



New generic concepts for orphaned lineages formerly treated as part of the genus *Ocyptamus* Macquart, 1834 (Diptera, Syrphidae)

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Abstract

The large syrphid genus *Ocyptamus* Macquart has been subject to scrutiny in recent years, resulting in a more narrowly defined monophyletic *Ocyptamus sensu stricto*. Some of the species excluded from this narrower concept of the genus are in evolutionary lineages for which generic names are available, but other species are in lineages for which generic names do not exist. The current paper presents five new genera to correct this: *Fragosa* **gen. nov.** (former *Ocyptamus stenogaster* group), *Hypocritanus* **gen. nov.** (former *Ocyptamus fascipennis* group), *Maiana* **gen. nov.** (former *Ocyptamus callidus* group), *Nuntianus* **gen. nov.** (former *Ocyptamus lepidus* group) and *Victoriana* **gen. nov.** (former *Ocyptamus melanorrhinus* group). In addition to the new combinations related to these new genera, *Argentinomyia aenea* (Williston) **comb. nov.**, *Hybobathus pola* (Curran) **comb. nov.**, *H. subchalybeus* (Walker) **comb. nov.**, *H. wilhelmina* (Doesburg) **comb. nov.**, and *Leucopodella nasuta* (Williston) **comb. nov.** are moved out of *Ocyptamus*. *Ocyptamus isthmus* Thompson is a jun. syn. of *Callostigma panamensis* Curran **stat. rev.** Relevant morphological characters and their taxonomic and evolutionary implications are discussed.

Key words: Classification, flower fly, hoverfly, morphology, new genus, New World, taxonomy

Introduction

Historical concepts of the New World genus *Ocyptamus* Macquart, 1834 (see Mengual *et al.* 2018) have recently been scrutinized and reconsidered (e.g. Mengual *et al.* 2012; Miranda *et al.* 2016), resulting in proposals for a more restricted concept of *Ocyptamus* and the corresponding elevation of former subgenera and species groups to genus rank for those taxa that had generic names available (Miranda *et al.* 2014; Miranda 2017a; Mengual *et al.* 2018). Mengual *et al.* 2018 provided an identification key to these taxa and some other closely related genera (i.e. *Dioprosopa* Hull, 1949a, *Eosalpingogaster* Hull, 1949d, *Leucopodella* Hull, 1949a, *Rhinoprosopa* Hull, 1942c, *Salpingogaster* Schiner, 1868, and *Toxomerus* Macquart, 1855), but they treated some of the clades as *Ocyptamus sensu lato* species groups until proper new generic assignments could be provided. These ‘orphaned’ lineages are here diagnosed and named as genera, with discussion of their taxonomy and relationships.

The current paper also aims to resolve the last of the taxonomic problems created when *Ocyptamus* started to appear in phylogenetic analyses over the past decade. The taxa presented herein, placed in the framework of recent phylogenetic and taxonomic work, are diagnosable and manageable, thus facilitating ongoing work on Syrphidae biodiversity in the Americas.

Material and methods

Morphology. Morphological terminology follows Cumming & Wood (2017) for general adult morphology (some

wing cells are highlighted in Fig. 3), Thompson (1999) for Syrphidae-specific terminology, and Miranda & Moran (2017) for female terminalia. Some morphological terms are clarified below:

i. Eye margin (Fig. 17): The ‘lateral eye margin’ (lem) is the margin immediately lateral to the ocellar triangle, while the ‘posterior eye margin’ (pem) is the dorsalmost point of the eye margin.

ii. Occiput (Fig. 5): The narrow, sclerotized region immediately adjacent to the posterior margin of the eye, where distinct rows of pile are present. It is interpreted as divided into two main areas, a dorsal 1/4 and a ventral 3/4 [= anterior portion of the lower postcranium of Cumming & Wood (2017)].

iii. Pale and dark: These tones are often used instead of naming specific colours on the structures. The original colours usually fade away on preserved specimens, but the patterns of pale and dark remains.

iv. Ratios: Length/width or width/length sclerite ratios were described using the smallest width observed.

v. Abdomen: The overall shape of the abdomen varies between taxa. Some of the shapes mentioned in the text are as follows:

a. Parallel-sided (Figs 23, 26 and 27): Abdominal segments of similar width.

b. Petiolate (Figs 16, 28–35, 38, 41, 48–50, 73, 75, 77 and 89): Either the 2nd abdominal segment has a constriction narrower than the 1st or it is narrower than the 1st and following segments.

c. Oval (Figs 24, 25, 40, 42 and 43): The width of the 2nd abdominal segment on its posterior margin is wider than on its anterior margin, and decreases at apex of 4th or on the 5th.

d. Slender/delicate (Figs 1, 2, 6, 36, 37, 74 and 76): With very long and narrow abdominal segments, lateral margins of tergum 2 almost enveloping the segment ventrally and giving it a cylindrical appearance; abdomen usually slightly widened at posterior margin of the 3rd abdominal segment.

Generic/species group descriptions use sets of characters that, together, are diagnostic for each taxon.

Specimens. Specimens for morphological study or images were obtained from the following institutions:

AMNH:	American Museum of Natural History, New York, USA
BMNH:	Natural History Museum, London, UK
CNC:	Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada
DEBU:	University of Guelph Insect Collection, Guelph, Canada
DZUP:	Coleção Entomológica Padre Jesus Santiago Moure, Curitiba, Brazil
INPA:	Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil
MNHNP:	Muséum national d’Histoire Naturelle, Paris, France
MNCR:	Museo Nacional de Costa Rica, San José, Costa Rica
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
OSUC:	The C.A. Triplehorn Insect Collection, Ohio State University, Columbus, USA
USNM:	National Museum of Natural History, Washington D.C., USA

Female and male terminalia were cleared in heated 85% lactic acid for 10 to 25 minutes, and then transferred to an excavated slide with glycerin for manipulation and to wash the remaining lactic acid on the specimen. Soon after the clearing process, male terminalia had the epandrium separated from the hypandrium, and female terminalia were extended by compressing them dorso-ventrally.

Species included in each genus were allocated based on study of identified and/or type specimens in collections, images of type specimens, and/or descriptions in the literature. The following codes, based on Reemer & Ståhls (2013), are placed after the species name in the species lists to identify the source of information used to place the species in the respective taxon/group: [1a] = primary type(s) studied; [1b] = photograph(s) of primary type(s) and original description studied; [1c] = paratype(s) studied; [2] = description studied; [3] = non-type specimens studied; [4] = additional literature studied.

‘Synonym’ is added in parenthesis in cases where a type specimen of a junior synonym name was studied instead of the type of the senior name.

Results

New genera

Several characters are unique for these new genera compared to other taxa formerly included in *Ocyptamus*. These characters, confidently interpreted as new generic (or species group) synapomorphies, are preceded by an asterisk (*) in the taxon diagnoses below.

The species groups presented for *Fragosa* and *Victoriana* are groupings of convenience defined on similarity only. We suspect they are clades but further analysis is required to confirm their monophyly.

Genus *Fragosa* Miranda gen. nov.

Figs 1–11, 66, 74, 76, 78–83, 92–95

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Type species: *Baccha rugosifrons* Schiner, 1868

Baccha obscuricornis species group. Hull (1949a)

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

Ocyptamus stenogaster species group. Thompson (1981); Mengual *et al.* (2012, 2018); Miranda *et al.* (2014, 2016)

Description. Delicate-looking flies. **Head.** Face very narrow to narrow (around 1/4 to less than 1/3 of head width). Frons usually ~1/3 of head width. Antennal insertions confluent. Female ocellar triangle adjacent or separated by approximately one ocellus-width from lateral eye margin. Dorsal occiput usually with two rows of pile (sometimes with one row). **Thorax.** Scutum without distinct anterior row of pile. Anterior anepisternum pilose. Katatergite with short microtrichia that gives the sclerite a ‘velvet’ appearance. Metaepisternum pilose. Metasternum bare. Upper calypter margin either bare, with pile shorter than pile on the ventral calypter margin, or with longer darker pile. Metafemur with normal pile. **Wing.** Alula often absent (some species with a trace of alula, e.g. *F. harlequina* (Fig. 78) and *F. mara*). Male wing light brown, usually bare on small basal areas of cells c, r and bm; female wing pigmentation and microtrichosity variable; anal lobe narrowed basally. **Abdomen.** Abdomen slender; tergum 1 crescent-shaped with lateral extremities directed laterally; terga usually only with quadrangular pale maculae on the baso-lateral corners of terga 3 and 4 (Fig. 2). **Terminalia.** *Female tergum 7 quadrangular (Fig. 8); female tergum 8 rectangular with concave basal and apical margins; *epiproct partially divided into a pair of separate sclerites connected to each other by a basal narrow strip or more extensively fused, each with baso-lateral apodemes extending into the abdominal cavity (Fig. 8). Male basiphallus teardrop-shaped (Fig. 11), distiphallus membranous with dorsal sclerotized triangular region (Fig. 10).

Etymology. The name is a reference to the ‘brittle’ (Latin), delicate, aspect of these flies. It is to be treated as feminine.

Comments. This genus, equivalent to the former *Ocyptamus stenogaster* species group, is made up of relatively delicate flies (Figs 1, 2 and 6) superficially similar to *Baccha*, *Leucopodella*, and the species of the *Pelecinobaccha brevipennis* group. Most species lack an alula (Fig. 3), or have it reduced to a barely discernible trace (Fig. 78), and have a reduced anal lobe, very long and narrow abdominal segments, a crescent-shaped tergum 1 with lateral extremities directed laterally (Fig. 66), and (usually) quadrangular pale maculae on the baso-lateral corners of terga 3 and 4 (Fig. 2). They usually have a very long and narrow 2nd abdominal segment (over 8 times longer than wide) (Figs 1, 2) with a naturally arched tergum giving the segment a cylindrical appearance. The unique condition of the female epiproct (see description above) is distinctive and provides strong evidence for the monophyly of the genus. Facial coloration seems to vary among specimens of the same species.

Fragosa gen. nov. and *Hypocritanus* gen. nov. share a dorsally sclerotized female cercus with setulae restricted dorsally (Figs 8, 14, 15), however, we consider this condition to be a plesiomorphy since recent phylogenetic analyses always keep them as separate taxa (Mengual *et al.* 2012; Miranda *et al.* 2016). Furthermore, a single genus including both taxa would be hard to diagnose, while keeping them separated makes both genera distinct and diagnosable with their own unique characters. Both taxa prey on Pseudococcidae (Hemiptera), and we hypothesize that the Neotropical *Fragosa* gen. nov. and the Nearctic *Hypocritanus* gen. nov. probably evolved independently to occupy the same ecological niche, explaining the absence of the other in each biogeographical region.

Based on morphological characters observed, and the sister group relationship of *F. titania* with the remaining *Fragosa* in a previous phylogenetic analysis (Miranda *et al.* 2016), we propose two species groups for the genus *Fragosa* **gen. nov.**: *F. rugosifrons* and *F. tenuis* groups.

Fragosa rugosifrons species group (*Fragosa sensu stricto*)

Description. Head. Face usually dark dorsal to tubercle; tubercle pointed and medially positioned (Fig. 5). Frons dark. Frons/frontal triangle rugose (Fig. 4). Frontal triangle with white microtrichosity concentrated laterally along eye margin (Fig. 83). Female ocellar triangle separated by less than its length from posterior eye margin (Fig. 1). Occiput microtrichia homogeneously distributed (Fig. 5). **Thorax.** Scutum dull pale-microtrichose with sub-median pair of weak white microtrichose patches on anterior region, sometimes with weak stripes in place of patches (Fig. 1). Scutellum pale. Post-metacoxal bridge almost complete (Fig. 79). Metafemur pale. **Wing.** Female wing hyaline; female wing bare on basal 1/4 (or almost the whole cell) of cell c, basal 1/3 to 1/2 of br, and baso-anterior margin of bm. **Terminalia.** Male epandrium enlarged; hypandrium reduced; *surstylus quadrangular with filiform apical extension (Fig. 7); *subepandrial sclerite with strongly sclerotized rectangular middle area and wide, but weakly sclerotized, ventrally directed lateral expansions (Fig. 9); *hypandrium oval (Fig. 11), much smaller than epandrium; postgonite elongated (Figs 10, 11).

Included species (11): *F. argentina* (Curran, 1939) **comb. nov.** [1b], *F. deceptor* (Curran, 1930a) **comb. nov.** [1b], *F. filiola* (Shannon, 1927) **comb. nov.** [2], *F. harlequina* (Hull, 1948) **comb. nov.** [1b, 1c], *F. hyacinthia* (Hull, 1947a) **comb. nov.** [2], *F. mara* (Curran, 1941) **comb. nov.** [1b], *F. oenone* (Hull, 1949a) **comb. nov.** [2, type lost], *F. provocans* (Curran, 1939) **comb. nov.** [1b], *F. rugosifrons* (Schiner, 1868), **comb. nov.** [2, 3, 4], *F. stenogaster* (Williston, 1888) **comb. nov.** [1b], *F. zephyrea* (Hull, 1947b) **comb. nov.** [1b].

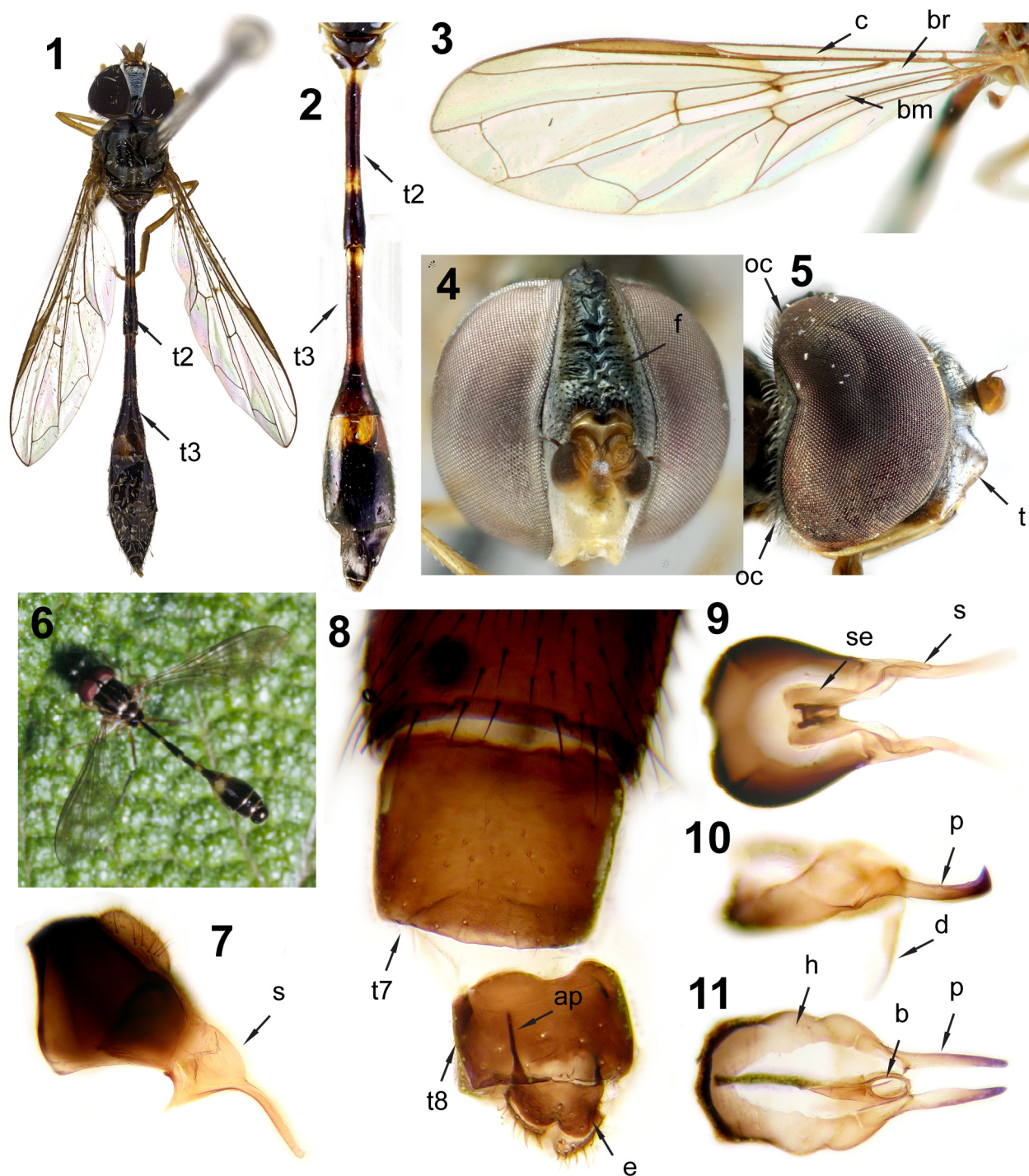
Comments. The rugose frons/frontal triangle is a distinct character of this group (Fig. 4), but not unique since it occurs in the *Pelecinobaccha brevipennis* species group as well. Further distinct characters for the *F. rugosifrons* group include the face that is dark dorsal to tubercle, the pointed and medially positioned facial tubercle (Fig. 5), the entirely pale scutellum, the almost complete post-metacoxal bridge (Fig. 79), the enlarged epandrium (Fig. 7), and the reduced hypandrium (Fig. 10).

Fragosa tenuis species group

Description. Head. Face wholly pale; tubercle convex and ventrally positioned (Fig. 81). Frons narrow (less than 1/3 of head width) and pale on ventral 1/4 to 1/2 lateral to lunule (Fig. 82). Frons/frontal triangle smooth. Frontal triangle white microtrichia homogeneously distributed but oriented ventro-dorsally (only visible from a ventral view) (Fig. 81). Female ocellar triangle separated by more than its length from the posterior eye margin (Fig. 82). Dorsal occiput with microtrichia oriented ventro-dorsally (Figs 80, 82). Dorsal occiput with 1–2 rows of pile (Fig. 82). **Thorax.** Scutum shiny black. Metathoracic epimera extended dorsal to the metacoxa but not so close to each other as in the *F. rugosifrons* group (Fig. 79). Metafemur with sub-apical dark band (Fig. 80). **Wing.** Female wing hyaline basally and gradually turning light brown towards apex; female wing bare on basal 1/3 to 2/3 of c, and bases of br and bm. **Terminalia.** Male epandrium and hypandrium of similar size (Figs 92, 94); surstylus sub-quadrangular with slightly extended apex (Fig. 93, 94); subepandrial sclerite rectangular and wide, with basal corners slightly extended and round (Fig. 95).

Included species (6): *F. aurora* (Hull, 1943c) **comb. nov.** [1b], *F. filissima* (Hull, 1943a) **comb. nov.** [1a], *F. macer* (Curran, 1930a) **comb. nov.** [1b], *F. tenuis* (Walker, 1852) **comb. nov.** [2, type lost], *F. titania* (Hull, 1943a) **comb. nov.** [1b], *F. virgilio* (Hull, 1942b) **comb. nov.** [1a].

Comments. *Fragosa aurora* (Fig. 74) and *F. virgilio* (Fig. 76) were previously allocated to the *O. lepidus* group (Mengual *et al.* 2018). However, the type specimen of *F. virgilio* and photos of the type and the original description of *F. aurora* were studied and they show the distinct very narrow and long 2nd abdominal segment that defines the genus *Fragosa*, and the pale smooth frontal triangle that defines the *F. tenuis* group.



FIGURES 1–11. *Fragosa* Miranda gen. nov. **1:** *Fragosa* sp. (INPA-DIP001362), female, habitus, dorsal view, photo previously published in Mengual *et al.* (2018). **2:** *Fragosa* aff. *titania* (CNC), female, abdomen, dorsal view, photo previously published in Mengual *et al.* (2018). **3:** *Fragosa argentina* (Curran) (CNC_Diptera196006), female, wing. **4:** *Fragosa stenogaster* (Williston) (debu01088839), female, head, frontal view, photo previously published in Mengual *et al.* (2018). **5:** *Fragosa stenogaster* (Williston) (debu01088840), male, head, lateral view. **6:** *Fragosa* sp., female, habitus, dorsal view, by Steve Marshall. **7:** *Fragosa stenogaster* (Williston) (debu01088840), male, epandrium, lateral view, photo previously published in Mengual *et al.* (2018). **8:** *Fragosa stenogaster* (Williston) (debu01088839), female, apex of abdomen, dorsal view, photo previously published in Mengual *et al.* (2018). **9–11.** *Fragosa stenogaster* (Williston) (debu01088840), male. **9:** epandrium, ventral view. **10:** hypandrium, lateral view. **11:** hypandrium, ventral view. **ap:** apodeme; **b:** basiphallus; **bm:** cell bm; **br:** cell br; **c:** cell c; **d:** distiphallus; **e:** epiproct; **f:** frons; **h:** hypandrium; **oc:** occiput; **p:** postgonite; **s:** surstylus; **se:** subepandrial sclerite; **t:** facial tubercle; **t2**, **t3**, **t7** and **t8:** terga 2, 3, 7 and 8.

Genus *Hypocritanus* Miranda gen. nov.

Figs 12–15, 84–85

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Type species: *Baccha fascipennis* Wiedemann, 1830

Ocyptamus fascipennis species group. Mengual *et al.* (2018)

Description. Head. Face narrow (between 1/4 and 1/3 of head width) and either pale or mostly dark (Fig. 84); tubercle on ventral 1/2 of the face (Fig. 84). Frons ~1/3 of head width. Antennal insertions confluent (Fig. 84). Female ocellar triangle ~1 ocellus-width from lateral eye margin. Dorsal occiput with 1 row of pile (Fig. 85). **Thorax.** Scutum dark, and with anterior row of longer pile ('collar' of authors, see Fig. 49 in Mengual *et al.* 2018). Scutellum mostly pale but darker laterally. Anterior anepisternum pilose. Katatergite with long microtrichia (as in Fig. 62). Metaepisternum pilose. Metasternum bare. Upper calypter margin with pile shorter than pile on the ventral calypter margin. Male metafemur with longer pile on anterior surface. **Wing.** *Alula mostly bare except for apical 1/4. Wing hyaline with a median dark triangular marking (Fig. 12); *most of cells c, br and bm bare. **Abdomen.** Abdomen elongated, narrow, and slightly petiolate (Fig. 12); terga with either quadrangular or triangular pale maculae baso-laterally (Fig. 12). **Terminalia.** Female tergum 7 rectangular and wide; tergum 8 rectangular, wide and with distinct concavity on posterior margin (Fig. 14); *epiproct as a pair of sclerites connected by a basal narrow bridge, and sclerites fuse into cerci apico-laterally by a narrow strip (Fig. 14). *Male subepandrial sclerite quadrangular, with baso-lateral corners extended basally and similar to 'horns' (Fig. 13); basiphallus teardrop-shaped, distiphallus membranous with dorsal sclerotized triangular region.

Included species (2): *H. fascipennis* (Wiedemann, 1830) **comb. nov.** [3, 4], *H. lemur* (Osten Sacken, 1877) **comb. nov.** [3, 4].

Etymology. The name is a reference to the Latin word '*hypocrites*' which relates to 'actor' or 'mime', an allusion to the fact that this group resembles, 'pretends to be', *Ocyptamus*, but is not that genus. The name is to be treated as masculine.

Comments. This Nearctic genus, corresponding to the former *Ocyptamus fascipennis* species group, is characterized by distinctive wing markings (Fig. 12) and the medial swelling on the 2nd abdominal segment (Fig. 12). Some codons in the cytochrome B gene are so far unique to this genus (Miranda *et al.* 2016). Further information on this group can be found in Mengual *et al.* (2018).

Genus *Maiana* Miranda gen. nov.

Figs 16–22, 67–69, 102

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Type species: *Baccha pumila* Austen, 1893

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

Ocyptamus callidus species group. Miranda *et al.* (2016); Mengual *et al.* (2018)

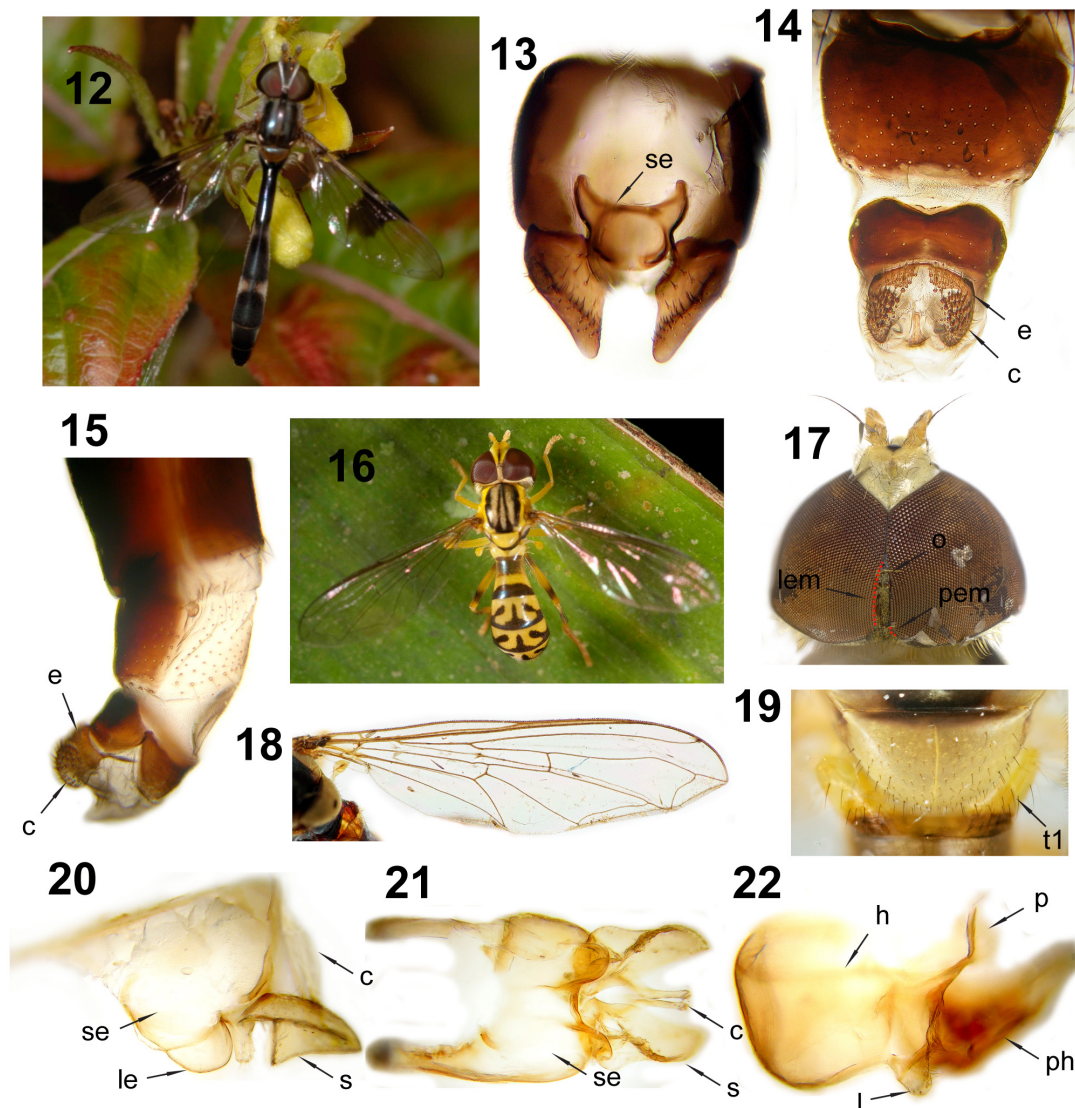
Description. Head. Face pale and narrow (between 1/4 and 1/3 of head width); tubercle weak and medially positioned. Antennal insertions confluent. Frons ~1/3 of head width. *Male ocellar triangle ~3 times its length from posterior eye margin (Fig. 17). Female ocellar triangle ~1 ocellus-width from lateral eye margin. Dorsal occiput with 2 rows of pile. **Thorax.** Scutum with 3 golden microtrichose stripes, and without distinct anterior row of pile. Scutellum pale. Anterior anepisternum pilose. Katatergite with short microtrichia that gives the sclerite a 'velvet' appearance. Metaepisternum pilose. Metasternum bare. Upper calypter margin with pile shorter than pile on the ventral calypter margin. Metafemur with normal pile. **Wing.** Alula narrow (as wide as c cell). Wing hyaline. **Abdomen.** Abdomen slightly petiolate; terga with 'L'-shaped pale markings (Fig. 16); *tergum 1 trapezoidal and short (Figs 19 and 67); 2nd abdominal segment slightly constricted; *male sternum 4 and, more so, 5 asymmetrical (Fig. 68). **Terminalia.** Female tergum 7 as a pair of lateral rectangular sclerotized areas (Fig. 102); tergum 8 boomerang-shaped with weakly sclerotized sides (Fig. 102). Male hypopygium very large; *subepandrial sclerite very large, with ventro-lateral, wide, lobular expansions directed apically (Figs 20 and 21); *hypandrium pilose on apico-ventral lobes (Fig. 22); *postgonite rudimentary (Fig. 22); *phallus heavily sclerotized and cone-shaped (Figs 22 and 69).

Included species (2): *M. callida* (Hine, 1914) **comb. nov.** [1b, 3, 4], *M. pumila* (Austen, 1893) **comb. nov.** [1b].

Etymology. The genus is named after the first author's youngest daughter. The name is to be treated as feminine.

Comments. This genus, corresponding to the former *Ocyptamus callidus* species group, is superficially similar to *Nuntianus* **gen. nov.**, from which it differs in having three golden microtrichose stripes on the scutum (Fig. 16), slight constriction in the 2nd abdominal segment (Fig. 16), a pair of 'L'-shaped pale markings on the abdominal terga (Fig. 16) and enlarged male hypopygium (Figs 20, 21, 22).

The wide expansions of the sub-epandrial sclerite in *Maiana* **gen. nov.** are similar to the *F. rugosifrons* species group. The anterior lobular projection of these expansions (Fig. 20) resembles the lobate condition in *Nuntianus* **gen. nov.** (see below), although they are lateral instead of medial (Figs 20, 21). Molecular data do not support an association of *Maiana* with either of these groups, but instead suggest a relationship to *Styxia* Hull, 1943a (Miranda *et al.* 2016).



FIGURES 12–22. 12–15. *Hypocritanus* Miranda **gen. nov.** 12: *Hypocritanus fascipennis* (Wiedemann), female, habitus, dorsal view, by Steve Marshall. 13: *Hypocritanus fascipennis* (Wiedemann) (debu01088980), male, epandrium, ventral view. 14–15. *Hypocritanus fascipennis* (Wiedemann) (debu00119165), female, terminalia. 14: dorsal view. 15: lateral view. 16–22. *Maiana* Miranda **gen. nov.** 16: *Maiana pumila* (Austen), female, habitus, dorsal view, by Steve Marshall. 17: *Maiana* sp. (INPA-DIP000172), male, head, dorsal view. 18: *Maiana pumila* (Austen) (JSS32861), male, wing. 19: *Maiana pumila* (Austen) (debu00178088), female, scutellum and tergum 1, dorsal view. 20–22. *Maiana pumila* (Austen) (JSS32861), male, terminalia. 20: epandrium, lateral view. 21: epandrium, ventral view. 22: hypandrium, lateral view. **c:** cercus; **e:** epiproct; **h:** hypandrium; **p:** postgonite; **ph:** phallus; **s:** surstylus; **se:** subepandrial sclerite; **l:** lobe; **le:** lobular expansion; **lem:** lateral eye margin; **o:** ocellar triangle; **pem:** posterior eye margin; **t1:** tergum 1.

Genus *Nuntianus* Miranda gen. nov.

Figs 23–47, 75, 86–87, 96–97

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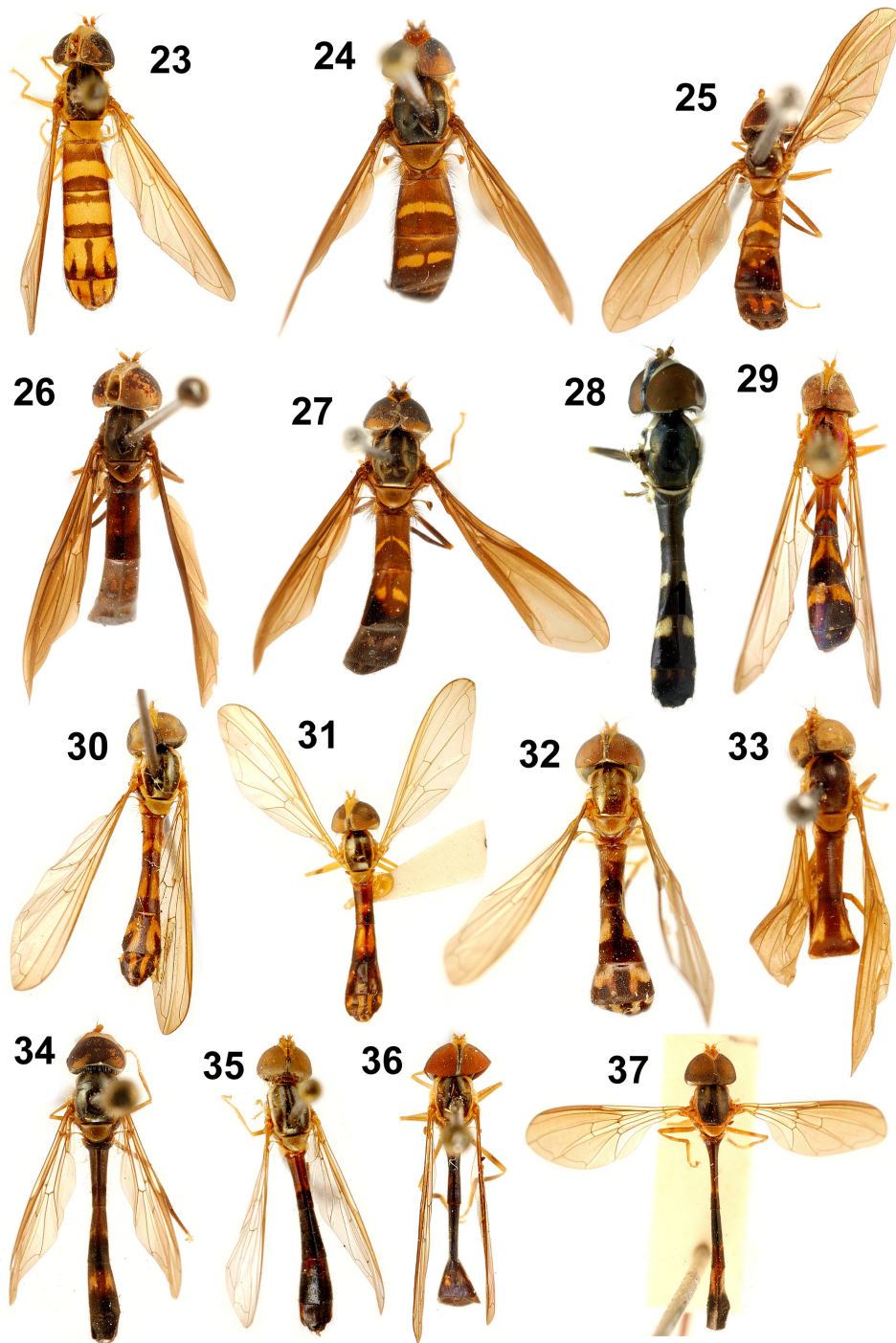
Type species: *Baccha lepida* Macquart, 1842

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

Ocyptamus lepidus species group. Thompson (1981); Miranda *et al.* (2016); Mengual *et al.* (2018)

Description. Head. Face very narrow to narrow (between 1/4 and less than a 1/3 of head width) and usually pale; tubercle usually weak and medially positioned, slightly concave dorsally and ventrally (Fig. 87). Antennal insertions confluent. Frons very narrow (~1/4 of head width) to normal (~1/3 of head width), white microtrichia usually homogeneously distributed but sparse on a median longitudinal area and absent dorsal to lunule. Female ocellar triangle adjacent to or ~1 ocellus-width from lateral eye margin (Fig. 86). Vertex either homogeneously covered by dull white microtrichia, or with sparse white microtrichia, or without microtrichia and shiny. Dorsal occiput with one row of pile (Figs 86, 87). **Thorax.** Scutum usually pale laterally from postpronotum to post-alar callus, and usually without distinct anterior row of pile (Figs 23–37). Scutellum usually entirely pale. Anterior anepisternum pilose (except bare on *N. croceus* and the species group *N. hyalipennis*). Katatergite usually with short microtrichia that gives the sclerite a ‘velvet’ appearance. Metaepisternum pilose or bare. Metasternum bare. Upper calypter margin bare or with pile shorter than pile on the ventral calypter margin. Metafemur with normal pile. **Wing.** Alula usually narrow (as wide as c cell). Wing either hyaline or entirely light yellow to light brown. Vein M1 sometimes straight (Fig. 44). **Abdomen.** Abdomen and terga colour pattern variable. **Terminalia.** Female tergum 7 only *lightly sclerotized (Fig. 47, except in the *N. hyalipennis* species group); tergum 8 variable. Male surstylus usually with homogeneously distributed setulae or setae; *subepandrial sclerite ‘crescent’ shaped (Figs 45 and 46) and usually with pair of apical projecting lobes between bases of surstyli; hypandrium usually oval and quite robust apically, with ventral pilosity sub-apically or apically; postgonite with sub-apical acute dorsal extremity and with either a rounded or acute ventral extremity; basiphallus teardrop-shaped, distiphallus membranous with dorsal sclerotized triangular region (Figs 92, 96, 97).

Included species (63): *N. abata* (Curran, 1938) **comb. nov.** [2, 4, type lost], *N. aeolus* (Hull, 1943a) **comb. nov.** [1b], *N. anona* (Hull, 1943e) **comb. nov.** [1b], *N. arabella* (Hull, 1947a) **comb. nov.** [2], *N. banksi* (Hull, 1941a) **comb. nov.** [1b], *N. cecrops* (Hull, 1958) **comb. nov.** [1a], *N. chapadensis* (Curran, 1930a) **comb. nov.** [1b], *N. confusus* (Goot, 1964) **comb. nov.** [4, type lost], *N. crocatus* (Austen, 1893) **comb. nov.** [1b], *N. croceus* (Austen, 1893) **comb. nov.** [2], *N. cubanus* (Hull, 1943a) **comb. nov.** [1b], *N. cultratus* (Austen, 1893) **comb. nov.** [1a (synonym, *Baccha currani* Hull), 2, 3, 4], *N. cymbellina* (Hull, 1944) **comb. nov.** [1b], *N. debasa* (Curran, 1941) **comb. nov.** [1b], *N. delicatissimus* (Hull, 1943b) **comb. nov.** [1b], *N. dryope* (Hull, 1958) **comb. nov.** [1a], *N. fervidus* (Austen, 1893) **comb. nov.** [2], *N. filii* (Doesburg, 1966) **comb. nov.** [1b, 4], *N. flavens* (Austen, 1893) **comb. nov.** [1b], *N. geijskesi* (Doesburg, 1966) **comb. nov.** [1b, 4], *N. gilvus* (Austen, 1893) **comb. nov.** [2], *N. halcyone* (Hull, 1949b) **comb. nov.** [1a], *N. hippolite* (Hull, 1957) **comb. nov.** [1a], *N. hyalipennis* (Curran, 1930b) **comb. nov.** [1b], *N. inornatus* (Walker, 1836) **comb. nov.** [1b], *N. io* (Hull, 1944) **comb. nov.** [1b], *N. iona* (Curran, 1941) **comb. nov.** [1b], *N. lepidus* (Macquart, 1842) **comb. nov.** [1b, 4], *N. lucretia* (Hull, 1949c) **comb. nov.** [1a], *N. luctuosus* (Bigot, 1884) **comb. nov.** [1a (synonym, *Baccha papilio* Hull), 4, type lost], *N. micropyga* (Curran, 1941) **comb. nov.** [1b], *N. minimus* (Hull, 1943b) **comb. nov.** [1b], *N. murinus* (Curran, 1930a) **comb. nov.** [1b], *N. myiophagus* (Thompson in Mengual *et al.*, 2018) **comb. nov.** [1a], *N. neoparvicornis* (Telford, 1973) **comb. nov.** [2, 4], *N. neptunus* (Hull, 1943d) **comb. nov.** [1b], *N. neuralis* (Curran, 1934) **comb. nov.** [1b], *N. niobe* (Hull, 1943c) **comb. nov.** [1b], *N. nora* (Curran, 1941) **comb. nov.** [1b], *N. obliquus* (Curran, 1941) **comb. nov.** [1b], *N. octomaculatus* (Thompson in Thompson *et al.*, 1976) **comb. nov.** [1a], *N. oriel* (Hull, 1942a) **comb. nov.** [1b], *N. panamensis* (Curran, 1930c) **comb. nov.** [1b], *N. peri* (Hull, 1943a) **comb. nov.** [1b], *N. philippianus* (Enderlein, 1938) **comb. nov.** [2, type lost?], *N. prenes* (Curran, 1930a) **comb. nov.** [1b], *N. prudens* (Curran, 1934) **comb. nov.** [1b], *N. pullus* (Sack, 1921) **comb. nov.** [1a (synonym, *Baccha sepia* Hull), 1b (synonym, *Baccha danaida* Hull and *Baccha violacea* Hull)], *N. punctifrons* (Williston, 1891) **comb. nov.** [1b], *N. pyxia* (Hull, 1943a) **comb. nov.** [1b], *N. saffrona* (Hull, 1943c) **comb. nov.** [1b], *N. spatulatus* (Giglio-Tos, 1892) **comb. nov.** [2], *N. vanessa* (Hull, 1949a) **comb. nov.** [1a], *N. variegatus* (Macquart, 1842) **comb. nov.** [1b], *N. verona* (Curran, 1941) **comb. nov.** [1b], *N. victoria* (Hull, 1941b) **comb. nov.** [1a], *N. vierecki* (Curran, 1930a) **comb. nov.** [1b], *N. xanthopterus* (Wiedemann, 1830) **comb. nov.** [2], *N. xantippe* (Hull, 1949a) **comb. nov.** [1a], *N. zenillia* (Curran, 1941) **comb. nov.** [1b], *N. zita* (Curran, 1941) **comb. nov.** [1b], *N. zobeide* (Hull, 1943e) **comb. nov.** [1b], *N. zoroaster* (Hull, 1943a) **comb. nov.** [1b].



FIGURES 23–37. *Nuntianus* Miranda **gen. nov.**, habitus, dorsal. **23:** *Nuntianus cultratus* (Austen) (holotype *Baccha satyra* Hull, AMNH), male, by AMNH. **24:** *Nuntianus neptunus* (Hull) (holotype *Baccha neptuna* Hull, AMNH), male, by AMNH. **25:** *Nuntianus luctuosus* (Bigot) (holotype *Baccha vespuccia* Hull, AMNH), male, by AMNH. **26:** *Nuntianus peri* (Hull) (holotype *Baccha peri* Hull, AMNH), female, by AMNH. **27:** *Nuntianus pullus* (Sack) (holotype *Baccha danaida* Hull, AMNH), male, by AMNH. **28:** *Nuntianus cecrops* (Hull) (INPA-DIP000246), female. **29:** *Nuntianus niobe* (Hull) (holotype *Baccha niobe* Hull, AMNH), female, by AMNH. **30:** *Nuntianus verona* (Curran) (holotype *Baccha verona* Curran, AMNH), female, by AMNH. **31:** *Nuntianus anona* (Hull) (holotype *Baccha anona* Hull, AMNH), female, by AMNH. **32:** *Nuntianus debasa* (Curran) (holotype *Baccha debasa* Curran, AMNH), female, by AMNH. **33:** *Nuntianus aeolus* (Hull) (holotype *Baccha aeolus* Hull, AMNH), female, by AMNH. **34:** *Nuntianus zobeide* (Hull) (holotype *Baccha zobeide* Hull, AMNH), male, by AMNH. **35:** *Nuntianus chapadensis* (Curran) (holotype *Baccha chapadensis* Curran, AMNH), female, by AMNH. **36:** *Nuntianus zenillia* (Curran) (holotype *Baccha zenillia* Curran, AMNH), female, by AMNH. **37:** *Nuntianus nora* (Curran) (holotype *Baccha nora* Curran, AMNH), male, by AMNH.

Etymology. The name is a reference to the Latin word for ‘messenger’ or ‘message’ since there are still more information/messages to be discovered inside the genus. The name is to be treated as masculine.

Comments. This is the former *Ocyptamus lepidus* species group. Most common species can be recognized by the abdominal pattern of dark apical extensions (one medial and a sub-lateral pair) into a mostly pale background (Figs 23 and 43); this pattern is what earlier authors called the yellow ‘inverted V-shaped’ markings (Figs 30 and 32). Other species have abdominal patterns that seem to be variations of the common one (Figs 24, 27, 28, 33, 34 and 42). Species of *Nuntianus* can be readily distinguished from the superficially similar *Hybobathus* Enderlein, 1938 by the absence of the contrasting ocellar triangle present in the latter (see Fig. 78 in Mengual *et al.* 2018). Besides the abdominal pattern, the genus can also be quickly separated from other taxa by the often entirely light yellow to brown wings. Despite the variability in superficial color characters, the monophyly of *Nuntianus* is strongly supported in the combined molecular analysis of Miranda *et al.* (2016). One of the possible unique synapomorphies, so far not present in any other lineage, for the genus lies on the condition of the female tergum 7: most closely related lineages have a distinct tergum 7, but in *Nuntianus* it is almost wholly membranous with weakly sclerotized basal areas (Fig. 47).

Larval predatory habits seem quite diverse in this genus. Besides the predation of aphids as seen in *N. cubanus* (but see below) (Mengual *et al.* 2018), there are records of *N. luctuosus* as aquatic predators in bromeliads (Rotheray *et al.* 2000) and records of *N. myiophagus* as a predator of adult insects (Ureña & Hanson 2010).

Nuntianus variegatus (Fig. 75) was previously allocated in the *Ocyptamus melanorrhinus* species group (Mengual *et al.* 2018), but type images indicate that it belongs to *Nuntianus* due to its similarity to *N. zita*.

Nuntianus is the largest of the taxa recently removed from the old ‘*Ocyptamus*’ assemblage, and includes subgroups yet to be properly defined. One such group is the *N. hyalipennis* species group (*N. hyalipennis*, *N. neuralis*, *N. obliquus* and *N. panamensis*), once thought to be related to *Calostigma* Shannon, 1927 (Thompson 1981) but strongly supported as part of *Nuntianus* by molecular characters (Miranda *et al.* 2016). These small flies differ from most congeners in having a straight, or nearly so, vein M1 [see comments in Miranda *et al.* (2016: 172)]; the *N. hyalipennis* species group can be further distinguished from *Calostigma* by the scutum with 3 long and white microtrichose stripes (the lateral pair wider than the median stripe) (similar to Fig. 27), yellow scutellum (Fig. 43), brownish yellow and almost completely microtrichose wings, and the abdominal terga mainly pale and with apical dark stripes (Fig. 43).

Other possible subgroups of *Nuntianus* comprise the species with wide parallel-sided (Fig. 23) to oval (Fig. 25) abdomens (*N. cultratus*, *N. fervidus*, *N. geijskesi*, *N. gilvus*, *N. iona*, *N. lepidus*, *N. luctuosus*, *N. myiophagus*, *N. neoparvicornis*, *N. neptunus*, *N. peri*, *N. pullus*, and *N. prudens*), species with petiolate (Fig. 30) abdomens (*N. abata*, *N. aeolus*, *N. anona*, *N. arabella*, *N. banksi*, *N. cecrops*, *N. chapadensis*, *N. crocatus*, *N. croceus*, *N. cubanus*, *N. debasa*, *N. filii*, *N. flavens*, *N. halcyone*, *N. hippolite*, *N. io*, *N. lucretia*, *N. murinus*, *N. niobe*, *N. octomaculatus*, *N. oriel*, *N. prenes*, *N. punctifrons*, *N. pyxia*, *N. saffrona*, *N. spatulatus*, *N. vanessa*, *N. variegatus*, *N. verona*, *N. victoria*, *N. vierecki*, *N. zita*, and *N. zobeide*), and species with relatively slender (Fig. 37), rather than petiolate, abdomens (*N. confusus*, *N. cymbellina*, *N. delicatissimus*, *N. dryope*, *N. micropyga*, *N. minimus*, *N. nora*, *N. zenilia*, and *N. zoroaster*). A few species are of uncertain grouping due to insufficient information on the shape of the abdomen, because the literature is inadequate, the type is not available for examination, or type is greatly damaged (*N. inornatus*, *N. philippianus*, *N. xantippe*, and *N. xanthopterus*). *Nuntianus lepidus* was chosen as the type species for the genus based on the long history of the ‘*lepidus* species group’.

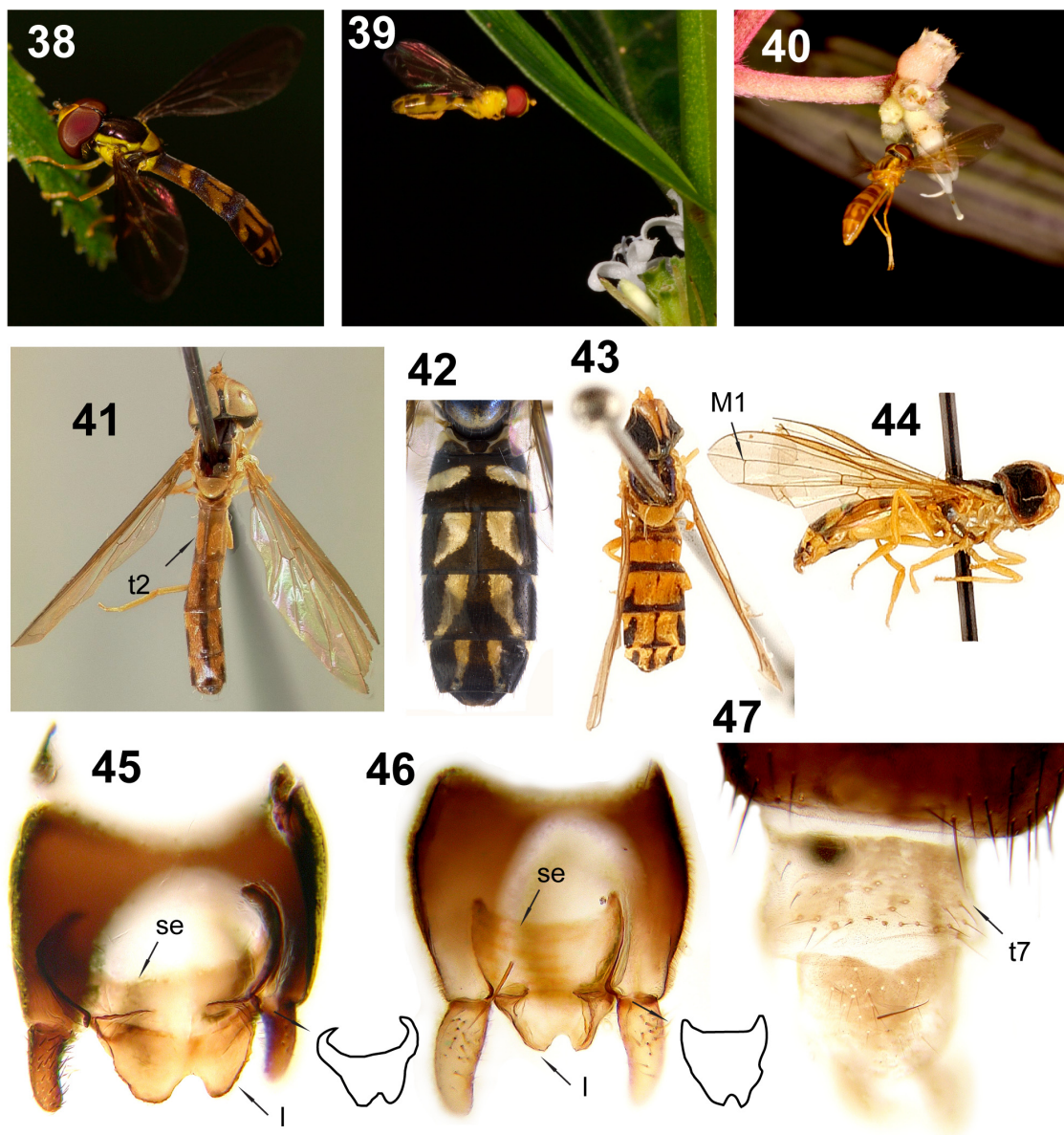
Nuntianus cubanus (Fig. 41), the only *Nuntianus* species that occurs in the Nearctic region (Florida, USA), seems to be distinct from the rest of the genus. A neighbour-joining analysis using the COI gene (analysis not shown here) places specimens of this species in a separate cluster far from the remaining *Nuntianus*. Abdominal tergum 2 of *N. cubanus* has a more extensive pale pattern than in congeners, but the pattern is similar to the common pattern found on tergum 4 (Fig. 23) of other *Nuntianus* species. We refrain from any taxonomical action at this moment, but this species in particular should be considered carefully in future analyses and revisions.

There was a misidentification of a specimen of *Ocyptamus prenes* (Curran, 1930a) (INPA-DIP0000246) in the works of Miranda (2017b) and Mengual *et al.* (2018). The specimen is actually a representative of *N. cecrops* (which still makes it a new record for the state of Amazonas but also makes it a new record for Brazil as well).

Ocyptamus isthmus Thompson in Thompson *et al.*, 1976 was a replacement name (International Code of Zoological Nomenclature - ICZN art. 57.3.1) for *Calostigma panamensis* Curran, 1930c (March 26th 1930). The replacement name was needed when this species and *Baccha panamensis* Curran, 1930a [February 28th 1930 =

Pelecinobaccha transatlantica (Schiner, 1868), synonymized in Mengual *et al.* (2018)] were both placed in *Ocyptamus* (Thompson *et al.* 1976). This emendation is no longer justified so we reinstate (ICZN art. 59.4) *Calostigma panamensis* Curran, 1930c, now *Nuntianus panamensis*, and synonymize *O. isthmus* under it (ICZN art. 61.3.4 and 72.7).

The *Ocyptamus* morphospecies of Reemer (2010) seem to fall into the following taxa: *Ocyptamus* SUR-01 in *Nuntianus* (mainly due to the presence of the alula), *O.* SUR-04 in *Nuntianus* or the *V. attenuata* species group, *O.* SUR-05 and *O.* SUR-10 in *Nuntianus*, *O.* (*Calostigma*) SUR-06b is part of the *N. hyalipennis* species group (mainly due to abdominal shape and pattern).



FIGURES 38–47. *Nuntianus* Miranda **gen. nov.** **38:** *Nuntianus* aff. *anona*, male, habitus, oblique dorsal view, by Gil F. G. Miranda. **39:** *Nuntianus croceus* (Austen), male, habitus, lateral view, in flight, by Gil F. G. Miranda. **40:** *Nuntianus cultratus* (Austen), female, habitus, dorso-posterior view, in flight, by Gil F. G. Miranda. **41:** *Nuntianus cubanus* (Hull) (holotype *Baccha cubana* Hull, MCZ), female, habitus, dorsal view [copyright President and Fellows of Harvard College (MCZ)]. **42:** *Nuntianus obliquus* (Curran) (INPA-DIP000248), female, abdomen, dorsal view, photo previously published in Mengual *et al.* (2018). **43–44.** *Nuntianus hyalipennis* (Curran) (holotype *Calostigma hyalipennis* Curran, AMNH), female, habitus, by AMNH. **43:** dorsal. **44:** lateral. **45:** *Nuntianus abata* (Curran) (CNC_Diptera209361), male, epandrium, ventral (line drawing represents outline of the subepandrial sclerite). **46:** *Nuntianus cultratus* (Austen) (CNC_Diptera209588), male, epandrium, ventral (line drawing represents outline of the subepandrial sclerite). **47:** *Nuntianus abata* (Curran) (CNC_Diptera209364), female, terminalia, dorsal. **I:** lobe expansion; **M1:** vein M1; **se:** subepandrial sclerite; **t2 and 7:** tergum 2 and 7.

Genus *Victoriana* Miranda gen. nov.

Figs 48–60, 77, 88–91, 9–101

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Type species: *Baccha melanorrhina* Philippi, 1865

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

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

Ocyptamus melanorrhinus species group. Miranda *et al.* (2016); Mengual *et al.* (2018)

Comments. This genus, corresponding to the former *Ocyptamus melanorrhinus* species group, is currently divided into three species groups: *V. attenuata*, *V. melanorrhina* and *V. parvicornis* species groups. All groups are similar in external morphology, including a wing that is bare on the base (basal 1/4 of c, basal 2/3 of br and most of bm except for apico-posterior margin). The *V. attenuata* and *V. melanorrhina* groups form a clade (Miranda *et al.* 2016), characterized by apical projections of the subepandrial sclerite into the surstyli (unique) (Fig. 52), a postgonite with a strongly projected ventro-apical extremity (Figs 54, 55, 56), and a more dorsally positioned facial tubercle (not unique to the taxon, but still not very widespread in other taxa). The *V. attenuata* and *V. melanorrhina* clade was recovered as sister to *Eosalpingogaster* Hull, 1949 in a recent study (Miranda *et al.* 2016), and *V. melanorrhina* (Philippi, 1865) was resolved as sister taxon to *Eosalpingogaster* in other works (Mengual and Thompson 2011; Mengual 2015). Unpublished hybrid-enrichment molecular data places *V. parvicornis* as sister to *Eosalpingogaster* as well, further supporting the close relationship of the three groups.

Due to the numerous differences between the groups, more than the fewer shared characteristics between them (see comments above), we have chosen to focus on the description of each group separately.

Etymology. The genus is named after the first author's oldest daughter. The name is to be treated as feminine.

Victoriana attenuata species group

Description. Body brown (Fig. 50). **Head.** Face narrow (between 1/4 to ~1/3 of head width), entirely pale; tubercle dorsally positioned. Antennal insertions confluent. Dorsal occiput with 1 row of pile. **Thorax.** Scutum pale laterally, and without distinct anterior row of pile. Scutellum pale. Anterior anepisternum pilose. Katatergite with short microtrichia that gives the sclerite a 'velvet' appearance. Metaepisternum pilose. Metasternum bare. Upper calypter margin with pile much shorter than pile on the ventral calypter margin. **Wing.** Alula absent. Wing hyaline (Fig. 50). **Abdomen.** Abdomen slightly petiolate, narrow and elongated, sometimes petiolate; terga 3 and 4 with medial, pale, triangular maculae that might be incised posteriorly or fully divided medially into two short stripes (Fig. 50). **Terminalia.** Male postgonite apical margin straight and with dorsal and ventral apical acute extremities (Fig. 56); surstylus with homogeneously distributed setulae ventrally; hypandrium with pile sub-apically on ventro-lateral surface; basiphallus teardrop-shaped, distiphallus membranous with dorsal sclerotized triangular region (similar to Fig. 97).

Included species (8). *V. attenuata* (Williston, 1891) **comb. nov.** [1b], *V. duida* (Hull, 1947a) **comb. nov.** [1b], *V. mentor* (Curran, 1930a) **comb. nov.** [1b], *V. oblonga* (Walker, 1852) **comb. nov.** [1b], *V. sagittifera* (Austen, 1893) **comb. nov.** [1b], *V. sativa* (Curran, 1941) **comb. nov.** [1b], *V. selene* (Hull, 1949a) **comb. nov.** [1a], *V. zilla* (Hull, 1943b) **comb. nov.** [1b].

Comments. The *V. attenuata* species group can be further distinguished from the *V. melanorrhina* species group by the frons with only sparse microtrichia [microtrichia concentrated laterally in the *V. melanorrhina* species group (similar as in Fig. 86)], hypandrium oval in dorsal profile [trapezoidal in the *V. melanorrhina* species group (Fig. 99)] and postgonite with straight apical margin (convex (fig. 55) or extended ventro-apically (Fig. 54) in the *V. melanorrhina* species group).

Victoriana oblonga (Fig. 77) and *V. zilla* (Fig. 50) were previously allocated to the *O. lepidus* group (Mengual *et al.* 2018) but characters visible on the type specimen images, including shape of their abdominal segments, colour pattern, and lack of alula, indicate that it belongs in *Victoriana*. Furthermore, it is likely that *V. sativa* (described on the basis of a male specimen, Fig. 89) is a junior synonym of *V. oblonga* (described on the basis of a female specimen, Fig. 77), although the type of the latter is too damaged to fully compare to the former.

The *V. attenuata* species group (Fig. 50) resembles some *Nuntianus* species (Figs 34–36), in that the subepandrial sclerite has apical extensions (Fig. 53) similar to those in *Nuntianus*, however the sub-epandrial sclerite overall is different, and this resemblance is probably superficial. The hypandrium of the *V. attenuata* species group also has

ventral pile sub-apically (Fig. 56) as in *Nuntianus*, but this feature also occurs with slight variations in some species of *Fragosa*, *Hybobathus*, *Maiana*, *Mimocalla* Hull, 1943a, *Pelecynobaccha* Shannon, 1927 [*P. alucard* Miranda in Miranda *et al.*, 2014, *P. dracula* (Hull, 1943f)], *Relictanum* Miranda in Miranda *et al.*, 2014 [*R. braziliensis* (Curran, 1939), *R. magisadpersum* Miranda in Miranda *et al.*, 2014, *R. nero* (Curran, 1939), *R. schwarzi* (Curran, 1939)], *Styxia*, and the other groups of *Victoriana* (e.g. Fig. 99). This group differs most markedly from *Nuntianus* species in having a postgonite with straight apical margin and with apico-dorsal and apico-ventral extremities acute and strongly produced (Fig. 56).

Victoriana melanorrhina species group (*Victoriana sensu stricto*)

Description. Body brown. **Head.** Face narrow to normal (between 1/4 to ~1/3 of head width), entirely pale or with medial dark stripe; tubercle dorsally positioned. Antennal insertions confluent. Frons ~1/3 of head width. Female ocellar triangle ~1 ocellus-width from lateral eye margin. Dorsal occiput with one row of pile; *ventral occiput with rows of pile distanced from eye margin (Fig. 88). **Thorax.** Scutum dark, sometimes pale laterally, and without distinct anterior row of pile. Scutellum pale to mostly dark; *sub-scutellar fringe conspicuous, but pile sparse. Anterior anepisternum pilose. Katatergite with short microtrichia that gives the sclerite a ‘velvet’ appearance. Metaepisternum pilose. Metasternum bare. Upper calypter margin with shorter to much shorter pile than pile on the ventral calypter margin. *Metafemur with erect pile on its baso-posterior surface (Fig. 90). **Wing.** Alula absent, or much reduced (narrower than c) (Fig. 91). Wing hyaline or with anterior dark margin on females, light brown on males; vein M1 strongly oblique, ending far from where it leaves M (Fig. 48). **Abdomen.** Abdomen parallel-sided, elongated, slightly petiolate; *terga 4 and 5 with sub-basal, pale, small, banded maculae (Fig. 48). **Terminalia.** Female tergum 7 as pair of sclerotized stripes (Fig. 100); tergum 8 as a narrow triangular sclerotization (Fig. 100). *Male postgonite elongated, with a dorsal acute extremity and a ventral acute extremity (that may be further extended anteriorly) (Figs 54 and 55); *surstylus elongated and finger-like, ventral surface with setae and setulae intermixed (Figs 51 and 52); basiphallus teardrop-shaped, distiphallus membranous with dorsal sclerotized triangular region (as in Fig. 97).

Included species (3). *V. laudabilis* (Williston, 1891) **comb. nov.** [1b], *V. lugubris* (Philippi, 1865) **comb. nov.** [2, 3], *V. melanorrhina* (Philippi, 1865) **comb. nov.** [2, 3, 4].

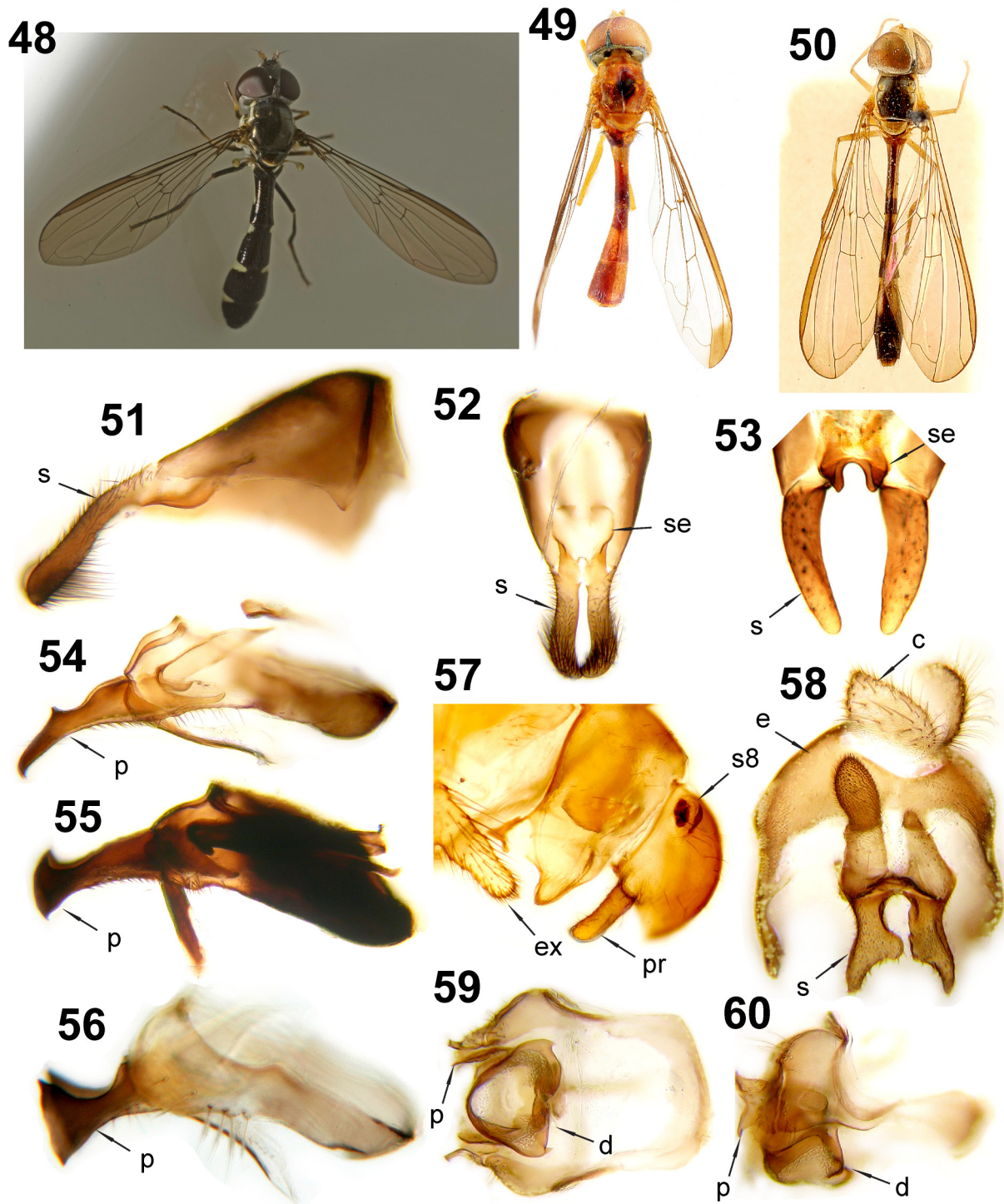
Victoriana parvicornis species group

Ocyptamus parvicornis species group. Thompson (1981)

Description. *Body orange (Fig. 49). **Head.** Face pale and of normal width (~1/3 of head width); tubercle ventrally positioned. Frons very narrow (~1/4 of head width). Antennal insertions confluent. Female ocellar triangle adjacent to lateral eye margin. Dorsal occiput with 2 rows of pile. **Thorax.** Scutum without distinct anterior row of pile. Anterior anepisternum pilose. Katatergite with inconspicuous microtrichia. Metaepisternum pilose. Metasternum bare. Upper calypter margin bare. Metafemur with normal pile. **Wing.** Alula very narrow and inconspicuous (narrower than c cell). Wing mostly hyaline, sometimes with dark apical spot. **Abdomen.** Abdomen petiolated and narrow, orange and without colour pattern (Fig. 49); *male sternum 5 with pair of apico-lateral extensions (Fig. 57). **Terminalia.** Female tergum 7 divided into a pair of quadrangular sclerites (Fig. 101); tergum 8 rectangular and with setae (Fig. 101); cercus without pile but with homogenously distributed setulae. *Male sternum 8 with basal long projection (Fig. 57); *epandrium closing around cerci, without apical gap (Fig. 58); *surstyli asymmetrical and connected medially by a sclerotized bridge (Fig. 58); hypandrium compact *with very short postgonite with concave apical margin (Fig. 60); phallus heavily sclerotized and enlarged, *distiphallus hood-shaped (Fig. 59).

Included species (2). *V. ferruginea* (Thompson 1981) **comb. nov.** [2], *V. parvicornis* (Loew, 1861) **comb. nov.** [1b, 3, 4].

Comments. The female of the *V. parvicornis* species group differs from congeners in that the epiproct is divided into a pair of distinct plates (Fig. 101). The setulose (not pilose) female cercus (Fig. 101) is also quite distinct, however similar cerci occur in the genus *Relictanum*. There are undescribed species of *Fragosa* (e.g. USNMENT01243085) with apical extensions on sternum 4 instead of 5 (Fig. 57), but these are medial and not lateral as in the *V. parvicornis* group.



FIGURES 48–60. *Victoriانا* Miranda **gen. nov.** **48:** *Victoriانا melanorrhina* (Philippi), female, habitus, dorsal, by Steve Marshall, photo previously published in Mengual *et al.* (2018). **49:** *Victoriانا parvicornis* (Loew) (CNC_Diptera237923), male, habitus, dorsal, photo previously published in Mengual *et al.* (2018). **50:** *Victoriانا zilla* (Hull) (holotype *Baccha zilla* Hull, AMNH), female, habitus, dorsal, by AMNH. **51:** *Victoriانا* aff. *melanorrhina* (debu00279441), male, epandrium, lateral. **52:** *Victoriانا* aff. *melanorrhina* (debu00279441), male, epandrium, ventral. **53:** *Victoriانا* cf. *attenuata* (JSS22253), male, epandrium, ventral. **54:** *Victoriانا* aff. *melanorrhina* (debu00279441), male, hypandrium, lateral. **55:** *Victoriانا melanorrhina* (debu01088955), male, hypandrium, lateral. **56:** *Victoriانا* cf. *attenuata* (JSS22253), male, hypandrium, lateral. **57–60.** *Victoriانا parvicornis* (Loew) (CNC_Diptera237923), male. **57:** abdomen apex, ventral. **58:** epandrium, frontal. **59:** hypandrium, ventral. **60:** hypandrium, lateral. **c:** cercus; **d:** distiphallus; **e:** epandrium; **ex:** extensions of sternum 5; **p:** postgonite; **pr:** process of sternum 8; **s:** surstylus; **se:** subepandrial sclerite; **s8:** sternum 8.

Discussion

Morphological characters. Several characters of the external morphology and the male and female terminalia reliably define the boundaries between lineages previously included in *Ocyptamus*. The following refined list of characters should be considered in future revisions of those taxa:

i. Head: Face (width), facial tubercle (position, size, and convexity), gena (shape in ventral view and width), frons/frontal triangle (rugosity, width and microtrichia distribution), vertex (width), ocellar triangle (elevation, distance from lateral and posterior eye margin, and microtrichia condition), antennal insertions (separated or confluent and in which sexes), antennae (distance between the bases of each), postpedicel (shape, size and length in comparison to the scape and pedicel), and occiput (dorsal and ventral areas: width, microtrichia distribution, number and condition of the rows of pile, and pile shape).

ii. Thorax: Scutum (condition of the anterior row of pile, microtrichia condition and patterns), scutellum (colour pattern), subscutellar fringe (pile length and distribution), posterior anepisternum (pilosity on postero-dorsal corner), katatergite (vestiture), metasternum (degree of development and pilosity), metathoracic epimera (degree of extension towards each other), female protarsomeres (size in comparison to male protarsomeres), metacoxa and metatrochanter (pilosity), metafemur (colour pattern and pile condition and distribution), plumula (length), upper calypter (condition of the marginal pile in comparison to marginal pile on ventral calypter), ventral calypter (size), alula (size and microtrichosity pattern), male and female wing (colour patterns and microtrichia distribution), vein M_1 (sinuosity), vein R_{4+5} (sinuosity), and anal lobe (condition of basal portion).

iii. Abdomen: Terga 1 (shape in each sex), 2 (shape and pilosity in each sex), 3 (colour pattern and pilosity), 4 (colour pattern), and 5 (shape), male sterna 4 (shape), and 8 (presence and condition of projections), female segment 6 (condition and length), and terminalia (overall size in each sex).

iv. Female terminalia: Terga 7 (shape and sclerotization) and 8 (shape and sclerotization), sternum 8 (shape, degree of sclerotization, apodemes, and degree of fusion), epiproct (shape, degree of fusion, vestiture and presence of apodemes), and cercus (sclerotization and vestiture).

v. Male terminalia (although often species-specific, some structures define groups): epandrium (degree of envelopment of cerci), cercus (shape and presence of modifications), surstylus (shape and condition of ventral vestiture), subepandrial sclerite (shape and expansions), hypandrium [shape, condition of ventral pilosity, and shape of ventral notch (unsclerotized/membranous portion)], postgonite (shape), basiphallus (shape), and distiphallus (shape and vestiture).

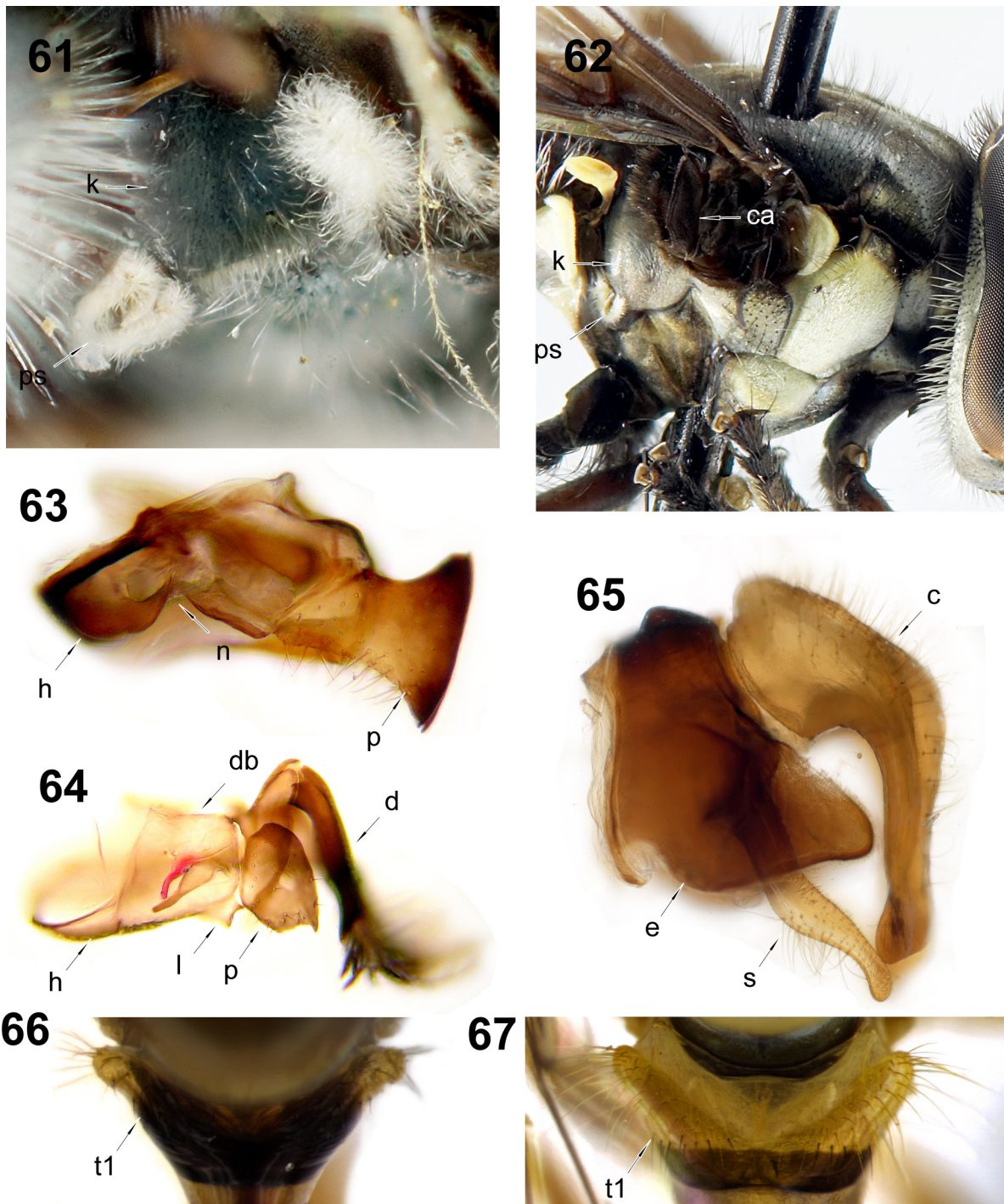
The pilosity on the anterior anepisternum and/or the metaepisternum has been traditionally used to separate *Ocyptamus* in its former broad concept from other Syphinae (see Thompson, 1999). However, the presence of pile in any of these sclerites does not longer apply straightforward to define some of the new genera. For example, some *Nuntianus* species have a pilose metaepisternum and a bare anterior anepisternum, while a pilose anterior anepisternum and a bare metaepisternum are present only in *Atylobaccha* Hull, 1949a, *Orphnabaccha* Hull, 1949a, *Pipunculosyrphus* Hull, 1937, *Pseudoscaeva* Vockeroth, 1969, *Styxia*, and in a few species of *Nuntianus* and *Ocyptamus*. *Nuntinaus neuralis* is exceptional in lacking pile on both sclerites. This information should be considered in future generic identification keys.

The katatergite often has a dense cover of short microtrichia, giving it a ‘velvety’ or pilose [e.g. *Styxia* (Fig. 62)] appearance. However, there are cases where this microtrichia is short and inconspicuous (i.e., *V. parvicornis* species group and the *incertae sedis* species *conjunctus* Wiedemann, 1830). It is only in *Pseudoscaeva* that it bears actual pile (Fig. 61), like that of *Allograpta* Osten Sacken, 1875.

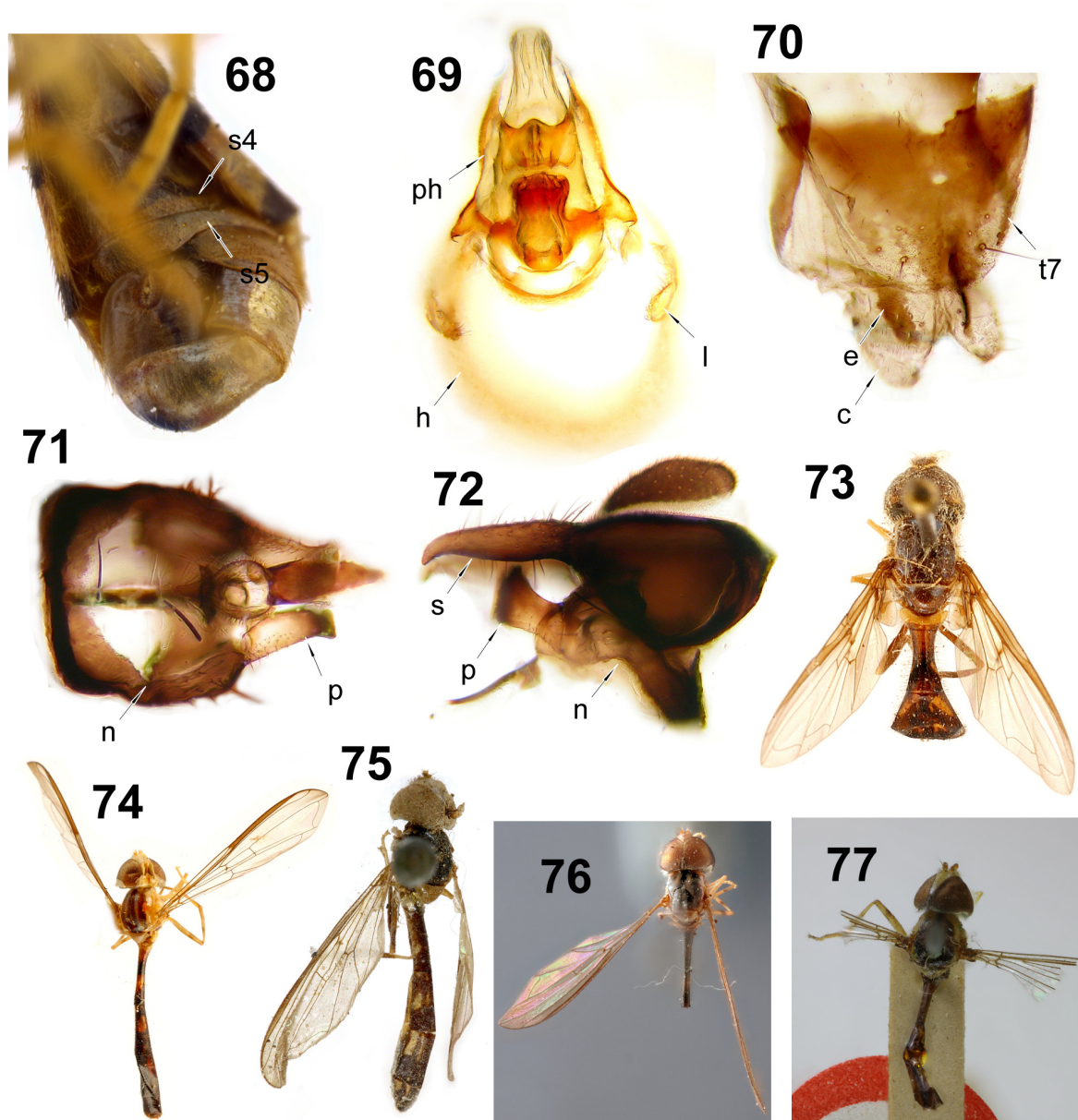
The colour pattern on the ventral lobe of the calypter is retained even in older specimens, and the distinct dark ventral lobe (Fig. 62) is a unique condition of the genus *Styxia*.

The surstylus articulates internally with the epandrium only in the genus *Mimocalla* (Fig. 65); in all other groups it articulates externally to the epandrium.

The hypandrium forms a dorsal bridge apically (‘db’ in Fig. 64), a sclerotized area that covers the phallus dorsally [most likely the phallic plate (Cumming & Wood 2017)], and it extends over 1/3 of the length of the hypandrium. However, it is longer, extending over 1/2 the length of the hypandrium (Fig. 64), in *Hermesomyia* Vockeroth, 1969, *Ocyptamus*, *Orphnabaccha*, and *Pseudoscaeva* (this state is also present in *Allograpta*). The hypandrium has prominent ventro-lateral lobes only in *Maiana* (‘l’ in Fig. 22, 69), in some species of *Orphnabaccha* (Fig. 64), and in the *incertae sedis* species *conjunctus* Wiedemann, 1830 (Fig. 98). The ventral membranous area of the hypandrium has lateral notches exclusively in the genus *Hybobathus* (Fig. 63).

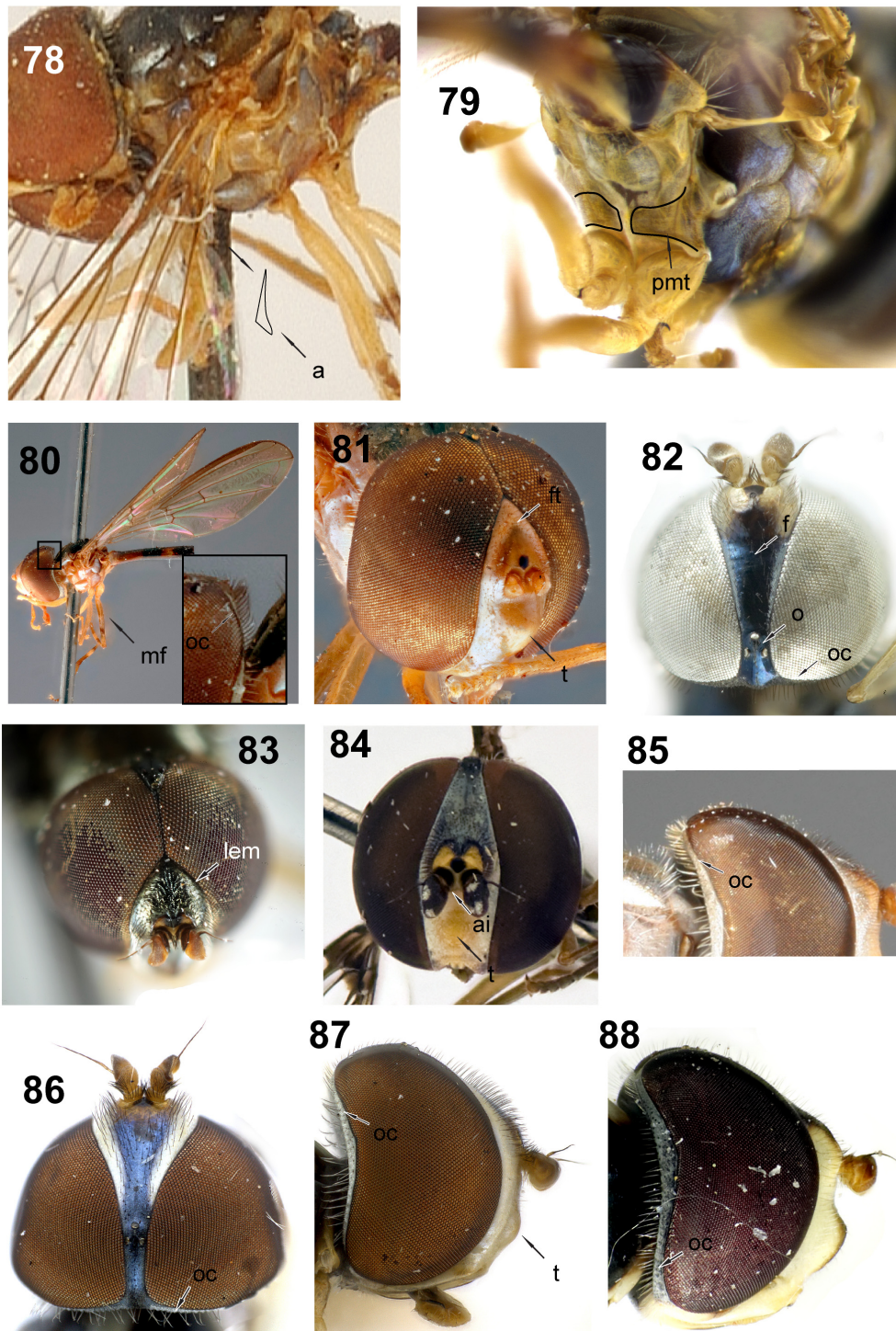


FIGURES 61–67. **61:** *Pseudoscaeva diversifasciata* (Knab) (CNC_Diptera040088), female, katatergite, lateral. **62:** *Styxia eblis* Hull (debu01088838), male, pleuron, lateral. **63:** *Hybobathus norina* (Curran) (JSS25233), male, hypandrium, lateral. **64:** *Orphnabaccha* aff. *calda* (CNC_Diptera210099), male, hypandrium, lateral. **65:** *Mimocalla erebus* (Hull) (CNC_Diptera209355), male, epandrium, lateral, photo previously published in Mengual *et al.* (2018). **66:** *Fragosa argentina* (Curran) (CNC_Diptera174232), female, tergum 1, dorsal. **67:** *Maiana callida* (Hine) (CNC_Diptera105396), male, tergum 1, dorsal. **c:** cercus; **ca:** calypter; **d:** distiphallus; **db:** dorsal bridge; **e:** epandrium; **h:** hypandrium; **k:** katatergite; **l:** lobe; **n:** lateral notch; **p:** postgonite; **ps:** posterior spiracle; **s:** surstylus; **t1:** tergum 1.

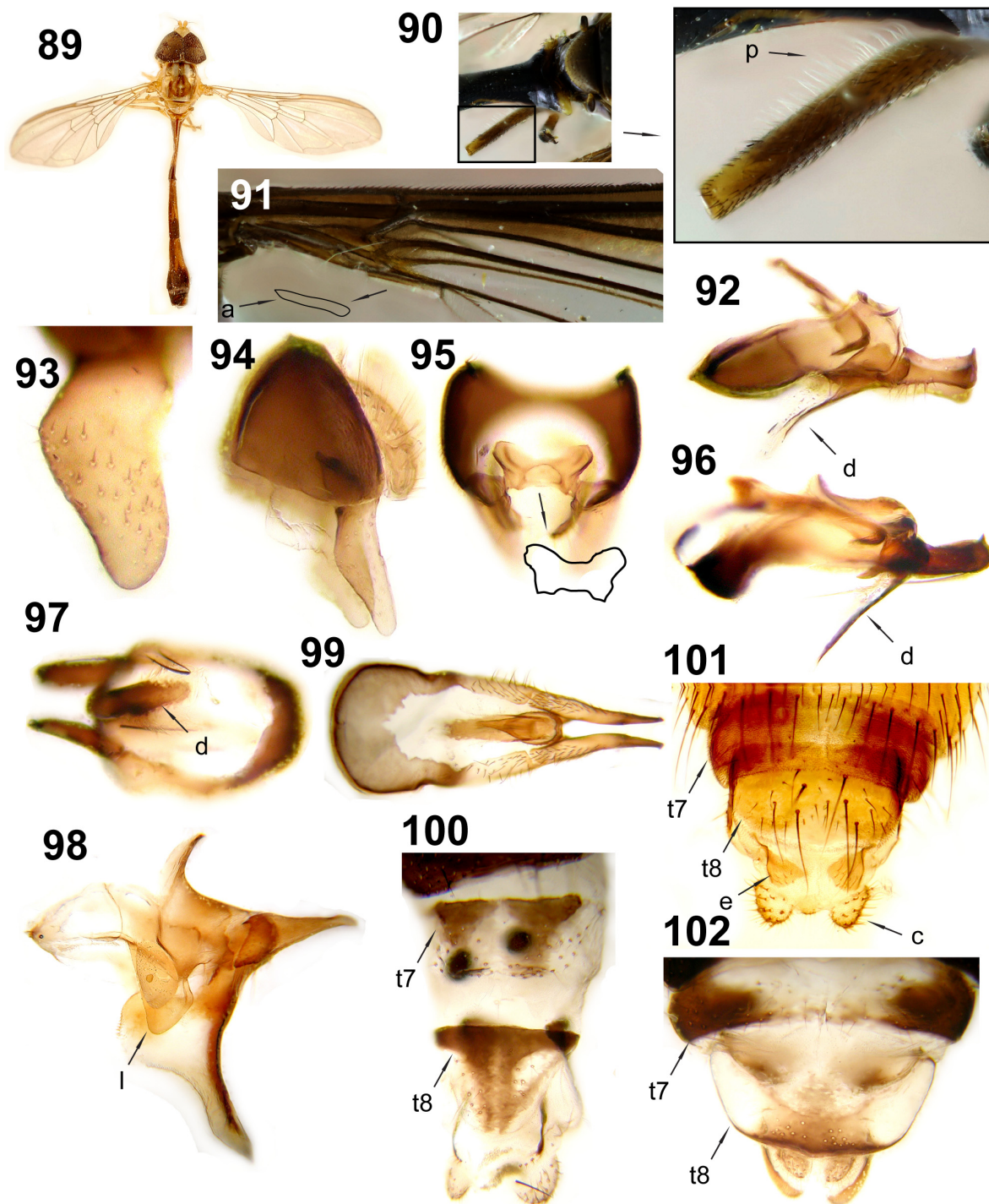


FIGURES 68–77. **68:** *Maiana callida* (Hine) (CNC_Diptera105396), male, abdomen, ventral. **69:** *Maiana pumila* (Austen) (JSS32861), male, terminalia, oblique fronto-ventral. **70–73:** *Hybobathus pola* (Curran). **70:** female terminalia (CNC_Diptera 161361), apex, dorsal. **71–72:** male terminalia (CNC_Diptera 161366). **71:** hypandrium, ventral. **72:** terminalia, lateral. **73:** holotype *Baccha pola* Curran (AMNH), male, habitus, dorsal, by AMNH. **74:** *Fragosa aurora* (Hull) (holotype *Baccha aurora* Hull, AMNH), male, habitus, dorsal, by AMNH. **75:** *Nuntianus variegatus* (Macquart) (holotype *Baccha variegata* Macquart, MNHNP, ED8265), female, habitus, dorsal, by MNHNP. **76:** *Fragosa virgilio* (Hull) (holotype *Baccha virgilio* Hull, CNC, CNC_Diptera189124), male, habitus, dorsal, by CNC. **77:** *Victoriana oblonga* (Walker) (holotype *Baccha oblonga* Walker, BMNH, NHMUK 010369937), female, habitus, dorsal, copyright of The Trustees of the Natural History Museum, London. **c:** cercus; **e:** epiproct; **h:** hypandrium; **l:** lobe; **n:** lateral notch; **p:** postgonite; **ph:** phallus; **s:** surstylus; **s4 and 5:** sternum 4 and 5; **t7:** tergum 7.

Taxonomic considerations. All new combinations presented in this publication are summarized in Table 1. The species groups *Fragosa tenuis*, *Victoriana attenuata* and certain subgroups of *Nuntianus* (the petiolate group, e.g., *N. halcyon*, and the slender group, e.g., *N. zenillia*) need careful future revisions. These groups can be superficially similar when abdominal terga collapse after preservation, giving the abdominal segments an artificially narrow appearance compared to living or fresh specimens, especially in the genus *Nuntianus* and the *V. attenuata* species group. Male and female terminalia dissections will be necessary to refine the boundaries between these taxa.



FIGURES 78–88. **78:** *Frigosa harlequina* (Hull) (holotype *Baccha harlequina* Hull, AMNH), male, thorax, lateral, by AMNH (line drawing represents outline of the alula). **79:** *Frigosa argentina* (Curran) (CNC_Diptera174232), thorax, postero-ventral (line drawing represents outline of the incomplete post-metacoxal bridge). **80–81:** *Frigosa virgilio* (Hull) (holotype *Baccha virgilio* Hull, CNC, CNC_Diptera189124), male. **80:** habitus, lateral, by CNC. **81:** head, oblique frontal, by CNC. **82:** *Frigosa titania* (Hull) (JSS25229), female, head, dorsal. **83:** *Frigosa stenogaster* (Williston) (debu01088840), male, head, dorsal. **84–85:** *Hypocritanus fascipennis* (Wiedemann), female, head. **84:** frontal, by Ximo Mengual (<http://syrphidae.myspecies.info/taxonomy/term/879>). **85:** lateral (CNC_Diptera501). **86–87:** *Nuntianus cecrops* (Hull) (INPA-DIP000246), female, head. **86:** dorsal. **87:** lateral. **88:** *Victoriana* aff. *melanorrhina* (DEBU), female, head, lateral. **a:** alula; **ai:** antennal insertion; **f:** frons; **ft:** frontal triangle; **lem:** lateral eye margin; **mf:** metafemur; **o:** ocellar triangle; **oc:** occiput; **pmt:** post-metacoxal bridge; **t:** facial tubercle.



FIGURES 89–102. **89:** *Victoriiana sativa* (Curran) (holotype *Baccha sativa* Curran, AMNH), habitus, dorsal, by AMNH. **90–91:** *Victoriiana laudabilis* (Williston) (holotype *Baccha laudabilis* Williston, BMNH, NHMUK010369870), copyright of The Trustees of the Natural History Museum, London. **90:** base of abdomen and metafemur, dorsal. **91:** base of wing, dorsal (line drawing represents outline of the alula). **92–95:** *Fragosa* sp. (species group *tenuis*, CNC_Diptera196012), male. **92:** hypandrium, lateral. **93:** surstylus, ventro-lateral. **94:** epandrium, lateral. **95:** epandrium, ventral (line drawing represents outline of the subepandrial sclerite). **96–97:** *Nuntianus abata* (Curran) (CNC_Diptera209361), male, hypandrium. **96:** lateral. **97:** ventral. **98:** *Syrphus conjunctus* Wiedemann (currently *incertae sedis*, CNC_Diptera209347), male, hypandrium, lateral. **99:** *Victoriiana* aff. *melanorrhina* (debu00279441), male, hypandrium, ventral. **100:** *Victoriiana* aff. *melanorrhina* (DEBU), female, terminalia, dorsal. **101:** *Victoriiana parvicornis* (Loew) (CNC_Diptera237922), terminalia, dorsal. **102:** *Maiana pumila* (Austen) (debu00178088), female, terminalia, dorsal. **a:** alula; **c:** cercus; **d:** distiphallus; **e:** epiproct; **l:** lobe; **p:** baso-posterior pile; **t7 and 8:** tergum 7 and 8.

TABLE 1. An overview of new taxonomic combinations in this publication since Mengual *et al.* (2018).

Previous combination	New combination
<i>Ocyptamus aeneus</i> (Williston, 1891)	<i>Argentinomyia aenea</i> (Williston, 1891)
<i>O. nasutus</i> (Williston, 1891)	<i>Leucopodella nasuta</i> (Williston, 1891)
<i>O. pola</i> (Curran, 1939), <i>O. subchalybeus</i> (Walker, 1857), and <i>O. wilhelmina</i> (Doesburg, 1962)	All in <i>Hybobathus</i> Enderlein
<i>O. argentinus</i> (Curran, 1939), <i>O. aurora</i> (Hull, 1943c), <i>O. deceptor</i> (Curran, 1930a), <i>O. filiola</i> (Shannon, 1927), <i>O. filissima</i> (Hull, 1943a), <i>O. harlequinus</i> (Hull, 1948), <i>O. hyacinthia</i> (Hull, 1947a), <i>O. macer</i> (Curran, 1930a), <i>O. mara</i> (Curran, 1941), <i>O. oenone</i> (Hull, 1949a), <i>O. provocans</i> (Curran, 1939), <i>O. rugosifrons</i> (Schiner, 1868), <i>O. stenogaster</i> (Williston, 1888), <i>O. tenuis</i> (Walker, 1852), <i>O. titania</i> (Hull, 1943a), <i>O. virgilio</i> (Hull, 1942b), and <i>O. zephyreus</i> (Hull, 1947b)	All in <i>Fragosa</i> Miranda gen. nov.
<i>O. fascipennis</i> (Wiedemann, 1830), and <i>O. lemur</i> (Osten Sacken, 1877)	Both in <i>Hypocritanus</i> Miranda gen. nov.
<i>O. callidus</i> (Hine, 1914), and <i>O. pumilus</i> (Austen, 1893)	Both in <i>Maiana</i> Miranda gen. nov.
<i>O. abata</i> (Curran, 1938), <i>O. aeolus</i> (Hull, 1943a), <i>O. anona</i> (Hull, 1943e), <i>O. arabella</i> (Hull, 1947a), <i>O. banksi</i> (Hull, 1941a), <i>O. cecrops</i> (Hull, 1958), <i>O. chapadensis</i> (Curran, 1930a), <i>O. confusus</i> (Goot, 1964), <i>O. crocatus</i> (Austen, 1893), <i>O. croceus</i> (Austen, 1893), <i>O. cubanus</i> (Hull, 1943a), <i>O. cultratus</i> (Austen, 1893), <i>O. cymbellina</i> (Hull, 1944), <i>O. debasa</i> (Curran, 1941), <i>O. delicatissimus</i> (Hull, 1943b), <i>O. dryope</i> (Hull, 1958), <i>O. fervidus</i> (Austen, 1893), <i>O. filii</i> (Doesburg, 1966), <i>O. flavens</i> (Austen, 1893), <i>O. geijskesi</i> (Doesburg, 1966), <i>O. gilvus</i> (Austen, 1893), <i>O. halcyone</i> (Hull, 1949b), <i>O. hippolite</i> (Hull, 1957), <i>O. hyalipennis</i> (Curran, 1930b), <i>O. inornatus</i> (Walker, 1836), <i>O. io</i> (Hull, 1944), <i>O. iona</i> (Curran, 1941), <i>O. lepidus</i> (Macquart, 1842), <i>O. lucretia</i> (Hull, 1949c), <i>O. luctuosus</i> (Bigot, 1884), <i>O. micropyga</i> (Curran, 1941), <i>O. minimus</i> (Hull, 1943b), <i>O. murinus</i> (Curran, 1930a), <i>O. myiophagus</i> Thompson in Mengual <i>et al.</i> 2018, <i>O. neoparvicornis</i> (Telford, 1973), <i>O. neptunus</i> (Hull, 1943d), <i>O. neuralis</i> (Curran, 1934), <i>O. niobe</i> (Hull, 1943c), <i>O. nora</i> (Curran, 1941), <i>O. obliquus</i> (Curran, 1941), <i>O. octomaculatus</i> (Thompson in Thompson <i>et al.</i> , 1976), <i>O. oriel</i> (Hull, 1942a), <i>O. panamensis</i> (Curran, 1930c), <i>O. peri</i> (Hull, 1943a), <i>O. philippianus</i> (Enderlein, 1938), <i>O. prenes</i> (Curran, 1930a), <i>O. prudens</i> (Curran, 1934), <i>O. pullus</i> (Sack, 1921), <i>O. punctifrons</i> (Williston, 1891), <i>O. pyxia</i> (Hull, 1943a), <i>O. saffrona</i> (Hull, 1943c), <i>O. spatulatus</i> (Giglio-Tos, 1892), <i>O. vanessa</i> (Hull, 1949a), <i>O. variegatus</i> (Macquart, 1842), <i>O. verona</i> (Curran, 1941), <i>O. victoria</i> (Hull, 1941b), <i>O. vierecki</i> (Curran, 1930a), <i>O. xanthopterus</i> (Wiedemann, 1830), <i>O. xantippe</i> (Hull, 1949a), <i>O. zenillia</i> (Curran, 1941), <i>O. zita</i> (Curran, 1941), <i>O. zobeide</i> (Hull, 1943e), and <i>O. zoroaster</i> (Hull, 1943a).	All in <i>Nuntianus</i> Miranda gen. nov.
<i>O. attenuatus</i> (Williston, 1891), <i>O. duida</i> (Hull, 1947a), <i>O. ferrugineus</i> (Thompson 1981), <i>O. laudabilis</i> (Williston, 1891), <i>O. lugubris</i> (Philippi, 1865), <i>O. melanorrhinus</i> (Philippi, 1865), <i>O. mentor</i> (Curran, 1930a), <i>O. oblongus</i> (Walker, 1852), <i>O. parvicornis</i> (Loew, 1861), <i>O. sagittiferus</i> (Austen, 1893), <i>O. sativus</i> (Curran, 1941), <i>O. selene</i> (Hull, 1949a), and <i>O. zilla</i> (Hull, 1943b)	All in <i>Victoriana</i> Miranda gen. nov.

The genera *Hermesomyia*, *Orphnabaccha* (mainly the *O. ampla* species group) and *Pseudoscaeva* have been treated as very close to each other (Vockeroth 1969; Miranda *et al.* 2016; Mengual *et al.* 2018), and future revisions should take the three taxa into account at the same time. Some characters were found to be shared by the three taxa (e.g. long, erect, abundant pile laterally on abdominal tergum 2, banded pattern on terga 3 and 4, and shape of hypandrium and phallus). Some characters were shared only between *Orphnabaccha* and *Pseudoscaeva* (such as the wide female vertex, female ocellar triangle separated by more than 2 ocellus-width from lateral eye margin, long scape, and tubercle ventrally positioned and concave dorsally), and *Hermesomyia* and *Orphnabaccha* both have the scutum homogenously covered by metallic microtrichia.

Based on the study of type pictures (Fig. 73) and female (Fig. 70) and male terminalia (e.g. ventro-lateral notch on hypandrium, Figs 71 and 72) of specimens, a new combination is proposed for *Hybobathus pola* (Curran, 1939) **comb. nov.** This species lacks the diagnostic contrasting ocellar triangle and scutum of *Hybobathus*, but has the typical wing pattern of the females (basal 1/2 dark yellow) and the sexually dimorphic petiolate abdomen. Based on

pictures of type specimens on Reemer (2010), and characters mentioned in the original description, *H. wilhelmina* (Doesburg, 1962) **comb. nov.** is also allocated to this genus. *Hybobathus wilhelmina* is also superficially similar to *H. pola*. After study of images of the holotype of *Syrphus subchalybeus* Walker, 1857, the species is placed in *Hybobathus* as well (*H. subchalybeus* **comb. nov.**) due to the characteristic abdomen and wing pattern plus the distinctly contrasting ocellar triangle.

Examination of the original description, plate drawings, and images of the type of *Baccha aenea* Williston, 1891, show a dark face and scutellum, antennal insertions separate, elongated scape, and a profile of the head that place it in *Argentinomyia aenea* **comb. nov.** (and not *Ocyptamus*).

Based on the study of images of the type specimen of *Baccha nasuta* (Williston, 1891), this taxon belongs to another genus and a new combination is proposed, *Leucopodella nasuta* (Williston, 1891) **comb. nov.**

Evolutionary relationships. Although the genera *Fragosa*, *Hypocritanus*, *Pelecinobaccha*, *Atylobaccha* and *Relictanum* together form a monophyletic group (Miranda *et al.* 2016), these genera do not share any unique morphological characters. Combining them into a single large and diverse genus is thus impractical, as such a genus would be hard to diagnose and would have very little predictive power. The separated genera, however, are each well-defined clades with unique characters and a distinct habitus.

The surstylus shape of the *F. rugosifrons* species group, a quadrate base with a long filiform apical extension, seems like a highly modified form of the quadrangular surstylus with an extended apical corner (a putative plesiomorphy shared by the genera *Hypocritanus* and *Relictanum* and the *F. tenuis* species group), being the filiform extension possibly the result of further extension and loss of setulae of the extended apical corner (a clear apomorphy of the *F. rugosifrons* species group). The postgonite shape (gently curved towards an acute dorso-apical extremity) is another putative plesiomorphy shared by the *F. rugosifrons* species group, *Hypocritanus* and *R. crassum* (Walker, 1852). We hypothesize that the ancestral taxon of this grouping was probably similar to *Hypocritanus* in terms of overall habitus, with the abdomen becoming more slender in *Fragosa* and more petiolate in the (*Relictanum* + (*Atylobaccha* + *Pelecinobaccha*)) clade.

Acknowledgements

To the American Museum of Natural History (AMNH) and the Museum of Comparative Zoology of the Harvard University (MCZ) for permission to use images of type specimens in their holdings. To David Grimaldi and Courtney Crichenbacher (AMNH) for images and past specimen loans. To Nigel Wyatt from the Natural History Museum, London (BMNH) for the tireless provision of quality type specimen images for study. To all curators, current and past, who maintain and arrange loans of specimens for study. To Ximo Mengual and an anonymous reviewer for insightful reviews that improved the quality of this manuscript. To Chris Thompson for laying the groundwork for *Ocyptamus sensu lato* studies and generously sharing his knowledge. GFGM was supported by the *Coordenação de aperfeiçoamento de pessoal de nível superior* (CAPES) PhD scholarship. Funding to JHS and GFGM during this study provided by Natural Sciences and Engineering Research Council of Canada (NSERC) and Agriculture and Agri-Food Canada (AAFC). Funding to SAM provided by NSERC.

References

- Austen, E.E. (1893) Descriptions of new species of dipterous insects of the family Syrphidae in the collection of the British Museum, with notes on species described by the late Francis Walker. Part I. Bacchini and Brachyopini. *Proceedings of the Zoological Society of London*, 1893, 132–164.
- Bigot, J.M.F. (1884) Diptères nouveaux ou peu connus, 22e partie (1), XXXII: Syrphidi (2e partie). Espèces nouvelles, No 1er. *Annales de la Société entomologique de France*, Series 6, 3, 315–356.
- Cumming, J.M. & Wood, D.M. (2017) Adult morphology and terminology. In: Kirk-Spriggs, A.H. & Sinclairs, B.J. (Eds.), *Manual of Afrotropical Diptera. Vol. 1*. South African National Biodiversity Institute, Pretoria, pp. 89–133.
- Curran, C.H. (1930a) New species of Diptera belonging to the genus *Baccha* Fabricius (Syrphidae). *American Museum Novitates*, 403, 1–16.
- Curran, C.H. (1930b) New Diptera from North and Central America. *American Museum Novitates*, 415, 1–16.
- Curran, C.H. (1930c) New Syrphidae from Central America and the West Indies. *American Museum Novitates*, 416, 1–11.
- Curran, C.H. (1934) The Diptera of Kartabo, Bartica District, British Guiana, with descriptions of new species from other British Guiana localities. *Bulletin of the American Museum of Natural History*, 66, 287–532.

- Curran, C.H. (1938) New American Diptera. *American Museum Novitates*, 975, 1–7.
- Curran, C.H. (1939) New Neotropical *Baccha* Fabricius (Syrphidae: Diptera). *American Museum Novitates*, 1041, 1–12.
- Curran, C.H. (1941) New American Syrphidae. *Bulletin of the American Museum of Natural History*, 78, 243–304.
- Doesburg, P.H. van (1962) Preliminary list of Syrphidae known from Suriname and British and French Guiana. *Studies on the fauna of Suriname and other Guyanas* [Natuurwetenschappelijke Studiekring voor Suriname en de Nederlandse Antillen], 5 (28), 1–33.
- Doesburg, P.H. van (1966) Syrphidae from Suriname. Additional records and descriptions. *Studies on the fauna of Suriname and other Guyanas* [Natuurwetenschappelijke Studiekring voor Suriname en de Nederlandse Antillen], 9 (35), 61–107.
- Enderlein, G. (1938) Beitrag zur Kenntnis der Syrphiden. *Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin*, 1937, 192–237.
- Giglio-Tos, E. (1892) Diagnosi di nuove specie di Ditteri. VII. Sirfidi del Messico (1). *Bollettino dei musei di zoologia ed anatomia comparata della R. Università di Torino*, 7 (132), 1–5.
- Goot, V.S. van der (1964) Fluke's catalogue of Neotropical Syrphidae (Insects, Diptera), a critical study with an appendix on new names in Syrphidae. *Beaufortia*, 10, 212–221.
- Hine, J.S. (1914) Diptera of Middle America. Family Syrphidae. *The Ohio Naturalist*, 14, 333–343.
- Hull, F.M. (1937) New species of exotic syrphid flies. *Psyche*, 44, 12–32.
<https://doi.org/10.1155/1937/46960>
- Hull, F.M. (1941a) Descriptions of some new species of Syrphidae. *Psyche*, 48, 149–165.
<https://doi.org/10.1155/1941/46264>
- Hull, F.M. (1941b) Some species of the genus *Baccha* from the New World. *Proceedings of the Entomological Society of Washington*, 43, 181–183.
- Hull, F.M. (1942a) New species of Syrphidae from the Neotropical region. *Psyche*, 49, 84–107.
<https://doi.org/10.1155/1942/62725>
- Hull, F.M. (1942b) Some new species of *Baccha* and *Mesogramma* (Dipt. Syrphidae). *Revista de Entomologia, Rio de Janeiro*, 13, 44–49.
- Hull, F.M. (1942c) Some flies of the genus *Mesogramma*. *Proceedings of the New England Zoological Club*, 30, 17–24.
- Hull, F.M. (1943a) The New World species of the genus *Baccha*. *Entomologica Americana*, 23, 42–99, 10 pls.
- Hull, F.M. (1943b) New species of the genera *Baccha* and *Rhinoprosopa* (Syrphidae). *Journal of the Washington Academy of Sciences*, 33, 214–216.
- Hull, F.M. (1943c) Some undescribed species of flies of the genus *Baccha* (Syrphidae). *Journal of the Washington Academy of Sciences*, 33, 72–74.
- Hull, F.M. (1943d) New species of *Baccha* and related flies. *Entomological News*, 54, 135–140.
- Hull, F.M. (1943e) New species of Syrphidae of the genus *Baccha* and *Mesogramma*. *Entomological News*, 54, 89–91.
- Hull, F.M. (1943f) New species of American syrphid flies. *Bulletin of the Brooklyn Entomological Society*, 38, 48–53.
- Hull, F.M. (1944) Additional species of the genus *Baccha* from the New World. *Bulletin of the Brooklyn Entomological Society*, 39, 56–64.
- Hull, F.M. (1947a) More flies of the genus *Baccha* (Diptera, Syrphidae). *Revista de Entomologia, Rio de Janeiro*, 18, 395–410.
- Hull, F.M. (1947b) Some American syrphid flies. *Psyche*, 54, 230–240.
<https://doi.org/10.1155/1947/51282>
- Hull, F.M. (1948) Some Neotropical species of syrphids. *Entomological News*, 59, 1–12.
- Hull, F.M. (1949a) The genus *Baccha* from the New World. *Entomologica Americana*, 27, 89–285, 47 pls. [1947]
- Hull, F.M. (1949b) New species of New World *Baccha*. *The Ohio Journal of Science*, 49, 244–246.
- Hull, F.M. (1949c) Some unusual syrphid flies. *Entomological News*, 60, 225–233.
- Hull, F.M. (1949d) The morphology and inter-relationships of the genera of Syrphid flies, recent and fossil. *Transactions of the Zoological Society of London*, 26, 257–408.
<https://doi.org/10.1111/j.1096-3642.1949.tb00224.x>
- Hull, F.M. (1957) Some undescribed species of the genus *Baccha* Fabricius (Diptera: Syrphidae). *Journal of the New York Entomological Society*, 65, 187–190.
- Hull, F.M. (1958) Three new species of the genus *Baccha* Fabricius (Diptera: Syrphidae). *Studia Entomologica*, 1, 427–432.
- Loew, H. (1861) Diptera aliquot in insula Cuba collecta. *Wiener entomologische Monatschrift*, 5, 33–43.
- Macquart, P.J.M. (1834) *Histoire naturelle des insectes. Diptères. Tome première*. Roret, Paris, 578 + 8 pp., 12 pls.
<https://doi.org/10.5962/bhl.title.14274>
- Macquart, P.J.M. (1842) Diptères exotiques nouveaux ou peu connus. Tome deuxième, 2.e partie. *Mémoires de la Société Royal des sciences, de l'agriculture et des arts de Lille*, 1841 (1), 65–200, 22 pls.
- Macquart, P.J.M. (1855) Diptères exotiques nouveaux ou peu connus. 5e supplément. *Mémoires de la Société Royal des sciences, de l'agriculture et des arts de Lille*, Series 2, 1, 25–156, 7 pls.
- Mengual, X. (2015) The systematic position and phylogenetic relationships of *Asiobaccha* Violovitsh (Diptera, Syrphidae). *Journal of Asia-Pacific Entomology*, 18, 397–408.
- Mengual, X. & Thompson, F.C. (2011) Carmine cochineal killers: the flower fly genus *Eosalpingogaster* Hull (Diptera: Syrphidae) revised. *Systematic Entomology*, 36 (4), 713–731.

<https://doi.org/10.1111/j.1365-3113.2011.00588.x>

- Mengual, X., Ståhls, G. & Rojo, S. (2012) Is the mega-diverse genus *Ocyptamus* (Diptera, Syrphidae) monophyletic? Evidence from molecular characters including the secondary structure of 28S rRNA. *Molecular Phylogenetics and Evolution*, 62, 191–205.
<https://doi.org/10.1016/j.ympev.2011.09.014>
- Mengual, X., Miranda, G.F.G. & Thompson, F.C. (2018) Unraveling *Ocyptamus* and the *Baccha* legacy (Diptera: Syrphidae): redefinition of groups and new species descriptions. *Zootaxa*, 4461 (1), 1–44.
<https://doi.org/10.11646/zootaxa.4461.1.1>
- Miranda, G.F.G. (2017a) Revision of the *Hybobathus arx* and *Pelecinobaccha summa* species groups (Diptera: Syrphidae). *Zootaxa*, 4338 (1), 1–43.
<https://doi.org/10.11646/zootaxa.4338.1.1>
- Miranda, G.F.G. (2017b) Identification key for the genera of Syrphidae (Diptera) from the Brazilian Amazon and new taxon records. *Acta Amazonica*, 47 (1), 53–62.
<https://doi.org/10.1590/1809-4392201601022>
- Miranda, G.F.G. & Moran, K. (2017) The female abdomen and genitalia of Syrphidae (Diptera). *Insect Systematics and Evolution*, 48, 157–201.
<https://doi.org/10.1163/1876312X-48022153>
- Miranda, G.F.G., Marshall, S.A. & Skevington, J.H. (2014) Revision of the genus *Pelecinobaccha* Shannon, description of *Relictanum* gen. nov. and redescription of *Atylobaccha flukiella* (Curran, 1941). *Zootaxa*, 3819 (1), 1–154.
<https://doi.org/10.11646/zootaxa.3819.1.1>
- Miranda, G.F.G., Skevington, J.H., Marshall, S.A. & Kelso, S. (2016) The genus *Ocyptamus* Macquart (Diptera: Syrphidae): A molecular phylogenetic analysis. *Arthropod Systematics and Phylogeny*, 74, 161–176.
- Osten Sacken, C.R. (1875) A list of the North American Syrphidae. *Bulletin of the Buffalo Society of Natural Sciences*, 3, 38–71.
- Osten Sacken, C.R. (1877) Western Diptera: Descriptions of new genera and species of Diptera from the region west of the Mississippi and especially from California. *Bulletin of the United States Geological and Geographical Survey of the Territories*, 3, 189–354.
<https://doi.org/10.5962/bhl.title.57939>
- Philippi, R.A. (1865) Aufzählung der chilenischen Dipteren. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 15, 595–782.
<https://doi.org/10.5962/bhl.title.9295>
- Reemer, M. (2010) A second survey of Surinam Syrphidae (Diptera): introduction and Syrphinae. *Tijdschrift voor Entomologie*, 153, 163–196.
<https://doi.org/10.1163/22119434-900000295>
- Reemer, M. & Ståhls, G. (2013) Generic revision and species classification of the Microdontinae (Diptera, Syrphidae). *Zookeys*, 288, 1–213.
<https://doi.org/10.3897/zookeys.288.4095>
- Rotheray, G.E., Zumbado, M.A., Hancock, E.G. & Thompson, F.C. (2000) Remarkable aquatic predators in the genus *Ocyptamus* (Diptera, Syrphidae). *Studia Dipterologica*, 7, 385–398.
- Sack, P. (1921) Dr. L. Zurcher's Dipteren—Ausbeute aus Paraguay: Syrphiden. *Archiv für Naturgeschichte*, Abteilung A, 87, 127–149.
- Schiner, I.R. (1868) Diptera. In: Wüllerstorff-Urbair, B. von (in charge), *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair*. Vol. 2. Band 1. Abtheilung B. Kaiserlich-königliche Hof- und Staatsdruckerei in Commission bei Karl Gerold's Sohn, Wien, pp. i–vi + 1–388, 4 pls.
- Shannon, R.C. (1927) A review of the South American two-winged flies of the family Syrphidae. *Proceedings of the United States National Museum*, 70 (9), No. 2658, 1–34.
<https://doi.org/10.5479/si.00963801.70-2658.1>
- Telford, H.S. (1973) The Syrphidae of Puerto Rico. *The Journal of Agriculture of the University of Puerto Rico*, 57, 217–246.
- Thompson, F.C. (1981) The flower flies of the West Indies (Diptera: Syrphidae). *Memoirs of the Entomological Society of Washington*, 9, 1–200.
- Thompson, F.C. (1999) A key to the genera of the flower flies of the Neotropical Region including the descriptions of genera and species and a glossary of taxonomic terms. *Contributions on Entomology, International*, 3, 319–378.
- Thompson, F.C., Vockeroth, J.R. & Sedman, Y.S. (1976) Family Syrphidae. *A catalogue of the Diptera of the American South of the United States*, 46, 1–195.
<https://doi.org/10.5962/bhl.title.49898>
- Ureña, O. & Hanson, P. (2010) A fly larva (Syrphidae: *Ocyptamus*) that preys on adult flies. *Revista de Biología Tropical*, 58, 1157–1163.
- Vockeroth, J.R. (1969) A revision of the genera of the Syrphini (Diptera: Syrphidae). *Memoirs of the Entomological Society of Canada*, 62, 1–176.
<https://doi.org/10.4039/entm10162fv>
- Walker, F. (1836) Descriptions, &c. of the Diptera. In: Curtis, J., Haliday, A.H. & Walker, F. (Eds.), Descriptions, & c. of the

- Insects collected by Captain P. P. King, R. N., F. R. S., in the Survey of the Straits of Magellan. *Transactions of the Linnean Society of London*, 17, pp. 315–359.
<https://doi.org/10.1111/j.1095-8339.1834.tb00026.x>
- Walker, F. (1852) Diptera. Part III. In: Saunders, W.W. (Eds.), *Insecta Saundersiana: or characters of undescribed insects in the collection of William Wilson Saunders, Esq., F.R.S., F.L.S., &c. Vol. 1*. Van Voorst, London, pp. 157–252, pls. 5–6.
- Walker, F. (1857–1858) Characters of undescribed Diptera in the collection of W. W. Saunders, Esq., F.R.S., & c. *Transactions of the Entomological Society of London*, New Series, 4, 119–158 + 190–235.
- Wiedemann, C.R.W. (1830) *Aussereuropäische Zweiflügelige Insekten. Zweiter Theil*. Schulz, Hamm, xii + 684 pp., 5 pls.
- Williston, S.W. (1888) Diptera Brasiliana, ab H. H. Smith collecta. Part I, Stratiomyidae, Syrphidae. *Transactions of the American Entomological Society*, 15, 243–292.
<https://doi.org/10.2307/25076505>
- Williston, S.W. (1891–1892) Fam. Syrphidae. *Biologia Centrali-Americana, Insecta: Diptera*, III, 1–56 + 57–72 + 73–78, pls. 1 + 2, figs. 1–12.