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Welcome to the latest issue of *Fly Times*! My 20th as Editor! Time flies! As usual, I thank everyone for sending in such interesting articles. I hope you all enjoy reading it as much as I enjoyed putting it together. Please let me encourage all of you to consider contributing articles that may be of interest to the Diptera community for the next issue. *Fly Times* offers a great forum to report on your research activities and to make requests for taxa being studied, as well as to report interesting observations about flies, to discuss new and improved methods, to advertise opportunities for dipterists, to report on or announce meetings relevant to the community, etc., with all the associated digital images you wish to provide. This is also a great place to report on your interesting (and hopefully fruitful) collecting activities! Really anything fly-related is considered. And of course, thanks very much to Chris Borkent for again assembling the list of Diptera citations since the last *Fly Times*!

The electronic version of the *Fly Times* continues to be hosted on the North American Dipterists Society website at http://www.nadsdiptera.org/News/FlyTimes/Flyhome.htm. For this issue, I want to again thank all the contributors for sending me such great articles! Feel free to share your opinions or provide ideas on how to improve the newsletter. Also note, the *Directory of North American Dipterists* is constantly being updated. Please check your current entry and send all corrections (or new entries) to Jim O'Hara – see the form for this on the last page.

Issue No. 61 of the *Fly Times* will appear next October. Please send your contributions by email to the editor at stephen.gaimari@cdfa.ca.gov. All contributors for the next *Fly Times* should aim for 10 October 2018 (maybe then I'll get an issue out actually on time!) – but don't worry – I'll send a reminder. And articles after 10 October are OK too! Between this issue and the next one, I suspect there will be another Supplement (No. 2), which I am working on now!

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Issue 60, available online 15 May 2018

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NEWS

C.P. Alexander Award recipient: Stephen A. Marshall

C.P. Alexander Award Committee[1]

The C.P. Alexander Award Committee is pleased to announce that Prof. Stephen A. Marshall of the University of Guelph, Canada, has been chosen as the third recipient of the C.P. Alexander Award in recognition of his outstanding contributions to North American dipterology. The significance and history of this award was reviewed last year in the pages of this newsletter (*Fly Times* 58: 1–2, 2017).

Steve developed an interest in insects early in life while growing up in Guelph, Ontario, where his father was a professor of agricultural economics at the Ontario Agricultural College of the University of Guelph. After finishing high school, Steve enrolled in a Bachelor's program at the University of Guelph. While there, his knowledge of insects grew under the mentorship of Prof. D.H. Pengelly and through his early curatorial experiences among the drawers of the University of Guelph Insect Collection. By the time he entered grad school at Carleton University in Ottawa in the late 1970s, Steve had developed a special fondness for Diptera and especially the Sphaeroceridae. A Master's at Carleton was followed by a return to Guelph for a Ph.D. His enthusiasm for insects during this time is apparent from his writings in the short-lived *Ontario Insect Collectors News* (1981–1984).

Steve at Goshen Warm Springs and ponds, near the south end of Utah Lake during the 2011 NADS meeting. Photo by Riley Nelson.

In 1982, Steve transitioned from student to professor when he finished his Ph.D. and accepted a position in the faculty of what was then the Department of Environmental Biology (now the School of Environmental Sciences) at the University of Guelph. Steve has continued in this position to the present day. Over the past 35 years he has taught entomology to hundreds of undergraduate students and supervised dozens of graduate students. Many of his former graduate students have gone on to professional careers of their own in entomology.

The position Steve accepted in 1982 also encompassed the directorship of the University of Guelph Insect Collection—the same collection Steve first became acquainted with as an undergraduate student at the university. Under Steve's leadership the collection has grown from a few hundred

thousand specimens to nearly three million, with tens of thousands of specimens added by Steve himself. It is now one of the largest insect collections in Canada.

Steve has received the most attention within and beyond dipterology through his 250+ publications (https://www.uoguelph.ca/debu/publications.htm). The majority of these have been large or small systematic treatments of Diptera and were commonly coauthored with one of his graduate students or a professional colleague. The range of dipteran families treated in such works grew over the years and so too did Steve's reputation as a general dipterist. In 2006, Steve combined two of his passions, entomology and photography, to produce his highly acclaimed book *Insects. Their Natural History and Diversity*. This was followed in 2012 by *Flies. The Natural History and Diversity of Diptera*, a rare must-have book for dipterists or anyone with a passing interest in the world of flies. The most recent example of Steve's systematic and photographic talents can be found in volumes 1 and 2 of the *Manual of Afrotropical Diptera* (2017), a work profusely illustrated by images of flies taken by him (frequently in the field) and including an 89-page illustrated identification key to dipteran families with Steve as lead author.

Steve in action. Photo by Greg Courtney.

We would like to mention here just a few other achievements and contributions that influenced our selection of Steve Marshall as the third recipient of the C.P. Alexander Award. The very first field meeting of the North American Dipterists Society was organized by Steve, with the help of Chris Thompson and Mark Deyrup, in Florida in 1989. A few years later, in 1992, Steve served as president of the Entomological Society of Ontario. In 1994, Steve chaired the organizing committee for the 3rd International Congress of Dipterology, which was held at the University of Guelph. Funds left over from the congress were used to create the Dipterology Fund that supported student travel

and research for close to 15 years. Steve was president of the Entomological Society of Canada in 1997. In the late 1990s he arranged for the University of Guelph to host the website of the North American Dipterists Society, including the newsletter *Fly Times*, and the U of G continues to host the NADS site to the present day.

Other prestigious awards that Steve has received throughout his career include the Entomological Society of Canada C. Gordon Hewitt Award (1989), the Canadian Association of Science Writers Science in Society general book award (2006), the Entomological Foundation Thomas Say Award for outstanding contributions to the science of entomology (2008), and the Entomological Society of Canada Gold Medal for outstanding achievement in Canadian entomology (2013).

Of particular note is the generosity Steve has shown with his photographs. Perhaps uncountable authors and presenters of papers (and their audiences) at a wide range of scientific meetings have benefitted from these widely shared academic works.

The formal presentation of the C.P. Alexander Award to Prof. Steve Marshall will take place at the Official Launch of the *Manual of Afrotropical Diptera* during the 9th International Congress of Dipterology (Windhoek, Namibia) on the evening of Monday 26 November 2018. The presenter will be Dr. Brian Brown, one of Steve's first graduate students from the 1980s and a member of the C.P. Alexander Award Committee.

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Dolichopodid survey of Martinique (Diptera: Dolichopodidae)

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Introduction

Thanks to Julien Touroult (MNHN, Paris), during 2017 I got in touch with invertebrate researchers on the island of Martinique (not Mauritius – totally different story!). That included Dr Patrick Maréchal (director of the Institut Caribéen pour la Nature et la Culture, ICNC) and Mr Eddy Dumbardon-Martial, the only Diptera worker on the island. They offered my wife and I the great opportunity to participate to an ongoing survey "*Etude de la faune entomologique et d'autres invertébrés de la RBI des Pitons du Carbet (Martinique)*" in the Réserve Biologique Intégrale (RBI) Pitons du Carbet, which we gladly accepted. On January 18, 2018 we left Orly airport (Paris) for Fort-de-France (Martinique) and vice versa on February 13, 2018, looking back on our trip with great satisfaction, both thanks to the island itself and its nature, but also to the good friends we made there.

Research objectives

In contrast to some mainland areas and locations in Central (e.g., Costa Rica) and South America (e.g., Brazil), most of the Caribbean islands have very poor records on Diptera, and long-legged flies (Dolichopodidae) in particular (Robinson, 1970, 1975). Apart from Saint Vincent (41 species, last explored in 1896!), Puerto Rico (24 sp.), Grenada (22 sp., last explored in 1902!) and Cuba (20 sp.), all other islands but one have records of less than 10 species. Seven species were retrieved from samples collected during recent surveys on Martinique (Touroult *et al*., 2015, 2016, 2017). This clearly does not reflect the extant species diversity on this island as seems to be suggested by the Bredin-Archbold-Smithsonian Biological Survey of 1965 (Robinson, 1975). This 4 months inventory on Dominica produced no less than 113 dolichopodid species, 69 of which were new to science. As Dominica is the closest island to Martinique in the north and shares a similar topography, it was expected that the latter island could harbour a comparably rich dolichopodid fauna.

With this survey described below we wanted to answer the following questions (with regard to Dolichopodidae):

1. What is the **α-, β-** and **γ-diversity** in the RBI Pitons du Carbet?
2. What is the **rate of endemism** of the Martinique and the RBI Pitons du Carbet fauna?
3. How does its **fauna relate** to that of Dominica (island to the north) and the **other Windward Caribbean islands**?
4. How does its **fauna relate** to that of the **Central and South American mainland**?
5. What are the **ecological characteristics** of the Martinique species, and do the different lineages behave similarly to their mainland relatives?

Martinique, a French territorial collectivity

As a French territorial collectivity since 2015 (in contrast French Guiana, Guadeloupe or Île de la Réunion remain French overseas departments), Martinique is situated in the Lesser Antilles within the Caribbean region between the Windward Islands of Dominica and Saint Lucia (Fig. 1). It measures 75 km by 30 km at its widest point and has an area of 1,080 square km. The north is dominated by the steep volcanic mountain of Mont Pelée (1,397m) and the Pitons du Carbet (1,197m). In the centre of the island, the land is largely occupied by the sugar plains of Lamentin and Fort-de-France but rises again into hills (‘mornes’) in the southern peninsula.

Fig. 1 - Martinique in the Lesser Antilles.

The RBI Pitons du Carbet (see **Fig. 2A**) is situated in the central part of northern Martinique and covers 12,400 ha. It comprises a mountain range with 5 peaks (‘pitons’) as well as about ten smaller hills (‘mornes’). It is the most extensive montane forest area on the island and ranges in altitude between 174 m and 1,197 m. The area is strongly cut through by numerous rivers and streams born at higher altitudes. Three forest types (‘life zones’) are distinguished here: (i) lower montane tropical rain forest (200-550 m in the wind, 500-800 m below the wind), (ii) oceanic tropical rain forest (550-700 m in the wind, 800-900 m below the wind), and (iii) short montane vegetation, resembling Neotropical ‘paramo’ (>700 m in the wind, >900 m below the wind). Rainfall is frequent and strong, especially on the summit of the Pitons. About 80 bird species have been recorded from this RBI and the endemism rate of non-bird biota, though not thoroughly investigated entirely, is estimated at 33%.

In 2015, ICNC selected 9 different sites in the Pitons du Carbet between 275 m (Rivière Sylvestre) and 1,068 m (Piton Boucher) for monitoring during 2016-2018. At all sites but one (Piton Boucher) a meteorological station was installed that recorded temperature, relative humidity and dew point temperature during 18 months from February 2016 onwards. A standard monitoring set-up was implemented, including e.g., litter extraction (Tullgren funnels), Malaise traps, raised pan traps, and baited traps. As the recorded data on the environmental variables are also useful to explain observed patterns in Dolichopodidae, the same sites were included in our dipterological survey.

Study area and sampling sites

The survey was split up in two parts: (i) a two weeks inventory of the abovementioned sampling sites in the RBI Pitons du Carbet (19/1-4/2/2018) and (ii) a one week survey of mainly coastal sites in the south of the island (5-13/2/2018) (see **Appendix I**).

At the start of the survey, it became clear that two sites were very hard to access, so 7 of 9 locations within the RBI Pitons du Carbet were selected for sampling with pan traps (22-27/1/2018) (both sites at Gros-Morne are considered one location). An 8th location (Plateau Boucher) adjacent to the RBI was added on 2/2/2018 (**Fig. 2**). Simultaneous with this survey and during the second period another 5 localities in the centre and south of the island were investigated with pan traps (**Table 1, Fig. 3**).

Collecting techniques and strategy

At 7 of the RBI Pitons du Carbet locations (see **Table 1**, **Appendix I**), a principal sampling site and two supplementary sites were selected. The basic set-up per principal site (**PR**) consisted of 3 units of 10 pan traps of different colours (yellow, white, blue). Pan traps were installed at soil surface level and fixed with metal pins; formalin solution (5%) with detergent was used as fixative. In each supplementary site (**SS**), one unit of 10 yellow pan traps was in operation. Yields of these three nearby sites provide information on the heterogeneity of the dipteran fauna at each location. At Plateau Perdrix, a PR site and only one SS site was selected (see **Table 1**).

A total of 389 pan traps were in operation in and near the RBI Pitons du Carbet, and another 72 beyond that area. All traps in the RBI were operational during one full week, whereas sampling time of the other pan traps varied from one hour to 7 days. Overall, 461 pan traps were employed during this survey which corresponds with 3,095 trapping days, and ultimately yielded 47 pooled samples.

Dolichopodidae were also actively collected with sweep nets, which produced a total of 230 samples. Sampling was carried out both at random and on sight, within the pan trap sampling sites and beyond. Especially productive in terms of specimens proved to be rocky and other hard substrates in rivers and streams (**Fig. 3A**), and smooth-barked tree trunks (**Fig. 3B**).

The large sample set gathered by Eddy Dumbardon-Martial in the RBI Pitons du Carbet during 2016-2017 represented a third important source of dolichopodid material. These samples were examined after the daily field work and ultimately provided an additional 83 samples.

Overall, the survey produced 323 samples of Dolichopodidae.

Table 1. Overview of pan trap sampling sites on Martinique (Jan-Feb 2018) with traps operational during at least 6 days. See Text for information on number of traps and colour. PR: principal site, SS1-3: supplementary sites 1-3.

Area	Locality	PR	SS1	SS2	SS3
Pitons du Carbet	along Route forestière de Calebassier (Gros-Morne)	x	-	-	-
Pitons du Carbet	along Route forestière de Palourde (Gros-Morne)	-	x	x	-
Pitons du Carbet	Plateau Boucher (Font-Saint-Denis)	x	x	x	-
Pitons du Carbet	Plateau Clarck (Schoelcher)	x	x	x	-
Pitons du Carbet	Plateau Concorde (Case-Pilote)	x	x	x	-
Pitons du Carbet	Plateau Perdrix (Saint-Joseph)	x	x	-	-
Pitons du Carbet	Rivière Sylvestre (Le Lorrain)	x	x	x	-
Pitons du Carbet	Trace des Jésuites (bas) (Le Marigot)	x	x	x	-
Pitons du Carbet	Trace des Jésuites (haut) (Le Marigot)	x	x	x	-
Total no. of pan trap sampling sites in RBI Pitons du Carbet		8	8	7	-
Domaine de Bellevue	Fort-de-France ¥		x*	x	x
l'Anse (Morne Jacqueline)	Petite Anse (Les Anses d'Arlet) ¥	x	x	x	x

¥: 5 traps of the relevant colour instead of the usual 10; *: including also 5 blue traps.

Fig. 2. RBI Pitons du Carbet (Martinique). ***A*** *- view on the Pitons du Carbet from Gros-Morne,* ***B*** *– Patrick Maréchal (left) and Eddy Dumbardon-Martial (right) at the start of the Trace des Jésuites trail,* ***C*** *– Marc Pollet installing pan traps at Plateau Boucher,* ***D*** *– rainforest site at Trace des Jésuites (bas),* ***E*** *– yellow pan trap at Plateau Boucher, only minutes after installation,* ***F*** *– yellow pan trap yield after one week of operation at Trace des Jésuites (haut).*

Sample and data processing

All abovementioned samples were **transferred** to the Belgian lab for processing.

Dolichopodid specimens were retrieved from these samples and will be identified to (morpho)species level in a next stage of the project (Justin Runyon, Montana State University, Bozeman, USA will treat *Enlinia* sp.). The descriptions of species from Dominica by Robinson (1975) prove most valuable as a benchmark for comparison.

In agreement with the Martinique collaborators and after having contacted several taxonomic experts, I also extracted a considerable number of **different taxonomic groups** from the samples. This process has largely been finished, and only some dipteran families and Formicidae (ants) must still be pulled from the pan trap samples. Most of the 403 non-Dolichopodid Diptera subsamples thus far separated will be disseminated among 14 different taxonomic specialists during the upcoming ICD9 in Windhoek (Namibia) (see **Table 2**). A folder/depository in GDrive will be created for these collaborators, that will contain all relevant files (e.g., sample information, labels, identification file).

Data on locations, sampling sites, samples, species and identifications will be added to my personal Microsoft ® Access database, NEOTROPICS, currently holding data on nearly 13,960 samples (excl. IBISCA) from 22 Neotropical countries.

Table 2. Overview of the dipteran (super)families extracted from the collected samples in Martinique in 2018, with the taxonomic expert and the current number of samples indicated.

Taxonomic group	Taxonomic expert	subsamples
Diptera (diverse families ¥)	Eddy Dumbardon-Martial (Martinique)	109*
Diptera (Cecidomyiidae)	Antonio Marcelino do Carmo Neto (Brazil)	11*
Diptera (Chloropidae)	Paula Riccardi (Brazil)	35*
Diptera (Dolichopodidae)	Marc Pollet (Belgium), Justin Runyon (USA)	323
Diptera (Drosophilidae)	Gabriela Pirani (Brazil)	58*
Diptera (Ephydridae)	? Wayne Mathis (USA)	13*
Diptera (Lauxaniidae)	Vera Silva (Brazil)	18*
Diptera (Mycetophylidae)	Peter Kerr (USA)	9*
Diptera (Pipunculidae)	José Rafael (Brazil)	3
Diptera (Psychodidae)	Gregory Curler (USA)	26*
Diptera (Sarcophagidae)	Thomas Pape (Denmark)	32*
Diptera (Scatopsidae)	Jean-Paul Haenni (Switzerland)	7*
Diptera (Sepsidae)	Vera Silva (Brazil)	3*
Diptera (Sphaeroceridae)	Steven Paiero (Canada)	21*
Diptera (Stratiomyidae)	Martin Hauser (USA)	6
Diptera (Tephritoidea)	Allen Norrbom (USA)	5*
Diptera (Tipulidae)	Jorge Mederos (Spain)	47
Total Diptera subsamples		726

¥ *including mainly Micropezidae, Syrphidae, Bibionidae, Rhagionidae and Neriidae but also all other less abundant Diptera families; * more samples will be added once the pan trap samples have been fully examined*

Observations and first conclusions

Sampling time: the rainy season in Martinique ends in early January and transition periods between the dry and rainy season generally demark an interesting period for insect sampling. However, annual fluctuations occur, also in 2018 with heavy rainfall during the first days of the expedition. And

though the pan trap campaign did not suffer substantially from the rainfall, adjustments might be advantageous in the future by either conducting the survey later on in the season e.g., from mid Februari (or even at the end of April = transition from dry to rainy season), or by improving the sampling methodology (providing a roof above each trap that prevents the rain entering the trap). For a number of practical, logistic and functional reasons, the latter might prove a true challenge.

Figure 3. Other sampling sites in the centre and south of Martinique. ***A*** *– river near RBI sampling site Rivière Sylvestre,* ***B*** *– valley slope with dispersed trees in Domaine de Bellevue, Fort-de-France,* ***C*** *– beach of Le Diamant with Morne Larcher in the background,* ***D*** *– littoral rocks along the southwest coast of Ste-Anne,* ***E*** *– xerophilic forest on Morne Jacqueline, Petite Anse,* ***F*** *– Dolichopodidae in yellow pan trap at Petite Anse.*

Logistics and access to sites: the field work during both periods went very well, to a large extent thanks to the kind and semi-permanent assistance by the Martinique colleagues, Patrick Maréchal, Eddy Dumbardon-Martial and Régis Delannoye (Gastropoda expert). Apart from the RBI's and nature reserves, the island has a large number of interesting areas and sites (the so-called ZNIEFFs, Zones naturelles d'intérêt écologique, faunistique et floristique), many of which are easily accessible, especially in the coastal areas. Thus far, only the mountain range in the centre of the island (Pitons du Carbet) and some coastal beaches and mangroves in the south have been shortly investigated during this survey, but the entire north and northeast still remain largely unexplored (see **Appendix I**).

First observations in the field: as compared to most of the mainland Neotropical sites I have investigated thus far, at first sight dolichopodid species richness seems lower in Martinique, but some species were quite abundant (which is not often the case in mainland sites). Special sites such as rocks in rivers and smooth-barked trees (especially in suburban areas) were very productive; the former produced several *Tachytrechus* and *Enlinia* species, while the latter contained mainly *Medetera* and *Dominicomyia* species. Apart from the occasional *Condylostylus* specimen, in the rainforest sites of the RBI Pitons du Carbet hardly any dolichopodids were observed on the broad-leaved vegetation (where they are usually present). However, it became clear only later that *Chrysotus* species - that appear to represent the major dolichopodid component of these habitat types – did occur but rather on the dark forest floor, often in numbers. Further, *Diaphorus* was collected in numbers in well-lit places (clearings, open trails), while *Symbolia* was detected only along a small stream within the rainforest. Dolichopodidae proved surprisingly abundant on sandy beaches where *Asyndetus* was dominant with several species (including some huge ones). And mangroves and coastal pools contained several species of *Thinophilus*, *Paraclius* and *Micromorphus*. Dry forests in the south, on the other hand, were characterized by *Chrysotus*, *Achradocera*, *Diaphorus*, and some Sciapodinae.

The pan trap technique worked quite well (much better than in Mitaraka, French Guiana, see Pollet *et al*. 2015, in press), although *Chrysotus* females seem to represent the major part of the yields. Especially the yellow pan traps were very attractive: indeed, in the first minutes after the installation of the traps we often observed multiple dolichopodid specimens that got stuck in the foam (see **Fig. 2E**). Extrapolating this rapid and sometimes massive response to the full sampling period of one week easily gives many hundreds (if not more) dolichopodids per trap. However, this was not reflected by the yields and we still wonder why (there are a number of hypotheses). By far the most abundant Diptera in the traps were Tipulidae (see **Fig. 2F**), which were also seen swarming over the traps during daytime. Also Sarcophagidae were often present in large numbers.

Apart from the main pan trap survey, we also employed a series of yellow pan traps (with only water and detergent) for some hours while visiting certain sites. And although they did not yield as much as documented by Wind & Pollet (2017) each series produced a fair amount of Dolichopodidae. This approach i.e. to install pan traps at the start of a trail loop and to service them at the end of the visit, seems a very promising complement to sweep net collecting.

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need to do our research but firmly support us while doing so. Next to being supported financially by the ICNC, Marc Pollet also enjoyed an additional grant from the Leopold III Fund (Brussels, Belgium).

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Appendix I – Map of Martinique with sampling sites of Dolichopodid survey (2018)

Legend: blue symbols: sampling sites of RBI Pitons du Carbet (pan traps + sweepnet samples), green and pink symbols: sampling sites outside Pitons du Carbet, green: pan traps + sweepnet samples, pink: only sweepnet samples. Pitons du Carbet sites: PlaBou: Plateau Boucher, PlaCla: Plateau Clarck, PlaCon: Plateau Concorde, PlaPer: Plateau Perdrix, RfCa: Route forestière de Calebassier, RfPa: Route forestière de Palourde, TraJes(b): Trace des Jésuites (bas), TraJes (h): Trace des Jésuites (haut).

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New structure discovered in female reproductive tract of Syrphidae

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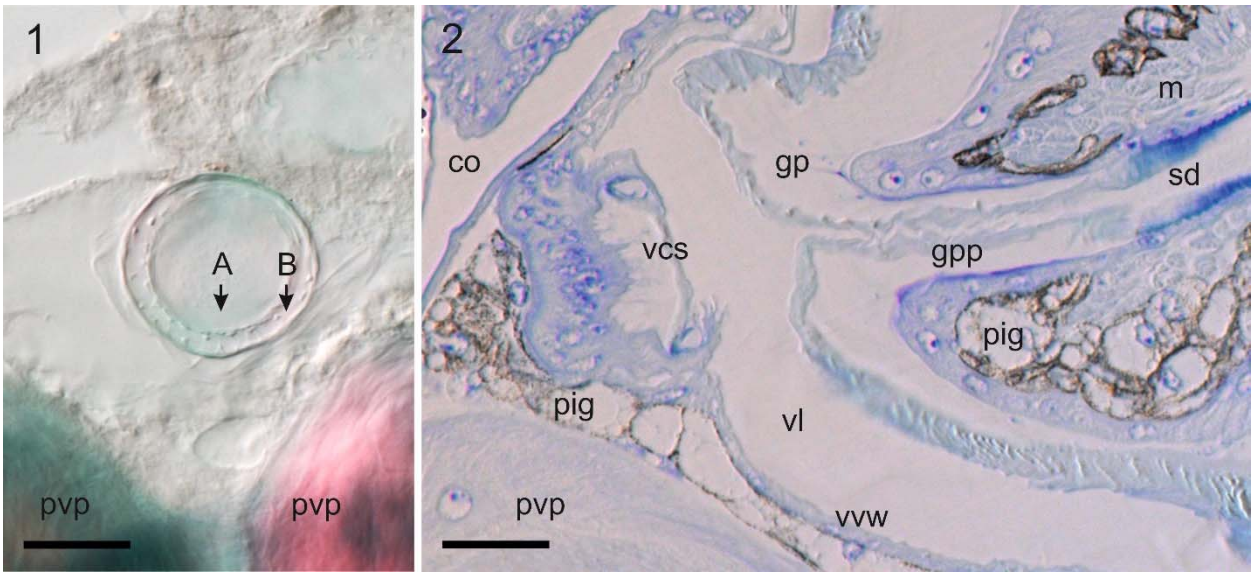
The ventral circular structure (vcs), is a small but distinctive cuticular structure situated ventrally opposite to the opening of the spermathecal ducts in *Episyrphus balteatus* (De Geer, 1776) (Figs 1-2, from Kotrba and Weniger 2017). In dorsoventral view it is characterized by its perfectly circular structure, somewhat reminiscent of a sucker or a press stud. Its function is unclear. Most likely it is related to avoiding sperm loss from the spermathecae and/or to sperm usage during the fertilization process. A comparative study of representatives of all major clades of Syrphidae reveals that the vcs belongs to the ground plan of the family.



Figs 1-2: Episyrphus balteatus, ventral circular structure. 1: Whole mount in dorsoventral view; 2: Mid-sagittal microsection. A = central area of vcs; B = circular trench with cuticular spicules; co = common oviduct; gp = genital papilla; gpp = genital papilla pouch receiving the two spermathecal ducts; m = muscle; pig = underlying tissue containing pigment granula; sd = spermathecal duct; vcs = ventral circular structure; vl = vagina lumen; vvw = ventral vagina wall. Scale bars = 20 µm.

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Students of systematic entomology (zoology): read the Borkent paper!

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On 17 January 2018 Art Borkent's article titled "The State of Phylogenetic Analysis: Narrow Visions and Simple Answers—Examples from the Diptera (flies)" was published in Zootaxa 4374 (1): 107–143. It is referred to below as the Borkent paper.

When an unquestioned authority in your field of research suggests that you are methodologically on the wrong track, if not even completely off the subject, you should be slightly worried and perhaps listen to him. When a group of scientific authors, of which several are commonly regarded as colorful elite researchers, are criticized for their collective failure in having published a methodologically flawed study, they might feel incited to defend themselves and consider writing a rebuttal. When a whole branch of zoological science – Diptera systematics – is reproached for being at a standstill, led by narrow visions and contented with simple answers, the shock should pierce marrow and bone, and spark off a revolution. At least in theory. As history shows, the human psyche has developed instruments for handling breaches of taboo; one such instrument is to bury one's head in the sand. And this is what we are apparently witnessing just now: the Borkent paper has broken taboos and, after a short period of turmoil (most of it behind closed doors), the dipterological community gets back to business as usual, hoping that the thunderstorm has passed. But, let's take one thing at a time. What, in fact, has happened?

Borkent sees "Diptera systematics … in a crisis" and is convinced that "that needs to be addressed" (p. 109). His concerns are summarized on the previous page (p. 108) where the introduction begins; I am quoting this in Borkent's own words in order to avoid loss of any of his thoughts: "In this paper I suggest that we have gone off the tracks in how we are approaching phylogenetic questions and that systematics has become largely reduced to a set of inappropriate techniques that fail to address the most fundamental question of the validity of a given character's polarity. Increasingly studies are avoiding broader evolutionary questions which interpret the likely meaning of the information gathered. Students have come to accept that phylogenetic hypotheses based on morphology are primarily composed of comparing various phylogenetic patterns derived from a matrix of characters, instead of the careful determination of the polarity of each character state. Somewhere we lost the idea that Hennig's (1950, 1965, 1966) fundamental contribution to systematic thought was the logic of how to interpret whether a given character state was plesiomorphic or apomorphic and that such interpretation was a testable hypothesis. It is through interpretation of the polarity of each character state that the entire phylogenetic construct depends and it is in that arena that systematists should be producing the most sweat." Borkent is also worried about an intellectual atmosphere where "Molecular analyses are promising to give final answers … and morphological analyses are often as straightforward as scoring variable character states in a matrix, choosing a few taxa as outgroups and determining the most parsimonious tree with a program (and options) of choice (usually PAUP or Mesquite + TNT). Additionally, some morphologists appear inclined to entirely hand over phylogenetic questions to molecular analysis. … Increasingly, groups of scientists without any, or very little taxonomic/systematic training are pursuing molecular sequences (sometimes just the CO1 gene) apparently in the belief that simply plugging the sequence data into a computer program will give a reasonable (or at least publishable) phylogeny … There is a common conception that genomes will provide solid phylogenetic answers and that the characterization of species by morphological

systematists, if not entirely replaced with barcodes, may even be largely superseded by phenomics, the scanning and computer analysis of morphological structures …There is a remarkable level of faith in techniques, in spite of fundamental problems regarding the nature of morphological characters, how they are interpreted and a very questionable history of molecular sequences in providing accurate portrayals of cladistic relationships."

This read, some might feel dumbfounded and in need of a coffee break. Borkent, however, does not grant readers with a rest: on the 26 pages that follow (nine pages of references not counted) he goes on – plain-talking – picking the actual state of affairs in Diptera systematics apart. He has identified six fundamental problems, which are treated, one by one, in depth under the following headings: 1. Approach of many systematists toward morphological phylogeny construction; 2. Polarizing character states; 3. What is a character?; 4. Character weighting; 5. Parsimony; and 6. Genomes vs. phenotype. The first to fifth sections call on us to come back to the roots, the theoretical framework provided by Hennig's phylogenetic systematics. It is here that students being short on own experience with the practice of phylogenetic analysis may derive benefit from the empirical findings of a practician who, for many years, has studied the diversity, taxonomy and phylogeny of Ceratopogonidae and other dipteran families—studies whose results were published in substantial (and often monumental) papers. (The present reviewer regards these publications as natural history writings in the word's best meaning.) Occasionally, and then most forcefully, Borkent describes his experiences anecdotally, such as in the section on parsimony (p. 117): "… those who are immersed in mathematical models of phylogenetic analysis challenge those who are not by asking "Who are you to determine the weight of a character state?" and indicate that such decisions are subjective and antithetical to parsimonious analysis. The answer to that question, which may intimidate a student new to the group, is rather simple: I am a person who has examined thousands of species and their morphology, in various life stages, and have spent significant time with living organisms watching their behaviour. As such I have gained a measure of confidence as to which character states are homologous and are particularly important to the diversification of my group." On other occasions he refers to concrete examples from his own studies to illustrate problems and ways to their solution. No doubt, here writes someone possessing extensive first-hand knowledge of his flies and of efficient methods to study these. And someone who has inquired into his colleagues' practices (p. 119): "Computer programs for analyzing matrix data are complex, with many options, many of which are poorly understood by most systematists."

The sixth section, covering almost five pages, addresses the problematic nature of an attitude that is omnipresent nowadays (p. 119): "Genomic studies often give the pretense of providing final answers to phylogenetic relationships and faith in the model is often in the realm of religious conviction." This section, titled "Genomes vs. phenotype", is basically a discussion of phenetics versus cladistics. Borkent has made the experience that (p. 121) "most molecularly-focused colleagues cannot identify lineages based on molecularly-based synapomorphies, seem to be puzzled by the question, and have left concern for synapomorphic character states behind." A brief look into contemporary literature suffices to confirm that Borkent's observation is in agreement with reality. He goes on to make clear that the crisis in Diptera systematics is to some extent a crisis in academic ethics. On page 122 we read: "For those authors who partition morphological and molecular data and indicate high levels of congruence, it is unclear that the results are truly independently derived. Considering the complexity and plethora of options for analysis of both molecular and morphological datasets, there is a distinct possibility that there are biased choices being made by authors to make molecular and morphological results appear more congruent than might otherwise be the case. This possibility is not just conjecture. Behind the scenes, I have noted a disturbing and serious bias in the approach taken in at least some molecular studies that is particularly evident to me working on certain Diptera but which

is likely more broadly distributed (in talking to some colleagues). For at least some of those with a strong molecular perspective, tentative results are regularly run by systematists who are doing morphological work to see if the phylogenetic relationships are "reasonable". If so, the results are published as such but with the intimation that the pattern is solely or primarily the result of molecular analysis. If molecular patterns are not more or less blessed by a morphologically-based cladist, the results appear to be tweaked, using different models of analysis until patterns align more or less with morphological understanding. These appear to be published without reporting any reanalyses that may have been done." The present reviewer, who also had opportunity to take a look behind the scenes, has made similar experiences (and could tell about other, no less disturbing ones); other dipterists, however, might think of publishing such behind-the-scenes narrations as inappropriate, or breaches of taboo. This is a matter of taste. As a matter of fact, the crisis in Diptera systematics cannot be fully understood unless one is willing to pay due regard to the actors in science: human beings with all their strengths and weaknesses, and, as competitors for research funds, under pressure to succeed. Nobody active in contemporary research can argue away that serious constraints exist forcing us to always strive for accomplishing the impossible and give final answers to questions deemed to be unresolvable—and this within ever shorter periods of time. There is hardly any room left for failure—research successfully or die! Under those circumstances, there is clearly the risk to fall prey to temptations, such as manipulating data or options so that the outcome delivered by the computer program is "presentable". Systematics, in the sense by Borkent, does not fit such a regime of grand promises, unrealistically high expectations / demands, hurried work, and final-answer thinking; rather, constructing the zoological classification is regarded as a long-term enterprise to which each new generation of scientists adds further pieces of knowledge—a sensitive organism that, if supposed to develop into something meaningful, MUST be given the time to grow gradually. Why? Because "the Diptera are remarkably species rich with over 159,000 species named" (p. 108); "our knowledge of morphology (external and internal) is extremely limited" (p. 121); and "it is hard work to study character states in depth" (p. 118).

On pages 124–130, Borkent turns to two "examples from the Diptera", the analyses by Wiegmann et al. (2011) and Lambkin et al. (2013), as to specify his concerns. One might ask why he decided to refer to these two studies instead of choosing more recent ones. The answer is given on page 124, where the reader learns that both these papers result from a gigantic, unique project, "a six-year (2004–2009) cooperative effort between 17 different laboratories studying Diptera phylogeny and supported by a NSF grant of $2.4 million (US). Wiegmann et al. (2011) interpreted the results of a mix of sequence and morphological data while Lambkin et al. (2013) provided just the morphological analysis. The ambitious goal of this project was to fashion a phylogenetic synthesis that would incorporate both molecular and morphological data, building on previous work (especially morphological) and establishing a solid basis to advance further work on the phylogenetic relationships within the order." Those ambitions stand in stark contrast to Borkent's appraisal (p. 125) that "The phylogenetic relationships between the families of Diptera as presented by Wiegmann et al. (2011) and Lambkin et al. (2013) are seriously flawed and should not be used as foundations for further interpretation." Strong words to describe the bitter truth or defamatory statement? Borkent adduces to a number of reasons in support of his opinion (pp. 125–130), thereby making much substance available for future discussion, corroboration, or rebuttal. To take just one of Borkent's objections as an example: the Cecidomyiidae, likely the most species rich family of the order Diptera, was represented in the analyses in question by a single species, *Mayetiola destructor*, which is a member of a highly advanced lineage. How, under those circumstances, could one disagree with Borkent's opinion (p. 125) that "With the morphological portion restricted to just these exemplars, variation known and present within a given family was ignored, making the analysis easier but the results strongly suspect."?

At the end of his opinion paper, Borkent draws conclusions from his situation analysis, which includes a section titled “How are we serving the next generation?”. One may only hope that student readers sustain up to page 131 where it is stated that the “attention span required to spend time really studying specimens (both preserved and in nature) seems to be increasingly diminished, hand in hand, of course, with a general societal love affair with i-technology. There is a great need to encourage students to once again spend time with the organisms they wish to interpret before leaping to programs that can arrange the 0s and 1s from their matrices and then to quickly push these through programs to produce phylogenies.” Students of systematic entomology, read the Borkent paper; and if you have issues (the more the better), consult your professors. Or direct right towards Art Borkent who, I promise you, will address all your concerns with empathy and patience.

On a more personal note, I have read the Borkent paper with mingled feelings, ranging from admiration (of the author’s awe-inspiring knowledge of Diptera and systematics), via sadness (due to the described state of affairs) to hopefulness (that a sincere, pertinent debate might arise from that paper). Among all the attributes relatable to it, I would prioritize one as particularly apt: for me it is first of all a BRAVE paper. It is brave, in my opinion, to raise the voice against prevailing paradigm, and even more so when done publicly. From behind the scenes I heard rumours of people saying that Borkent, working freelance and not holding any position of responsibility (say that of a university professor), was not entitled to make such a fierce criticism public. Such a view, I think, is the world topsy-turvy: the Borkent paper came into being BECAUSE of the author’s remarkable sense of responsibility.

Admittedly, some of Borkent’s conclusions frightened me, such as the following (p. 109): “The further we depart from the study of nature (here character states and the organisms that bear them), the more we will be immersed in a caricature of nature of our own construction. Complex mathematical models, often intimidating but bearing an aura of authenticity and authority, have become the *modus operandi*.” Here someone is asking the essential question: What is the meaning of what we are doing? It happened – lucky coincidence – that I read the Borkent paper in parallel to Yuval Noah Harari’s bestseller “Homo Deus. A Brief History of Tomorrow”. There, on page 429, I found the answer to my problem, which is How could it happen that Diptera systematics got into so deep trouble?: “… Dataism inverts the traditional pyramid of learning. Hitherto, data was seen as only the first step in a long chain of intellectual activity. Humans were supposed to distil data into information, information into knowledge, and knowledge into wisdom. However, Dataists believe that humans can no longer cope with the immense flows of data, hence they cannot distil data into information, let alone into knowledge or wisdom. The work of processing data should therefore be entrusted to electronic algorithms, whose capacity far exceeds that of the human brain. In practice, this means that Dataists are sceptical about human knowledge and wisdom, and prefer to put their trust in Big Data and computer algorithms. Dataism is most firmly entrenched in its two mother disciplines: computer science and biology. Of the two biology is the more important. It was biology’s embrace of Dataism that turned a limited breakthrough in computer science into a world-shattering cataclysm that may completely transform the very nature of life. You may not agree with the idea that organisms are algorithms, and that giraffes, tomatoes and human beings are just different methods for processing data. But you should know that this is current scientific dogma, and it is changing our world beyond recognition.”

The choice is entirely yours: put your trust in your (the human) brain or in computer algorithms; trust *homo sapiens* or *homo deus*.

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Wiegmann, B.M., Trautwein, M.D., Winkler, I.S., Barr, N.B., Kim, J.-W., Lambkin, C., Bertone, M.A., Cassel, B.K., Bayless, K.M., Heimberge, A.M., Wheeler, B.M., Peterson, K.J., Pape, T., Sinclair, B.J., Skevington, J.H., Blagoderov, V., Caravas, J., Kutty, S.N., Schmidt-Ott, U., Kampmeier, G.E., Thompson, F.C., Grimaldi, D.A., Beckenbach, A.T., Courtney, G.W., Friedrich, M., Meier, R. & Yeates, D.K. (2011) Episodic radiations in the fly tree of life. Proceedings of the National Academy of Sciences, 108, 5690–5695. https://doi.org/10.1073/pnas.1012675108

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Diptera Documented During iNaturalist City Nature Challenge

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For the last few years iNaturalist, an online community where members can upload observations of nature, has held a contest to see which metropolitan areas can document the most diversity in a set amount of time (dubbed the "City Nature Challenge": https://www.inaturalist.org/projects/city-nature-challenge-2018). Over a four-day period, users can upload photos from their phones or cameras, geo-reference them, and receive identifications from the community (or get confirmations for identifications they provided). At the end, the observation and species counts are tallied and the cities are ranked.

In the spirit of competition, and because of my passion for macrophotography and insect diversity, I participated in this year's event held April 27-30 (I also participated in last year's, but those photos are not shown here). My metropolitan region was the Triangle Area of North Carolina, USA, located in the central part of our Atlantic coast state. For my observations (https://www.inaturalist.org/observations/bertonemyia) I explored my own yard, observed insects attracted to my porch lights and a UV black light (Bertone property, NC: Wake Co., Cary; "BP"), and also went to a local forest one afternoon (Carl Alwin Schenck Memorial Forest, Wake Co., Raleigh, NC; "SMF"). The challenge counts any wild organisms; I focused on insects and other invertebrates (of course), but plants were also a good source of diversity. In all, I posted 371 observations, all taken with a Canon 7D with a 60 mm Canon macro lens and a diffused flash unit. Of those observations, 81 were of Diptera. The following are some of the flies I photographed during the event. All photos on fabric were taken at UV light; on gray painted background were at porch lights on the siding of the house. The diversity was perhaps a little low due to cool temperatures and a full or almost full moon.

Many thanks to those who helped me identify some of the taxa in these photos: Viktor Baranov, Gregory Curler, Raymond Gagné, Jon Gelhaus, William Grogan, Peter Kerr, Gunnar M. Kvifte, and Michael Reiskind. Please feel free to contact me if you have additional identifications, questions, or comments.

Data for the event:

Date	**max. temp. (°F)**	**min. temp. (°F)**	**precipitation (inches)**	**moon illumination**
April 27th 2018	73	54	0.01	94%
April 28th 2018	78	50	0.00	98%
April 29th 2018	65	50	0.00	100%
April 30th 2018	72	36	0.00	100%

Fig. 1. Ceratopogonidae: 1A&B – Ceratopogoninae (cf. Palpomyiini female; SMF), 1C – Forcipomyiinae (male; BP), 1D – *Atrichopogon* sp. (female; BP), 1E – *Forcipomyia (Lepidohelea)* sp. (male; BP)

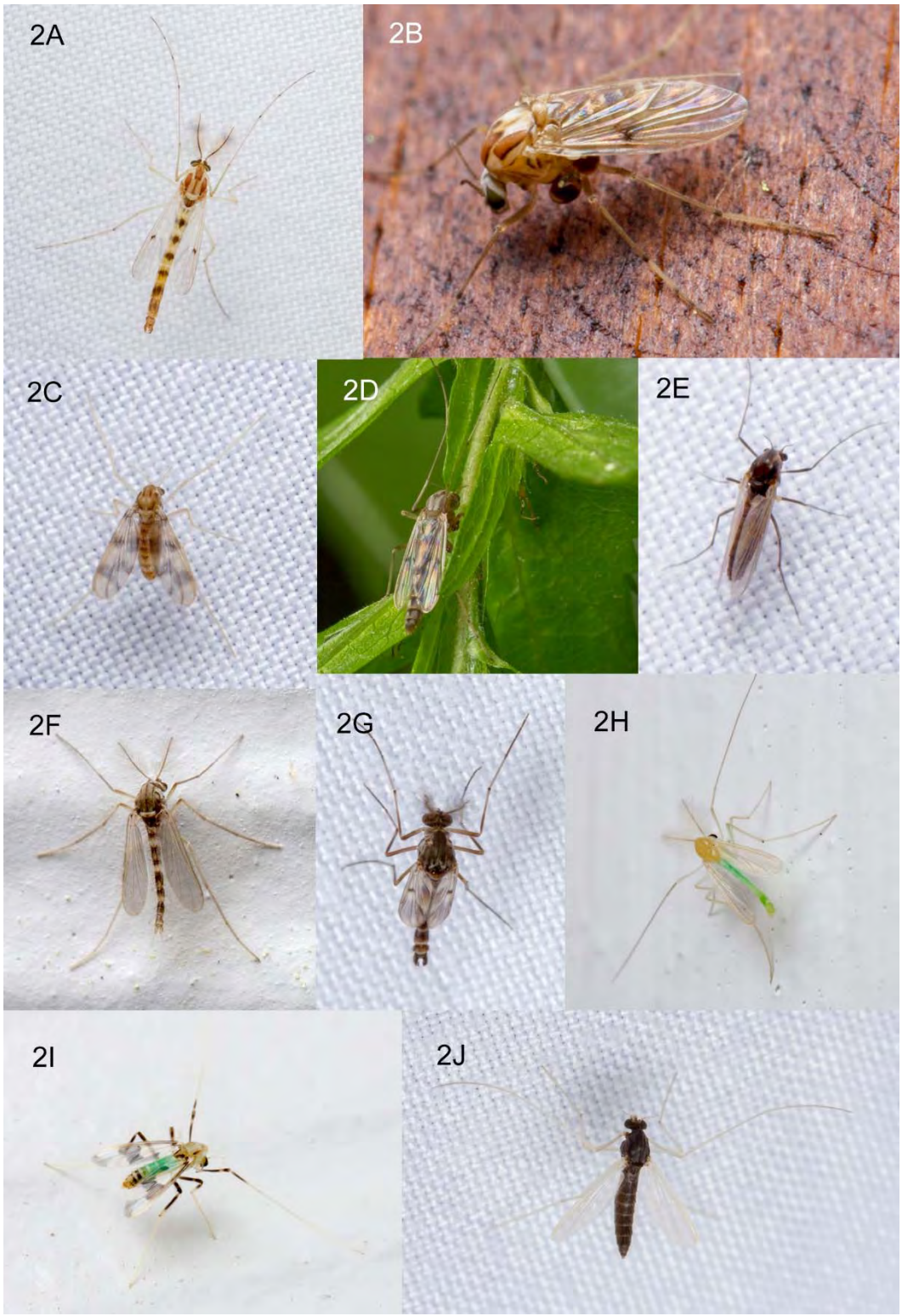

Fig. 2. Chironomidae: 2A – Chironomini (male; BP), 2B – *Procladius* sp. (female; BP), 2C – Tanypodinae (female cf. *Zavrelimyia*; BP), 2D – Chironomini (female; BP), 2E – Orthocladiinae (BP), 2F – Orthocladiinae (male cf. *Brillia*; BP), 2G – *Procladius* sp (male; BP), 2H – Chironomini (male cf. *Harnischia*; BP), 2I – *Stenochironomus* sp. (female; BP), 2J – *Polypedilum* group (female; BP)

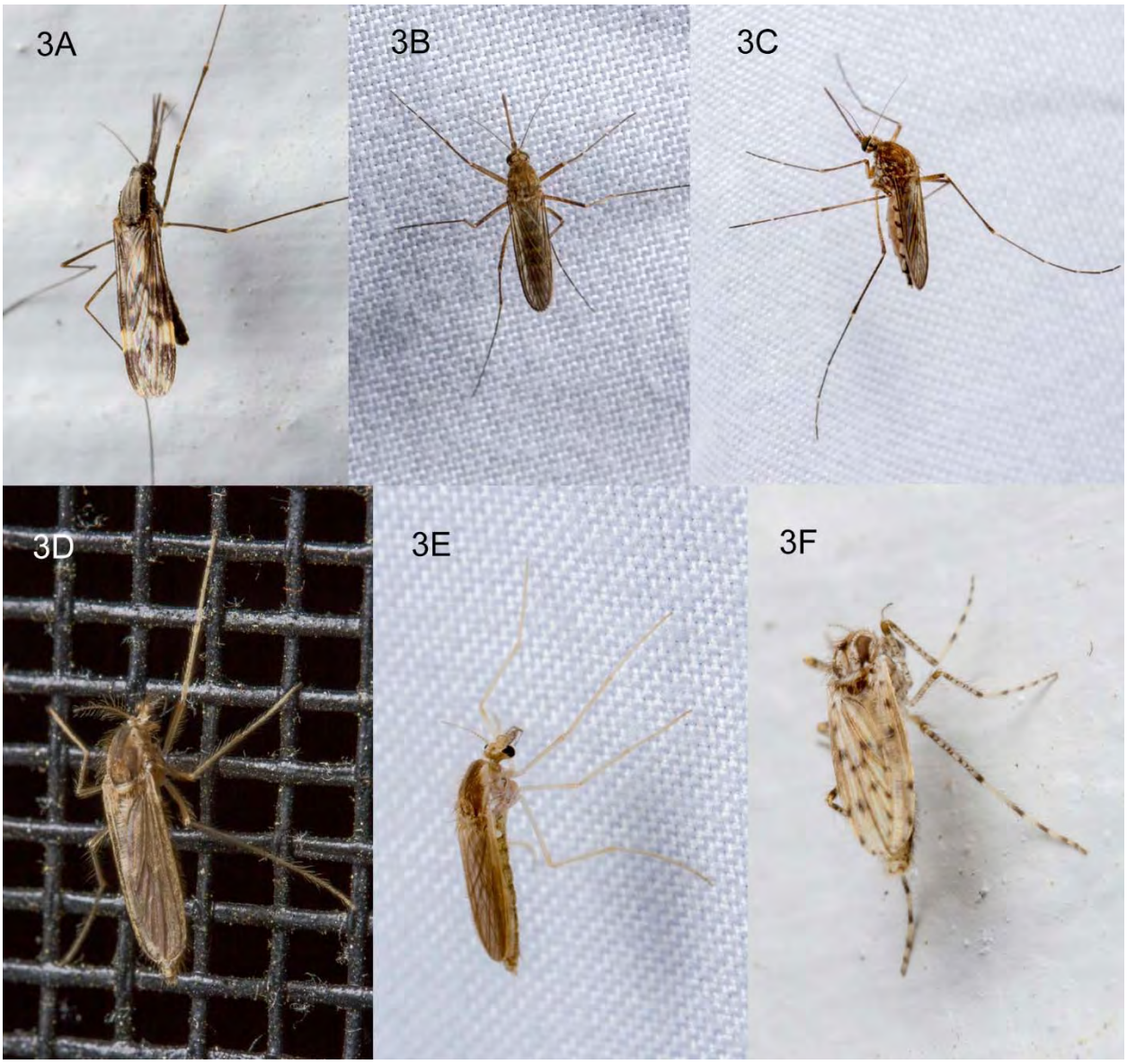

Fig. 3. Culicidae & Chaoboridae: 3A – *Anopheles punctipennis* (Say) (Culicidae; BP), 3B&C – *Aedes vexans* (Meigen) (Culicidae; BP), 3D – *Chaoborus* sp. (Chaoboridae; BP), 3E – *Chaoborus (Chaoborus)* sp. (Chaoboridae; BP), 3F – *Chaoborus (Sayomyia) punctipennis* (Say) (Chaoboridae; BP)

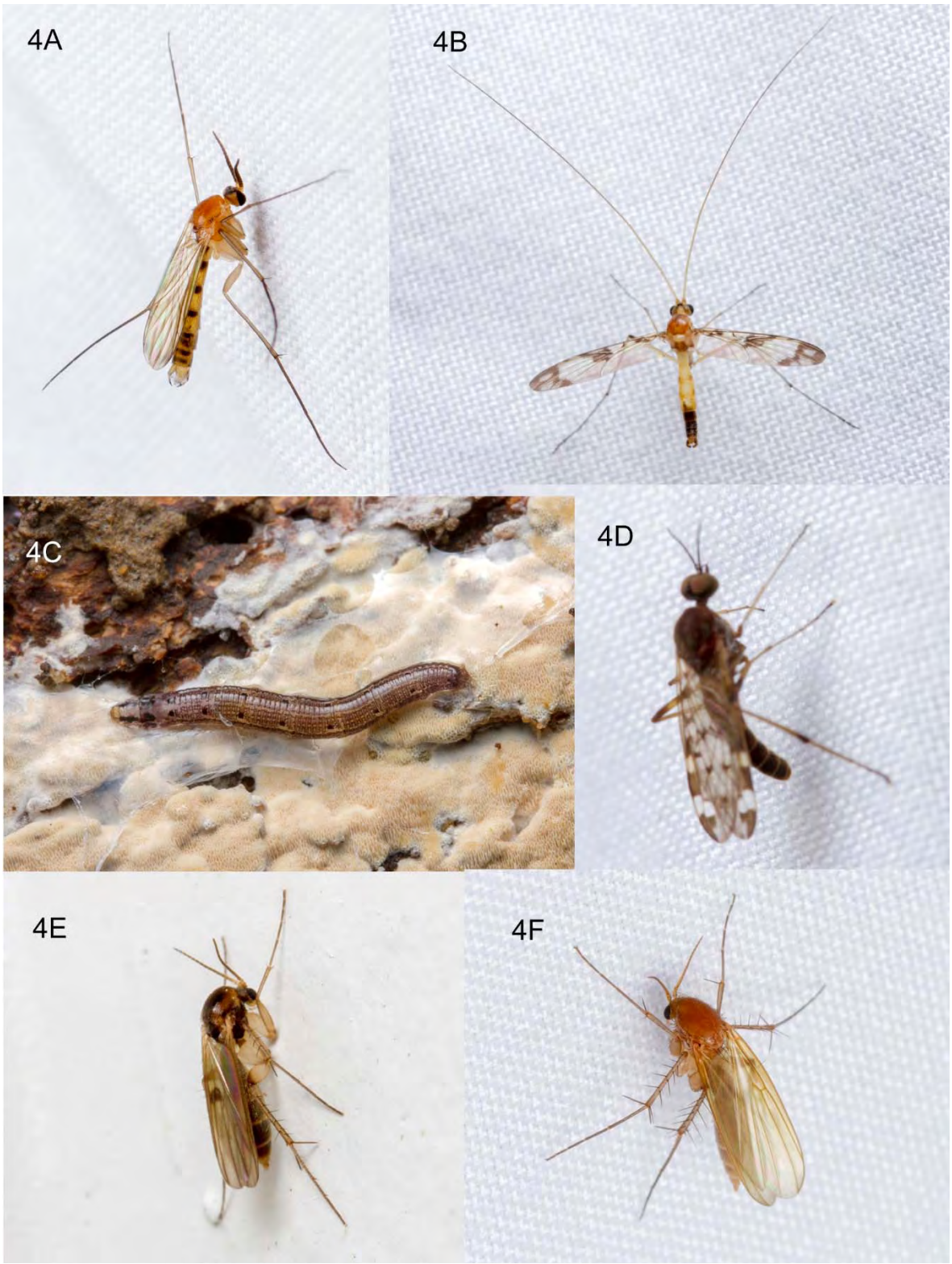

Fig. 4. Keroplatidae, Anisopodidae, & Mycetophilidae: 4A – *Orfelia* sp. (Keroplatidae; BP), 4B – *Macrocera* sp. (Keroplatidae; BP), 4C – larval Keroplatidae under log (BP), 4D – *Sylvicola (Sylvicola) alternatus* (Say) (Anisopodidae out of focus; BP), 4E – *Mycetophila* sp. (Mycetophilidae; BP), 4F – *Mycetophila fungorum* (De Geer) (Mycetophilidae; BP)

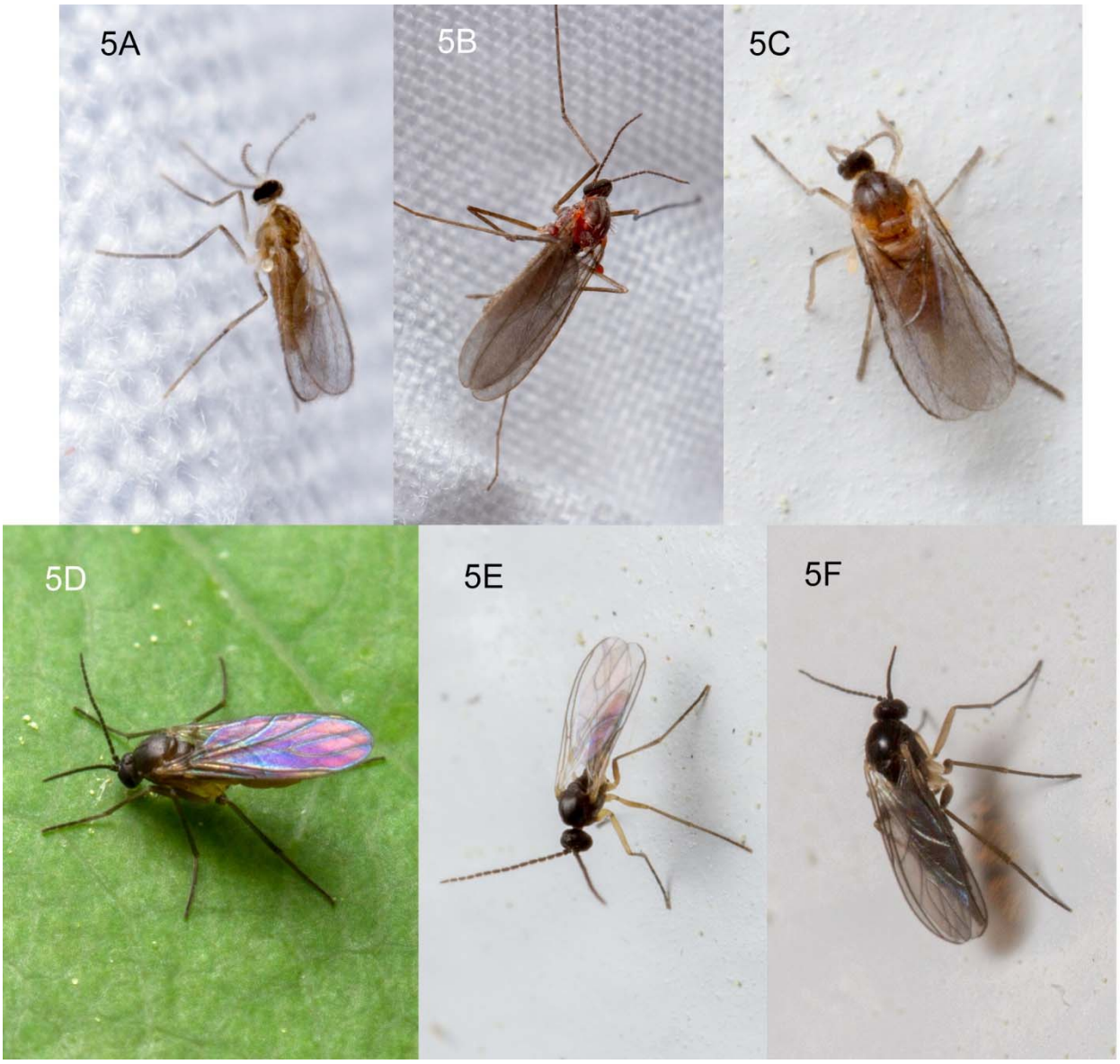

Fig. 5. Cecidomyiidae & Sciaridae: 5A&B – Cecidomyiidae (BP), 5C – Lasiopteridi (Cecidomyiidae; BP), 5D-F – Sciaridae (BP)

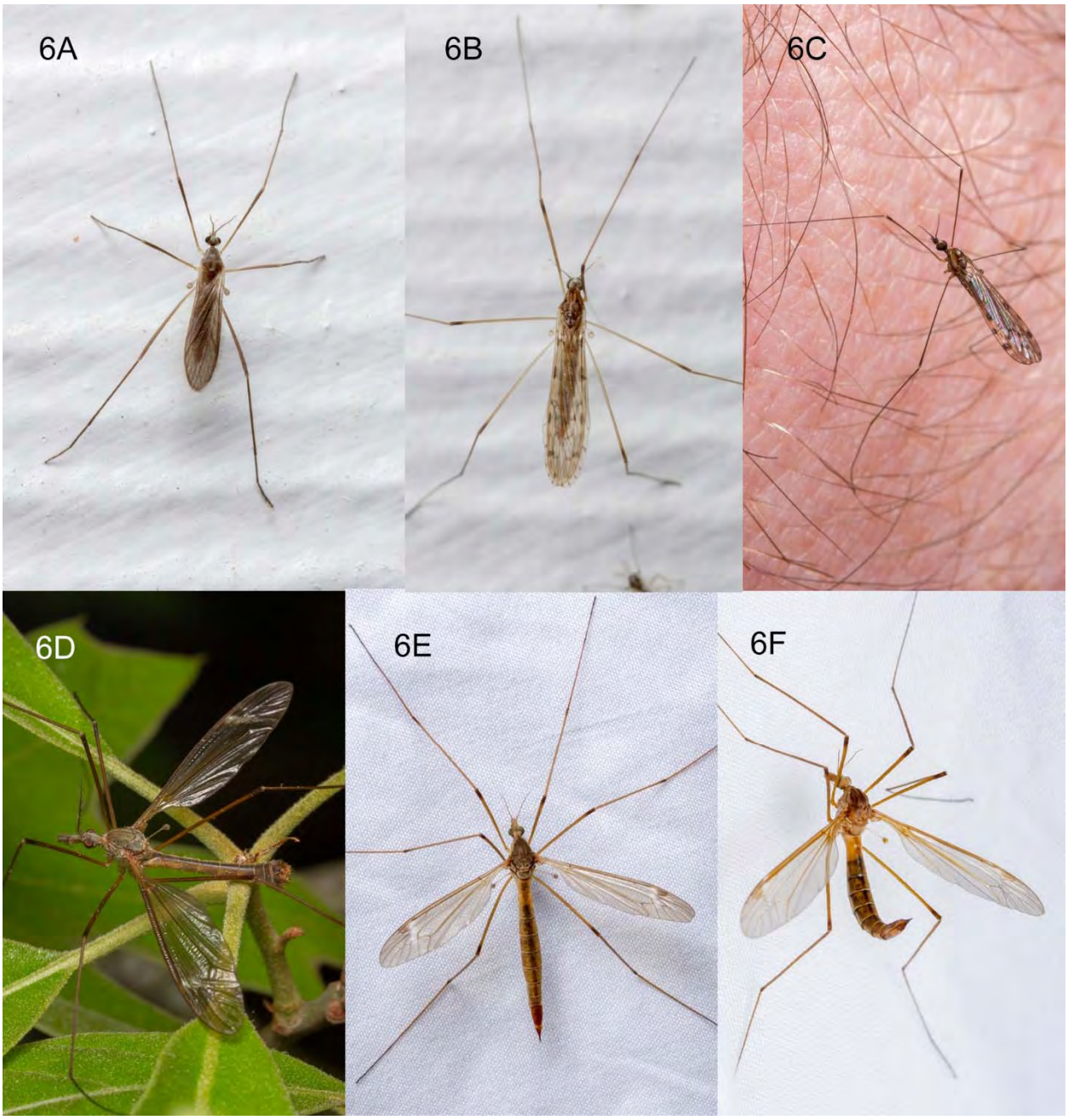

Fig. 6. Tipulidae *sensu lato*: 6A – *Molophilus* sp. (BP), 6B – *Rhipidia domestica* O.S. (female; BP), 6C – Limoniinae (cf. *Achyrolimonia neonebulosa*; SMF), 6D – *Tipula (Triplicitipula)* sp. (male cf. *triplex*; SMF), 6E – *Tipula* sp. (female; BP), 6F – *Tipula (Lunatipula)* sp. (female; BP)

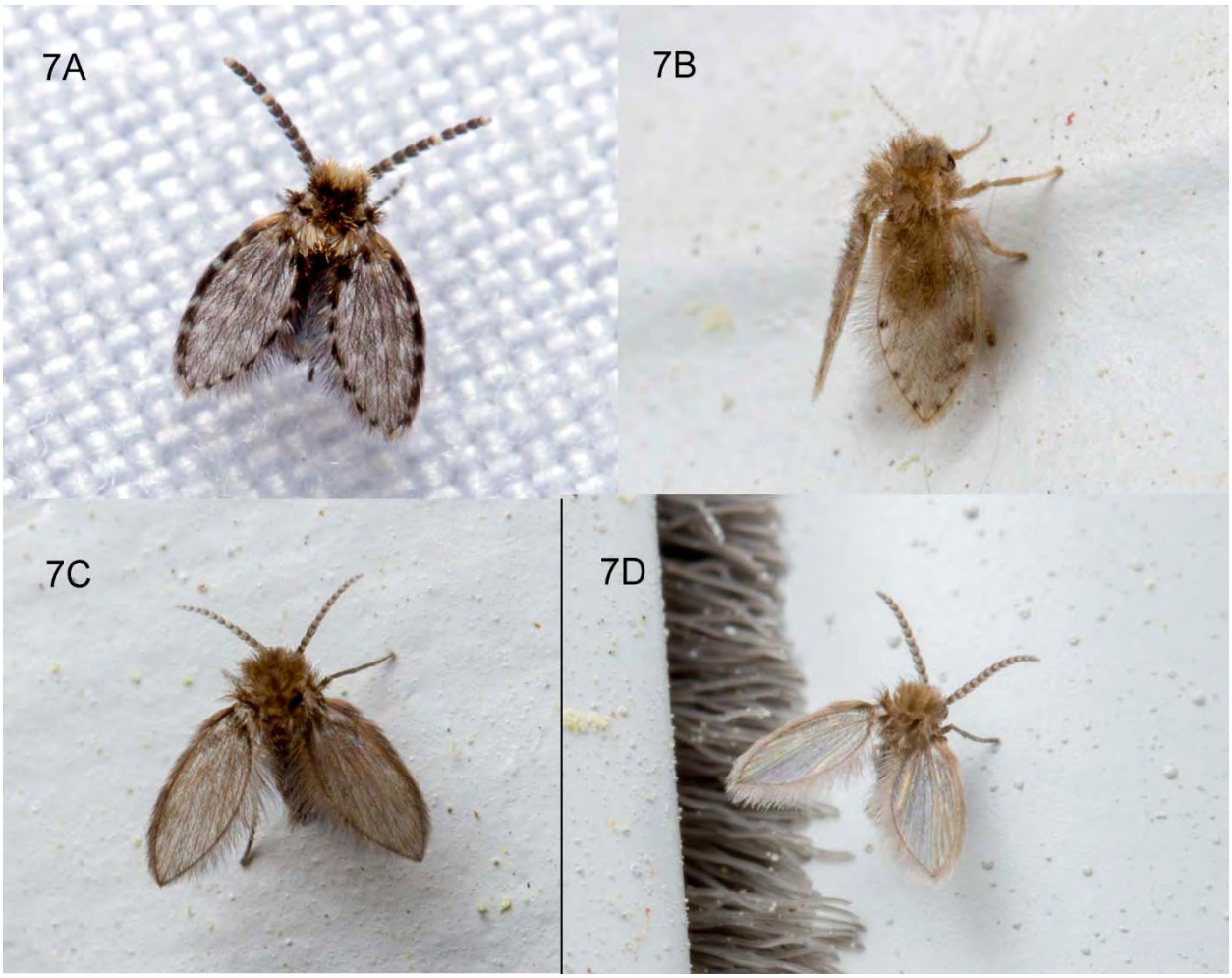

Fig. 7. Psychodidae: 7A – *Eurygarka* sp. (BP), 7B – *Psychoda* cf. *alternata* (BP), 7C&D – Psychodini (cf. *Quatiella*; BP)

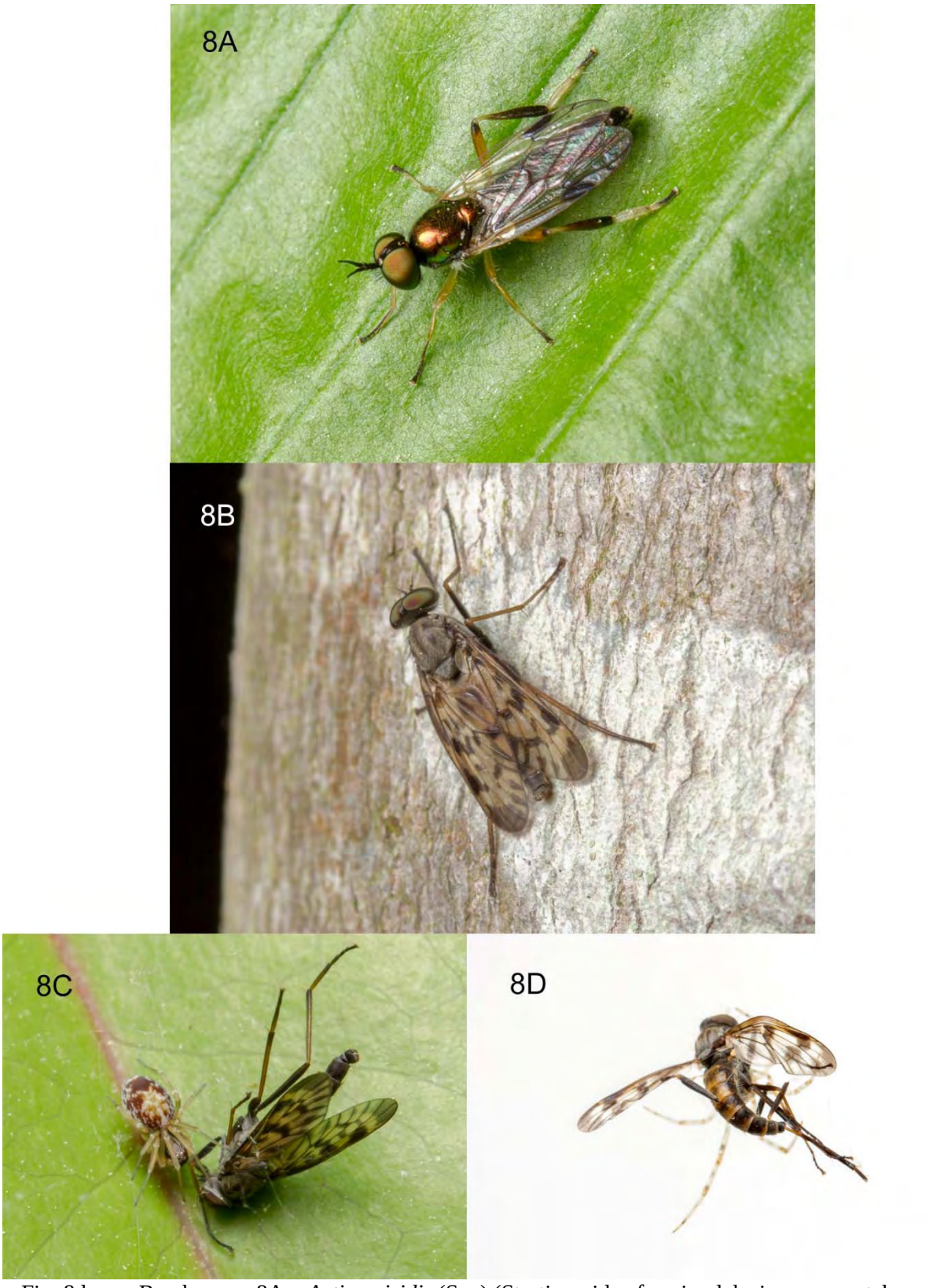

Fig. 8 lower Brachycera: 8A – *Actina viridis* (Say) (Stratiomyidae forming leks in sunny patches; SMF), 8B – *Rhagio* sp. (Rhagionidae; SMF), 8C – *Rhagio* caught by *Dictyna* sp. spider (SMF), 8D – *Rhagio* sp. caught by *Parasteatoda tepidariorum* spider (BP)

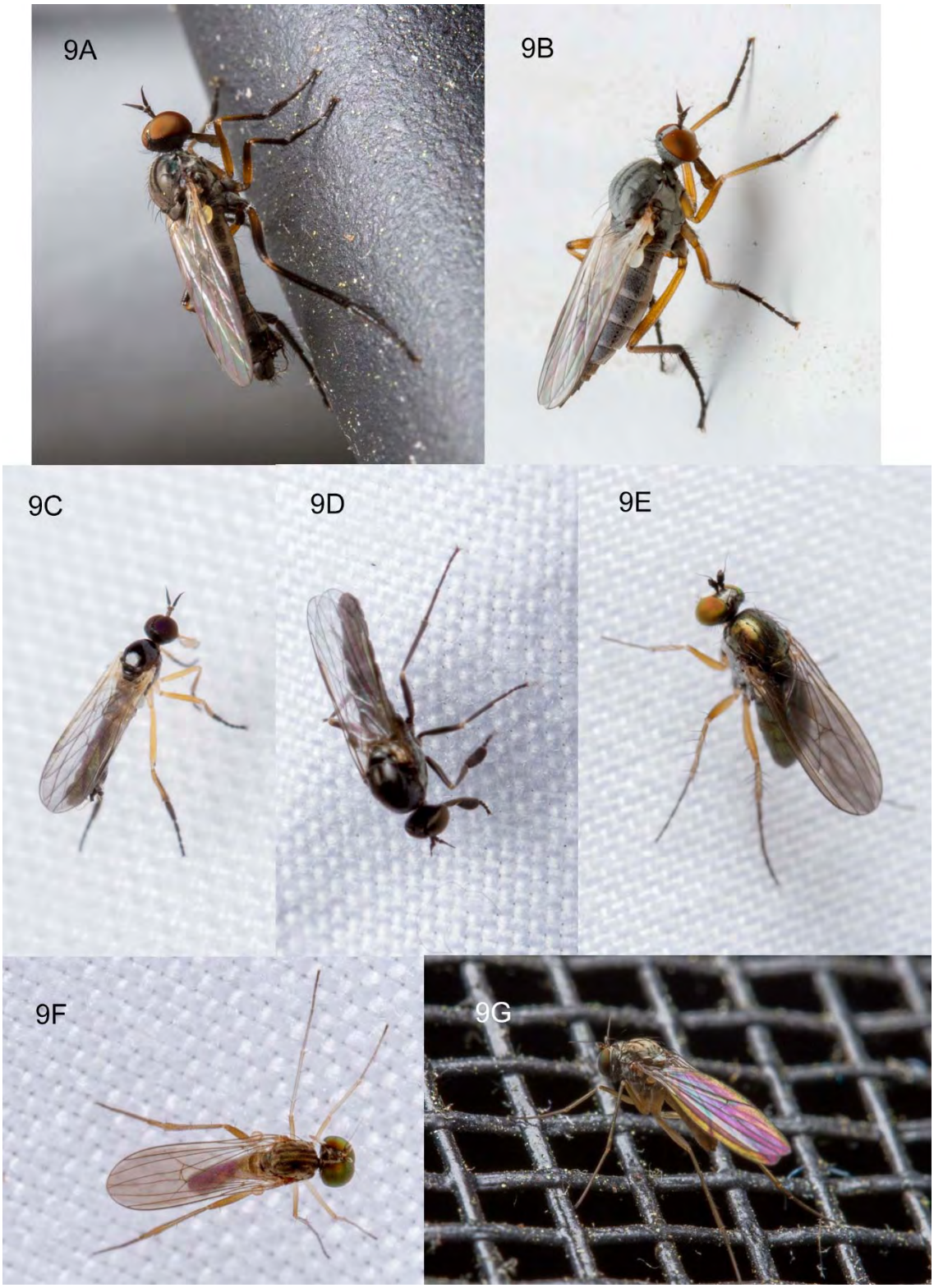

Fig. 9. Empididae & Dolichopodidae: 9A – *Rhamphomyia* sp. (Empididae male; BP), 9B – *Rhamphomyia* sp. (Empididae female; BP), 9C – *Rhamphomyia* sp. (Empididae male; BP), 9D – *Hilara* sp. (Empididae; BP), 9E – Dolichopodinae (Dolichopodidae; BP), 9F – Sympycninae (Dolichopodidae male; BP), 9G – Sympycninae (Dolichopodidae female; BP)

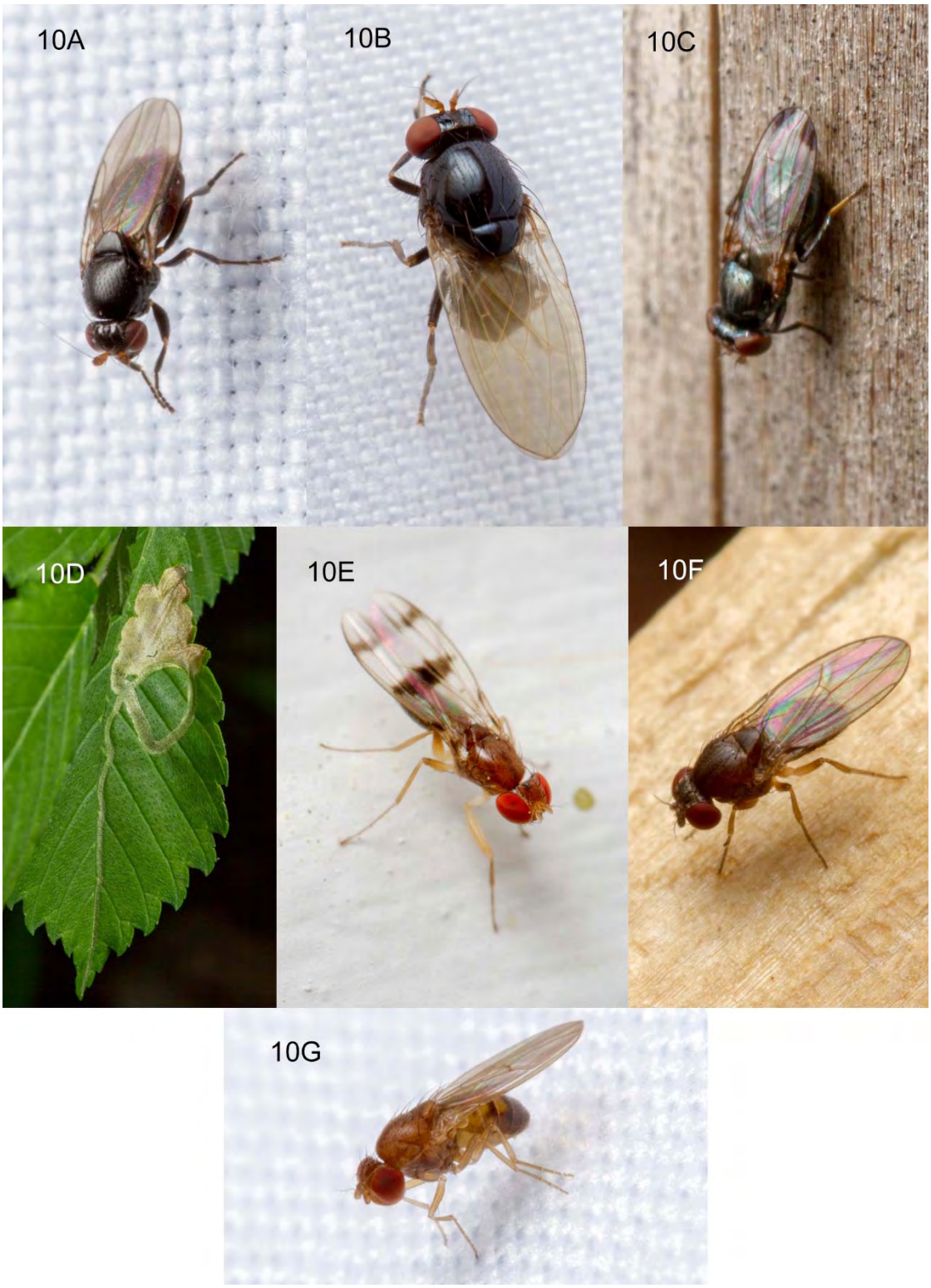

Fig. 10. "Acalyptratae": 10A – *Aptilotus* sp. (Sphaeroceridae; BP), 10B – *Xenochaetina* sp. (Lauxaniidae; BP), 10C – *Euxesta* sp. (Ulidiidae; SMF), 10D – *Agromyza aristata* Malloch (Agromyzidae in *Ulmus*; BP), 10E – *Chymomyza amoena* (Loew) (Drosophilidae; BP), 10F – *Drosophila* sp. (Drosophilidae at compost; BP), 10G – *Drosophila* sp. (Drosophilidae; BP)

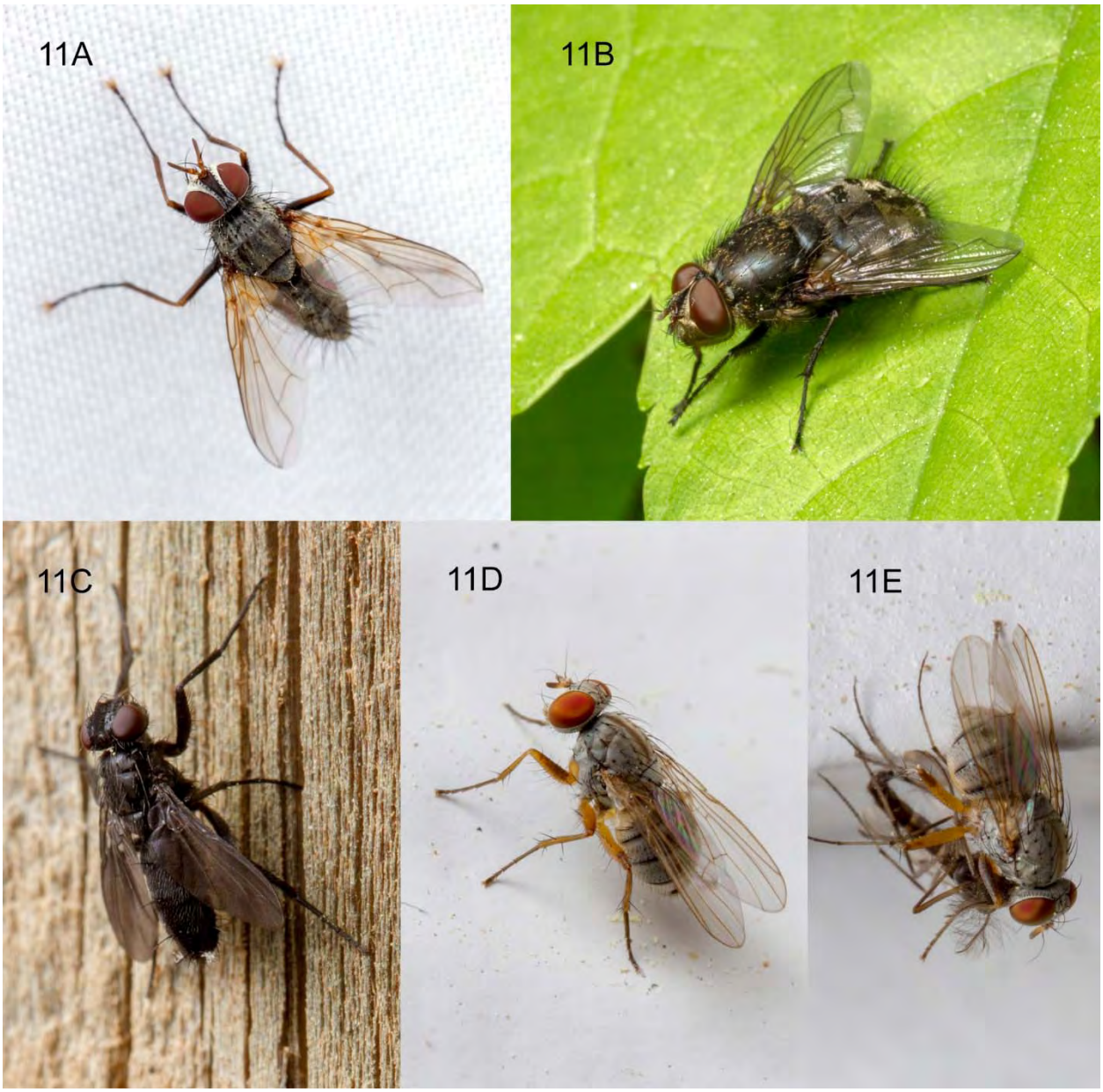

Fig. 11. “Calyptratae”: 11A – Tachinidae (BP), 11B – *Pollenia* sp. (Calliphoridae; SMF), 11C – *Melanophora roralis* (L.) (Rhinophoridae, male; SMF), 11D&E – Coenosiini alone and with prey (Muscidae; BP)

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Mycetophilids in Northern Nevada in 2018

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Last fall I put a note in Fly Times about my efforts to study Mycetophilids in Northern Nevada during 2017 and some of the difficulties I encountered, particularly in rearing them out of mushrooms. After the note appeared a number of people wrote to me and shared their insights in rearing Mycetophilids and other aspects of getting to know this group of flies through experience. I would like to thank Dr. Woody Fitzgerald, Dr. Jukka Salmela, Dr. Richard Lane, Dr. William Turner, and Dr. Peter Adler for taking the time to write, call or talk to me and help me out. I also attended the Entomological Society of America Conference in Denver last fall and spoke to some people there.

During the winter I went through the material I had collected during 2017, using the key to genera in the Manual of Nearctic Diptera. I learned a lot by running hundreds of flies through this key, and going to the internet to find photographs and drawings of the genera in question, to see if my tentative identifications were plausible. So far I have found 11 genera, and maybe 15 or so species, nearly all of which i caught either in dry ice baited EVS traps or malaise traps. This spring I am going to try my malaise traps out in as many locations and habitats as I can manage - I hope they won't be destroyed by people or animals. I am going to try yellow pan traps as well this year - I have no idea if Mycetophilids will be attracted to them or not. I have a battery-operated aspirator that I hope to use to explore animal burrows and other hidden places. It promises a lot with all the noise it makes, but I notice that it seems to have very little suction, so I am not placing high hopes on it. And I am going to try rearing these flies out of mushrooms and other substrates again this year, using the suggestions I have gotten.

I don't have an indoor environmental chamber so I keep the containers I am attempting to rear Mycetophilid larvae in outside under milk crates on the north side of a shed. I cover them with a shingle so they don't get flooded if it rains hard. The outdoor location allows normal temperatures for the larvae, the northern location keeps them from being overheated by the sun, and the milk crate protects them from inquisitive animals.

On March 17 I saw a cluster of puff balls, the first fungi I have seen this year. I collected some of them - they were full of spores already. In fact, I have never seen a puffball in a prespore condition. I put the ones that I collected into a rearing chamber on a bed of peat moss - they have been there over a week now and there is no sign of any insect activity. On March 23 I put a couple of domestic mushrooms out in a location where I saw mushrooms last year, to see if anything would happen to them. They just dried up, no insect was interested in them. But it is still cold, maybe too early. I've been reading about Mycetophilids breeding in substrates other than mushrooms - I am sure that at least some of those habitats exist around here as I have taken adult flies in many places where I have never seen a single mushroom. But I think that actually locating such substrates is going to be difficult.

And for the winter ahead at the end of the year I need to find the literature that will help me identify the specimens I have to species. Dr. Jukka Salmela kindly emailed me a whole library of papers on Mycetophilids which have interesting notes on collecting and biology, and which I think will also help me in my efforts to identify the specimens I have to species. But I think it will still be hard to do.

So I am plunging into 2018. As before I will be happy and grateful to receive any insights that people may have on studying this group of flies.

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The year 2019 will be formally designated as international "Year of the Fly" at the 9th International Congress of Dipterology in Windhoek, Namibia in November 2018. The year is intended as a celebration of flies and their role in nature and human Society. During the year the intention is to educate the general public about the diversity, significance and beauty of flies and how they affect our lives. "Year of the Fly" is also an opportunity for fly specialists to showcase their research work and new discoveries in the field and make these more widely known. Through an interactive website, social media networking, public lectures and temporary museum displays, the fascinating world of flies will be revealed to a wider audience and encourage interest in the group. Further details will follow. (submitted by Ashley Kirk-Spriggs).

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An inordinate fondness for dipterists

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An interesting "paper" crossed my screen, first in the form of a news article in "The Atlantic" (https://www.theatlantic.com/science/archive/2018/04/parasitic-wasps-dominate-the-animal-kingdom/557348/). The Atlantic article was titled "An Inordinate Fondness for Wasps. There are probably more species of them than any other animal group." That's a fine play on the well known saying about beetles, but changing the focus to saying the creator must have actually preferred wasps.

I used quotes around "paper", because the medium is something new to me – that is, a preprint service (https://www.biorxiv.org/). I don't know – maybe this has been around forever. Anyway, right at the top, it says "This article is a preprint and has not been peer-reviewed". Looking further at the "What does this mean" link (https://www.biorxiv.org/content/what-unrefereed-preprint), it says that due to the lengthy process of peer review, this service is to make manuscripts available before hand, allowing discussion on the findings immediately, and stating that readers should be aware that the articles are not finalized by the authors, might contain errors, and report information that has not yet been accepted or endorsed in any way by the scientific or medical community.

Yet, it is apparently ready to be picked up by news sites…

Anyway, the paper (not really a publication yet, or is it?) is titled "Quantifying the unquantifiable: why Hymenoptera — not Coleoptera — is the most speciose animal order" (https://doi.org/10.1101/274431). A reasonable thesis, and one that I am not addressing here. But I do want to point out my favorite line in the Atlantic article though, a very astute quote from a hymenopterist:

> "I really think the only people that would disagree would be the fly people."

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HISTORICAL DIPTEROLOGY

Coquillett's Diptera Eponyms. Part II.

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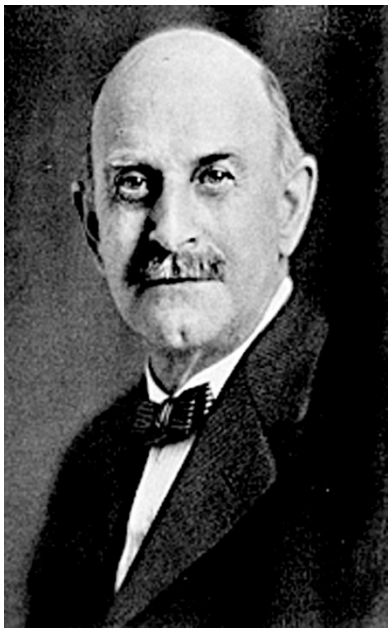
This is the second of two parts giving short biographies of the people for whom Daniel W. Coquillett named species of flies. This Part II deals with those alphabetically from Charles Willison Johnson to Samuel Wendell Williston. Part I, from John Merton Aldrich to Walter David Hunter, appeared in the last issue of *Fly Times*. As explained in the first part, Coquillett was a considerate and unassuming person, and very thankful for the efforts of those collectors who supplied him with specimens, some of which were new to science. He would thus honor many of those collectors with eponyms. Some of the collectors are little-known [and unfortunately remain so even after diligent searching for information in this study!], others are more famous. The following entries of biographical sketches of the people for whom Coquillett named new species are presented here in the hopes to furthering the knowledge of these collectors.

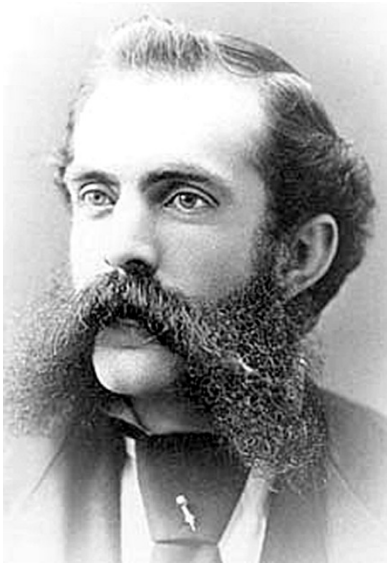
CHARLES WILLISON JOHNSON (1863–1932)



Ceratopogon johnsoni, 1901a: 600
Clausicella johnsoni, 1897: 56
Exoristoides johnsoni, 1897: 91
Hesperodes johnsoni, 1900e: 429
Hilara johnsoni, 1895e: 395
Psilocephala johnsoni, 1893b: 228
Stenoxenus johnsoni, 1899c: 61
Tanypus johnsoni, 1901a: 609

Entomologist and malacologist Charles Willison Johnson was born in Morris Plains, New Jersey on 26 October 1863 where he spent his childhood and early years of schooling. He and his family moved to St. Augustine, Florida when he was 17 where he began surveying the local fauna in earnest. Joseph Wilcox, a trustee of the Wagner Free Institute in Philadelphia was impressed by the energetic young Johnson and invited him to be the Institute's curator. Johnson went to Philadelphia in 1888 and curated the collection there while simultaneously helping curate the collection at the Academy of Natural Sciences. In 1903 he accepted the position of chief curator at the Boston Society of Natural History in Boston, Massachusetts, where he remained until his death on 19 July 1932.

ORSON BENNETT JOHNSON (1848–1917)



Criorhina johnsoni, 1894c: 125
Exepacmus johnsoni, 1894: 101
Lasioneura johnsoni, 1895b: 50
Symphoromyia johnsoni, 1894e: 54
Thereva johnsoni, 1893g: 200

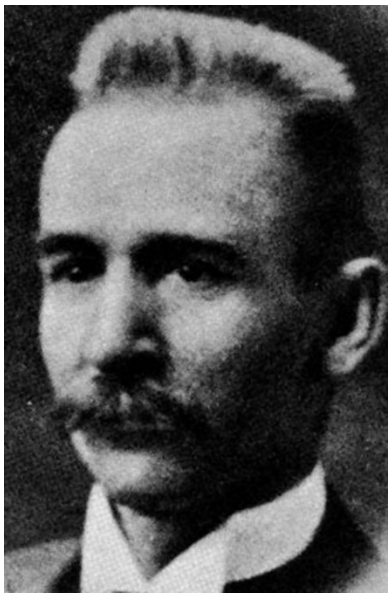
Orson Bennett [the O.B. translated to "Old Bug" by his students; or just shortened to "Bug"] Johnson was born in Williston, Vermont on 15 August 1848. He was appointed as a professor at the Territorial University (now University of Washington) in 1882, chaired the biology department there for 14 years, and mentored young amateurs in the Young Naturalists Society, helping foster their appreciation and understanding of natural sciences. When Harvard University President Charles W. Elliot visited the Washington campus and met Johnson, he asked him what chair he held. Johnson replied that he taught biology, botany, chemistry, physics, geology, astronomy and geology. Elliot's response was "I perceive you do not hold a chair, sir, but a settee". Johnson was elected as Emeritus Professor in 1910. During a trip to Honolulu in 1897 for his health (getting some sunshine was prescribed) he was interviewed by one of the local newspapers and wrote that he had an insect collection of some 15,000 specimens from various parts of the world (he donated his collection to the University of Washington in 1916). The newspaper writer described Prof. "Bug" Johnson as a "fluent talker". Johnson was lauded by his students as colleagues for his generous time in helping them in their studies and careers. He passed away at his home in Seattle on 9 March 1917.

EUGENE KEEN (1866–1952)

Anthrax keenii, 1887: 164

Not much could be found on Keen [there are some records of a middle initial "L" and others with "W" but all census records have him without a middle name or initial]. Eugene Keen was born on 29 November 1866 in Philadelphia, Pennsylvania, the son of Francis Keen, and had an interest in collecting Diptera (another contemporary "Keen" was a beetle collector). Although recorded in the literature as having collected Diptera in Pennsylvania and Minnesota, he also spent some time in California (which is where the specimen he collected of *Anthrax keenii* derived) and Mexico before returning to Philadelphia where he worked the remainder of his life as a dentist. He remained unmarried and died from complications pneumonia in Norristown, Pennsylvania on 30 July 1952 at the age of 85.

FREDERICK KNAB (1865–1918)



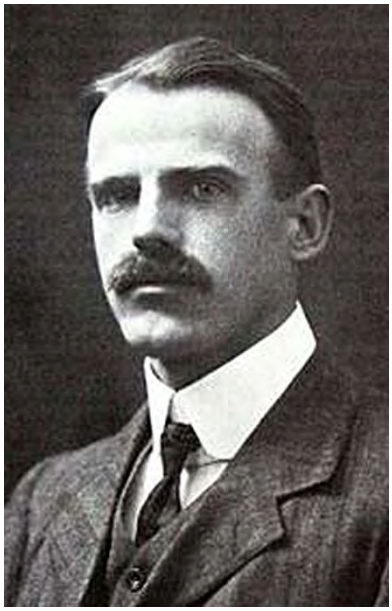
Culex knabi, 1906b: 183
Metriocnemus knabi, 1904a: 11

Frederick Knab was born on 22 September 1865 in Bavaria and emigrated to America with his parents when he was eight years of age, settling in Chicopee, Massachusetts. As a child he had an exceptional talent for art (his uncle was the court painter to the King of Bavaria), took an avid interest in entomology, especially beetles, and was a member of the Springfield Zoological Club in Massachusetts. He traveled back to Bavaria for schooling in art in 1889 but his deeper interest was in entomology. In 1903, when the Carnegie Foundation supplied funds for a study of Central American mosquitoes, L.O. Howard asked George Dimmock who he would recommend. Dimmock happened to have been a member of the same Springfield Zoological Club and recommended Knab. Knab worked with H.G. Dyar and L.O. Howard, made expeditions to Mexico, resulting in multiple prodigious volumes on the subject, some of which include Knab's excellent illustrations. Sadly, Knab became seriously ill, baffling doctors as to its cause, but eventually he self-diagnosed it as insect-borne (probably from an expedition he had taken to the Amazon some 30 years before). The end was unfortunately lingering and painful and he finally passed away on 2 November 1918 at only 53 years of age.

CLERMONT LIVINGSTONE (1850–1907)

Sapromyza livingstoni, 1898c: 278

Born on 15 October 1850 in Stamford Hill, Middlesex, England and originally working as a Ship Insurance Broker there, Livingstone moved with his wife and children to British Columbia in 1892 to manage the Tyee Copper Mine at Ladysmith on Vancouver Island, British Columbia. Livingstone had an avid interest in entomology and in his spare time made collections and studies that led to his being well-known and appreciated by fellow entomological members of the British Columbia Entomological Society. He sent specimens of various groups of insects to specialists abroad whom he knew would be interested. It was in this capacity that Coquillett received the specimen from Vancouver Island of *Sapromyza* that Coquillett named in honor of its collector. Livingstone died in Duncan, Vancouver Island, British Columbia on 20 October 1907.



CHARLES PUGSLEY LOUNSBURY (1872–1955)

Dacus lounsburyiii, 1901d: 27

Lounsbury was born on 20 September 1872 in Brooklyn, New York but spent his childhood years in Boston. He attended Massachusetts Agricultural College (later University of Massachusetts) where he graduated but stayed on as a graduate student and instructor. In

1893, the Cape Government of South Africa decided to create a post of Government Entomologist and wrote to L.O. Howard at the U.S. Department of Agriculture for recommendations. By then, Lounsbury had been working at the Massachusetts Experimental Station and was well known to Howard. The job was offered to Lounsbury in 1895 and he quickly got married and traveled to South Africa. Starting with little—a typewriter was purchased with government funds but he had to purchase a bicycle with his own money—he ended his career as Chief of the Division of Entomology for the Union of South Africa with a staff of 25 and was renowned as the founder of economic entomology in the country. He established South Africa's first sterilization protocol for imported plant material using hydrogen cyanide and helped control the cottony cushion scale and the pestiferous *Opuntia vulgaris* cactus. He was a member of the South African Biological Society and was awarded the South Africa Medal by the South African Association for the Advancement of Science in 1915. He passed away in Pretoria, South Africa on 7 June 1955.

KAKICHI MITSUKURI [箕作佳吉] (1857–1909)

Laphria mitsukurii, 1898d: 316

Kakichi Mitsukuri was born on 15 January 1857 in Edo, the former capital of Japan. He came to the United States in 1873 to study and received a PhD from Yale University in 1879 and one from Johns Hopkins University in 1883. Returning to Japan, he was made head of the Fur-Seal Commission and signed, on behalf of Japan, a treaty with the U.S. and Great Britain. It was in his capacity of acting on behalf of Japan that the U.S. National Museum received insects species from the government of Japan and Coquillett published on the Diptera in 1898. Of these, Coquillett named the asilid *Laphria mitsukurii* in his honor. In 1901, Mitsukuri became Dean of the Faculty of Science at the University of Tokyo. Mitsukuri was one of Japan's leading zoologists and published on a variety of subjects. In recognition of his public service to Japan, he was awarded the Order of the Sacred Temple. He died on 16 September 1909.

WILLIAM ABBOTT NASON (1841–1918)

Admontia nasoni, 1895b: 55
Heteropterina nasoni, 1895a: 207
Rhamphomyia nasoni, 1895e: 423

Born on 21 June 1841 in Hallowell, Maine, William Nason grew up to become an entomologist of some note in Algonquin, Illinois. Soon after his birth, his family moved to Boston where he obtained his childhood schooling in the Boston public school system. He graduated from Williams College in Massachusetts and continued his postgraduate education by entering Northwestern University in Illinois and finally Chicago Medical School where he obtained his medical degree in 1866. He went into medical practice in Illinois specializing in allopathic medicine, but maintained an avid interest in entomology throughout his life, keeping memberships in the American Entomological Society in Philadelphia and the

Entomological Society of America, as well as the American Association for the Advancement of Science. He specialized in the ecological relationships of insects and their distributions, publishing faunal lists of the Coleoptera and Diptera of Algonquin, and papers on parasitic Hymenoptera from the area. He died in Algonquin, Illinois on 18 June 1918.

CARL ROBERT OSTEN SACKEN (1828–1906)

Anthrax tegminipennis var. *sackenii*, 1887: 180

Carl Robert Osten Sacken (of Baltic German origin) was born in St. Petersburg, Russia on 21 August 1828 while his father was in the employ of the Russian government. The title of Baron that his father held passed to him after his father died in 1864. After his childhood education, Osten Sacken would too enter the service of the Russian government, in the diplomatic corps, where he was employed from 1857–1871. He had a life-long interest in entomology and, despite his duties as a diplomat, made time to work on insects, especially Diptera. Soon after he arrived in Washington, D.C. as a Russian emissary, Assistant Secretary of the Smithsonian, Spencer Baird, met Osten Sacken and arrangements were made for Osten Sacken to produce a catalogue of North American Diptera, the first such catalogue for Diptera of any zoogeographical realm. After moving to New York City to take over the diplomatic mission there, Osten Sacken easily made numerous and varied memberships and associations with scientific societies and academia in the area, including the American Geographical Society and the School of Mines at Columbia College. Additionally, he was instrumental in assisting with the formation of the entomology collection at the new American Museum of Natural History with a donation of specimens from his collection. He retired from the diplomatic corps in 1871 and spent 1872 and 1873 visiting museums in Europe. His return to the U.S. in 1873 saw him settling in Cambridge, Massachusetts at the Museum of Comparative Zoology where he helped make arrangements for acquisition of the Loew Diptera Collection and to finish manuscripts. He finally left the U.S. in 1877 (at age 49) and "retired" to Heidelberg, where he spent the remainder of his life (in between various travels). He was awarded an honorary doctorate from Heidelberg University in 1886 and began to write his autobiography, parts of which appeared from 1902 to 1903. He died in Heidelberg on 20 May 1906 at age 77.

LINA MAUD PARKER (1876–1944)

Platyura maudae, 1895c: 199

In 1895, Prof. O.B. Johnson of the University of Washington (see above) gave Coquillett a specimen of a keroplatid that was collected by a "Miss Maud L. Parker", whom Johnson said was "one of my faithful collectors". Coquillett named the new species in her honor. Maud Parker was born on 16 July 1876 in Whitehall, Michigan and spent her early childhood years in Harper Springs, Wisconsin. She and her parents moved to Seattle where she assisted at the Hopkins Marine Laboratory in the early to mid 1890s, which is when she collected the fly that would have her name attached to it. She was educated at the University of Washington and Stanford University and took a job teaching at Seattle High School in 1898. However, after graduating from the Cornell University Medical College in 1905, she worked as a physician in Seattle. She was one of Seattle's leading women physicians and was President of the Medical Woman's National Association. She was active in women's suffrage

and helped coordinate the recall of Seattle mayor Hiram Gill. She remained unmarried and lived in the Seattle area until she passed away on 14 January 1944.

THEODORE PERGANDE (1840–1916)

Admontia pergandei, 1895b: 54
Apocephalus pergandei, 1901b: 501
Ceratopogon pergandei, 1901a: 602

Theodore Pergande was born on 28 December 1840 in Germany and trained as a locksmith. He left Germany and sailed to America because, as he claimed, a wealthy man in his town wanted him to marry his daughter, convert to Catholicism, and join him in his business. Pergande said he just did not like the daughter or the religion very much. He arrived in the U.S. penniless and also right at the onset of the Civil War. Needing money, he signed up with the Union Army and served out his four-year conscription. After the war, he made his way to St. Louis where he was employed in the large gun works there. He had always had an avid interest in entomology and kept a well-curated and magnificently labeled insect collection. It was a chance meeting with Otto Lugger, assistant to C.V. Riley in Missouri, who was impressed with his collection, that got him his break. He accepted an offer to work as Lugger's replacement; and eventually joined Riley in moving to Washington, D.C. He was an excellent preparator and hard worker. His labels were exquisite examples of fine writing. L.O. Howard, in reminiscing about Pergande, complained that his appearance at work was not nearly as neat as his writing. Pergande had a keen eye for scientific observation and took notes on his findings, many of which made it to print under the name of his supervisor, Riley. Over time, he began to resent his not being given proper credit, and in his later years became cantankerous and difficult to work with. With his mind beginning to fail him and an advent of hallucinations, he passed away on 23 March 1916 in Washington, D.C.

GEORGE ROGER PILATE (1856–1930)

Sturmia pilatei, 1897: 111

George Pilate was born on 18 March 1856 in Opelousas, Louisiana, the son of naturalist, surgeon, and politician Eugene Pilate. Growing up, his father taught him about natural history, which spurred his interest in the subject. The family moved north to Dayton in 1866 where George lived most of his life. Although a brass worker by trade, he showed a great interest in the Lepidoptera of the Dayton area: he published a checklist of the Lepidoptera from Dayton in 1879 and revised it in 1882. George did leave Dayton when he traveled to Opelousa in July 1882 to marry Helen Perkins of that town; but they returned to Dayton a few days later. Pilate was unlucky in marriage in that his first wife lived only for 5 years before she passed away. He remarried but his second wife only lived for four more years. He remained single after that. After retiring, he lived for a short time in Los Angles where the national census of 1910 has him listed as working with awnings. In 1930 he became ill and moved to Savannah, Georgia for his health. He died there on 4 July 1930 and is buried there. Much of his collection is in the Dayton Museum of Natural History.

CHARLES VANCOUVER PIPER (1867–1926)

Demoticus piperi, 1897: 122

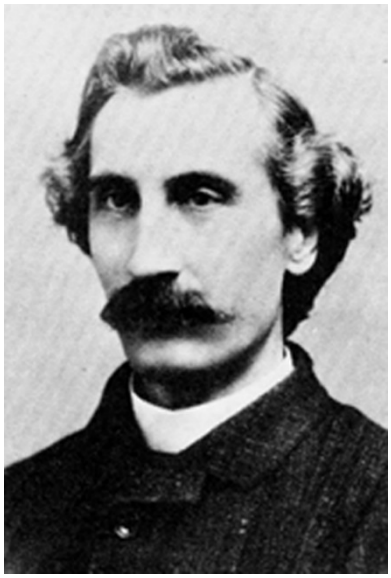
Charles Vancouver Piper, the son of German-born Andrew Piper, was born on 16 June 1867 in Victoria, British Columbia, Canada. When he was eight years old, the family moved to the Seattle area where his father operated a bakery. He graduated from the Territorial University (now University of Washington) in 1885 (among a total of nine graduates that year!) and in 1892 took a post at Washington Agricultural College (now Washington State University) in Pullman where he taught entomology, botany and zoology. From there, he went on to Harvard and received his Master's Degree in botany in 1900. A botanizer since childhood, Piper loved collecting expeditions and traveled worldwide collecting plants throughout his career. For five weeks in the summer of 1902, Piper retraced the route of Lewis and Clark taking pack horses with him on his expedition. Other trips took him further afield to Indonesia, India, Australia, the Philippines, and Central America. Although always having an interest in entomology, his passion was indeed in botany, specifically grasses. And in 1903 he was hired by the U.S. Department of Agriculture to curate their grass herbarium. That position led him to eventually become Agrostologist-in-Charge in the Office of Forage Crop Investigations. His work with grasses caught the attention of the U.S. Golf Association and they created a Green Section in 1920 for him to lead. During his five years there, he assisted with numerous queries from golf clubs nationwide in developing better turf grasses, and how to maintain them and control grass pests. Ill health forced him to rest during the summer of 1925; he returned to work in early 1926 only to suffer a stroke. He died three days later on 11 February 1926 at his home in Washington, D.C.

FREDERIK CHARLES PRATT (1869–1911)

Heteromyia prattii, 1902a: 88

Frederick Pratt was born on 25 November 1869 in London, England and was educated in parochial schools in Chelsea. With only a childhood interest in entomology as his résumé, he became an assistant in the Insect Room at the British Museum in 1883 when only 14 years of age. In 1890, he moved to the Tring Museum where he was curator of the Rothschild collection for a short time. Having made the acquaintance of C.V. Riley (see below) on a visit of the latter to England, Riley was impressed and offered him a job in Washington, DC. Pratt left Tring and moved to Washington, D.C. in 1892 where he remained until his death. He was originally hired as a preparator. However, after the passing of Riley, and at the encouragement of L.O. Howard, he soon made his own investigations into various entomological subjects including mosquitoes, insects affecting truck crops, and cactus insects, the last of which he would be best known. After a protracted battle with it, he finally succumbed to pulmonary tuberculosis in Dallas, Texas on 27 May 1911.

CHARLES VALENTINE RILEY (1843–1895)



Mythicomyia rileyi, 1893a: 209

One of the leading figures in American entomology, Charles Valentine Riley was born on 19 September 1843 in London, England, the son of Church of England minister, Rev. Charles Riley and Mary Valentine. Sent to continental Europe to further his education, he showed a penchant for illustrating and natural history. After his father died and his mother remarried, Riley emigrated to the U.S. at the age of 17 and began work in upstate Illinois at various jobs including farm laborer, cigar maker, pork packing, and drawing portraits of fellow boarders. During that whole time he collected insects and published short papers. He got a job illustrating and writing about insects at the *Prairie Farmer*, interrupted only by a six-month stint in the military during the Civil War. In 1868, he was appointed State Entomologist of Illinois, working there for the next nine years. While there, Riley convinced the U.S. Congress to appropriate funds to investigate the devastating Rocky Mountain Locust. A Commission was formed with Riley at the lead. Their multi-volume results led to Riley being appointed as entomologist at the United States Department of Agriculture in 1878. In 1881 a division of entomology was formed, later to become the Bureau of Entomology. Through his vision for the importance of scientific knowledge in helping agriculture and the ongoing battles against pestiferous insects, Riley was instrumental in creating and fostering a thriving and essential entomology component to the USDA. In an unfortunate bicycle accident at DuPont Circle in Washington, DC, Riley succumbed to severe head injuries and passed away on 14 September 1879 at the young age of 52, leaving a wife with five children. A man of many talents, he is remembered as an accomplished illustrator, journalist, poet, scientist, and administrator.

CHARLES ROBERTSON (1858–1935)

Milichia robertsoni, 1902c: 187
Brachystoma robertsonii, 1895e: 393

Charles Robertson was born on 12 June 1858 in Carlinville, Illinois and died there on 17 June 1935. He studied at Blackburn University and at Harvard and taught botany for many years at Blackburn. Although much more a hymenopterist than a dipterist, his observations of floral visitors and pollinators in the Carlinville area are still of great value to dipterists. He maintained a life-long interest in the interaction between insects and flowers, which resulted in a large collection of bees and wasps, and culminated in his 1928 book "*Flowers and Insects*". He was a man af ample means, which allowed him to spend as much time as he pleased at his floral visitor observations. After his death, his collection was purchased by the Illinois Natural History Survey and was said to include 30,000 insects, of those 20,000 were bees, and it included 200 type specimens.

CHARLES FREDERIC AUGUST SCHAEFFER (1860–1934)

Cyphomyia schaefferi, 1904b: 32

Schaeffer was born in London, England on 12 June 1860 of German parents and had a part of his early education in Germany until 1876. Years later he traveled to the U.S. and became an assistant to William Beutenmuller at the American Museum of Natural history in New York in 1898. He remained there for four years and then became Curator of Coleoptera at the Brooklyn Institute of Arts and Sciences, where he worked the remainder of his life. During the 1900s he made collecting expeditions to North Carolina, Texas and Arizona, some specimens of which made it to Coquillett's desk. The stratiomyid above was named for Schaeffer based on his collecting it on one of his expeditions to the Brownsville area of Texas. After a lengthy illness, Schaeffer died in Brooklyn, New York on 29 August 1934.

EUGEN AMANDUS SCHWARZ (1844–1929)

Aenigmatias schwarzii, 1903a: 21
Ceratopogon schwarzii, 1901a: 605
Tachydromia schwarzii, 1895e: 440

Eugen [some spellings retain a final "e'] Amandus Schwarz was born on 21 April 1844 in Liegnitz, Prussia (now Legnica in southwestern Poland). He studied zoology and entomology in Breslau and Leipzig but disappeared sometime in 1872 and no one heard from him until he showed up in Cambridge, Massachusetts a few years later. It was later learned that he had left for the U.S. in December 1872 when his parents did not like his plans to become a zoologist; they wanted him to study the literary classics and become a teacher. In the U.S., he obtained employment with H.A. Hagen at the Museum of Comparative Zoology. A very likable man, he quickly made friends, associated himself with fellow entomologists, and went on collecting expeditions to Florida, Michigan, and other states. In 1878, he worked with C.V. Riley and his assistant Theodore Pergande in Washington, D.C. and in 1898 was made Custodian of Coleoptera at the U.S. National Museum. His collecting and travels for the U.S. Department of Agriculture took him to places all over the U.S. and into western Canada, Mexico, Guatemala, Cuba, and Panama. In the 1920s he became feeble and stayed in the home of his dipterist colleague, Raymond Shannon. On the evening of 8 October 1828 he fell and sustained a serious bone fracture. That injury, compounded by contracting pneumonia, ultimately led to his passing on 15 October 1928 in Washington, D.C. at 85 years of age.

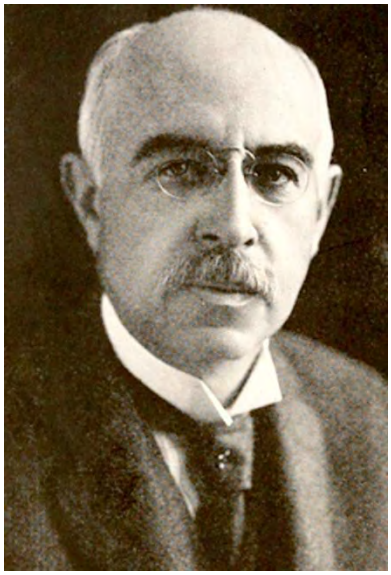
WILLIAM GEORGE SHELDON (1859–1943)

Brachycoma sheldoni, 1898a: 236
Sapromyza sheldoni, 1898c: 277

Sheldon was born in 16 November 1859 in Belper near Derby, England, the son in a farming family. After schooling, he went into architecture for a short time, but then went into the building business, where he remained the remainder of his life. Sheldon had a life-long interest in Lepidoptera and traveled widely across Europe to collect. He also spent many winters in the West Indies, especially

Trinidad and Tobago, where he collected Lepidoptera, but other insects as well. Some of the flies he collected made their way to Coquillett, who named in his honor two of the new species Sheldon collected. His collection of Lepidoptera was virtually complete for the British fauna, and he took great pride in his library, which included works of Hübner and Herrich-Schaeffer. His experience in the building business was useful in that he was instrumental in helping acquire the 41 Queen's Gate residence for the Entomological Society of London, where it had its headquarters for many years. He gave up entomology in his later years, focusing more on horticulture. After a long and painful illness, he died on 27 December 1943 at his home in Oxted, Surrey, England. His collection of moths and butterflies was bequeathed to the Natural History Museum in London in 1944.

HENRY SKINNER (1861–1926)



Trochilodes skinneri, 1903b: 103

Henry Skinner was born in Philadelphia on 27 March 1861, the son of William S. Skinner and Sarah Irvin. He attended public schools, graduated from Rugby Academy in 1879, and got a medical degree from the University of Pennsylvania in 1884. He had a medical practice (gynecology) from 1884 to 1900, giving it up to devote his full time to entomology. His interest in entomology began early and he authored numerous papers, and edited the journal *Entomological News* from 1890 to 1910. His collecting began around the Philadelphia area but he eventually traveled throughout many parts of the U.S., specializing in Lepidoptera, but always collecting other insects and sending to specialists. He was a member of the American Entomological Society and curator in the entomology section at the Academy of Natural Sciences until the sections were abolished in 1924. He was always generous of his time with students and beginners and had a good (and sometimes caustic) sense of humor (he coined the term "Sloppydoptera" for poorly prepared insect specimens he said looked like they might have been collected with a "baseball bat"). He died in Philadelphia on 15 December 1910.

ANNIE TRUMBULL SLOSSON (1838–1926)

Belvosia slossonae, 1895d: 312
Ceratopogon slossonae, 1905: 61
Cordylura slossonae, 1898b: 164
Exoristoides slossonae, 1897: 91
Hybos slossonae, 1895e: 437
Lipochaeta slossonae, 1896: 221
Nostima slossonae, 1900a: 35
Sapromyza slossonae, 1898c: 278
Psilocephala slossoni, 1893b: 227

Anna "Annie" Trumbull Slosson (née Trumbull) was born in Stonington, Connecticut on 18 May 1838, the ninth child of Gurdon Trumbell and Sara Ann Swan. Her father was a merchant and local politician who made his fortune in whaling and seals. In the early 1850s, the family moved to Hartford where she attended public

schools. She married Edward Slosson, a lawyer and politician in New York City in 1867. Although she was well-known in American entomology for her collecting, observations, and publications, which began when she was in her late forties, she was initially well-known as a short-story novelist, publishing primarily in *Harper's Bazaar* and the *Atlantic Monthly*. She was a founding member of the New York Entomological Society, collected most summers in and around Franconia and Mt. Washington, New Hampshire, and was also one of the first to make significant entomological collections in the Miami, Florida area. She sent many specimens to specialists for description but also described some new species herself. Many species of insects in various orders were named in her honor by a number of entomologists. Being one of the first female entomologists in the country, some specimens were mistakenly named in her honor as *slossoni* the -i suffix denoting a male eponym [Coquillett, who was usually quite diligent about his nomenclature, also made the mistake! — but only on the first new species he named for her]. She passed away on 4 October 1926 at her home at 26 Gramercy Park, New York City at the age of 88. Her collection of 35,000 insects was donated to the American Museum of Natural History. [NB: Others who have lived in Gramercy Park include Thomas Edison, John Steinbeck, and actors John Barrymore, James Cagney, Gregory Peck, and Julia Roberts; the Steinway family (of piano fame) moved into 26 Gramercy Park after Slosson died.]

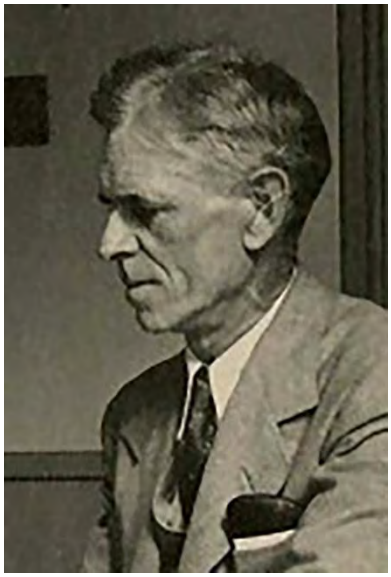
JOHN BERNHARD SMITH (1858–1912)

Aedes smithii, 1901c: 260
Ceratopogon smithii, 1901a: 600

John Bernhard Smith [the middle name often misspelled in biographies as "Bernard"] was born on 21 November 1858 in New York City, the son of German-born John Smith [Johann Schmitt], a cabinetmaker (and inventor of the Schmitt box used by many entomologists) and Elizabeth Scheuerman. Smith attended public schools in New York City, became a law clerk, and entered a law practice in 1879. However, finding entomology more interesting, he abandoned law and accepted a post as special agent to C.V. Riley in 1884. His famous quote about his decision to change occupations: "A fly on the wall is more interesting than a [law] case in hand." In 1886, he became assistant curator at the U.S. National Museum but resigned in 1889 to accept the position of entomologist at the New Jersey Agricultural Experiment Station. He later (1894) became the New Jersey State Entomologist. Smith wrote voluminous annual reports on the state of entomology in New Jersey and was instrumental in reducing mosquitoes and other harmful insects through ingenious solutions devised after observing the biologies and behaviors of the pests (e.g., ditching salt marshes to open them to the flow of tides and thereby allow predatory fish to enter and consume the larvae). Smith's approach to mosquito control in New Jersey and adjacent states reduced the number of deaths from malaria from almost 500 per year to less than 15 with continual reductions until there were no cases reported in 1941. Smith, a short, rotund man with thin whiskers and a balding head had some rather tense interactions with fellow lepidopterist H.G. Dyar (see Part I) that became the subject of entomological legend. One story had it that, after some tumultuous words in print between the two, Dyar named a new species "*corpulentis*" in honor of Smith's rather spheroid habitus; Smith retaliated with naming a moth "*dyaria*" after Dyar. The story was ultimately disproven by Marc Epstein in his researching Dyar: the moth name "*Dyaria*" existed, but it was named in 1893 by Berthold Neumoegen, who held Dyar in high esteem. Smith's fiery personality in dealing with Dyar translated somewhat to his work

ethic: despite being confined to a bed in his later years, he continued to work late into the night. After several years of battling it, Smith finally succumbed to Bright's disease (chronic kidney inflammation) at his home in New Brunswick, New Jersey on 12 March 1912 at age 54.

ROBERT EVANS SNODGRASS (1875–1962)



Canace snodgrasii, 1901e: 378

A name that is synonymous with insect morphology, Robert Evans Snodgrass was born on 5 July 1875 in St. Louis, Missouri, the son of James Cathcart Snodgrass and Annie Elizabeth Evans. After a move to Kansas when Robert was eight, the family finally settled in Ontario, California in 1891, living on a twenty acre ranch of oranges, prunes, and grapes. [NB: Ontario has other historical significance in dipterology: it was a place for Southern California Horticulture Society meetings that Coquillett attended in the 1890s and, more significantly, is the hometown of the writer of this paper.] Snodgrass was raised in a very religious family and was educated in a Methodist preparatory school. However, his open-mindedness and belief in evolution caused him to be expelled from Sunday school, much to his satisfaction. He entered Stanford University in 1895, majoring in zoology, and graduated in January 1901. After a short teaching stint at Washington State College, his practical jokes were too much for the faculty there, so he returned to Stanford and embarked on his morphology studies and worked under professor of entomology Vernon Kellogg. He raised silkworms for Kellogg and, one time when Kellogg was away in Europe, Snodgrass stripped all the mulberry trees on campus to feed the caterpillars. The mulberry trees died and Snodgrass was out of a job. Remaining in the Bay Area, his art and illustrating talents helped make ends meet as he illustrated covers for magazines and made clay models for teaching. The morning he was to start his new job at the California Academy of Sciences, the San Francisco earthquake of 1906 hit and the fire afterward gutted the building. He was out of a job again and returned to the family home in Ontario. Finally, he got a job at the Bureau of Entomology in Washington D.C. in the fall of 1906. However, being quickly dissatisfied with that job, he quit and went to New York City where he submitted cartoons to *Life* and *Judge* magazines to pay bills while he attended art classes. He was hired back into the Bureau of Entomology by L.O. Howard in 1917 and he worked there until 1945 and taught at the University of Maryland until 1947. After his retirement, he continued to work on his morphological studies and obtained honorary doctorate degrees, one from the University of Tübingen in Germany (1953) and one from the University of Maryland (1960). He was elected Honorary President of the Entomological Society of America in 1954, succeeding the late C.L. Marlatt. Snodgrass died peacefully in his sleep at his home in Washington, D.C. on 4 September 1962 at 87 years of age.

FREDERICK WILLIAM URICH (1870–1937)

Melanoconion urichii, 1906a: 61

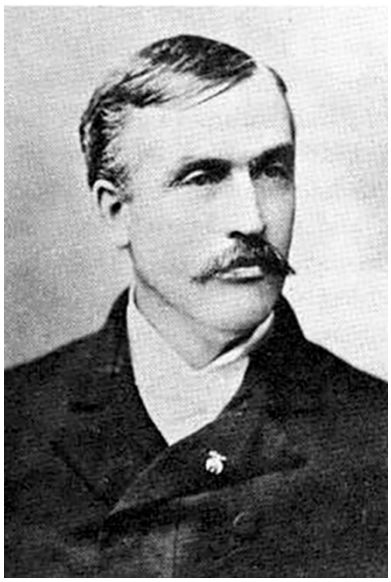
A member of the well-known Urich family in Trinidad, Frederick Wilhelm Urich was born in Port-of-Spain, Trinidad in June 1870. As with many of the young men in the Urich clan, he was sent to Europe for his education. Frederick (popularly known to his friends as "Jangoons") got his education partly in Germany, partly in France, and finally in Geneva, where he specialized in economic entomology. In Europe, he married Marie Seheult and had one daughter, Liesel. Upon his return to Trinidad, Marie and Liesel stayed in Pau in the south of France, and it was probably for the best, as Frederick was a workaholic and turned his Trinidad home into a living laboratory. Two vampire bats were kept in a cage in the yard; tarantulas were regularly fed large cockroaches; traps, nets, and other collecting material filled up the living room; water striders skimmed back and forth in his bathtub; and his favorite pet was a six-foot long boa named Cleo which roamed the house. This was visibly the person who knew more about Trinidad's natural history than anyone. He was professor of entomology and zoology at the Imperial College of Tropical Agriculture, a post he held until 1934. During his career in Trinidad, he spent great attention to plant pests and ways to control them. He was a founder of the Trinidad Field Naturalist's Club and was instrumental in its success, involved in its functions until his last days. He was generous of his time and was easy to make and keep friends from all walks of life. He died at his home in Port-of-Spain, Trinidad on 22 July 1937.

EDWIN COOPER VAN DYKE (1869–1952)

Spogostylum vandykei, 1894: 94

Born on 7 April 1869 in Oakland, California, Edwin Cooper Van Dyke would grow up to become the leading authority on beetles of the Pacific Coast of North America. Edwin's father, Walter, came to California during the 1849 gold rush, married, and became a successful lawyer and eventually State Supreme Court justice. Edwin had an interest in insects from an early age. When his family moved to Los Angeles in 1885, Edwin became acquainted with Coquillett, who taught him how to properly collect and preserve insects and took him along on collecting trips. He entered the University of California at Berkeley in 1889 and graduated in 1893, heading off to Cooper College in San Francisco to earn a medical degree two years later. He established a medical practice in San Francisco (specializing in eye surgery), but continued his interest in entomology. He volunteered at the California Academy of Sciences curating their collection and was finally appointed in 1913, whereupon he quit medicine and devoted his time to entomology. In 1916, he accepted a teaching position at the University of California at Berkeley, eventually becoming a full professor in 1929. He traveled widely to collect, including China, Japan, Egypt, and Europe. He died on 28 September 1952 and his collection of 200,000 insects was donated to the California Academy of Sciences.

FRANCIS MARION WEBSTER (1849–1916)



Ceratopogon websteri, 1901a: 603

Francis Marion Webster was born at Lebanon, New Hampshire on 8 August 1849, the son of James Webster and Betsey Riddle. The family moved to Illinois in 1853 where Webster helped his father on their family farm. In 1870, Webster married Maria Potter and they operated a large farm outside of Chicago. He always had an interest in entomology but did not have any formal educational training in the subject. Despite that, his avid interest and publications on insects in the *Prairie Farmer* led to him being appointed assistant to the State Entomologist of Illinois, Stephen A. Forbes, and was in that post from 1882 to 1884. His abilities as an economic entomologist came to the attention of C.V. Riley and he became one of Riley's special agents from 1884–1892 during which time he traveled widely in search of agents to control agricultural pests. In 1888, he accompanied Albert Koebele (see part I) to Australia in search of biological control agents for the citrus scale affecting crops in California, which led to the discovery of the *Vedalia* beetle. He joined the U.S. Bureau of Entomology in 1904 and remained in that post until he contracted pneumonia and suddenly died on 3 January 1916 in Columbus, Ohio at 66 years of age. It was ironically just a few days after he had been elected as president of the Entomological Society of America.

CLARENCE MOORES WEED (1864–1947)

Neocota weedii, 1895e: 434

Clarence Moores Weed was born on 5 October 1864 in Toledo, Ohio. He was one of the first graduates of the Michigan Agricultural College (now Michigan State University) and, after a short stint as editor of the entomological section of the *Prairie Farmer*, he left to become entomologist in 1888 at the Ohio Agricultural Experimental Station. He left there in 1891 to go to the New Hampshire College of Agriculture and Mechanic Arts. In 1904 he moved on to become teacher at the State Teacher's College in Lowell, Massachusetts, and was principal (1922–1932) and president (1932–1935) there. During his career, he authored some 20 books and a number of articles on insect pests, insect-plant interactions, and nature study, many privately published. One title from the *New Hampshire College Agricultural Experimental Station Bulletin* 91, in 1902, "Killing woodchucks with carbon bisulphide", is particularly intriguing. Weed passed away on 18 July 1947 in Plymouth, Iowa.

SAMUEL WENDELL WILLISTON (1852–1918)

Anthrax willistonii, 1887: 181
Euxesta willistoni, 1900b: 24
Lycastrirhyncha willistoni, 1902b: 196

Entomologist and paleontologist Samuel Wendell Williston was born on 10 July 1851 in Boston, Massachusetts, the son of blacksmith Samuel Williston and Jane A. Turner. The family moved to Kansas Territory in 1857 settled in Manhattan, Kansas where Williston attended public schools. Having established an interest in natural history and paleontology early in his childhood collecting fossil shells, he entered Kansas State Agricultural College in 1866 studying philosophy, chemistry, botany, zoology, mineralogy, geology, veterinary science and others under his mentor, Professor Benjamin Mudge, a geologist by training. Williston graduated in 1872, and shortly thereafter, Mudge was forced to leave the college. Mudge then went fossil hunting for Prof. O.C. Marsh of Yale University and Williston joined him. Impressed with Williston's collecting abilities, Marsh invited Williston to Yale University at New Haven, Connecticut and he jumped at the chance to be close to the famous Marsh. However, after a few collecting seasons of working under Marsh, Williston realized he would never be allowed to pursue independent research. Williston made the decision to instead study insects and after his return to Yale from paleontological fieldwork in 1878 chose Diptera as his specialty. Marsh allowed Williston to continue his studies and Williston obtained a medical degree in 1880 and was given a position as assistant in osteology at Yale. In 1881 he married Annie Hathaway of New Haven (who survived Williston living to 103 years of age) and fathered five children. The marriage to Annie turned out to be advantageous for Williston since his father-in-law, James T. Hathaway, was the publisher of the three editions (1888, 1896, 1908) of his of North American Diptera manuals. Williston continued to collect and publish on flies until the 1890s, whereupon the majority of his papers were on paleontology. Until Coquillett began publishing on Diptera, Williston was really the only dipterist in the United States (Osten Sacken having left the U.S. in 1877). In 1890, Williston accepted an offer to be geologist at the University of Kansas and he remained there until 1902, publishing primarily on paleontology. He then took the chair of paleontology in 1902 at the University of Chicago where he resided the rest of his life. Although famous for numerous significant fossil finds in all groups of vertebrates, but always returned to publishing a paper or two in entomology. Williston died of cancer in Chicago on 30 August 1918.

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Short notes on the life and works of bombyliid specialist Frans Joseph Jules François (1911–1971)

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One of the unsung heroes in the history of taxonomy of Bombyliidae is a little-known Belgian whose passing was never publicly noticed: there was no obituary nor even a brief biography ever composed for him. He is Frans Joseph Jules François. His contributions to bombyliid taxonomy were not necessarily plentiful (almost 40 papers) but some of them are seminal works toward our understanding of Afrotropical and Mediterranean bee flies and other works helped define generic limits for otherwise confusing groups of bee flies. He is probably best known for his work on the bee flies of Senegal, a 3-part work that so happened to be the last papers he published (posthumously) (François, 1972a,b,c) and his paper on Bombyliidae of Spain (François, 1969). In addition to his work on Central and tropical African bee flies, he also published a series of taxonomic notes southern Palaearctic bee flies. He was one of the first workers to illustrate detailed and accurate male genitalic characters in his descriptions and use them to help define genera and species groups.

François was born on 10 October 1911 at Heverlee near Leuven, Brabant, Belgium of Belgian parents. He had a Greco-Latin classical education from 1924–1930 and obtained a University degree in administrative and political science from the Institute of Overseas Territories at Antwerp University in 1933. After two years of required military reserve duty, he returned to Antwerp University for one year of study at the Tropical Medicine Institute, where he specialized in entomology and parasitology.

François's political science schooling in came in handy as in 1935 he was sent by the Belgian government to the Belgian Congo where he worked as an assistant district officer. Having combined his administrative schooling with studies in parasitology also helped him eventually land a position within the district commissioner's office of assisting with medical entomology staff. This was to be his work for the next 25 years in various countries being administered by the Belgian Overseas Government. It took him into the field quite often where he collaborated with medical services staff and participated in campaigns against general pestilence, syphilis, tuberculosis, and framboesia (yaws). It was while doing this epidemiological work that he became interested in medical entomology, especially with regard to Diptera. And near the end of his tour of duty in Africa, he began work on Bombyliidae, which would be his specialty for the remainder of his life.

When World War II erupted during his African service, François was mobilized into the Belgian Congo Army as a 2nd lieutenant. He was a liaison officer in the Sudan in 1943 and was in British East Africa from 1944–1945.

After the war, from 1945–1950, he was a district commissioner (*administrateur territorial*) in various territories of the Belgian Congo, Rwanda, and Burundi. While in Burundi, the Mwami (King) of Burundi, Mwambutsa IV (1912–1977), took a liking to him and he acted as advisor to the King from 1950–1957. Apparently, the King was a very approachable person and he and his staff often socialized with other government staff. A passage in Oliver (1997), a memoir of travels in Central Africa around the late 1940s and early 1950s, has a group of British travelers making their way into Kitega, the administrative capital of Burundi, via a long and winding mountain road from then Tanganyika and arriving late Friday afternoon, only to find all the government offices and hotels closed for the weekend. The only place anyone was to be found was at the "Cercle", a club of sorts for the Belgian government staff. There they met a friendly Belgian staffer who arranged for accommodations for them in his house for the weekend until the next workday when they could secure government accommodations. While at the Club they were introduced to the King, who was playing darts with other staff members. And they also met our François, who was introduced to them as the district administrator of the southern region of Burundi and who was baffled that they had made it across the mountains and the Tanganyika frontier from Kasulu along what everyone had thought was an otherwise impassible road. A resident helping the travelers asked him: "François, that track that comes in across the Tanganyika frontier from Kasulu—it is quite impassible, isn't it?" "Absolutely, Monsieur le Résident" was his reply. "Interesting, François, because these people have just used it."

From 1958–1960 François left his advisorship to become Provincial Commissioner of the Kasai (District Commissioner) which included five territories covering 47,500 square miles and 450,000 people.

François's African experience ended in 1960, coinciding with the independence of the Belgian Congo (Burundi gained independence in 1962), and he returned to Belgium, retired, and became a *collaborateur scientifique* at the Institut Royal des Sciences Naturelles de Belgique. There he continued his work on Bombyliidae. "Continued", because by then he had already published four papers on Bombyliidae. His first paper on them (François, 1954) was published while he was still employed by the Belgian Overseas Territories government in Africa. He published this paper as the fifth part of the "*Contribution à l'étude des diptères de l'Urundi*" [the first four parts were papers authored by either E. Janssens or D.E. Hardy]. This paper was a description of a new species of *Systropus*, one of the most distinctive tropical bee flies, and also one of the few bee fly genera that occur in non-arid areas. He would publish five more in that series, essentially all short notes on one or a few genera of Bombyliidae occurring in Ruanda-Urundi. When the Belgian enclave of Ruanda-Urundi was dissolved in 1962 and separated into the independent countries of Rwanda and Burundi, the series stopped with the last paper in the series being descriptions of three new *Exoprosopa* (François, 1962).

Using the Institut Royal des Sciences Naturelles de Belgique in Brussels as his base of operations and with correspondence and exchange and borrowing specimens from a number of specialists, collectors, and museums, he was fervent worker on the taxonomy of Bombyliidae the remaining years of his life, publishing some 38 entomological papers during his career. He had intended to publish a world catalog of Bombyliidae, but it did not see completion. François passed away suddenly at Etterbeek in Brussels on 22 February 1971. He was only 59 years old. Among his many manuscripts left incomplete are works on the Bombyliidae of Turkey, Sri Lanka, and Burundi.

François married in 1939 while in the Belgian Congo and had two sons born there (1940 and 1942). His first wife died and he remarried in 1969. He was fluent in French, Flemish, Dutch, English, as

well as Swahili and Lingala. Included among his many awards during his career were the Médaille Africaine du Guerre (for his service from 1940–1945), the Médaille de Volontaire, Officier de l'Ordre Royal du Lion, Officier de l'Ordre de Léopold II, and Chevalier de l'Ordre de Léopold.

Acknowledgments
The biography presented here is based primarily on a set of brief bulleted notes given to me by François's widowed second wife, author Simone François-de Craen. In compiling my bee fly bibliography in 1983, I requested from Paul Dessart in Brussels the papers of François for my bibliography and a photo of him for my plate of bee fly specialists. Dessart passed my request on to Simone who kindly prepared the notes on his biography and his bibliography, sent me all of his papers, and supplied me with his portrait, a rather fuzzy one, but the only one known. I had forgotten about the notes until recently while looking in my correspondence files and rediscovered that letter from her.

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A tribute to George W. Byers
16 May 1923 to 1 January 2018

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We were extremely lucky to have had Professor George W. Byers as our teacher, mentor, and later as a friend. He taught at University of Kansas (KU) for his entire career. In his last Christmas letter just before his death, he noted that he'd had an extraordinarily long career studying insects – 71 years! He was a world-renowned expert in biology and systematics of two insect groups: the crane flies (Diptera: Tipulidae *s.l.*), and scorpion and hangingflies (Mecoptera), and published over 130 papers encompassing both groups. In fact, the National Science Foundation repeatedly funded his work from 1958-1987, sometimes with concurrent grants for both crane fly and Mecoptera research. George also was one of those rare entomologists who described a new family of fly, Baeonotidae (Byers 1969). We focus this tribute to his work on Diptera, as we all studied crane flies with him (Fig. 1).

Fig. 1. George Byers, at home, 1993. Photograph by F. Brodo

George had a profound impact on the development of crane fly systematics, particularly in the Nearctic. He published 47 papers on crane flies (World Catalog of Crane Flies, Oosterbroek 2018), with the earliest being in 1956 with his major professor, J. Speed Rogers, on the immature stages of *Lipsothrix* (Rogers and Byers, 1956) and his last two in 2011 describing a new *Tipula* in Miocene deposits (Byers, 2011), and the spread of *Tipula oleracea* in California (Byers and Arnaud, 2011). These three papers reflect his broad interests and approaches in studying crane flies! To this day, nobody can match the thoroughness of his research, and it brought the study of crane flies to a new level, incorporating a modern synthetic revisionary approach that C. P. Alexander's monumental

research in crane flies often lacked, with the faunistics and natural history information that Rogers had emphasized. His monographs on *Dolichopeza* (Ph.D. thesis, Byers, 1961) and *Chionea* (Byers, 1983) cover these two genera, including mating and egg laying behavior, ecological interactions, internal and external morphology, new species descriptions, and identification keys to all the life stages. These two papers set the standard for his students to emulate in their own dissertations.

George's own philosophy within systematics regarding recognition of species was laid out in a letter to Jon Gelhaus in May 1989, "I tend to lump at the species level if I have any real understanding of variation within species. What I did with *Dolichopeza* is a case in point. But in the absence of understanding, I'm probably a splitter if I encounter consistent variation correlated with geographic distribution." Later in the letter he wrote, "It has always seemed to me that what's really exciting about all the diversity on earth is similarity. Similarity tells you something about evolution, but difference doesn't. The worst thing about splitting at the generic level is that information tends to become lost." He was concerned that too much splitting at higher levels prevented those with little experience from seeing the important similarities with other taxa and remain too specialized in their research. This philosophy was expressed well in a short but important paper he wrote for the First Tipulomorpha Conference in Krakow Poland in 1991 titled "Crane flies – three families or one?" (Byers 1992). Although he wasn't at the conference to present it, it became one of the most discussed ideas at the meeting and perfectly outlined his point that excessive taxon splitting made it hard for non-experts to study and access information about a group.

Some of us came to Kansas knowing we wanted to study crane flies. Jon was one of those, and George quickly convinced him that the larvae of the large genus *Tipula* was a project rich in potential discoveries for North America, and that became Jon's Master's thesis. Others required some convincing. Saul Frommer relates: "In my own mind I was going to be a medical or veterinary entomologist and had decided to study the Calliphoridae (the blow flies) for my Master's thesis. By the time I was about to begin calliphorid studies, George had got to know me and like some benevolent Svengali tempted me away from my original plan by pointing out that, whereas the identification of calliphorid flies would always involve dissections of terminalia, the Tipulidae were flies whose terminalia were essentially exposed, replete with variations in anatomy and far easier to access. George remarked, "It's all on the outside." How much better for a novice would it be to study these flies? I took the bait and the rest is history. Although I remain interested in medical entomology, taking the bait pointed me in the direction of being a generalist and in the end I wound up, like George himself, a curator of the entomological, arachnological and myriapod collections at the University of California, Riverside."

George also was involved with important efforts to make crane fly research more accessible to others. His North American keys to genera in the Aquatic Insects of North America (Byers, 1978 and subsequent editions) and in the Manual of Nearctic Diptera (Alexander and Byers, 1981) for larvae and adults provided the first tools for identifying these life stages for the entire continent. Before that, keys were regional at best for crane flies, and larval keys hadn't been updated since 1919! He did the same for China as well (Gelhaus and Byers, 1994). His interest in how flightlessness evolved in insects arose from his work with crane flies and Mecoptera (Byers, 1969), and this was a topic he would return to in various papers (Fig. 2). He published important reviews of the crane fly species described by F. Walker (Byers, 1963) and R. Doane (Byers, 1976). He carried on faunistic studies as Rogers did, such as the 263 crane fly species he documented for Mountain Lake, Virginia (Byers 2002), and several papers on the southeastern U.S. fauna.

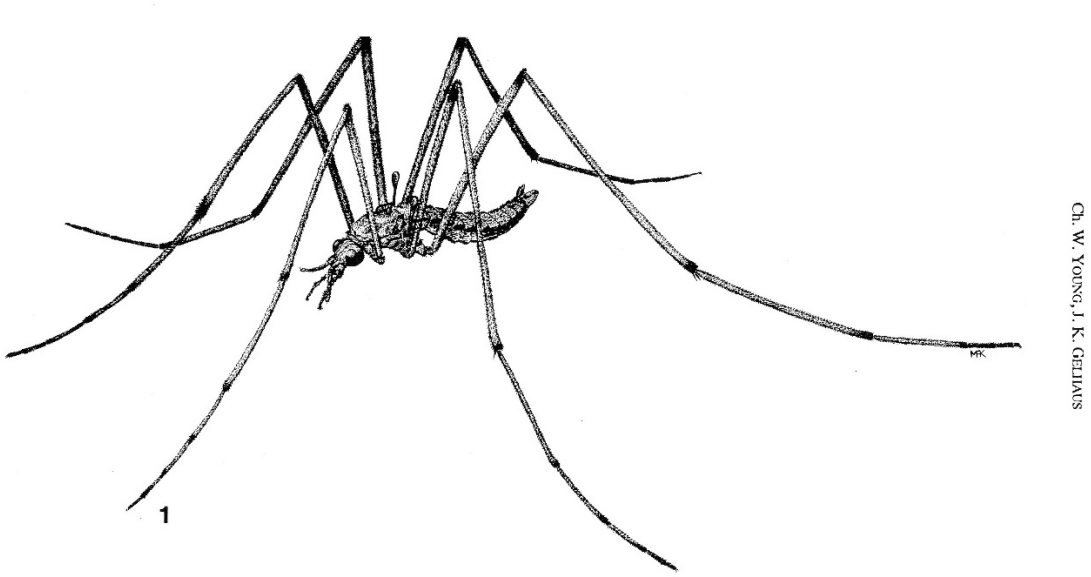


Fig 1. *Leptotarsus* (*Longurio*) *byersi*. Lateral habitus of adult male.

Fig. 2. Habitus drawing of *Leptotarsus byersi* Young and Gelhaus, named for George Byers. This species reflected George's interest in flightlessness of crane flies. (Young and Gelhaus, 1992).

Fig. 3. George W. Byers in the field collecting crane flies at Mt. Lake Biological Station, Virginia, August 1984. Photo by Carolyn Kennedy. Provided by D. Byers.

George relished fieldwork (Fig. 3). Our first experiences sampling crane flies occurred on field trips led by George, either locally at the University of Kansas nature reserves, or farther away on one of the University field courses. Longer trips surveying for crane flies and Mecoptera encompassed many weeks traveling in one region of the U.S. or Mexico. Chen Young recounts that George was an excellent general naturalist, and remarks about how much he learned about the plants and animals in the places they visited and collected. Jon's month-long fieldtrip with George and 3 other students to the western U.S. in May and June 1979 greatly influenced his subsequent research. They collected in the Sandia Mountains in New Mexico, Oak Creek and Grand Canyons in Arizona, and the Sierra Nevada in California. It was during that trip Jon first encountered desert dwelling *Tipula* crane flies that would later become the focus of his dissertation. And sometimes those trips ended up with George meeting the family of the students. Saul recalls, "George stayed at my parents 3-room apartment in the Bronx on our first field trip. My mother was so desirous of treating this important visitor properly that upon his arrival she instructed

my dad to go out and buy some ice cream. George would through the years that followed reflect on his visit and speak of the hospitality shown him by my folks."

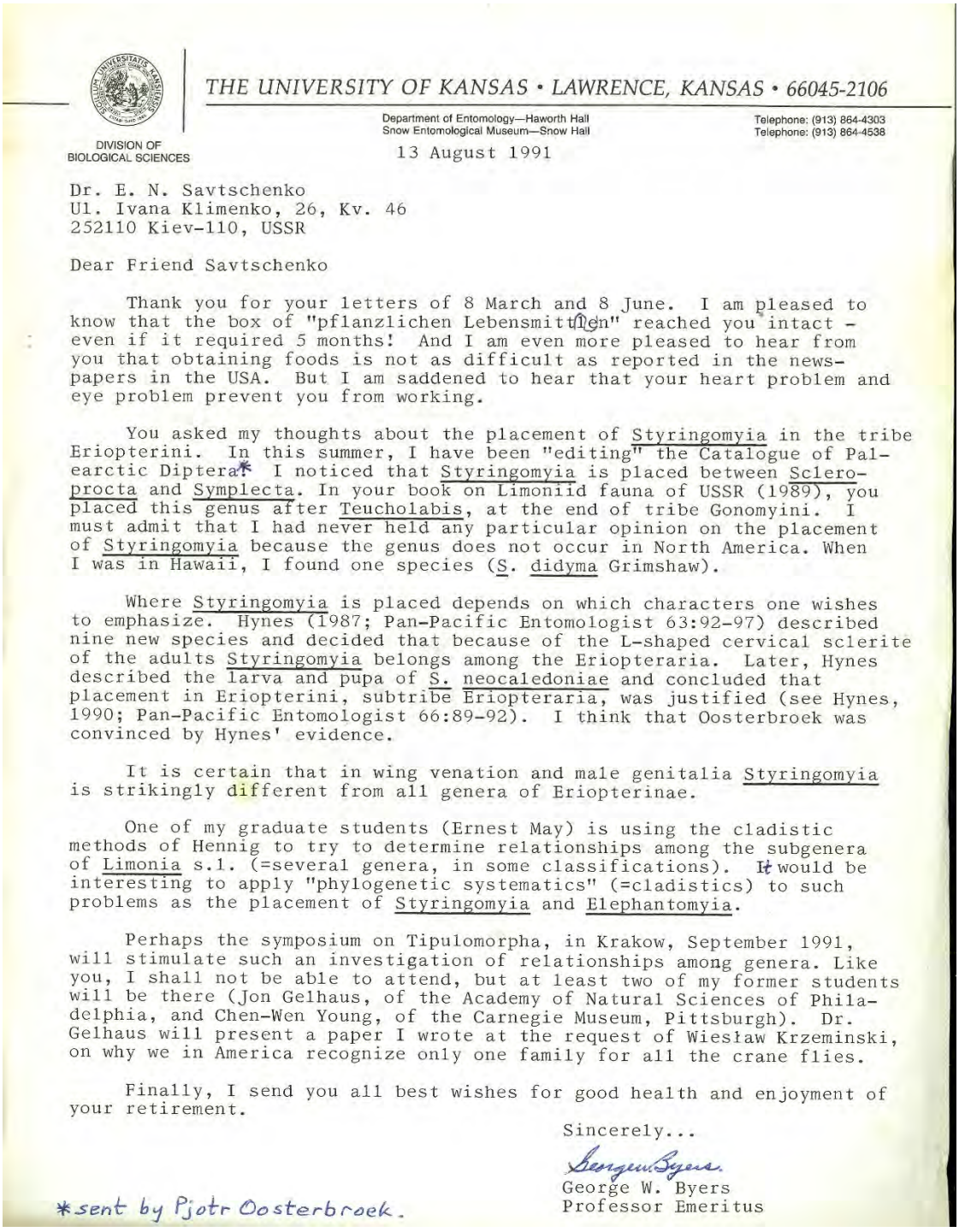
In the 1960s, George collected extensively in Mexico on these university trips, and the crane fly material amassed by this amazing collector and his students is exceedingly valuable in its diversity and long series of specimens. Fenja Brodo recounts: "I came to Kansas in September 1958. Nobody suggested that I go on a Kansas University collecting trip because females were not invited without there being an appropriate chaperone. I finally got to go on a field trip to Mexico with George when Mrs. Michener (wife of bee specialist Dr. C. D. Michener, or "Mich") agreed to go along with her husband. Ellen Ordway (a bee student) and I shared a tent. When the crane flies and other insects were in short supply (windy, drizzly weather) I collected lichens for my future husband (Irwin Brodo) – a sort of dowry, if you will. George and Mich referred to this, all in good humor, as "Fenja's spinach collection."

Fig. 4. Lt. George W. Byers (Ann Arbor, Mich.) assigned to Entomological research, 406th Medical General Laboratory, Tokyo, Japan. U.S. Army photo taken by SFC Joseph H. Winkler, Tokyo Signal Corps Photo Lab (ES). 21 February 1955. Provided by D. Byers.

In 1954, George was serving in the U.S. Army in Korea during the Korean War and he managed to find time for entomology (Fig. 4). He recounted to Jon how he scouted places to sample in the winter when trees and shrubs were bare and he could check for areas that had been set with landmines. He would then go back to the "safe" sites during spring and summer to sample crane flies. Although he never worked up that material, it gave George great pleasure during his last years that his Korean specimens were being studied by Sigitas Podenas in Lithuania. It was disheartening for George when he was beset with a late onset form of multiple sclerosis and he could no longer get out to collect; this had been one of his real pleasures.

George was an expert editor. He was a member of the Society of Systematic Zoology and the editor of its journal (1964-1967). He was on the editorial board of the Entomological Society of America (1967-1972), chairman of the Central States Entomological Society (1971-1972) and its president (1958-1959), and was on its editorial board (1983-1988) and served as temporary editor for 2 years. He was Chairman of the Editorial Board of the University of Kansas Science Bulletin for fourteen years and acting editor for two years. He spent countless hours of his time editing manuscripts for students, including ours, but also for other students and colleagues. As his students, we all learned how to write scientifically, and our initial attempts at writing were returned with many edits, incisive comments and questions, with the final submission always greatly improved. His long-time colleague on the faculty, Charles Michener, was also an expert editor, and if both reviewed one of your papers, you inevitably had conflicts on the use of the comma!

George was also a prolific correspondent with a wide range of entomologists, including crane fly experts C. P Alexander and E. N. Savtschenko (USSR). Luckily those letters have been archived by the University of Kansas (Univ. Kansas Spencer Library Archives, 33/19/7/1 Box 1-4). Vladimir Lantsov shared one of George's letters to Savtschenko which we reproduce here (Fig. 5).



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DIVISION OF BIOLOGICAL SCIENCES

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13 August 1991

Dr. E. N. Savtschenko
Ul. Ivana Klimenko, 26, Kv. 46
252110 Kiev-110, USSR

Dear Friend Savtschenko

Thank you for your letters of 8 March and 8 June. I am pleased to know that the box of "pflanzlichen Lebensmitteln" reached you intact - even if it required 5 months! And I am even more pleased to hear from you that obtaining foods is not as difficult as reported in the newspapers in the USA. But I am saddened to hear that your heart problem and eye problem prevent you from working.

You asked my thoughts about the placement of Styringomyia in the tribe Eriopterini. In this summer, I have been "editing" the Catalogue of Palearctic Diptera.* I noticed that Styringomyia is placed between Sclerprocta and Symplecta. In your book on Limoniid fauna of USSR (1989), you placed this genus after Teucholabis, at the end of tribe Gonomyini. I must admit that I had never held any particular opinion on the placement of Styringomyia because the genus does not occur in North America. When I was in Hawaii, I found one species (S. didyma Grimshaw).

Where Styringomyia is placed depends on which characters one wishes to emphasize. Hynes (1987; Pan-Pacific Entomologist 63:92-97) described nine new species and decided that because of the L-shaped cervical sclerite of the adults Styringomyia belongs among the Eriopteraria. Later, Hynes described the larva and pupa of S. neocaledoniae and concluded that placement in Eriopterini, subtribe Eriopteraria, was justified (see Hynes, 1990; Pan-Pacific Entomologist 66:89-92). I think that Oosterbroek was convinced by Hynes' evidence.

It is certain that in wing venation and male genitalia Styringomyia is strikingly different from all genera of Eriopterinae.

One of my graduate students (Ernest May) is using the cladistic methods of Hennig to try to determine relationships among the subgenera of Limonia s.l. (=several genera, in some classifications). It would be interesting to apply "phylogenetic systematics" (=cladistics) to such problems as the placement of Styringomyia and Elephantomyia.

Perhaps the symposium on Tipulomorpha, in Krakow, September 1991, will stimulate such an investigation of relationships among genera. Like you, I shall not be able to attend, but at least two of my former students will be there (Jon Gelhaus, of the Academy of Natural Sciences of Philadelphia, and Chen-Wen Young, of the Carnegie Museum, Pittsburgh). Dr. Gelhaus will present a paper I wrote at the request of Wiesław Krzeminski, on why we in America recognize only one family for all the crane flies.

Finally, I send you all best wishes for good health and enjoyment of your retirement.

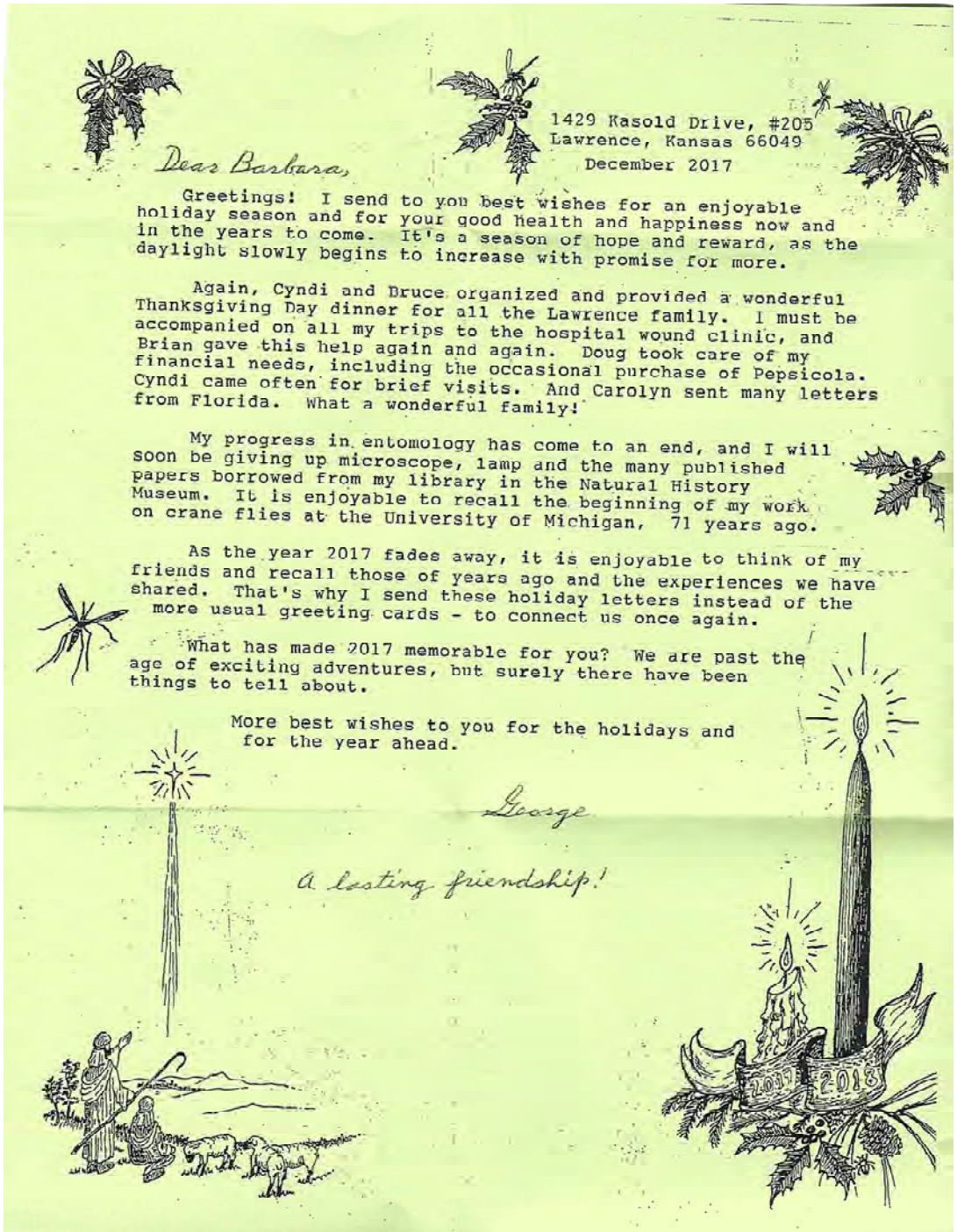
Sincerely...

George W. Byers
Professor Emeritus

*sent by Pjotr Oosterbroek.

Fig. 5. A letter from George Byers to E. N. Savtschenko, Ukraine, USSR, 13 August 1991. Provided by V. Lantsov.

Interestingly George wrote to him in English and he replied to George in German, a language that George could read. George also wrote annual Christmas letters to his many students, friends, family and other correspondents, festooned with his own Christmas drawings and always including a crane fly. In his last letter (Fig. 6), in 2017, he wrote "My progress in Entomology has come to an end, and I will soon be giving up microscope, lamp and the many published papers in my library from the Natural History Museum. It is enjoyable to recall the beginning of my work on crane flies at the University of Michigan, 71 years ago."



1429 Kasold Drive, #205
Lawrence, Kansas 66049
December 2017

Dear Barbara,

Greetings! I send to you best wishes for an enjoyable holiday season and for your good health and happiness now and in the years to come. It's a season of hope and reward, as the daylight slowly begins to increase with promise for more.

Again, Cyndi and Bruce organized and provided a wonderful Thanksgiving Day dinner for all the Lawrence family. I must be accompanied on all my trips to the hospital wound clinic, and Brian gave this help again and again. Doug took care of my financial needs, including the occasional purchase of Pepsicola. Cyndi came often for brief visits. And Carolyn sent many letters from Florida. What a wonderful family!

My progress in entomology has come to an end, and I will soon be giving up microscope, lamp and the many published papers borrowed from my library in the Natural History Museum. It is enjoyable to recall the beginning of my work on crane flies at the University of Michigan, 71 years ago.

As the year 2017 fades away, it is enjoyable to think of my friends and recall those of years ago and the experiences we have shared. That's why I send these holiday letters instead of the more usual greeting cards - to connect us once again.

What has made 2017 memorable for you? We are past the age of exciting adventures, but surely there have been things to tell about.

More best wishes to you for the holidays and for the year ahead.

George

a lasting friendship!

Fig. 6. George Byers' last Christmas letter, 2017. Provided by B. Coler.

George also was a portrait photographer of sorts in entomology. He went to a number of the International Congresses of Entomology such as in Montreal (1956), Vienna (1960), London (1964), Washington (1976) and Vancouver (1988) and also attended other national and international gatherings, and photographed many of the great entomologists of the day. Over 40 years he accumulated an amazing treasure trove of images and including notable portraits of dipterists such as Willi Hennig. His photographic collection is now housed at the Smithsonian Institution Archives (https://siarchives.si.edu/collections/siris_arc_217606 and https://siarchives.si.edu/collections/siris_arc_252119)

He was a very modest, honest man. His great intelligence was belied by the simplicity of his language; he avoided big words when a simpler word would do. In his true humble fashion, he claimed that many of his students were better scientists when they came to KU than he had been as a beginning graduate student (probably not true!). He was known for his folksy sayings, the most renowned being when he was asked how he was, he would say "Well, I can sit up and take nourishment!" Saul remembers "Rodger dodger you old codger."

George was both thrifty and very generous – with his time and his money. As were many who lived through the Great Depression, George was a saver and recycler of useful items. He loved saving money while in the field. For example, Ernie May once asked George how he could reliably find campgrounds without calling ahead, especially if their traveling was delayed. He said that, since almost every town in the US has a water tower, and since the local residents don't want to live near a water tower in case it should collapse, the land under the tower and its environs is likely a city park. City parks (back then) were public property, so by default those parks were ideal places to camp -- for free. So they did. Jon remembers field trips with ramen and peanut butter sandwiches, which caused him irritation then as a new graduate student, but once Jon led his own fieldwork, he realized as George did that the food was always secondary to the time in the field exploring and collecting. But this thriftiness with fieldwork food departed when it came to soda – George was always a Pepsi-Cola drinker (Chen was Coca-Cola – their only disagreement!). George always had an economical car and was proud that he never spent time or money washing it – he noted natural rainstorms accomplished the same thing. Yet George was very generous in giving to many charitable organizations over his life, and to the Entomology Department at the University of Kansas to support graduate students.

Fig. 7. George W. Byers at his disorderly lab table in Snow Entomological Museum, Univ. of Kansas, March 1996. Photo by Rod Hanley for Snow Museum web page. Provided by D. Byers.

He was a very detail-oriented person, but his office and desk were well known for the piles of papers with only a small open place for his microscope (Fig. 7). One student even had a sign engraved "Junk Room" which he proudly displayed on one of the "organized" piles, although Ernie recalled George calling them his "compost heap of information." Yet George maintained (and was usually proven right) that he knew what document was in which pile and could retrieve it quickly. Ernie relates an instance that illustrates this ability: "I

was pointing crane flies at the desk outside George's office one day when fellow faculty Bob Beer appeared at his door and said, "George, I need to see the Commencement Booklet for KU's 1968 graduation and I thought if anyone has a copy, it would be you. What do you think?" George got up from his chair, turned to a pile of paper to his left, ran his right index finger from the top of the pile down to about mid-point, held the top of the pile with his left hand and quickly pulled out the 1968 copy of that booklet with his right hand, as a magician would deftly remove a table-cloth. He said, "Here ya go." Bob was stunned, looked at me, and then back to George and said, "Well, I knew you probably had it, but what took you so long?"

He was a master illustrator with pen and ink and never availed himself of computer-assisted drawings (Fig. 8). All his many scientific papers and correspondence were composed on a typewriter with the later papers put into the computer with secretarial help.

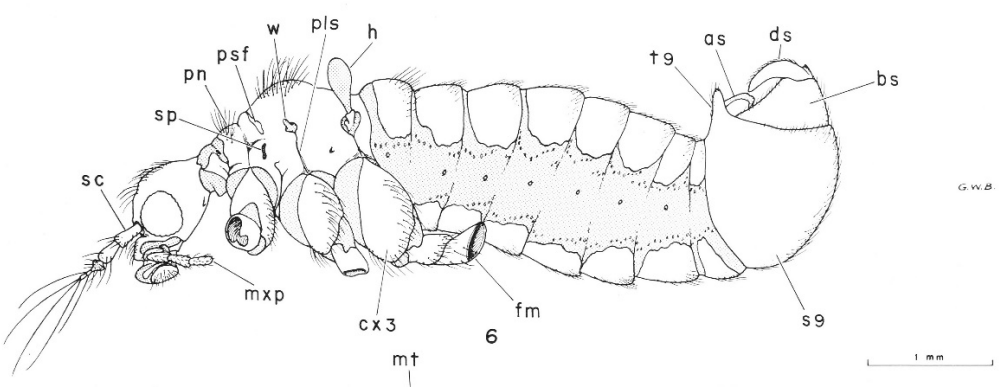


Fig. 8. One of George Byers' illustrations, this of an adult *Chionea* crane fly. From: Byers, 1983.

George had a penchant for timeliness. Ernie recalls that he and George were concluding one field trip to the southern Rockies by camping in the city park of Deerfield, Kansas (a bit west of Garden City), beginning in mid- to late-afternoon. As I knew we were only a few hours from out homes in Lawrence, I wondered why we stopped so soon in the day instead of continuing on our return journey. I guessed we could arrive by 9 or 10 PM if we kept driving. George said he thought this park was a good site to rest so we would be refreshed when we arrived in Lawrence and besides, he told Gloria he would arrive the next day and he didn't want to change the itinerary (!). Late that evening, as we were bundled in our sleeping bags, some local personalities decided to race their cars in the park. To this day the image of being "trapped" in a sleeping bag while headlights were bearing down on me is one I can't forget.

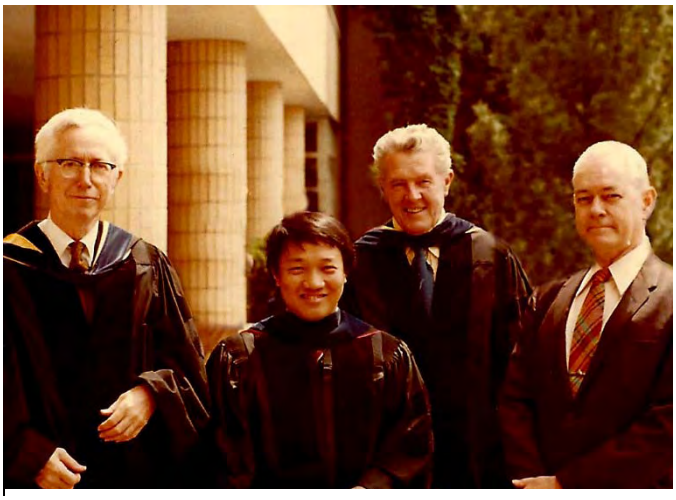


Fig. 9. Chen Young Ph.D. graduation with members of his committee: Charles Michener (left), Bob Beer (center behind Chen) and George Byers (right). 1980. Provided by C. Young.

George was a source of good advice and counsel for his own students and others in the department. Chen recalls when he first came to Kansas on 3 of January 1973 and arrived at Snow Hall where the Entomology Dept. and Collection were located (Fig. 9).

Chen says he was “fresh off the boat” from Taiwan and was really struggling with English. George told him “Chen, don't worry about your English, English is crazy. You will see that we say things like ‘Green Blackberries are Red’. What he told me that day freed me up and he became my best professor, friend, mentor and my American dad.” Jon recalls that when he discovered that his “new” species was actually already described, George softened the blow by recounting words from his professor, J. Speed Rogers. “Good! Now we know something about one species instead of nothing about two of them.” Wonderful times were had during lunch hours in the Entomology Department when faculty like George and Mich (Michener) would join grad students and recount adventures from the past or discuss current entomological findings. George’s kindnesses included thoughtful gifts, cards, and advice to many students, both at Kansas and his many summer courses at Mountain Lake. He never missed sending birthday cards to his students, even long after they had graduated.

George W. Byers certainly seemed easy-going, with a ready smile and good humor, but he could just as easily come down with a withering whiplash of words when needed. Saul recounts in the early 1960s, George had to use his military background to resolve a difficult situation: “Like students before me I took George’s 6-week field course. Prior to doing so I had first joined the Kansas National Guard and then the U.S. Army. I did this because I knew that not all of the courses I was taking came with attendant “points.” If you lacked a certain number of points you would lose your military deferment and be drafted. They drafted young men in those days of yore. George and I and Bill Peters, the Ephemeroptera expert but then an undergraduate, went off on the trip. Along the way we picked up mail at various post offices and in one letter I learned that in spite of having been honorably discharged while in advanced training, my medical records had caught up with me and I was told that they disqualified me from further service. I needed to report immediately for induction! Well, we couldn’t wait two weeks until a medical examiner might examine me again. After all, I had already been honorably discharged and told that my military obligations were ended. George took charge of the situation and told the military secretary to “take a letter” which she did. Notwithstanding the order to wait two weeks for a medical examination we simply couldn’t comply. We would appear at the induction center in New York on a specified date. The military secretary typed George’s order as if he were General Patton himself taking charge of the situation.”

Saul continues, “We showed up as promised and my examination clearly disqualified me, as it had earlier, but I still would have to meet with the law-end of the military. A grilling followed and I was sternly told that I could find myself in the brig for the supposed offense of not waiting those two weeks. That’s when George took over. He asked the Captain doing the grilling what he would do in such a situation. The Captain stated three things and George replied that we, in fact, had done each of those very three things. The Captain was steaming by then. He turned to George and asked him whether or not he had ever served in the military and George said he had. He then asked “just how long?” and as I recall George stated something like 12 or perhaps more years. He was at the time a reservist. Then came the question “What is the rank you achieved?” George replied that he was a Major- he retired later at a higher rank- and of course it was evident that he outranked the Captain. The Captain could barely contain himself and stated that *in this case he would let me go*, but that I should never forget that if once again ordered to show up for induction that I’d better show up and stay in place if necessary. George told me as we left that the Captain was just doing his best to scare me and to pay no mind to it all. He had earlier reminded the Captain that in the U.S. Army, one needs to have rules of course, but that one also must learn that at times, rules must be tweaked a bit. George unwittingly became My Hero!”

Saul also recalls George’s reaction to a curator’s worst nightmare. “As George emerged from the collection room in Snow Hall, he observed the postman delivering a parcel marked **FRAGILE**

HANDLE WITH CARE by 'bowling' it down the hallway in George's direction. Those who watched him reprimand the postal worker, justifiably, thought that the latter might crumble before our very eyes. 'Can you read English?' he spoke with severity. 'Tell me, what does **FRAGILE HANDLE WITH CARE** mean to you?" Right on, George!

From what circumstances does such an extraordinary individual develop? We recount some of the details of George's life as he wrote them out. George William Byers was born in Washington D.C., son of George and Helen Byers. His father earned a Ph.D. in international finance from Georgetown University and his mother received an MS in home economics from Purdue University. George was second of eight children and all his siblings were very accomplished people in their own fields. He joined the Boy Scouts and attained the rank of Eagle Scout during high school and was the editor of his high school newspaper and valedictorian of his senior class. He was chosen outstanding high school student of the Midwest by the Chicago Tribune newspaper and this resulted in several scholarship offers. He went to Purdue University in his hometown of Lafayette, Indiana, even though the family had moved away before he had completed high school. He lived at the YMCA and, wanting to pay his own way, worked at various jobs including the night desk at the Y.

While an undergraduate, he enlisted in the army during WWII and this fragmented his undergraduate years. He graduated with a BS in 1947 and with the help of the G.I. Bill, went to the University of Michigan, where he earned an MS in one year and a Ph.D. four years later, in 1952. At the Museum of Zoology, University of Michigan he was a research assistant for Professors J. Speed Rogers and T.H. Hubbell and held teaching assistantships in general biology and later in entomology. His museum work led to a couple of small papers in ornithology and entomology and he did some scientific illustration for the ichthyologist, Professor Karl Lagler. George thought that he might work on fishes or fossils but Professor Rogers had him hooked on an extremely interesting problem in taxonomy and biology of crane flies – the genus *Dolichopeza*.

Fig. 10. 2nd Lt. George W. Byers of Ann Arbor, Mich., (left) explains to surgeon general of the Army, Major General George E. Armstrong (right), the setup of the Hemorrhagic Fever Research Laboratory at the 48th Surgical Hospital in Korea during Gen. Armstrong's visit to medical installations. Behind them is Brig. Gen. Stuart Smith, Eighths Army Surgeon. Photograher: Pvt. Guminski (DV), 304th Sig BN (OPR). 17 January 1954. Provided by D. Byers.

George remained active in the military reserve, and after completing his Ph.D. he was recalled to active duty during the Korean War and transferred to the Medical Service Corps program and sent to Korea as commanding officer of the hemorrhagic fever research laboratory (Fig. 10). After the Korean War, he

continued to work as a military medical entomologist, briefly in Japan and then at the Walter Reed Army Institute of Research, and retired from the army as a Lieutenant Colonel.

Lucky for us, his students, George came to the University of Kansas in 1956 as Assistant Professor of Entomology and Assistant Curator in the Snow Entomological Museum. Teaching was a half-time position yet he often had what amounted to a full-time roster of courses. He became a full Professor in 1965 with appointments in the Department of Systematics and Ecology as well as the Department of Entomology and the Snow Museum. He was Chairman of the Department of Entomology twice (1969-1972 and 1984-1987), and director and senior curator of the Snow Entomological Museum from 1983-1988 (Fig. 11). For fourteen summers he taught at Mountain Lake Biological Station, University of Virginia, and one summer at Lake Itasca Field Station, University of Minnesota. He enjoyed brief periods as visiting curator at the Museum of Comparative Zoology, Harvard, in Boston, and at the California Academy of Sciences, San Francisco.

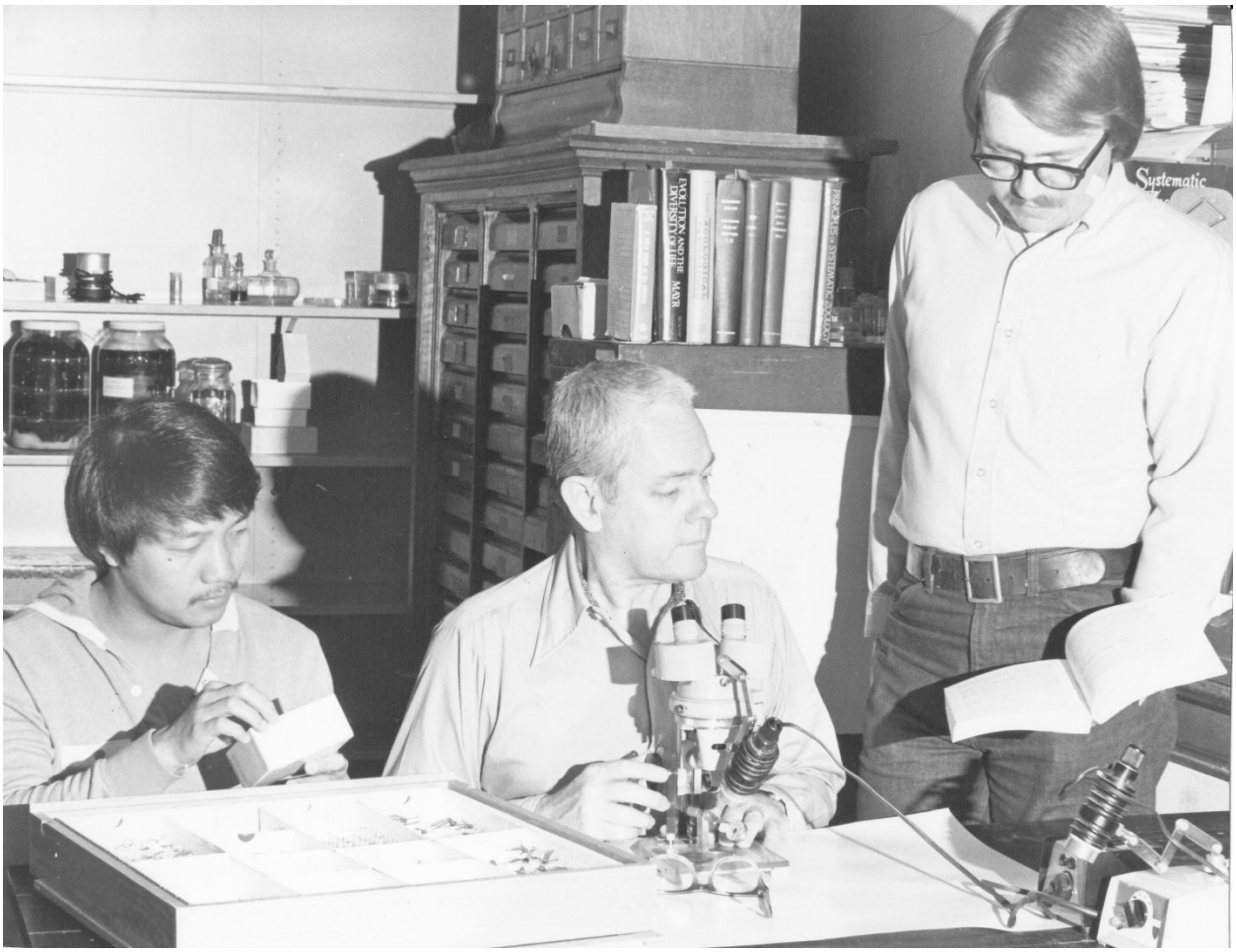


Fig. 11. Chen Young, G.W. Byers, and Ernie May. 1978. In Snow Museum, University of Kansas. Provided by D. Byers.

Although raised as a Methodist, George gave up religion years ago because he could not profess to believe in certain things that would have been required of him. He kept a notebook for entering wise sayings, verses of poetry and other bits of literature that better expressed his philosophy. He retired, he said, in order to spend time on his favorite hobby, insects. He also had an abiding interest in

invertebrate paleontology and maintained an association with the Paleontological Institute at KU. His love of birds inspired him to keep records of those he observed and this led to a few published papers. He collected stamps but mainly from countries that he had visited, and he was a fine photographer and won a few prizes for his skill.

George was particularly proud of his wife Gloria, a nurse from Hawaii, whom he had met while in the army. They raised three fine sons, Bruce, Brian and Douglas. (George had two older children, George and Carolyn, by a previous marriage). The Byers family made students feel very welcome at their home. Especially memorable were Thanksgiving dinners with Gloria's delicious homemade pumpkin pie. It was a huge loss for the family and George, in particular, when Gloria died. She had kept him going emotionally and physically as multiple sclerosis was taking its toll (he suffered with it over 40 years). It was she who drove him almost daily to the Museum so that he could continue work on crane flies and scorpionflies and so facilitated his authoring several papers on these subjects. Later, son Douglas took this on.

George died on New Year's Day 2018 at 94 years. He was blessed with a long career in entomology, studying what he loved, a long marriage with his beloved Gloria, his large extended family including five children and their children, and the numerous students he taught – like those of us studying crane flies, or those students in the many classes he taught at University of Kansas or Mountain Lake. If you knew George, we hope this tribute brings to mind his wonderful qualities and accomplishments, and if you didn't know him, we hope it makes you want to learn more about this extraordinary individual. Saul states, "We Jews have a saying often heard for people such as George W. Byers: 'His memory is a blessing'." We truly believe that.

George's Crane Fly Students
Saul Isaac Frommer (1961)
Fenja Blank Brodo (1964)
Chen-Wen Young (1980)
Ernie May (1980)
Jon K. Gelhaus (1989)

George Byers Patronyms
As a mark of his importance to the field of crane flies, a number of species have been named in honor of George, based in part on specimens collected by George:

Austrolimnophila (*Austrolimnophila*) *byersiana* Alexander, 1968 (Mexico – based on Byers collected specimen)
Dicranomyia (*Idiopyga*) *byersi* Oosterbroek, 2009 (Wisconsin)
Dicranoptycha byersi Young, 1987 (Tennessee, North Carolina – based on Byers collected specimen)
Dolichopeza (*Trichodolichopeza*) *byersiana* Alexander, 1964 (Africa)
Leptotarsus (*Longurio*) *byersi* Young and Gelhaus, 1992 (Ecuador)
> "This new species is named in honor of Dr. George W. Byers, University of Kansas, for his outstanding and detailed work on the North American genus *Chionea*, the wingless species of the Hawaiian *Limonia*, and for his interest in the wing reduction of crane flies in general." This species is subapterous.

Limnophila byersi Alexander, 1973 (Alaska)
> "The species is named for my long time friend and fellow student of the Tipulidae, Dr. George W. Byers, of the University of Kansas."

Nephrotoma byersi Oosterbroek, 1984 (northern Nearctic)
Nephrotoma byersina Alexander, 1973 (Solomon Islands)
"I dedicate this species to my esteemed friend, Dr. George W Byers, outstanding student of the Tipulidae, Mecoptera, and other groups of insects."
Prionocera byersi Brodo, 1987 (Alaska)
"This species is named in honour of George W. Byers, in recognition of his outstanding contributions to both crane fly and scorpion fly research."
Tipula (*Eremotipula*) *byersi* Gelhaus, 2005 (Arizona – based on GWB collected specimen)
"I name this species for Dr. George W Byers, whose outstanding research and advice concerning crane fly systematics has been a great influence in my own work."

A partial list of other species, from nematodes to insects, named for George:
Chrysomelidae: *Exema byersi* Karren, 1966
Panorpidae: *Panorpa byersi* Hua and Huang 2007
Panorpidae: *Neopanorpa byersi* Webb and Penny 1979
Eulophidae: *Tetrastichus byersi* Burke 1963. Wasps reared from pupae of *Dolichopeza Americana*, *https://www.biodiversitylibrary.org/item/107599#page/74/mode/1up*
Nematode: *Myolaimus byersi* Giblin-Davis, Kanzaki & De Ley, 2010. a phoretic associate of the crane fly, *Limonia* (*Rhipidia*) *schwarzi*, *http://www.indiana.edu/~ragslab/publications/Giblin-Davis_et_al_2010.pdf*

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Lloyd Vernon Knutson,
July 4, 1934 – January 10, 2018

We have lost another great dipterist. Lloyd passed on January 10, 2018, in Gaeta, Italy, after a brief illness. A tribute article is expected in the next issue of Fly Times, according to Bill Murphy.

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MEETING NEWS

9th International Congress of Dipterology
25–30 November, 2018, Windhoek, Namibia
http://icd9.co.za/

Ashley Kirk-Spriggs, ICD9 chair

National Museum, 36 Aliwal Street
Bloemfontein, South Africa; Icd9@nasmus.co.za

The Organising Committee for ICD9 is pleased to inform dipterists that arrangements are progressing well for the Congress and those interested in attending should refer to our official website (http://icd9.co.za/) and subscribe to our Facebook and Twitter accounts for regular updates.

At the time of writing (early May 2018) 183 delegates are now registered for the Congress: 135 full delegates, 28 students and 20 accompanying persons, from 36 countries and we anticipate a spike in registrations towards end of June.

Regular Registration closes on the 30th June 2018 and Late Registration on 1st September 2018, so there are still two months left in which to register and pay, using our simple on-line registration system, before Late Registration rates apply.

We have now received co-sponsorship for the Congress from the National Museum, Bloemfontein and are awaiting the outcome of other submissions before we offer selected student grants to cover the costs of student registrations. Other grants that have become available are posted on the Grants page of the website (http://icd9.co.za/grants/) as these become available.

The five plenary speakers have now been finalised (with one change since the Second Circular was released) and plenary titles and short biographies of the plenary speakers can be viewed on the website (http://icd9.co.za/plenaries/).

We have an exciting scientific programme ahead, which comprises 25 symposia, dealing with varied aspects of dipterology (both taxonomic and applied) and a full list of symposia titles and flyers provided by symposia convenors are now available on our website (http://icd9.co.za/symposia-titles/) and through social media.

Extensive information is now provided for delegates on our website, which includes general information on Namibia and Windhoek and information on visas, flights and travel, accommodation options, permits, competitions, day tours for accompanying persons, post-Congress tours and Congress outreach.

The Social Calendar for the Congress is now finalised and can be viewed on the website (http://icd9.co.za/social/). We have arranged social events for every evening of the Congress, including the Welcome Reception on Sunday 25 November, the Official launch of the *Manual of Afrotropical Diptera* on Monday 26 November (launched by George McGavin), the Congress banquet on Wednesday 28 and Happy hour sessions on the evenings of Tuesday 27, Thursday 29 and Friday 30 November. There are also two public lectures planned at the venue with light refreshments to follow.

We encourage those of you who have not yet registered to please do so now and we look forward to welcoming you in Windhoek in November.

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Eagle Hill Institute in Maine, USA will be holding a workshop on Chironomidae taxonomy, June 10-16 2018

Armin Namayandeh

TAXANAMA Corp.
Toronto, Ontario, Canada; a.namayan@taxanama.com

Natural History Science Programs on the Eastern Maine Coast – Seminar and Workshop, Chironomids: Classification, Morphology, Identification, and Lifecycles

Chironomidae midges are diverse and abundant family of freshwater insects with worldwide distribution and occurrence in variety of habitats. These attributes have proved them to be a good utility tool for environmental biomonitoring and ecological investigation of freshwaters. In most part the taxonomic and biogeographical investigation of this family emerged as a discipline to improve upon this utility. However, difficulty in identification of these taxa and lack of proper association between life stages has prevented their proper use in freshwater investigations. In this seminar I will address some of the issues involved with identification of chironomid. We will learn the morphology of different life stages and their use in taxonomy. We will explore both macroscopic and microscopic morphological characters to sort and identify Chironomidae to different level and using different life stages. Additionally, we will learn methods such as rearing, collecting, preserving and mounting of immatures and adults.

Please follow the links below for further information:
https://www.eaglehill.us/
https://www.eaglehill.us/programs/nhs/nhs-calendar

Instructor Bio:
Armin is an aquatic entomologist, focusing mainly on taxonomy and ecology of family Chironomidae (Diptera: Insecta). Armin has worked on various graduate and post graduate freshwater ecology research for over 15 years. His focus for these has been to developed ways to integrate the knowledge of taxonomy and phylogeny into the ecological investigations. Armin main research interest lies on Chironomidae of Northern Canada, especially the subpolar and polar regions. He has conducted taxonomic research on Chironomidae of Eastern Arctic, Chironomidae of Athabasca River and its tributaries and Chironomidae of Precambrian Shield in Canada. Currently, he is conducting research on taxonomy of Chironomidae in far northern Ontario and Chironomidae from Fosheim Peninsula in Ellesmere Island, Nunavut, Canada.

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NADS Meeting at 2018 Joint Annual Meeting of the Entomological Society of America / Entomological Society of Canada / Entomological Society of British Columbia

Matt Bertone

North Carolina State University, Campus Box 7613
Raleigh, NC 27695-7613; matt_bertone@ncsu.edu

The North American Dipterists Society will have its annual meeting during the joint ESA/ESC/ESBC meeting November 11-14, 2018, to be held in Vancouver, British Columbia, Canada. The date and time of the session is not yet set, but I hope it attracts an international Diptera audience for a few presentations followed by the business meeting and an informal social gathering. I will be organizing the NADS meeting and invite dipterists to contact me with presentation suggestions. For more information about the joint meeting, please visit https://www.entsoc.org/events/annual-meeting

I realize that this meeting will be competing with the 9th International Congress of Dipterology, Namibia (https://icd9.co.za/), and that many dipterists will not be able to attend the joint meeting in Vancouver for that reason. I do hope, however, that those dipterists or other fly enthusiasts who attend the Vancouver meeting consider submitting a presentation and plan to attend the session for lively fly discussions.

Hope to see you there!

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OPPORTUNITIES

20th R.J.H. Hintelmann Award for zoological systematics
– The Jubilee Award –
Established by Mrs. Elisabeth HINTELMANN in memory of her husband Robert J. H. HINTELMANN

For outstanding achievements in evolutionary biology (focused on zoology), and then zoological systematics, phylogenetics, paleontology, morphology, faunistics or zoogeography the association "Freunde der Zoologischen Staatssammlung München e.V." has the pleasure to announce the 20th R.J.H. Hintelmann Award for zoological systematics. The award has the value of **5000 €** and its target group are young post-graduate scientists. This prize is awarded not only in appreciation of the previous scientific performance of the applicant, but the winner will also be given the opportunity to continue his/her research work in cooperation with the Zoologische Staatssammlung München (ZSM). This may be carried out either by visiting the ZSM or by being provided with ZSM materials for work elsewhere.

The 20th R.J.H. Hintelmann Scientific Award will be presented on January, 18th, 2019 during a ceremony at the ZSM in Munich, Germany where the prize-winner has to provide a short lecture on his/her research topics.

Nominations may name any young post-graduate scientist not yet in a permanent position with outstanding performance in one or more of the fields mentioned above.

Candidates may be nominated by any zoologist / systematist; self-nomination and repetitive application in several years are also possible. The prize-holder is elected on absolute majority basis by a jury appointed by the executive committee of the "Freunde der Zoologischen Staatssammlung e.V." Depending on the quality of applications the association reserves the right to withhold the award in any given year.

The pertaining proposal or application should provide an account of the candidate's scientific achievement (no longer than 1 page), CV, list of publications, and selected reprints (not more than five). Please submit all in digital form, e.g. DVD, USB Stick, Dropbox link etc.
Application forms are available at
http://freunde-zsm.de/announcement-20-r-j-h-hintelmann-scientific-award-for-zoological-systematics

Please send applications or nominations until **July 31st 2018** to:

Freunde der Zoologischen Staatssammlung München e.V.,
c/o Michael Balke, 20th R.J. H. Hintelmann-Wissenschaftspreis,
Muenchhausenstrasse 21, D-81247 Munich, Germany

or by email (less than 10 MB) to michael_balke@yahoo.de and cc to schoenitzer@zsm.mwn.de.
For further information please contact our secretary Michael Balke: michael_balke@yahoo.de

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DIPTERA ARE AMAZING!

This contribution is a mating pair of Therevidae (genus *Ozodiceromyia*), photographed by Darren Pollock on 14 March 2018 in Portales, New Mexico.

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BOOKS AND PUBLICATIONS

Once again, we offer below a rundown of recent publications on Diptera. As usual if we have not included a paper that you think should have been here please feel free to pass it along to Chris (chris.borkent@gmail.com) and we will include it in the next issue. Unfortunately the online resources do not always catch everything and are a couple of months behind. We also apologize for the missing diacritics in some author's names, unfortunately this is a product of searching in Zoological Record and Web of Science, where they are removed.

Acosta, R. and Prat, N. 2018. Podonominae pupae (Diptera: Chironomidae) from the tropical high Andean rivers. Revista De Biologia Tropical **66(1)**: 6-27.

Acosta, R., Prat, N., Ribera, C., Paraskeva, M., Hernandez-Fonseca Maria, D.C. and Alcocer, J. 2017. *Chironomus alchichica* sp n. (Diptera: Chironomidae) from Lake Alchichica, Mexico. Zootaxa **4365(1)**: 53-70.

Adar, S. and Dor, R. 2018. Mother doesn't always know best: Maternal wormlion choice of oviposition habitat does not match larval habitat choice. Behavioural Processes **147**: 1-4.

Ale-Rocha, R. 2017. New species of *Neohybos* Ale-Rocha & Carvalho (Diptera, Hybotidae, Hybotinae) from South America. Zootaxa **4358(3)**: 507-531.

Allegretti, G., Talamini, E., Schmidt, V., Bogorni, P.C. and Ortega, E. 2018. Insect as feed: An energy assessment of insect meal as a sustainable protein source for the Brazilian poultry industry. Journal of Cleaner Production **171**: 403-412. doi:10.1016/j.jclepro.2017.09.244.

Al-Talafha, H.A., Yaakop, S. and Idris, A.B. 2018. Two new species and seven new records of horse fly (Diptera: Tabanidae) from Malaysia, including a description of new species and modified keys. Journal of Medical Entomology **55(1)**: 112-121.

Alvarez Garcia, D.M., Perez-Herazo, A. and Amat, E. 2017. Life history of *Cochliomyia macellaria* (Fabricius, 1775) (Diptera, Calliphoridae), a blowfly of medical and forensic importance. Neotropical Entomology **46(6)**: 606-612.

Amaral, T.S., Lopes, G.N., Uramoto, K., Melges Walder Julio, M., Bulhoes Rodrigo de, S. and Zucchi, R.A. 2017. Overlapping and co-occurrence pattern of *Anastrepha* species (Diptera, Tephritidae) in anthropic areas. Biotemas **30(4)**: 15-30.

Ament, D.C. 2018. Taxonomic revision of the genus *Hirotophora* Brown et al. (Diptera: Phoridae) with the description of a new species from Chile. Zootaxa **4394(4)**: 549-558. doi:10.11646/zootaxa.4394.4.5.

Amora, G., Hamada, N. and Pinho, L.C. 2018. *Stenochironomus munteanpurin* sp n., a new leaf-mining species from Brazil (Diptera: Chironomidae). Zootaxa **4382(3)**: 553-564.

Amorim, D.S., Silva, V.C. and Brown, B.V. 2018. *Puyehuemyia chandleri*, gen. nov., sp nov (Diptera: Opetiidae): remnant of a Cretaceous biota in Chile. American Museum Novitates**(3892)**: 1-27.

Amorim, D.S. and Santos Charles, M.D. 2018. Flies, endemicity, and the Atlantic Forest: a biogeographical study using topographic units of analysis. Australian Systematic Botany **30(5-6)**: 439-469.

Aranda-Rickert, A., Rothen, C., Diez, P., Gonzalez, A.M. and Marazzi, B. 2017. Sugary secretions of wasp galls: a want-to-be extrafloral nectar? Annals of Botany **120(5)**: 765-774. doi:10.1093/aob/mcx075.

Arimoro, F.O., Auta, Y.I., Odume, O.N., Keke, U.N. and Mohammed, A.Z. 2018. Mouthpart deformities in Chironomidae (Diptera) as bioindicators of heavy metals pollution in Shiroro Lake, Niger State, Nigeria. Ecotoxicology and Environmental Safety **149**: 96-100.

Arnold, S.E.J., Bridgemohan, P., Perry, G.B., Spinelli, G.R., Pierre, B., Murray, F., Haughton, C., Dockery, O., Grey, L., Murphy, S.T. and others. 2018. The significance of climate in the pollinator dynamics of a tropical agroforestry system. Agriculture Ecosystems & Environment **254**: 1-9. doi:10.1016/j.agee.2017.11.013.

Bakhoum, M.T., Labuschagne, K., Huber, K., Fall, M., Mathieu, B., Venter, G., Gardes, L., Baldet, T., Bouyer, J., Fall, A.G. and others. 2018. Phylogenetic relationships and molecular delimitation of *Culicoides* Latreille (Diptera: Ceratopogonidae) species in the Afrotropical region: interest for the subgenus *Avaritia*. Systematic Entomology **43(2)**: 355-371. doi:10.1111/syen.12279.

Bangher, D.N. and Stein, M. 2017. Morphological redescription of *Culex (Microculex) davisi* and *Cx. (Mcx.) imitator* (Diptera: Culicidae) including structures and stages not previously described. Zootaxa **4347(1)**: 56-70. doi:10.11646/zootaxa.4347.1.3.

Baranov, V., Goral, T. and Ross, A. 2017. A new genus of Buchonomyiinae (Diptera, Chironomidae) from Upper Cretaceous Burmese amber, with the phylogeny of the subfamily revisited. Cretaceous Research **79**: 146-152.

Barbier, E. and Bernard, E. 2017. From the Atlantic Forest to the borders of Amazonia: species richness, distribution, and host association of ectoparasitic flies (Diptera: Nycteribiidae and Streblidae) in northeastern Brazil. Parasitology Research **116(11)**: 3043-3055.

Barrios-Leal, D.Y., Faria, F.F., Carvalho Silva, E.C., Balieiro Santos, C.K., Sene, F.M. and Manfrin, M.H. 2018. Deep intraspecific divergence in *Drosophila meridionalis*, a cactophilic member of the New World *Drosophila repleta* group. Biological Journal of the Linnean Society **123(1)**: 163-178.

Bazyar, Z. and Silva, V.C. 2018. Two new species of *Medeventor* Wheeler from South America (Diptera, Chloropidae, Oscinellinae). Zootaxa **4407(4)**: 563-572. doi:10.11646/zootaxa.4407.4.8.

Bellis, G.A., Brito, A.A., De Jesus, H., Quintao, V., Sarmento, J.C., Bere, A., Rodrigues, J. and Hancock, D.L. 2017. A preliminary account of the fruit fly fauna of Timor-Leste (Diptera: Tephritidae: Dacinae). Zootaxa **4362(3)**: 421-432. doi:10.11646/zootaxa.4362.3.6.

Benefer, C.M., D'Ahmed, K.S., Murray, P.J. and Blackshaw, R.P. 2017. Molecular identification and distribution of leatherjackets (Diptera: Tipulidae) in UK agricultural grassland. Agricultural and Forest Entomology **19(4)**: 400-407. doi:10.1111/afe.12219.

Berry, S.E., Gilchrist, J. and Merritt, D.J. 2017. Homeostatic and circadian mechanisms of bioluminescence regulation differ between a forest and a facultative cave species of glowworm, *Arachnocampa*. Journal of Insect Physiology **103**: 1-9.

Billingham, Z.D. and Theischinger, G. 2017. A new species of *Gynoplistia* Westwood cranefly (Diptera: Limoniidae) from Australia. Australian Entomologist **44(4)**: 197-202.

Birkhofer, K., Andersson, G.K.S., Bengtsson, J., Bommarco, R., Danhardt, J., Ekbom, B., Ekroos, J., Hahn, T., Hedlund, K., Jonsson, A.M. and others. 2018. Relationships between multiple biodiversity components and ecosystem services along a landscape complexity gradient. Biological Conservation **218**: 247-253.

Blaschke, J.D., Stireman, J.O., O'Hara, J.E., Cerretti, P. and Moulton, J.K. 2018. Molecular phylogenetics and piercer evolution in the bug-killing flies (Diptera: Tachinidae: Phasiinae). Systematic Entomology **43(1)**: 218-238. doi:10.1111/syen.12272.

Bogarin, D., Fernandez, M., Borkent, A., Heemskerk, A., Pupulin, F., Ramirez, S., Smets, E. and Gravendeel, B. 2018. Pollination of *Trichosalpinx* (Orchidaceae: Pleurothallidinae) by biting midges (Diptera: Ceratopogonidae). Botanical Journal of the Linnean Society **186(4)**: 510-543. doi:10.1093/botlinnean/box087.

Borkent, A. 2018. The state of phylogenetic analysis: narrow visions and simple answers – examples from the Diptera (flies). Zootaxa **4374(1)**: 107-143.

Borkent, A., B.V. Brown, P.H. Adler, D.S. Amorim, K. Barber, D. Bickel, S. Boucher, S.E. Brooks, J. Burger, Z.L. Burington, R.S. Capellari, D.N.R. Costa, J.M. Cumming, G. Curler, C.W. Dick, J.H. Epler, E. Fisher, S.D. Gaimari, J. Gelhaus, D.A. Grimaldi, J. Hash, M. Hauser, H. Hippa, S. Ibáñez-Bernal, M. Jaschhof, E.P. Kameneva, P.H. Kerr, V. Korneyev, C.A. Korytkowski, G.-A. Kung, G.M. Kvifte, O. Lonsdale, S.A. Marshall, W. Mathis, V. Michelsen, S. Naglis, A.L. Norrbom, S. Paiero, T. Pape, A. Pereira-Colavite, M. Pollet, S. Rochefort, A. Rung, J.B. Runyon, J. Savage, V.C. Silva, B.J. Sinclair, J.H. Skevington, J.O. Stireman III, J. Swann, P. Vilkamaa, T. Wheeler, T. Whitworth, M. Wong, D.M. Wood, N. Woodley, T. Yau, T.J. Zavortink & M.A. Zumbado. 2018. Remarkable fly (Diptera) diversity in a patch of Costa Rican cloud forest: Why inventory is a vital science. Zootaxa **4402(1)**: 53-90. doi:10.11646/zootaxa.4402.1.3.

Bramuzzo, S., Coty, D. and Nel, A. 2017. A new species of *Ferneiella* from the Eocene French amber (Diptera: Scatopsidae). Zootaxa **4350(1)**: 177-184.

Brodo, F. 2018. Taxonomic review of *Angarotipula* Savchenko, (Diptera: Tipulidae) in North America. Canadian Entomologist **150(1)**: 12-34.

Brown, B.V., A. Borkent, P.H. Adler, D.S. Amorim, K. Barber, D. Bickel, S. Boucher, S.E. Brooks, J. Burger, Z.L. Burington, R.S. Capellari, D.N.R. Costa, J.M. Cumming, G. Curler, C.W. Dick, J.H. Epler, E. Fisher, S.D. Gaimari, J. Gelhaus, D.A. Grimaldi, J. Hash, M. Hauser, H. Hippa, S. Ibáñez-Bernal, M. Jaschhof, E.P. Kameneva, P.H. Kerr, V. Korneyev, C.A. Korytkowski, G.-A. Kung, G.M. Kvifte, O. Lonsdale, S.A. Marshall, W. Mathis, V. Michelsen, S. Naglis, A.L. Norrbom, S. Paiero, T. Pape, A. Pereira-Colavite, M. Pollet, S. Rochefort, A. Rung, J.B. Runyon, J. Savage, V.C. Silva, B.J. Sinclair, J.H. Skevington, J.O. Stireman III, J. Swann, F.C. Thompson, P. Vilkamaa, T. Wheeler, T. Whitworth, M. Wong, D.M. Wood, N. Woodley, T. Yau, T.J. Zavortink & M.A. Zumbado. 2018. Comprehensive inventory of true flies (Diptera) at a tropical site. Communications Biology 1(21): 1–8, + supplementary material.

Camara, J.T. and Rafael, J.A. 2017. New species of *Metachela* Coquillett (Diptera, Empididae) from the Atlantic Forest, Brazil and a key to the Neotropical species. Zookeys **(714)**: 129-140. doi:10.3897/zookeys.714.11503.

Cardoso-Gustavson, P., de Souza, S.R. and de Barros, F. 2017. Floral volatile profile in Pleurothallidinae, an orchid subtribe pollinated by flies: ecological and phylogenetic considerations. Phytochemistry Letters **22**: 49-55. doi:10.1016/j.phytol.2017.09.005.

Carey, J.G.J., Brien, S., Williams, C.D. and Gormally, M.J. 2017. Indicators of Diptera diversity in wet grassland habitats are influenced by environmental variability, scale of observation, and habitat type. Ecological Indicators **82**: 495-504. doi:10.1016/j.ecolind.2017.07.030.

Cherif, A., Kinoshita, N., Taylor, D. and Ben Jemaa, J.M. 2017. Molecular characterization and phylogenetic comparisons of three *Mayetiola* species (Diptera: Cecidomyiidae) infesting cereals in Tunisia. Applied Entomology and Zoology **52(4)**: 543-551. doi:10.1007/s13355-017-0507-y.

Choo, A., Crisp, P., Saint, R., O'Keefe, L.V. and Baxter, S.W. 2018. CRISPR/Cas9-mediated mutagenesis of the white gene in the tephritid pest *Bactrocera tryoni*. Journal of Applied Entomology **142(1-2)**: 52-58. doi:10.1111/jen.12411.

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