongly sclerotised, gena broad, anal lobe convexly developed.

The majority of *Parageron* s. lat. fall into the *incisa*- and *punctipennis*-groups, a morphologically disparate group that might ultimately need further generic division. The *incisa*-group is easily defined by the long hairs on the frons extending down the broad gena to below antennal insertion. Additionally the male and female genitalia are all clearly of the same type. Epiphallus long with spiny apical membranous structure at tip, basal ejaculatory apodeme small, gonostyli relatively simple, often lobed basally and sometimes hooked apically. Genital fork strongly sclerotised and pigmented, curved dorsally at a right angle and vaginal plate contiguous.

The *punctipennis*-group is distinct from the *incisa*-group by virtue of a glabrous or short-haired frons, the hairs not extending down the often much narrower gena. It is much more diverse and includes species with very narrow, linear gena, dichoptic males and large male genitalia similar to the *aurata*-group (*Pro. punctipennis*, *Pro. kerkini* gen. et sp. nov. and *Pro. strymonas* gen. et sp. nov.). In the other 15 species the dusted gena is often narrow (compared to the *incisa*-group) but always as wide as or wider than the palp and, where males are known, all are holoptic and have small to medium sized hypopygium. I have retained both the *incisa*- and the *punctipennis*-groups in the same genus because most have very similar genitalia. There are exceptions, notably *Pro. flavipalpis* gen. et sp. nov. and *Pro. grisea* have different epiphallic complex and several, including *Pro. flavipalpis*, have reduced sclerotisation of the genital fork. But all species that have divergent male or female genitalia are so similar on external morphology that separating them generically does not seem warranted without further evidence such as molecular analysis.

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References

- Báez M. 1982. Dos nuevas especies del genero *Usia* en las Islas Canarias (Diptera, Bombyliidae). *Redia* 65: 253–258.
- Becker T. 1906. *Usia* Latr. *Berliner Entomologische Zeitschrift* 50 [1905]: 193–228.
- Bezzi M. 1925. Quelques notes sur les bombyliides (Dipt.) d’Égypte, avec description d’espèces nouvelles. *Bulletin de la Société royale entomologique d’Égypte* 8: 159–242.
- Brunetti E. 1909. New Indian Leptidae and Bombyliidae with a note on *Comastes osten* Sacken, v. *Heterostylum* Macquart. *Records of the Indian Museum* 3: 211–230.
- Carles-Tolrá M. 2009. Two new bombyliid species from Spain (Diptera, Bombyliidae). *Boletín de la Sociedad Entomológica Aragonesa* 44: 63–66.
- Costa A. 1863. Nuovi studie sulla entomologia della Calabria Ulteriore. *Atti dell’Accademia della Scienze Fisiche-Matematiche di Napoli* 1 (2): 1–80. <https://doi.org/10.5962/bhl.title.34236>
- Cumming J.M. & Wood, D.M. 2017. [Chapter] 3. Adult morphology and terminology. In: Kirk-Spriggs A.H. & Sinclair B.J. (eds) *Manual of Afrotropical Diptera. Volume I. Introductory Chapters and Keys to Diptera Families*: 89–133. Suricata 4, South African National Biodiversity Institute, Pretoria.
- Efflatoun H.C. 1945. A monograph of Egyptian Diptera. Part VI. Family Bombyliidae. Section 1: Subfamily Bombyliidae Homoeophthalmae. *Bulletin de la Société Fouad I^{er} d’Entomologie* 29: 1–483.
- El-Hawagry M.S. & Al-Dhafer H.M. 2016. *Parageron raydahensis*, new species and the first record of subfamily Usiinae (Bombyliidae: Diptera) from Saudi Arabia. *Pakistan Journal of Zoology* 48 (5): 1307–1310.
- Engel E.O. 1932. Bombyliidae. In: Lindner E. (ed.) *Die Fliegen der paläarktischen Region. Vol. 4. pt. 3*. E. Schweizerbart, Stuttgart.
- Evenhuis N.L. 1978 Homonymy notes in the Bombyliidae (Diptera) II. *Entomological News* 89: 103–104.
- Evenhuis N.L. 1990. Systematics and evolution of the genera of the subfamilies Usiinae and Phthiriinae of the world (Diptera: Bombyliidae). *Entomonograph* 11 (1989): 1–72.
- Evenhuis N.L. & Greathead D.J. 1999. *World Catalog of Bee Flies (Diptera: Bombyliidae)*. Backhuys Publishers, Leiden.
- Evenhuis N.L. & Greathead D.J. 2015. *World Catalog of Bee Flies (Diptera: Bombyliidae)* web site. Available from <http://hbs.bishopmuseum.org/bombcat/> [accessed 25 Jan. 2023].

- Fabricius J.C. 1794. *Entomologia systematica emendata et aucta. Secundum classes, ordines, genera, species adjectis synonymis, locis, observationibus, descriptionibus*. Tome IV. C.G. Proft, Hafniae [= Copenhagen]. <https://doi.org/10.5962/bhl.title.125869>
- Gibbs D.J. 2011. A world revision of the bee fly tribe Usiini (Diptera, Bombyliidae) - Part 1: *Usia* subgenus *Micrusia*, *U. versicolor* (Fabricius) (= black-haired species) and *Usia martini* François. *Zootaxa* 2960: 1–77. <https://doi.org/10.11646/zootaxa.2960.1.1>
- Gibbs D.J. 2014. A world revision of the bee fly tribe Usiini (Diptera, Bombyliidae) Part 2: *Usia* s. str. *Zootaxa* 3799: 1–85. <https://doi.org/10.11646/zootaxa.3799.1.1>
- Greathead D.J. 1967. The Bombyliidae (Diptera) of northern Ethiopia. *Journal of Natural History* 1: 195–284. <https://doi.org/10.1080/00222936700770211>
- Greathead D.J. 1988. Diptera: Fam. Bombyliidae of Saudi Arabia (part 2). In: Büttiker W. & Krupp F. (eds) *Fauna of Saudi Arabia* 9: 90–113.
- Hesse A.J. 1975. Additions to the South African species of Phthiriinae and Usiinae (Diptera: Bombyliidae) with keys to all the known species. *Annals of the South African Museum* 66: 257–308.
- Hull F.M. 1973. Bee flies of the world. The genera of the family Bombyliidae. *Bulletin of the United States National Museum* 286: 1–687. <https://doi.org/10.5962/bhl.title.48406>
- Loew H. 1846. Fragmente der Kenntniss der europäischen Arten einiger Dipteren-Gattungen. *Linnaea Entomologica* 1: 319–530. Available from <https://www.biodiversitylibrary.org/page/46583212> [accessed 25 Jan. 2023].
- Loew H. 1873 *Beschreibungen europäischer Dipteren. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insecten. Von Johann Wilhelm Meigen. Zehnter Theil oder vierter Supplementband. Beschreibungen europäischer Dipteren. Dritter Band.* H.W. Schmidt, Halle.
- Macquart P.J.M. 1840. *Diptères exotiques nouveaux ou peu connus*. Tome deuxième. - 1^{re} partie. N.E. Roret, Paris. <https://doi.org/10.5962/bhl.title.15792>
- Melander A.L. 1946. *Apolysis, Oligodranes and Empidideicus* in America (Diptera, Bombyliidae). *Annals of the Entomological Society of America* 39: 451–495. <https://doi.org/10.1093/aesa/39.3.451>
- Paramonov S.J. 1929. Beiträge zur Monographie einiger Bombyliiden-Gattungen (Diptera). *Trudy Fizychno-Matematychnogo Viddil Ukrains'ka Akademiya Nauk* 11(1): 65–225.
- Paramonov S.J. 1947. Uebersicht der mit der Gattung *Usia* Latr. (Bombyliidae, Diptera) naechstverwandten Gattungen. *Eos* 23: 207–220. Available from <http://hdl.handle.net/10261/149924> [accessed 25 Jan. 2023].
- Paramonov S.J. 1950. Bestimmungstabelle der *Usia*-Arten der Welt (Bombyliidae, Diptera). *Eos* 26: 341–378. Available from <http://hdl.handle.net/10261/151765> [accessed 25 Jan. 2023].
- Rosenhauer W. G. 1856. *Die Thiere Andalusiens nach dem Resultate einer Reise zusammengestellt, nebst den Beschreibungen von 249 neuen oder bis jetzt noch unbeschriebenen Gattungen und Arten*. T. Blaesing, Erlangen. <https://doi.org/10.5962/bhl.title.66016>
- Séguy E. 1941. Diptères recueillis par M.I. Berland dans le Sud-Marocain. *Annales de la Société entomologique de France* 110: 1–23.
- Smithsonian Institution Archives. SIA RU007468, Created by Strekalovsky, Roman, “Egyptian Bombyliids Collection, 1930s Watercolors”, SIA2012-7885. Available from https://siarchives.si.edu/collections/siris_arc_217621 [accessed 13 Jan. 2021].

- Theodor O. 1983. *The Genitalia of Bombyliidae (Diptera)*. Israel Academy of Sciences and Humanities, Jerusalem.
- Venturi F. 1948. Notulae Dipterologicae. II. Sulla distribuzione geografica e cronologica delle Usia (Dipt. Bombyliidae) in Italia. *Redia* 33: 127–142.
- Wiedemann C.R.W. 1830. *Aussereuropäische zweiflügelige Insekten. Als Fortsetzung des Meigenschen Werkes*. Zweiter Theil. Schulz, Hamm. <https://doi.org/10.5962/bhl.title.14603>
- Yang C.K. & Yang D. 1994. Two new species of Usiinae (Diptera: Bombyliidae) from China. *Entomotaxonomia* 16: 272–274. [In Chinese.]
- Yao G., Yang D., Evenhuis N.L. & Gharali B. 2010. A new species of *Apolysis* Loew 1860 from China (Diptera, Bombyliidae, Usiinae, Apolysini). *Zootaxa* 2441: 20–26. <https://doi.org/10.11646/zootaxa.2441.1.2>
- Zaitzev V.F. 1966. [*Parasitic Flies of the Family Bombyliidae (Diptera) in the Fauna of Transcaucasia.*] Nauka, Moscow & Leningrad. [In Russian.]
- Zaitzev V.F. 1975. On the fauna of bee flies (Diptera, Bombyliidae) of Mongolia, III. *Insects of Mongolia* 3: 545–556. [In Russian.]
- Zaitzev V.F. 1996. On the Bombyliidae (Diptera) of Israel. I. *Entomologicheskoe Obozrenie* 74 (4) [1995]: 902–912. [In Russian.]

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Appendix

While morphological terminology follows Cumming & Wood (2017) where possible, some characters are not covered in that work or not clearly illustrated. For some of these characters used in the keys the figs 1, 2, 3 and 6 in Gibbs (2011) are referred to. For the critical features of the internal genitalia, Figs 69–70 below show the terminology used in this work.

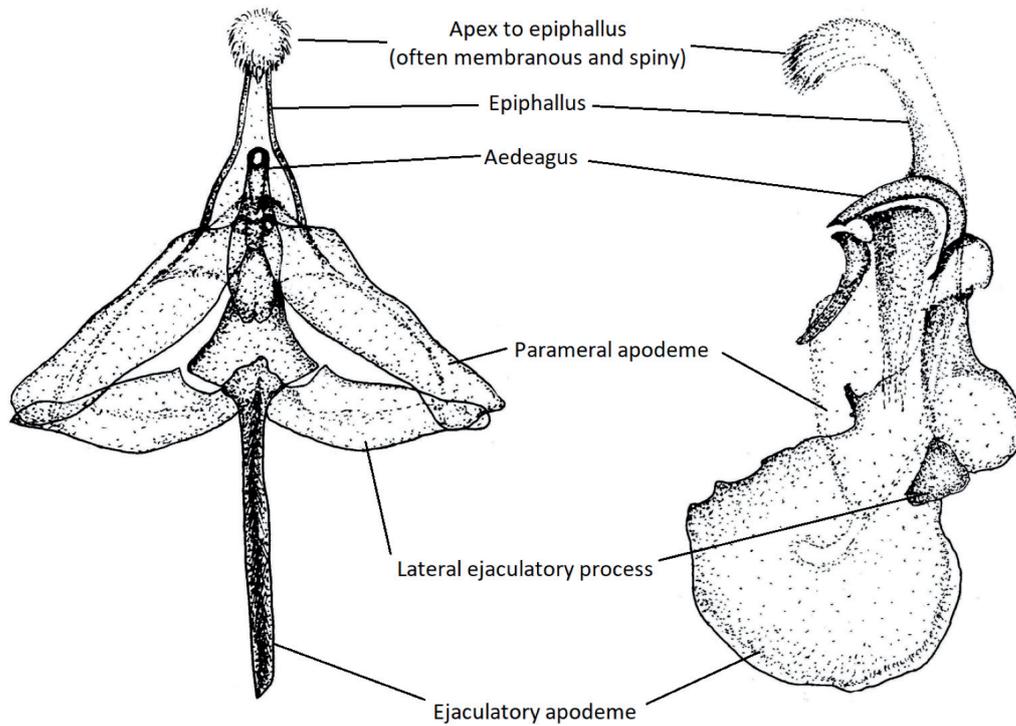


Fig. 69. Male epiphallal complex.

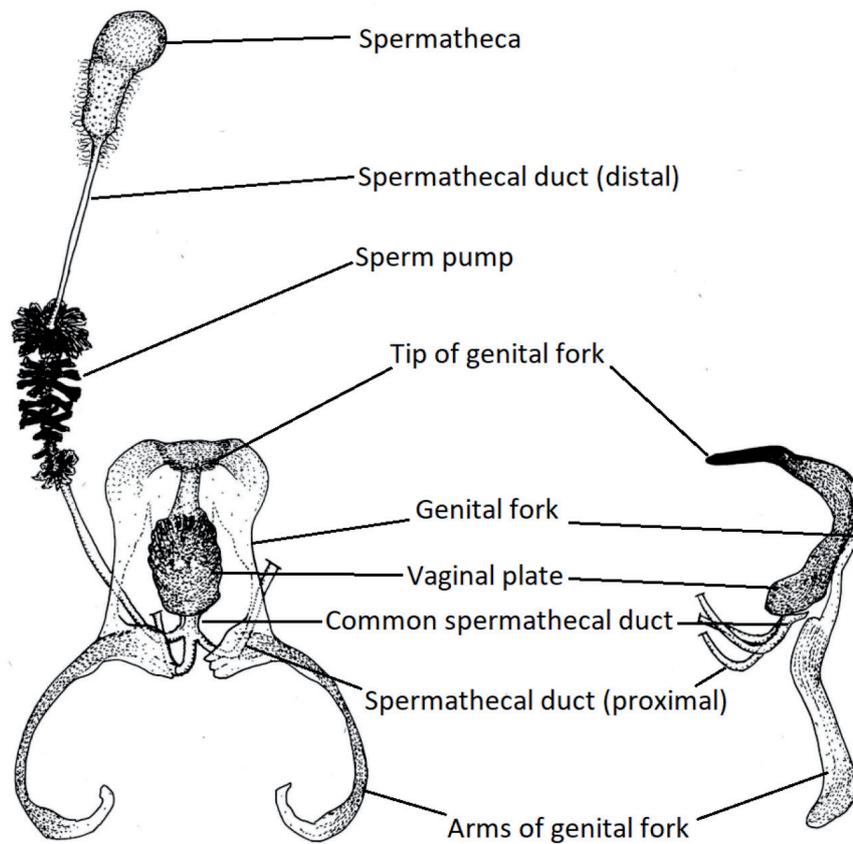


Fig. 70. Female internal genitalia. Note that the vaginal plate can be fused to the genital fork to the extent that it is not differentiated, particularly in *Parusia* gen. nov.