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Fly Times is simultaneously produced in PDF and printed format twice yearly, with spring and fall issues.

SCOPE

Fly Times accepts submissions on all aspects of dipterology, providing a forum to report on original research, ongoing projects, Diptera survey activities and collecting trips, interesting observations about flies, new and improved methods, to discuss the Diptera holdings in various institutions, to make specimen requests, to advertise opportunities for dipterists, to report on or announce meetings or events relevant to the community, to announce new publications and websites, to examine the historical aspects of dipterology and Diptera literature, to honor our recently deceased colleagues, and anything else fly-related that you can think of. And of course with all the images you wish to provide.

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INSTRUCTIONS TO AUTHORS

Although not a peer-reviewed journal, all submissions are carefully considered by the editor before acceptance. We encourage submissions from dipterists worldwide on a wide variety of topics that will be of general interest to other dipterists, as an attractive medium for dipterists of all types to showcase their activities.

Requirements for submission are simple. Send a single-spaced text file (doc, rtf, odt preferred) with separate image files (jpg, png preferred).

Following are some specific dos and don'ts, bearing in mind that consistency among manuscripts is important:

- 1) *Do not* embed images into the text file (but *do* indicate in the text file approximately where each image should be placed).
- 2) *Do* submit image files of a reasonable size (no more than about 2MB per image file, or larger for full plates).
- 3) *Do not* use embedded styles (e.g., the various heading styles, small caps, paragraph spacing, etc.). *Do* limit styles to italics, bold, and (if you must) underline, and single-spaced.
- 4) *Do not* use different fonts, different font-sizes, or different colored fonts as headings. *Do* use Times New Roman, 11.5 point, black.

The approximate deadlines for submission are mid May and mid November, although this is flexible up to the time of publication (which will generally be mid June for the spring issue and mid December for the fall issue). For larger manuscripts your submissions may be considered for inclusion in the *Fly Times Supplement* series. Note, submission of a manuscript to *Fly Times* or *Fly Times Supplement* grants the Dipterists Society the non exclusive right to reproduce these contributions in whole or part

Please submit manuscripts to the editor-in-chief at: sgaimari@gmail.com, cc editor@dipterists.org

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The Dipterists Society is a 501(c)(3) nonprofit organization (EIN 84-3962057), incorporated in the state of California on 27 November 2019. We are an international society of dipterists and Diptera-enthusiasts, serving the needs of the worldwide dipterist community.



Our Mission is to advance the scientific study, understanding and appreciation of the insect order Diptera, or true flies. To accomplish this, we aim to foster communication, cooperation, and collaboration among dipterists, and to promote the dissemination and exchange of scientific and popular knowledge concerning dipterology.

As an **international society**, there are no boundaries, and our core activities are geared towards all dipterists, not a subset. We aim to provide a common stage for all people interested in flies, a place where our community can closely interact. Among our core activities, we produce Society publications such as this one (as well as the *Fly Times Supplement* and *Myia*), facilitate or organize Society and other Diptera-related meetings and events, provide grants and awards in support of dipterological activities and achievements, perform outreach activities and provide educational opportunities and resources, and maintain an organizational website, an online Directory of World Dipterists, a dipterists mailing list server, and social media presence. In these efforts, we as a group can make our society as successful as we want!

A note about Society membership – To thrive as an organization and to provide resources for the dipterological community, we want to welcome all of you as members or donors!

Membership: <https://dipterists.org/membership.html>

Donations: <https://dipterists.org/support.html>

Please see our website to understand our vision for our society!

From the Editor – Welcome to the latest issue of *Fly Times*! As usual, I am very impressed with the variety of excellent submissions, and I hope they are enjoyable to the readers. Please consider writing an article or two for the next issue, which is slated for fall of 2026. And for larger works, please consider the *Fly Times Supplement* series, found at https://dipterists.org/fly_times_supplement.html. For larger catalogs and such, please consider *Myia*, found at <https://dipterists.org/myia.html>.

Thank you to Zachary Dankowicz for another excellent cover photo! Moving forward, I encourage the photographers out there to submit images for the cover – keep dimensions in mind – they will be produced at 8-1/2 X 11 inches (*Fly Times* page size). Photos not used for the cover can still be included in the Diptera Are Amazing section. For now, I'll be changing up the covers issue to issue, so please feel free to send your design ideas to sgaimari@gmail.com (cc editor@dipterists.org).

Cover photo – A female *Curtonotum helvum* (Loew) perched on the end of a stick on the ground in Greenbelt Park, Maryland, USA. I had met up with a new friend to find bugs and randomly came across a new family for my records. Such an incredible fly! Photograph by Zachary Dankowicz.

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NEWS AND RESEARCH

Update on the Sustaining Member category in the Dipterists Society

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The Dipterists Society greatly appreciates ALL members – without you we could not be the society that we are! We are happy to recognize our many Founding Members as detailed in the last issue of *Fly Times* (Gaimari 2025). As announced there, the Society is soon ending new memberships in this category (but all Founding Members remain Founding Members into perpetuity). In the announcement, I wrote that the category would be coming to a close at the end of June 2026 (unfortunately as 31 June, and although unintentional, I hope you got a good laugh out of that), with the new Sustaining Member category being opened the following day.

However, we need one more *Fly Times* cycle before making this change, only because the Society's Board of Directors need to make some final tweaks before we roll out the new membership category. So our intention is for the Founding Members program to extend through the end of 2026, with the new Sustaining Member program to start on 1 January 2027. This actually makes the best sense anyway, because our Society's very first Founding Members joined on 31 December 2020. So with a final date of 31 December 2026, the program represents the first 6 years to the day! We look forward to a new era starting for Sustaining membership!

As our Founding Member program has been very successful in helping our Society grow and become more secure as an organization in its initial time period, we will establish this new Sustaining Member program to continue into the future, while recognizing that first cohort of Founding Members that has been so critical to our success! Our membership fees at all levels, and the many generous donations, have provided the funds towards our many activities and resources for the dipterist community, such as a robust grants program, publications (*Fly Times*, *Fly Times Supplement*, *Myia*), field and regular meetings, the International Congresses of Dipterology, educational opportunities, web resources (such as the dipterists directory, the dipterists mailing list, and everything found on the website <https://dipterists.org>), and more!

Our current membership count is 214, with 68 being Founding Members. Of these Founding Members, two are new to the list provided in the last issue – they are Andrea Kautz and Ian McLean. So thank you to our new Founding Members, and to all of our new and continuing members! We hope to see this continue to grow!

Reference

Gaimari, S.D. 2025. Membership in the Dipterists Society. *Fly Times* 75: 11–13.

Synonymy and taxonomic notes on three Oriental scuttle flies (Diptera: Phoridae)

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Abstract. Examination of scuttle flies (Diptera: Phoridae) collected from Peninsular Malaysia revealed two synonymies, together with additional taxonomic notes on two species of the genus *Woodiphora* Schmitz, 1926. The Oriental species, *Chonocephalus georgei* Disney, 2016, is here recognized as a junior synonym of the Australasian species, *Chonocephalus dorsalis* Wandolleck, 1898. Another synonymy involves *Woodiphora malaccensis* Wong & Zuha, 2025 and *Woodiphora biroi* (Brues, 1907), with the former now identified as a junior synonym of the latter, although exhibiting notable morphological variation in the hypopygium. Similarly, comparable morphological variation is also observed in examined material of *Woodiphora harveyi* Disney, 1989, which likewise shows intraspecific variation in wing morphology. Collectively, these findings help to clarify existing taxonomic confusions within both genera and highlight the patterns of morphological variations in *Woodiphora* that may have future phylogenetic implications.

Key words. scuttle flies, *Chonocephalus*, *Woodiphora*, synonymy, Oriental

Phoridae is one of the most diverse yet understudied groups of insects on Earth, with more than 4500 described species currently documented (Brown 2022). However, this family also exhibits a high degree of morphological plasticity, with pronounced sexual dimorphism, intraspecific variation, cryptic species complex, and dark taxa commonly hindered accurate species identification in classical taxonomy (see Disney 1983, 1989b, 1994; Brown 2010). Additionally, the taxonomic resolution and systematic understanding of the family remain relatively poor, with many genera and species requiring continuous revision as additional data and material become available. In the present study, we revise three Oriental species based on material collected from an ongoing inventory project in Peninsular Malaysia, including the recognition of two synonymies, and documentation of two cases of notable morphological observation.

Material and methods

Specimens were collected using both Townes-style Malaise traps and white water traps baited with decomposed organic matters in Peninsular Malaysia. In the laboratory, we dissected the head, hind legs, and left wing from each specimen, and the dissected parts were dehydrated through a graded series of 80%–100% denatured ethanol (each for 10 minutes), followed by immersion in xylene and clove oil for 10 minutes and 5 minutes, respectively. The parts were subsequently mounted on microscopic slide with Canada Balsam (SRLChem, India) and covered with 10 mm round cover slips (Disney 1994; Hartop *et al.* 2015). Images of the slide-mounted specimens were acquired using a 12-megapixel digital camera (Toupcam, China) attached to both SMZ745T trinocular stereomicroscope (Nikon, Japan) and CLX300 trinocular compound microscope (Labomed, Malaysia). Species identification was conducted using Disney (1989a, 2015, 2016), registered with a voucher number

and deposited at the Centre for Insect Systematics, Faculty of Science & Technology, Universiti Kebangsaan Malaysia (CISUKM).

Taxonomic accounts

Genus *Chonocephalus* Wandolleck, 1898

Chonocephalus Wandolleck, 1898: 428. Type species: *Chonocephalus dorsalis* Wandolleck, 1898: 448, by monotypy.

Epichonocephalus Schmitz, 1928: 104. Type species: *Epichonocephalus transversalis* Schmitz, 1928: 105, by monotypy. Synonymised by Disney, 2002: 4.

Chonocephalus dorsalis Wandolleck, 1898 (Figs. 1A–D)

Chonocephalus dorsalis Wandolleck, 1898: 448.

Chonocephalus bispinosus Borgmeier, 1967a: 207. Synonymised by Disney, 2002: 18.

Chonocephalus georgei Disney, 2016: 297. **Syn. nov.**

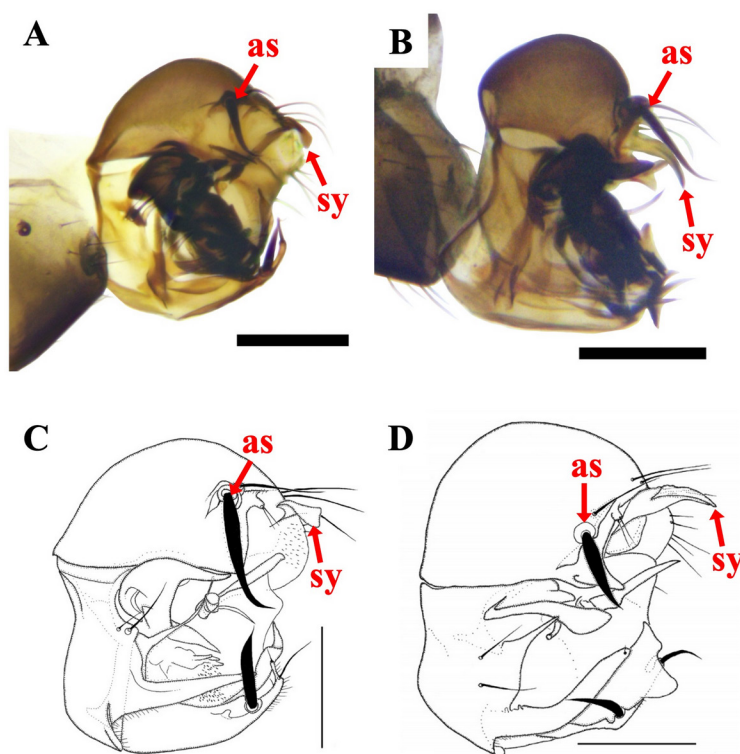


Figure 1. *Chonocephalus dorsalis* Wandolleck, 1898. **A**, hypopygium, left face (CISUKM Ch-2023-007). **B**, hypopygium, left face, ventrally tilted (CISUKM Ch-2024-001); **C**, hypopygium, left face, from Disney (2015); **D**, hypopygium, left face, from Disney (2016). Abbr.: sy = surstylus, as = anterior seta. Scale bar = 0.1 mm.

Material examined. PENINSULAR MALAYSIA: 1 ♂; Pahang, Kuantan, Fei Ngo See Guan Yin Temple, 3°49'57"N, 103°19'34"E; 20 m asl; 21 Feb. 2024; J. Wong & R.M. Zuha leg.; white water trap baited with decomposed fish carcasses; preserved on microscopic slide, CISUKM Ch-2024-001. 1 ♂; Selangor, Batu Caves, Taman Industri Spring Crest, 3°13'37"N, 101°40'51"E; 49 m asl; 17 Dec. 2023; J. Wong leg.; white water trap baited with decomposed beef livers; preserved on microscopic slide, CISUKM Ch-2023-007. 1 ♂; Selangor, Batu Caves, Taman Pinggiran, 3°15'11"N, 101°41'38"E; 69 m asl; 2 Sep. 2020; Naim N. leg.; white water trap baited with decomposed beef livers; preserved on microscopic slide, CISUKM Ch-2020-001.

Note on synonymy. All examined specimens are identified as both *C. dorsalis* and *C. georgei* Disney, 2016, in Disney (2015, 2016), respectively, based on the following combination of characters: presence of a surstylus and a strongly differentiated anterior seta on the left face of the epandrium; left gonopod bearing 2 apical setae; and mid tibia uniformly yellow to brown (Figs. 1A–D). Comparison of the hypopygium via illustrations in both publications demonstrated morphological similarities particularly the robust anterior setae and posterior processes on the epandrium, and the characteristics of the left gonopods and median lobes of the hypandrium. The differences are apparently attributed to the orientation of the hypopygium during illustration (Figs. 1C–D). Subsequent examinations on the holotypes of *C. georgei* with *C. dorsalis* confirmed the synonymy.

Genus *Woodiphora* Schmitz, 1926

Woodiphora Schmitz, 1926: 73. Type species: *Phora retroversa* Wood, 1908: 172, by original designation.

***Woodiphora biroi* (Brues, 1907) (Figs. 2A–D)**

Aphiochaeta biroi Brues, 1907: 405.

Aphiochaeta perturbans Malloch, 1935: 335. Synonymised by Borgmeier, 1967b: 266.

Woodiphora parvula (part) Borgmeier, 1962: 484, nec Schmitz, 1927.

Woodiphora biroi (Brues) Borgmeier, 1966: 158.

Woodiphora unilineata Borgmeier, 1966: 163. Synonymised by Disney, 1989a: 1159.

Woodiphora malaccensis Wong & Zuha, 2025: 27. **Syn. nov.**

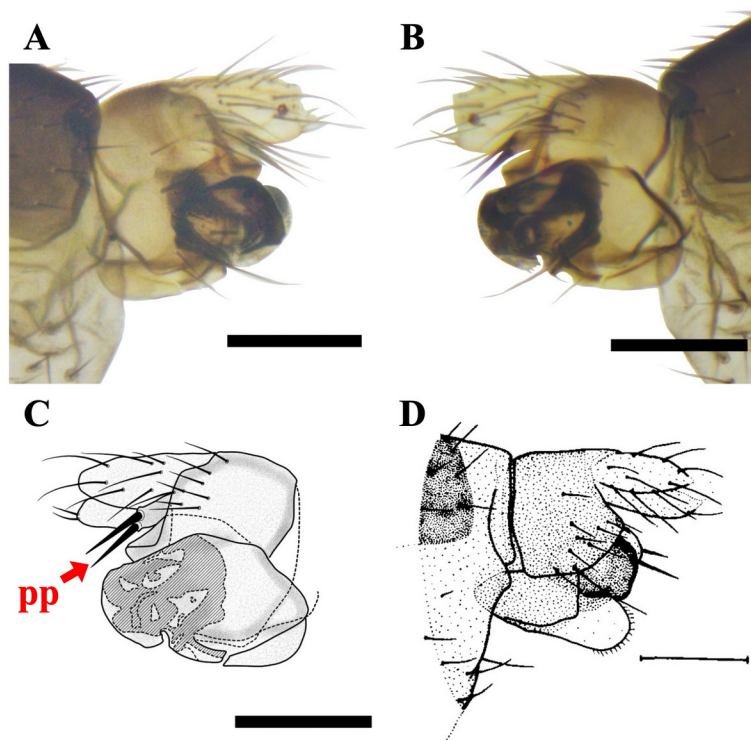


Figure 2. *Woodiphora biroi* (Brues, 1907). **A**, hypopygium, left face; **B**, hypopygium, right face; **C**, hypopygium, right face, line drawing; **D**, hypopygium, left face, from Disney (1989a). Abbr.: pp = posterior process. Scale bar = 0.1 mm.

Material examined. PENINSULAR MALAYSIA: 1 ♂; Melaka, Ayer Keroh, Taman Seribu Bunga, 2°16'01"N, 102°17'53"E; 31 m asl; 7 Mar. 2024; J. Wong & R.M. Zuha leg.; white water trap baited with decomposed beef livers; preserved on microscopic slide, CISUKM Wo-2024-001.

Note on synonymy. Re-examination of the holotype of *Woodiphora malaccensis* Wong & Zuha, 2025, revealed that the hypopygial morphology is highly similar to that of *W. biroi*, particularly in the presence of a large, pale right hypandrial lobe (Figs. 2A–D). As no other discrete characters could be identified to distinguish the two species, and the description of *W. malaccensis* aligns closely with that of *W. biroi* in Disney (1989a), the former is therefore confirmed as a junior synonym of latter. The previous misidentifications are largely attributed to the orientation of the hypopygium during slide mounting, resulting in the pale hypandrial lobe being nearly concealed by the darker penile complex, as well as the presence of a posterior process near the posterior margin of the right face of epandrium, which is not reported in the holotype description of *W. biroi* (indicated as 'pp' in Fig 2C).

***Woodiphora harveyi* Disney, 1989 (Figs. 3A–E)**

Woodiphora harveyi Disney, 1989a: 1162.

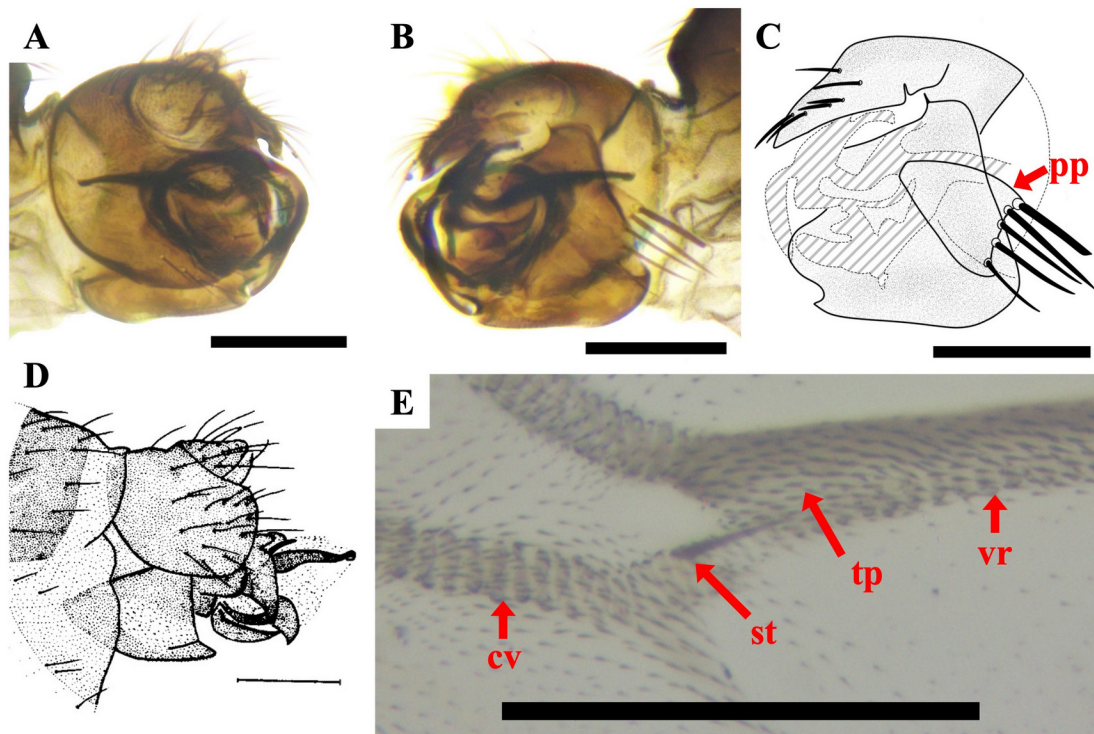


Figure 3. *Woodiphora harveyi* Disney, 1989. **A**, hypopygium, left face; **B**, hypopygium, right face; **C**, hypopygium, right face, line drawing; **D**, hypopygium, left face, from Disney (1989a). **E**, wing, close up. Abbr.: pp = posterior process, cv = anterior crossvein, vr = vein R₄₊₅, tp = typical position of basal seta, st = basal seta. Scale bar = 0.1 mm.

Material examined. PENINSULAR MALAYSIA: 1 ♂; Selangor, Bangi, Hutan Pendidikan Alam Universiti Kebangsaan Malaysia, 2°54'46"N, 101°47'22"E; 50 m asl; 16 Jul. 2024; J. Wong leg.; white water trap baited with dried, crushed mushrooms; preserved on microscopic slide, CISUKM Wo-2024-009. 1 ♂, Selangor, Bangi, Tapak Simulasi Sains Forensik Universiti Kebangsaan Malaysia, 2°54'46"N, 101°47'21"E; 50 m asl; 24 Aug. 2023; M. Hasrul leg.; Malaise trap; preserved on microscopic slide, CISUKM Wo-2023-008.

Remarks. Both examined specimens conform to the holotype description provided by Disney (1989a), including the illustration of the hypopygium (Fig. 3D). However, one of the examined specimens (CISUKM Wo-2024-009) shows considerable morphological variations in both hypopygial and wing morphology. As in *W. biroi* (see above), a comparable posterior process bearing strongly differentiated apical setae is also observed on the right face of the epandrium (Fig. 3C). Although displaced due to slide mounting, the structure is clearly situated within the hypopygium rather than outside its boundaries, suggesting that it is originally part of the hypopygial complex. The implications of this structure are further discussed below. Additionally, the specimen shows a displacement in position of the basal seta of vein R_{4+5} , where it is located at the junction between the anterior crossvein and the base of vein R_{4+5} (the typical position of basal seta is indicated as 'tp' in Fig. 3E). This displacement likely represents a rare atypical condition, for which current evidence does not support further phylogenetic inference. Such morphological variations are not found in the second specimen examined (CISUKM Wo-2023-008).

Discussion

C. dorsalis, the type species of *Chonocephalus*, was originally described from a female specimen by Wandolleck (1898), although the type material was apparently destroyed during subsequent dissections and examinations. The precise type locality was not explicitly stated by Wandolleck, but Brues (1915) suggested that it was likely from the Bismarck Archipelago, as the type species formed part of the same series that included the type material of *Puliciphora lucifera* Dahl, 1897. A female specimen collected from an island adjacent to the presumed type locality was subsequently designated as the neotype (Disney 2002). Present study expands the known distribution of this species, which was previously recorded primarily from Oceania, including the Bismarck Archipelago, Fiji, Henderson Island, and Samoa (Borgmeier 1967a; Disney 2015). It also represents the first occurrence record of the species from Peninsular Malaysia, as well as the second record from the Oriental region, following its previous record from the Philippines (Disney 2016).

Likewise, as commonly observed throughout the history of Phoridae taxonomy, many new genera and species were initially described based on single-sex specimens, with the opposite sex frequently described later as a distinct species under a different name, thereby generating long-standing taxonomic confusion (Disney 1994; Brown 2022). Borgmeier (1967a) subsequently described *C. bispinosus* based on a male specimen from Samoa. Owing to the extreme sexual dimorphism observed in this genus, the failure to recognise *C. bispinosus* as the male of *C. dorsalis* resulted in a synonymisation by Disney (2002). The present study further highlights the importance of *Chonocephalus* hypopygial orientation during slide-mounting for accurate identification, as the hypopygium in this genus is considerably more complex than in most other genera (see Disney 2002). Accordingly, the slide-mounting protocol established by Disney (2002) should be followed, with the hypopygium ideally mounted with both the ventral and lateral regions clearly visible when sufficient material is available.

The posterior process observed in both *W. biroi* and *W. harveyi* are postulated here to represent the surstyli, also known as the articulated dorsal claspers, which arises from the posterior margin of the epandrium (Cumming *et al.* 1995). In Phoridae, the surstyli are highly variable in both size and shape, often showing considerable variation between sides (Peterson 1987). Unlike most members of the subfamily Metopininae, in which the surstyli are typically reduced or absent, the structures observed in the two *Woodiphora* species are elongated, enlarged, distinctly separated from the right face of epandrium, and bearing several strongly differentiated apical setae. A notable exception to the Metopininae is the *Megaselia*-group, particularly the *Gymnophora*-subgroup (equivalent to the tribe

Gymnophorini *sensu* in Disney 2003), which includes the genera *Gymnophora* Macquart, 1835, *Megaselia* Rondani, 1856, and *Woodiphora* (Brown 1992). Surstyli are present and especially well developed in *Gymnophora* subgenus *Cerocratia* Schmitz, 1927, characterized by its large and densely setulose surstyli (Brown 1987). Robinson (1978, 1981) further considered that *Megaselia* species possessing elongate surstyli to represent primitive, platypezid-like conditions, and several *Megaselia* species with such surstyli have subsequently been documented (e.g. Disney 1988; Michailovskaya 2003). Although comparable surstyli have not previously been reported in *Woodiphora*, the structures observed in the present study strongly suggest their occurrence within the genus, with the surstylus characterized by its distinctly elongated form bearing several strongly differentiated apical setae.

The inability to compare these specimens directly with the holotypes and other available materials prevent confirmation of whether the observed structures represent a true intraspecific variation, a rare plesiomorphic state retention, or simply overlooked character that were not reported previously. If future examination confirms these structures as consistent character states in both species, then *W. biroi* and *W. harveyi* may share a synapomorphic condition representing a retained plesiomorphic state, potentially supporting the recognition of a distinct clade within the genus *Woodiphora*. The collection of additional material and data, including molecular evidence, may help to resolve the observed findings and facilitate future phylogenetic inference and assessment.

Acknowledgement

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Authors' contributions

JW: conceptualization, methodology, investigation, formal analysis, and writing – original draft.

RMZ: data curation, writing – review and editing.

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Preliminary observations on the association of *Brachymeria podagrica* (Hymenoptera: Chalcididae) with forensically important blow flies (Diptera: Calliphoridae) in India

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Abstract. *Brachymeria podagrica* is a cosmopolitan solitary cenobiont endoparasitoid of several synanthropic Diptera of medical and forensic importance. However, its association with carrion-breeding blow flies in India remains poorly documented. The present study reports the occurrence of *B. podagrica* in association with three forensically important blow flies, *Chrysomya rufifacies*, *Lucilia cuprina*, and *Calliphora vicina*, under field and laboratory conditions from different regions of India. Parasitoids were observed ovipositing on blow fly larvae, and subsequent emergence alongside adult flies indicated probable parasitoid-host association. Additional recovery from a decomposed snake carcass further supported the occurrence of *Brachymeria* within carrion-associated dipteran communities. The findings are of forensic significance because parasitoid activity may influence blow fly development and potentially affect postmortem interval (PMI) estimations. This study expands the known host associations of *B. podagrica* in India and highlights the forensic relevance of parasitoid–blow fly interactions.

Keywords. *Brachymeria podagrica*, Calliphoridae, parasitoid, carrion ecology, forensic entomology, host association, fish-baited traps, chicken baits, rat carcass

Blow flies (Diptera: Calliphoridae) are among the most ecologically and forensically significant groups of insects associated with decomposing matter. They play a prominent role in nutrient recycling, veterinary myiasis, and forensic investigations (Greenberg, 1991; Byrd & Castner, 2001). Blowflies arrive shortly after death (within minutes; Byrd & Castner, 2001; Amendt et al., 2004) and exhibit predictable developmental pattern on a carcass. Their rapid colonization and close association with carrion makes these flies a valuable tool to decipher the post-mortem interval (PMI). However, several abiotic and biotic factors influence their developmental success and population dynamics within carrion communities (Greenberg, 1991). One such interaction is parasitism by hymenopteran parasitoids, particularly on larval and pupal stages, which influence the population dynamics of blowflies in carrion (Marchiori et al., 2004). Such interactions are of particular forensic relevance because parasitoid infestation may alter fly development, reduce adult emergence, and can lead to inaccurate PMI estimations (Abd Al Galil et al., 2022).

Brachymeria podagrica (Fabricius) (Hymenoptera: Chalcididae) is a cosmopolitan solitary cenobiont endoparasitoid primarily associated with pupae of synanthropic Diptera, including members of Calliphoridae, Sarcophagidae, and Muscidae (Bouček, 1972; Delvare & Bouček, 1992). The species has been reported from a broad range of carrion-associated and medically important flies worldwide. Early compilations listed hosts belonging to the genera *Calliphora*, *Cochliomyia*, *Lucilia*, *Phormia*, *Sarcophaga*, and *Peckia* (Roberts, 1933, cited in Marchiori, 2001). Subsequent studies have documented associations with *Chrysomya albiceps*, *Chrysomya megacephala*, *Hemilucilia*

flavifacies, *Ophyra aenescens*, *Peckia chrysostoma*, *Peckia collusor*, *Sarcophaga dux*, and *Sarcophaga (Liopygia) ruficornis* from South America and the Middle East (Marchiori, 2001; Marchiori & Pereira, 2002; Marchiori et al., 2003a,b; Marchiori, 2004; Ramírez-Mora & Durango-Manrique, 2021; Abd Al Galil et al., 2022; Silva et al., 2025). Despite its widespread distribution, information on the occurrence and host associations of *B. podagrica* in India remains limited.

In Asia, including India, *B. podagrica* has been recorded previously (Gowri et al., 2016; Narendran et al., 2016) but data regarding host associations with forensically important blowflies remain poorly documented. The forensic significance of such parasitoid-host interaction is substantial as their infestation can lead to prolonged larval or pupal stages, normal fly emergence, and complicate age estimation of carrion associated flies (Schuster & Sivakumar, 2024). The present note therefore provides preliminary field evidence of *B. podagrica* parasitizing *C. rufifacies*, *L. cuprina* and *C. vicina* in India highlighting the need to incorporate parasitoid activity into forensic entomological assessments.

Materials and Methods

Field observations were conducted at three locations in India between July and November 2025. During these surveys, hymenopteran parasitoids associated with necrophagous Diptera were incidentally observed and collected from carrion-baited traps and laboratory cultures.

In Bhubaneswar (20.29°N, 85.79°E), five funnel traps constructed from 1 L plastic bottles were baited with approximately 500 g of intestines and visceral organs of *Labeo rohita* on 11 July 2025. The upper portion of each bottle was inverted into the lower half to form a funnel-shaped entrance. Traps were suspended from trees at intervals of approximately 100 m to facilitate colonization by carrion-associated Diptera. Three traps were predominantly colonized by *Chrysomya rufifacies*, while the remaining two were colonized by *Lucilia cuprina*.

A similar experimental setup was established at Punjabi University, Patiala (30.35°N, 76.45°E), on 17 November 2025 using five funnel traps baited with carcasses of *Mus musculus*. The traps were deployed outdoors to permit colonization by necrophagous insects. In this setup, only *Calliphora vicina* was observed colonizing the bait substrate.

Additional observations were made in Nashikunder both field and laboratory conditions (19.99°N, 73.78°E). Field collections included hymenopteran parasitoids recovered from a decomposed carcass of *Ptyas mucosa* heavily infested with dipteran larvae. Laboratory observations were conducted at GES's HPT Arts and RYK Science College, where cultures of *C. rufifacies* were maintained on chicken bait. Emerging adult blow flies and associated parasitoids were collected for examination.

All traps and laboratory cultures were examined at 24-hour intervals. Adult Diptera and parasitoids were collected using forceps, rinsed with distilled water to remove adhering debris, and preserved in 90% ethanol for subsequent analysis. Specimen identification was carried out using standard morphological keys for Calliphoridae (Senior-White et al., 1940) and Chalcididae (Gowri et al., 2016). Voucher specimens have been deposited in the institutional collection of Punjabi University, Patiala, Punjab, India.

Results and Discussion

The emergence of *Brachymeria podagrica* (Fig. 1) in association with carrion-breeding blow flies was observed under both field and laboratory conditions in the present study. In fish-baited funnel

traps deployed at Bhubaneswar, adult parasitoids emerged alongside adults of *Chrysomya rufifacies* and *Lucilia cuprina*. Similarly, in laboratory cultures maintained on chicken bait at Nashik, *B. podagrica* emerged in association with *C. rufifacies*. During these observations, adult parasitoids were repeatedly observed interacting with late larval and prepupal stages within the baited substrates. Although individual pupae were not isolated for rearing, the co-occurrence of emerging parasitoids and blow flies, together with the known biology of *B. podagrica* as a solitary cenobiont endoparasitoid of calyptrate Diptera, suggests a probable parasitoid-host association within the carrion substrate (Bouček, 1972; Delvare & Bouček, 1992; Marchiori & Pereira, 2002).

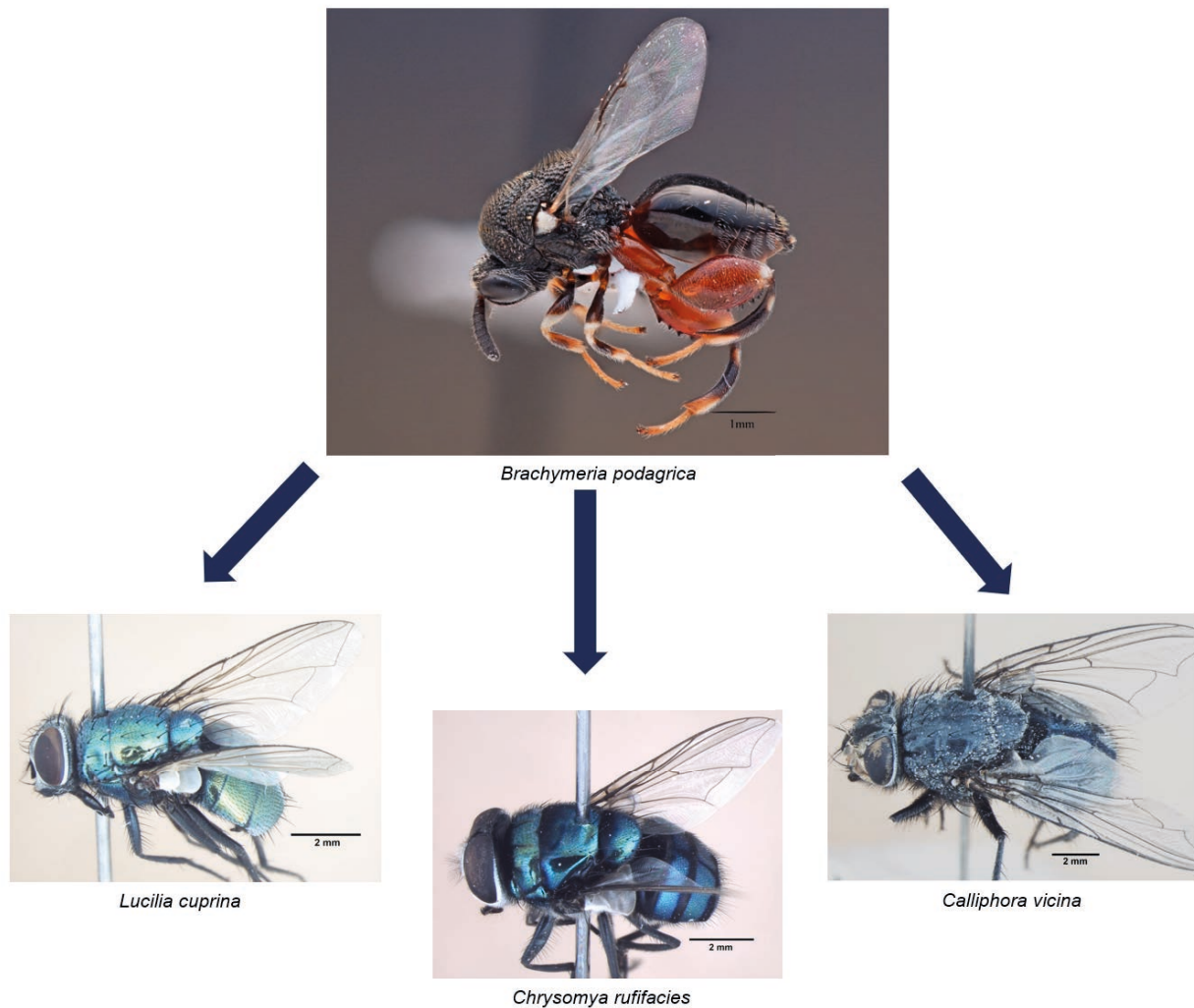


Figure 1. *Brachymeria podagrica* and new host species.

In contrast, observations from Punjabi University, Patiala, revealed the presence of a single blow fly species, *Calliphora vicina*, in white mouse carcass-baited traps. Adult *B. podagrica* was consistently recorded from the same setup, suggesting a probable association with *C. vicina*. Since only one dipteran species colonized the bait substrate, ambiguity in host association was substantially reduced.

Additional observations from Nashik further demonstrated the occurrence of *Brachymeria* wasps within carrion-associated dipteran communities. Parasitoids were recovered from a decomposed carcass of *Ptyas mucosa* heavily infested with dipteran maggots, indicating the occurrence of

parasitoid activity within natural vertebrate decomposition systems. Similar associations of *B. podagrica* with carrion-breeding Calliphoridae have previously been reported from Brazil and other tropical regions (Marchiori & Linhares, 1999; Marchiori et al., 2003a,b).

The comparatively low number of emerging parasitoids relative to host flies observed in the present study is consistent with the biology of carrion-associated parasitoid systems (Abd Al Galil et al., 2022). Only 2–3 parasitoids emerged in association with 10–12 host flies within individual bait systems. As a solitary cenobiont endoparasitoid, *B. podagrica* typically produces a single adult from each parasitized host pupa, naturally resulting in lower parasitoid abundance relative to host populations (Delvare & Bouček, 1992; Narendran et al., 2016). In addition, parasitism rates in carrion ecosystems are influenced by host accessibility, concealed pupation behaviour, environmental conditions, and temporal synchrony between parasitoid activity and host development (Marchiori & Pereira, 2002; Greenberg, 1991). The low parasitoid recovery observed may also reflect methodological limitations, as the trapping systems were primarily intended for sampling carrion-associated Diptera rather than controlled parasitoid rearing.

Despite their relatively low abundance, parasitoids such as *B. podagrica* may possess forensic significance because parasitism can alter blow fly survival, emergence patterns, and developmental timelines, potentially influencing postmortem interval (PMI) estimations (Amendt et al., 2004; Byrd & Castner, 2001). The present observations expand the known associations of *B. podagrica* with forensically important blow flies in India and highlight the need for controlled developmental studies examining parasitoid-mediated effects on carrion-associated Diptera.

Table 1. Observations of *Brachymeria podagrica* associated with carrion-breeding dipteran hosts from different regions of India under field and laboratory conditions.

Observation No.	1	2	3	4
Location	Bhubaneswar, Odisha	Patiala, Punjab	Nashik, Maharashtra	Nashik, Maharashtra
Substrate / Bait	Fish bait (intestines and internal organs of <i>Labeo rohita</i>)	Rat carcass bait	Decomposed snake carcass	Chicken bait (laboratory culture)
Associated Dipteran Species	<i>Chrysomya rufifacies</i> , <i>Lucilia cuprina</i>	<i>Calliphora vicina</i>	Unidentified dipteran maggots	<i>Chrysomya rufifacies</i>
Parasitoid Recorded	<i>Brachymeria podagrica</i>	<i>Brachymeria podagrica</i>	<i>Brachymeria podagrica</i>	<i>Brachymeria podagrica</i>
Nature of Observation	Field trap	Field trap	Forensic investigation	Laboratory rearing
Inference / Significance	Probable parasitism of calliphorid pupae developing in decomposing fish substrate	Probable parasitism, strengthening host association inference with <i>Calliphora vicina</i>	Indicates probable parasitism of carrion-associated dipteran larvae/pupae	Confirms association of <i>Brachymeria</i> with <i>Chrysomya rufifacies</i> under controlled conditions

Table 2. Previously documented host records of *Brachymeria podagrica* (Fabricius) across Diptera

Host family	Host species	Locality	References
Sarcophagidae	<i>Sarcophaga dux</i> Wiedemann	Saudi Arabia	Abd Al Galil et al., 2022
Sarcophagidae	<i>Peckia collusor</i> (Wulp)	Colombia	Ramírez-Mora, Durango-Manrique, 2021
Sarcophagidae	<i>Peckia chrysostoma</i> (Wiedemann)	Brazil	Marchiori, 2001
Sarcophagidae	<i>Sarcophaga (Liopygia) ruficornis</i> (Fabricius)	Brazil (Para)	Silva et al., 2025
Calliphoridae	<i>Hemilucilia flavifacies</i> Enderlein	Brazil (Goiás)	Marichori et al., 2003a
Calliphoridae	<i>Chrysomya albiceps</i> (Wiedemann)	Brazil	Marchiori & Pereira, 2002
Calliphoridae	<i>Chrysomya megacephala</i> (Fabricius)	Brazil	Marchiori, 2004
Calliphoridae	<i>Chrysomya rufifacies</i> (Macquart)	India (Odisha, Maharashtra)	Present study
Calliphoridae	<i>Lucilia cuprina</i> (Wiedemann)	India (Odisha)	Present study
Calliphoridae	<i>Calliphora vicina</i> Robineau-Desvoidy	India (Punjab)	Present study
Muscidae	<i>Ophyra aenescens</i> (Wiedemann)	Brazil (Goiás)	Marchiori et al., 2003b
Muscidae, Calliphoridae, Sarcophagidae	14 species including <i>Synthesiomyia</i> , <i>Cochliomyia</i> , <i>Lucilia</i> , <i>Calliphora</i> , <i>Phormia</i> , <i>Sarcophaga</i> , and <i>Peckia chrysostoma</i>	-	Roberts (1933)

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Are mosquitoes (Diptera: Culicidae) vectors of deer cutaneous fibromas?

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In October of 2025 a post appeared on Facebook containing several photographs of Key Deer (*Odocoileus virginianus clavium*) on Big Pine Key, Florida, exhibiting various dermatopathies (Fig. 1). Much speculative commentary followed, including a suggestion that the lesions may be deer cutaneous fibromas. In fact, what people were seeing was a coincident occurrence of a variety of conditions with different causes; the one that instigated the most concern amongst the citizenry was actually an allergic reaction to the large number of mosquito bites the deer were receiving during an unusually numerous emergence of salt marsh mosquitoes (Mader 2025), a condition called urticaria. As I read through the comments, one statement that caught my eye was that cutaneous fibromas of deer could be transmitted from deer to deer by mosquitoes. Being unfamiliar with this supposed vector-pathogen association, I decided to do some reading.

Fibromas have been observed in at least nine species of Cervidae (Sundberg & Nielsen 1981, Erdélyi et al. 2008). The tumors are caused by infection with a papilloma virus (Sundberg & Lancaster 1988). A Google Scholar search provided several references in which the claim was made that mosquitoes (and other biting flies) serve as vectors of deer fibromas, e.g., Campbell & VerCauteren (2011). Some of these papers cite Davidson (2006) as the source of their information. I was unable to access a copy of Davidson (2006) due to paywall restrictions but I did see Davidson & Nettles (1988) in which they state that the tumors are “believed to be” transmitted by biting insects. Kureljušić et al. (2012) and Rajský et al. (2016) also associate transmission of fibromas of deer with insect bites.

The belief that mosquitoes are responsible for transmission of deer fibromas appears to be a conflation of several ideas. First, Fay (1962) stated, “it is likely” that biting insects are involved in transmission, citing Larson et al. (1936) who experimentally transmitted rabbit papillomavirus to a cottontail rabbit via ticks. This appears to have been a mechanical transmission and neither a propagative nor a cyclo-propagative transmission. Larson et al. (1936) in fact demonstrated a single case of apparent mechanical transmission of rabbit papilloma virus by rabbit ticks. They then stated, “It appears probable that this infection may be likewise transferred by mosquitoes and biting flies.”

Later, Dalmat (1958) did demonstrate transmission of rabbit papilloma virus by mosquitoes in the laboratory. Second, Fay (1970) again mentioned insect vectors and cited Larson et al. (1936) and Fenner & Ratcliffe (1965). This was not unreasonable given the state of knowledge at the time and the fact that the myxomatosis virus had previously been shown to be transmissible by mosquitoes (Torres 1936, Aragão 1945). Third, the possibility of transmission of the deer papilloma virus by mechanical inoculation has been demonstrated in the laboratory. The virus was successfully transmitted from deer to deer (Shope et al. 1958, Sundberg et al. 1985) and to hamsters (Koller & Olson 1952, Sundberg & Lancaster 1988). The belief that mosquitoes serve as vectors of deer papillomaviruses may seem reasonable given the preceding. Apparently it has been accepted as fact by a number of people. However, there is no definitive answer to the question as yet.

Barnett (1960) provided four criteria that must be met in order to incriminate an arthropod as a vector of a pathogen. These criteria are: 1, demonstration of feeding or other effective contact with the host under natural conditions; 2, a convincing biological association in time and/or space of the suspected

arthropod species and occurrence of clinical or subclinical infection; 3, repeated demonstrations that the arthropod, under natural conditions, harbors the infectious agent in the infective stage; 4, transmission of the agent under controlled conditions.



Figure 1. Key deer with lesions. (Photos courtesy of Val Preziosi)

Potential supportive criteria

Criterion 1, demonstration of feeding or other effective contact with the host under natural conditions: The black salt marsh mosquito is the most abundant mosquito species on Big Pine Key year-round (Hribar 2005). O'Meara * Edman (1975) studied blood meals taken by the black salt marsh mosquito, *Aedes taeniorhynchus*. Key deer are a major source of blood meals for this species of mosquito. Hribar (2002) documented the annual presence of *Ae. taeniorhynchus* on Big Pine Key. Criterion 2, a convincing biological association in time and/or space of the suspected arthropod species and occurrence of clinical or subclinical infection: The appearance of the skin lesions coincided with an unusually high number of black salt marsh mosquitoes emerging over an extended period of time (Florida Keys Mosquito Control District, unpublished).

Criterion 3, repeated demonstrations that the arthropod, under natural conditions, harbors the infectious agent in the infective stage. To my knowledge, this has not been done for deer fibromas. Isolating viruses from pools of wild-caught mosquitoes is labor-intensive and there can be very little return on the amount of work put in to collect, identify, and process mosquito pools. For example, during an active outbreak of dengue in the Florida Keys, 1,178 pools of *Aedes aegypti* were processed and only three of them were positive for viruses (Graham et al. 2011).

Criterion 4, transmission of the agent under controlled conditions. To my knowledge, this has not been demonstrated for deer fibromas. This process is also labor-intensive and requires large numbers of potential vectors to facilitate transmission. Foil et al. (1988) were able to achieve mechanical transmission of Bovine Leukemia Virus via interrupted feeding of horse flies (Tabanidae) but only in groups of 50 to 100 flies. One reason for this difficulty in facilitating mechanical transmission is that the amount of blood left on horse fly mouthparts after feeding is very small, measurable in the nanoliters (Knaus et al. 1993). The amount of blood left on mosquito mouthparts must be even smaller. There is also the problem of getting IACUC (Institutional Animal Care and Use Committee) approval for such experiments. Given the Key Deer's status as protected at both the Federal and State levels, approval very likely would be impossible to obtain.

Given the limited facts noted and the vast amount of supporting data that are not available, it is unlikely that mosquitoes are vectors of deer fibromas. The fact that there has never been a case of deer fibroma documented in Key Deer makes the initial assumption false.

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**From preliminary inventory to structured ecology:
A follow-up analysis of over 10,000 asilid predator-prey associations
from eastern New Mexico and west Texas**

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Introduction: seven years later

In 2018 I reported a preliminary analysis of 5,000 predator-prey associations of Asilidae from eastern New Mexico and west Texas (Pollock 2018). That contribution emphasized geographic scope, taxonomic representation, and broad order-level prey composition. Intrafamilial asilid-on-asilid predation was already prominent, but the dataset was still growing and interpretations were necessarily conservative. Seven years later, the collection now exceeds 10,400 predator-prey interactions, each representing a direct field observation with predator and prey preserved as associated vouchers on the same pin. The dataset now spans 224 GPS-documented localities and includes consistent recording of predator sex as well as improved prey identifications, particularly within Diptera, Coleoptera and Lepidoptera (Papilionoidea). With increased scale and refinement, patterns that were previously qualitative and suggestive have become statistically demonstrable. For example, sex-structured predation and the relationship between size of predator and size of prey are more readily explored in a very large dataset.

Geographic scope and sampling continuity

Sampling now spans approximately 32.2 to 36.6°N and -108.5 to -102.7°W and encompasses shortgrass prairie, dune systems, riparian corridors, agricultural margins, and transitional upland habitats. In eastern New Mexico, most records derive from Roosevelt County (7,373), with 1,074 from Chaves County, 708 from Quay County, 366 from Lea County and 252 from De Baca County. Eight other counties account for 162 records. All Texas prey records derive from Bailey County. Many of the localities have been revisited across seasons and years, especially those closer to Portales in Roosevelt County. This temporal continuity reduces the likelihood that observed prey distributions represent short-term anomalies and instead suggests persistent trophic structure. The geographic expansion since 2018 has therefore strengthened both spatial representation and ecological inference.

Taxonomic coverage of Asilidae

Prey items of 38 genera (comprising approximately 100 species) of Asilidae have been documented in the study area since 2014. The top 10 genera account for over 90% of all prey records. Notable (number of prey records in parentheses) among these are *Efferia* Coquillett (3,143), *Saropogon* Loew (1,296), *Heteropogon* Loew (900), *Cerotainiops* Curran (896), and *Proctacanthella* Bromley (851). The breakdown of prey orders for each of these top-10 genera is given in Table 1.

Order-level prey structure: stability with scale

Across the ~10,400 accumulated prey records, 14 orders of insects and arachnids are represented. Hymenoptera continue to dominate the prey base, accounting for roughly 37% of all records. Diptera follow at approximately 20% (12.7% non-Asilidae, 7.3% Asilidae), Hemiptera at about 23% (Heteroptera 11.5%, and “Homoptera” 11.2%), Coleoptera at 7.4%, Lepidoptera 6% and Orthoptera at 5.4%. The remaining orders each account for less than two percent of records; among these are 50 records of spiders as prey. The persistence of this distribution across a doubling of sample size

indicates that the broad trophic framework described in 2018 was not an artifact of limited sampling. Instead, increased scale has reinforced its stability.

Ranking asilid genera by the proportional dominance of their most frequent prey order reveals strong hymenopteran specialization in *Saropogon* (93%), *Cerotainiops* (86%), and *Mallophora* (85%). In contrast, genera such as *Efferia* and *Proctacanthus* show much broader prey-order representation, with no single order exceeding ~32% of total prey records (Figure 1).

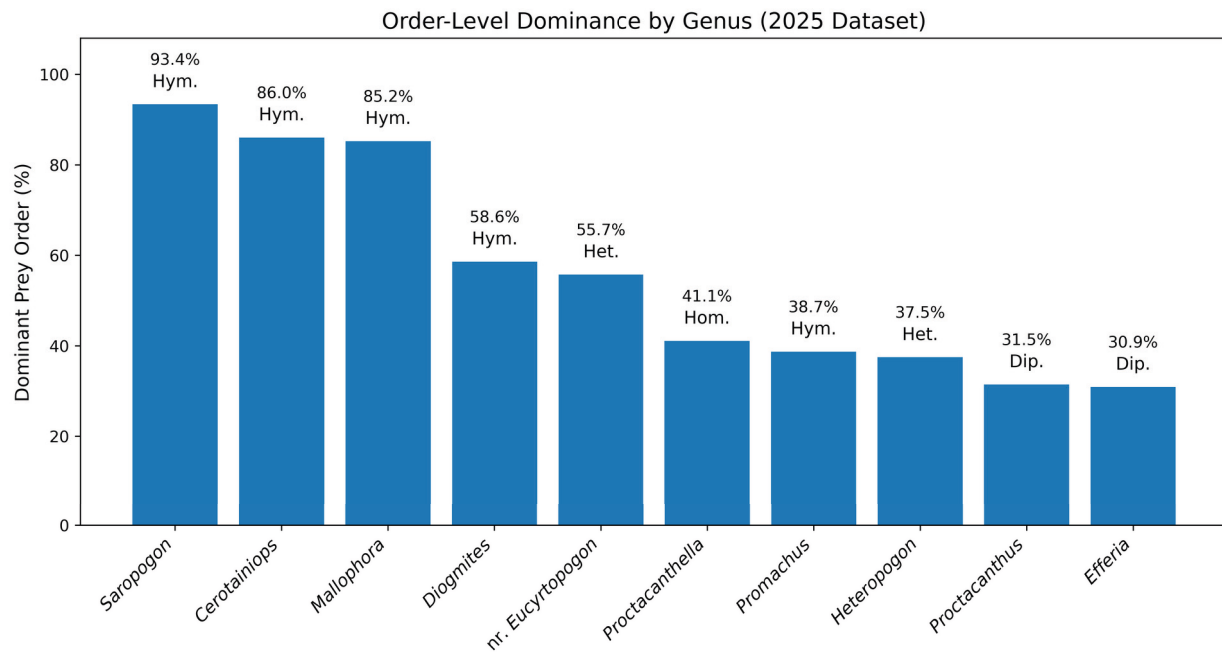


Figure 1. Order-level dominance of prey in the ten most frequently represented asilid genera based on the cumulative 2025 dataset. Bars indicate the percentage contribution of the single most common prey order within each genus. Dominant orders are indicated above each bar (Hym. = Hymenoptera; Het. = Heteroptera; Hom. = Homoptera; Dip. = Diptera). Several genera (notably *Saropogon*, *Cerotainiops*, and *Mallophora*) exhibit strong hymenopteran dominance, whereas others show broader prey-order representation. Among dipteran prey items, Asilidae comprised 88.6% and 80.2% of dipteran prey for *Proctacanthus* and *Efferia*, respectively, and 27.9% and 24.7% of all prey items.

Sex-specific structure in prey capture

Of 10,350 records with sex of the asilid predator documented, approximately 62% involve females. Predator sex is significantly associated with prey order ($\chi^2 = 82.48$, $df = 10$, $p < 0.000001$). Females are disproportionately represented among captures of Hymenoptera, Orthoptera, and Coleoptera, whereas males are relatively more common among Diptera and Lepidoptera prey records. These differences are consistent with sex-linked energetic demands and body size divergence. Females often forage more intensively and capture prey more frequently than males, likely because females have higher nutritional demands associated with egg production. Studies on robber fly feeding ecology (e.g., Dennis et al. 2010) report that females are more often observed with prey than males, a phenomenon attributed in part to greater nutritional requirements for egg production. Only with a dataset exceeding ten thousand observations does this signal emerge clearly and convincingly.

Table 1. Prey-order composition for the ten most frequently represented asilid genera based on cumulative 2025 prey records. Values represent raw counts followed by within-genus percentages. The data illustrate moderate to pronounced hymenopteran dominance in several genera (e.g., *Saropogon*, *Cerotainiops*, *Mallophora*, *Diogmites*), contrasted with broader prey-order representation in others (e.g., *Efferia* and *Proctacanthus*). ARAN = Araneae; COL = Coleoptera; DIP = Diptera; HET = Hemiptera (Heteroptera); HOM = “Homoptera” (Sternorrhyncha + Auchenorrhyncha); HYM = Hymenoptera; LEP = Lepidoptera; NEUR = Neuroptera; ORTH = Orthoptera.

Genus	ARAN	COL	DIP	HET	HOM	HYM	LEP	NEUR	ORTH
<i>Efferia</i>	4 (0.1%)	192 (6.1%)	968 (30.9%)	333 (10.6%)	278 (8.9%)	713 (22.8%)	434 (13.9%)	14 (0.4%)	196 (6.3%)
<i>Saropogon</i>	1 (0.1%)	58 (4.5%)	12 (0.9%)	9 (0.7%)	5 (0.4%)	1210 (93.4%)		1 (0.1%)	
<i>Cerotainiops</i>		68 (7.7%)	6 (0.7%)	10 (1.1%)	40 (4.5%)	763 (86.0%)			
<i>Heteropogon</i>	26 (3.0%)	195 (22.1%)	24 (2.7%)	330 (37.5%)	227 (25.8%)	65 (7.4%)	5 (0.6%)	9 (1.0%)	
<i>Proctacanthella</i>	2 (0.2%)	27 (3.2%)	167 (19.9%)	67 (8.0%)	345 (41.1%)	155 (18.5%)	28 (3.3%)	6 (0.7%)	43 (5.1%)
<i>Proctacanthus</i>		74 (9.5%)	245 (31.5%)	25 (3.2%)	2 (0.3%)	152 (19.5%)	112 (14.4%)	1 (0.1%)	168 (21.6%)
<i>Diogmites</i>	2 (0.4%)	45 (8.4%)	122 (22.8%)	19 (3.5%)	24 (4.5%)	314 (58.6%)	8 (1.5%)	2 (0.4%)	
nr. <i>Eucyrtopogon</i>		20 (4.8%)	66 (15.8%)	233 (55.7%)	71 (17.0%)	19 (4.5%)	7 (1.7%)		2 (0.5%)
<i>Mallophora</i>		10 (4.3%)	7 (3.0%)	12 (5.2%)	5 (2.2%)	196 (85.2%)			
<i>Promachus</i>		24 (10.4%)	60 (26.1%)	22 (9.6%)	13 (5.7%)	89 (38.7%)	7 (3.0%)	1 (0.4%)	14 (6.1%)

Diptera at finer resolution

Within Diptera, 1,712 prey records have now been identified to family, representing more than 25 families. Asilidae, Bombyliidae, and Syrphidae dominate this subset of dipteran prey. Other families represented among prey items are Calliphoridae, Mydidae, Dolichopodidae, Muscidae and Bibionidae. Predator sex is significantly associated with dipteran family composition ($\chi^2 = 24.82$, $df = 9$, $p = 0.0032$). Bombyliidae are disproportionately captured by male asilids, whereas Syrphidae and several other families show a female skew. Interestingly, collapsing Diptera prey to a simple Asilidae versus non-Asilidae comparison reveals no significant sex association. Thus, sex-based structure operates at finer taxonomic resolution rather than at broad categorical levels.

Intrafamilial predation revisited

Among 747 asilid-on-asilid events classifiable by relatedness, most are intergeneric, with smaller proportions representing conspecific and congeneric predation. Predator sex is not significantly associated with cannibalism class ($\chi^2 = 1.86$, $df = 2$, $p = 0.40$), nor is predator sex associated with prey sex among asilid prey ($\chi^2 < 0.01$, $p = 1.0$). These findings suggest that intrafamilial predation reflects ecological overlap and encounter frequency rather than sex-specific targeting or intraspecific regulation.

Dataset Maturation and Published Analyses

Since the preliminary report (Pollock 2018), at least six order-focused analyses have emerged from this dataset. Coleopteran prey composition has been examined in detail in multiple studies (Pollock & Lavigne 2019; Pollock & Davidson 2020; Pollock & Davidson 2023), documenting hundreds of

predator-beetle associations across numerous families. Three local species of asilids were shown to be specialists on harvester ant workers by Pollock (2020). Lepidopteran prey, including butterfly records from eastern New Mexico and west Texas, were treated by Sajan et al. (2022). More recently, syrphid predation patterns were analyzed at regional scale (Pollock & Hauser 2023). These order-specific treatments demonstrate how a growing natural-history record base can mature into publishable ecological analyses. Large prey groups that still require further analysis (and identifications!) include Hymenoptera (especially Apoidea), Hemiptera (particularly families such as Cicadellidae and Lygaeidae), and Orthoptera (Acrididae). The present contribution returns to the broader dataset to examine structure across prey orders and predator sex, placing those focused studies into a wider trophic framework.

Conclusion

When I wrote the 2018 article, the collection felt substantial at ~5,000 records. I suspected that additional sampling would clarify patterns. The doubling of records has not changed the fundamental story of eastern New Mexico and west Texas asilid predation, but instead has deepened and sharpened it. What began as an inventory of prey associations has matured into a dataset capable of addressing ecological questions. The most satisfying aspect of this progression is that it has come from repeated field observation—watching robber flies do what they have always done, one capture at a time! I should also add that the ENMU Asilidae collection contains many specimens collected without prey; these specimens, and the “prey-added” specimens treated above are available for ecological and/or taxonomic study.

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**Another island record for the African fig fly,
Zaprionus indianus Gupta (Drosophilidae) in Monroe County, Florida**

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The African fig fly, *Zaprionus indianus* Gupta, is a pest of fruits and is a species of concern to agriculture (Pfeiffer et al. 2019). This species has been in the State of Florida for at least twenty years (Steck 2005, van der Linde et al. 2006). During that time it has spread into over half of the counties in the state (Hribar & Boehmler 2019). In 2019, Florida Keys Mosquito Control District staff reported the African Fig Fly from Upper Matecumbe Key in the City of Islamorada. This was the first report of the African Fig Fly from Monroe County (Hribar & Boehmler 2019). Later, one of us (LJH) repeatedly collected *Z. indianus* on Vaca Key in the City of Marathon (Hribar 2020a,b,c; 2023; 2024a,b,c). Recently, another specimen was found in a carbon dioxide-baited light trap set for mosquito surveillance (Fig. 1). Collection data are as follows: FL, Monroe Co., Dredgers Key, Sigsbee Naval Base, City of Key West, 21 Jan 2026, J. Rodriguez, coll., ABC trap. This collection site is approximately 44.5 miles (71.6 km) southwest of Vaca Key. It is probably safe to say that *Z. indianus* occurs throughout the Florida Keys.



Figure 1. African Fig Fly, *Zaprionus indianus*, collected in the City of Key West, Florida.

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Another mite (Trombidiformes) on *Aedes taeniorhynchus* (Culicidae)

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On 9 September 2025, an American Biophysics Company (ABC) trap, deployed the previous evening for routine mosquito surveillance, was retrieved from Windley Key Fossil Reef State Geological Park, Florida. Among the insects in the collection bag was a female *Aedes taeniorhynchus* Wiedemann that had a small orange mite attached to the membranous area around the mesothoracic spiracle just posterior to the postpronotum (Fig. 1). I removed the mite from the fly, cleared it in a solution of phenol and acetic acid, and mounted it onto a microscope slide in Euparal mounting medium; I mounted the mosquito on a paper point.

Collection data (both specimens): FL, Monroe Co., Windley Key, City of Islamorada, Windley Key Fossil Reef State Geological State Park, 9 September 2025, A. Loftus.



Figure 1. Mite attached to thorax of *Aedes taeniorhynchus* female.

The mite is unidentifiable because the head and mouthparts detached from the rest of the body during removal and are lost. All that can be said is that it definitely is one of the Parasitengona (Trombidiformes). As was the case in a previous report (Hribar et al. 2025) this mite collection was from a single mosquito among hundreds of conspecifics.

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Systema Dipteroorum

The BioSystematic Database of World Diptera



Systema Dipteroorum Spring 2026 Update (version 7.2)

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Thanks to everyone who publishes new taxa of Diptera; keeping *Systema Dipteroorum* up to date is not a boring chore. In fact, at times it is difficult keeping pace with new papers appearing online that need to be added(!); e.g., at any one time we usually have about 75 pdfs of papers in the queue waiting to be entered. Apologies if you check online and taxa you described are not yet entered! With version 7.2 (posted online 5 June 2026), we now have a total of 221,062 species names entered (available and unavailable); 214,146 are available names; and 177,750 are valid names (and of these, 172,830 are for extant species). Since the last *Fly Times* update in December 2025, we have passed the milestone of 250,000 total names of flies (species, genera, and families) in *Systema Dipteroorum*.

As usual, all this could not have been done without the help and support of our colleagues around the world. Shout outs and thanks to all those since the last *Fly Times* update in December 2025 who have helped us with corrections, updated taxonomy we missed, papers we didn't have, and answers to queries we had. In no particular order: Martin Hauser, Jim O'Hara, Elisabeth Stur, Eileen Buss, Arthur Frost, Brad Sinclair, Stephen Garnett, Steve Kerr, Chris Angell, Jens-Hermann Stuke, Krzysztof Szpila, Ayman Elsayed, Eberhard Zielke, Richard Pyle, Mitsuhiro Iwasa, Ximo Mengual, Stuart Longhorn, Stephen M. Smith, Verner Michelsen, Wren Falcon, Wojciech Szczepański, Ray Gagné, Paul Rude, Faldieck Mortiz, Pjotr Oosterbroek, Elias Debree, Reinoud van den Broek, Gary Steck, Marcia Couri, Ashley Kirk-Spriggs, Santiago Jaume-Schinkel, Alexandre Pereira Colavite, Torbjørn Ekrem, João Paulo Vinicios Rodrigues, Dinesh Sharma, Torsten Dikow, Brian Brown, Erin Kolski, Keith Edkins, Andrew Whittington, Atanu Naskar, Yu Zhou, Danielle Sommaggio, Denise Wawman, Sander Mol, Peter Kolisek, Toru Katoh, Yury Roskov, Ralph Harbach, Varga Nimród Marcell, Luciana Musetti, André Nel, Paul Skelley, Bastian Wakkie, Jere Kahanpää, Art Borkent.

Visitor analysis of the Disease Vector Education Center in the past two years

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Detailed information about background, purposes, design, construction, displays, operation, and evaluation of the creation of the Disease Vector Education Center (DVEC) in Anastasia Mosquito Control District (AMCD), St. Augustine, Florida have been published (Xue et al. 2022, 2023, Weaver et al. 2025). The DVEC has officially opened to public at free admission since grand opening on March 26, 2024. The DVEC currently operates Wednesday through Sunday from 10:00 AM to 5:00 PM and is closed on Mondays, Tuesdays, and public holidays. Special events, tours, and field trips are offered by appointment.

The DVEC serves as a regional hub for public education, community engagement, and scientific outreach related to vector biology and vector- and mosquito-borne disease prevention and control. Understanding visitor behavior and attendance patterns is essential for optimizing operations, staffing, educational programming, and outreach strategy. This report summarizes visitor activity across two full years of operation, using aggregated data from March 26, 2024– March 25, 2025 (Operational Year 1) and March 26, 2025–March 25, 2026 (Operational Year 2).

Data Source. Visitor counts were obtained from the DVEC’s electronic ticketing and entry tracking system. Tickets were categorized as *complimentary* (representing first-time adult and child visitors) and *returning guests* (adult and child visitors who had previously attended). As admission to the DVEC is free, ticket categories reflect visit frequency rather than revenue. In future reference, the complimentary tickets will be referred to as first-time guests. Data were aggregated and exported into summary tables that include monthly totals for each year, visitor totals by day of week, hour-of-day, ticket category, and month x weekday distribution matrices. The dataset contained no personal identifying information. Two annual datasets were analyzed: Operational Year 1 (10,033 visitors) and Operational Year 2 (15,136 visitors).

Analysis Approach. Descriptive statistical analyses were conducted to identify year-over-year changes, seasonal and monthly trends, weekly patterns in visitation, hourly demand peaks, and shifts in visitor demographics (ticket category). The analysis includes total annual attendance, monthly visitor patterns, day-of-week visitation patterns, hour-of-day visitation patterns, visitor category breakdown, year-over-year comparisons, key trends, and operational implications.

All values reflect actual data provided by the DVEC’s visitor management system. Year difference in typical day volume using two-sample t-test on daily totals (Operational Year 1 vs. Operational Year 2). Seasonality differences within month each year and hour difference each day by using one-way ANOVA on daily totals grouped by calendar month, run separately for each year. Weekday distribution shift (Operational Year 1 vs Operational Year 2) using Chi-square test (χ^2) of independence on weekday counts (typically Wed–Sun, operating days).

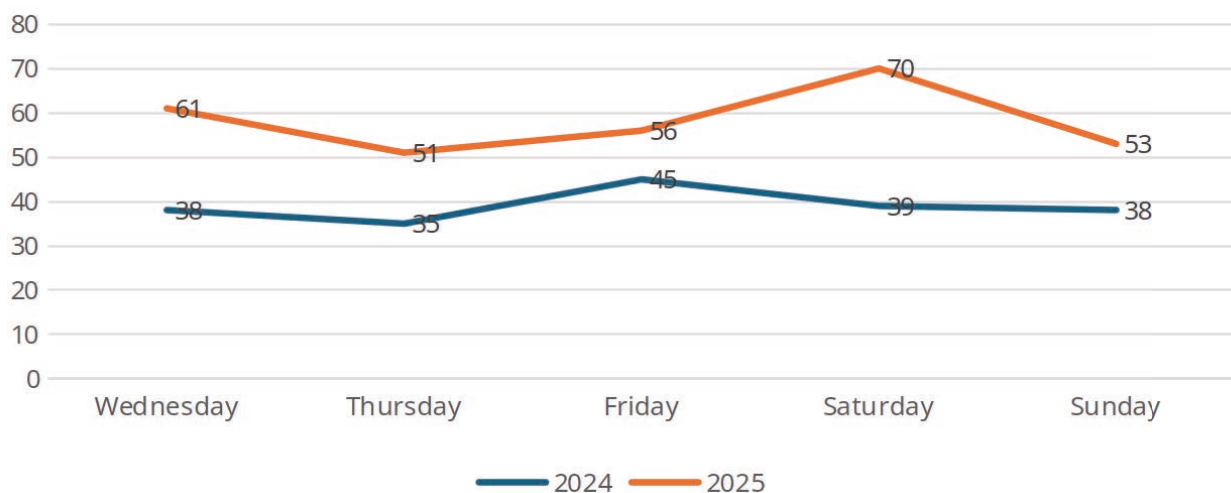
Annual Totals. The DVEC experienced substantial growth between the two years. Operational Year 1 received 10,033 visitors and Operational Year 2 with 15,136 visitors. Year-over-year growth was significantly more than 50.9% ($t = 5.163$, $df = 441$, $P < 0.001$). This increase reflects expanded visibility, stronger community outreach, increased tourism, and higher engagement with public health education programming.

Day-of-Week Trends. Operational Year 1: Highest visitation occurred on Friday (2,330), with the lowest on Thursday (1,803). Weekends accounted for approximately 63% of total visits. Operational Year 2: Highest visitation occurred on Saturday (3,626), followed by Wednesday (3,178). Friday remained strong with 2,916 visitors.

Average number of visitors per operating day increased from 193 (Year 1) to 291 (Year 2). Peak operational days shifted from Fridays in Year 1 to Saturdays in Year 2.

Trends have seen a combined daily average of 49 visitors on Wednesdays, 43 visitors on Thursdays, 50 visitors on Fridays, 54 visitors on Saturdays, and 45 visitors on Sundays over the course of the first two years of operation (Fig. 1). Weekday visitation remains comparable to weekends with minimal difference. Wednesday showed significant high than other days ($\chi^2=100.55$, $df=4$, $P < 0.001$)

Fig. 1. Daily average of visitors, 1st year (Mar 26, 2024-Mar 25, 2025) & 2nd year (Mar 26, 2025 -Mar 25, 2026)

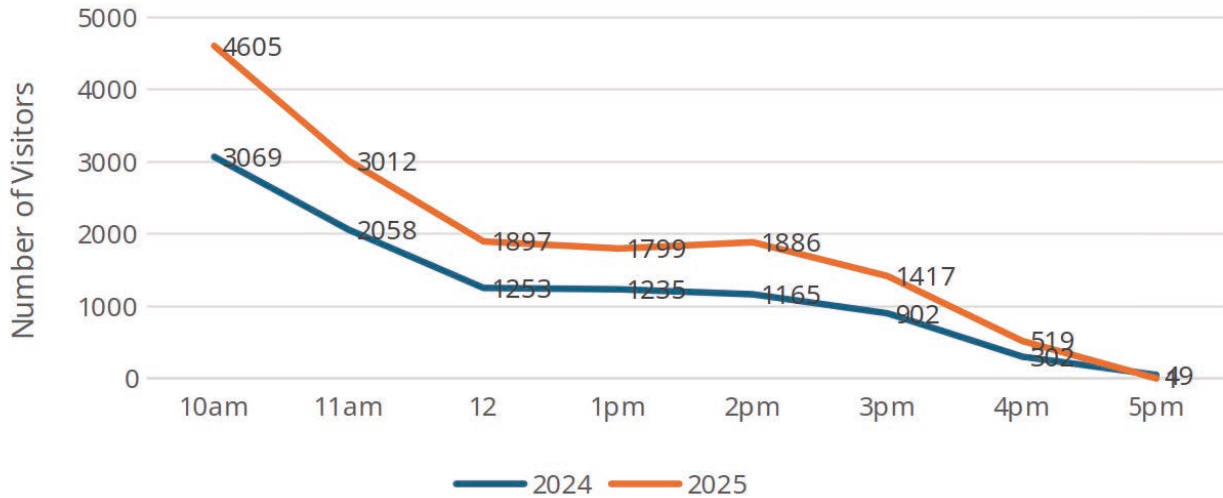


Hour-of-Day Trends. Operational Year 1: Peak visitation occurred at 10:00 AM (3,046) and 11:00 AM (2,058), with the lowest at 5:00 PM (49). Visitation declined steadily after 1:00 PM, with significant variation across hours ($F = 40.65$, $df = (7, 31)$, $P < 0.001$). Operational Year 2 Peak visitation remained at 10:00 AM (4,605) and 11:00 AM (3,012). Near-zero visitation occurred after 4:00 PM, with significant variation across hours ($F = 31.35$, $df = (7, 32)$, $P < 0.001$). Morning hours accounted for over 50% of total daily traffic. These patterns support the effectiveness of DVEC’s morning-focused operations.

The current operating schedule is Wednesday–Sunday, 10:00 AM–5:00 PM. Visitation is highest between 10:00 AM and 2:00 PM, with consistent peak activity from 10:00 AM to 1:00 PM. Attendance declines significantly after 3:00 PM and becomes minimal after 4:00 PM (Fig. 2).

The existing schedule is not fully aligned with visitation trends, staffing capacity, or operational needs. As visitation increases and programming expands, a more efficient and operationally aligned model is required.

Fig. 2. Number of visitors hourly, 1st year (Mar 26, 2024-Mar 25, 2025 & 2nd year (Mar 26, 2025-Mar 25, 2026)



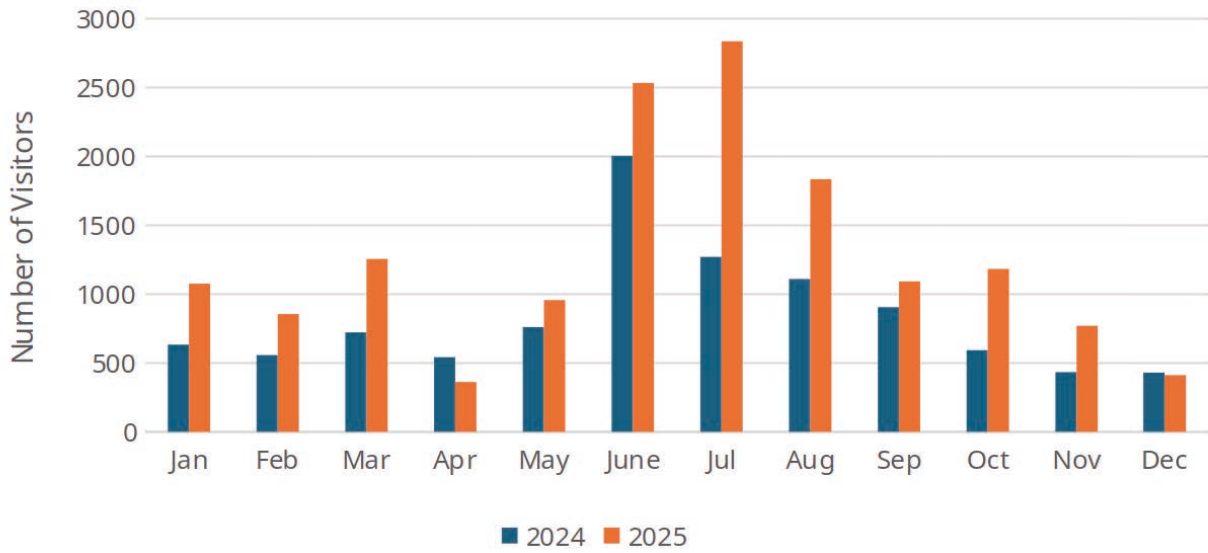
Monthly Trends. Operational Year 1: Spring months (March–May) showed moderate increases driven by school visits. Attendance was highest in summer months from June to August, with June peaking at 2,090 visitors (45%). Winter months (November–February) were the lowest with significant difference ($F = 13.206$, $df = 11$, $P < 0.01$). Operational Year 2: Attendance displayed the same seasonal structure, but with higher values in July alone in the two-year period (2,830 visitors); April showed a temporary decrease (361 visitors) with significant difference ($F = 21.32$, $df = 11$, $P < 0.01$). Early-year traffic (January–March) was notably higher than in Year 1.

Both years share similar seasonal structure (Fig. 3): Summer (Jun–Aug) with highest engagement, Spring (Mar–May) with strong educational event traffic, Fall (Sep–Oct) with moderate visitation, and Winter (Nov–Feb) with lowest attendance.

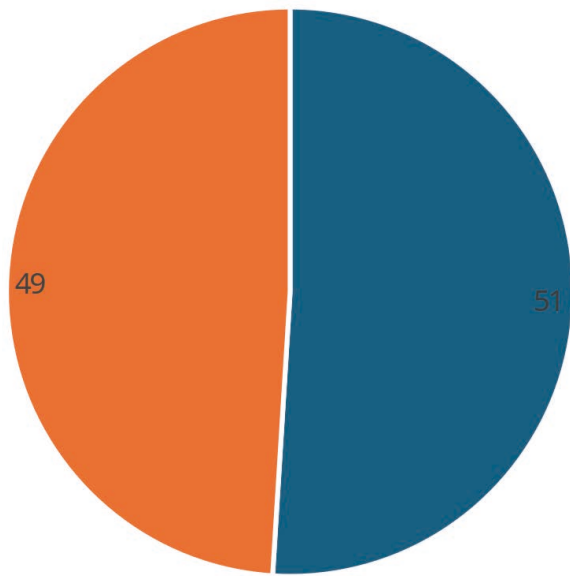
Visitor Category. Operational Year 1: Children accounted for 51% of visitors and adults 49%. Operational Year 2: Children accounted for 52% of visitors and adults accounted for 48%. Among these accounts, returning visitors made up 11% of adults and 14% of children attended at least twice (Fig. 4). First-time visitor adults and children totaled 5,543 and 5,724, respectively. Returning adults and children totaled 1,684 and 2,185, respectively.

First-time visitor tickets (adult and child) accounted for 75% of all Operational Year 2 visitors. Returning guests represented 25%, indicating good repeat engagement. Children visitors exceeded adult visitors in both categories. This breakdown supports strong school-based and family-based engagement.

Fig. 3. Monthly visitors, 1st year (Mar 26, 2024-Mar 25, 2025 & 2nd year (Mar 26, 2025 -Mar 25, 2026)

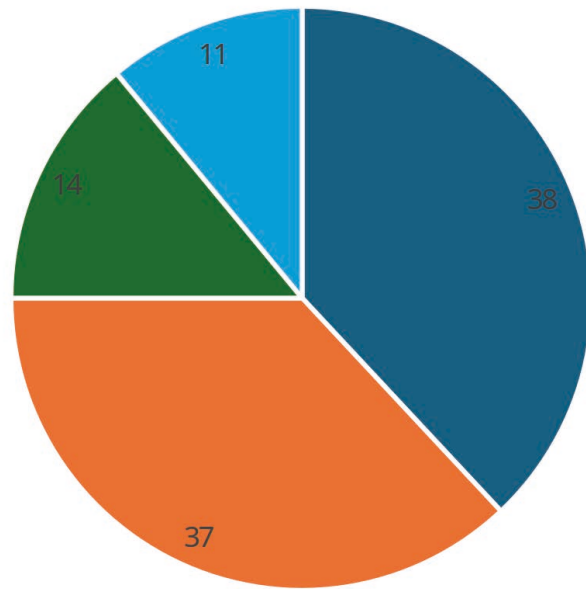


% visitors in 1st year



■ Children ■ Adults

% of visitors in 2nd year



■ Complimentary ■ Comp. Adults
■ Return Child ■ Return adult

Fig. 4. Visitor demographics: 1st year (Mar 26,2024-Mar 25, 2025); 2nd year (Mar 26, 2025–Mar 25, 2026)

Discussion

The two-year dataset demonstrates robust growth in public engagement with the DVEC. There were several factors that contributed to the increases, such as increased public awareness, free admission, media coverage, facility uniqueness, and community events likely amplified visibility. Summer months coincide with active mosquito season and school breaks, consistently drove the highest attendance.

First-time children's tickets exceeded all other categories, reflecting strengthened relationships with schools, youth programs, camps, and the community. Wednesday showed major growth in Operational Year 2, aligning with home schools, field trips, and other group scheduling patterns.

Also, the increase was likely related to the tourism seasonals because St. Augustine experiences seasonal tourism surges, especially in summer. These consistent pattern parallel peak months observed in both years.

Hour-of-day data confirmed that the center is busiest from 10:00 AM to 1:00 PM, validating current staffing strategies. Minimal activity occurred after 4:00 PM. The 50.9% increase between Operational Years 1 and 2 may reflect expanded programming and outreach, increased community partnerships, greater public concern surrounding mosquitoes and disease risks, and improved keeping and visitor tracking.

Understanding these trends enables the DVEC to plan future initiatives like staffing, schedules and hours of operation based on funding and labor availability. Morning staffing (10:00 AM–12:00 PM) should be prioritized. Additional staff need Saturdays and Wednesdays based on Year 2 patterns. The best times for demonstrations or guided tours should be scheduled at 10:00 AM–1:00 PM. Spring and summer should receive the highest density of scheduled educational activities. Increased visitor flows warrant expanded exhibit support in summer months. Visitor load suggests evaluating space usage and possibly expanding interactive stations during peak hours.

The high proportion of first-time visitor tickets, representing first-time visitors, indicates continued success in attracting new audiences. Concurrently, overall visitor volume and repeat attendance patterns suggest opportunities to further enhance engagement through exhibit expansion and interactive programming during peak hours.

A structured booking system integrated into the website, combined with self-check-in options, will improve visitor flow, reduce front desk bottlenecks, and alleviate staffing strain. Additional surveys, evaluation of effectiveness, and knowledge gains from visitors will be added during slowing seasons based on volunteers. This approach will also enable more accurate tracking of visitor volume, return visits, and overall trends through anonymous data collection, supporting better operational decisions while maintaining visitor privacy.

The DVEC needs to expand partnerships with the local community to enhance youth and senior engagement, continue development of interactive education exhibits, increase digital outreach to reach a wider audience through all social media, and seek additional grant funding for public health and education initiative.

Increasing visitation and improving educational programming demands regular adoption of new technology like artificial intelligence, robotic display, and activity, structuring staffing, supporting a

shift toward a more efficient weekday-focused operational model. Currently, weekend staffing is short and difficult. High turnover on seasonals, especially school break limits staff delegation. Two to three full-time staff (Currently the DVEC Coordinator/Entomologist and Education Specialist are the only full-time staff) and 2 alternating seasonal full-time staff (from January to June, and from July to December) are needed. Also, the DVEC needs support from other staff and rotation during peak hours, peak days, and school field trips/events. In addition, the DVEC needs to recruit and increase more volunteers, especially from high school and senior groups.

Conclusion

Over the two years analyzed, the Disease Vector Education Center in Anastasia Mosquito Control District, St. Augustine, Florida experienced significant and sustained growth in public engagement. In our Operational Year 2 dataset, visitor totals increased by more than 50%, with predictable seasonal, weekly, and hourly trends that can guide staffing, programming, and operational planning. Summer months present the greatest opportunity for outreach and impact. Saturdays and mornings remain the most active periods. Returning guests and school-age visitors represent an important recurring audience. These insights provide a strong foundation for strategic planning, budget, and continued expansion of the DVEC’s public health education mission.

Acknowledgments

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HISTORICAL DIPTEROLOGY

Russian diplomat and entomologist Robert Romanovich (Carl Robert) Osten-Sacken and his role in the studies of North American insects

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A translation, with modifications, of:

Nartshuk, E.P. (2021) Rossiiskii diplomat i entomolog Robert Romanovich Osten-Saken i ego rol' v izuchenii nasekomykh Severnoi Ameriki. *Voprosy istorii estestvoznaniia i tekhniki* 42(3): 522–532. [in Russian]

Abstract: This paper analyzes a fruitful scientific collaboration between a Russian diplomat and entomologist, Carl Robert Osten-Sacken, and a German dipterist Friedrich Hermann Loew, who laid the foundation for the studies on North American Diptera. In particular, it provides information about three collections of insects, made by Osten-Sacken: the main collection of North American Diptera with type specimens of the species described by Loew and Osten-Sacken himself, which was left in the USA and is now permanently deposited at the Louis Agassiz Museum of Comparative Zoology (Harvard University); a collection of the most common North American insects that was presented by Osten-Sacken to the American Museum of Natural History (NYC), and a small collection of European Diptera, deposited in the Zoological Institute of the Russian Academy of Sciences in St. Petersburg. Other aspects of Osten-Sacken's entomological studies are also analyzed, particularly his proposals for the chaetotaxy of Diptera and for the order's taxonomy, and his biographical book, "Record of My Life Work in Entomology", is reviewed.

Keywords: Robert Romanovich (Carl Robert) Osten-Sacken, Friedrich Hermann Loew, entomology, North American Diptera.

Entomology, or the science of insects, had developed greatly in the Russian Empire by the mid-19th century. At that time, collecting and studying insects was not only done by scientists, but was also common among members of high society, including members of the imperial family. Thus, when the Russian Entomological Society, one of the oldest in Europe and the world, was founded in 1859, its patron was Grand Duchess Elena Pavlovna. Robert Romanovich Osten-Sacken was among the founding fathers of this society. A member of a baronial family, he divided his life between diplomacy and entomology, and his contribution to science will be discussed in this article.

The Osten-Sackens were a princely, count and baronial family dating back to the early 15th century. In the early 18th century, they settled on the island of Oesel (now Saaremaa, Estonia) and began serving Russia. The father of Robert Romanovich Osten-Sacken, Roman Fedorovich Osten-Sacken (1791-1864), a Russian statesman and privy councilor, belonged to the baronial branch of the family. He was married to Elizaveta Yegorovna, née Engelhardt, the daughter of the director of the Tsarskoye Selo Lyceum, E. A. Engelhardt. Both of his sons were diplomats, served in the Ministry of Foreign Affairs of the Russian Empire and both were actively involved in science. The younger son, Fyodor Romanovich Osten-Sacken (1832-1916), was an active member of the Russian Geographical

Society, a member of its council, and secretary of the society. He traveled extensively throughout Central Asia, accompanied E. V. Putyatin on his mission to Japan in 1857-1858, visited the Russian coast of the Sea of Japan and the island of Ceylon.



The Coats of Arms of the Osten-Sacken families.



Robert Romanovich Osten-Sacken

The eldest son, Robert Romanovich Osten-Saken, was born on August 21, 1828 (old style) in St. Petersburg. He studied at the St. Petersburg Second Gymnasium and at the Cameral Department of the Faculty of Law of the Imperial St. Petersburg University. Even as a child, he showed an interest in insects, and in 1838, at the age of 11, he met Iosif Nikolaevich Shatilov (1824-1890), later a famous forester and ornithologist, who gave him his first instructions on collecting beetles. In 1849, he began serving in the Ministry of Foreign Affairs, but never abandoned his studies of insects. He

was interested in all insects and collected them, with the exception of butterflies (Lepidoptera), in the vicinity of St. Petersburg. He was especially attracted by dipterous insects, which at that time were practically unstudied in Russia. He began to professionally study the lower dipterans of the family Tipulidae (subsequently Tipulidae, as they were understood in the 19th century, were divided four families, one of which retained the name Tipulidae). They are known to the general public as long-legged mosquitoes, or "karamory". These large insects often fly into the light of rooms and frighten the ignorant with their size. They are harmless to humans, do not bite and do not feed on blood. Osten-Sacken continued to study this group of dipterans in the future.

During his time in St. Petersburg, he published two articles in the *Entomologische Zeitung*, published in Stettin, Germany. In his first publication, Osten-Sacken described a new species and proposed a new classification of the short-palped Tipulidae (according to modern classification, this is the family Limoniidae). But his most significant work of this period was *An Essay on the Current State of Knowledge of the Entomological Fauna of St. Petersburg* (1857). It was published in Russian in the *Journal of the Ministry of Public Education*, when Osten-Sacken was already in the United States. It presented a list of all the insects, excluding butterflies (Lepidoptera), known in the vicinity of St. Petersburg, with geographical and historical comments. This was the first report on the insect fauna of the city and its environs. Osten-Sacken later published a summary of this article in Germany.

One can speculate why Osten-Sacken did not include butterflies in his review, although in later years, when he lived in America and Europe, he published on this order insects. As already mentioned, representatives of the high society of the Russian Empire were not averse to entomology. Lepidoptera was within the sphere of interests of the Grand Duke N. M. Romanov, and Osten-Sacken delicately avoided intersecting with the interests of a member of the imperial family.

In 1856, Osten-Sacken was appointed secretary of the Russian Foreign Mission in Washington and left for there in early April of that year. Later, from 1862 to 1871, he was Russia's consul general in New York.

When Osten-Sacken left for America, he was already planning to continue his studies in entomology. While crossing Europe, he met and talked with all the famous zoologists and entomologists in Königsberg, Berlin, Stettin, Dresden, Vienna, London and other cities. In Berlin, he had a long and interesting conversation with Alexander Humboldt in his home. The famous traveler and scientist was then 87 years old, but Osten-Sacken notes that his interlocutor, despite his age, was remarkably active both physically and mentally. At the beginning of July, Osten-Sacken sailed from Liverpool to New York on the steamship *Arabia*; the journey lasted 13 days.

In America, a new stage of his entomological work began, which lasted 21 years, until 1877. Upon his arrival in America, Osten-Sacken compiled a catalog of all North American dipteran insects described before 1856, and in 1878 he prepared a second edition of the catalog, including all the species described before that year. Both catalogs were published by the Smithsonian Institution in Washington. After leaving the diplomatic service, Osten-Sacken moved to Europe for two years, and then returned to the United States as a private individual. During this period, Osten-Sacken actively traveled around North America, visited New Orleans, the states of Alabama and Florida, and even Cuba, and everywhere he collected insects, especially Diptera.

The American period of Osten-Sacken's life was marked by close cooperation with the famous German dipterologist Friedrich Hermann Loew (1807-1879), a leading specialist on this group of

insects, in the 19th century. The beginning of their acquaintance dates back to the St. Petersburg period of Osten-Sacken's life. Then he sent Loew specimens of dipterans, collected by him in the vicinity of St. Petersburg, and Loew described them as a new species.

The European fauna of Diptera was already relatively well studied by the middle of the 19th century. The German entomologist I. W. Meigen, who is often called the father of European dipterology, published seven volumes, from 1822 to 1838, of descriptions of European dipterans. In France, descriptions of dipterans were published by M. Macar. Macquart and J. B. Robineau-Desvoidy. In Sweden, I. W. Zetterstedt published on Scandinavian dipterans. I. R. Schiner, in Austria, published on dipterans. C. Rondani, working in Italy, and A. H. Holiday in England, also published on Diptera.

The North American dipteran fauna had been very little studied by this time. Loew was extremely interested in obtaining new material, and Osten-Sacken realized that he would not be able to work with all the dipteran families, since diplomatic service took up a lot of time. Osten-Sacken and Loew formed a creative union, and this collaboration in the study of North American dipterans continued for many years. The work was organized as follows: Osten-Sacken collected insects personally or took collections from other American zoologists, made a preliminary sorting of them, and, keeping duplicates, sent the rest to Germany. Loew described the specimens that he received and sent their descriptions, in German, to the USA. Osten-Sacken translated the diagnoses and descriptions of the insects into English and edited the text. It was agreed in advance that Loew would use Latin script in the manuscripts, not Gothic. His handwriting was clear, but he wrote very small, with up to 80 lines on a 28.6 x 14 cm page. As a result of this collaboration and enormous work, ten articles were published with the subtitle *Centuria*, each article describing 100 new species, as well as other works by Loew. In total, he described 1,350 new species of North American Diptera.



Friedrich Hermann Loew
(19 July 1807–21 April 1879)

The *Centuria* series of articles were published in Latin. Osten-Sacken understood that North American Diptera should be described in the language used in North America, so all of Osten-Sacken's translated diagnoses and descriptions were also published in English in the series "Monographs on North American Diptera". The material on the family Tipulidae sensu lato (i.e. including Limoniidae) was processed by Osten-Sacken himself. He also studied horseflies (Tabanidae) and gall midges (Cecidomyiidae) and, in addition to Diptera, gall wasps (Cynipidae) from the order Hymenoptera.

These small insects were collected for Osten-Sacken by the American biologist R. Kennicott. In his autobiography, Osten-Sacken mentioned, with kind words, all the American zoologists who helped

him collect insects. As a result of the international union of the Russian diplomat and entomologist, the German dipterologist and a number of American zoologists, the foundation of North American dipterology was created. Osten-Sacken understood the importance of the collection he had created for the further development of science. In his opinion, it should be accessible to the entire scientific community, and, in addition, the collection of American insects should be stored in America. Therefore, before his final departure from the USA, Osten-Sacken decided to transfer his collection, which was at that time in Germany with Loew, for permanent storage in the Museum of Comparative Zoology at Harvard University.

At that time, Loew lived in Gulden. The collection was kept in 42 glass-topped boxes. The specimens had identification labels with the species name. Arriving in Gulden from America, Osten-Sacken checked the entire collection, removed some of the specimens, and under his supervision, all the boxes were carefully packed and sent to Harvard. The collection crossed the Atlantic for the second time and arrived completely intact. The collection transferred to the museum contained all the type specimens of the American Diptera species described by Loew and other researchers, as well as duplicates that had not been sent to Loew, and all undescribed material, which, according to Osten-Sacken, amounted to at least 3,000 new specimens. In total, the collection contained 1,800 species, of which 1,450 had type specimens. Louis Agassiz had already died by that time, and the museum was in the hands of his son, Alexander Agassiz, who paid Loew \$1,599. Osten-Sacken's own collection was also donated. In addition to insects, it contained a herbarium with galls formed by gall midges (Cecidomyiidae), gall wasps (Cynipidae), and fruit flies (Tephritidae).

Osten-Sacken spent two years at the museum while organizing the collection for permanent storage. During this time, he also traveled to California and visited the Sierra Nevada and the Rocky Mountains, where he collected material for his work on dipteran insects of the western United States. Osten-Sacken corresponded extensively with North American colleagues and insect collectors; his archive contains 617 letters addressed to or received from 99 correspondents. He planned to make a review of this correspondence, but the plan remained unrealized.

Having moved to Europe, Osten-Sacken chose Heidelberg (Germany) as his place of residence, where he remained until the end of his life. During this period, he did not abandon his entomology but began to study dipterous insects of the tropical region — the Malay Archipelago, New Guinea, the Philippines and Central America. "Long-legged mosquitoes" were not forgotten either, he describes new forms and develops a classification of the group. In parallel, he compiles a catalog of all previously described dipterous species from all territories, excluding Europe (he considers Siberia and Central Asia to be biogeographically related to Europe) and North America north of Panama. He compiled this catalog for his own use, and it was not published. Osten-Sacken created a small collection of European dipterans and also acquired type specimens of European dipteran species described by the German entomologist Ph. C. Zeller (1808–1883), who was a renowned specialist in Microlepidoptera and also published works on Coleoptera and Diptera. Part of this collection was given to the Russian Entomological Society. Thanks to Osten-Sacken, some type specimens of Zeller's species are kept in the collection of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg.

Osten-Sacken was not only interested in collecting and identifying insects, he was also looking for new approaches to a more accurate description of dipterans; he studied the morphology of the imago, and specifically studied the arrangement of setae on the body of dipterans. Setae (chaetae) are part of the sensory system of an insect. Taxonomists use the arrangement of setae as a taxonomic feature.

Two of his articles from 1881 and 1882 were devoted to this issue. In them, the term "chaetotaxy" was first proposed. The problems of classifying his favorite "long-legged mosquitoes" and the entire order of Diptera were also in the sphere of his interests. His publication on the substantiation of the division of the order of Diptera into suborders dates back to this period. Osten-Sacken combined the system of P. A. Latreille, based on the structure of the imago, with the system of F. Brouwer, based on the structure of the preimaginal phase.

Latreille divided Diptera by the structure of the antennae into long-antennae (Nematocera) and short-antennae (Brachycera), Brouwer — by the type of opening of the pupa or puparium into straight-seamed (Orthorrhapha) and circular-seamed (Cyclorrhapha). The combination of these classifications gave a division of the order into three suborders Orthorrhapha Nematocera, Orthorrhapha Brachycera and Cyclorrhapha Athericera. With the development of knowledge about Diptera and new methods of classification, other systems for the order were proposed. The division of the Order Diptera into three suborders is the most convenient, although not phylogenetic, and is retained to this day. For example, it is used in all Diptera catalogs of large biogeographic regions published in the 20th century. Osten-Sacken proposed to divide the suborder Orthorrhapha Nematocera into *Nematocera vera* and *Nematocera anomala* based on the structure of the imago head and the characteristics of the preimaginal phases.

Another innovation proposed by Osten-Sacken was to group existing families of Diptera into superfamilies using characters that had previously not attracted the attention of taxonomists. In particular, he introduced the term "holoptic head" for males with compound eyes on the head touching, and he expressed his opinions on the terms squama, tegula, allula (1854) and the categories Calyptratae and Acalyptratae (1897), which are used in the systematics of this order to this day. In Orthorrhapha Brachycera, he distinguished the group Eremochaeta, representatives of which do not have bristles on the body and have three pulvilli on the legs, beneath the tarsal claws, special pads that allow insects to cling to vertical surfaces. Subsequently, in this suborder he distinguished two more groups: flying (aerial) dipterans including the families Nemestrinidae, Cyrtidae (now Acroceridae), Bombyliidae, Therevidae and Scenopinidae, which he called Tromoptera, walking (pedestrian) dipterans including the families Asilidae, Dolichopodidae, Empididae, Lonchopteridae and Phoridae, which he named Energopoda.

Osten-Sacken considered the Mydidae family to be relict. This classification was not accepted and is not used today. Osten-Sacken accepted Darwin's theory of evolution of living nature and understood that with the development of knowledge the classification would change and improve. Osten-Sacken attached great importance to knowledge of the literature pertaining to the problem being studied. His personal library contained most of the publications on dipterans and other groups of insects. He wrote that "literature is the guarantee of honesty in science" and spent six or seven years studying literature, and not considering this time wasted.

Osten-Sacken described his scientific life in a book called "The Chronicle of My Path in Entomology". It consists of three parts. The first two parts were published in Cambridge (Massachusetts, USA) in 1903. In the first part, called "Introduction", the author tells about his research in the field of entomology starting from the St. Petersburg period. This first part of the book had already been published earlier in 1901 in Cambridge, England as a separate brochure.

Between the first and second parts there is a short insert chapter, "Note on the growth of public attention to the order Diptera during the 19th century," in which Osten-Sacken shows how the

assessment of Diptera, as highly organized creatures, grew in the 19th century in connection with the increase in knowledge about the features of their development and behavior.

The second part of the book gives a picture of the state and development of dipterology in Europe and North America. Here the reader will receive brief biographical data and an assessment of the contribution to science of entomologists who worked at the same time as Osten-Sacken, mainly dipterologists whom he met or with whom he was in long-term correspondence. This is the most valuable material on the history of European and North American entomology in the 19th century and the personalities involved. There is a chapter on Loew, on how the alliance between Osten-Sacken and Loew was formed in the study of North American dipterans and on their relationship during Osten-Sacken's stay in Europe, and on Loew's relationships with I. Winnertz, Schiner, Holliday, and Rondani. Also included are assessments of Loew's work on North American dipterans by E. Kowartz, Ph. C. Zeller, and Zetterstedt, and a discussion of Loew's work on fossil dipterans found in amber.

Osten-Sacken also included in this section an obituary for Loew written by Carus Sterne (an anagram of the German entomologist Ernst Krause). Osten-Sacken gives an assessment of the dipterological works of Zeller, Zetterstedt, and Robineau-Devoidy. He examines in detail the critical remarks of Brouwer and I. Mik regarding Osten-Sacken's proposed system of the order Diptera. Part of the text is devoted to the American entomologists Kennicott, B. D. Walsh, H. F. Bosset, W. Le Baron, and E. Foreman, with whom Osten-Sacken discussed his work on the gall wasps (Cynipidae, Hymenoptera). Osten-Sacken also provides a history of the Entomological Society of Philadelphia (USA). This is invaluable first-hand material for historians of science.

The third part of the book was published in Heidelberg in 1904. It includes a complete list of Osten-Sacken's publications over the half-century period of his life with the author's comments on each publication, and biographical notes and descriptions of his travels. Osten-Sacken's first article was published in 1854, the last (the third part of this book) in 1904. In total, Osten-Sacken published 179 works over three periods of his scientific activity: St. Petersburg (1854-1856), America (1856-1877) and Europe (1877-1904). These are works on various groups of dipterans, gall wasps (Cynipidae, Hymenoptera) and other insects, descriptions of new species, larvae, galls, the lifestyle of individual species, works on the morphology and systematics of dipterans, and notes on dipterologists and their publications. The text of the third part is preceded by a portrait of the author at the age of 76 and ends with the following words:

This "Chronicle" of mine is dedicated to the half-century (1854-1904) of entomological work, which I am now finishing at the age of 76, in good health and with my eyesight preserved.

A Limoniid *Ormosia romanovitchiana* Alexander, 1953 was named in honor of R.R. Osten-Sacken. An asteroid (335) opened by German astronomer Max Wolf at 1st of September 1802 in Haidelberg is named in honor of R. R. Osten-Sacken.

Osten-Sacken died two years after the book was published and was buried in Heidelberg. No obituaries were published about him in Russia. Several short obituaries appeared in foreign entomological journals, and in 1969 the American entomologist C. P. Alexander published an article about the influence of Osten-Sacken's work on the development of dipterology in America.

Acknowledgement

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**Obituary – Gustavo Ricardo Spinelli,
March 23, 1953 – December 18, 2025**

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*The following was recently published in the Ceratopogonidae Information Exchange, #117.
However, to reach a broader audience it is republished here.*

This past December ceratopogonid workers lost a giant in our community. Gustavo Spinelli was a brilliant researcher, working primarily with the taxonomy and systematics of the ceratopogonids of the New World, with an accent in the Neotropical Region and specifically in his home country of Argentina. He had a remarkably broad understanding of the group, working with all stages and with a deep desire to understand the fauna. His contributions were profuse, comprehensive and perceptive. His expertise will be sorely missed.

Gustavo was born in La Plata, Buenos Aires, grew up there and received his Bachelor of Science in Zoology in 1978 and his Doctor of Natural Sciences in 1982, both at the National University of La Plata. In 1983, as part of his postdoctoral studies, he spent a year studying with Willis (Bill) W. Wirth at the National Museum of Natural History in Washington DC, USA, another giant in the field of ceratopogonids.

Gustavo worked as a researcher at the Instituto de Limología “Dr. Raúl A. Ringuelet” and at the División Entomología, Museo de La Plata (CONICET – Consejo Nacional de Ciencia y Tecnología). Alongside his employment, Gustavo was an adjunct professor where he taught two courses at the Universidad Nacional de La Plata / Facultad De Ciencias Naturales y Museo: ‘Biology and Systematics of Arthropods of Medical and Veterinary Importance’ and ‘Invertebrate Zoology II (Arthropods)’ from 2008–2022.

Gustavo received the prestigious Robert S. McNamara Fellowship to go to the USA to study again with Willis (Bill) W. Wirth in Florida for a year, from July 1991–July 1992. His cooperative work with Bill was tremendous and resulted in much needed revisions of numbers of genera in the Neotropical Region (see references below).

Taxonomists know a great deal more about their groups than just being able to identify species and Gustavo had a broad knowledge of many aspects of this family. His publications reflect his knowledge of the entire family, publishing on genera from the earliest to the most derived genera. He described six genera of the 107 extant genera known (some with coauthors but all with Gustavo as first author). He also described an amazing 386 species of Ceratopogonidae, of which only seven turned out to be synonyms of previously described species and four of which were valid but preoccupied and needed to be renamed (showing how important catalogs are to avoid this issue).



Figure 1. **A.** Gustavo with his wife Mónica in Bibury, England, 2023. **B.** Gustavo behind his microscope, 2024. **C.** With his nephew Federico Spinelli and his wife Romina, 2022. **D.** With his niece Mariana Caviglia, 2021. **E.** Manaus, Brazil, on the Amazon River, with left to right at the front, Mónica Caviglia (Gustavo’s wife), Ruth Ferreira-Kepler (National Institute of Amazonian Research – INPA), Gustavo, and behind them, Marcela Ronderos and Pablo Marino (furthest back).



Figure 2. **A.** Gathering of ceratopogonid workers at the meeting of the ‘VII Encontro brasileiro de taxonomia e ecologia de Chironomidae; IV Encontro latino americano sobre Simuliidae; I Encontro latino americano sobre Ceratopogonidae’, in Manaus, Brazil, 2011; Front row, left to right: Congress assistant, Saulo de Jesus Soria, Congress assistant; back row, Ruth Ferreira-Keppler, Eloy Castellon-Bermúdez, Gustavo Spinelli, Marcela Ronderos, Maria Luiza Felipe-Bauer, Maria Clara Santarém, Pablo Marino, Heron Huerta, Congress assistant. **B.** Sierra Quadrada, Argentinian Patagonia, 2009, from left to right, Jorge Williams, Gustavo Spinelli, Carlos A. Galliari. **C.** Patagonia, 2010, from left to right, Héctor “Machala” Ferreyra, Gustavo Spinelli, Jorge Williams. **D.** Pucatrihue, Osorno Province, Chile, 1992, from left to right, Jorge Williams, Gustavo Spinelli, Javier Muzon, Nestor Basso.

Several taxa have been named to honour his many contributions: one genus, *Spinellihelea* Borkent, Grogan and Picado and four species, *Alluaudomyia spinellii*, *Diaphanobezzia spinellii* Wirth and Grogan, *Stilobezzia spinellii* Huerta and Grogan, and *Amerohelea spinellii* Grogan and Wirth.

As an expert in the group, Gustavo had a huge impact on the work of his colleagues. He coauthored with 130 others in his many publications, tutoring another generation in Argentina in the ways of ceratopogonid taxonomy and he had a voluminous correspondence with his foreign colleagues. My own correspondence includes, since 1999, over 1,670 emails written between us. Earlier correspondence was by typed or handwritten letters, beginning in 1985 and, although not added up, comes to a depth of about 2 cms. Such correspondence didn’t just include shared projects and publications but also ideas and concerns about our science. He was very generous with his

knowledge and shared unstintingly fresh observations and thoughts. Once correspondence was by email, I would, for example, write to ask for him check a character on a species or genus not in my collection and the answer would be in my inbox the next day. We discussed many aspects of ceratopogonid biology and I still go back to some of his earlier correspondence to refresh my memory of his insights and observations (some not published). Gustavo and I coauthored 10 publications, one book chapter and one book. It was always a smooth and gracious process, a situation that may be relatively rare (as those who coauthor often know). We both wanted our publications to be the best they could be and it was a delight to work together with Gustavo.

Living in countries at opposite ends of the New World, Gustavo and I met in person only twice – once in Washington DC in 1983 while he was there and also in June, 2000 on a trip to Costa Rica where, together with William (Bill) L. Grogan, we spent time in the laboratory peering at difficult taxa as well going, along with Annia Picado, on a collecting excursion to the southeastern corner of Costa Rica. Our work together resulted in the comprehensive Ceratopogonidae chapter in the Manual of Central American Diptera that appeared in 2009. I truly and deeply miss this remarkable and valued colleague!

Gustavo supervised a number graduate students: Mahia Ayala, Cecilia Veggiani Aybar, German Cheli, María Florentina Díaz, Anna Laura Gaddi, Carla Cazorla, Pablo Marino, Auria Martinez, Melina Mauad, María Sofía Olea, Guillermo Omad, Alejandro Del Palacio, María Alejandra Perotti, Pablo Pessacq, Francisco Reynaldi, Andrea Rizzo, María Marcela Ronderos, Juan José Scagliotti and Augusto Siri.

In addition, he was on numerous committees to judge theses and peer reviewed many submitted manuscripts for journals.

Gustavo first joined the Entomological Society of Argentina (Sociedad Entomológica Argentina) in 1978 and actively contributed to the growth of that society and Argentinian entomology throughout his career.

Gustavo lived in Gonnet, a suburb of La Plata, Argentina, with his wife of nearly 40 years Mónica Caviglia, whom he met in 1986. She kindly wrote some of her reflections, here in her own words:

“Gustavo was a kind, tender and best-intentioned person, always trying to help and understand his fellow mates. He was my husband, my confidant and my partner for almost forty years, sharing treasured moments with family and friends. With a domestic quarrel he was always the first to offer peace. He had also his odd side, stubborn, obstinate, obsessive – he had an organized wardrobe and the most organized desk. He would not tolerate crooked picture frames. Before sitting on the couch in our living room he would carefully arrange each small object on the coffee table.

His heroes were Darwin and Francisco Pascacio Moreno “el Perito Moreno”, whom he considered “a national hero”. He was devoted to his profession and enjoyed going to the Museo de La Plata, where he worked for many years even on Saturday afternoons.

He enjoyed reading, Stefan Zweig being one of his favorite authors, Woody Allen’s films, and was a fan of “The other woman”. Regarding art history, he preferred the Romanic and Gothic periods. But his passion was travelling, both on field trips and on our trips around the world, from Patagonia to Petra (Jordan), from Talampaya (Argentina) to Tibet. He loved discovering places, driving endless routes everywhere. He could read a map and reach the most remote places, driving, always driving. Sometimes, getting lost in the process was, of course, part of the adventure, ending up in the middle of nowhere was the challenge.

We were a team, throughout the years we spent together, with our ups and downs and I am grateful for all of it. Although a common statement, I must say I miss him dearly every day.”

Gustavo’s Argentinian friends and colleagues used to affectionately call him ‘el Tano’ – a term of endearment that refers to people of Italian descent and the following recollections reflect some of the fond experiences of two of his colleagues.

Jorge Williams, a close friend of Gustavo's, wrote with some memories that show both the playfulness and commitment of Gustavo:

“At the end of 1996, we embarked on one of our many trips through Argentine and Chilean Patagonia. There were four of us: Carlos Galliari, Néstor Basso, Gustavo Spinelli, and me (JW). For almost a month, we traveled through Río Negro, Neuquén, Chubut, and Santa Cruz in two old ILPLA vehicles, which seemed determined to test us with constant mechanical failures.

In Santa Cruz, we set up our last camp of the trip on the shores of Lago del Desierto, near El Chaltén, a remote and difficult-to-reach place at the time, on the banks of the Río de las Vueltas. We arrived exhausted. The accumulated fatigue, the discomforts of the previous campsites, the scarcity of drinking water, and our attempt—Galliari's and mine—to quit smoking had made our spirits fragile. Arguments arose for no clear reason, something strange between friends seasoned by long journeys.

In the midst of this tension, Gustavo made an unexpected suggestion: to swim in the lake. The water, fed by glaciers of an intimidating blue, didn't exactly invite a dip. Even so, we went in. A few minutes in the icy water were enough to calm everything. We came out changed: the atmosphere had shifted, and the rest of the trip flowed without further incident.”

Maria Marcela Ronderos, a long-term colleague of Gustavo’s and coauthor of 87 papers and three book chapters wrote:

“We took several trips together during my internship years (1986–1988) with Dr. Analía Estevez (also deceased, a very close friend of Gustavo's and mine). Gustavo used to say that every time he asked us for help we would joke around, and that going with us to remote villages put his life at risk (obviously, he was joking).

For that reason, he organized long trips with men, and I took shorter trips with Gustavo with colleagues who, like me, had children.

Gustavo was a dear friend. We became very close when we were very young, we shared friends outside of work, and we drank mate together almost every day.”

As is evidenced by the long list of publications on the following pages, Gustavo’s legacy left a solid base for all future work on Neotropical Ceratopogonidae. He opened a vast area of nature that we can all be very thankful for.

Publications: arranged chronologically, first those published in journals, followed by book chapters, followed by books.

- GONZALEZ MA; SPINELLI GR; BANDEIRA M; ALARCÓN-ELBAL PM. 2026. Diversity of *Culicoides* Latreille, 1809 (Diptera, Ceratopogonidae) associated with chicken sheds in Governador Valadares, Brazil: description of a new species within the *Culicoides paraensis* species group. BOLETIN DE LA ASOCIACION ESPAÑOLA DE ENTOMOLOGIA, 50 (1–2): 1–15.
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**An amazing life: Elena B. Vinogradova (1933–2021)
and her pioneering experimental studies of photoperiodism in insects**

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Elena B. Vinogradova (1933–2021) – a recipient of the John Belkin Award (2015) "For the outstanding contribution to the study of the systematics and biology of mosquitoes"

Abstract. The article is dedicated to the memory of Elena B. Vinogradova (1933–2021), a recipient of the prestigious John Belkin Award from the American Mosquito Control Association (2015), and to an analysis of her intellectual heritage. Elena was born in Leningrad (now St. Petersburg), where she studied at the university and worked her entire life in the Laboratory of Experimental Entomology at the Zoological Institute of the Russian Academy of Sciences. Elena was actively engaged in experimental work, studying the role of photoperiodism and other environmental factors in the life cycles of dipteran insects (Diptera, Insecta). This work resulted in 6 monographs, more than 120 scientific articles, and 2 popular science books. Elena's publications, which have been cited more than 1,000 times in domestic and international literature, have had a notable impact on the development of this field of entomology. This review analyzes the topics of her publications and several scientometric indicators of E. Vinogradova's scientific activity.

Keywords: Diptera, photoperiodism, seasonal adaptations, maternal influence, thermoperiods, biocontrol.

THE LIFE PATH OF ELENA VINOGRADOVA

Elena was born on February 2, 1933, in Leningrad (now St. Petersburg). She was in the first grade when the war began, and in September 1941, she and her mother were evacuated to the city of Sverdlovsk (now Ekaterinburg) in the Ural Mountains, along with the staff of the "Leningrad Vodokanalproekt" Institute, which was headed by her father. The Moscow Conservatory, where her mother studied, was also evacuated there. It is likely that Elena inherited from her parents such qualities as determination, organization, the ability to set clear and achievable goals, and a love of music, which always brought her great pleasure.

After returning to Leningrad in 1945, Elena continued her education in her hometown. In 1951, she graduated from high school with a gold medal and entered the Biology and Soil Science Faculty of Leningrad State University (LSU), where she specialized in the Department of Entomology. In 1956, after graduating with honors from LSU, Elena began her postgraduate studies at the Zoological Institute under the supervision of Professor Alexander Danilevsky (1911–1969), an outstanding scientist and a pioneer in the study of insect life cycles and photoperiodism. Elena was always proud to be his student and became one of the most prominent followers in this scientific field (Fig. 1B).

After completing her postgraduate studies, Elena was hired as a junior researcher at the Laboratory of Experimental Entomology of the Zoological Institute RAS – a position that was offered only to a few graduates of her course. In 1961, she brilliantly defended her PhD thesis titled "Experimental study of the regulation of seasonal cycles of some blood-sucking mosquitoes" and continued her research in the same laboratory, to which she remained devoted throughout her life. Elena's research initially



Figure 1. Elena B. Vinogradova at different stages of her life and career. A – as a high school student (late 1940s); B – with her supervisor, Professor A.S. Danilevsky, at a photoperiodism conference in Czechoslovakia (late 1960s); C –with colleague V.A. Zaslavsky in the Laboratory of Experimental Entomology at the Zoological Institute (1970s); D – at a scientific session of the Zoological Institute (1980s).

focused on her beloved mosquitoes but later it expanded to include other dipterans, such as the blue blow fly *Calliphora vicina* Robineau-Desvoidy, 1830 (Calliphoridae). She dedicated a monograph, "The blue blowfly *Calliphora vicina* – a model research object" (Vinogradova, 1984), to this species – a popular model in physiological and ecological research. Later, she also became the author of a popular science book titled "The Miracle Fly," published in the "Animal Diversity" series of the Zoological Institute (Vinogradova, 2014).

After defending her PhD thesis, Elena continued her intensive experimental work on the role of photoperiodism in the seasonal adaptations of blood-sucking insects. The culmination of these largely innovative studies was the monograph "Diapause in blood-sucking mosquitoes and its regulation" (Vinogradova, 1969), published by the "Nauka" publishing house in Moscow. In 1971, she successfully defended her doctoral dissertation based on this monograph, becoming, at the age of 38, one of the youngest biologists to receive a Doctor of Sciences degree in the USSR Academy of Sciences.

In the following years, Elena conducted a comprehensive study of the reproduction and diapause in the ragweed leaf beetle, *Zygogramma suturalis* (Fabricius, 1775) (Chrysomelidae), now known as *Calligrapha suturalis*, which is an important agent for the biological control of ragweed (plants of the genus *Ambrosia*, Asteraceae) in the southern regions of the Soviet Union. In 1973, she was awarded the title of Senior Researcher, which at that time was the highest academic rank for research staff at the Academy. During this period, she actively published in leading Soviet journals, including *Entomological Review*, *Parasitology*, and *Problems of Evolution*.

With the onset of «perestroika», traditional funding for academic research was drastically reduced, which forced Elena to start competing for grants from the Russian Foundation for Basic Research (RFBR). In 1994, shortly after the RFBR's establishment, she received her first grant for the preparation of a monograph. This project resulted in a 308-page regional review "Mosquitoes of the *Culex pipiens* complex" (in Russian), covering taxonomy, distribution, ecology, physiology, genetics, and control, which was published in 1997 in the Proceedings of the Zoological Institute (Vinogradova, 1997). A significantly updated English edition was later published by the Bulgarian Publisher Pensoft (Vinogradova, 2000).

From 1994 to 2016, Elena successfully secured and executed six RFBR grants and an six more grants from the Department of Biological Sciences of the Russian Academy of Sciences. From 2002 to 2005, she also actively participated in the target program of the Russian government, "State support for the integration of higher education and fundamental academic science for 2002-2006,". At the age of 83, she completed her last research project.

Elena has earned wide recognition for her scientific work both in Russia and abroad. This was officially acknowledged in 2015, when she was awarded the prestigious John Belkin Award at the 81st Annual Congress of the American Mosquito Control Association (AMCA) "for outstanding contribution to the study of mosquito systematics and biology." This award, usually given to no more than one scientist per year, has enhanced her international reputation. A recent article by Hribar (2025) details the life of the award's namesake, John Nikolas Belkin, a world-renowned mosquito taxonomist, and provides information on the award's history, the criteria, and all 43 of its recipients, including a brief biography of Elena Vinogradova. This article also touches upon the current state of mosquito taxonomy.

In the last years of her life, Elena faced serious health problems and was forced to leave the Zoological Institute in 2016. Despite this, she continued her scientific contributions, co-authoring a section on the molecular genetic mechanisms of insect diapause regulation for the chapter "Introduction to Dormancy in Aquatic Invertebrates..." in the monograph *Dormancy in Aquatic Organisms. Theory, Human Use and Modelling* (Alekseev, Vinogradova, 2019), published by Springer Publishing House.

Elena Vinogradova passed away in 2021 at the age of 88.

THE INTELLECTUAL LEGACY OF ELENA VINOGRADOVA

To provide a systematic overview of Elena Vinogradova's extensive intellectual legacy, we conducted a scientometric analysis of her publications and research projects supported by the Russian Foundation for Basic Research (RFBR). The analysis covered 145 publications (excluding abstracts), comprising six scientific monographs, two chapters in collective monographs, two popular science books, and 123 articles in academic journals and thematic collections, totaling approximately 2,800 pages. Final reports from six RFBR grants and six grants from the Department of Biological Sciences of the Russian Academy of Sciences were also included.

Elena's scientific contribution is characterized by persistent and diverse research in both fundamental and applied fields. Her work included experimental studies of seasonal adaptations in insects – such as photoperiodism, diapause, and maternal effects – alongside research on insect taxonomy, genetics, and ecology. She also explored practical applications, including biometrics for pest and plant population control, the cultivation of beneficial dipterans, and forensic entomology (see the list of publication at the end of this essay).

It is challenging to identify an area of dipteran biology that escaped Elena Vinogradova's attention. Her experimental research on diapause in Diptera were almost two decades ahead of the broader international scientific interest in this topic. Most of her articles and monographs are devoted to flesh flies and blowflies (Sarcophagidae and Calliphoridae), which play a crucial role as decomposers in terrestrial ecosystems.

These works are rich in original experimental data that shed light on the role of environmental factors, primarily the photoperiod, in regulating insect life cycles. She devoted equally significant attention to mosquitoes, which have been at the center of her research since her postgraduate years. During these studies, she experimentally determined the quantitative parameters of photoperiodic reactions (PPR) underlying the formation of seasonal cycles and other adaptations.

A simple scientometric analysis shows that throughout her more than 60-year career, Elena Vinogradova's research productivity has steadily increased with each passing decade, showing no signs of declining or age-related productivity crises characteristic of scientists. The final period of her activity (15–20 years preceding retirement) was the most fruitful in terms of the number, volume and thematic diversity of her publications (Fig. 2, 3).

Remarkably, during the severe economic and political crisis following the collapse of the USSR, Elena published her highest number of monographs (3). Among them was a seminal book in Russian on the urban mosquito *Culex pipiens pipiens* (Vinogradova, 1997), whose subsequent English edition (Vinogradova, 2000) earned her well-deserved international recognition. Elena Vinogradova was

always open to scientific collaboration, co-authoring works with numerous colleagues from various regions and members of her laboratory. Sergey Ya. Reznik leads in the number of their joint publications (22).

The academically profound and versatile study of dipteran insects remained the dominant focus of Elena's research. In addition to her foundational work on seasonal adaptations within the Danilevsky School's PPR framework, she has investigated a wide range of other topics. These include the genetic diversity of the urban mosquito *Culex pipiens pipiens* (Shaikevich et al., 2016); the influence of thermoperiods on female reproductive activity and maternal induction of larval diapause in the blue blowfly *Calliphora vicina* (Vinogradova, Reznik, 2015); mitochondrial DNA polymorphism and infection with the symbiotic bacterium *Wolbachia pipientis* Hertig, 1936 in blood-sucking mosquitoes (Shaikevich et al., 2005); and the relationship between diapause and maternal effects in *Calliphora vicina* (Vinogradova, 1973; Bogdanova et al., 1978).

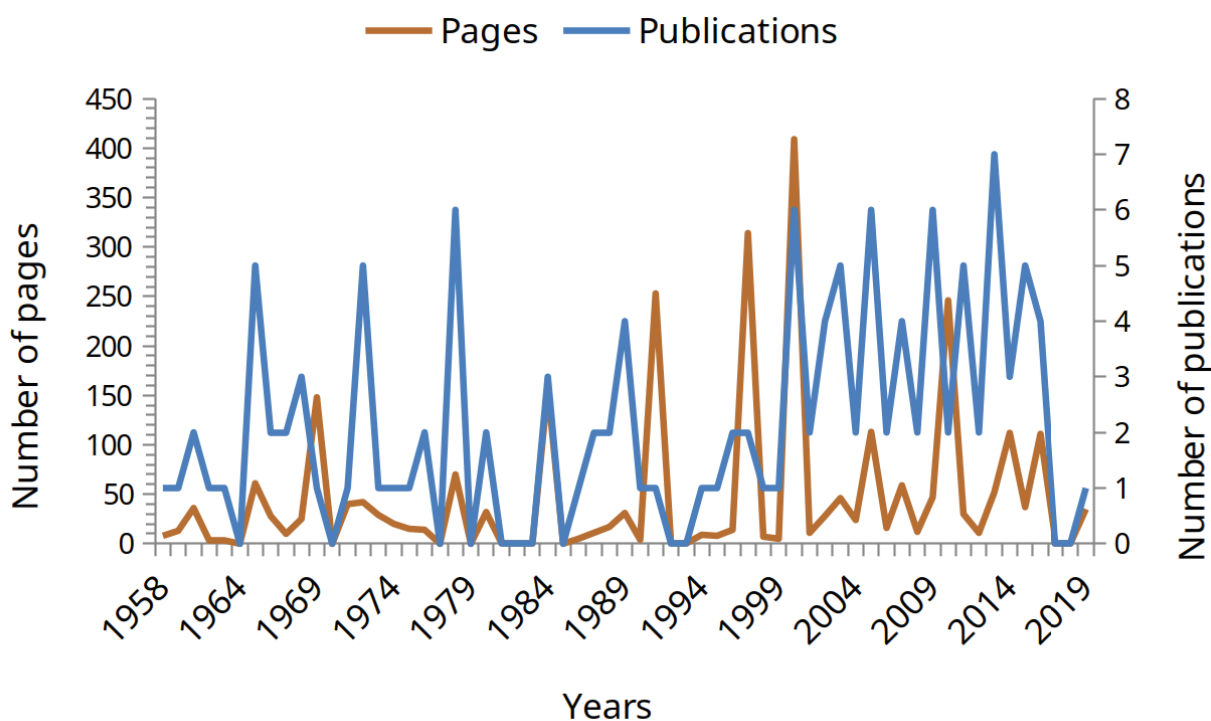


Figure 2. Dynamics of Elena Vinogradova's publication activity: annual number of publications and their cumulative volume (in pages).

Despite the limitations inherent in scientometric methods, they provide a useful framework for classifying Elena Vinogradova's research interests based on the titles of her publications (Fig. 3):

By research objects: mosquitoes 39%, flies 42%, ragweed leaf beetle 7%, others 12%;

By research areas: photoperiodic reactions, thermoperiods, and seasonal cycles 40%; genetic and molecular genetic analysis 17%; morphology and systematics 14.5%; biocontrol and cultivation 6%; other areas 18.5%.

She also authored four publications commemorating her teachers, Alexander S. Danilevsky and Alexander S. Monchadsky, and her colleagues V. I. Sychevskaya, V. A. Zaslavsky, and E. A. Kipyatkov (Vinogradova et al., 1987; Vinogradova, Dubinina, 2002; Vinogradova, 2012a, 2012b).

As the data show, Elena Vinogradova devoted most of her research to the direction established by A. S. Danilevsky, which she continued to develop throughout her career. A similar distribution is observed in her monographs, where mosquitoes markedly predominate over flies as research objects (5:3; see Fig. 3).

The topics of her grants reflect a focus on the practical application of the theoretical principles she developed (see Fig. 3). Since 1994, a total of 12 of her projects have received funding, which indicates that over the years her research at the institute has been consistently supported from extra-budgetary sources. In our opinion, the competitiveness of her grant proposals was due to a clear understanding of the practical significance of her work for the needs of society – a rare and valuable quality among academic scientists. After retiring in 2016, Elena Vinogradova presented the final report on her last project, “Morpho-ecophysiological adaptations as a component of overall biodiversity.” True to its form, this final report was rich in original data, innovative ideas, and future research prospects.

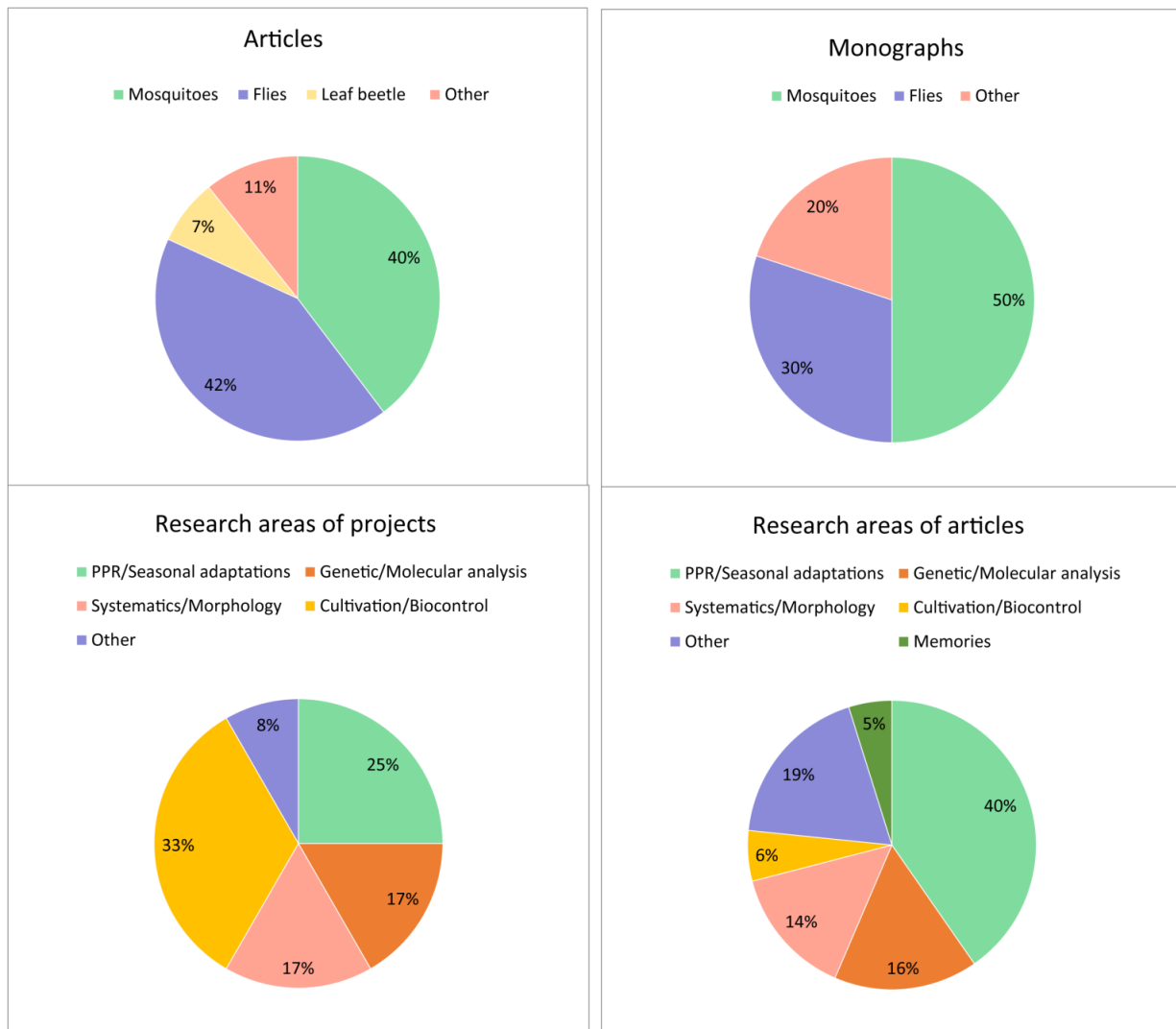


Figure 3. The thematic structure of Elena Vinogradova’s scientific legacy: by objects of research, for articles and monographs; by research areas, for articles and projects.

Elena Vinogradova has maintained a profound and sincere dedication to science throughout her life. She worked in the same laboratory for 57 years, advancing from a junior researcher to a principal researcher and becoming a leading authority in her field. Largely due to decades of her focused and in-depth research, as well as her firm belief in her scientific ideas, Diptera have become one of the most extensively studied insect orders regarding seasonal adaptations and the regulatory role of photoperiodism, fully developing the paradigm established by her teacher Alexander S. Danilevsky (1961). Both the theoretical and practical outcomes of Elena Vinogradova's research have significantly enriched biological science. As the continual citations of her work demonstrate, her legacy will undoubtedly inspire and guide future generations of scientists.

Assessing the scientific legacy of Elena Vinogradova, it should first of all be emphasized that she was an outstanding experimenter. From her teacher, Alexander Danilevsky, she inherited a profound and enduring interest in the study of photoperiodism in the broadest sense of the word. Her PhD thesis, which was soon followed by her doctoral dissertation, and almost all of her monographs and articles are based on the results she obtained through her own experiments. Her work often provided the first quantitative estimates of key life cycle parameters, such as photoperiodic reaction thresholds, light-temperature interactions, and maternal effects that control vital processes and the formation of dormant stages in insects, all of which dependent crucially on day length.

Her pioneering approach was evident from the very start of her career. In one of her earliest works (Vinogradova, 1960), she systematically demonstrated that photoperiod is the primary factor inducing adult diapause in multiple species of *Anopheles* and *Culex* mosquitoes across the USSR, effectively laying the experimental groundwork for this research direction. She further refined this paradigm in a 1965 study on *Aedes togoi* (Theobald, 1907), revealing the maternal effect of photoperiod, when the short-day conditions experienced by the mother predetermined the induction of cold-resistant embryonic diapause in her offspring (Vinogradova, 1965). Her discovery of the embryonic photoperiodic sensitivity in flesh flies (Vinogradova, 1976) further expanded the understanding of critical periods, proving that environmental signals can program diapause before birth, during embryonic development.

It is important to note that during E. B. Vinogradova's active years, the Leningrad School of Photoperiodism was a world leader in entomology. This mature scientific paradigm has found wide practical application in agriculture, sericulture, biotechnology, forestry, bioinvasion control, and ecology. Being essentially an academic scientist, Elena Vinogradova consistently sought to translate her research into practical solutions.

Conclusion

Elena B. Vinogradova went through incredible difficulties, starting from childhood during the war and ending with her studies in the post-war ruins of the USSR. At the peak of her scientific career, she experienced the country's restructuring and collapse, which brought severe cuts in research funding and the rupture of international scientific ties. However, she did not succumb to despair or pessimism. Instead, she adapted to the new realities, finding ways to continue her work, promote her ideas, sustain her research program, and develop a scientific school. In this struggle for survival, she demonstrated remarkable resilience, managing to realize her talents in completely new conditions and retaining her passion for science until the very end of her extraordinary life. Although Elena Vinogradova was a versatile entomologist and studied many insect groups, mosquitoes and the blue blowfly remained her passion throughout her life. They became the subject of her doctoral dissertation, five monographs, and dozens of pioneering experimental studies of photoperiodism.

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Shaikevich E. V., Vinogradova E. B., Bouattour A., Gouveia De Almeida A. P. 2016. Genetic diversity of *Culex pipiens* mosquitoes in distinct populations from Europe: Contribution of *Cx. quinquefasciatus* in Mediterranean populations. Parasites & Vectors 9 (47).

LIST OF PLANNED RESEARCH TOPICS AND PROJECTS CARRIED OUT BY ELENA VINOGRADOVA AND/OR UNDER HER SUPERVISION

2013–2016 “Morpho-ecophysiological adaptations as a component of overall biodiversity”, a planned topic of the Zoological Institute of the Russian Academy of Sciences № 01201351183.

2012–2014 "Exogenous and endogenous processes in successive generations of natural and laboratory populations of beneficial insects", program of the Department of Biological Sciences of the Russian Academy of Sciences "Biological resources of Russia: dynamics under global climatic and anthropogenic impacts".

2009–2011 "Development of methods for selecting optimal photothermal and trophic regimes for the mass cultivation of entomophagous insects," program of the Department of Biological Sciences of the Russian Academy of Sciences "Biological resources of Russia: assessment and fundamental principles of monitoring."

2007–2009 "Studying the ecology and ecophysiology of insects as a basis for developing methods for biological control of invasions and restoration of biodiversity," a planned topic of the Zoological Institute of the Russian Academy of Sciences № 01.2.007 03073

2006–2008 "Scientific foundations for improving methods of growing and long-term storage of insects," program of the Department of Biological Sciences of the Russian Academy of Sciences "Biological Resources of Russia: Fundamental Foundations of Rational Use."

2004–2006 "Variability of photo- and thermoperiodic reactions of insects", a planned topic of the Zoological Institute of the Russian Academy of Sciences № 01.0.40 000735

2005–2007 "Molecular genetic markers in the study of the structure and evolution of complexes of related insect species", project No. 05-04-49035 (Russian Foundation for Basic Research).

2002–2004 "Genome plasticity and regulation of the implementation of genetic information in the processes of macro- and microevolution of eukaryotic organisms", grant of the Federal Program "Integration of Science and Higher Education in Russia" for 2002-2006, direction 1.1, registration number I0035).

2002–2004 “Distribution of cytoplasmic bacteria of the genus Wolbachia in insects”, project No. 02-04-49703 (Russian Foundation for Basic Research).

1998–2000 “The role of endogenous factors in the regulation of seasonal development of insects”, project No. 98-04-49684 (Russian Foundation for Basic Research).

1994–1996 Preparation of the monograph “Mosquitoes of the *Culex pipiens* complex in Russia”, project No. 94-04-12385 (Russian Foundation for Basic Research).

PHILAMYIANY

Diptera on stamps (11): Muscidae

Jens-Hermann Stuke

Roter Weg 22, 26789 Leer, Germany; jstuke@zfn.uni-bremen.de

When talking about flies, most people think of *Musca domestica*. This species was depicted probably five times on a stamp. However, the depictions remain so imprecise that it is difficult to assign them to genera or species and the identification remains doubtful in most cases. The only Muscidae on a stamp that is not *M. domestica* is probably *M. vetustissima*. It can only be determined on the basis of its habitat (beach), distribution (Australia) and behaviour (very annoying). According to the stamp's imprint, some stamps show Muscidae, but in fact flies from other families are depicted. These stamps are dealt with in the following article. There are still several stamps which, due to the context, possibly show Muscidae, but whose illustrations remains so schematic that not even the suborder can be determined. Such stamps will be shown in a later article.

Acknowledgement

The flies on the stamps shown here were all kindly identified by Adrian Pont (UK, Oxford).



Musca domestica Linnaeus, 1758 – Britain [Grenada Carriacou & Petite Martinique] 2005:
Dionaea muscipula [Carnivorous Plants], 6 East Caribbean dollar. – Michel number: GD-GR
4171; stamp number: -.



Musca domestica Linnaeus, 1758 – Denmark [Faroe Islands] 2018: Húsfluga, *Musca Domestica* [Fauna 2018], 12 Danish krone. – Michel number: FO 912; stamp number: FO 703d.



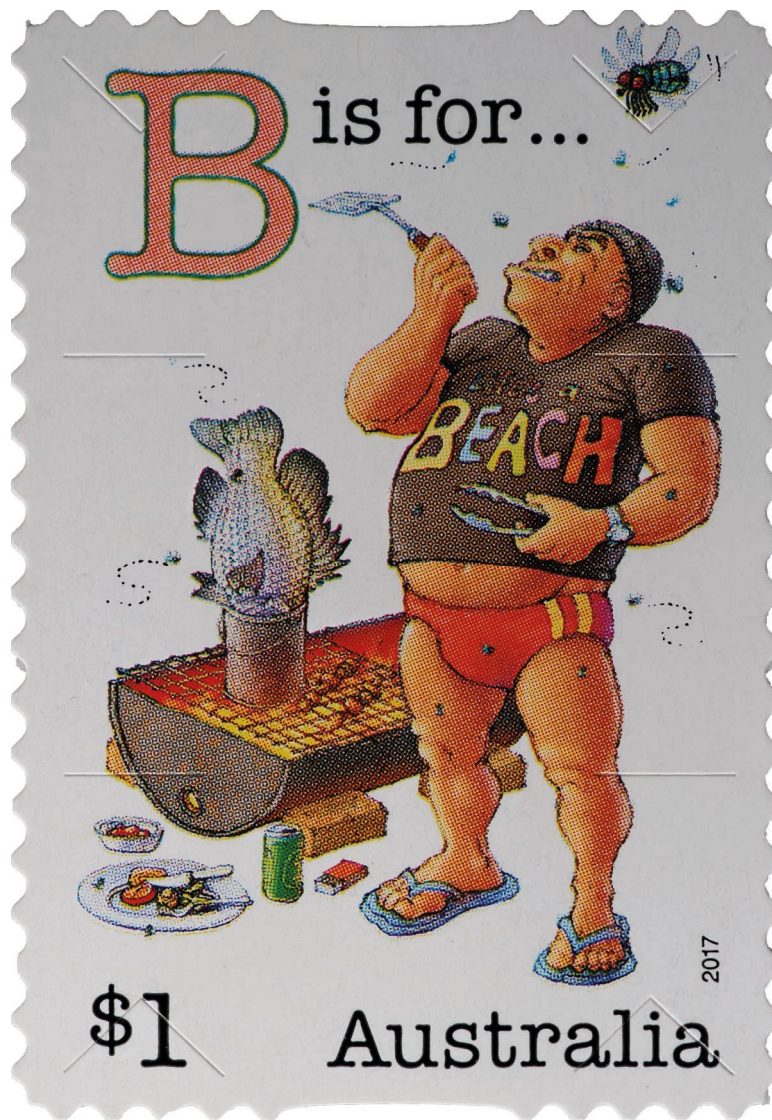
? *Musca domestica* Linnaeus, 1758 – Iceland 2005: Húsfluga, *Musca domestica* [Insects], 70.00 Icelandic króna. – Michel number: IS 1094; stamp number: IS 1044.



? *Musca domestica* Linnaeus, 1758 – Tuvalu 2005: House fly, Muscidae, 3 Tuvaluan dollar. – Michel number: TV 1213; stamp number: -.



? *Musca domestica* Linnaeus, 1758 – USA 2001: Yellow Trumpet [Carnivorous Plants], 34 United States cent. – Michel number: US 3484; stamp number: US 3529.



? *Musca vetustissima* Walker, 1849 – Australia 2017: B is for ..., 1 Australian dollar. – Michel number: AU 4703; stamp number: AU 4697.

Celebrating flies with Fly Week 2026

Teagan Mulford¹, Allan Cabrero², & Constance Taylor³

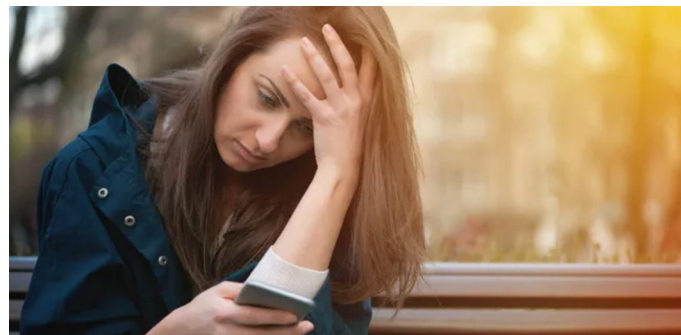
¹ Dept. of Biological Sciences, Northern Arizona University, Flagstaff, AZ; teaganmulford@gmail.com

² National Museum of Natural History, Smithsonian Institution, Washington, DC, USA; acabrero67@gmail.com

³ Oakland, California, USA; taylor.v.constance@gmail.com

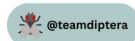
This year we celebrated Fly Week for the second time, beginning on April 30th, already designated by Dr. Erica McAlister as World Robber Fly Day, to May 6th, which Team Diptera designated as World Bee Fly Day. Our goal is to use Fly Week as an opportunity to highlight flies as unique, aesthetically interesting animals that are deserving of attention! We encouraged everyone to participate by posting content to their social media accounts and to use the following hashtag #FlyWeek. Team Diptera used the social media platforms of Blue Sky and Instagram to post fun related facts about flies.

We had great success on Instagram and Blue Sky, with the #FlyWeek hashtag, with many other fly labs, researchers, and enthusiasts across the world sharing infographics, memes, and images of flies with their followers. We have chosen six of our favorite and best performing memes to share with the *Fly Times*, in case you missed it! The following six memes were created by, and posted by @teamdiptera

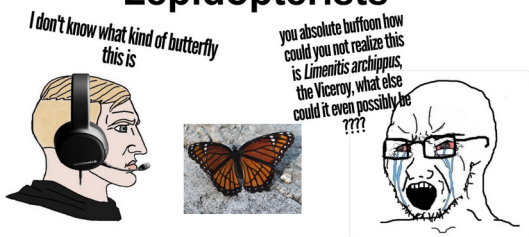


Is your child texting about **FLIES?**

- WTF**- Where's the flies?
- GOAT**- Gnats over anything
- OMW**- On my wing
- LOL**- Lots of larvae
- BFF**- Big friendly fly
- BYOB**- Bring your own Bombyllidae

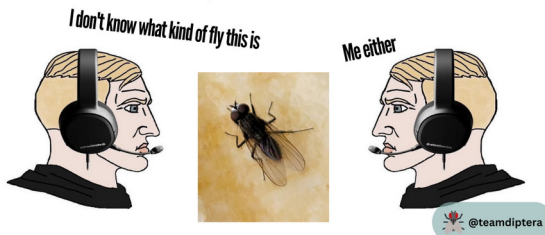


Lepidopterists



The world is a cruel and unjust place. There is no harmony in the universe. The only constant is suffering.

Dipterists



minutes later
omg Flies



Welcome to Team Flies! We have:



If you want to get involved in Fly Week next year, follow us on Instagram and Blue Sky under @teamdiptera, or join us on Discord! Links are in our account About Us, or you can find us at https://linktr.ee/team_diptera.

MEETING NEWS

XI. International Congress of Dipterology (ICDXI) 11–16 July 2027, Westin Hotel, Zagreb, Croatia



Marija Ivković^{1,a}, Romana Gračan^{1,b}, Vlatka Mičetić Stanković²
& Tanja Vojvoda Zeljko³

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^a marija.ivkovic@biol.pmf.hr, ^b romana.gracan@biol.pmf.hr

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³ National Institute of Biology, Marine Biological Station, Piran, Slovenia; tanjavojvoda@gmail.com



Preparations continue for the *Eleventh International Congress of Dipterology* (ICDXI) in Zagreb, Croatia, **from 11 to 16 July 2027**.

Zagreb welcomes the global dipterology community — plan your participation and stay connected. ICDXI is now just a little more than 12 months away! Please visit the website (<https://icd11.biol.pmf.hr/>) regularly for updates and remember to lodge your interest in attending. The registration platform accepting Early Registrations will be available from 1 September 2026, along with the portal for abstract submissions after registering.

The Congress website already has plenty of useful resources, including information on:

- Visa Requirements (<https://icd11.biol.pmf.hr/information>)
- Travel options (<https://icd11.biol.pmf.hr/information>)
- Excursions & Day Trips (<https://icd11.biol.pmf.hr/excursions>)
- Accommodation (<https://icd11.biol.pmf.hr/venue>)
- Plenary Lectures and Preliminary Program (<https://icd11.biol.pmf.hr/program>)
- Important dates (<https://icd11.biol.pmf.hr/>)

We are pleased to announce our banquet speaker and plenary speakers for the Congress!

Our banquet speaker will be:

- Dr. Steve Gaimari, Dipterists Society, New Hampshire, USA
-

Our plenary speakers will be:

- Dr. Amrita Srivathsan, Museum für Naturkunde Berlin, Germany
- Dr. Art Borkent, Independent Researcher, Canada
- Dr Andrzej Grzywacz, Nicolaus Copernicus University, Toruń, Poland
- Prof. Snežana Radenković, University of Novi Sad, Serbia
- Dr. Viktor Baranov, Estación Biológica de Doñana (CSIC), Seville, Spain

We are planning a diverse selection of symposia, and the following are already confirmed. Please contact our ICDXI Chair Marija Ivković (ivkovicmar@gmail.com) if you are interested in contributing to one of the symposia below or if you wish to propose and organize a symposium.

Deadline for Symposia Submission proposals is 15 July 2026!

Confirmed symposia: organizer(s)

- *Acalyptatae*: Keith Bayless
- *Advances in Afrotropical Dipterology*: Ashley Kirk-Spriggs & Bradley J. Sinclair
- *Applied Dipterology*: Jade Savage
- *Biodiversity surveys and conservation*: Marc Pollet
- *Calyptate systematics and diversity*: Daniel Whitmore
- *Culicomorpha*: John Kevin Moulton
- *Empidoidea*: Bradley J. Sinclair & Marija Ivković
- *Lower Cyclorhapha*: Ximo Mengual
- *Psychodomorpha*: Gunnar M. Kvifte & Santiago Jaume Schinkel
- *Tipulomorpha & Ptychopteromorpha*: Levente-Péter Kolcsár & Pavel Starkevič
- *Integrative taxonomy and vertical stratification of the fly fauna*: Dalton de Souza Amorim
- *Deep time Dipterology*: Agnieszka Soszyńska & Vladimir Blagoderov
- *Phylogenomics*: Paula Riccardi
- *Taxonomy and ecology of lower Brachycera*: Martin Hauser
- *Diptera in Forensic Entomology*: Krzysztof Szpila
- *Medical and Veterinary Diptera*: Tamara Szentiványi & Miguel Ángel Miranda Chueca
- *Advances in Automated Diptera Identification and Monitoring*: Xuankun Li & Emily Hartop
- *Diptera ecology and behaviour*: Netta Dorchin

We look forward to seeing everyone in Zagreb in 2027!

Stay informed! Keep an eye on these ICDXI webpages — we update frequently and more information is coming.

If you have not done so already, join the dipterists mailing list to keep up with all the latest Congress and other dipterological news: <https://lists.dipterists.org/mailman/listinfo/dipterists>.

We are happy to answer any questions about ICDXI 2027, please contact us on 11icd2027@gmail.com.

Upcoming mosquito- and vector-related meetings

Rui-De Xue (compiled by)

Anastasia Mosquito Control District, 120 EOC Dr., St. Augustine, Florida 32092, USA; rxue@amcdf.org

July 13-15, 2026: Florida Entomology Society (FES) Annual Meeting will be held at Anastasia Mosquito Control District, 120 EOC Drive, St. Augustine, Florida, USA. For more information, please visit the FES website at <https://www.flaentsoc.org/>

August 4-6, 2026. 2nd Asia-Pacific Conference on Mosquitoes and Vector Control (AMV) will be held in Pattaya, Thailand. For more information about this meeting, please visit the website at <https://www.amv-2026.com/>

September 20-24, 2026: Society of Vector Ecology (SOVE)'s 53rd Annual Meeting will be held in Yosemite, California. For more information, please visit the websites at <https://www.sove.org/>

November 9-12, 2026: Florida Mosquito Control Association (FMCA)'s Annual Meeting will be held in Ponte Vedra/St. Augustine, Florida. For more information, please visit the website at <https://www.yourfmca.org/>

February 4-7, 2027. 4th International Conference on Vector-borne Diseases (IVBD) organized by Indian SOVE will be held in Udaipur, India. For more information, please visit the website at <https://icvbd2027.aphe.org.in/>

March 1-5, 2027. American Mosquito Control Association (AMCA)'s Annual Meeting will be held in St. Louis, Missouri. For more information, please visit AMCA website at <https://www.mosquito.org/>

March 23-26, 2027. 22nd Arbovirus Surveillance and Mosquito Control Workshop will be organized and held in Anastasia Mosquito Control District, 120 EOC Drive, St. Augustine, Florida. For more information about the workshop and previous workshops, please visit the website at <https://amcdsjc.org/>

May 24-28, 2027. 10th International Forum for Surveillance and Control of Mosquito and Vector-borne Diseases (IFSCMVD) organized by the Entomological Society of China (ESC) and the Asian SOVE and Mosquito Control (ASVEMC), and it will be held in Hangzhou (changed from Guiyang), China. For more information about the meeting, please visit the website at <https://asiansvemc.org/>

OPPORTUNITIES AND REQUESTS

Help map the evolutionary tree of the *Machimus* group – A call for specimens of Asilidae (Asilinae)

Lukas Rühlke

Leibniz-Institute for the Analysis of Biodiversity Change (LIB), Adenauerallee 160,
53113 Bonn, Germany; lukasruehlke@yahoo.de, s67lrueh@uni-bonn.de

I am currently completing my Master's degree at the University of Bonn, the Zoological Research Museum Alexander Koenig, and the associated Leibniz Institute for the Analysis of Biodiversity Change, where I am part of the morphology laboratory. My upcoming PhD project will tackle a major taxonomic revision of the Holarctic *Machimus* group at these same institutions.

The last comprehensive attempt to revise this group was made by Pavel A. Lehr in 1996, and it left many questions unanswered. A full species-level revision of the entire group is simply impossible today: the *Machimus* group remains poorly characterized, extraordinarily diverse, widely distributed, and understudied. But a revision at this level is not our goal.

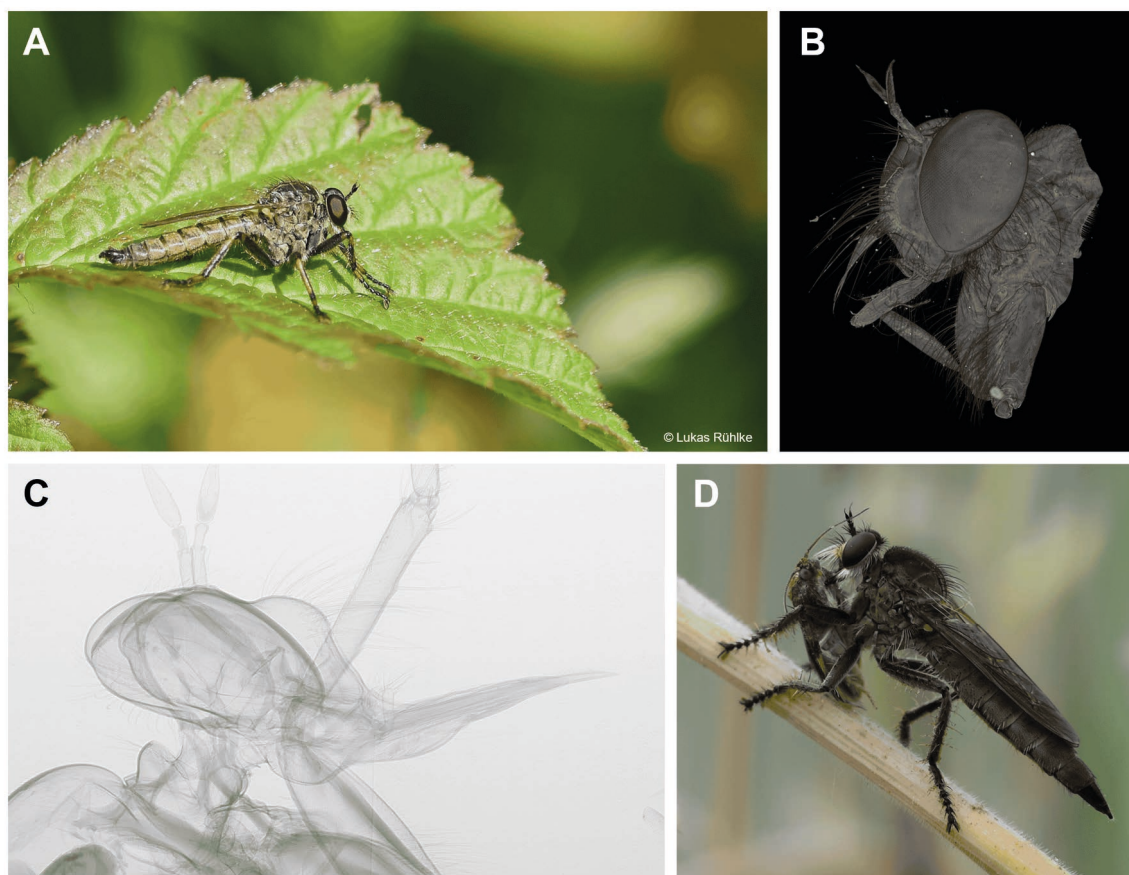


Figure 1: (A) *Epitriptus cowini* (Hobby, 1946), (B) μ CT-Scan single view of *Asilus crabroniformis* Linnaeus, 1758, (C) *Machimus arthriticus* (Zeller, 1840), (D) modelled head of *Machimus modestus* (Loew, 1849) based on μ CT-Data. All photos Lukas Rühlke

Instead, this project will place the *Machimus* group as a morphological taxon into a phylogenetic framework, laying the foundation for future step-by-step revisions of this major lineage. We will conduct a phylogenomic analysis incorporating as many morpho-taxa and biogeographically relevant species as possible, along with their placement within the still poorly resolved subfamily Asilinae. This molecular work will be complemented by advanced morphological analysis using micro-computed tomography (μ CT) and 3D data evaluation.

For the phylogenomic component, we can only use very limited museum material. We are in a need of specimens collected in 2000 or later belonging to the genera *Machimus*, *Tolmerus*, *Epitriptus*, *Neoepitriptus*, *Eutolmus*, and related genera within Asilinae from the Holarctic region.

Unsure if your specimens fit? If you have any Asilinae/Asilidae specimens and wonder whether they might be useful, simply send me photos, I will gladly provide detailed feedback on their ID & relevance.

Ideally, specimens should be preserved in 95% non-denatured ethanol (or higher concentration). However, dried specimens are also suitable for both phylogenomics and morphological analysis. So, we're not very limited in this aspect regarding methods.

Every specimen included in the project receives an individual working code, ensuring full traceability of all generated data. Unless requested otherwise, specimens will be deposited in the zoological collection of the Zoological Research Museum Alexander Koenig, where they will remain accessible to the scientific community.

If this project sparks your interest, if you would like more information, or if you can provide specimens, please do not hesitate to contact me!

Thank you for your continued support and interest in this project!

DIPTERA ARE AMAZING!

A teneral female muscoid fly found crawling around on a rotting log that had just been overturned. The ptilinum is in the process of invaginating and most of the cuticle isn't fully hardened yet, but the wings are dry and extended. Photographed in Greenbelt Park, Maryland, USA by Zachary Dankowicz.



BOOKS AND PUBLICATIONS

Book review: British Dolichopodidae (Diptera)

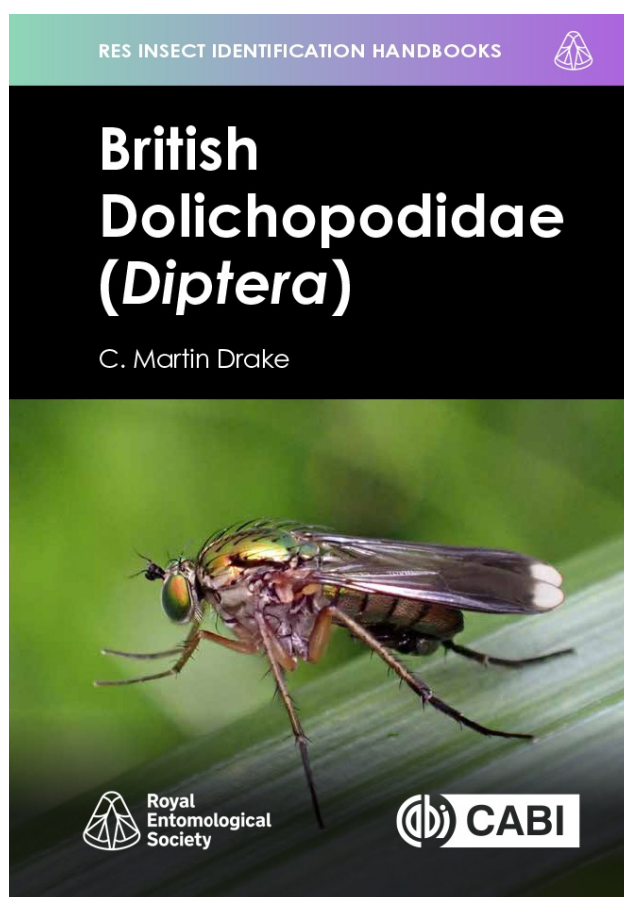
Marc Pollet ^{1,2}

¹ Research Institute for Nature and Forest (INBO), Herman Teirlinckgebouw,
Havenlaan 88 bus 73, B-1000 Brussels, Belgium

² Royal Belgian Institute of Natural Sciences (RBINS), Operational Directory Taxonomy and Phylogeny,
Entomology, Vautierstraat 29, B-1000 Brussels, Belgium
mpollet.doli@gmail.com; ORCID ID: <https://orcid.org/0000-0001-5198-5928>

Drake, C.M. (2025). British Dolichopodidae (Diptera). RES Insect Identification Handbooks. Royal Entomological Society, 392 pp. CABI, Wallingford – Boston.

I started to identify and study long-legged flies or Dolichopodidae myself back in the mid 80's, about 40 years ago. It all started as a mere coincidence: during a survey on carabid beetles in a wet deciduous forest in West-Vlaanderen (Flanders, Belgium) these flies appeared more numerous in the pitfall traps than carabid beetles. And as the handbook by d'Assis Fonseca (1978) was quite new, I took my chances ... and have never stopped ever since. Focusing on Europe during the first ten years, I expanded my interest to the New World dolichopodid fauna later on. The family itself is rather easily distinguished from others, but to put a reliable name on a species seems to be more of a challenge. As a matter of fact, until today doli enthusiasts from all over Europe keep sending me ID requests while numerous observations recorded in citizen scientist portals like <https://waarneming.nl/> and <https://waarnemingen.be/> are based on misidentifications. The latter mistakes are very often caused by automatic recognition apps, which still do not work optimally for this family (and perhaps never will for some species groups). Hence the importance of easy-to-use, reliable and well illustrated identification keys. And Drake (2025) definitely earns its place in this category.



For the past decades, most of the European dolichopodid workers have been using Parent (1938) (for European species) and d'Assis Fonseca (1978) (for UK species) to identify dolichopodids, in combination with the excellent treatment of Dolichopodinae by von Stackelberg (1930, 1933, 1934,

1941), Medeterinae by Negrobov & von Stackelberg (1971, 1972, 1974a,b) and Hydrophorinae and *Rhaphium* by Negrobov (1977, 1978, 1979a,b) in the Lindner series *Die Fliegen der palaearktischen Region*, and more recent separate revisionary papers on certain genera like *Achalculus*, *Gymnopternus*, *Sciapus*, *Teuchophorus* and *Xanthochlorus*. Though utterly incomplete for some time now, I consider the first two works (Parent, d'Assis Fonseca) still as very reliable and always recommend peers to use them. Having used Drake (2025) for multiple identifications during the past few months, I must admit that this work is way more than a mere extension of d'Assis Fonseca (1978).

For starters, genera are treated in alphabetic order with the genus name indicated on top of each page which is very practical. I very much appreciate that Martin did not try to deal with subfamily assignments, not being the main goal of this work anyway. In the introductory chapters, Martin clearly explains how he approached this monumental work and how the keys must be interpreted. For example, the use of “often”, “rarely” and “usually” is well thought over and meaningful. Though the keys to species in d'Assis Fonseca (1978) were quite good (i.e., practical and reliable), for most genera, Martin started from scratch which produced numerous extra diagnostic features that contribute substantially to a reliable identification. Drake (2025) encompasses all 326 British and one additional Irish species so it should allow you to identify every single dolichopodid specimen you encounter on the British Isles. Or does it? Females of some *Argyra*, *Dolichopus* and *Rhaphium* species are considered inseparable and are presented in species pairs or trios in the key. And a key to female *Medetera* is missing.

The most important pros of Drake (2025) are: (i) its completeness for the British dolichopodid fauna, (ii) the nicely balanced use of morphological characters in the keys which renders them highly useful and reliable, (iii) the nearly 1,500 unique illustrations of relevant morphological characters (next to 8 plates with habitus pictures, and multiple pictures of wings), and (iv) the very informative and interesting generic and species discussions. I truly admire Martin for having generated so many meticulous illustrations (this must have cost many months of preparing and drawing, but it ultimately delivered). Also, overviews of drawings of hypopygia like in *Achalculus*, *Chrysotus*, *Gymnopternus*, *Hercostomus*, *Hydrophorus*, etc. prove most useful when examining doubtful male specimens.

Inevitably, there are a couple of cons as well, and Martin is fully aware of them. The work is entirely focused on the UK, so only species currently recorded from Great Britain and Ireland are included. And the discussion of species distributions is restricted to these islands but usually not beyond. No real attempt is made to include species that might arrive, be discovered or introduced on the islands in the near future (e.g., *Campsicnemus simplicissimus*), although Martin mentions several of these species in the introduction to the respective genera. And more importantly, most of the final couplets contain so many characters that it should be obvious to the user whether he is dealing with the species in the key or not. Furthermore, I think it is brave to acknowledge that certain females remain unidentifiable or nearly so. I know that Martin tried his best to find decisive characters to separate female specimens of related species like *Dolichopus latilimbatus* and *D. nubilus* or *Rhaphium appendiculatum* and *R. caliginosum* but apparently did not find a sufficient convincing combination to split them into two separate couplets. Barcoding female specimens might provide a welcome tool to discover subtle but consistent differences. And although I experienced myself how difficult it is to build a reliable key to female *Medetera*, I kind of regret that Martin did not include a key to those females that can be recognized reliably. It remains likely that females of other lineages, e.g., species of the *Medetera apicalis* species group, will never be identified with absolute certainty on the basis of morphological features. In these cases, barcoding might prove a very important identification tool. *Chrysotus* represents another example where females of different species are sometimes hard to

identify, due to a high intraspecific variability in colour. Hence, it is no surprise that the key in Drake (2025) comprises 5 inseparable pairs. However, I recently discovered that the final terminalia, in particular the shape of the acantophorites, are quite specific and often consistently different in related species (Pollet, in prep.). Also, drawings of the hypopygia of *Xanthochlorus* in ventral view like in Chandler & Negrobov (2008) seem to include more recognizable structures than in dorsal view as in Drake (2025). And finally, sequential numbering of all illustrations might have provided a more unequivocal reference to them, in my opinion, although I understand why the author took another path.

All in all, Drake (2025) is a major leap forward in the identification of British Dolichopodidae in particular, and European species in general, the latter preferably in combination with other relevant papers. Moreover, it's a very appealing book that most presumably will also increase interest in this family among non-doli workers. Without a doubt, using it will lead to more reliable identifications, certainly in combination with a reference collection, the importance of which cannot be underestimated. The hardcover version of Drake (2025) is nearly 5 times thicker than d'Assis Fonseca (1978), with each page containing useful and relevant information on this amazingly interesting taxon. I can only highly recommend it to anyone with an interest in entomology in general and/or flies; for European doli workers it's an absolute must to have and apply!

The webpage for this book is at:

<https://www.royensoc.co.uk/shop/publications/handbooks/diptera/british-dolichopodidae-diptera/>

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Flies are a-Buzzin’

Rawge Jones

Elverta, California, USA; <https://rawge.com/>

Following is a chapter from the book, “Behind the Binoculars – what nature tours leave out...” Drawing from a 35-year career as a wildlife biologist, Jones uses humor to pull back the curtain on some of the embarrassing, the gross, and the wild sides of nature. The 193-page book covers taxa from birds to mammals and insects to plants. Color photographs throughout.

I hate flies! They buzz in my face and land on my food. I know that they’ve got a gross tongue with a sponge on the end and just love to stick them on a pile of anything gross and then go looking for any unguarded hot dog at the picnic. I also know that flies develop from the immature form that we all know and love as maggots. I honestly can’t think of anything nice to say about flies.

But flies as a group are a lot deeper than just the common houseflies that we’re most familiar with. Flies are in the order Diptera, with over 100,000 different species. The group of insects is characterized by having only one pair of functional wings, with the second set more resembling a club than a wing. This diverse order includes horseflies, mosquitoes, midges, crane flies, hoverflies, and many other species. With 100,000 different species, they have many other jobs in nature besides irritating humans and buzzing in their faces. Throughout the natural world, many are beneficial to us. Some species pollinate our flowering plants. The maggots of hover flies feed on garden pests. Some species of fruit flies have been used as biological weed control. For many years, scientists have utilized fruit flies from the family Drosophilidae to study genetics. Those flies are perfect for the task—they have extremely short lifespans, giant salivary gland chromosomes, and can be grown in a lab by the millions.

For the most part, I still say that flies are disgusting. But some are worse than others.

About twenty-five years ago, my wife and I were prowling around San José del Cabo, in Baja California. We paid a few pesos and walked around a cactus arboretum. I was anxious to try out my first Nikon digital camera. With the camera in one hand and a bottle of water in the other, we strolled from cactus to cactus. I was trying to get a picture of a red saddlebags dragonfly, but none of them showed even the slightest interest in cooperating with me. As my eyes wandered around each plant, I noticed a small insect, only a few feet away. It was dragonfly-like, but much stockier. I didn’t know what it was, but I stayed in the sun and heat until I felt confident that I had a good photo.



Robber fly, bee killer, *Mallophora* sp.

When I returned home and was able to do some research, I discovered that the little insect was actually a fly, known as a robber fly, in the family Asilidae. These one- to two-inch-long insects are also called assassin flies. They look nothing like a housefly. They are powerfully built, and their name gives an indication of their predatory lifestyle. When these flies get hungry, they don't look for a pollen-filled flower or a pile of dog poop. These little predators feed almost exclusively on other insects, which they chase down and capture in flight. They feed on beetles, butterflies, moths, bees, ants, dragonflies, damselflies, wasps, grasshoppers, and even some spiders.

Even if you're a badass predator, you'll probably have to have some manner of grossness to garner any street cred in the fly family. These flies capture their prey by stabbing it with their powerful proboscis and then injecting the helpless insect with a saliva cocktail of neurotoxic and proteolytic enzymes. The enzymes will rapidly paralyze the victim and then digest the insides into a liquid mess. The robber fly then sucks the bee or butterfly soup through its straw-like proboscis. Yum!

A few years later, I was walking in a riparian forest on the wildlife refuge that I helped to manage. For no reason other than pure luck, I saw a small insect sitting on the end of a broken plant stem. I was busy, but I studied it for a minute. Since I had taken a deep dive into the fly family after my Mexico trip, I reasoned that this was also a fly. It had a pair of wings and beautiful big black eyes with a vertical red stripe. The body was black, stocky, and fat, with some white scattered about the head and thorax.

An hour later, I finished my wildlife survey. Once at my truck, I swapped my binoculars for a camera and headed back to see if I could again locate the insect. In five minutes I was staring at the same insect, perfectly happy to just sit and wait for me. I took photos from several angles, working from a distance and then getting progressively closer. As I got as close as the macro function on my lens would allow, the fat little fly had enough, and flew off.

Like every other instance in my career when I found something new, I was excited to find out exactly what it was and learn more about it. Within ten minutes of sitting in my office, I knew its name. My smiling tone towards the cute little fly disappeared. It was disgusting! It was called the rabbit bot fly, and it lived most of its life as a maggot, inside of our cute little bunnies, the desert cottontail.



Rabbit bot fly, *Cuterebra lepusculi*.

It's bad enough if you're a fly and you kill and eat butterflies. That's bad. But damn! To be a fly that lives inside a precious bunny is crossing the line! The adults actually never bother a rabbit. It's them damn kids that do all the horrific damage.

The adult bot fly is pretty harmless. In fact, they don't eat. They don't even have the mouthparts to consume food. Instead, these non-feeding monsters focus entirely on sex. They have one goal, find a mate and lay eggs. After mating, the adult female lays her eggs near a rabbit's burrow. When the eggs hatch, the maggots, called bots, crawl around and look for a nice warm and fuzzy rabbit. They enter the rabbit's body, through their nose or mouth, and then wiggle and eat their way to a cozy spot under the bunny's skin. Yes, bots have been troublesome long before computers and the internet.

There are other bot flies that specialize in other animals, like cattle, sheep, rats, and even humans. The bots can live under the skin, or in a stomach, or in a nose, and not many mammals are immune. It makes my skin crawl just thinking about it!

So there's no hiding the fact that I don't care much for flies. At the first hint of a buzz, I'm chasing them around our house with a flyswatter. I've elevated it to a sport. Some sportsmen have fancy shotguns or hand-made wooden bows and perfectly fletched arrows. I hunt flies with an Amish-made, hand-sewn leather swatter with a twisted wire and fire-hardened handle. There's nothing too good when it comes to the art of killing anything that lives in poop or dead bodies and has cousins that kill butterflies or live under the skin of a precious bunny.

SOCIETY BUSINESS

On the back pages of *Fly Times*, Dipterists Society business is recorded, as is desired for Society transparency.

Several documents are here provided on the following pages for the record. They are:

1. Current list of Directors, Officers, and Auxiliary Officers (1 page).
2. The approved minutes of the Midterm Meeting of the Council for International Congresses of Dipterology, held 27 August 2025; prepared and filed by Council Secretary John Midgley (5 pages).
3. The approved minutes of the 2025 third quarterly meeting of the Board Directors, held 2 October 2025, including the report on upcoming meetings from the Meeting Chairperson; prepared and filed by Secretary John Midgley (5 pages)
4. The approved minutes of the 2025 annual meeting of the Board of Directors, held 8 January 2026, including the Treasurer's report, the annual financial summary, special reports (Meeting Chairperson's report), and the 2025 annual summary of activities; prepared and filed by Secretary John Midgley (13 pages).

As of this writing, following are the Directors, Officers, and Auxiliary Officers of the Society. This list is also presented in the Society's webpage on governance (<https://dipterists.org/governance.html>)

Directors

Christopher Borkent
Neal Evenhuis
Stephen Gaimari
Martin Hauser
Ashley Kirk-Spriggs
Giar-Ann Kung
Erica McAlister
John Midgley
Sarah Oliveira
Thomas Pape

Officers

Stephen Gaimari, President
Martin Hauser, Vice President
John Midgley, Secretary
Giar-Ann Kung, Treasurer, Education Chairperson
Christopher Borkent, Assistant Treasurer
Matthew Bertone, Meeting Chairperson
Ashley Kirk-Spriggs, ICD Chairperson

Auxiliary Officers

Daniel Bickel, ICD Councilor (Vice Chair)
John Midgley, ICD Councilor (Secretary)
Dalton Amorim, ICD Councilor
Yuchen Ang, ICD Councilor
Will Bouchard, Field Meeting Co-Chair
Xiaolin Chen, ICD Councilor
Netta Dorchin, ICD Councilor
Stephen Gaimari, ICD Councilor
Valery Korneyev, ICD Councilor
Luc Leblanc, General Meeting Co-Chair
Kazuhiro Masunaga, ICD Councilor
Erica McAlister, ICD Councilor
Ximo Mengual, ICD Councilor
Sarah Oliveira, ICD Councilor
Matt Petersen, Field Meeting Co-Chair
Jeffrey Skevington, ICD Councilor

Dipterists Society
DIRECTOR'S MEMO



Minutes of CICD Midterm Meeting

Prepared and filed 16 March 2026 by John Midgley, ICD Councilor (Secretary).

Approved via email 2 June 2026: proposer Ximo Mengual, seconded Erica McAlister, eight votes in favor.

Notice for this CICD Midterm Meeting was provided by John Midgley by email to all ICD Councilors on 25 August 2025, after polling all for availability.

Meeting held Tuesday, 27 August 2025, call to order at 14:00 (SAST) using Microsoft Teams.

Chairperson: Ashley Kirk-Spriggs.

Secretary: John Midgley.

Attendance: Virtual:

Dalton de Souza Amorim (ICD Councilor) (DA), Yuchen Ang (ICD Councilor) (YA), Netta Dorchin (ICD Councilor) (ND), Stephen Gaimari (ICD Councilor) (SG), Marija Ivković (ICD11 Chair, invited) (MI), Ashley Kirk-Spriggs (ICD Chairperson) (AKS), Valery Korneyev (ICD Councilor) (VK), Kazuhiro Masunaga (ICD Councilor) (KM), Ximo Mengual (ICD Councilor) (XM) and John Midgley (ICD Councilor, Secretary) (JM).

Apologies: Daniel Bickel (ICD Councilor, Vice-Chair), Xiaolin Chen (ICD Councilor), Erica McAlister (ICD Councilor); Jessica Gilung (ICD Councilor) and Sarah Oliviera (ICD Councilor).

Item 1. Opening and Welcome:

The Chairperson welcomed everyone to the meeting and gave a brief background of the purpose to the Midterm Meeting.

Item 2. Attendance register:

The Secretary noted virtual attendance.

Item 3. Apologies for absence:

The Secretary noted apologies.

Item 4. Approval of agenda and Additions

The agenda was approved without any additions.

Item 5. Chairperson's report:

AKS presented his report:

Over the past months, SG, AKS and JM have worked to facilitate the merger of ICD with the Dipterists Society. An article outlining the history of this process was published in the most recent issue of *Fly Times*. This meeting is the first since the amalgamation and is governed by the Society Bylaws and no longer by the CICD Constitution. These bylaws are not as rigid, which gives us a degree of flexibility. As part of the process, a guideline document for Congress Chairs was produced. One major change since amalgamation is that accounts need to be presented to the Society by the local organizing committee at the end of each Congress. Another change is that the former role of Secretary/Treasurer of ICD now changes to Secretary alone, as ICD no longer holds separate funds and these are administered by the Society's Treasurer. The existing CICD funds will be transferred to the Society. While membership of the Society is not a prerequisite to serve as an ICD Councilor, AKS encouraged all Councilors to join the Society.

Item 6. Secretary's report:

JM presented his report:

There has been limited secretarial work since ICD10. The extraordinary meeting to discuss the merger and the merger process itself have taken the majority of his time. He had also corresponded with Vladimir Blagoderov about a potential bid for ICD12.

Item 7. Report on progress with planning of ICD11 (Croatia) plus Q & A session:

MI presented her report:

The venue for the conference (Westin Hotel, Zagreb) has been secured, including a venue for the conference banquet. The organizing and scientific committees are in place. The conference website with a first circular will be active by the end of 2025, though registrations will not open immediately. The dates are confirmed for 11 to 16 July 2027. Several hotels have been contact regarding accommodation for the conference. Facilities for examining material and breakaway meetings will be available at the Department of Biology, University of Zagreb, located within walking distance of the Westin Hotel. Symposia covering the usual topics at ICD will be included.

Following the report, AKS opened the floor to questions.

AKS asked if preliminary registration fees had been calculated. IM responded that, while not finalized, the standard Registration Fee was expected to be €500 and student registration €300. Late registration would be more, but had not been calculated. Inflation makes pricing difficult and the organizers are still trying to obtain sponsorship to bring the cost down.

AKS asked if reduced rates for rooms had been obtained and if a minimum number of rooms needed to be booked. IM confirmed that the Westin Hotel will have reduced rates for delegates and that a minimum number of rooms would need to be secured.

JM asked how many rooms needed to be filled. IM will need to confirm with the organizer, but 30–50 rooms was the expectation.

SG asked if other hotels also had minimum booking numbers. IM said no, only the main hotel.

SG asked if preferential rates had been negotiated with other hotels. IM said no, but other hotels were available at various prices for delegates to choose from.

AKS suggested that room-sharing options should be made available. IM will follow up with the organizers.

SG suggested that the conference circulars only mention the preferred hotel, to ensure enough rooms are booked.

XM asked if transport connections were available from the airport. IM confirmed taxi operators and public transit options are available.

ND asked of the social programme had been developed yet. IM confirmed that the programme is being developed, though not finalized. The welcoming function is planned to be held at the Natural History Museum of Zagreb. There may be adjustments to the programme dependant on the number of delegates.

Following discussion, it was agreed that the conference should be in person only. Options were discussed for recording talks. Due to legal complications, MI will discuss options with the organizers and see what is possible in Croatia.

XM asked if printed copies of the abstract volume would be available. After discussion, IM agreed that a print on demand option would be available.

AKS asked about the venue for the congress banquet. IM confirmed the venue has been booked. The venue can only host 400 people, so should the demand exceed this, the banquet will move to the Westin Hotel.

AKS enquired about post congress tours. IM confirmed that options will be available. These are arranged by a professional organizer. Day tours for accompanying persons are also planned.

AKS asked about the rate for accompanying persons. IM confirmed the rate will be lower than full delegate registration. Accompanying persons will be allowed to attend the social events and meals, but not the scientific presentations.

XM asked when potential symposium organisers will be contacted. IM confirmed some have already been contacted. Following discussion, it was agreed that an open call for symposia would be made.

AKS asked if there would be workshops as well as symposia, IM confirmed that workshops were possible, if convenors volunteered to run them.

AKS asked if plenary speakers had been arranged. IM said some had been discussed, but the list was not yet finalized.

Item 8. Closed discussion on progress with ICD11 and vote

The Council voted unanimously that they were satisfied with arrangements thus far and to proceed with ICD11 in Zagreb.

Item 9. Potential bid for ICD12

To date, only one expression of interest has been received, from Vladimir Blagoderov (National Museum of Scotland) to host ICD12 in Edinburgh. Discussions were conducted regarding future bids, but the Council will not solicit additional bids for ICD12, as we have a potential host lined-up.

Item 10. Presentation of potential CICD Councilors and office-bearers for the period 2027 to 2033

John M. Midgley
16 March 2026
Page 5

At the next ICD, there will be five vacancies on the CICD, which need to be filled. Nominations can only formally be made at the First Business Meeting of CICD at ICD11, but planning ahead is possible. AKS presented some options for potential candidates and noted that formal nominations should only be made ahead of ICD11. It was also noted that AKS would step down as Chairperson at the close of the next Congress and that the vacancies of Chairperson and Deputy Chair also needed to be filled at the next meeting. Possible nominations were discussed and councilors will familiarize themselves with these members of the community.

Item 11. Any other business

AKS suggested that Councilors consider if any additions should be made to the list of Honorary Members of ICD that strictly meet the conditions for nominations can be made at the first business meeting at ICD11.

DA thanked everyone involved in merging CICD with the Dipterists Society.

Item 12. Closure

The meeting was closed at 16:00.

Submitted by:
John Midgley
Secretary

Dipterists Society
DIRECTOR'S MEMO



Minutes of Directors Meeting

Prepared and filed 07 January 2026 by John Midgley, Secretary

Notice for this Quarterly Meeting was given by John Midgley by email to all Directors on 25 September 2025, after polling all for availability.

Meeting held Tuesday, 02 October 2025, call to order at 10:00 PM (SAST) using Microsoft Teams.

Presiding: Stephen Gaimari

Secretary: John Midgley

Attendance: Virtual: Stephen Gaimari (Director/President) (SG), Martin Hauser (Director/Vice President) (MH), Christopher Borkent (Director/Assistant Treasurer) (CB), Neal Evenhuis (Director) (NE), (AKS), Giar-Ann Kung (Director/Treasurer, Education Chairperson) (GAK), Erica McAlister (Director) (EM), John Midgley (Director/Secretary) (JM), Sarah Oliveira (Director) (SO), Thomas Pape (Director) (TP).

Apologies: Ashley Kirk-Spriggs (Director/ICD Chairperson).

Call to order:

The President welcomed everyone to the meeting.

Item 1. Approval of minutes of the Board meeting of 01 July 2025 (distributed 01 October 2025).

No corrections were made. **GAK moved to approve the minutes** (seconded MH, passed unanimously).

Item 2. Treasurers Report

GAK provided the following report:

These are numbers are through 30 Sep 2025

- Our current balance at CA Bank & Trust is \$54,699.52
 - We have taken in \$1,566.93 since last quarter

- \$1,340.00 in membership dues, which includes:
 - 6 at the Founding Member level
 - 4 at student level
 - remainder at regular level
- \$226.93 in donations associated with membership due payments (this includes a \$200 donation from Bob Kimsey)
- Expenses since last quarter
 - Bank fees \$46.20
 - Reimbursement for DS stickers handed out at ESSA \$168.21 (\$122.71 + \$45.50 wire fee)
- Our current investment account balance at RBC is \$55,809.70. This is an increase of \$3,636.41 since last quarter [ending balance \$52,173.29 on 30 Jun]
EM moved to approve the report (seconded MH, passed unanimously)

Item 3. Old business

- **Membership**

The summary of membership numbers was deferred to the end of year meeting, to allow for discussion about new membership tiers.

SG reminded everyone that the membership levels were discussed in the previous meeting, with broad agreement to end the Founding Member level and introduce a Sustaining Membership with different tiers. After discussion of tier and incentive rewards, further discussion was deferred to the next meeting. The change will be announced in the December issue of Fly Times, with further details published in the June 2026 issue of Fly Times. **EM moved that we end the Founding Membership program on 15 June 2026** (seconded GAK, passed unanimously). **CB moved that we start a Sustaining Member program on 15 June 2026 with a minimum rate of \$150 per year and additional tiers to be decided in future** (seconded TP, passed unanimously).

- **Grants Program**

An extensive discussion was had about reasonable grant amounts for travel and research and balancing the amount of funds available with the desire to fund as many applications as possible. After this discussion, **TP moved that a grant program be announced in the December fly times for meetings and for research, with up to US\$1000 per successful applicant available for meetings, and up to US\$2000 available per successful applicant for research, with the application deadline of Monday, February 9th, 2026 with details to be provided in Fly Times** (seconded MH, passed unanimously).

- **Meetings updates**

The report from Matt Bertone was circulated before the meeting and was accepted by the meeting. [report appended to minutes]

SG suggested that in future, Officers who are not also Directors should be invited to present their reports in person to Directors meetings, to allow questions to be asked and answered. **JM moved that we invite officers who are not directors to join the Director's meeting to give verbal reports on their portfolios and that we move those sections of the meeting to have them first during the meeting so that the people are not held up any longer than they need to be** (seconded GAK, passed unanimously).

JM reported on the ESSA meeting. 22 talks were given during the session, 18 of which will be uploaded to the Society's YouTube channel. There was also interest in the display stand, and the stickers were popular.

- **ICD Update**

JM gave a report on the CICD mid-term meeting, held on 27 August 2026. The venue for ICD11 has been confirmed, and it will be held in Zagreb. Preparation for the meeting is progressing as expected.

- **Education/Outreach**

GAK reported that preparation for Fly School IV was progressing well. The budget is being prepared and potential sponsors will be contacted in due course. Further discussion included running a special grants program for the selected participants, which was deferred to the next meetings.

EM raised potentially sponsoring the Dipterists Forum in some way, possibly a workshop. This was deferred to the next meeting, as the workshop is in March 2026. SO asked about funding for meetings and activities in Brazil, this would suit the grants program. GAK will share a link to a Google Document where events and other outreach ideas can be shared in one place.

GAK reported that Matt Bertone would be posting to our new Bluesky account, and suggesting we may want multiple contributors.

EM mentioned the handbook to British Diptera as another possible outlet for a half-page Society advert.

- **Engaging other societies**

The advert for other society newsletters is still pending.

Item 4. New business

- **Officer Updates**

Matt Bertone, as Meeting Chairperson, has nominated one individual for an Auxiliary Officer position of Field Meeting Co-Chair. **CB moved for an up or down vote for the candidate Matt Peterson** (seconded GAK, passed unanimously).

- **Website**

Jim O'Hara is removing the CICD and the North American Dipterists Society pages from the University of Guelph website, as these are now hosted on the Dipterists Society website. Jim's efforts in this regard, along with those of Shannon Henderson, are appreciated. **SG moved to extend thanks on behalf of the Dipterists community to Jim for his many years of commitment to this effort** (seconded EM, passed unanimously).

Item 6. Date of next Directors meeting

The bylaws give the date of the annual meeting as the second Monday in December, 8 December 2025.

Item 7. Adjourn

CB moved to adjourn the meeting (seconded TP, passed unanimously). Meeting adjourned at 11:10 PM SAST.

Submitted by:
John Midgley
Secretary

Report from the Meeting Chairperson

Matt Bertone

25 September 2025

Two meetings are being coordinated and/or planned by the Meeting Chairperson, Dr. Matt Bertone (NC State University).

The first is the Dipterists Society 34th General Meeting at the Annual Meeting of the Entomological Society of America (ESA), to be held in Portland, Oregon, on November 11th, 2025 from 7:00-9:00 PM. The meeting will have a social with food and drinks, followed by announcements, and then presentations about Diptera. A call for presentations was sent out via email to the dipterists list, as well as shared on social media sites like Facebook, X, and Bluesky. Submissions will be accepted through Friday October 10th. This meeting is being Co-chaired by Dr. Luc Leblanc (University of Idaho).

The second meeting is the Field Meeting to be held in the summer of 2026. We have identified Minnesota, specifically the Itasca Biological Station and Laboratories, as the location for this meeting. We are in the process of booking the site, making sure that it will meet our needs. To coordinate planning and local arrangements we have an Auxiliary Officer Field Meeting Chair (Dr. Will Bouchard) and I have nominated a Co-Chair (Dr. Matt Petersen) for consideration at this meeting. Both are associated with the University of Minnesota.

Dipterists Society
DIRECTOR'S MEMO



Minutes of Directors Meeting

Prepared and filed 20 March 2026 by John Midgley, Secretary

Notice for this Quarterly Meeting was given by John Midgley by email to all Directors on 12 December 2025, after polling all for availability.

Meeting held Thursday, 08 January 2026, call to order at 10:00 PM (SAST) using Microsoft Teams.

Presiding: Stephen Gaimari

Secretary: John Midgley

Attendance: Virtual: Stephen Gaimari (Director/President) (SG), Martin Hauser (Director/Vice President) (MH), Christopher Borkent (Director/Assistant Treasurer) (CB), Neal Evenhuis (Director) (NE), Ashley Kirk-Spriggs (Director/ICD Chairperson) (AKS), Giar-Ann Kung (Director/Treasurer, Education Chairperson) (GAK), John Midgley (Director/Secretary) (JM), Matt Bertone (Meeting Chairperson) (MB).

Apologies: Erica McAlister (Director) (EM), Sarah Oliveira (Director) (SO), Thomas Pape (Director) (TP).

Call to order:

The President welcomed everyone to the meeting.

Item 1. Approval of minutes of the Board meeting of 25 September 2025 (distributed 07 January 2026).

No corrections were made. **GAK moved to approve the minutes** (seconded NE, passed unanimously).

Item 2. Treasurers Report

GAK provided her report (appended):

AKS moved to approve the report (seconded CB, passed unanimously)

SG noted that our current tax preparer is due to retire soon, and that finding a new tax preparer should be the prerogative of the treasurer. NE asked if we had to be audited, as we are a non-profit organisation. SG said we have not needed to be audited yet, but may need to be in future. **CB moved to consider tax preparation and hiring of tax accountants to be the responsibility of the Treasurer** (seconded NE, passed unanimously).

Item 3. Old business

- **Meeting report and updates**

MB presented his report (attached). SG queried if the food budget for the meeting at ESA was adequate, which it was. MB asked how those not attending ESA found the online option, SG said that it worked fine. **GAK moved to accept the report** (seconded AKS, passed unanimously)

SG noted two upcoming meetings where we could promote the society, the European Congress of Entomology (ECE) and the International Symposium on Syrphidae (ISS), both in June 2026. It may be possible to advertise in the program for the ECE, GAK will find out more information. JM and MH will see what advertising is possible at ISS.

(MB left the meeting at this point).

SG queried the charge for transport for the Field Meeting (renting two vans at \$500 per van plus fuel), as some attendees would provide their own transport. Charging the van rental as a general expense is not fair as these people would effectively be double-charged. **AKS moved that we commit to \$1500 total towards transportation, vehicle rental and gas for the field meeting if it's necessary** (seconded MH, passed unanimously).

- **Membership**

SG Presented the membership report (attached). In the *Fly Times*, the final date for Founding Membership was extended from 15 to 30 June 2026. This was for practical reasons, allowing for a final push for membership when the next *Fly Times* comes out. When the Sustaining Membership becomes available, different levels will be available. The financial cut off points and rewards for these levels need to be discussed. Detailed discussion was deferred, but this will need to be finalised at the next meeting. Linked to the rewards will be an online shop, which needs to be discussed further as well.

- **Grants Program**

The announcement for 2026 grant program was made in the December 2025 *Fly Times*. The deadline for all submissions is 9 February 2026. An executive committee is needed to assess the applications. SG, AKS and MH volunteered to serve on the committee, and a further call will be made by email. The maximum available funding was decided at the previous meeting to be \$10 000. To allow some flexibility to the committee, **JM proposed that, in future, the Grants Committee will be given a guidance for the amount that they can give away. They can give away a maximum of 15% of that over and above the guided amount. For this year, the amount is 10,000 and the maximum will be \$11,500** (Seconded MH, passed unanimously).

Fly School grants were not included in the 2026 grant call, as it will be a closed call for selected participants. GAK reported that applications will open in mid January and close at the end of February, with the selection of candidates expected by the end of the first week of March. The Society will receive \$5000 from the Williston fund, which will be distributed to applicants. **GAK moved that the Society provide an additional \$5000 for grants** (seconded MH, passed unanimously).

One recipient of a previous grant has money left over, which she has offered to return to the Society. Given the costs of transferring the money, the small amount (\$275) remaining, and the fact that the research had been completed and a report submitted, it was decided that the money could be used for future Diptera-related research. JM will draft a returns policy to add to the grants guideline document.

- **ICD Update**

AKS reported that the mid term meeting had taken place, and that preparations were going as expected up to that point. The Congress website and expression of interest forms are not yet available. The organisers have been provided with all relevant guideline documents. Progress on the bid for ICD12 is also progressing.

- **Education/Outreach**

GAK reported that \$15 000 had been received for Fly School (\$10 000 from Evelyn and David Lynette and \$5 000 from Steve and Helen Gaimari). This should allow fees to be capped at \$1500 per participant for 30 participants,

though there is still a shortfall. **NE moved that the Society gives Fly School an additional \$1000 to cover the shortfall** (seconded MH, passed unanimously). SG volunteered to serve on the Fly School grants committee and suggested GAK be the chair.

GAK mentioned that there may be a Diptera Course in development for Europe. This is being driven by EM and TP, who are not present to give more details.

- **Engaging other societies**

AKS mentioned that we should build links to the Dipterists Forum. They are holding an Identification workshop in March, which is already fully booked, at a cost of abot \$340 per participant. **NE moved to for to support the Dipterists Forum workshop in March with \$1200** (seconded MH, passed unanimously).

Item 4. New business

- **Membership**

Currently, SG is managing the membership of the Society, but this task is becoming arduous as the membership grows. **AKS moved that the society has a membership secretary who's responsible for all issues related to membership and renewals. This position will be an assistant secretary as defined in the Bylaws** (seconded GAK, passed unanimously).

- **Elections**

JM for an up or down vote approving the re-election of the full slate of directors, officers and auxiliary officers (seconded NE, passed unanimously).

- **From the floor**

No items were raised.

Item 6. Date of next Directors meeting

NE moved that the next meeting is planned for the last week of March or the first week of April, depending on availability (seconded AKS, passed unanimously).

Item 7. Adjourn

GAK moved to adjourn the meeting (seconded AKS, passed unanimously).

Meeting adjourned at 11:40 PM SAST.

Submitted by:

John M. Midgley
20 March 2026
Page 5

John Midgley
Secretary

**Dipterists Society Directors Meeting
8 January 2026**

Treasurer's report

These numbers are through 31 Dec 2025

- Our balance at **CA Bank & Trust** is \$64,967.04
 - We have taken in \$12,187.71 since last quarter:
 - \$1,150.00 in membership dues, which includes:
 - 3 at the Founding Member level
 - 13 at the Individual level
 - 9 at the student/reduced fee level
 - \$11,037.71 in donations:
 - \$37.71 in donations associated with membership dues payments
 - \$500 donation from Gary Steck
 - \$500 donation from Mike & Bonnie Irwin
 - \$10,000 donation from Evelyne & David Lennette for Fly School
 - Expenses since last quarter:
 - \$28.13 bank fees
 - \$1,520.16 catering for the 34th General Meeting of the Dipterists Society at ESA Annual Meeting in Portland, Oregon in November
 - \$20.00 California Secretary of State, Statement of Information filing
 - **For the year**, we had a total of \$67,521.19 in credits and \$62,210 in debits, for a net increase of \$5,311.22 to the account balance.
 - \$50,000 of that is the donation from Terry & Faye Whitworth, which was used to open the investment account.
 - \$10,000 is earmarked for Fly School so subtracting that, the account is at \$4,688.78 less than a year ago.
- Our investment account balance at **RBC** is \$56,815.72.
 - This is a gain of \$1,006.02 since last quarter and an overall \$6,815.72 gain since the initial \$50,000 deposit in Jan 2025.
- \$6,000 in grants disbursed in 2025

Dipterists Society
2025 Annual Financial Summary
1 January 2025 - 31 December 2025

INCOME	AMOUNT
Donations	\$ 61,771.45
Memberships	\$ 5,749.74
TOTAL	\$ 67,521.19

EXPENSES	AMOUNT
Grants	\$ (6,000.00)
Accountant fees	\$ (1,350.00)
Bank fees	\$ (238.21)
Government services	\$ (70.00)
iATS fees	\$ (187.48)
Insurance	\$ (1,600.00)
Society expenses	\$ (584.41)
Meeting expenses	\$ (2,179.87)
Compensation (officers, directors)	\$ -
TOTAL	\$ (12,209.97)

ACCOUNT BALANCES

ACCOUNT	ENDING BALANCE	STARTING BALANCE	NET/(LOSS)
CBT	\$ 64,967.04	\$ 59,655.82	\$ 5,311.22
RBC (opened 2025-01-15 with 50,000)	\$ 56,815.72		\$ 56,815.72
Paypal	\$ 1,247.05	\$ 1,247.05	\$ -
TOTAL	\$ 123,029.81		\$ 62,126.94

Meeting Chairperson Report

Matthew Bertone, January 6th, 2026

34th General Meeting, 2025, 11 November, Portland, Oregon

Organizers: Matthew Bertone (NC State University) & Luc Leblanc (University of Idaho)

Report in *Fly Times* 75: 108-115 (<https://dipterists.org/assets/PDF/flytimes075.pdf>)

- Held at Entomological Society of America Annual Meeting
- More detailed summary of the meeting can be found in the *Fly Times* article linked above
- By the numbers:
 - Attendees: 28 in person, 15 virtual (total = 43 attendees).
 - Announcements: 5
 - Presentations: 5
- Program:
 - 7:00 PM – Social Finger foods and cash bar provided; Limited free drink tickets offered
 - 7:30 PM – Welcome & Announcements (<https://youtu.be/mVu44t78atw>)
 - Field Meeting – Matt Petersen (University of Minnesota)
 - Team Diptera Outreach – Brittany Kohler (UC Davis)
 - Fly School IV: Back to the Tropics – Brian Brown (Natural History Museum of Los Angeles County)
 - Tephritid Course – Luc Leblanc (University of Idaho)
 - Journal of Lost Species – John Stireman, Matt Forister, Hollis Woodard
 - 8:00 PM – Blow Flies Under the Lens: Forensic DNA Retrieval Post-ESEM Riley B. Hoffman (UC Davis) and Nicholas J. Miller (Northeastern University)
<https://youtu.be/9GbScmdoWXQ>
 - 8:12 PM – Archaeological Dipterology: Flies as Evidence from Past Civilizations Michael A. Monzon (Purdue University) and Krystal R. Hans (Purdue University)
https://youtu.be/Jywk1_zC_Gk
 - 8:24 PM – The Biodiversity of Chironomidae (Diptera) in Hong Kong Chan Tsz Ying (Elaine) (The University of Hong Kong)
 - 8:36 PM – Distribution of Flies (Insecta: Diptera) Across Altitudinal Gradient in Nyungwe National Park, South-Western Rwanda Jean de Dieu Nsenganeza (University of Rwanda/UR-CoEB) https://youtu.be/B51OGGIxz_4
 - 8:48 PM – Photos of Diptera from Fly School III and Beyond Matt Bertone (North Carolina State University) <https://youtu.be/mpD3Bistimo>
 - 9:00 PM – Closing Remarks
- Social expenses:
 - Provided 40 drink tickets for craft beers or lesser value (@ \$12.00 each); cash bar for other options. In total \$895.20 (including bartender and other fees)
 - Provided light food items (2 dozen of each): Wild Mushroom Risotto and Fontina Cheese Fritters, Adobo Chicken Empanadas, Boursin and Cucumber Cups, Mini Beef Wellingtons. In total \$624.96 (including fees)
 - Received a credit of \$133.30 from the convention center
- Future directions:

Fly Times 76 (2026)

- Develop a standard schedule and identify outlets for making announcements and call for presentations
- Streamline in-person and virtual experiences

2026 Field Meeting: Itasca Biological Station and Laboratories, northern Minnesota, 15-19 June
Organizers: Will Bouchard (Minnesota Pollution Control Agency St. Paul, Minnesota) & Matt Petersen (Department of Entomology, University of Minnesota)
Announcement in Fly Times 75: 101-104 (<https://dipterists.org/assets/PDF/flytimes075.pdf>)

- https://dipterists.org/field_meetings.html
- Planning for about 20-30 attendees. Estimated total cost per person should be between \$400 to \$800, depending on selections.
- Developed a form for those interested in attending (on page linked above); will also develop a registration form for folks to designate their preferences for options discussed below
- Lodging options will include various cabins (single bed or multiple) ranging from about \$50 to \$110 per person per night, or bunkhouse (multiple beds) at \$100 per night for 6 to 10 beds.
- Meals:
 - Breakfast, lunch, and dinner can be provided, including dinner the 1st night (June 15), full day meals June 16-18, and breakfast on the last morning (June 19). The full meal plan for the entire meeting will be about \$162.
 - Cabins have kitchens, so there will be an option to opt out of the station's meal plan for those who want to buy their own groceries and make their own meals.
 - Registrants can opt for partial meal plans for the week, i.e., breakfasts only, lunches only, dinners only, or combination, with the following prices.
 - Breakfasts (4 days) about \$48
 - Lunches (3 days) about \$45
 - Dinners (4 days) about \$72
 - Registrants will be able to submit dietary restrictions.
 - Refreshments provided during evening seminars.
- Transportation:
 - Attendees will likely want to fly into the Minneapolis–Saint Paul International Airport (MSP), which is a 4 hour drive to the station.
 - Will endeavor (based on cost and availability) to rent 2 large vans and pick up attendees from the airport and drive to the station (2x on day of arrival?)
 - Some attendees may rent vehicles or drive their own.
 - Coordinate transportation with other attendees
- Biological station use will total approximately \$1200.
- Permits: still working with the Minnesota DNR to determine how the permits will need to be structured for this group. Cost should not be high – maybe \$10/person or less.
- Other items to borrow or purchase:
 - Microscopes: Borrow from UMN
 - Malaise traps: Borrow
 - Field/lab equipment: Vials, forceps, ETOH

Dipterists Society
DIRECTORS MEMO



8 January 2026

**Annual Meeting of the Board of Directors of the Dipterists Society
Thursday, 8 January 2026, 3:00pm EST**

2025 Summary of Activities

Activities of the Society through 2 October 2025 are described in the Meeting Minutes of the Quarterly meetings of the Board of Directors. This report summarizes activities for the full year.

- (1) A single Unanimous Written Consent was issued, as follows:
 - (a) *UWC_2025-01-07_Secretary_Treasurer_positions*: approved vacating the appointments of Giar-Ann Kung as Secretary and John Midgley as Treasurer of the Society, and approving a reversal of these appointments with Giar-Ann Kung as Treasurer and John Midgley as Secretary.

- (2) Membership Report
 - (a) In total we have had 176 members (up from 149 in 2024); 116 are paid up-to-date; 90 previous members have renewed their membership; 26 paid as new members (down from 55 last year); 30 members paid at the student rate; 63 members opted to be recurring members. 1 (Gaimari) sent email reminders to all members in arrears on 31 December 2025 regarding membership renewals.
 - (b) A summary of Founding Membership was given in Fly Times issue 75, pp 11–13 (<https://dipterists.org/assets/PDF/flytimes075.pdf>). There have been no additional Founding Members since that date (20 December 2025). In that article, we announce the end of the Founding Member category – this will be a topic for further discussion.
 - (c) Several members added donations on top of their memberships – they are Charlotte Alberts, Christopher Borkent, Paul Cooney, Peter Cranston, Gerard Duvallet, Stephen Gaimari, Robert Kimsey, York Niu, Bjoern Rulik, Sohath Yusseff-Vanegas, Terry Whitworth, Norman Woodley.
 - (d) In total, membership is still heavily skewed towards North America, and mostly the US, but consists of people residing in 27 countries, as follows: 7 Australia, 1 Belgium, 2 Brazil, 18 Canada, 1 China, 1 Colombia, 3 Costa Rica, 2 Croatia, 1 Czech Republic, 2 Denmark, 1 Finland, 1 France, 6 Germany, 1 Hong Kong, 1 India, 2 Israel, 1 Lebanon, 1 Mexico, 1 Netherlands, 1 New Zealand, 1 Norway, 1 Poland, 1 South Africa, 1 Spain, 1 Switzerland, 10 United Kingdom, 103 United States.

- (3) Grants Report
 - (a) *2025 Research Grants*: The announcement was sent out on 10 October 2024, with applications due by 15 November 2024. 12 applications were received from people in seven countries, of which 6 were successful and funding was offered. The recipients

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were as follows: Chan Tsz Ying Elaine (\$1,000, Hong Kong), Michael Monzon (\$1,000, USA), Teagan Mulford (\$1,000, USA), Lia Pereira Oliveira (\$1,600, Brazil), Johan Saayman (\$1,000, South Africa). Unfortunately, the other selected recipient was unable to receive the funds due to US sanctions on Russia. Three of the five have so far submitted their reports.

- (b) See *Fly Times* issue 75 (<https://dipterists.org/assets/PDF/flytimes075.pdf>) for the article about membership (pp 119–120), where we announce the call for grant applications. This will be a topic for discussion.

(4) Website Report

- (a) The Society website is actively developed and modified as needed by webmaster Gaimari. Although content has been updated, there haven't been any major changes.
- (b) I (Gaimari) encourage any of the Directors to make suggestions about content, especially adding resources (I think the list is pretty good, but there are always more new and interesting websites to link), and any other ideas. Note, as webmaster, I have no interest in jquery or other bloaty javascript frameworks – I am nearly strictly using html + css. I work under a LAMP stack framework, and don't use any wysiwyg web editors. Only stating this as a potential guideline for suggested features.
- (c) Google Analytics: "Total clicks" (how many times a user clicked to our site) 3,050 (up from 2,701); daily average was 8.4 clicks (up from 7.6), with highest number at 27 on 10 March 2025; clicks were from 103 countries and territories (down from 105). "Total impressions" (how many times a user saw a link to our site in their search results) was 628,000 (up from 148,204); daily average was 1720.5 (up from 417.5), with highest number at 27,533 (up from 4,181) on 29 December 2025; impressions were from 233 countries and territories (up from 217); the "average position" (the position of our site in search results) was 10.4 (higher, from 24.1). Our top queries were "fly times"/"flytimes", "dipterist"/"dipterists", "dipterology", "dipterists society". The most visited page was <https://dipterists.org/>, with 450 clicks (up from 397) and 6,345 impressions (up from 5,109), followed by https://dipterists.org/fly_times.html, with 287 clicks (down from 354) and 3,528 impressions (down from 3,805), and <https://dipterists.org/icd.html>, with 267 clicks and 3,972 impressions. There were 2.7 times more clicks and 3.9 times more impressions from users on desktops than on mobile plus tablet devices. Numbers are considerably better relative to 2024.

(5) Dipterists Directory Report

- (a) The Dipterists Directory is a MySQL (MariaDB) database, searchable using PHP (https://dipterists.org/dipterists_directory.php). Signing up to be in the database is done via a web form submitted using PHP that generates an email to me from which I enter the data manually.
- (b) Total of 273 entries in the directory (up from 231); 151 of these are members of the Society (20 members opted not to be in the directory).
- (c) 42 countries (up from 34) are represented including 6 African (up from 4), 9 Asian (up from 7), 2 Australasian, 1 Central American, 19 European (up from 18), 3 Middle Eastern, 3 North American, 6 South American (up from 4). Of these 50.9% are North American, followed by 22.3% European, 8.1% South American, 7.0% Asian, 4.8% African, 3.7% Australasian, 2.2% Middle Eastern, 1.1% Central American.

(6) Dipterists Mailing List Report

- (a) We continue to use MailmanLists as our list provider.
- (b) We have 881 people (up from 864) (889 emails, with 8 people having two-email accounts) signed on from 88 countries (down from 89, including 25 African, 12 Asian, 2 Australasian, 2 Central American, 30 European (down from 31), 6 Middle Eastern, 4 North American, 7 South American. Of these 31.0% are North American and 28.2% European, followed by 13.7% South American, 12.0% African, 9.7% Asian, 2.4% Middle Eastern, 2.3% Australasian, 0.7% Central American.
- (c) There were 76 threads (up from 55) including 162 posts (up from 92), with multiple threads every month. Activity and replies in threads were up significantly compared to previous years.
- (d) Regarding removals from the list in 2024, 17 email addresses were disabled due to email bounces (total 56), 10 unsubscribed (total 33), and none were banned (total 1).

(7) Publications Report

- (a) *Fly Times*: Issue 74 (Spring 2025) was published on 20 June 2025, with 16 articles with 20 authors in 163 pages; more than half the issue was Dipterists Society business, presenting the approved minutes of the 10 December 2024 Board meeting, the Executive Committee document for the Council for International Congresses of Dipterology (CICD), and the historical minutes for all CICD meetings from 1990 to present. Issue 75 (Fall 2025) was published on 20 December 2025, with 29 articles with 18 authors in 140 pages; the approved minutes of the following Dipterists Society Board meetings were in the back pages – 1st Quarterly (16 April 2025), 2nd Quarterly (1 July 2025). Issue 76 (Spring 2026) is in progress, due for publication on 20 June 2026, currently with 2 submitted and 3 promised manuscripts.
- (b) *Fly Times Supplement*: No manuscripts were submitted in 2025, but 2 authors have indicated they have manuscripts in preparation.
- (c) *Myia*: No volumes were published in 2025, but at least 3 authors have indicated they have catalog manuscripts in preparation. Note, in *Fly Times* issue 75, pp 126–127 (<https://dipterists.org/assets/PDF/flytimes075.pdf>), there was an announcement regarding resurrecting *Myia*, which has been stagnant since 2011.
- (d) Back issues of *Fly Times* and *Fly Times Supplement* are still being processed for hard-copy publication, as previously discussed. Not yet ready to roll out the back issues, but we are up-to-date with new issues being so available.

(8) Social Media Report

- (a) Generally speaking, social media has not been a priority in the Society, something that could be vastly improved.
- (b) *Facebook*: 1836 followers (down from 1898), with about 25% being from North America. There were 12 posts (down from 17) this year, with modest numbers of comments and reactions (181, up from 170), with 5,216 page views (up from 1,079).
- (c) *X/Twitter*: 397 followers (down from 431), with no activity in 2025 due to the decision to move to Bluesky. We might consider posting more, given the number of followers.
- (d) *Bluesky*: 128 followers, with 10 posts so far (which does not include reposts).
- (e) *Youtube*: 113 subscribers (up from 94), with 48 videos (up from 28) in 6 playlists (up from 4) as follows: “2021 organized meeting of the North American Dipterists Society” (6 videos, total of 421 views, up from 364); “2022 organized meeting of the North

American Dipterists Society" (3 videos, 167 views, up from 145); "10th International Congress of Dipterology" (18 videos, 1,663 views, up from 1475); "Diptera" (1 video, 157 views, up from 119); "24th Congress of the Entomological Society of Southern Africa (15 videos, 153 views); "34th Dipterists Society General Meeting at ESA" (5 videos, 91 views).

9) Miscellaneous items

- (a) *Society store*: In the first quarterly meeting of 2025, we approved setting up a merchandise store as an online marketplace to produce and ship merchandise on demand. I have looked into some options local to me, but have yet to get the details. This is something we should try to finish soon.
- (b) *Society promotion*: In the second quarterly meeting of 2025, we approved using society funds (up to \$200 without further board approval) to promote the society through printed and electronic materials in journals and other resources. This was reiterated in the third quarterly meeting. We are still behind in this effort, but intend to move forward on this soon. However, with Erica's help – we did get an advert in a handbook of British flies – I'm not sure if it is published yet.

(10) Necessary Filings and Actions Report:

- (c) *State and federal taxes*: Filed 18 February 2025; no taxes were due.
- (d) *Accountant costs*: Paid \$1350.00 to Pasquesi Sheppard LLC for tax preparation.
- (e) *California Attorney General*: Paid \$50.00 for the annual registration and renewal with the Department of Justice's Registry of Charities and Fundraisers on 8 April 2025. Next payment is due by 15 April 2026.
- (f) *California Secretary of State*: Paid \$20 for filing the Society's Statement of Information (SI-100) in 2025. As this is due in odd years, the next filing and payment is due by 30 November 2027.
- (g) *USPS Post Office Box*: Paid \$192.00 on 16 December 2023 for renewal of Society Post Office Box for 12 months. Next payment due by 31 December 2024 (auto-renew).
- (h) *Kerber-Gost Insurance*: Paid \$1,600.00 to Nonprofits Insurance Alliance of California on 2 May 2025 for renewal of insurance plan, which includes a Liability Policy and a Directors & Officers Policy from 1 May 2025 through 1 May 2026. Next payment due by 31 March 2026.
- (i) *DreamHost*: Paid \$39.98 for two year web hosting on 8 April 2025. Next payment due by 1 May 2027 (auto-renew).
- (j) *Ovhcloud*: Paid \$127.91 for two year VPS renewal on 17 March 2025. Next payment due by 17 March 2027 (auto-renew).
- (k) *MailManLists*: Paid \$58.65 for annual list hosting renewal on 16 June 2025. Next payment due by 30 June 2026.
- (l) *Zoom*: Paid \$159.90 for annual subscription. Next payment due by 2 December 2025 (auto-renew).

