



Unraveling *Ocyptamus* and the *Baccha* legacy (Diptera: Syrphidae): redefinition of groups and new species descriptions

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Abstract

The systematics of *Ocyptamus sensu lato* has been reviewed, its species groups redefined, and some taxa resurrected. These and other related taxa are diagnosed to aid in distinguishing between them. The status of the following genera is revised: *Calostigma* Shannon **stat. rev.**, *Hermesomyia* Vockeroth **stat. rev.**, *Hybobathus* Enderlein **stat. rev.**, *Mimocalla* Hull **stat. rev.**, *Orphnabaccha* Hull **stat. rev.**, *Pipuncullosyrphus* Hull **stat. rev.**, *Pseudoscaeva* Vockeroth **stat. rev.**, and *Styxia* Hull **stat. rev.** New species of the Neotropical genus *Ocyptamus* are described from Costa Rica and Venezuela: *Ocyptamus maximus* Thompson **sp. nov.**, *Ocyptamus myiophagus* Thompson **sp. nov.**, and *Ocyptamus megafemur* Thompson **sp. nov.** In addition, an identification key for the genera and species groups of *Ocyptamus sensu lato* is provided, as well as a redescription of *Syrphus sargoides* Macquart.

Lectotypes are designated for *Doros disjuncta* Sack, *Baccha placiva* Williston, *Baccha pulla* Sack, *Ocyptamus funebris* Macquart, *Syrphus sargoides*, and *Syrphus immaculatus* Macquart. Moreover, *Syrphus immaculatus* Macquart is considered to be a species of the genus *Toxomerus*, and new species synonyms are also given: *Baccha atypica* Curran is a junior synonym of *Syrphus conjunctus* Wiedemann; *Baccha flata* Hull and *Doros disjuncta* Sack are jun. syn. of *Syrphus sargoides* Macquart; *Baccha bromleyi* Curran is a jun. syn. of *Ocyptamus funebris* Macquart; *Baccha sepia* Hull, *Baccha danaida* Hull, *Baccha violacea* Hull, and *Baccha ursula* Hull are all synonyms of *Ocyptamus pullus* (Sack); *Baccha nerissa* Hull is a jun. syn. of *Pelecinobaccha hiantha* (Hull); and *Baccha panamensis* Curran is a jun. syn. of *Pelecinobaccha transatlantica* (Schiner).

Key words: hoverflies, flower flies, species groups, systematics

Introduction

Flower flies are critical contributors to our environment and a significant component of biodiversity. Most adults are notable anthophilous flies (Larson *et al.* 2001; Woodcock *et al.* 2014), with the exception of microdontines (Reemer 2012), and they are considered important pollinators in crops and natural ecosystems (Pérez-Bañón *et al.* 2003; NRC 2007; Ssymank *et al.* 2008; Ssymank & Kearns 2009; Inouye *et al.* 2015). The immatures contribute in various ecosystem services, being predators of plant pests (biocontrol agents) and re-cyclers of environmental wastes (Thompson & Rotheray 1998; Rojo *et al.* 2003; Thompson *et al.* 2010; Rotheray & Gilbert 2011).

The genus *Baccha* Fabricius, 1805 was originally described by Fabricius (1805: 199) for species with elongate and/or petiolate abdomens. For many years after Fabricius, the group continued to be a simple repository for any syrphid with those characteristics. Several species of unrelated lineages were originally described as *Baccha* throughout the years, e.g. species of *Ocyptamus* Macquart, 1834, *Toxomerus* Macquart, 1855, *Spheginobaccha* Meijere, 1908, *Asiobaccha* Viólovitsh, 1976, *Allobaccha* Curran, 1928, *Meliscaeva* Frey, 1946, *Dioprosopa* Hull, 1949a, *Eosalpingogaster* Hull, 1949b and *Leucopodella* Hull, 1949a (Thompson 1981, 2013, Mengual *et al.* 2018).

TABLE 1. New species names for *Ocyptamus sensu lato* published between 1950 and 2013, after the masterpiece work of Hull (1949a).

Reference (sorted by year)	Species described [valid name if different]
Fluke (1950b)	<i>Stenosyrphus golbachii</i> [<i>Orphnabaccha golbachii</i>] <i>Stenosyrphus lanei</i> [<i>Orphnabaccha lanei</i>] <i>Stenosyrphus diversifasciatus</i> var. <i>meridionalis</i> [<i>Pseudoscaeva meridionalis</i>] <i>Stenosyrphus opacus</i> [<i>Orphnabaccha opaca</i>]
Hull (1950)	<i>Baccha dolorosa</i> [<i>Orphnabaccha dolorosa</i>] <i>Baccha philodice</i> [<i>Relictanum nero</i>]
Fluke (1956)	<i>Baccha arsenoe</i> (misspelling) [<i>Ocyptamus sativus</i>]
Hull (1957)	<i>Baccha hippolite</i> [<i>Ocyptamus hippolite</i>] <i>Baccha ulrica</i> [<i>Ocyptamus luctuosus</i>]
Hull (1958)	<i>Baccha cecrops</i> [<i>Ocyptamus cecrops</i>] <i>Baccha cobboldia</i> [<i>Hybobathus cobboldia</i>] <i>Baccha dryope</i> [<i>Ocyptamus dryope</i>]
Hull (1960)	<i>Baccha myrtella</i> [<i>Hybobathus obsoletus</i>]
Doesburg (1962)	<i>Baccha wilhelmina</i> [<i>Ocyptamus wilhelmina</i>]
Goot (1964)	<i>Baccha confusus</i> (new name for <i>Baccha valdiviana</i> Philippi, 1865: 750) [<i>Ocyptamus confusus</i>] <i>Syrphus rondanii</i> [<i>Ocyptamus gastrostactus</i>] <i>Syrphus meridionalis</i> [<i>Ocyptamus tarsalis</i>]
Sedman in Wirth <i>et al.</i> (1965)	<i>Baccha loewi</i> (new name for <i>Ocyptamus scutellatus</i> Loew, 1866) [<i>Ocyptamus antiphates</i>]
Doesburg (1966)	<i>Baccha filii</i> [<i>Ocyptamus filii</i>] <i>Baccha geijskesi</i> [<i>Ocyptamus geijskesi</i>] <i>Baccha dimidiata</i> var. <i>rufifacies</i> [<i>Ocyptamus dimidiatus</i>]
Vockeroth (1969)	<i>Hermesomyia bacchiformis</i> [<i>Hermesomyia wulpiana</i>]
Telford (1973)	<i>Baccha martorelli</i> [<i>Relictanum brasiliensis</i>] <i>Baccha medina</i> [<i>Ocyptamus medina</i>] <i>Baccha neoparvicornis</i> [<i>Ocyptamus neoparvicornis</i>] <i>Baccha vockerothi</i> [<i>Ocyptamus cylindricus</i>]
Thompson in Thompson <i>et al.</i> (1976)	<i>Ocyptamus isthmus</i> (new name for <i>Callostigma panamensis</i> Curran, 1930b) <i>Ocyptamus octomaculatus</i> (new name for <i>Baccha flukei</i> Hull, 1943b) <i>Ocyptamus willistoni</i> (new name for <i>Baccha dolosa</i> Williston, 1891) [<i>Mimocalla willistoni</i>]
Thompson (1981)	<i>Ocyptamus ferrugineus</i> <i>Ocyptamus superbus</i> [<i>Orphnabaccha superba</i>]
Zumbado in Thompson & Zumbado (2000)	<i>Ocyptamus tristani</i> [<i>Mimocalla tristani</i>]
Reemer (2010)	<i>Ocyptamus icarus</i>

Besides the work of Shannon (1927), most notable syrphid workers in *Baccha* were Charles H. Curran and Frank M. Hull, very active in the 1930s and 1940s, producing many new species and generic names in/or related to *Baccha*, especially in the New World. But it was with Hull (1937, 1943b, 1949a) that these New World *Baccha* started being more thoroughly broken down into several distinct taxa. Vockeroth (1969) did further work on part of the New World *Baccha*, and recognized that some of these taxa could not be part of the Bacchini since they had a two-segmented phallus, and erected more supraspecific groups in the process. Thompson *et al.* (1976) synonymized all these names, with the exception of *Baccha elongata* (Fabricius, 1775), into *Ocyptamus*, the oldest available name in common to all these former *Baccha* species from the American continent.

The genus *Ocyptamus* is the largest genus of the subfamily Syrphinae in the New World with ca. 270 described valid species, and many species awaiting description (Thompson *et al.* 2010; Mengual *et al.* 2012). Larvae of this taxon have been reported as predators of a diverse range of plant pests such as aphids, soft scales, mealybugs, plant

hoppers, whiteflies, and mites (for a review, see Rojo *et al.* 2003). Although larval feeding mode is known for less than 10% of the *Ocyptamus* species (Rojo *et al.* 2003; Mengual *et al.* 2012; Miranda *et al.* 2014), exceptional feeding behavior is reported for some species (Rotheray *et al.* 2000; Ureña & Hanson 2010).

The last revision involving *Ocyptamus* is now sadly obsolete, being published more than 60 years ago. Hull (1949a) treated 240 species of the then known 284 species, and considered *Ocyptamus* as a subgenus of *Baccha*. Between 1950 and 2013, only 33 new species names for *Ocyptamus sensu lato* were published (see Table 1) and one putative subgenus of *Ocyptamus* was revised, i.e. *Mimocalla* Hull, 1943b (Thompson & Zumbado 2000). Thompson (1981) recognized several species groups within *Ocyptamus*. However, *Ocyptamus* as currently understood has been proven more than once to be a paraphyletic taxon with respect to *Toxomerus* and *Eosalpingogaster* (Mengual *et al.* 2008a, 2008b, 2012; Mengual & Thompson 2011; Miranda *et al.* 2016). Mengual *et al.* (2012) recognized in their molecular analyses 13 putative subgenera of *Ocyptamus*, i.e. *Atylobaccha* Hull, 1949a, *Aulacibaccha* Hull, 1949a, *Calostigma* Shannon, 1927, *Hermesomyia* Vockeroth, 1969, *Hybobathus* Enderlein, 1938, *Mimocalla*, *Pelecinobaccha* Shannon, 1927, *Pipunculosyrphus* Hull, 1937, *Pseudoscaeva* Vockeroth, 1969, *Orphnabaccha* Hull, 1949a, *Styxia* Hull, 1943b, *Therantha* Hull, 1943b, and *Ocyptamus sensu stricto* (= *funnebris* group *partim sensu* Hull 1943b, 1949a; = *cylindricus* group *sensu* Thompson 1981). Miranda *et al.* (2014) gave to the monophyletic taxa *Pelecinobaccha*, *Atylobaccha* and *Relictanum* Miranda in Miranda *et al.*, 2014 a generic status removing them from *Ocyptamus* and described 24 new species within these genera. Miranda *et al.* (2016), based on molecular characters, gave support to several of these lineages, provided short diagnoses, and pointed out available names for some of the recovered species groups. Finally, Miranda (2017) reviewed the *Pelecinobaccha summa* and *Hybobathus arx* species groups and described four new species.

The discovery of undescribed species is common-place to taxonomists, and remarkable and distinct ones are still not rare to find. The three new species described in the present work fit the latter, either because of their morphology or due to unheard natural histories. Thus, the main objective of the present study is to describe these new spectacular species and to provide descriptions of the species groups they belong to. However, in order to place them in a proper taxonomic context, the need to review the current systematics of ‘*Ocyptamus*’ flies arose, and, consequently, all previous ‘*Ocyptamus*’ species are placed into their appropriate genera and species groups. Therefore, species that were considered part of ‘*Ocyptamus*’ and its different groupings were studied, and results are presented here as diagnoses to distinguish between these supraspecific taxa. Lastly, during the review of previous works on these American flies, we discovered a number of synonyms and classification issues, which are listed below.

Material and methods

New species are described in full, following the terminology of Thompson (1999). For the wing membrane the term microtrichia (microtrichose) is used, while for any body area, except wing, covered by microtrichia the terms pollinosity (pollinose) and/or microtrichia (microtrichose) are used (Cumming & Wood 2009). For new synonyms, reference to the original description, type-locality and depository are mentioned. The abbreviations used for collections follow the standard of the *Systema Dipterorum* (Pape & Thompson 2013) and their equivalents are given below.

AMNH	American Museum of Natural History, New York, USA
BMNH	The Natural History Museum, London, UK
CNC	Canadian National Collection of Insects, Ottawa, Canada
DEBU	University of Guelph Insect Collection, Guelph, Canada
DEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
DZUP	Coleção Entomológica Padre Jesus Santiago Moure, Curitiba, Brazil
FSCA	Florida State Collection of Arthropoda, Gainesville, FL, USA
HMUG	Hunterian Museum, Glasgow University, Glasgow, UK
INBio	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica
INHS	Illinois Natural History Survey, Urbana, USA
INPA	Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil

MCZ	Museum of Comparative Zoology, Cambridge, USA
MJMO	Museo de Entomología José Manuel Osorio, UCLA, Barquisimeto, Venezuela.
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MNRJ	Museu Nacional do Rio de Janeiro, Rio de Janeiro, Brazil
MPEG	Museu Paraense Emílio Goeldi, Belém, Brazil
MZUSP	Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil
NHMW	Naturhistorisches Museum, Vienna, Austria
SMF	Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt, Germany
UMO	Oxford University Museum of Natural History, Oxford, UK
UNAM	Universidad Nacional Autónoma de México, Mexico City, Mexico
USNM	National Museum of Natural History, Washington D.C., USA
ZFMK	Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany
ZMUC	Zoological Museum University of Copenhagen, Copenhagen, Denmark

Lectotypes have been designated following the International Code of Zoological Nomenclature (1999) [Articles 74.6 & 74.7 and Recommendation 73F]. While details are provided for each lectotype designation, the purpose of all is stated here to ensure consistent interpretation of the species name.

Italics in the description of type labels denote handwriting, the contents of each label are enclosed within double quotation marks (“ ”) and the individual lines of data are separated by a double forward slash (/). At the end of each record, the number of specimens and sex, the holding institution, and the unique identifier or number are given between square brackets ([]) and separated by commas. In the species synonyms, the codes used by F.C. Thompson for the various species, e.g. CR-99, are listed as these have been widely disseminated and used in training courses and by other workers (as an example, see Thompson 2006).

Color images were taken by the authors in several locations using different photography equipment, except illustrations taken from previous articles. All images are image stacks from a series of photographs, including male genitalia illustrations. For each figure, the species name, the unique identifier (between square brackets []), body part and view are given.

Results

Our results are divided into four sections: 1) a key to the New World groups of “*Baccha*” of authors; 2) a list of supraspecific taxa (genera and species groups) that were considered synonyms of *Ocyptamus* in Thompson *et al.* (1976); 3) new species descriptions; and 4) a list of nomenclatural acts arranged alphabetically by the valid species name.

Key to the New World groups of “*Baccha*” of authors

The identification key includes all the taxonomic groups from the New World that have been considered at some point as part of *Baccha sensu lato* by previous authors, or groups that comprise or have comprised species originally described as *Baccha* species, mostly due to the elongate and/or petiolate abdomen. The key is helpful to identify all the different genera and the significant species groups within them. Two species are keyed out due to their unique combination of morphological features: i.e., *Ocyptamus pola* (Curran, 1939) and *Ocyptamus maximus* Thompson **sp. nov.**, and a third species is keyed out because its genus is monotypic, *Atylobaccha flukiella* (Curran, 1941). Moreover, species left as *incertae sedis* appear in the identification key without any assigned genus name, i.e., *grata* Curran, *conjunctus* Wiedemann, *sargoides* Macquart, and *placiva* Williston. The only exception to this procedure with *incertae sedis* species is *Ocyptamus maximus* Thompson **sp. nov.**, here placed under *Ocyptamus* but we acknowledge that its generic affinities are uncertain. Please refer to the below section ‘Nomenclatural acts arranged alphabetically by valid name’ for more information about these species.

- 1 Metafemur without spinose setae (Fig. 1). Postmetacoxal bridge incomplete (Fig. 11) or complete (Figs 3, 4). Vein M_1 at most slightly sinuate; vein R_{4+5} straight; rarely both veins strongly sinuate, but then without spinose setae on metafemur 3
- Metafemur with distinct anteroventral and posteroventral rows of spinose setae on apical 1/2 (Fig. 2). Metepimera continuous behind metacoxae and forming a complete postmetacoxal bridge (Figs 3, 4). Vein M_1 very abruptly and strongly sinuate; vein R_{4+5} slightly to strongly sinuate (Figs 5, 6) 2
- 2 Vein R_{4+5} strongly sinuate (Fig. 5). Abdominal tergum 1 produced laterally into a strong spur (Figs 3, 9). Postmetacoxal bridge complete, wide (Fig. 3). Dorsal occiput pile reduced to a single row. *Salpingogaster* Schiner
- Vein R_{4+5} only slightly sinuate (Fig. 6). Abdominal tergum 1 with a small spur (Fig. 10). Postmetacoxal bridge complete with a less sclerotized medial line (semi-membranous) (Fig. 4). Dorsal occipital pile in 3–4 rows. *Eosalpingogaster* Hull
- 3 Anterior anepisternum usually with some distinct short pile posterodorsally (Figs 7, 8); metaepisternum usually with some long erect or subappressed pile ventrad to spiracle (Fig. 11); always with pile on one of these two areas 5
- Anterior anepisternum (Fig. 12) and metaepisternum bare. 4
- 4 Oral margin at the same level of facial tubercle, in lateral view (Fig. 12); facial tubercle always present and in line with oral margin. Thorax without yellow markings except on scutellum *Dioprosopa* Hull
- Oral margin anterior to facial tubercle, in lateral view (Fig. 13); if facial tubercle is missing, then face always pointed forward and oral margin beyond the medial point between oral margin and antennal bases (Fig. 14). Postpronotum yellow; notopleuron usually yellow; pleuron more extensively yellow (Fig. 13) *Rhinoprosopa* Hull
- 5 Male genitalia: phallus (aedeagus) simple, unsegmented. Face usually straight, oral margin and antennal bases in line, without tubercle (Figs 15, 18). Abdomen petiolate; abdominal tergum 2 narrow, narrower than terga 3 and 4 (Fig. 18). Female: abdominal segment 6 not noticeable nor visible without dissection, internal to segment 5 *Leucopodella* Hull
[Note: Two undescribed species of *Leucopodella* have tuberculate face.]
- Male genitalia: phallus segmented into basiphallus and distiphallus (Figs 58–60, 111). Face usually with a facial tubercle (Figs 16, 32), at least slightly convex (Figs 17). Abdomen variable. Female: abdominal segment 6 conspicuous, easily visible 6
- 6 Face gently convex; facial tubercle weak (Fig. 17); metaepisternum bare; abdomen petiolate (Fig. 19)
..... *Atylobaccha flukiella* (Curran)
- Face with distinct medial tubercle and/or more convex; metaepisternum bare or pilose; abdomen variable. 7
- 7 Eye with a distinct triangular emargination on posterior margin (Fig. 20). Ocellar triangle distanced from eye contiguity on male (Fig. 21). Face convex or produced anteriorly (Figs 20, 22). Abdomen usually oval or parallel-sided, never strongly petiolate or very long and narrow; abdominal markings usually constituted of apical dark fascia with a medial pair of dark vittae directed towards base in a yellow background (Fig. 23) or a pattern derived from that (Fig. 24), including entirely dark terga (Mengual 2011). Male genitalia with sclerotized, very short to long, triangular process arising from fused surstyler apodemes and projecting apically between bases of surstyli (Figs 25, 26) *Toxomerus* Macquart
- Posterior margin of eye with emargination usually indistinct or shallow and rounded (Figs 27, 32). Ocellar triangle touching eye contiguity on male (Figs 28, 57, 79). Face never produced anteriorly. Abdomen variable; abdominal markings never derived from medial pair of stripes as above (Figs 29, 30). Male genitalia without such single acute sclerotized process, at most with a bilobate process (Fig. 31) 8
8. Very large dark flies, larger than 20 mm. Abdomen petiolate, mostly dark; abdominal tergum 2 with two hyaline maculae basolaterally; sternum 2 translucent on basal 2/3 (Figs 32, 33, 35, 37) ... *Ocyptamus maximus* Thompson **sp. nov.** [*incertae sedis*]
- Flies never so large, less than 20 mm. Abdomen variable; if tergum 2 with hyaline maculae basolaterally, then fly pale and abdomen not petiolate (Fig. 38) 9
9. Basoflagellomere deeply incised, forming dorsal and ventral lobes (Fig. 40). Male tergum 4 concave apically, so apical abdominal segments can be flexed dorsally; male sternum 4 produced greatly ventrally (Figs 40, 41, 42). Female abdominal segment 5 slightly asymmetric; female spermatheca large but abruptly narrowed on the end connected to the spermathecal duct, paddle-shaped, covered in spine-like protuberances (Fig. 43) *grata* Curran [*incertae sedis*]
- Basoflagellomere oval to elongate (Figs 27, 45). Male abdomen not so modified. Female abdominal segment 5 symmetric; female spermatheca not so modified. 10
10. Antennal segments of similar length, subequal; antenna elongate (Fig. 27). Abdominal terga 3 and 4 with a subbasal yellow fascia and a pair of oblique, pale vittae (Fig. 44) *conjunctus* Wiedemann [*incertae sedis*]
- Scape and pedicel each much shorter than basoflagellomere; antenna not elongate (Figs 47, 54). Abdominal terga differently marked (except for *placiva*) 11
11. Abdomen parallel-sided, elongate, mainly orange and without a distinct pattern of markings (Fig. 38); tergum 2 with basolateral hyaline areas. Metafemur pale with long, thick, mostly orange pile on dorsal and ventral surface (Fig. 39), with a few long black pile basoventrally. *sargoides* Macquart [*incertae sedis*]
- Abdomen variable; abdominal segment 2 without hyaline areas. If metafemur pale with long, thick pile, then pile black (Fig. 103) and abdominal terga with four pale vittae 12
12. Wing almost completely bare, microtrichose on apical 1/4 (Fig. 46) *Pseudoscaeva* Vockeroth
- Wing extensively microtrichose 13
13. Pedicel with narrow projection over basoflagellomere (Fig. 45); basoflagellomere sub-triangular, usually large on female. Scutum with a distinct anterior row of longer pile, i.e. mesonotal collar (Fig. 49). Abdomen parallel-sided to slightly oval. ...
..... *Ocyptamus* Macquart *sensu stricto*
- Apical margin of pedicel straight, rounded, without an extension over basoflagellomere (Fig. 51); basoflagellomere oval to round. Scutum usually without an anterior row of longer pile. Abdomen variable 14
14. Eye sometimes pilose (Figs 52, 54). Abdomen spatulate, never *Syrphus*-like (Fig. 53). Wing mostly dark with hyaline areas on basomedial cells (Figs 52, 53). *Styxia* Hull

- Eye usually bare; if eye pilose, then abdominal pattern *Syrphus*-like (Fig. 55). Wing never as above 15
- 15. Metasternum pilose. Face broad, broader than a 1/3 of the head's width (Fig. 57). Flies with oval, parallel-sided or slightly petiolate abdomens (Figs 55, 56); some species with an abdominal pattern similar to the abdominal pattern of genus *Syrphus* (Fig. 55). Male phallus with long spines apically (Fig. 58d) or postgonite bifurcate (Fig. 60c) or postgonite tooth-like (Fig. 58c, 59c) *Orphnabaccha* Hull, in part
[Note: There are species with very few pile and it is not uncommon for them to eventually fall, making the metasternum look bare (e.g. species from the *O. coerulea* species group).]
- Metasternum never pilose. Face narrower, usually around a 1/3 or less of head's width. Abdomen variable, never similar to *Syrphus*. Male genitalia never with long spines on phallus, never with a bifurcate or tooth-like postgonite. 16
- 16. Abdominal terga 3 and 4 with yellow 'L' shaped markings (Fig. 30). Male genitalia usually enlarged *Ocyptamus callidus* species group
- Abdominal terga never as above. Male genitalia variable 17
- 17. Metaepisternum bare. Abdomen parallel-sided to slightly constricted, with inverted V-shaped yellow fascia on terga 3 and 4, sometimes interrupted medially (Fig. 61). *Pipunculosyrphus* Hull
- Metaepisternum usually pilose (Fig. 11); if metaepisternum bare, then abdomen differently marked 18
- 18. Vein M_1 sinuous (Figs 71, 72, 73); other characters not found in the combination below 20
- Vein M_1 straight, joining vein R_{4+5} perpendicularly (Figs 62, 65); wing either hyaline with an apical brown macula, or uniformly yellowish to brown. Small flies usually with short abdomen, shorter than wings 19
- 19. Scutum shining black with three narrow white pollinose vittae, medial vitta longer (Fig. 63). Wing hyaline with apical dark macula, extensively bare (Fig. 62). Scutellum partially black. Abdominal terga 3 and 4, at least, black with five narrow pale vittae (Fig. 63). *Calostigma* Shannon
- Scutum usually dull (Fig. 67); if shining black, then without distinct pattern (Fig. 64). Wing never as above, usually brownish yellow, extensively microtrichose (Fig. 65). Abdominal terga mostly pale with three apical dark vittae (Fig. 66) or dark with at most four pale vittae (Figs 67, 68, 69), never with five pale vittae. *Ocyptamus lepidus* species group, in part
- 20. Vein R_{4+5} almost straight; vein M_1 not strongly sigmoid (Figs 73, 94). Male genitalia never with enlarged nor elongate cercus. Other characters not found in the combination below 22
- Vein R_{4+5} and M_1 distinctly sinuous (Figs 71, 72); vein R_{4+5} with shallow dip into cell r_{4+5a} and vein M_1 strongly sigmoid. Frontot antennal area protruded, prominent (Fig. 75). Abdomen strongly petiolate (Figs 71, 72). Male genitalia enlarged (Fig. 74) 21
- 21. Metacoxa and metatrochanter with tuft of thick pile (Fig. 74). Male genitalia with cercus greatly enlarged (Fig. 76). Basoflagellomere elongate, much longer than broad, acute apically (Figs 72, 74). Large flies, greater than 12 mm . . . *Mimocalla* Hull
- Metacoxa and metatrochanter without tuft of thick pile (Fig. 75). Male genitalia with normal-sized cercus (Fig. 77). Basoflagellomere oval, about as long as broad (Figs 71, 75). Medium-sized flies, about 11 mm . . . *placiva* Williston [*incertae sedis*]
- 22. Ocellar triangle never contrasted as below, either entirely pale pollinose (Fig. 79) or with sparse pollinosity (Fig. 80). Dorsal occiput pilosity variable 24
- Ocellar triangle dull black pollinose, surrounded by dense pale pollinosity (Fig. 78). Dorsal occiput with a single row of pile (Fig. 78) (*Hybobathus*) 23
- 23. Scutum covered by dense pale pollinosity, with sub-shining vittae (Figs 73, 81). Medium-sized flies (7–10 mm) *Hybobathus* Enderlein *sensu stricto*
- Scutum black with three golden pollinose vittae that merge posteriorly into a pollinose area anterior to scutellum (Fig. 82). Larger flies (11–18 mm) *Hybobathus arx* species group
- 24. Abdomen long, almost as long as wing, parallel-sided with subbasal yellow fascia on terga 3–5 (Fig. 83). Alula narrow and linear (almost uniform width throughout), approximate length:width ratio = 5:1 (see Vockeroth 1969: Fig. 13); wing infusate (Fig. 83). *Hermesomyia wulpiana* (Lynch Arribáizaga)
- Abdomen variable, never with the above character combination. Alula variable 25
- 25. Orange flies with narrow abdomen (Fig. 85). Male with a pair of long apicolateral extensions on sternum 4 *Ocyptamus melanorrhinus* species group, in part
- If the abdomen is narrow, then the overall body color is dark brown to black (Figs 86, 87), never orange. Male without such extensions on sternum 4 26
- 26. Abdomen usually petiolate, with narrow base and abruptly widening (Fig. 89) or very narrow and very long, delicate (2nd abdominal segment ≥ 8 times longer than wide; Fig. 84); if abdomen parallel-sided, narrow and elongated, then tergum 3 never with a pair of subbasal quadrangular / triangular maculae 28
- Abdomen parallel-sided, narrow but not delicate (2nd abdominal segment ≤ 6 times longer than wide) and elongated (Figs 87, 88), slightly expanding apically; tergum 3 with subbasal pair of quadrangular / triangular maculae that sometimes form a complete fascia. 27
- 27. Wing hyaline with a central, triangular dark vitta; alula present (Figs 86, 88). *Ocyptamus fascipennis* species group
- Wing either entirely hyaline or light brown; alula absent (Fig. 87) *Ocyptamus melanorrhinus* species group, in part
- 28. Scutum yellow laterally (Fig. 64); scutellum usually yellow, rarely mostly dark. Wing usually light yellow. Abdomen either spatulate, parallel-sided or petiolate (Figs 67, 68, 69 respectively), never narrow and delicate. Male genitalia: subepandrial sclerite extended beyond base of surstyli as pair of lobes (Fig. 31); if subepandrial sclerite not extended beyond base of surstyli, then M_1 joining R_{4+5} at right angle (Fig. 65) *Ocyptamus lepidus* species group
- Scutum and scutellum usually entirely black (Fig. 90); if scutum yellow laterally or scutellum mostly yellow, then either scutum with a distinct pattern of golden pollinose vittae on a black background and abdominal terga with a central pair of pale

- oval-shaped vittae (Fig. 91), or abdomen very narrow and delicate (2nd abdominal segment \geq 8 times longer than wide; Figs 70, 84). Wings hyaline or mostly dark brown. Abdomen either petiolate (Fig. 91) or very narrow, long and delicate (Figs 70, 84). Male genitalia: subepandrial sclerite never extended beyond base of surstyli as pair of lobes and vein M₁ never straight. . . . 29
29. Abdomen very narrow and delicate through all its extent (2nd abdominal segment \geq 8 times longer than wide; Figs 70, 84). Frons or frontal triangle usually rugose (Figs 70, 92). Alula absent (Fig. 94). Male surstylus quadrangular and either with extended apex or apical filiform projection (Fig. 95); female tergum 7 without apodemes (Fig. 97) *Ocyptamus stenogaster* species group
- Abdomen usually petiolate (Fig. 91). If alula absent, abdomen very narrow and delicate, and frons and frontal triangle rugose, then face mostly dark (Fig. 93), male surstylus subtriangular without projection (Fig. 96), and female tergum 7 with long basolateral apodemes (Fig. 98) 30
30. Scutum usually pale laterally, with three golden pollinose vittae on a black background: middle vitta usually complete and narrow, others tapered and incomplete, not reaching the scutellum (Figs 91, 99). Female segment 6 usually with weak fusion line at least on basal 1/2 (Fig. 101) *Pelecinobaccha* Shannon, in part
[Note: The *P. summa* species group keys out here.]
- Scutum without distinct patterns of pollinosity and entirely dark (Figs 89, 100). Female segment 6 divided into tergum and sternum or as a single conical sclerite (Fig. 102) 31
31. Metabasitarsomere with at least basal 1/2 dark or mostly dark (Fig. 103) 33
- Metabasitarsomere wholly pale or mostly pale (Fig. 104) 32
32. Pro and mesolegs mostly dark (Figs 104, 105). Abdomen dark with flat, scale-like, shining pile (Figs 56, 105) *Orphnabaccha* Hull, in part
[Note: *Orphnabaccha* species, mostly from the *O. coerulea* species group, may key out here if the male genitalia characters are not checked or the metasternum pilosity is overlooked or looks bare.]
- Pro and mesolegs mostly pale. Abdomen with yellow vittae and dark pile (Fig. 112) *Ocyptamus pola* (Curran) [*O. lepidus* species group]
[Note: *Ocyptamus pola* belongs to the *O. lepidus* species group, but its particular morphology may create confusion with *Pelecinobaccha* or *Relictanum*. It is keyed out here to avoid misidentification.]
33. Dorsal occiput with two or more rows of pile, anterior row sometimes short but still distinct (Figs 7, 106). Female segment 6 usually modified into a single conical sclerite with no distinction between tergum and sternum (Fig. 102) *Pelecinobaccha* Shannon, in part
- Dorsal occiput with a single row of pile (Fig. 107). Female 6th segment divided into tergum and sternum. *Relictanum* Miranda

Supraspecific taxa

In this section we cover the genera and species groups that were considered synonyms of *Ocyptamus* in Thompson *et al.* (1976). Well-recognized and previously validated genera (such as *Dioprosopa*, *Eosalpingogaster*, *Leucopodella*, *Rhinoprosopa* Hull, 1942b, *Salpingogaster* Schiner, 1868, and *Toxomerus*) are not treated in this section, although they were included in the identification key. Current phylogenetic studies support these mentioned six genera as different lineages (Mengual 2015a; Mengual *et al.* 2008a, 2012, 2015, 2018; Mengual & Thompson 2011; Miranda *et al.* 2016) and recent taxonomic work on them exist, i.e. Kassebeer (2000) on *Dioprosopa*, Mengual & Thompson (2011) and Pérez-Bañón *et al.* (2013) on *Eosalpingogaster* and *Salpingogaster*, Thompson (1981) and Reemer (2010) on *Leucopodella*, and Mengual (2015b) on *Rhinoprosopa*.

Genus *Atylobaccha* Hull, 1949

Figs 17, 19.

Atylobaccha Hull, 1949a: 94, as a subgenus of *Leucopodella*. Type species: *Baccha flukiella* Curran, 1941 (original designation). Miranda *et al.* (2014) proposed it as a genus.
Ocyptamus (Atylobaccha). Mengual *et al.* (2012).

Diagnosis. Slightly convex face, inconspicuous facial tubercle. Scutum might be shiny, but with only two inconspicuous microtrichose vittae. Petiolate abdomen with pale markings.

Comments. This monospecific genus is similar to *Relictanum* but is readily distinguishable by the simple convex face, which reminds that of *Leucopodella*. GFGM is aware of some undescribed species of this genus.

Species list (1): *A. flukiella* (Curran, 1941).

Genus *Calostigma* Shannon, 1927 stat. rev.

Figs 62, 63.

Calostigma Shannon, 1927: 8, as a genus. Type species: *Calostigma elnora* Shannon, 1927 (original designation).

Callostigma Curran, 1930b: 8. Misspelling.

Callistigma Hull, 1944a: 41. Misspelling.

Ocyptamus elnora species group, in part. Thompson (1981).

Ocyptamus (*Calostigma*). Mengual *et al.* (2012).

Ocyptamus elnora species group. Miranda *et al.* (2016).

Diagnosis. Shiny scutum with three narrow microtrichose vittae. Vein M_1 straight, perpendicular to vein R_{4+5} . Extensively bare wings. Narrow, linear alula. Oval abdomen with pale vittae.

Comments. This taxon is readily distinguished by the shiny scutum with distinct vittae, the straight M_1 vein, and the distinct pairs of parallel vittae on the abdomen. Morphologically, it seems to be more closely related to *Hybobathus*, but this remains to be tested. This is a more restricted view of the group than the so-called *O. elnora* group by Thompson (1981), since the group of ‘...flies that have yellow scutella...’ are actually part of the *O. lepidus* group (Miranda *et al.* 2016).

Species list (5): *C. coreopsis* (Hull, 1944a), *C. elnora* Shannon, 1927, *C. exigua* (Williston, 1888), *C. ornatipes* (Curran, 1927), *C. striata* (Walker, 1852).

Genus *Hermesomyia* Vockeroth, 1969 stat. rev.

Figs 16, 83.

Hermesomyia Vockeroth, 1969: 121, as a genus. Type species: *Hermesomyia bacchiformis* Vockeroth, 1969 (original designation); jun. syn. of *Baccha wulpiana* Lynch Arribálzaga, 1891.

Baccha pirata species group. Hull (1949a).

Ocyptamus (*Hermesomyia*). Mengual *et al.* (2012).

Ocyptamus wulpianus species group. Miranda *et al.* (2016).

Diagnosis. Straight face with large facial tubercle. Scutum covered by metallic microtrichia. Narrow, linear alula. Parallel-sided elongated abdomen with complete yellow fasciae.

Biology. Larvae of this genus live in the water-filled leaves of bromeliads and have been reported feeding on soft-bodied larvae of crane flies (Tipulidae), mosquitoes (Culicidae), aquatic beetles (Coleoptera, Helodidae), and larvae of other syrphids [*Ornidia obesa* (Fabricius, 1775) and *Quichuana angustiventris* (Macquart, 1855)] under artificial rearing conditions (Rotheray *et al.* 2000). Rotheray *et al.* (2000) suggested that *H. wulpianus* and *O. luctuosus* (Bigot, 1884a) use venom to subdue their prey.

Comments. When Vockeroth (1969) erected *Hermesomyia*, he considered it morphologically close to *Orphnabaccha* due to male genitalic similarities (mainly the *O. ampla* species group), but it is clearly distinguished by the linear alula and the elongated parallel-sided abdomen with sub-basal pale fascia, and the bare metasternum.

Species list (1): *H. wulpiana* (Lynch Arribálzaga, 1891).

Genus *Hybobathus* Enderlein, 1938 stat. rev.

Figs 73, 78, 81.

Hybobathus Enderlein, 1938: 233, as a genus. Type species: *Hybobathus quadrilineatus* Enderlein, 1938 (original designation).

Hypobathus Fluke, 1956: 217. Misspelling.

Callisyrphus Frey, 1946: 154, as a genus. Type species: *Syrphus rubricosus* Wiedemann, 1830 (original designation).

Calliscaeva Frey, 1946: 171. Incorrect original spelling of *Callisyrphus* (revision by Fluke 1956: 199).

Baccha lineatus species group. Hull (1949a).

Ocyptamus lineatus species group. Thompson (1981), Miranda *et al.* (2016).

Ocyptamus (*Hybobathus*). Mengual *et al.* (2012).

Diagnosis. Vertex/vertical triangle with white/silver microtrichia but with a dull black ocellar triangle. Dorsal

occiput with a single row of pile. Scutum either covered in dense pale microtrichia with 3–4 vittae or with three vittae of golden microtrichia that are joined together by a circular microtrichose area posteriorly. Wing with pattern of light brown/yellow and hyaline/pale areas. Petiolate abdomen. Abdominal terga with pairs of vittate markings.

Biology. Preys of this genus have not been reported for other ‘*Ocyptamus*’ groups (see Rojo *et al.* 2003). Larvae of *Hybobathus norina* (Curran, 1941) feed on jumping plant lice (Hemiptera: Psyllidae) and thrips (Thysanoptera), and known larvae of *H. lividus* (Schiner, 1868) and *H. zenia* (Curran, 1941) are also predators of Thysanoptera (see Rojo *et al.* 2003).

Comments. The species of this genus can be easily recognized by the overall pale color, the dull black ocellar triangle surrounded by white microtrichia and abdominal terga with patterns of pale vittae. The larger flies of this genus belong to the *H. arx* species group.

Species list (20): *H. anera* (Curran, 1939), *H. cobboldia* (Hull, 1958), *H. diffusus* (Curran, 1939), *H. flavipennis* (Wiedemann, 1830), *H. idana* (Curran, 1941), *H. lineatus* (Macquart, 1846), *H. lividus* (Schiner, 1868), *H. macropyga* (Curran, 1941), *H. norina* (Curran, 1941), *H. notatus* (Loew, 1866), *H. pennatus* (Hull, 1943b), *H. quadrilineatus* Enderlein, 1938, *H. rubricosus* (Wiedemann, 1830), *H. ryl* (Hull, 1943b), *H. silacea* (Austen, 1893), *H. thecla* (Hull, 1943b), *H. vampyrus* (Hull, 1943b), *H. vittiger* (Hull, 1949c), *H. wiedemanni* (Enderlein, 1938), *H. zenia* (Curran, 1941).

***Hybobathus arx* species group**

Fig. 82.

Aulacibaccha Hull, 1949a: 96, as a subgenus of *Baccha*. Type species *Baccha titan* Hull, 1947a (original designation; jun. syn. of *Baccha arx* Fluke, 1936).

Baccha (*Aulacibaccha*) *obsoleta* species group. Hull (1949a).

Ocyptamus (*Aulacibaccha*). Mengual *et al.* (2012).

Ocyptamus arx species group. Miranda *et al.* (2016).

Hybobathus arx species group. Miranda (2017).

Diagnosis. The *Hybobathus arx* species group belongs to the genus *Hybobathus* **stat. rev.** (see above). Species of the *H. arx* group have three vittae of golden microtrichia that are joined together by a circular microtrichose area posteriorly. They are larger (11–18 mm) and have a distinctly petiolate abdomen, with a narrow 2nd abdominal segment and distinctly widened 3rd and 4th segments (Miranda *et al.* 2016; Miranda 2017). The *H. arx* species group might be confused with the *Pelecinobaccha summa* species group (see below) due to some superficial similarities between the scutum and abdominal markings, but they can be distinguished, among other characters, by the single row of pile on the dorsal occiput of the *H. arx* group (the *P. summa* species group has two rows of pile) (Miranda 2017).

Biology. *Hybobathus arx* (Fluke, 1936) has been reared as predators of *Antianthe expansa* Germar (Hemiptera: Membracidae) (Montoya & Pérez 2009). *Hybobathus luciane* Miranda, 2017 was recorded preying on *Membracis foliata* (Linnaeus) (Hemiptera: Membracidae), *H. phaeopterus* (Schiner, 1868) on *Guayaquila xiphias* (Fabricius) (Hemiptera: Membracidae), and *H. persimilis* (Curran, 1930) on *Tuthillia cognata* Hodgkinson, Brown & Burckhardt (Hemiptera: Psyllidae) (Pérez & Iannaccone 2009; Miranda 2017).

Comments. See comments above under *Hybobathus*.

Species list (7): *H. arx* (Fluke, 1936), *H. avittatus* Miranda, 2017, *H. bivittatus* (Curran, 1941), *H. luciane* Miranda, 2017, *H. obsoletus* (Curran, 1941), *H. persimilis* (Curran, 1930a), *H. phaeopterus* (Schiner, 1868).

Genus *Mimocalla* Hull, 1943 stat. rev.

Figs 1, 72, 74, 76.

Mimocalla Hull, 1943b: 46, as a subgenus of *Baccha*. Type species: *Baccha capitata* Loew, 1863 (original designation).

Ocyptamus capitatus species group. Thompson (1981).

Ocyptamus (*Mimocalla*). Thompson & Zumbado (2000), Mengual *et al.* (2012).

Diagnosis. Sinuate vein R_{4+5} and sigmoid vein M_1 . Strongly petiolate abdomen. Enlarged male genitalia including a modified 4th sternum. Frons usually prominent and antenna short. Metacoxa and metatrochanter with thick and dense pile.

Biology. Immatures of the genus *Mimocalla* feed on scale insects (Hemiptera: Coccidae and Diaspididae) and whiteflies (Hemiptera: Aleyrodidae) (Thompson & Zumbado 2000; Rojo *et al.* 2003).

Comments. One of the largest syrphine flies, this genus can be recognized by the distinct sinuous R_{4+5} and M_1 veins plus the dense pile on the metacoxa and metatrochanter.

Species list (7): *M. bonariensis* (Bréthes, 1905), *M. capitata* (Loew, 1863), *M. erebus* (Hull, 1943e), *M. gigantea* (Schiner, 1868), *M. nymphaea* (Hull, 1943f), *M. tristani* (Zumbado in Thompson & Zumbado, 2000), *M. willistoni* (Thompson in Thompson *et al.*, 1976).

Genus *Ocyptamus* Macquart, 1834 stat. rev.

Figs 45, 47–50.

Ocyptamus Macquart, 1834: 554, as a genus. Type species: *Ocyptamus fuscipennis* Macquart, 1834 (subsequent designation by Coquillett (1910: 577); jun. syn. of *Baccha fuscipennis* Say, 1823).

Cryptamus Stahl, 1882: 97. Misspelling.

Baccha (*Ocyptamus*). Hull (1949a).

Baccha funebris species group. Hull (1949a).

Ocyptamus cylindricus species group. Thompson (1981), Mengual *et al.* (2012), Miranda *et al.* (2016).

Diagnosis. Pedicel with medial acute extension over the basoflagellomere. Parallel-sided elongated or slightly oval abdomen.

Biology. The known larvae of the species within this group feed only on aphids (Hemiptera: Aphididae) (see Rojo *et al.* 2003).

Comments. Dark flies with usually dark wings, *Ocyptamus sensu stricto* is readily distinguished by the medial extension of the pedicel, more distinct on the female, and with a distinct anterior row of long pile on the scutum forming the mesonotal collar. For a long time, it held all ‘*Baccha*’ species described in the New World.

Species list (19): *O. antiphates* (Walker, 1849), *O. calla* (Curran, 1941), *O. cylindricus* (Fabricius, 1781), *O. dimidiatus* (Fabricius, 1781), *O. fasciatus* (Röder, 1885), *O. funebris* Macquart, 1834, *O. fuscipennis* (Say, 1823), *O. gastrostactus* (Wiedemann, 1830), *O. icarus* Reemer, 2010, *O. inca* (Curran, 1939), *O. infuscatus* (Bigot, 1884a), *O. iris* Austen, 1893, *O. medina* (Telford, 1973), *O. megafemur* Thompson **sp. nov.**, *O. papilionarius* (Hull, 1943b), *O. princeps* (Hull, 1944b), *O. stolo* (Walker, 1852), *O. tarsalis* (Walker, 1836), *O. urania* (Hull, 1949a).

***Ocyptamus callidus* species group**

Fig. 30.

Ocyptamus callidus species group. Miranda *et al.* (2016).

Diagnosis. Dorsal occiput with two rows of pile. Alula narrow. Abdominal terga with ‘L’-shaped yellow markings. Male abdominal sternum 4 asymmetrical, with right side projected and acute.

Comments. Superficially similar to the *O. lepidus* species group, but these species have distinct ‘L’-shaped markings on the abdomen, two rows of pile on the dorsal occiput and strikingly different genitalia.

Species list (2): *O. callidus* (Hine, 1914), *O. pumilus* (Austen, 1893).

***Ocyptamus fuscipennis* species group**

Figs 86, 88.

Diagnosis. Dorsal occiput with one row of pile. Wings with median dark triangular marking, and costal cell partly

hyaline. Alula mostly bare. Abdomen elongated and narrow. Abdominal terga with basolateral quadrangular or triangular markings.

Biology. Larvae of *O. lemur* (Osten Sacken, 1877) and *O. fascipennis* (Wiedemann, 1830) have been reported feeding on mealybugs (Hemiptera: Pseudococcidae) (Rojo *et al.* 2003).

Comments. Strictly Nearctic. Similar to *Ocyptamus sensu stricto*, but with narrower abdomens, with medial ‘swelling’ on the second abdominal segment, and typical wing marking. Distinguished as well by the larval prey, which are exclusively mealybugs (Hemiptera: Pseudococcidae). Although already suggested in Mengual *et al.* (2012) and Miranda *et al.* (2016) based on molecular characters, this is the first time this group is formally defined.

Species list (2): *O. fascipennis* (Wiedemann, 1830), *O. lemur* (Osten Sacken, 1877).

***Ocyptamus lepidus* species group**

Figs 29, 31, 64–69, 79, 108–110, 112.

Baccha cultrata species group. Hull (1949a).

Baccha lepida species group. Hull (1949a).

Ocyptamus elnora species group, in part. Thompson (1981).

Ocyptamus lepidus species group. Thompson (1981), Miranda *et al.* (2016).

Diagnosis. Vertex/vertical triangle and ocellar triangle with white/silver microtrichia or entirely shiny. Wing usually wholly light brown/yellow. Vein M₁ sometimes straight. Alula usually narrow. Abdominal terga usually with a pair of central pale vittae or inverted ‘U’-shaped markings. Subepandrial sclerite with pair of lobes projecting between surstyli.

Biology. Larvae of *O. cubanus* (Hull, 1943b) feed on aphids (Hemiptera: Aphididae). Larvae of *O. luctuosus* (Bigot, 1884a) live in the water-filled leaves of bromeliads and have been reported with the same feeding habits as *Hermesomyia wulpianus* (see the biology section of *Hermesomyia*). Rotheray *et al.* (2000) proposed the use of venom by these larvae to subdue their prey.

Comments. Constituted mainly of brown flies with infuscated wings that might be confused with *Hybobathus*, but lacking the vertex, scutum and wing characteristics of the latter. This is one of the largest groups from the old concept of ‘*Ocyptamus*’, and worthy of sub-divisions of its own. It is also one of the largest groups proposed by Hull (1949a) but poorly distinguished then. Thompson (1981) diagnosed the group and distinguished it from the *O. lineatus* group (= *Hybobathus*). Miranda *et al.* (2016) recovered representatives of this group in a single clade. Despite the high morphological diversity, they share a unique condition on the male genitalia: a bilobated extension of the subepandrial sclerite that is located between the surstyli.

Species list (71): *O. abata* (Curran, 1938), *O. aeneus* (Williston, 1891), *O. aeolus* (Hull, 1943b), *O. anona* (Hull, 1943g), *O. arabella* (Hull, 1947a), *O. aurora* (Hull, 1943d), *O. banksi* (Hull, 1941b), *O. cecrops* (Hull, 1958), *O. chapadensis* (Curran, 1930a), *O. confusus* (Goot, 1964), *O. crocatus* (Austen, 1893), *O. croceus* (Austen, 1893), *O. cubana* (Hull, 1943b), *O. cultratus* (Austen, 1893), *O. cymbellina* (Hull, 1944b), *O. debasa* (Curran, 1941), *O. delicatissimus* (Hull, 1943c), *O. dryope* (Hull, 1958), *O. fervidus* (Austen, 1893), *O. filii* (Doesburg, 1966), *O. flavens* (Austen, 1893), *O. geijskesi* (Doesburg, 1966), *O. gilvus* (Austen, 1893), *O. halcyone* (Hull, 1949d), *O. hippolite* (Hull, 1957), *O. hyalipennis* (Curran, 1930c), *O. inornatus* (Walker, 1836), *O. io* (Hull, 1944b), *O. iona* (Curran, 1941), *O. isthmus* (Thompson in Thompson *et al.*, 1976), *O. lepidus* (Macquart, 1842), *O. lucretia* (Hull, 1949e), *O. luctuosus* (Bigot, 1884a), *O. micropyga* (Curran, 1941), *O. minimus* (Hull, 1943c), *O. murinus* (Curran, 1930a), *O. myiophagus* Thompson **sp. nov.**, *O. nasutus* (Williston, 1891), *O. neoparvicornis* (Telford, 1973), *O. neptunus* (Hull, 1943e), *O. neuralis* (Curran, 1934), *O. niobe* (Hull, 1943d), *O. nora* (Curran, 1941), *O. obliquus* (Curran, 1941), *O. oblongus* (Walker, 1852), *O. octomaculatus* (Thompson in Thompson *et al.*, 1976), *O. oriel* (Hull, 1942a), *O. peri* (Hull, 1943b), *O. phillipianus* (Enderlein, 1938), *O. pola* (Curran, 1939), *O. prenes* (Curran, 1930a), *O. prudens* (Curran, 1934), *O. pullus* (Sack, 1921), *O. punctifrons* (Williston, 1891), *O. pyxia* (Hull, 1943b), *O. saffrona* (Hull, 1943d), *O. spatulatus* (Giglio-Tos, 1892), *O. subchalybeus* (Walker, 1857), *O. vanessa* (Hull, 1949a), *O. verona* (Curran, 1941), *O. victoria* (Hull, 1941c), *O. vierecki* (Curran, 1930a), *O. virgilio* (Hull, 1942c), *O. wilhelmina* (Doesburg, 1962), *O. xanthopterus* (Wiedemann, 1830), *O. xantippe* (Hull, 1949a), *O. zenillia* (Curran, 1941), *O. zilla* (Hull, 1943c), *O. zita* (Curran, 1941), *O. zobeide* (Hull, 1943g), *O. zoroaster* (Hull, 1943b).

***Ocyptamus melanorrhinus* species group**

Figs 85, 87.

Baccha victoria species group, in part. Hull (1949a).

Ocyptamus parvicornis species group. Thompson (1981).

Ocyptamus mentor species group. Mengual *et al.* (2012).

Ocyptamus melanorrhinus species group. Miranda *et al.* (2016).

Diagnosis. Facial tubercle more dorsally positioned (except for *O. parvicornis* and related species, where it is more ventrally inserted). Dorsal lobe of calypter with short pile. Wing bare on base of cell c, basal 2/3 of cell r and most of cell bm. Alula absent. Abdomen narrow and elongated (2nd abdominal segment \leq 6 times longer than wide), slightly spatulate. Male postgonite elongated and tapering towards the apex, or short and with dorsal and ventral apical acute extremities, or very short.

Biology. Larvae of *O. mentor* (Curran, 1930a) feed on mealybugs (Hemiptera: Pseudococcidae) and whiteflies (Hemiptera: Aleyrodidae) (Rojo *et al.* 2003). Immatures of *O. sativus* (Curran, 1941) have been reported feeding only on Aleyrodidae, but larvae of *O. parvicornis* (Loew, 1861) feed on Aleyrodidae, Pseudococcidae and Fulgoridae (Hemiptera: Auchenorrhyncha) (Rojo *et al.* 2003).

Comments. Mengual *et al.* (2012) named this group the *O. mentor* species group. Miranda *et al.* (2016) resolved in a clade two morphospecies related to *O. attenuatus* and *O. melanorrhinus*, which share an overall similar morphology. Preliminary morphological analyses also placed *O. parvicornis* close to both species based on the bare pattern on the wing shared with them. However, the three have very distinct male and female genitalia, furthermore *O. parvicornis*, and the related species *O. ferrugineus* (Thompson, 1981), have a distinct overall orange color. This group needs further study to ascertain its component species and subdivisions.

Species list (12): *O. attenuatus* (Williston, 1891), *O. duida* (Hull, 1947a), *O. ferrugineus* (Thompson, 1981), *O. laudabilis* (Williston, 1891), *O. lugubris* (Philippi, 1865), *O. melanorrhinus* (Philippi, 1865), *O. mentor* (Curran, 1930a), *O. parvicornis* (Loew, 1861), *O. sagittiferus* (Austen, 1893), *O. sativus* (Curran, 1941), *O. selene* (Hull, 1949a), *O. variegatus* (Macquart, 1842).

***Ocyptamus stenogaster* species group**

Figs 70, 84, 92, 94, 95, 97.

Baccha obscuricornis species group. Hull (1949a).

Baccha victoria species group, in part. Hull (1949a).

Ocyptamus stenogaster species group. Thompson (1981), Mengual *et al.* (2012), Miranda *et al.* (2016).

Diagnosis. Facial tubercle medially positioned and pointed. Alula absent. Metathoracic epimera extended medially and dorsally to metacoxae, almost meeting. Abdomen very narrow, long and delicate (2nd abdominal segment \geq 8 times longer than wide).

Biology. Larvae of this species group have been reported feeding on mealybugs (Hemiptera: Pseudococcidae) (Löhr *et al.* 1990; Rojo *et al.* 2003; Prado *et al.* 2015).

Comments. Mainly Neotropical, two species in Florida (U.S.A.). Flies with a very narrow second abdominal segment. The typical flies of this group have a pointed facial tubercle, positioned medially on the face, a rugose frons/frontal triangle, and a wholly pale scutellum. Some species deviate from these characters, having a more globose and ventrally positioned tubercle, smooth frons/frontal triangle and black scutellum, but overall agree with the group's diagnosis to the point of the distinct extended metathoracic epimera (unique among the groups mentioned here). Nevertheless, it seems likely that there are more inclusive groupings within this taxon.

Species list (15): *O. argentinus* (Curran, 1939), *O. deceptor* (Curran, 1930a), *O. filiola* (Shannon, 1927), *O. filissima* (Hull, 1943b), *O. harlequinus* (Hull, 1948), *O. hyacinthia* (Hull, 1947a), *O. macer* (Curran, 1930a), *O. mara* (Curran, 1941), *O. oenone* (Hull, 1949a), *O. provocans* (Curran, 1939), *O. rugosifrons* (Schiner, 1868), *O. stenogaster* (Williston, 1888), *O. tenuis* (Walker, 1852), *O. titania* (Hull, 1943b), *O. zephyrea* (Hull, 1947b).

Genus *Orphnabaccha* Hull, 1949 stat. rev.

Figs 8, 55–60, 104, 105.

Orphnabaccha Hull, 1949a: 93, as a genus. Type species: *Baccha coerulea* Williston, 1891 (original designation).

Mercurymyia Fluke, 1950a: 140, as a subgenus of *Stenosyrphus* Matsumura & Adachi, 1917 (jun. syn. of *Melangyna* Verrall).

Type species: *Epistrophe caldus* Walker, 1852 (original designation). Synonymy by Thompson *et al.* (1976: 11).

Ocyptamus caldus species group. Thompson (1981).

Ocyptamus (*Orphnabaccha*). Mengual *et al.* (2012).

Ocyptamus amplus species group. Miranda *et al.* (2016).

Diagnosis. Frons wide. Ocellar triangle distanced three ocellus-width from the eye margin. Dorsal lobe of calypter with long pile. Metasternum usually pilose. Usually with parallel-sided elongated to slightly oval abdomen, some species slightly petiolate.

Comments. Flies from this group usually have broader abdomens, and some species are very *Syrphus*-like. Others are darker, with shiny flattened pile on the abdomen. Not all *Orphnabaccha* species have the distinctive pilose metasternum, but they can be further distinguished from the other groups presented here by a usually broader face, female ocellar triangle distinctly distanced from the eye margin and dorsal lobe of the calypter with long pile. Currently, there are three species groups within the genus, each with distinct types of genitalia (Vockeroth 1969): 1) *O. ampla* species group (*Syrphus*-like flies with bifurcate postgonites); 2) *O. calda* species group (species with arched yellow fascia on the abdomen, postgonite tooth-like, and distiphallus with large spines); and 3) *O. coerulea* species group (black abdomen with shiny flattened pile and lamellate postgonites).

Species list (31 species): *O. aequilineata* (Hull, 1945), *O. agilis* (Bigot, 1884b), *O. ampla* (Fluke, 1942), *O. calda* (Walker, 1852), *O. coerulea* (Williston, 1891), *O. decipiens* (Williston, 1891), *O. delimbata* (Enderlein, 1938), *O. diversa* (Williston, 1891), *O. dolorosa* (Hull, 1950), *O. elegans* (Giglio-Tos, 1892), *O. erratica* (Williston, 1888), *O. flavigaster* (Hull, 1944d), *O. fraterna* (Bigot, 1884a), *O. fuscicosta* (Lynch Arribáizaga, 1891), *O. golbachii* (Fluke, 1950b), *O. jactator* (Loew, 1861), *O. lanei* (Fluke, 1950b), *O. laticauda* (Curran, 1941), *O. lativentris* (Curran, 1941), *O. lauta* (Giglio-Tos, 1892), *O. limbus* (Enderlein, 1938), *O. nodosa* (Hull, 1930), *O. opaca* (Fluke, 1950b), *O. priscilla* (Hull, 1943b), *O. pteronis* (Fluke, 1942), *O. superba* (Thompson, 1981), *O. tiarella* (Hull, 1944b), *O. trabis* (Fluke, 1942), *O. tribiniciincta* (Enderlein, 1938), *O. virga* (Fluke, 1942), *O. volcana* (Fluke, 1942).

Genus *Pelecinobaccha* Shannon, 1927

Figs 7, 51, 80, 89–91, 93, 96, 98–103, 106.

Pelecinobaccha Shannon, 1927: 10, as a subgenus of *Baccha*. Type species: *Baccha peruviana* Shannon, 1927 (original designation). Miranda *et al.* (2014) proposed it as a genus.

Baccha tristis species group, in part. Hull (1949a).

Ocyptamus tristis species group, in part. Mengual *et al.* (2012).

Diagnosis. Dorsal occiput with two rows of pile (rarely anterior row with very short pile). Wings usually with dark markings. Petiolate abdomen, but might be very narrow and long. Female sixth segment modified into a single conical sclerite.

Biology. Very little is known about the natural history of *Pelecinobaccha*, despite the large number of species. Larval biology is only known for records of *P. costata* (Say, 1829) and *P. squamagula* Miranda in Miranda *et al.*, 2014, whose immatures feed on scale insects (Hemiptera: Coccidae) (Rojo *et al.* 2003; Miranda *et al.* 2014).

Comments. Many of the *Pelecinobaccha* species have a bicolored metatarsus, the metabasitarsomere having a dark base and pale apex. This genus is unique in having distinctly modified female genitalia, which is believed to be related to the placement of their eggs under the scale of their larval prey, Coccidae (Hemiptera) (Miranda *et al.* 2014). Miranda *et al.* (2014) distinguished four species groups: 1) *P. adspersa* species group (flies with polished black head and wholly dark metatarsus); 2) *P. brevipennis* species group (very slender flies similar to the *Ocyptamus stenogaster* species group, with long abdomens, and maculae on tergum 3 restricted to a lateromedial pair); 3) *P. peruviana* species group (typical *Pelecinobaccha* with bicolored metabasitarsomere, with basal half or more dark); and 4) *P. summa* species group [as *P. susio* species group; see Miranda 2017] (only group with scutum

pale laterally, at least on notopleuron and postalar callus, and with distinct pale microtrichose vittae, and metabasitarsomere usually with less than basal half dark).

Species list (52): *P. adspersa* (Fabricius, 1805), *P. alicia* (Curran, 1941), *P. alucard* Miranda in Miranda *et al.*, 2014, *P. andrettae* Miranda in Miranda *et al.*, 2014, *P. aster* (Curran, 1941), *P. avispas* Miranda in Miranda *et al.*, 2014, *P. beatricea* (Hull, 1942c), *P. brevipennis* (Schiner, 1868), *P. capesorum* Miranda in Miranda *et al.*, 2014, *P. clarapex* (Wiedemann, 1830), *P. concinna* (Williston, 1891), *P. cora* (Curran, 1941), *P. costata* (Say, 1829), *P. cryptica* (Hull, 1942a), *P. cubensis* (Macquart, 1850), *P. cyclops* (Hull, 1947a), *P. dracula* (Hull, 1943a), *P. duopuncta* Miranda & Thompson in Miranda *et al.*, 2014, *P. eruptova* (Hull, 1943f), *P. gracilitas* Miranda in Miranda *et al.*, 2014, *P. hiantha* (Hull, 1943b), *P. hirundella* (Hull, 1944b), *P. humillima* Miranda in Miranda *et al.*, 2014, *P. ida* (Curran, 1941), *P. invisibilis* Miranda in Miranda *et al.*, 2014, *P. levissima* (Austen, 1893), *P. manuelorum* Miranda in Miranda *et al.*, 2014, *P. menguali* Miranda in Miranda *et al.*, 2014, *P. mexicana* (Curran, 1930a), *P. mima* (Hull, 1949a), *P. morgani* Miranda in Miranda *et al.*, 2014, *P. nubilorum* Miranda & Thompson in Miranda *et al.*, 2014, *P. oviphora* (Hull, 1943b), *P. ovipositoria* (Hull, 1943b), *P. pandora* (Hull, 1942a), *P. peruviana* (Shannon, 1927), *P. pilinigridentis* Miranda in Miranda *et al.*, 2014, *P. pilipes* (Schiner, 1868), *P. portachueloi* Miranda in Miranda *et al.*, 2014, *P. pucallpa* Miranda in Miranda *et al.*, 2014, *P. seara* Miranda in Miranda *et al.*, 2014, *P. squamagula* Miranda in Miranda *et al.*, 2014, *P. summa* (Fluke, 1936), *P. telescopica* (Curran, 1930a), *P. tica* Miranda in Miranda *et al.*, 2014, *P. transatlantica* (Schiner, 1868), *P. tristis* (Hull, 1930), *P. unica* Miranda in Miranda *et al.*, 2014, *P. vera* (Hull, 1943b), *P. vesca* Miranda in Miranda *et al.*, 2014, *P. waynei* Miranda in Miranda *et al.*, 2014, *P. wyatti* Miranda in Miranda *et al.*, 2014.

Genus *Pipunculosyrphus* Hull, 1937 stat. rev.

Fig. 61.

Pipunculosyrphus Hull, 1937: 29, as a genus. Type species: *Pipunculosyrphus globiceps* Hull, 1937 (original designation).

Baccha (*Pipunculosyrphus*). Hull (1949a).

Ocyptamus (*Pipunculosyrphus*). Mengual *et al.* (2012).

Ocyptamus globiceps species group. Miranda *et al.* (2016).

Diagnosis. Large head. Narrow face. Narrow frons/frontal triangle. Without alula. Abdomen with inverted V-shaped fascia and/or oblique fasciate markings.

Comments. This genus looks morphologically close to *Orphnabaccha*, but with a narrow face and frons/frontal triangle, bare metasternum and elongated brown tinged wings.

Species list (2): *P. globiceps* Hull, 1937, *P. scintillans* (Hull, 1943e).

Genus *Pseudoscaeva* Vockeroth, 1969 stat. rev.

Fig. 46.

Pseudoscaeva Vockeroth, 1969: 123, as a genus. Type species: *Syrphus diversifasciatus* Knab, 1914 (original designation).

Ocyptamus (*Pseudoscaeva*). Mengual *et al.* (2012).

Ocyptamus diversifasciatus species group. Miranda *et al.* (2016).

Diagnosis. Dorsal occiput with 2–3 rows of pile. Mostly bare wings. Abdominal terga with pale fasciate maculae over black dull fasciae.

Comments. As the name suggests, this genus is superficially similar to *Scaeva*, having distinct bare areas on the wings (nowhere else among the groups studied here does the wing have such extensive bare areas). They have wide faces and frons, and the female ocellar triangle is distinctly distanced from the eye margin, and overall appearance reminds one of *Orphnabaccha*. A close phylogenetic relationship between *Orphnabaccha* and *Pseudoscaeva* based on morphological characters was already pointed out by Vockeroth (1969), although the metasternum is bare in *Pseudoscaeva*.

Species list (4): *P. diversifasciata* (Knab, 1914), *P. meridionalis* (Fluke, 1950b), *P. schoenemanni* (Enderlein, 1938), *P. sericea* (Walker, 1836).

Genus *Relictanum* Miranda in Miranda *et al.*, 2014

Fig. 107.

Relictanum Miranda in Miranda *et al.*, 2014: 85, as a genus. Type species: *Baccha crassa* Walker, 1852 (original designation). *Baccha tristis* species group, in part. Hull (1949a). *Ocyptamus tristis* species group, in part. Mengual *et al.* (2012).

Diagnosis. Face with median facial tubercle. Dorsal occiput with one row of pile. Petiolate abdomen.

Biology. Larvae of *Relictanum braziliensis* (Curran, 1939) are recorded preying on Coccidae (Hemiptera) (Miranda *et al.* 2014).

Comments. Phylogenetically and morphologically close to *Pelecynobaccha*, but much smaller flies with narrower 2nd abdominal segment and female genitalia not modified as in *Pelecynobaccha*. Morphologically similar to *Atylobaccha*, but readily separated by the presence of a facial tubercle.

Species list (9): *R. adpersitum* Miranda in Miranda *et al.*, 2014, *R. braziliensis* (Curran, 1939), *R. crassum* (Walker, 1852), *R. fiametta* (Hull, 1943b), *R. johnsoni* (Curran, 1934), *R. magisadpersum* Miranda in Miranda *et al.*, 2014, *R. nero* (Curran, 1939), *R. schwarzi* (Curran, 1939), *R. shropshirei* (Curran, 1930a).

Genus *Styxia* Hull, 1943 stat. rev.

Figs 52–54.

Styxia Hull, 1943b: 46, as a subgenus of *Baccha*. Type species: *Styxia eblis* Hull, 1943b (original designation). *Ocyptamus (Styxia)*. Mengual *et al.* (2012). *Ocyptamus eblis* species group. Miranda *et al.* (2016).

Diagnosis. Wide face (half the width of the head). Eyes usually pilose. Frons swollen and antennal pits separated. Ventral lobe of calypter black. Wing dark with hyaline, bare quadrangular areas. Abdomen spatulate. Abdominal terga with half of basolateral margins pale.

Comments. Although the most distinct and unique feature of *Styxia* are the pilose eyes, GFGM is aware of undescribed species that are very similar to *S. eblis* but have completely bare eyes.

The original taxonomic status of this name is confusing. In the original key and description (Hull 1943b: 45–46) the name is referred to “n. subgen.” but the type species is described as “*Styxia eblis*” (Hull 1943b: 65). Following the International Code of Zoological Nomenclature (1999), Article 23.6, “the first nomenclatural act taken in respect of a name or a nominal taxon ... constitutes the only valid such act”. Thus, *Styxia* was originally proposed as a subgenus of *Baccha* and its relative priority is equal to the other subgenera proposed by Hull in that article (Hull 1943b).

Species list (3): *S. ariela* (Hull, 1944c), *S. cerberus* (Hull, 1943b), *S. eblis* (Hull, 1943b).

New species descriptions

In this section, we formally describe in full three new species, i.e. *Ocyptamus maximus* Thompson **sp. nov.**, *Ocyptamus megafemur* Thompson **sp. nov.**, and *Ocyptamus myiophagus* Thompson **sp. nov.**

Ocyptamus maximus Thompson **sp. nov.**

Figs 11, 28, 32–37, 113.

Ocyptamus CR-45 Thompson *in litt.*

Ocyptamus maximus Thompson *in litt.* Arcaya *et al.* (2013).

Differential diagnosis. Although described as *Ocyptamus*, this species is *incertae sedis* regarding its generic affinities (see Comments below). Very large fly, almost completely dark with tawny wings and hyaline costal area.

Abdomen petiolate, dark, tergum 2 with two anterolateral yellow/translucent maculae and two medial, divergent orange fasciate markings.

Description. MALE: *Head* (Figs 28, 32, 34). Face brownish black except for very indistinct orange vitta running from antennal base to level of tubercle, sparsely grayish microtrichose, slightly denser laterally, black pilose; gena orange, shiny and bare on anterior 2/3, brown, dull and black pilose posteriorly; mouthparts orange; occiput black, densely grayish-white microtrichose, white pilose on ventral half, black pilose dorsally, with pile in 3–4 rows at medial notch, and a single row on dorsal 1/5; frontal triangle black, shiny and bare on anterior 1/2, brownish-black microtrichose and black pilose posteriorly; vertical triangle equilateral, black, black microtrichose and pilose; antenna brown, black pilose; ratio 1:1:2, with basoflagellomere about twice as long as broad; arista bare, about 1/3 shorter than antenna. *Thorax* (Figs 32, 33). Dark brown except postpronotum and scutellum lighter brown (almost tan); scutum brown microtrichose with lighter brown medial and submedial microtrichose vittae, black pilose, without any distinct anterior pile; scutellum light brown microtrichose, black pilose, without ventral pile fringe; pleuron dull, densely gray microtrichose on katepisternum and posterior anepisternum, black pilose; plumula short, light brown; calypter brownish black, with margin and fringe black, pile long on both calypters; halter and capitulum pale; metasternum bare; metathoracic episternum black pilose. *Legs*: brownish black except femoral-tibial joints lighter orange brown, black pilose. *Wing*: microtrichose, light brown except darker on basal cells, cell r_1 and r_{2+3} ; alula normal, broad, about as broad as cell cup. *Abdomen* (Figs 32, 33, 35). Petiolate, with 2nd segment about half as wide medially as apically; tergum 1 brownish black, dull, black pilose; tergum 2 brownish black except for translucent yellow divergent yellow vitta on basal 2/3 and with similar but smaller brownish orange divergent vitta posterior to the yellow and narrowly separated by black color, black pilose; terga 3–5 black, black pilose; sterna 1 and 3–5 black, black pilose; sternum 2 translucent yellow on basal 2/3, black apically, black pilose; 8th segment with a small protuberance. *Genitalia*: small, cercus orange, as in fig. 113.

FEMALE (Figs 36, 37). Similar to male except normal sexual dimorphism, frons black, shiny on anterior 1/3, black microtrichose with lighter gray microtrichose medial vitta, black pilose; tergum 6 short, about 1/3 as long as tergum 5, black, black pilose; ovipositor orange.

Length (n=1). Body, 22.4 mm; wing, 16.8 mm.

Geographical distribution. Colombia, Costa Rica and Venezuela.

Type-locality. COSTA RICA: Puntarenas Prov., Parque Nacional La Amistad, Zona Protectora Las Tablas, Las Alturas de Cotón, Estación Biológica Las Alturas, 1569 m., 8°56'43" N 82°50'00" W.

Material examined. Holotype, male, deposited in the Instituto Nacional de Biodiversidad (INBio), Santo Domingo de Heredia, Costa Rica, and labelled: "COSTA RICA. Prov. Puntarenas. Z. P. // Las Tablas, Estacion Biológica Cotón. // 1569m. 22 JUL 1999. M. Alrao. // Manual L_S_320400_593800 #57455" "INB003309582 // INBIOCRI COSTA RICA" [barcode] "*Holotype // Ocyptamus maximus // Thompson 2013*" [light red, handwritten] (Figs 32, 33). **Paratypes:** COLOMBIA: Sierra Nevada, San Lorenzo, J. Ujhelyi (1♀ FSCA). COSTA RICA: Puntarenas Prov., Finca Cafrosa, Embalse, 800 m north de Tigra, L_S_317800_596200, 1280 m, 15.viii.1997, A. Picado, #47694 (1♀ USNM, INBIOCRI002559410 INBIO); Puntarenas Prov., Sabalito, Camino a la Neblina, L_S_317800_597500, 1340 m., 22.viii.2000, M. Alfaro, #58936 (1♂ USNM, INB0003306083 INBIOCRI) (Figs 11, 28, 34, 35). VENEZUELA: Lara, P.N. Terepaima, 1200 m., 6.viii.1976, J.M. Osorio (1♀ MJMO, CE-UCLA/DS-1235) (Figs 36, 37).

Etymology. The specific epithet is derived from the Latin *maximus*, which means 'greatest' (Brown 1956: 516), as this is the largest known species of *Ocyptamus* and of the subfamily Syrphinae. Species epithet is an adjective.

Comments. *Ocyptamus maximus* is readily recognizable as this is the largest known species of the subfamily Syrphinae. Only some species of the Eristaline genus *Milesia* are larger.

O. maximus seems to be more morphologically closely related to *sargoides* Macquart than to any other taxon listed here based on a similar pattern of translucent maculae on the tergum 2 and sternum 2, the long black pile on the dorsal lobe of the calypter, and male genitalia (similar overall shape of phallus, postgonite and surstylus). Although *sargoides* Macquart is currently considered *incertae sedis* (see below), this new species is placed in the genus *Ocyptamus* at the present time since a species name must contain a generic name and a specific epithet [Article 5.1, International Code of Zoological Nomenclature (1999)].

***Ocyptamus megafemur* Thompson sp. nov.**

Figs 47–50, 114.

Ocyptamus CR-22 Thompson *in litt.*

Ocyptamus 08-10 Thompson *in litt.*

Differential diagnosis. This species belongs to *Ocyptamus sensu stricto*. *O. megafemur* sp. nov. has a complete yellow face, basoflagellomere large and oval with multiple sensory pits, yellow scutellum with posterior margin black, and dark abdomen with three pairs of round/oval yellow maculae. Male frontal triangle and lunule large. It is very distinguishable from other species by its well-defined mesonotal collar on anterior part of scutum, metafemur swollen and arcuate, and metatibia arcuate.

Description. MALE: Head (Figs 47–49). Face narrow, about 1/3 as wide as head, short, about 1/2 as high as eye, yellow, shiny, white pilose; tubercle low, indistinct; gena very narrow, yellow, bare; lunule very large, about 1/2 of frontal triangle area, yellow; frontal triangle large, yellow, shiny, black pilose except narrowly yellow pilose along eye margins, bare medially; vertical triangle narrow, short, about 1/2 as long as eye contiguity, black, black pilose, with pile in single row; occiput black, white microtrichose becoming grayish-white microtrichose on dorsal 1/3, white pilose, with pile thick and in 4 rows at notch, with 2 rows and some black thin pile on dorsal 1/4; holoptic; eye contiguity about as long as frontal triangle; scape and pedicel yellow, pedicel with triangular medial extension, black pilose except narrowly yellow pilose on lateral margin; basoflagellomere large, oval, with a semicircular row of sensory pits on lateral surface, brownish black except yellow ventrally, on ventral 1/5 laterally and on ventral 1/2 mesially; antennal ratio 1:1:4.5; arista about 2/3 as long as basoflagellomere. **Thorax** (Figs 47, 50). Postpronotum yellow, yellow pilose; scutum black except yellow on notopleuron and adjacent area posterior to transverse suture and on anterior 1/2 of postalar callus, sparsely black microtrichose, white pilose and with distinct anterior collar of pile; notopleuron produced lateral into distinct process; scutellum yellow except apical 1/5 black, dull, pale pilose with some apical dark pile, with a single row of long ventral pile; pleuron black except yellow on posterior anepisternum and dorsoposterior katepisternum, sparsely grayish microtrichose, yellow pilose; plumula not exceedingly large and white; calypter white; halter yellow. **Legs:** Coxae black, sparsely white microtrichose, yellow pilose; trochanters orange, pale pilose; profemur yellowish orange except black on posterodorsal 2/3, yellow pilose except black pilose along posteroventral margin on basal 2/3; mesofemur yellowish orange except black on posterodorsal 2/3, yellow pilose; metafemur swollen, slightly arcuate, black except basal 1/6 and apex narrowly orange, yellow pilose except black pilose posteriorly and on apical 1/4; pro- and mesotibiae yellowish orange, yellow pilose; metatibia arcuate, with ventroapical apex produced slightly, black, black pilose; protarsus broad, twice as broad as tibia, yellow, yellow pilose; mesotarsus yellow, yellow pilose; metatarsus yellowish orange, black pilose. **Wing:** Hyaline except subcostal cell light brownish; microtrichose except basomedially bare; bare on narrow base of subcostal cell, anterior to vein Rs, cell r except anteroapical 1/3, cell bm except on posteroapical 1/5, cell cup except medially on posterior 2/3, anterior to vein A2; alula large, broader than cell cup, bare. **Abdomen** (Figs 47, 50). Elongate, slightly constricted, narrowest at junction of terga 2 and 3, about 1.5 times as long as thorax; tergum 1 black, dull, white pilose; tergum 2 dull, black with two large mediolateral yellow maculae, which extend over lateral margin, black pilose; tergum 3 black with two large subbasal yellow maculae that are isolated from lateral margin, dull, black pilose; tergum 4 black, with two round basal maculae which are isolated from lateral margin, black pilose; tergum 5 black except lateral and apical margins reddish brown, dull, black pilose; sternum 1 dull, black, long white pilose; sterna 2 and 3 narrow, yellow, yellow pilose; sterna 4 and 5 brownish yellow, yellow pilose. **Genitalia:** as in Fig. 114.

FEMALE. Similar to male except for frons yellow with a narrow medial black vitta, black pilose; tergum 5 black except for small basolateral yellow areas, black pilose; female genitalia reddish brown, black pilose.

Length (n=1). Body, 15 mm; wing, 11 mm.

Etymology. The epithet *megafemur* is a Latin noun in apposition referring to the size of the metafemur.

Geographical distribution. From Mexico (Chiapas), east to Hispaniola and south to Costa Rica.

Type-locality. GUATEMALA: Departamento Quiché, south of Chichicastenango, Molino L. Tesoro, along Río Selapec, 1900 m., 14°55'10.56" N 91°06'20.52" W.

Material examined. Holotype, male, deposited in the Illinois Natural History Survey (INHS), Urbana, Illinois, United States, and labelled: "GUATEMALA: Dpto. Quiché // 14°55.176'N 91°06.342'W // south of Chichicastenango // Molino L. Tesoro, 1900 m // along Río Selapec // ME Irwin. 20 May 1997" "Schlinger

Foundation // Guatemala Expedition // May 1997" "Illinois Nat. // Hist. Survey" "*Holotype* // *Ocyptamus megafemur* // Thompson 2013" [light red, handwritten] "USNMENT 00249222" [barcode]. **Paratypes:** COSTA RICA: Costa Rica (1♀ INBio, INBIOCRI 0013917701). DOMINICAN REPUBLIC: Independencia Prov., Parque Nacional Sierra de Bahoruco, RD-138 Caseta no 2, 18°12.549' N 71°32.044' W, 1799 m., 3.vii.2003, D. Perez, R. B. Basterdo & B. Hiero (1♀ USNM, USNMENT 00038693). GUATEMALA: Dpto. Quiche, Chichicastenango, Pascual Aaj, 14°55.067' N 91°07.006' W, 2200 m., 20.v.1997, M.E. Irwin (1♀ INHS, USNMENT 00249221). MEXICO: Chiapas, El Triunfo, 100 m., 24.vii.1972, J. Helava (1♂ UNAM).

Comments. *Ocyptamus megafemur* is of interest due to its swollen arcuate metafemur and arcuate metatibia. Such leg structure is common among the milesine genera in the subfamily Eristalinae. Also atypical characters present in *megafemur* are the large lunule and frontal triangle, as well as the large oval basoflagellomere with multiple sensory pits. This species is part of the *Ocyptamus sensu stricto* and is superficially similar to *O. gastrostactus*.

***Ocyptamus myiophagus* Thompson sp. nov.**

Figs 108–110, 115.

Ocyptamus CR-36 Thompson *in litt.*

Ocyptamus CR-49 Thompson *in litt.*

Ocyptamus sp. Ureña & Hanson (2010).

Differential diagnosis. Species of the *O. lepidus* species group with face yellow and black pilose. Thorax broadly yellow laterally, black medially; scutellum dull yellow. Wing light brownish, completely microtrichose; alula about as wide as cell bm. Abdomen parallel-sided, dark, abdominal segment 2 rectangular (~2.5 times longer than wide) with a pair of mesolateral yellow vittate maculae, tergum 3 similar to tergum 2, and tergum 4 brown with a pair of basolateral short yellow maculae and a pair of inconspicuous medial vittae.

Description. MALE: Head (Fig. 109). Face yellow, whitish microtrichose and black pilose laterally, shiny and bare medially; lunule bare, yellow laterally, black medially; frontal triangle yellow except for a narrow brown medial vitta, dull microtrichose, black pilose; vertical triangle narrow, short about 1/3 as long as eye contiguity, black, black microtrichose and pilose; gena very narrow, yellow, bare; occiput black, gray microtrichose, with thick white pile on ventral 2/3, yellow pilose dorsally arranged in a single row on dorsal 1/4. Antenna yellowish orange except apical half of basoflagellomere brown; scape and pedicel black pilose; arista bare, short about as long as antenna. **Thorax** (Figs 108, 110). Brown and yellow; postpronotum and prothorax yellow; mesonotum dull brownish except yellow laterally from postpronotum to just posterior to transverse suture, pile sparse, short and yellow; postalar callus dull yellow, yellow pilose; pleuron dull yellow except black ventral 1/3 of katepisternum, anterior anepimeron and a broad vitta running from metathoracic spiracle to metacoxa; scutellum dull yellow, with short, sparse black pile, without ventral fringe; halter yellow with large brownish black capitulum; calypter narrow, with dorsal lobe without fringe, with ventral lobe with a conspicuous yellow fringe. **Legs:** Proleg yellow, pale pilose; mesoleg yellow, pale pilose except with a posterior row of black pile on femur; metaleg brown and black pilose except apex of basotarsomere and apical tarsomeres yellow and pale pilose. **Wing:** brownish, slightly darker anteriorly, entirely microtrichose; alula narrow, slightly wider than cell bm, microtrichose. **Abdomen** (Figs 108, 110). Elongate, narrow, slightly narrower than thorax; terga 2 and 3 subequal, and tergum 4 about 3/4 as long as tergum 2; tergum 1 brown except yellow laterally, dull, black pilose; terga 2–3 brown except for narrow yellow mesolateral maculae, dull, black pilose; tergum 4 brown with a pair of basolateral short yellow maculae and a pair of inconspicuous medial vittae, dull, black pilose; tergum 5 brown, with four yellow vittae, dull, black pilose; sternum 1 yellow, shiny, bare; sterna 2–5 narrow, brownish, sparsely black pilose. **Genitalia:** as in fig. 115; with subepandrial sclerite with bilobate process between bases of surstyli.

FEMALE. Similar to male except: frons yellow with broad medial brownish black vitta, dull, black pilose; ocellar triangle situated from posterior eye margin a distance 3.5 times its length; tergum 6 brownish black.

Length (n=1). Body, 11 mm; wing, 10 mm.

Etymology. The name is derived from the Greek *myio-* from *myia*, that means fly (Brown 1956: 543), and the Greek *-phago* from *phagein*, which means to eat (Brown 1956: 293), and it refers to the larval biology of the species (Ureña & Hanson 2010). Specific epithet is an adjective.

Geographical distribution. Only known from Costa Rica.

Type-locality. COSTA RICA, San José Prov., San Pedro de Montes de Oca, Universidad de Costa Rica, 9°56'09" N 84°03'02" W.

Material examined. *Holotype*, male, deposited in the Instituto Nacional de Biodiversidad (INBio), Santo Domingo de Heredia, Costa Rica, and labelled: "Costa Rica, San José // San Pedro Montes de Oca // U.C.R. // 1200m 10/ix/2001 // Col.: Onanchi Ureña // ind.A14 ♂" "*Holotype // Ocyptamus // myiophagus // Thompson*" [light red, handwritten] 'USNMENT // 01288295' [barcode]. **Paratypes:** the same locality as holotype, but different dates: x.2001, ind.L38 [1♂ UCR, ZFMK-DIP-00026907]; x.2001 [1♀ UCR, ZFMK-DIP-00026908]; ix.2001, ind.N [1♂ USNM, ZFMK-DIP-00026909]; ix.2001, ind.A13 [1♂ USNM, ZFMK-DIP-00026910]; 15.viii.2001, ind.B [1♂ ZFMK, ZFMK-DIP-00026916]; 3.ix.2001, ind.A22 [1♀ ZFMK, ZFMK-DIP-00026917]; 10.ix.2001, ind.A14 [1♂ USNM]; ix.2001, ind.A19, DNA-voucher ZFMK-D306 [1♂ ZFMK, ZFMK-DIP-00026911]; ix.2001, DNA-voucher ZFMK-D308 [1♂ ZFMK, ZFMK-DIP-00026912]; ix.2001, DNA-voucher ZFMK-D309 [1♂ UCR, ZFMK-DIP-00026914]; x.2001, ind.30, DNA-voucher ZFMK-D310 [1♀ ZFMK, ZFMK-DIP-00027139]; ix.2001, DNA-voucher ZFMK-D317 [1♂ ZFMK, ZFMK-DIP-00026913].

Biology. Ureña & Hanson (2010) described in detail the larval biology of this species. Larvae of *O. myiophagus* **sp. nov.** are found living among whitefly nymphs (Hemiptera: Aleyrodidae) on the undersides of citrus leaves. Instead of feeding on the whitefly nymphs, *O. myiophagus* **sp. nov.** larvae attack and subdue, with some kind of venom, adult flies that are attracted to honeydew. Results from their study suggest that *O. myiophagus* **sp. nov.** covers its larval body with the whitefly honeydew to attract the adult flies. Under laboratory conditions, larvae feed on *Drosophila melanogaster* Meigen, 1830 and *D. saltans* Sturtevant, 1916 (Diptera: Drosophilidae). Ureña & Hanson (2010) also reported some kind of cannibalism when a first instar larva fed on an egg of the same species, and an unidentified coccinellid (Coleoptera) as predator of eggs of *O. myiophagus* **sp. nov.**. Two endoparasitic koinobionts were reported in their study for *O. myiophagus* **sp. nov.**, *Proaspicera* sp. (Figitidae) and *Paracarotomus* sp. (Pteromalidae).

Comments. Based on characters of the male genitalia, and overall habitus of the adult, this species is part of the *O. lepidus* species group. The larval biology of this species, including camouflage, active prey attack, and its diet of adult dipterans make this species unique.

Nomenclatural acts arranged alphabetically by valid name

In this section we tried to summarize all the nomenclatural acts below genus level product of our study, such as new synonyms, misspellings, new combinations, and taxa left as *incertae sedis*, plus the redescription of *Syrphus sargoides* Macquart.

conjunctus Wiedemann, 1830 [*incertae sedis*]

Figs 27, 44.

Syrphus conjunctus Wiedemann, 1830: 116. Type-locality: South America [HT ♂ ZMUC].

Baccha atypica Curran, 1930a: 10. Type-locality: Brazil, Mato Grosso, Chapada [HT ♀ AMNH]. **New synonym.**

Therantha atypica. Hull (1943b: 47).

Ocyptamus atypicus. Thompson *et al.* (1976: 13).

Ocyptamus conjunctus. Thompson *et al.* (1976: 15).

Comments. This species does not fit the current definition of *Ocyptamus*. Preliminary morphological analyses place it close to *Mimocalla* species, but not all characters are in agreement with that taxon. Hull (1943b) erected the subgenus *Therantha* for the species *Baccha atypica* Curran, 1930a, a junior synonym of *conjunctus* Wiedemann, based on the elongate antenna, with each segment (scape, pedicel and basoflagellomere) subequal. Although there is an available generic name for this species, it is possible that it might still be allocated to one of the other taxa presented above in future analyses. Thus, it is left *incertae sedis* until more analyses can ascertain its position in the classification.

***grata* Curran, 1941 [*incertae sedis*]**

Figs 40–43.

Baccha grata Curran, 1941: 270. Type-locality: Brazil, Mato Grosso, Chapada [HT ♀ AMNH].

Ocyptamus gratus. Thompson *et al.* (1976: 19).

Comments. After studying specimens at the CNC identified as *grata* Curran, the male genitalia and wing characters are similar to the ones of *placiva* and *conjunctus* (see comments below in *placiva*). The abdominal markings are similar to those two species, but *grata* has an only slightly petiolate abdomen and its basoflagellomere is remarkably bifurcated in both sexes (a character seen so far in species of the subfamily Microdontinae and in the genus *Cacoceria* Hull of the Eristalinae). Other unique characters of this species are the male abdominal segment 5 and genitalia flexed dorsally, positioned perpendicular to the rest of the abdomen, tergum 4 with deep concave apical margin and sternum 4 with pair of acute projections apically. The female terga 5 and 6 are slightly asymmetric. It is unfortunate that when Curran (1941) described this species his type specimen lacked its most distinctive attributes, i.e. the basoflagellomere and the apex of the abdomen, partly destroyed by pests.

***placiva* Williston, 1888 [*incertae sedis*]**

Figs 71, 75, 77.

Baccha placiva Williston, 1888: 269. Type-locality: Brazil, Mato Grosso, Chapada [LT ♂ AMNH]. Lectotype ♂ here designated.

Ocyptamus placivus. Thompson *et al.* (1976: 25).

Hybobathus placivus. Miranda (2017: 55).

Comments. *Baccha placiva* Williston was described from a male and a female. A male deposited in the AMNH and labeled “Chapada” “TYPE // No. // A.M.N.H.” [red] “S.W. Williston // Collection” “Am. Mus. Nat. Hist. // Dept. Invert. Zool. // No. 19166” “Lectotype // *Baccha placiva* Williston // Des. G.F.G. Miranda, 2017” is here designated lectotype and has been so labeled. This lectotype designation is made in order to fix the concept of *placiva* and to ensure universal and consistent interpretation of the same.

Morphological evidence brings this species close to *conjunctus* Wiedemann and *grata* Curran. Besides the similar scutum and abdominal pattern, and the mostly hyaline wing with slightly sinuous veins R_{4+5} and M_1 , male genitalia have a more sclerotized phallus and have lateral lobes on the hypandrium, as in those two other species. The evidence is still weak to support a taxon comprising these three species; furthermore, *placiva* has a regular antenna when compared to the other two species.

***sargoides* Macquart, 1850 [*incertae sedis*]**

Figs 38, 39, 111.

Syrphus sargoides Macquart, 1850: 455. Type-locality: Brazil [T ♂ UMO].

Doros disjuncta Sack, 1921: 132. Type locality: Paraguay, St. Trinidad [LT ♂ DEI]. Lectotype ♂ here designated. **New synonym.**

Baccha flata Hull, 1940: 433. Type-locality: Brazil, Rio de Janeiro, Petropolis [HT ♂ CNC]. **New synonym.**

Baccha lopesae Curran, 1941: 269. Type-locality: Brazil, Rio de Janeiro, Tijuca [HT ♂ AMNH]. Synonym of *Baccha flata* Hull by Thompson *et al.* (1976: 18).

Ocyptamus disjunctus. Thompson *et al.* (1976: 17).

Ocyptamus flatus. Thompson *et al.* (1976: 18).

Ocyptamus sargoides. Thompson *et al.* (1976: 27).

Redescription. MALE: Head. Face yellowish with a poorly defined median orange vitta restricted to tubercle, sparsely white pollinose laterally, pollen expanding dorsally to level of antenna insertion, white pilose ventrolaterally to tubercle and progressively darker laterally until level of antenna insertion, anterior oral margin

sparsely white pilose; gena narrow, yellow; lunule shiny, with distinct depression dorsad each antenna insertion, yellow with median black spot connected to black oval spot dorsad lunule by narrow black vitta (vitta might be absent); frontal triangle dull yellow with median black triangular spot connected ventrally to lunule macula by narrow black vitta, black pilose, pile sparse directly ventrad triangular macula; antenna base protuberant, yellow but brownish dark laterally, black pilose; vertical triangle black, with five posterior to three anterior irregular compact rows of black pile ending before frontal ocellus; ocellar triangle distanced 1.5 times its length from the posterior eye margin; eye contiguity shorter than vertical triangle length; eye margin with no distinct indentation on posterior margin, at most slightly subtriangular ventrad level of antenna insertion; antenna insertions separated by median sclerotized band, antenna yellowish orange, black pilose with long pile dorsally and ventrally on the basal antennal segments, scape and pedicel of the same length, basoflagellomere oval and long, longer than length of scape plus pedicel, darker dorsally and apically, arista reddish brown; occiput silvery-white pollinose, with white pile in two to three regular rows on ventral 2/3 and in two regular rows on dorsal 1/3, anterior rows slightly shorter than posterior ones. **Thorax** (Fig. 38). Prothorax yellow, sparse white pollinose; scutum generally dull black pollinose with yellow lateral sides except darker immediately posterior to transverse suture, with complete sub-median pair and single median vittae of golden pollen, sub-median pair vittae slightly tapering and curving posterolaterally, each vitta of the pair connected to yellow lateral sides by narrow fascia of golden pollen at transverse suture, median vitta constricted at level of transverse suture and slightly expanded at posterior apex, with light golden erect pile, slightly orange laterally, pile longer anteriorly, laterally and posteriorly, pile forming distinct compact irregular rows anteriorly and a posteriorly oriented fringe of compact regular rows dorsal to wing insertion and anterior to post-alar callus; scutellum light yellow with large median hyaline fascia, pile long and golden dark to dark, basal pile light golden, ventral scutellar fringe with two to three rows of long light yellow pile; pleuron yellow, slightly reddish on ventral katapisternum and meron, darker on anatergum and ventral-posterior 1/5 of katatergum, sparsely white pollinose, with long, erect, golden orange pile on posterior 1/2 of posterior anepisternum, anterior anepimeron and slightly shorter on dorsal anterior anepisternum, with long erect light golden pile on ventral anepisternum, on an anterior and posterior patch dorsally on the katapisternum and ventrally on the katapisternum, and on katapimeron, slightly shorter ventrad posterior spiracle on metaepisternum, meron might have a few long light golden pile dorsally, posteroventral 2/3 of katatergum with very short, thin, densely arranged white pile; metasternum yellow, with very few hairs, may appear bare; metaepimeron flared laterally on posterior 1/2; postmetacoxal bridge incomplete, metathoracic epimera widely separated; plumula long, yellow; ventral wing sclerite black; dorsal calypter greyish black, margin black, fringe short and black, ventral calypter yellow, margin dark yellow, fringe long and yellow; halter yellow. **Wing**: mostly hyaline except for dark anterior margin (dark on cells c, sc, r₁, r₂₊₃ and most of anterior 1/2 of r), completely microtrichose; alula mostly hyaline, base slightly yellowish, completely microtrichose, large, 2× (basally) to 2.5× (apically) larger than c cell. **Legs** (Fig. 39): proleg yellowish, apical 1/2 of profemur light orange, yellow pilose but slightly orange on orange region, pile more abundant on procoxa, pile longer on procoxa, protochanter, laterally and ventrally on basal 1/2 of profemur, apex of profemur with slightly longer pile laterally; mesoleg yellow, mesofemur with sub-apical ring of light orange, pile yellow but slightly orange on orange region, longer on mesocoxa, mesotrochanter and mesofemur, densely arranged on apical 2/3 of mesofemur, with an irregular row of erect pile on ventro-posterior apical 2/3 of mesofemur, ventral apex of mesotibia and ventral side of mesobasitarsomere with longer, thicker and darker pile, mesobasitarsomere as wide as mesotibia, longer than, but of same width as, remaining tarsomeres; metaleg orange, yellow on apex of metafemur and basal 1/2 of metatibia, orange pilose but also black pilose anterobasally on metacoxa and ventrally on metatrochanter (or completely black on both segments and on ventral base of metafemur), long and densely arranged on metacoxa, metatrochanter and metafemur, metabasitarsomere as on mesoleg, but longer; tarsal claws with basal 1/2 yellow, apical 1/2 black. **Abdomen** (Fig. 38). Slightly oval, slightly longer than thorax. Tergum 1 short, with wider and rounded lateral sides, yellow, slightly black on apical margin, with long black pile, light yellow basally, with sparse short pile to bare medially. Tergum 2 subquadrate, slightly constricted basally, usually orange with two large hyaline quadrangular spots on basal 1/2, separated by narrow yellow vitta (tergum might also be slightly pale apically), pile yellow, long, erect and sparse on basal 1/2, orange to black and appressed on apical 1/2, shorter and sparse medially on apical 1/2. Tergum 3 rectangular wider than long, orange to dark brown (might also be narrowly pale apically and with a median complete pale vitta), with light orange appressed pile, darker laterally. Tergum 4 as tergum 3 but slightly trapezoidal, with wide base. Tergum 5 as tergum 4 but smaller, apex not so pale and without median pale vitta. Sternum 1 distinctly sclerotized, orange,

with densely arranged, long, black pile, except shorter laterally; sternum 2 rectangular long, basal 2/3 hyaline, apical 1/3 orange, bare on basal 1/3, with long, erect, yellow pile on median 1/3, slightly shorter and orange pile on apical 1/3; sterna 3–5 similar to respective terga. **Genitalia:** surstylus narrow and elongated, with long pile on dorsobasal 1/4 and ventrobasal 1/2, with a few sparse ventral setulae on apical 1/2; subepandrial sclerite rectangular wider than long, with convex anterior margin, concave lateral margins, and posteriorly elongated basolateral corners. Hypandrium short oval, slightly longer than wide in dorsal view, ventral notch extending for most of the length of the hypandrium, with concave basal margin; phallapodeme mostly unsclerotized; basiphallus drop-shaped in ventral view, posterior projection short, apical 1/2 much higher than the tapering basal 1/2, anterior sclerotized surface of the distiphallus almost straight, tapering apically, base slightly extending laterally but not joining ventrally, with wider membranous area on apex, ventral surface completely membranous and with sparse microtrichia; postgonite with basal margin straight and apical margin mostly straight, with apicoventral extremity as an acute projection, with pile on basal 3/4 of the ventral margin.

FEMALE. Similar to male except frons widens from vertex, median black triangular spot connected dorsally to vertex by a median black vitta; vertex slightly shining, black with color slightly advancing ventrally on lateral sides forming a rounded margin with yellow lateral sides of frons, with shorter pile; ocellar triangle 3× its length in front of the posterior eye margin; internal lateral side of scape slightly extending into the base of the basoflagellomere; occiput not so enlarged. **Genitalia:** Tergum 7 sclerotized, lighter on a medial vitta, pilose on apical 1/3; sternum 7 membranous, wholly pilose, with some longer pile apically. Tergum 8 subtriangular and sclerotized, lighter on a medial vitta, with sparse pile restricted to apical 1/3; sternum 8 mostly membranous except sclerotized laterally, wholly pilose. Epiproct as a pair of quadrangular plates, with a few pile apically, apodeme twice the length of the epiproct; hypoproct triangular and membranous, pilose. Cerci membranous, pilose, positioned apically and on a perpendicular plane to the epiproct. With three mostly round spermathecae, with a short acute projection in one side.

Biology. Sack (1921) reared the species from a small cicada (Hemiptera: Cicadidae) on *Pilocarpus sellovii* [probably a misspelling of *Podocarpus sellowii* Klotzsch ex Endl.]. Rojo *et al.* (2003) reported a citation of this species feeding on *Pseudococcus pertusus* McKenzie (Hemiptera: Pseudococcidae) from Brazil. The studied material from Trinidad and Tobago was reared from predaceous larvae on membracid nymphs on *Inga* sp. (Fabaceae).

Other material examined: BRAZIL: Amazonas, Tabatinga, 11.vii.1991, M. Rosa & J. Vidal (1♀ INPA); Espírito Santo, Santa Teresa, 24.ix.1966, C. T. & C. Elias (1♂ DZUP, DZUP-Diptera 342985); Rio de Janeiro, Corcovado, vi.1932, L.T. (1♂ MNRJ); Tijucas, 29.viii.1939, Freitas & Lopes (1♂ MNRJ); Jardim Botânico, 28.vi.1938, D. Mendes (1♀ MNRJ); Santa Catarina, Nova Teutonia, 27°11' S 52°23' W, 300–500 m, ii.1968, F. Plaumann (1♂ CNC). COSTA RICA: Alajuela, Sector San Ramón, L_N 318100_381900, 800 m, 11–15.iv.1994, M. Zumbado, #2857 (1♂ USNM, INBIOCRI001820338). TRINIDAD AND TOBAGO: Parrylands, 13.i.1981, M.J.W. Cock, CIE Coll. A. 13628 (1♂ 1♀, 2 puparia, BMNH).

Comments. *Syrphus sargoides* Macquart was described from an unspecified number of males from Brazil, one of which was illustrated. The syntype now in the Oxford Museum, without an abdomen and labeled “*sargoides* ♂ / ♂ *Macq. n. sp.*” [Macquart handwritten label glued on to a Bigot label of] “Brazi. D. exot.” is here designated as lectotype.

Doros disjuncta Sack was described from a male and a female. A male labeled “Paraguay // Sa. Trinidad // VIII.1913” “R545” [in Red handwriting] “*Doros // disjunctus* S.” [in Sack's hand] is here designated lectotype and has been so labeled. This lectotype designation is made in order to fix the concept of *disjuncta* and to ensure universal and consistent interpretation of the same.

The holotypes of *Baccha flata* Hull, now in the Canadian National Collection, and of *Baccha lopesae* Curran, in the American Museum of Natural History, were also examined. *Doros disjuncta* Sack and *Baccha flata* Hull are new synonyms of *Syrphus sargoides* Macquart, a very distinctive large species with a broad abdomen and large metatibial pile brushes, which ranges from Costa Rica to Brazil. Based on preliminary morphological analysis, it does not fit in the current *Ocyptamus* definition but, based on some morphological characteristics, might belong within *Mimocalla*.

***Ocyptamus funebris* Macquart, 1834**

Ocyptamus funebris Macquart, 1834: 554. Type-locality: Brazil [LT ♂ UMO]. Lectotype ♂ here designated.
Syrphus iridipennis Walker, 1836: 345. Type-locality: South America [T ♂ BMNH]. Synonymy by Thompson *et al.* 1976: 18.
Baccha bromleyi Curran, 1929: 490. Type-locality: Cuba, Santiago, Las Vegas [HT ♂ AMNH]. **New synonym.**
Baccha prunella Hull, 1943b: 72. Type-locality: Brazil, Santa Catarina, Nova Teutonia [HT ♂ AMNH]. Synonymy by Reemer (2010: 183).
Ocyptamus bromleyi. Thompson *et al.* (1976: 14).
Ocyptamus prunella. Thompson *et al.* (1976: 26).

Comments. *Ocyptamus funebris* Macquart was described based on an unknown number of specimens from Brasil found in the collection of M. Serville in Paris. Later, Bigot acquired the Macquart collection, which contained the Serville collection. In the Verrall-Collin Collection at the UMO, there are five specimens associated with the Bigot's label of *O. funebris* Macquart. Four of the specimens are without heads and otherwise damaged. The lone intact male is here designated lectotype and has been so labeled.

Hull (1949a) wrongly portrayed the reddish areas of the abdomen of *Baccha bromleyi* Curran, 1929 as completely yellow in his drawing (Hull 1949a: 131, pl. XVI: fig. 123). This could lead one to confuse the abdominal markings of this taxon with those of *O. megafemur* Thompson **sp. n.**

***Ocyptamus pullus* (Sack, 1921)**

Baccha pulla Sack, 1921: 130. Lectotype-locality: Paraguay, Trinidad [LT ♀ SMF]. Lectotype ♂ here designated.
Baccha sepia Hull, 1941a: 161. Type-locality: Brazil, Sao Paulo [HT ♂ CNC]. **New synonym.**
Baccha danaida Hull, 1943d: 74. Type-locality: Brazil, Santa Catarina, Nova Teutonia [HT ♂ AMNH]. **New synonym.**
Baccha violacea Hull, 1943b: 71. Type-locality: Brazil, Santa Catarina, Nova Teutonia [HT ♀ AMNH]. **New synonym.**
Baccha ursula Hull, 1947: 234. Type-locality: Paraguay, Villarica [HT ♂ USNM]. **New synonym.**
Ocyptamus danaida. Thompson *et al.* (1976: 16).
Ocyptamus pullus. Thompson *et al.* (1976: 26).
Ocyptamus sepia. Thompson *et al.* (1976: 27).
Ocyptamus ursula. Thompson *et al.* (1976: 29).
Ocyptamus violaceus. Thompson *et al.* (1976: 29).

Comments. *Baccha pulla* Sack was described from a male and two females from two different localities in Paraguay, Aregua (male and female) and Trinidad (female). A female deposited in the SMF and labeled “Paraguay // Sa. Trinidad // 19.VII.1915” “189” [red ink] “*Baccha // pulla* Sack.” [in Sack's hand] “Collection // Prof. Dr. P. Sack” “LECTOTYPE // *Baccha // pulla* Sack” des. X. Mengual 2017” [red] is here designated lectotype and has been so labeled. This lectotype designation is made in order to fix the concept of *pulla* and to ensure universal and consistent interpretation of the same.

***Pelecinobaccha hiantha* (Hull, 1943)**

Baccha hiantha Hull, 1943b: 74. Type-locality: Brazil, Santa Catarina, Nova Teutonia [HT ♀ AMNH].
Baccha nerissa Hull, 1943c: 215. Type-locality: Ecuador, Piñas [HT ♀ AMNH]. **New synonym.**
Baccha zoe Hull. *Nomen nudum* (manuscript name). Statement by Miranda *et al.* (2014: 44).
Ocyptamus hiantha. Thompson *et al.* (1976: 19).
Ocyptamus nerissa. Thompson *et al.* (1976: 23).

Comments. The holotype of *B. nerissa* Hull differs in some aspects from the holotype of *B. hiantha* Hull, having more distinct abdominal vittate markings and dark of the wing restricted to r, basal 2/3 of r₁ and basal 1/3 of r₂₊₃, which are here considered as morphological variations for the species. *Baccha hiantha* Hull takes preference for the synonym as it was published in April 30th, 1943 (Hull 1943b) while *B. nerissa* Hull was published in July 8th, 1943 (Hull 1943c).

***Pelecinobaccha transatlantica* (Schiner, 1868)**

Baccha transatlantica Schiner, 1868: 343. Type-locality: Brazil and Colombia [LT ♂ NHMW]. Designated by Miranda *et al.* (2014: 79).

Baccha panamensis Curran, 1930a: 9. Type-locality: Panama, Colorado Island, Canal Zone [HT ♂ AMNH]. **New synonym.**

Baccha cybele Hull, 1947: 236. Type-locality: Paraguay, Villarrica [HT ♂ USNM]. Synonym by Miranda *et al.* (2014: 76).

Baccha limpidapex Curran, 1941: 282. Type-locality: Brazil, Mato Grosso, Chapada [HT ♂ AMNH]. Synonym by Miranda *et al.* (2014: 76).

Baccha nitidula Curran, 1930a: 9. Type-locality: Panama, Canal Zone, Barro Colorado Island [HT ♂ AMNH]. Synonym by Miranda *et al.* (2014: 76).

Baccha potentilla Hull, 1942: 100. Type-locality: Paraguay, Villarrica [HT ♂ MCZ]. Synonym by Miranda *et al.* (2014: 76).

Baccha simulata Curran, 1939: 10. Type locality: Peru, Lower Rio Tapiche [HT ♂ AMNH]. Synonym by Miranda *et al.* (2014: 76).

Ocyptamus cybele. Thompson *et al.* (1976: 16).

Ocyptamus limpidapex. Thompson *et al.* (1976: 21).

Ocyptamus nitidulus. Thompson *et al.* (1976: 23).

Ocyptamus potentila. Thompson *et al.* (1976: 25).

Ocyptamus simulatus. Thompson *et al.* (1976: 27).

Ocyptamus transatlanticus. Thompson *et al.* (1976: 28).

Comments. The holotype of *Baccha panamensis* Curran fits the redescription of *Pelecinobaccha transatlantica* by Miranda *et al.* (2014), with the exception that the color pattern of the legs is much darker overall, with pale areas reduced to the base of the tibiae. The allotype of *B. panamensis* is not conspecific with the holotype, and it has been identified as *Relictanum johnsoni*.

***Toxomerus immaculatus* (Macquart, 1842) comb. nov.**

Syrphus immaculatus Macquart, 1842: 158. Type-locality: Brazil or Chile [T ♀ MNHN].

Ocyptamus immaculatus. Thompson *et al.* (1976: 20).

Comments. The type specimen shows typical abdominal markings of *Toxomerus* species and should be allocated therein. The illustrated type specimen in Macquart (1842: plate 17: fig. 1) clearly shows that it is a *Toxomerus* species.

***Styxia cerberus* (Hull, 1943)**

Baccha cerberus Hull, 1943b: 66. Type-locality: Ecuador, Chicocha [HT ♀ AMNH].

Ocyptamus cereberus. Thompson *et al.* (1976:14). Misspelling.

Comments. Hull (1943b) originally named his species *Baccha cerberus*, but Thompson *et al.* (1976) misspelled it as *cereberus*. This species was already related to *Styxia eblis* by Hull (1943b) in his original description and it fits the current diagnosis of *Styxia*.

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This paper was started years ago by FCT as the first of a series to revise *Ocyptamus sensu lato* (see Thompson & Zumbado 2000: 773). Now this installment is due to interest and enthusiasm of the younger authors (GFGM & XM). All authors worked in the preparation of the manuscript. FCT & XM did the species taxonomy and GFGM contributed with the supraspecific taxa diagnoses and the nomenclatural acts. XM & GFGM contributed with the introduction, diagnoses, and images, and commented and assembled the species lists of the supraspecific taxa. All authors collaborated on the key.

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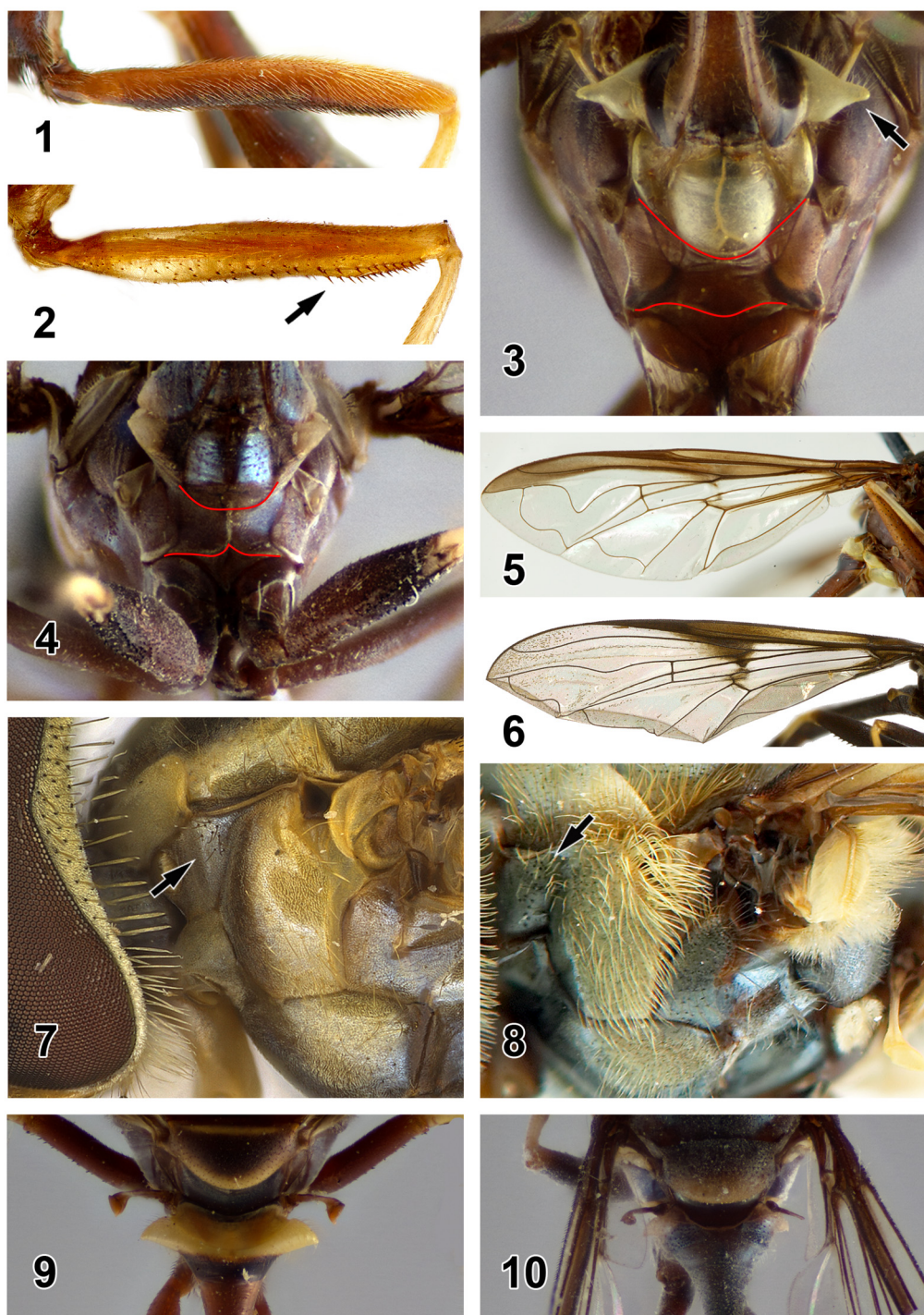
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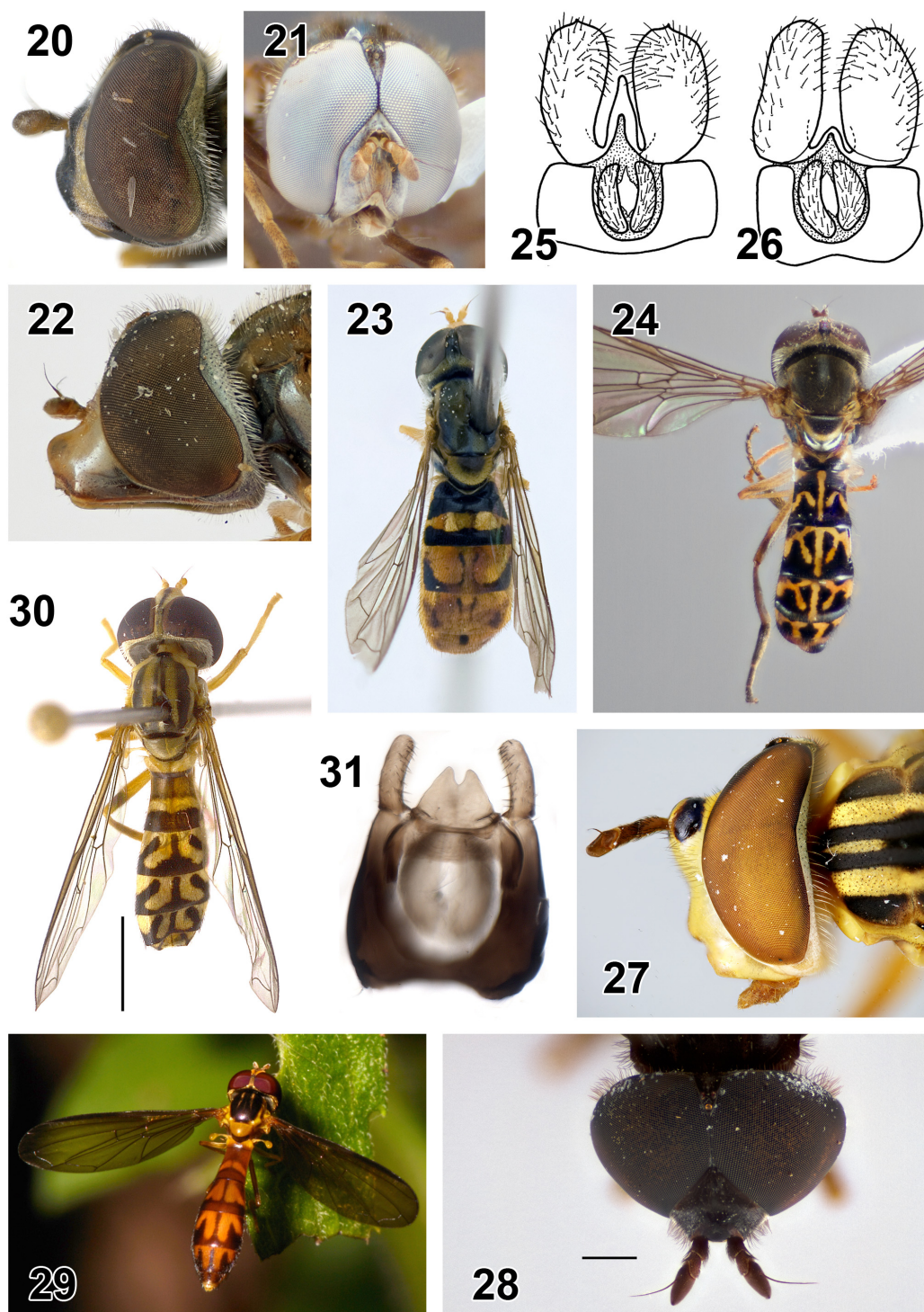
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FIGURES 1–10. 1: *Mimocalla erebus* (Hull) [female, CNC_Diptera209354], metafemur, lateral view. 2: *Salpingogaster* sp. [male, INPA-DIP0000125], metafemur, lateral view. **Note:** Arrow indicates ventral spinose setae. 3: *Salpingogaster nigra* Schiner [male, ZFMK-DIP-00020899], postmetacoxal bridge with tergum 1 and sternum 1, posterior view. **Note:** Arrow indicates tergum 1. Red lines indicate the complete postmetacoxal bridge (=metepimera continuous behind coxae). 4: *Eosalpingogaster umbra* Mengual & Thompson [female, USNMMENT 00036793], postmetacoxal bridge with tergum 1 and sternum 1, posterior view. **Note:** Arrow indicates tergum 1. Red lines indicate the complete postmetacoxal bridge (=metathoracic epimera continuous behind metacoxae); less sclerotized medial line visible. 5: *Salpingogaster nigra* [male, DEBU01088906], wing. 6: *Eosalpingogaster cochenillivora* (Guérin-Ménéville) [male, MPEGDIP12170472], wing. 7: *Pelecinobaccha alia* Miranda [male, USNMMENT 01288155], occiput and pleuron, lateral view. **Note:** Arrow indicates pile on anterior anepisternum. 8: *Orphnabaccha* cf. *ampla* Fluke [male, CNC_Diptera210129], pleuron, lateral view. **Note:** Arrow indicates pile on anterior anepisternum. 9: *Salpingogaster nigra* [male, ZFMK-DIP-00020899], scutellum and tergum 1, dorsal view. 10: *Eosalpingogaster umbra* [female, USNMMENT 00036793], scutellum and tergum 1, dorsal view.



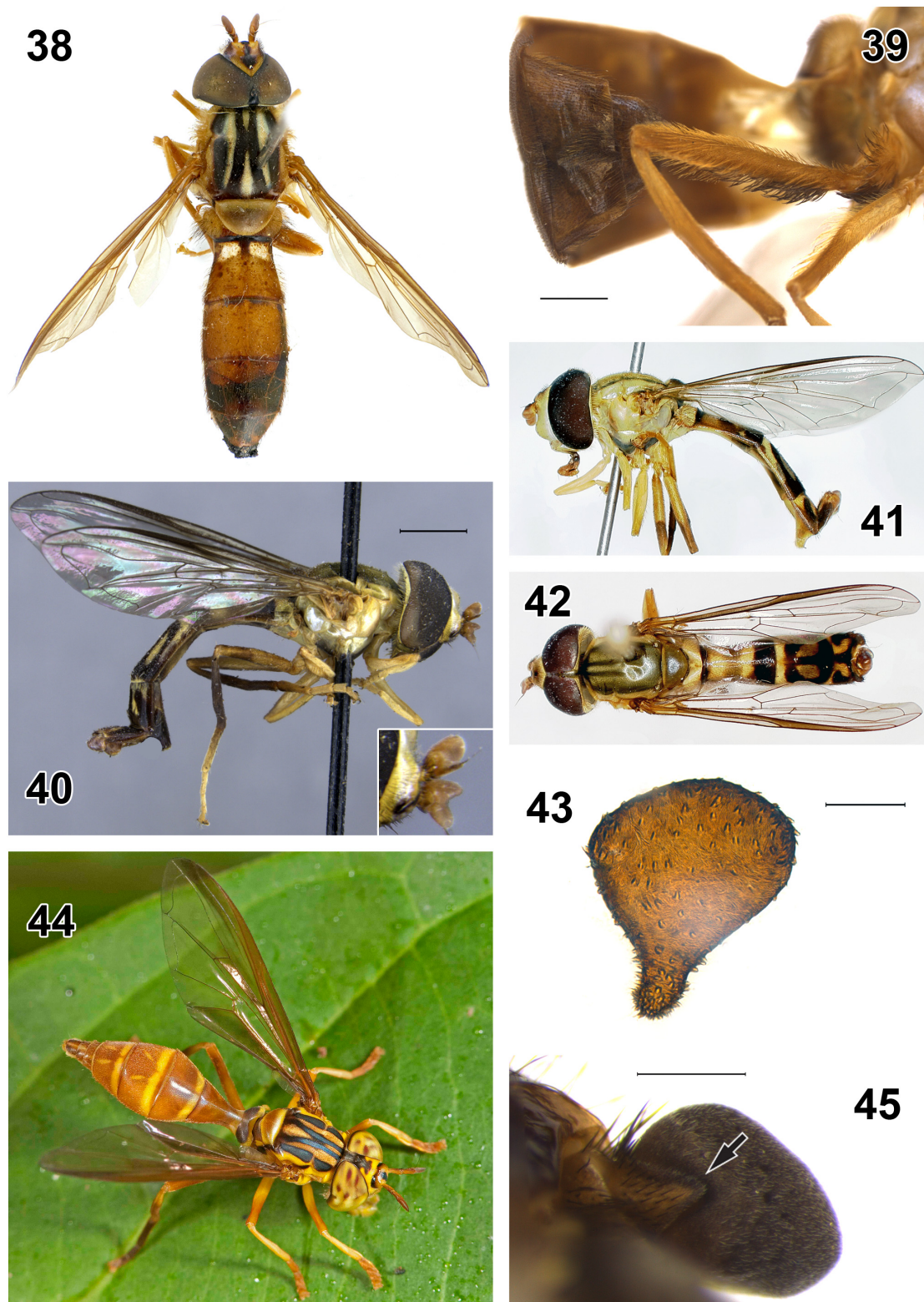
FIGURES 11–19. 11: *Ocyptamus maximus* Thompson sp. nov. [male paratype, INB003306083], metacoxae, sternum 1 and metaepisternum, posterior view. **Note:** Arrow indicates pile on metaepisternum. Red lines indicate the incomplete postmetacoxal bridge (=metathoracic epimera widely separated behind metacoxae). 12: *Dioprosopa clavata* (Fabricius) [female, INPA-DIP0000109], head and pleuron, lateral view. 13: *Rhinoprosopa aenea* (Hull) [male, ZFMK-DIP-00028705], head, lateral view. 14: *Rhinoprosopa flavophylla* Hull [male, USNMMENT 00890787], head, lateral view. 15: *Leucopodella incompta* (Austen) [female, INPA-DIP0000104], head, lateral view. 16: *Hermesomyia wulpiana* (Lynch Arribáizaga) [male, USNM], head, lateral view. 17: *Atylobaccha flukiella* (Curran) [male, GFGM-MPEG0007], head, lateral view. 18: *Leucopodella incompta* [male, INBIO CRI001820341], habitus, dorsal view. Scale = 1 mm. 19: *Atylobaccha flukiella* [male, GFGM-MPEG0007], habitus, dorsal view. Scale = 1 mm.



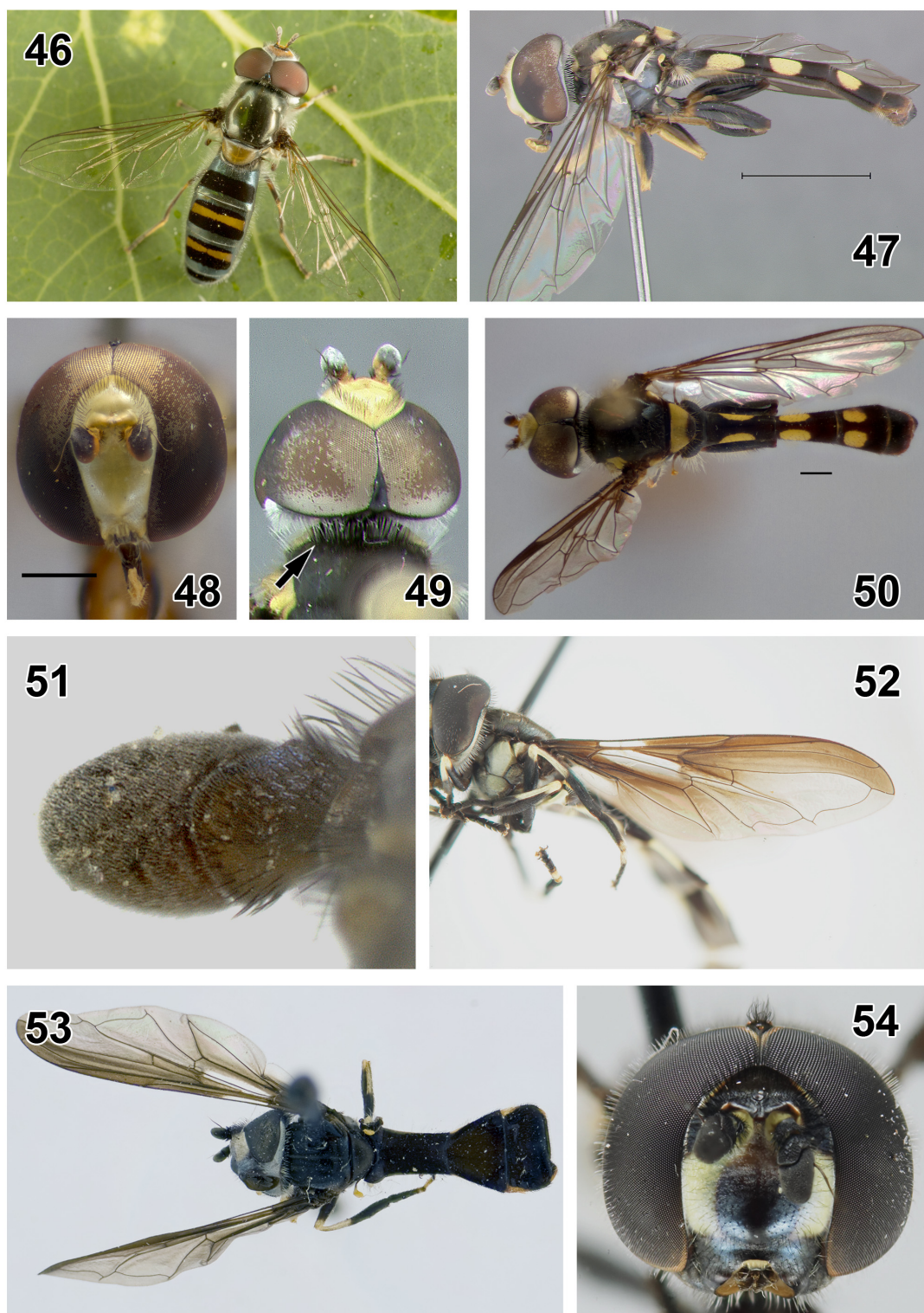
FIGURES 20–31. **20:** *Toxomerus dispar* (Fabricius) [female, INPA-DIP0000142], head, lateral view. **21:** *Toxomerus basalis* (Walker) [male, ZFMK-DIP-00012165], head, frontal view. **22:** *Toxomerus paragrammus* (Schiner) [male syntype, NHMW], head, lateral view. **23:** *Toxomerus marginatus* (Say) [male, USNM], habitus, dorsal view. **24:** *Toxomerus pallipes* (Bigot) [male, ZFMK], habitus, dorsal view. **25:** *Toxomerus dispar*, epandrium and associated structures, dorsal view (from Thompson 1981). **26:** *Toxomerus floralis* (Fabricius), epandrium and associated structures, dorsal view (from Thompson 1981). **27:** *Syrphus conjunctus* Wiedemann [male, CNC_Diptera209347], head, lateral view. **28:** *Ocyptamus maximus* Thompson **sp. nov.** [male paratype, INB003306083], head, dorsal view. Scale = 1 mm. **29:** *Ocyptamus* sp., *O. lepidus* species group, female, habitus, dorsal view, by Gil F. G. Miranda. **30:** *Ocyptamus* sp., *O. callidus* species group [female, INPA-DIP0000171], habitus, dorsal view. Scale = 2 mm. **31:** *Ocyptamus* aff. *micropyga*, *O. lepidus* species group [male, INPA-DIP0000267], epandrium and associated structures, ventral view.



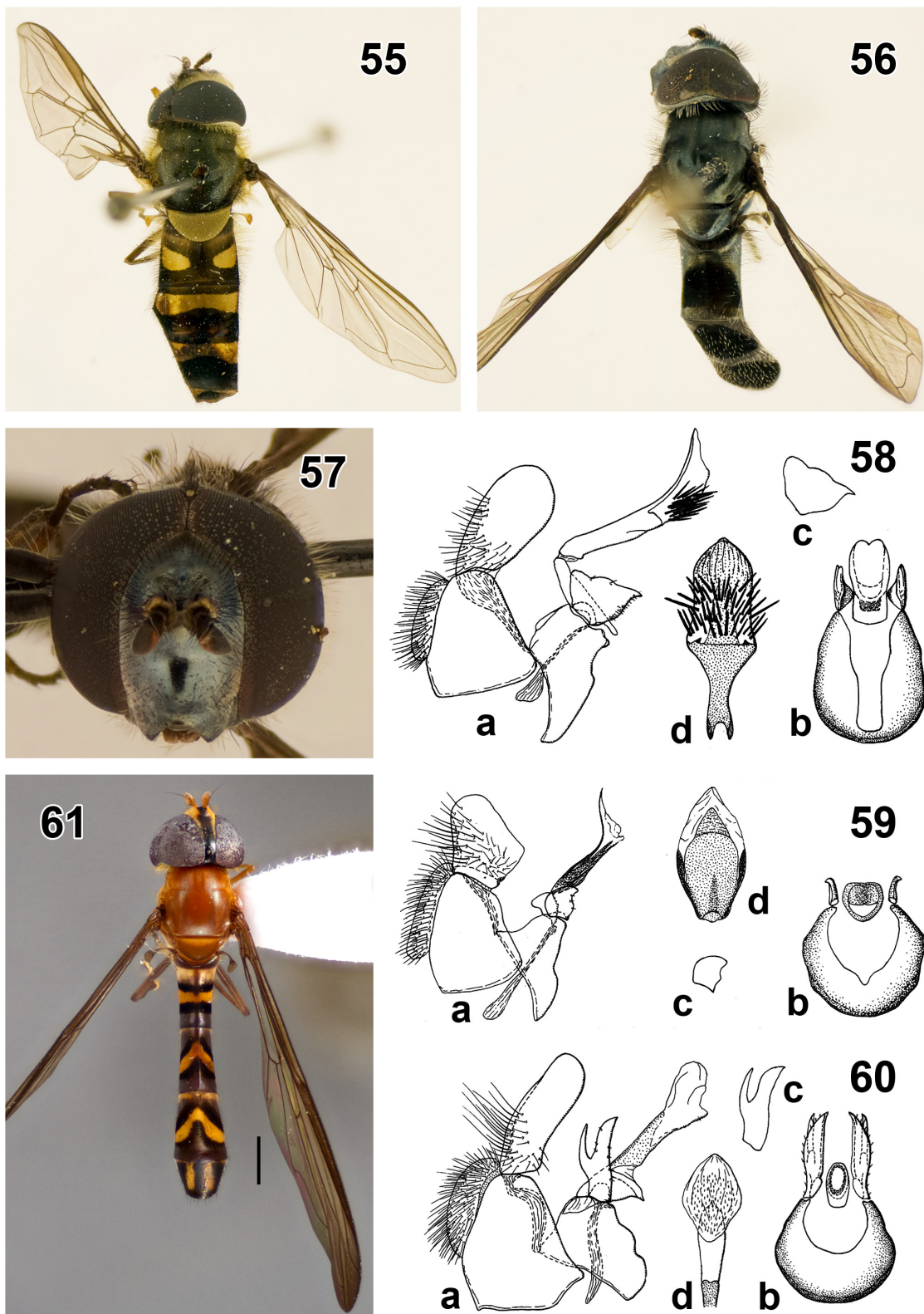
FIGURES 32–37. 32–35: *Ocyptamus maximus* Thompson **sp. nov.** [male holotype, INB003309582]. 32: habitus, lateral view. Scale = 5 mm. 33: habitus, dorsal view. Scale = 5 mm. 34: head, frontal view. Scale = 1 mm. 35: Sterna 1 and 2, ventral view. Scale = 1 mm. 36–37: *Ocyptamus maximus* Thompson **sp. nov.** [female paratype, CE-UCLA/DS-1235]. 36: head, frontal view. 37: habitus, lateral view.



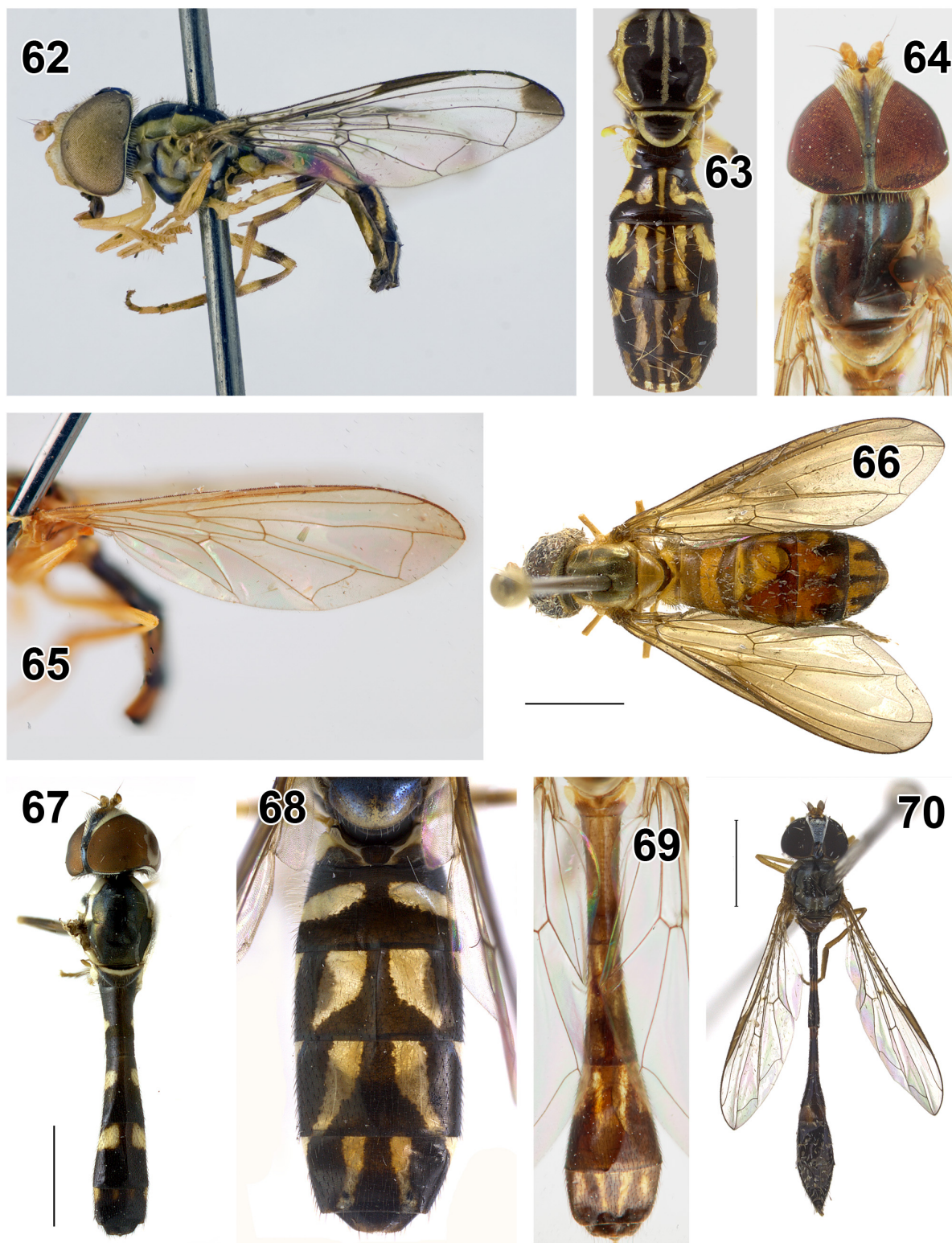
FIGURES 38–45. **38:** *Syrphus sargoides* Macquart [male, DZUP-Diptera 342599], habitus, dorsal view. **39:** *Syrphus sargoides* [female, GFGM-MNRJ0003], metafemur and metatibia, lateral view. Scale = 1 mm. **40:** *Baccha grata* Curran [male, USNMMENT 00022542], habitus, lateral view. Scale = 2 mm. **Note:** framed with white, a zoom-in of the antennae. **41:** *Baccha grata* [male, USNM], male, habitus, lateral view. **42:** *Baccha grata* [male, USNM], male, habitus, dorsal view. **43:** *Baccha grata* [female, USNMMENT 00022543], spermatheca. Scale = 100 μ m. **44:** *Syrphus conjunctus*, female, by Steve Marshall. **45:** *Ocyrtamys dimidiatus* (Fabricius) [female, INPA-DIP0000808], antenna. Scale = 0.2 mm. **Note:** Arrow indicates the narrow pedicel projection over the basoflagellomere.



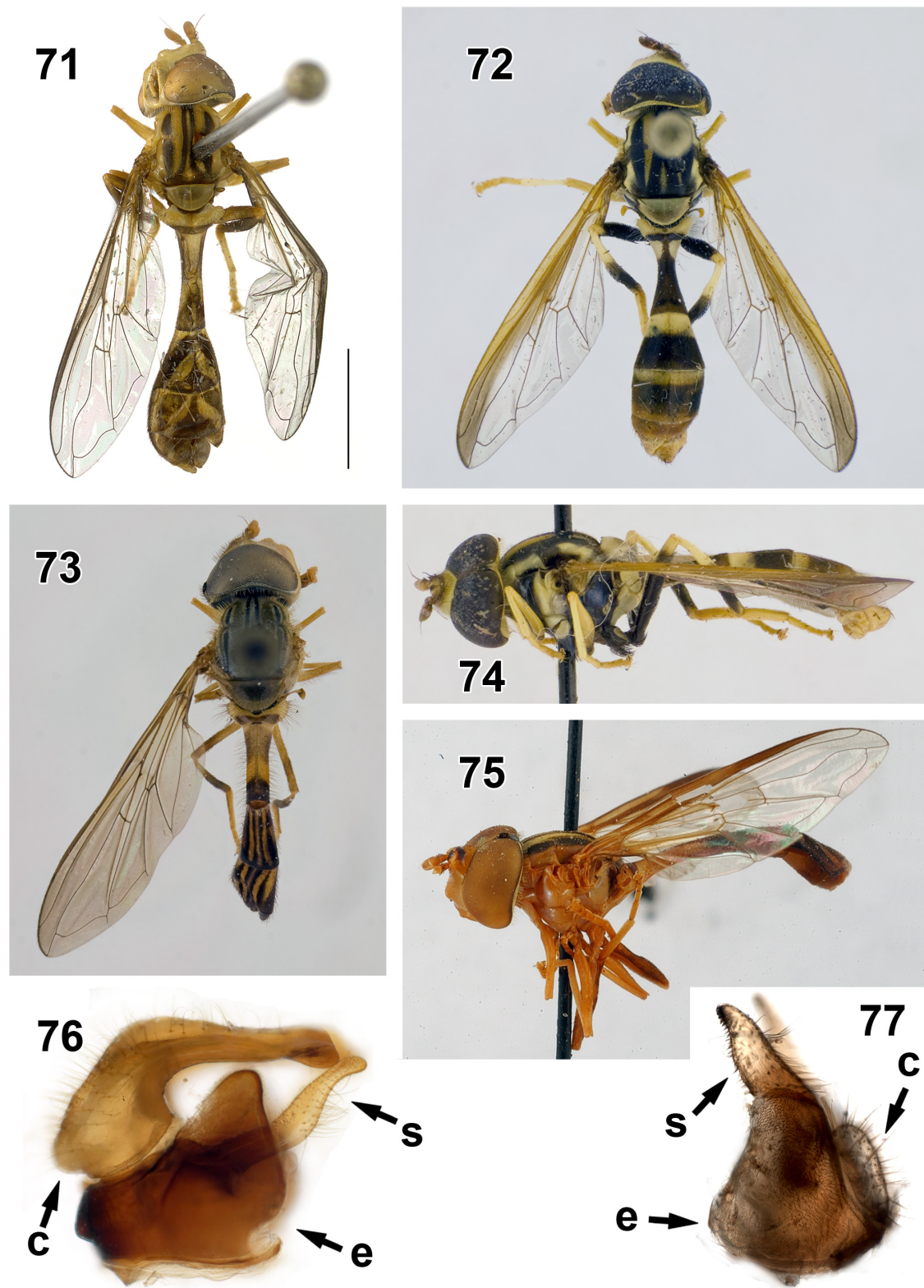
FIGURES 46–54. 46: *Pseudoscaeva diversifasciata* (Knab), male, habitus, dorsal view, by Alice Abela. 47: *Ocyptamus megafemur* Thompson **sp. nov.** [male holotype, USNMENT 00249222], habitus, lateral view. Scale = 4 mm. 48: *Ocyptamus megafemur* Thompson **sp. nov.** [male holotype, USNMENT 00249222], head, frontal view. Scale = 1 mm. 49: *Ocyptamus megafemur* Thompson **sp. nov.** [male holotype, USNMENT 00249222], head, dorsal view. **Note:** Arrow indicates the mesonotal collar or fringe. 50: *Ocyptamus megafemur* Thompson **sp. nov.** [male holotype, USNMENT 00249222], habitus, dorsal view. Scale = 1 mm. 51: *Pelecinozaccha transatlantica* (Schiner) [female, INPA-DIP0000253], antenna. 52: *Styxia eblis* (Hull) [male, DEBU01088838], wing, lateral view. 53: *Styxia eblis* [paratype male, CNC No 19270], habitus, dorsal view. 54: *Styxia eblis* [male, DEBU01088838], head, frontal view.



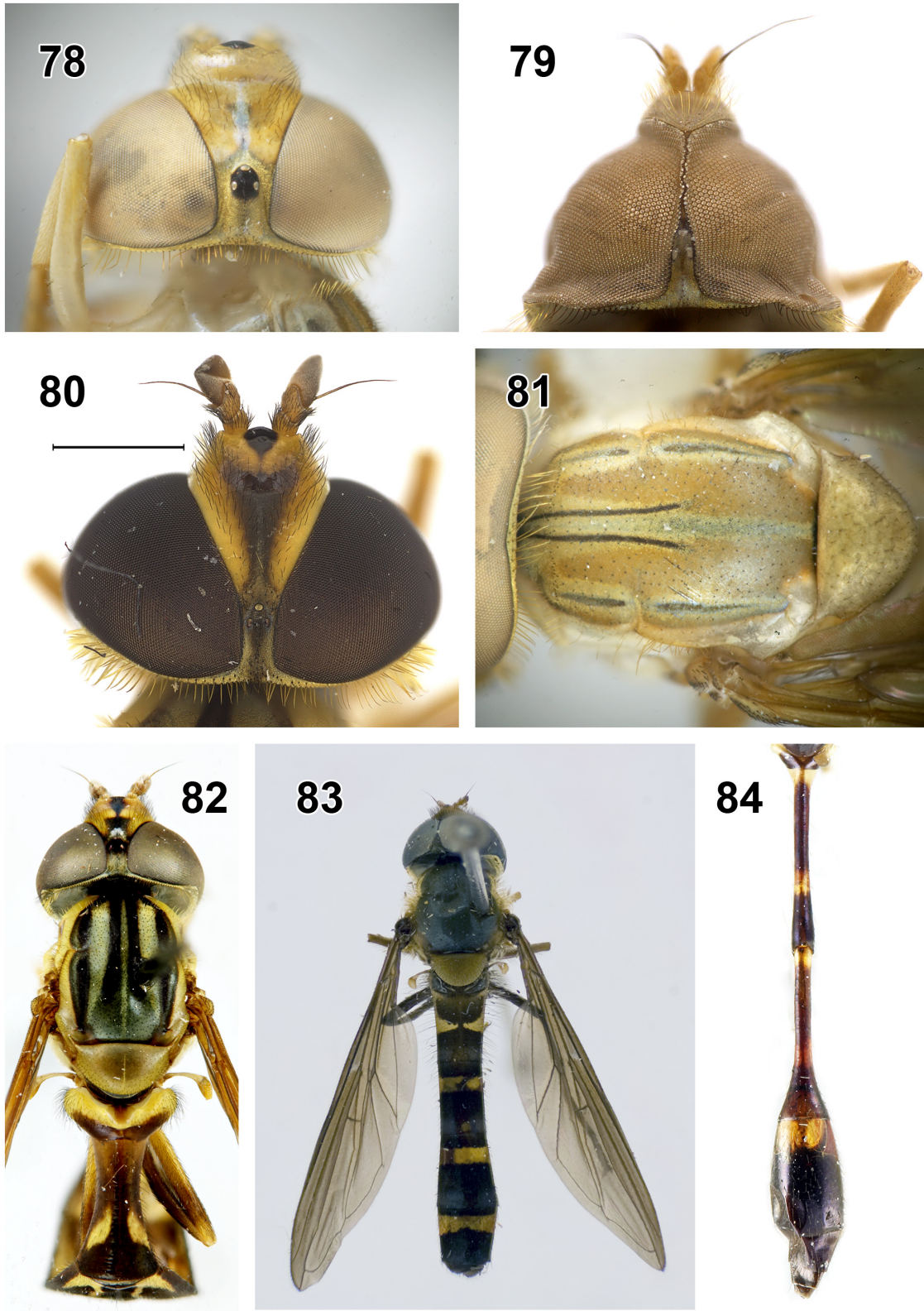
FIGURES 55–61. 55: *Orphnabaccha lanei* (Fluke) [male paratype, MZUSP], habitus, dorsal view. 56: *Orphnabaccha coerulea* (Williston) [male, USNM], habitus, dorsal view. 57: *Orphnabaccha coerulea* [male, USNM], head, frontal view. 58–60: male genitalia: a: lateral view; b: hypandrium, postgonite and phallus, ventral view; c: postgonite, lateral view, outline only; d: distal portion of phallus, anteroventral view. 58: *Orphnabaccha calda* (Walker) (from Vockeroth 1969). 59: *Orphnabaccha coerulea*, male genitalia (from Vockeroth 1969). 60: *Orphnabaccha ampla* (Fluke), male genitalia (from Vockeroth 1969). 61: *Pipunculosyrphus globiceps* Hull [female, ZFMK], habitus, dorsal view. Scale = 1 mm.



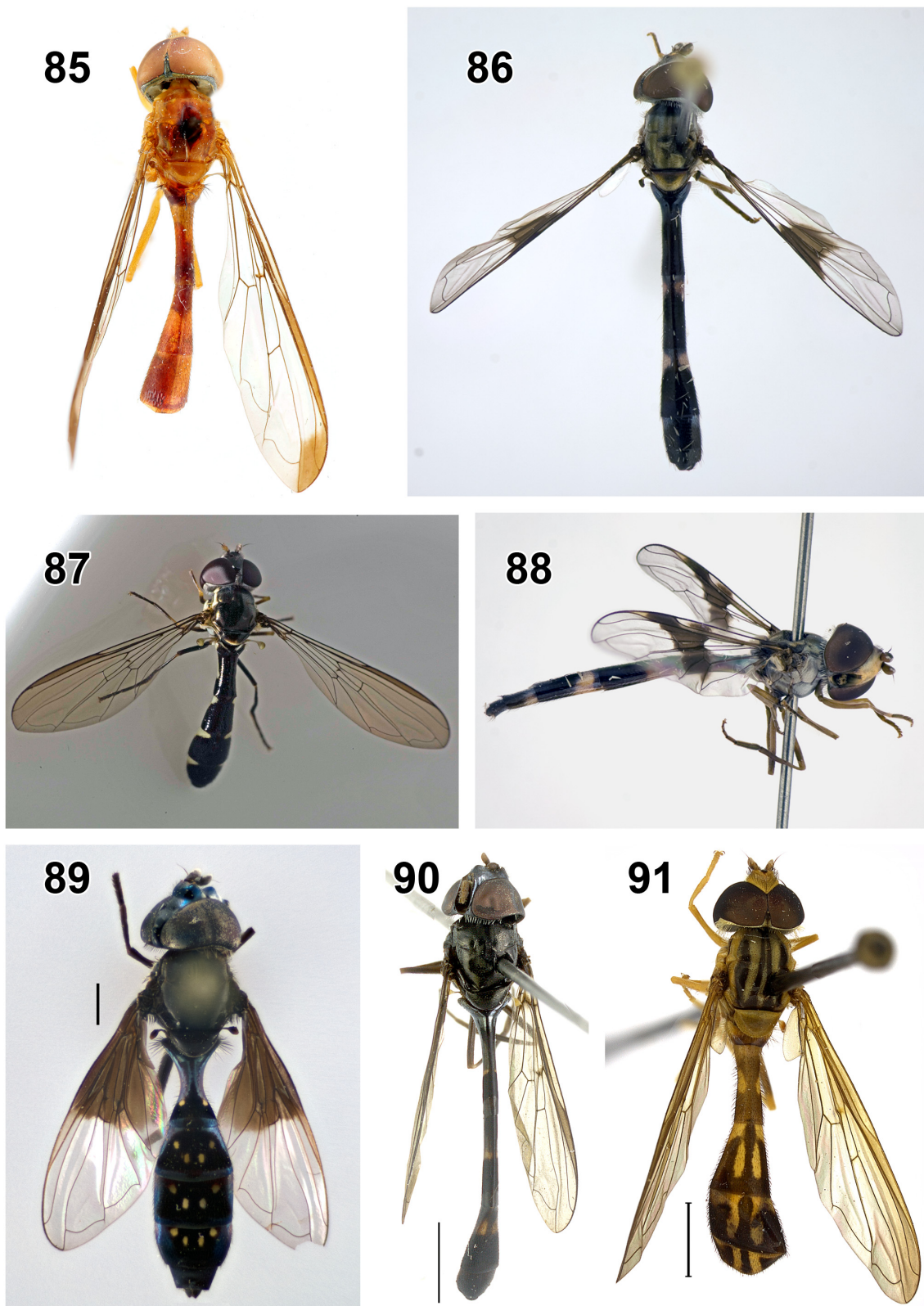
FIGURES 62–70. 62: *Calostigma elnora* Shannon [female, USNM], habitus, lateral view. 63: *Calostigma elnora* [female, INPA-DIP0000173], thorax and abdomen, dorsal view. 64: *Ocyptamus zita* (Curran) [female, ZFMK-DIP-00027133], head and thorax, dorsal view. 65: *Ocyptamus neuralis* (Curran) [female, CNC_Diptera209401], wing. 66: *Ocyptamus* sp., *O. lepidus* species group [female, INPA-DIP0000256], habitus, dorsal view. Scale = 3 mm. 67: *Ocyptamus prenes* (Curran) [female, INPA-DIP0000246], habitus without wings, dorsal view. Scale = 2 mm. 68: *Ocyptamus obliquus* (Curran) [female, INPA-DIP0000248], abdomen, dorsal view. 69: *Ocyptamus zita* [female, ZFMK-DIP-00027133], abdomen, dorsal view. 70: *Ocyptamus* sp., *O. stenogaster* species group [female, INPA-DIP001362], habitus, dorsal view. Scale = 2 mm.



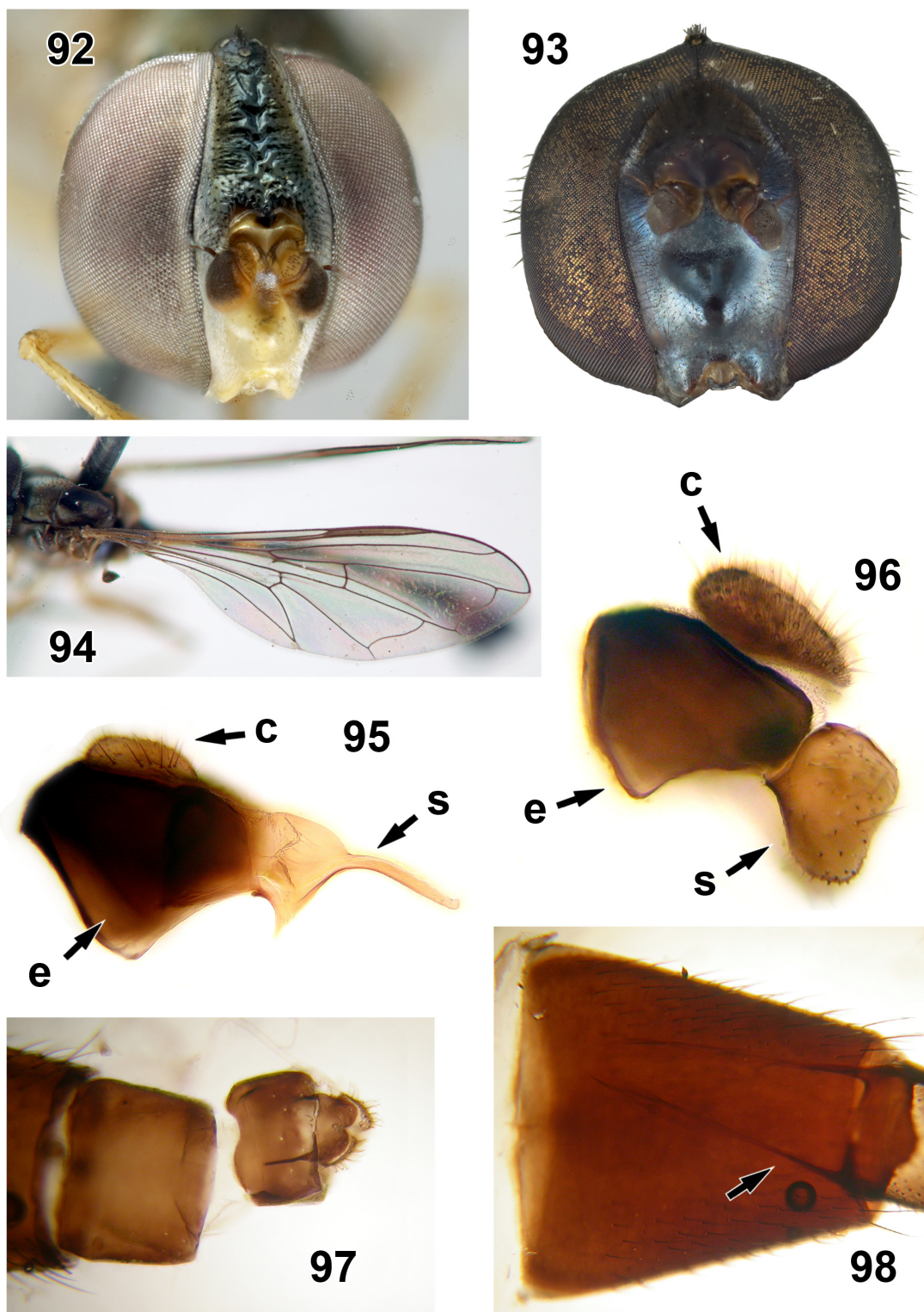
FIGURES 71–77. 71: *Baccha placiva* Williston [male, GFGM-CZMA0002], habitus, dorsal view. Scale = 3 mm. 72: *Mimocalla capitata* (Loew) [male, USNMENT 00037907], habitus, dorsal view. 73: *Hybobathus lineatus* (Macquart) [male, USNM], habitus, dorsal view. 74: *Mimocalla capitata* [male, USNMENT 00037907], habitus, lateral view. 75: *Baccha placiva* [male holotype, AMNH, No. 19166], by the AMNH. 76: *Mimocalla erebus* (Hull) [male, CNC_Diptera209355], male genitalia, lateral view: c: cercus; e: epandrium; s: surstylus. 77: *Baccha placiva* [male, GFGM-MPEG0006], male genitalia, lateral view: c: cercus; e: epandrium; s: surstylus.



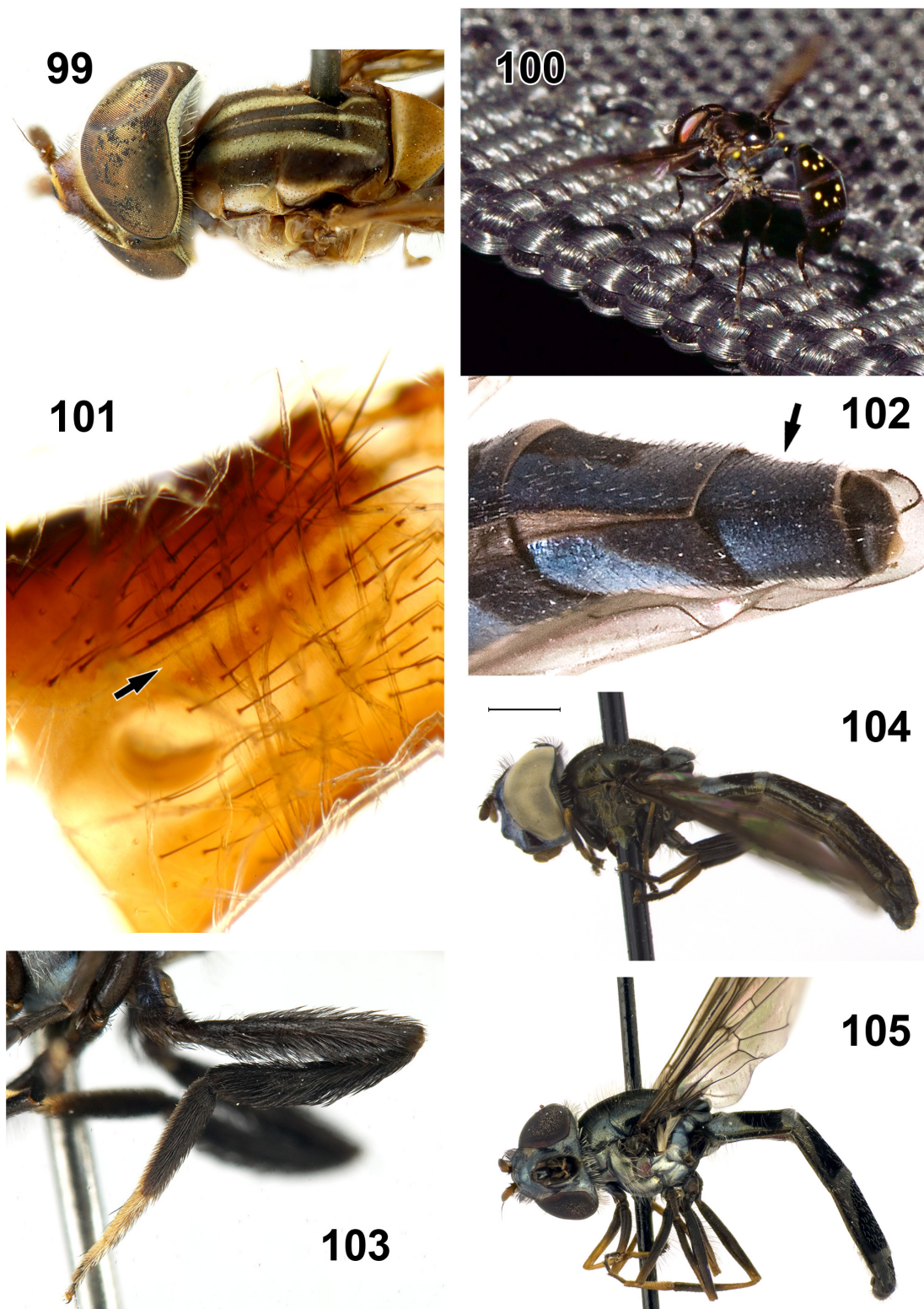
FIGURES 78–84. 78: *Hybobathus norina* (Curran) [female, CNC, JSS25237], head, dorsal view. 79: *Ocyptamus* sp., *O. lepidus* species group [male, INPA-DIP0000247], head, dorsal view. 80: *Pelecinobaccha alia* Miranda [female paratype, USNMMENT 00036075], head dorsal view. Scale = 1 mm. 81: *Hybobathus norina* [female, CNC, JSS25237], thorax, dorsal view. 82: *Hybobathus arx* (Fluke), female, habitus, dorsal view, photo previously published in Miranda (2017). 83: *Hermesomyia wulpiana* (Lynch Arribáizaga) [male, USNM], habitus, dorsal view. 84: *Ocyptamus titania* (Hull) [female, CNC], abdomen, dorsal view.



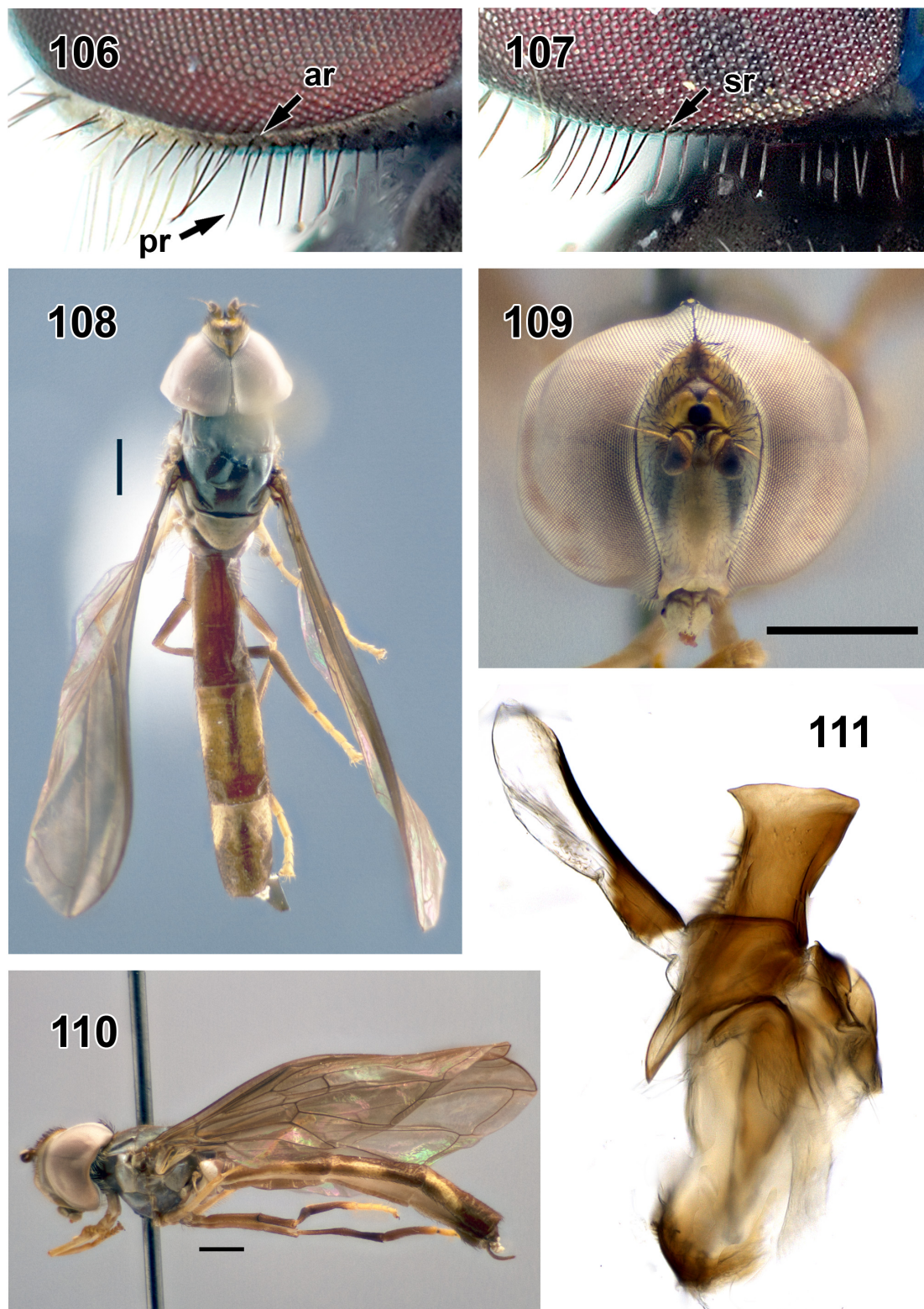
FIGURES 85–91. **85:** *Ocyrtamus parvicornis* (Loew) [male, CNC Diptera237922], habitus, dorsal view. **86:** *Ocyrtamus fascipennis* (Wiedemann) [female, USNM], habitus, dorsal view. **87:** *Ocyrtamus melanorrhinus* (Philippi), female, habitus, dorsal view, by Steve Marshall. **88:** *Ocyrtamus fascipennis* [female, USNM], habitus, lateral view. **89:** *Pelecinobaccha adspersa* (Fabricius) [female, ZFMK-DIP-00028704], habitus, dorsal view. **Note:** a blurry pinhead covers part of the scutum; check couplet 30. **90:** *Pelecinobaccha brevipennis* (Schiner) [male, MPEG-DIP12170496], habitus, dorsal view. **91:** *Pelecinobaccha cubensis* (Macquart) [male, USNM 01288157] habitus, dorsal view. Scale = 2 mm.



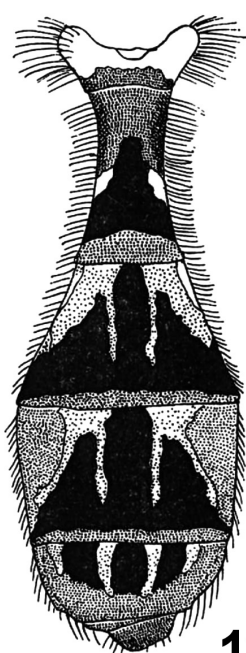
FIGURES 92–98. **92:** *Ocyptamus stenogaster* (Williston) [female, DEBU01088839], head, frontal view. **93:** *Pelecinobaccha pilinigridentis* Miranda [male holotype, INBIO CRI002 447101], head, frontal view, photo previously published in Miranda *et al.* (2014). **94:** *Ocyptamus argentinus* (Curran) [male, CNC_Diptera196007], wing. **95:** *Ocyptamus stenogaster* [male, DEBU01088840], epandrium, cerci and surstyli, lateral view: c: cercus; e: epandrium; s: surstylus. **96:** *Pelecinobaccha vesca* Miranda [male, CNC Diptera 161200], epandrium, cerci and surstyli, lateral view: c: cercus; e: epandrium; s: surstylus. **97:** *Ocyptamus stenogaster* (Williston) [female, DEBU01088839], apex abdomen, dorsal view. **98:** *Pelecinobaccha alicia* (Curran) [female, CNC_Diptera203481], 6th and 7th abdominal segments female, dorsal view, photo previously published in Miranda *et al.* (2014). **Note:** Arrow indicates the basolateral apodemes of tergum 7.



FIGURES 99–105. **99:** *Pelecinobaccha summa* (Fluke) [female, CNC], head and thorax, dorsolateral view. **100:** *Pelecinobaccha adspersa*, female, by Gil F. G. Miranda. **101:** *Pelecinobaccha impostor* Miranda [female, ZFMK-DIP-00018039], 6th abdominal segment female, lateral view. **Note:** Arrow indicates the lateral weakness line. **102:** *Pelecinobaccha adspersa* [female, DEBU00186967], 5th and 6th abdominal segment female, lateral view. **Note:** Arrow indicates the 6th abdominal segment. **103:** *Pelecinobaccha pilipes* (Schiner) [female, USNMENT 00257696], metaleg, lateral view, photo previously published in Miranda *et al.* (2014). **104:** *Orphnabaccha* cf. *lativentris* (Curran) [male, CNC, JSS25215], habitus, lateral view. Scale = 1 mm. **105:** *Orphnabaccha coerulea* [male, USNM], habitus, lateral view.



FIGURES 106–111. **106:** *Pelecinobaccha alicia* [female, CNC], occiput, detail, photo previously published in Miranda *et al.* (2014): **ar:** anterior row of occipital pile; **pr:** posterior row of occipital pile. **107:** *Relictanum johnsoni* (Curran) [female, CNC], occiput, detail, photo previously published in Miranda *et al.* (2014): **sr:** single row of occipital pile. **108:** *Ocyptamus myiophagus* Thompson **sp. nov.** [male holotype, USNMENT 01288295], habitus, dorsal view. Scale = 1 mm. **109:** *Ocyptamus myiophagus* Thompson **sp. nov.** [male holotype, USNMENT 01288295], head, frontal view. Scale = 1 mm. **110:** *Ocyptamus myiophagus* Thompson **sp. nov.** [male holotype, USNMENT 01288295], habitus, lateral view. Scale = 1 mm. **111:** *Syrphus sargoides* [male, GFGM-MNRJ0002], hypandrium, lateral view.



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FIGURES 112–115. 112: *Ocyptamus pola* (Curran), abdomen from male holotype, dorsal view (from Hull 1949). 113: *Ocyptamus maximus* Thompson **sp. nov.** [male paratype, INB003306083], male genitalia, lateral view. Scale = 0.5 mm. 114: *Ocyptamus megafemur* Thompson **sp. nov.** [male holotype, USNMENT 00249222], male genitalia, lateral view. Scale = 0.5 mm. 115: *Ocyptamus myiophagus* Thompson **sp. nov.** [male holotype, USNMENT 01288295], male genitalia, lateral view. Scale = 0.5 mm.