The Tachinid Times

Issue 38

THE SCORPION KILLER

Collecting in Saskatchewan

COMPSILURA CONCINNATA IN SW. OHIO

News from London's Natural History Museum

February 2025

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DISTRIBUTION

This newsletter is distributed near the end of February each year. It is published simultaneously in hardcopy and online, both based on the same PDF generated from an InDesign file. Hardcopies are distributed to several libraries and to a few readers who request them.

INSTRUCTIONS TO AUTHORS

This newsletter accepts submissions on all aspects of tachinid biology and systematics. It is intentionally maintained as a non-peer-reviewed publication so as not to relinquish its status as a venue for those who wish to share information about tachinids in an informal medium. All submissions are subjected to careful editing and some are reviewed if the content is thought to need another opinion. Some submissions are rejected because they are poorly prepared, not well illustrated, or excruciatingly boring.

Authors should try to write their submissions in a style that will be of interest to the general reader, in addition to being technically accurate. This is a newsletter, not *Science* or *Nature*. Try to illustrate submissions with high quality images sent to the editor as separate files at the same time as the text. Text files sent with embedded images will not be considered for publication. All content should be original; if copyrighted material (online or in print) is used then permission from the copyright holder is needed. Submitted pictures of tachinids in the field will be considered for the cover, table of contents, or a special section in the newsletter.

Student submissions are particularly welcome. Writing about a thesis study or a side project involving tachinids is a good way to inform others about a study that is underway before it has generated formal publications.

Please send submissions for the 2026 issue of *The Tachinid Times* to the editor by the end of January 2026.

FRONT COVER Field of yellow canola with hay bale in foreground, southwestern Saskatchewan, Canada.
Photo: J.E. O'Hara, 8 July 2024

TABLE OF CONTENTS Iron silhouette of a bison in a hay field, southwestern Saskatchewan, Canada.
Photo: J.E. O'Hara, 8 July 2024

BELOW Iron silhouettes depicting a pack mule caravan along the Old Spanish Trail, east of Emery, Utah, USA.
Photo: J.E. O'Hara, 11 September 2024

Figure 1. The Natural History Museum in London, England, UK.

For the love of bristles – adventures with tachinids at the *Natural History Museum, London*

by Olga Sivell

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The Natural History Museum in London (Fig. 1) holds a globally important insect collection, one of the largest in the world and including many type specimens. Most of our collection is held in the controlled environment of the protective Cocoon – a large structure inside the Darwin Centre 2 building, which from outside looks like... a cocoon (Fig. 2). The specimens are housed in wooden drawers, many with cardboard unit trays lined with plastazote – we are painstakingly moving everything from the cork slats to make the collection safe, secure and more accessible. The drawers are housed in sealed metal cabinets and organized by family (Fig. 6), with the British and Irish collection kept separate from the World Collection.

> *"The Natural History Museum in London holds a globally important insect collection, one of the largest in the world"*

The Diptera account for approximately 2.5 million specimens, dry-pinned, slide mounted, preserved in ethanol and frozen in liquid nitrogen. It includes almost 18,000 primary types, among them roughly 1700 tachinids, although these numbers change as the type status of some specimens is reviewed and the types of newly described species are added. We also collect new material and receive donations from private donors. Not all of our specimens are identified to species and there is scope for scientific discovery.

Within the Diptera Collection at the NHM one can find tachinid specimens in the Walker Collection (Evenhuis 2018), as well as the type specimens of such well-known dipterists as J.M.F. Bigot (1818–1893), P.J.M. Macquart (1778–1855), J.R. Malloch (1875–1963), F. Walker (1809–1874), J. Villeneuve (1868–1944), E.E. Austen (1867–1938),

C.H. Curran (1894–1972), N.I. Baranov (1887–1981), L.P. Mesnil (1904–1986), C.H.T. Townsend (1863–1944), F.I. van Emden (1898–1958), M. Bezzi (1868–1927), R.W. Crosskey (1930–2017), and F.M. van der Wulp (1818–1899) – just to name a few.

The Historic Collections, which are kept separately from the main collection, include Sir Joseph Banks' (1743–1820) Insect Collection with specimens from Captain Cook's *Endeavour* voyage, collected by Banks and his colleagues, as well as those supplied by his worldwide network of collectors. It counts 55 drawers, with flies occupying 1⅓ drawers. This collection was studied by J.C. Fabricius and includes many primary types of various insects. The collection of Sir Hans Sloane (1660–1753) is also very interesting. It includes the insect collection of James Petiver (1665–1718), with some specimens preserved between two sheets of mica in two folios, as well as pinned specimens in small boxes with glass screens. It also includes the world's oldest complete insect collection: Leonard Plukenet's (1641–1706) bound volume of pressed insects. Whether you are a taxonomist or natural historian, the NHM's Insects Collection is a highly valuable source of information.

Figure 2. The Cocoon (view from lower ground floor).

I (Figs. 3, 4) began my adventure with flies at the NHM over ten years ago when I visited the Angela Marmont Centre for UK Nature (AMC) to try and identify specimens collected during my MSc project on decomposition of surface remains (wild boar carcasses) in a pine forest in Poland. I had only just finished my MSc in Forensic Archaeological Science and my knowledge of Diptera taxonomy was minimal, but I was enthusiastic, interested, and was willing to put the time and work into learning entomology. At about the same time the Diptera Section was looking for volunteers to sort Malaise trap samples, and I was lucky enough to be invited to participate in that project. At the time I was doing non-entomological jobs to support myself, but every free moment was spent at the NHM, either sorting samples or at the AMC learning stacked imaging (Fig. 5) from Chris Raper and Florin Feneru. This skill turned out to be very useful in my future endeavours.

Figures 3–4. The author, Olga Sivell. **3.** In the NHM Diptera Collection with a drawer of shiny metallic-coloured rutiliine tachinids from Australia. **4.** Collecting insects for Darwin Tree of Life Project during Covid-19 Pandemic.

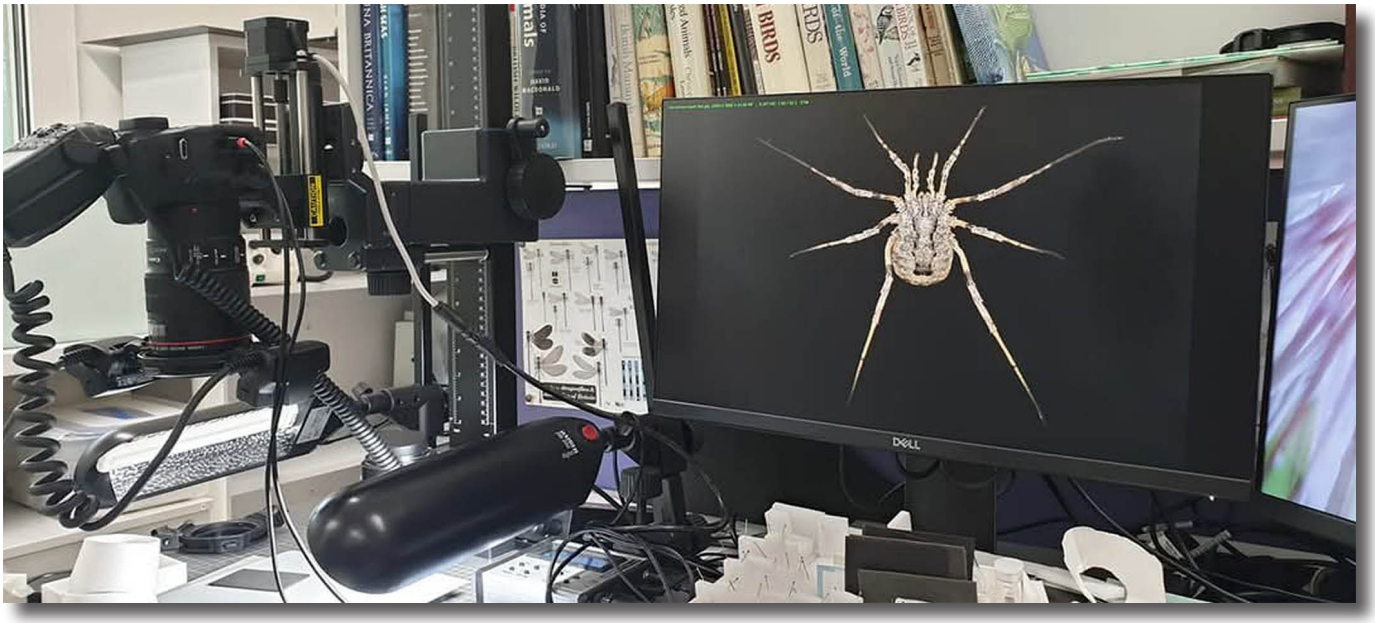

Figure 5. Image stacking equipment at the Angela Marmont Centre (AMC) for UK Nature.

I quickly became focused on Calliphoridae (blow flies). I always had a fascination for forensics, death and decay, and the biology of these flies coupled with their undeniable charm captivated me so much that I made them the subject of my doctoral research. I produced a key to the British species of Calliphoridae and Polleniidae, which was subsequently published by the Royal Entomological Society (RES) in their *Handbooks for Identification of British Insects* series (Sivell 2021). Most photographs included in that book were taken at the AMC. I was also hired to produce photographs for two other RES Handbooks: on Banchinae (Hymenoptera) (Brock 2017) and on Ichneumonidae (Hymenoptera) (Broad et al. 2018).

A few years after my humble beginnings as an insect goop sorter I found myself at the NHM again, working on a genome sequencing project called Darwin Tree of Life (DToL), a large collaboration led by the Sanger Wellcome Institute, with the ambitious goal to sequence genomes of all eukaryotic species from the British Isles (darwintreeoflife.org). Together with my colleagues we managed to collect a number of tachinid species, despite the added difficulty of live identification, a requirement of the project which aimed for the best possible DNA preservation by freezing specimens in liquid nitrogen. For those interested in tachinid genomics, DToL genomes are an amazing, free resource. There are currently 41 species in the pipeline (https://tolqc.cog.sanger.ac.uk), including 17 already published genomes: *Cistogaster globosa* (Fab.) (Falk & Lennon et al. 2023), *Dexiosoma caninum* (Fab.) (Sivell, Mitchell & Raper et al. 2024b), *Epicampocera succincta* (Meigen) (Falk & Raper et al. 2023b), *Germaria angustata* (Zett.) (Sivell, Mitchell & Raper et al. 2024a), *Gymnocheta viridis* (Fallén) (Barclay et al. 2024), *Gymnosoma rotundatum* (L.) (Smith et al. 2022), *Linnaemya tessellans* (R.-D.) (Falk & Smith et al. 2024), *Linnaemya vulpina* (Fallén) (Sivell, Mitchell & Raper et al. 2024c), *Lypha dubia* (Fallén) (Falk & Akinmusola et al. 2024), *Nowickia ferox* (Panzer) (Falk & Raper et al. 2023a), *Panzeria rudis* (Fallén) (Falk & Smith et al. 2023b), *Phania funesta* (Meigen) (Nash & Falk et al. 2024), *Phasia obesa* (Fab.) (Falk, Mitchell & Smith et al. 2024), *Tachina grossa* (Natural History Museum Genome Acquisition Lab et al. 2024), *Tachina fera* (L.) (University of Oxford, Wytham Woods Genome Acquisition Lab et al. 2022), *Tachina lurida* (Fab.) (Falk & Smith et al. 2023a) and *Thelaira solivaga* (Harris) (Falk & Smith et al. 2023c).

Figure 6. Diptera Collection inside the Cocoon.

After DToL I worked on the UK Barcode of Life Project (UKBOL, ukbol.org), processing insects and other arthropods for barcoding. The aim of the project is to provide high-quality sequences for British species, in particular those under-represented on BOLD (Barcode Of Life Data System) (Ratnasingham et al. 2024). The specimens are identified by experts, photographed, and the vouchers preserved in the NHM collection. At the NHM the project is led by Ben Price (Senior Curator in Charge of Small Orders) and comprises a network of UK government agencies, biodiversity institutions and individual scientists (Price et al. 2020, Price et al. 2022, Price et al. 2023, Price et al. 2024).

Since then, I had the privilege to work on rehousing and digitisation of the historical insect collection of Sir Joseph Banks (Figs. 7–10). This has been a great challenge as the extremely fragile specimens were housed in old wooden drawers lined with cork and paper. Most have been organised by curators long ago, with the last four drawers housing "overspill" from the Coleoptera drawers. This historic collection is an example of how entomological collections were organised in the past, not only to provide taxonomic information (e.g., by selecting a male and female of each species and pinning one dorsally and one ventrally) but to be also, and perhaps most of all, visually pleasing. A decision was made to preserve that aspect of the collection as far as possible, hence the specimens with all associated labels were being moved to the same position in a new, plastazote and paper lined drawer. All specimens were being photographed with their associated labels, in dorsal and lateral view, using stacked images (Ryder et al. 2024). The work on this project is ongoing, and we are planning to publish a full catalogue once the work is complete.

Following the retirement of Nigel Wyatt, I was extremely lucky to become the new NHM curator for Calyptrate flies, Sciomyzoidea, Lauxanioidea and Platypezoidea. I am now living the dream. I constantly find myself in search of new exciting projects. Luckily, in the insect world, there is always so much to do! The tachinid community has been most welcoming and encouraging and I am devoting more and more time to study these intriguing creatures. I recently embarked on a journey of discovery, sticking my nose into the collection of the Linnean Society in London. I was checking Calliphoridae types when I was pulled towards a tachinid, one of the species I actually recognize. It was the common *Eriothrix rufomaculata* (De Geer), however it was labelled as *Musca albifrons*. No surprise, during Linnaeus' time most flies were in the genus *Musca*, but *albifrons*? I had not seen that name before. Before long, myself, James O'Hara and Chris Raper embarked on a mission to resolve the mystery of a name published a few years before the currently accepted *rufomaculata*. Do not be alarmed! No name changes will occur on this occasion. The manuscript to retain the name *rufomaculata* has only just been submitted for publication, so hopefully you will be able to read all about this case soon (Sivell, Raper & O'Hara, in prep.).

Figures 7-10. The historic Sir Joseph Banks' Insect Collection. **7.** Author holding a drawer of beetles from the Banks Collection. **8.** A specimen of *Musca grossa* Linnaeus identified by Fabricius. This widespread Palaearctic species was later designated as the type species of the genus *Tachina* Meigen, 1803. **9.** A drawer of Diptera before (left) and after (right) rehousing. **10.** Close-up of six curated tachinids in the lower right corner of the right drawer in Fig. 9.

Another small project I am working on is aiming at resolving the *Germaria angustata* species complex. While working on the publication of the whole genome of *G. angustata* from Britain I compared the barcodes of the specimens used in DToL with ones published on BOLD, including those from specimens collected from southwestern Yukon, Canada. British and Canadian barcodes cluster in different BINs and it appears they are separate species. James O'Hara kindly provided me with a loan of specimens from Canada and when compared with British specimens they display some clear morphological differences. A third population of *G. angustata* occurs in Central Asia: Russian South Siberia, Mongolia, China and Kyrgyzstan (Ziegler 2015, O'Hara et al. 2020, Environment and Climate Change Canada 2023). I suspect those may represent a third species in that complex and I am hoping to examine the specimens in the future.

At present I am passing my time preparing samples for genome skimming (including some primary types) for the Biodiversity Genomics Europe project. We have also other projects looking at molecular data and we are always exploring funding opportunities and potential for collaboration.

At the same time we are preparing our collections for the mass digitisation project: *The Distributed System of Scientific Collections UK* (DiSSCo UK), scheduled to commence next year. All of the specimens will be imaged individually and the data incorporated into our Collections Management System and Data Portal (data.nhm.ac.uk). This will vastly improve data sharing and reduce the need of physical loans and handling of fragile specimens.

Being a Diptera curator at the NHM is a very varied and busy job. However, as it is fuelled by passion and vast amounts of coffee and cake shared with amazing colleagues, it rarely feels overwhelming. There are many learning and research opportunities, potential collaborations and projects to be shared. I am truly looking forward to meeting all of you at some point of our entomological journeys of discovery, either online or in person. I will do my best to help with any queries regarding tachinids at the NHM collection that you may have. Hopefully, with time, I can also add a little bit to the knowledge of Tachinidae.

Projects and collections online

Diptera collection: https://www.nhm.ac.uk/our-science/services/collections/entomology/diptera.html
Historical collections: https://www.nhm.ac.uk/our-science/services/collections/entomology/historical.html
Darwin Tree of Life: https://www.darwintreeoflife.org/
Darwin Tree of Life at the NHM: https://www.nhm.ac.uk/our-science/research/projects/darwin-tree-of-life/
UK Barcode of Life: https://www.ukbol.org/about
Biodiversity Genomics Europe: https://biodiversitygenomics.eu/
The Distributed System of Scientific Collections UK (DiSSCo UK): https://dissco-uk.org/
Natural History Museum to lead new national programme to digitise the UK's natural science collections: https://www.nhm.ac.uk/press-office/press-releases/natural-history-museum-to-lead-new-national-programme-to-digitis.html

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A serendipitous rearing of *Spilochaetosoma californicum* Smith (Diptera: Tachinidae) from a scorpion collected for the Sophia M. Sachs Butterfly House in Missouri, U.S.A.

Figure 1. A *Spilochaetosoma californicum* larva emerges from the abdomen of a dead *Paravaejovis spinigerus* scorpion in an enclosure at the Sophia M. Sachs Butterfly House. Next to the scorpion's tail is the puparium of a larva that emerged a few days earlier.

by Tad Yankoski, Nicole Pruess & Chris Hartley

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Every year entomologists active in insect education and conservation convene in southern Arizona for the *Invertebrates in Education and Conservation Conference* (IECC). In addition to paper sessions, workshops, roundtables, and networking, many participants participate in field collection of arthropod specimens from the Sky Islands region of southern Arizona to take back and use for breeding, educational, or display purposes.

In 2023, the meeting was held at the El Conquistador Resort in the Oro Valley north of Tucson, Arizona (USA), from July 19th to the 22nd. While the resort is located within a developed, commercial area, there are still ample amounts of insects and arthropods to be found on or near the grounds of the resort. During the conference, multiple scorpions were collected by the senior author in the dry, shrubby terrain on the edge of the parking lot near coordinates 32.3851°N 110.9585°W. The scorpions were shipped to the Sophia M. Sachs Butterfly House in Chesterfield, Missouri to use as display and educational animals. Scorpion species including *Centruroides sculpturatus* Ewing (Scorpiones: Buthidae), *Hadrurus arizonensis* Ewing (Hadruridae), and *Paravaejovis spinigerus* (Wood) (Vaejovidae) have all been collected by the author on the resort property.

Upon receiving the scorpions at the Butterfly House, they were incorporated into the Living Collections where they were housed in a USDA, APHIS-PPQ regulated quarantine facility beginning on or about July 21st, 2023. Each scorpion was housed individually, in containers impervious both to scorpion escape, and to entrance from outside by pest or parasitoid species such as tachinid flies.

Each scorpion was housed separately in an enclosure consisting of an 8-ounce plastic deli cup with a tight fitting, vented lid. The substrate was approximately 3/4" of sand and gravel with a piece of tree bark providing a hiding place. The substrate was misted with water every 1–2 weeks. No outside heat source was offered, and the laboratory ambient temperature was approximately 72° Fahrenheit. Each scorpion was fed an adult house cricket (*Acheta domesticus* L.) approximately once a week.

Figures 2–3. 2. The two adult flies of *Spilochaetosoma californicum* that had parasitized the scorpion. **3.** Close-up of one of the flies.

The host animal, a *Paravaejovis spinigerus*, commonly known as the stripe-tailed scorpion, at first appeared healthy and did not act abnormally. It had a strong hunting instinct and continued to aggressively catch and eat prey items up until days before its demise. The last recorded date of feeding was March 23rd, 2024 when it caught and ate a cricket. Three days later on March 26th, the scorpion was found dead in its enclosure with a fly puparium about half an inch away from its abdomen. The scorpion had been in isolation for approximately 8 months. The exact date when the fly larva emerged from its host is unknown, but occurred between March 23rd and 26th. On March 28th at approximately 3:50 p.m., a second larva was observed emerging from the deceased scorpion through the left pleural membrane near the third tergum (Fig. 1). The process of emergence from the host took approximately 10 minutes. By 6:15 p.m., the larva had formed a puparium next to the first one but had not fully sclerotized and was still a beige/off-white color.

On the day when the second larva emerged from the scorpion, the senior author searched the Internet for clues about their possible identity. There was not much information online but a research paper was found on the tachinid tribe Polideini in which the tachinid *Spilochaetosoma californicum* Smith was reported as a scorpion parasitoid (O'Hara 2002a). This host/parasitoid association was also mentioned by the same author in a brief report on *Spring collecting in the Sonoran Desert* (O'Hara 2002b).

We contacted the author of those two references, Jim O'Hara at the Canadian National Collection of Insects in Ottawa, to enquire further about the possibility of our fly larvae being this unusual species, *S. californicum*. Jim directed us to a picture of *S. californicum* in the online TachImage Gallery (O'Hara & Henderson 2013, here as Fig. 4), and noted one of the characteristic features of the species: wing vein M_1 petiolate at its bend and reaching the wing margin far forward of the wing apex (arrow in Fig. 4).

The fly puparia and host scorpion were left undisturbed and kept under observation. The substrate near the puparia was lightly misted once per week. No additional larvae emerged from the host scorpion, or from any of the other scorpions collected the summer before near Tucson. The puparia were kept at the same ambient conditions as before emergence/pupation.

On April 25th, adult flies emerged from both puparia after pupal development times of ca. 28 and 30 days, respectively. The adults appeared healthy and well developed (Figs. 2, 3). No food or water was provided, and the flies died in the enclosure on May 4th after living approximately 10 days. We were able to confirm these adults as *S. californicum* based on comparing their features to the image in the TachImage Gallery, including the wing characteristics mentioned above.

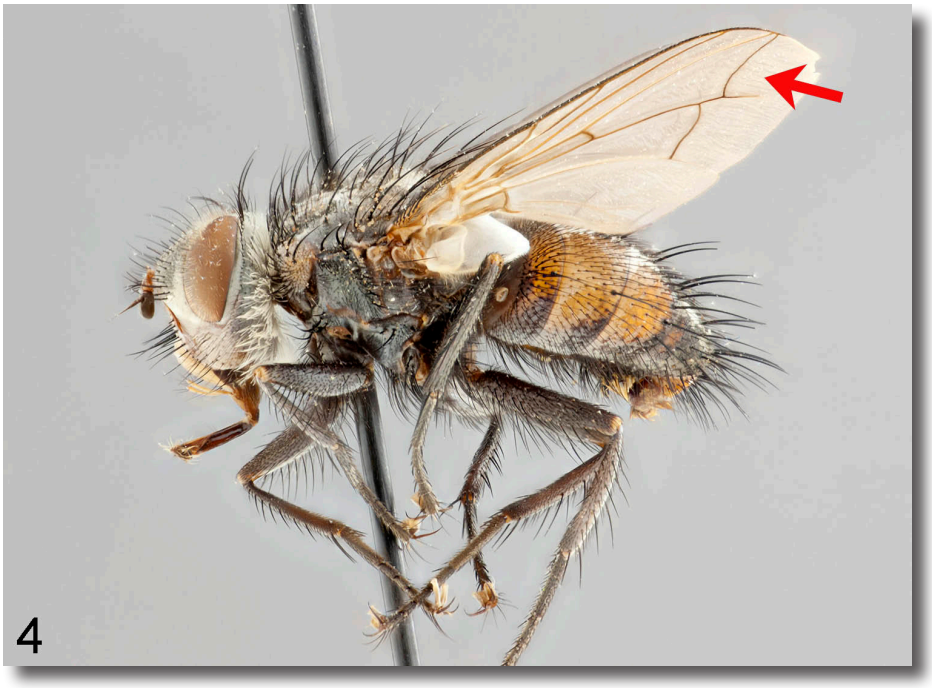

Figure 4. Image of a male *Spilochaetosoma californicum* from the online TachImage Gallery. Arrow points to features of the wing discussed in the text. Specimen number: TachImage-00843 Specimen label data:
USA AZ Pima Co., Organ Pipe Nat. Mon, Senita Basin (hilltop), 17.iii.1998, J.O. Stireman III.
(Donated to CNC.)

Spilochaetosoma californicum is not a commonly collected or reared tachinid. The popular host-parasite catalog of Arnaud (1978) did not record any known hosts for *S. californicum*. In a later publication by Williams et al. (1990), the species was reported for the first time as a scorpion parasitoid with a record from *Anuroctonus phaiodactylus* (Wood) in southern California and a record from *Paravaejovis spinigerus* (as *Vaejovis spinigerus*) near Tucson, Arizona. Our rearing record for *S. californicum* is only the second time this species has been reported parasitizing *P. spinigerus*.

The two adult flies have been pinned and will be labelled with the appropriate data. We are donating one specimen to the University of Arizona Insect Collection in Tucson, AZ, and the other to the Cornell University Insect Collection in Ithaca, NY.

Acknowledgements

The authors would like to thank the staff, interns and volunteers of the Sophia M. Sachs Butterfly House for the care they give their Living Collections on a daily basis. Thank you to James O'Hara for the guidance throughout the process of rearing and identifying the flies, and for assistance with the writing of this paper. Finally, a special acknowledgement to the Association of Zoos and Aquarium's Terrestrial Invert Taxon Advisory Group (TITAG) that helps plan and run the *Invertebrates in Education and Conservation Conference* where the host scorpion was collected. Without their hard work and dedication this discovery would have never happened.

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NOTES ON THE OCCURRENCE of *Compsilura concinnata* (Meigen) IN SOUTHWEST OHIO, U.S.A.

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***Compsilura concinnata* (Meigen) is a well-known tachinid fly** that was introduced to the United States from Europe as a biological control agent of the spongy moth (*Lymantria dispar*) from the early 1900s until the 1980s (Sànchez 1995). It is now well established in much of the United States and Canada, having gradually spread from introduction sites mostly on the east and west coasts, and the northern U.S. Midwest. However, its spread into some regions of the U.S. appears to have been relatively slow. I[1], and members of my lab at Wright State University in Dayton, Ohio, have been haphazardly collecting tachinids and rearing caterpillars in southwestern Ohio (ca. 40°N, -84°W) for many years and had yet to observe *C. concinnata* until this past summer of 2024. In this article, we report our observations, briefly review the distribution of *C. concinnata* in the region, examine the accuracy of public databases for assessing its presence, and evaluate its occurrence in southwestern Ohio.

C. concinnata is a blondeliine tachinid that is broadly distributed across much of the Old World (O'Hara & Cerretti 2016, O'Hara et al. 2020). Based on records ranging from the British Isles to Japan, to South Africa, Malaysia, and even Papua New Guinea and Australia, it appears to be among the most widely distributed of any tachinid species (perhaps only outdone by the ubiquitous *Voria ruralis* (Fallén); O'Hara et al. 2020). *Compsilura* belongs to the *Blondelia* group of genera, in which females possess piercing structures derived from the seventh sternite and have the edges of the abdominal tergites usually forming a keel ventrally, beset with short stiff spines. Morphologically and phylogenetically, the genus is closely allied with *Blondelia* (e.g., Stireman et al. 2019). *Compsilura concinnata* is infamous among tachinids in its broad polyphagy, having been recorded as a parasitoid of at least 200 species of Lepidoptera and Hymenoptera (Symphyta) (Arnaud 1978, Boettner et al. 2000, Strazanac et al. 2001). Its attack of native caterpillars in its introduced range has caused some alarm, particularly due to high parasitism rates of large and charismatic Saturniidae in the Northeast U.S. (Boettner et al. 2000, Kellogg et al. 2003, Elkinton & Boettner 2004). Indeed, *C. concinnata* has been implicated in declines in these wild silk moths in the Eastern U.S (Elkinton & Boettner 2012). On the plus side, it also appears to have been a primary contributor to the extirpation of introduced populations of the browntail moth (*Euproctis chrysorrhoea*; Erebidae) in New England (Elkinton et al. 2006, Elkinton & Boettner 2012).

Introduction history and recorded range in North America

The first introductions of *C. concinnata* in North America began in 1906 in Massachusetts, with well-established populations occurring by 1909 (Howard & Fiske 1911, Burgess & Crossman 1929, Sànchez 1995). From these populations, further introductions were made across much of the Eastern States and Canadian Provinces including Vermont, New Hampshire, New Jersey, Rhode Island, Delaware, Maryland, Virginia and Florida (U.S.) as well as New Brunswick, Nova Scotia, Ontario, and Quebec (Canada) (reviewed in Sànchez 1995). These biological control

[1] In this article, "I/me/my" refers specifically to first author Stireman.

efforts continued into the 1970s, with introductions expanding to the Midwest U.S. (Indiana, Illinois, Wisconsin and Minnesota) as well as western states/provinces including Arizona, New Mexico, California, Oregon, Idaho, Colorado, Washington, and British Columbia (reviewed in Sànchez 1995). Due to the great range of hosts attacked and the high parasitism rates sometimes achieved, it appears that *C. concinnata* was introduced to control just about any lepidopteran forest pest that exhibited population irruptions. According to O'Hara & Wood (2004: 83), it is currently established in "northeastern United States and southeastern Canada, west to Minnesota and Illinois, south to Virginia, also British Columbia to California … Manitoba, Ontario to Nova Scotia."

Based upon caterpillar rearing records of Strazanac et al. (2001), as well as my own collections in West Virginia and Eastern Kentucky (Stireman & Perilla López 2022, O'Hara & Stireman 2016, respectively) it appears well established in the Appalachian Region east of Ohio. Furthermore, Oberhauser et al. (2017) recorded rearing *C. concinnata* from Monarch butterflies (*Danaus plexippus*) in Iowa, Michigan, Minnesota and Texas over the years 2005 to 2016. In these rearing records, it was the third most common parasitoid of larval monarchs, accounting for about 10% of recorded parasitism events (69 individual flies reared from 45 host individuals; Oberhauser et al. 2017). It has also been reared from *Trichoplusia ni* (Lepidoptera: Noctuidae) in Minnesota cabbage fields (Wold-Burkness et al. 2005) and Sànchez & Cardé (1998) indicated that it is well established in Michigan. Finally, a specimen in the Canadian National Collection in Ottawa was collected in Amherst, Ohio (Northern Ohio) in 1958 by H.J. Reinhard (O'Hara, pers. comm.). Thus *C. concinnata* appears to be established to the east, north, west, and south of the Dayton, Ohio region where I have been observing, collecting, and rearing tachinids for nearly 20 years, and yet, I had never observed the species.

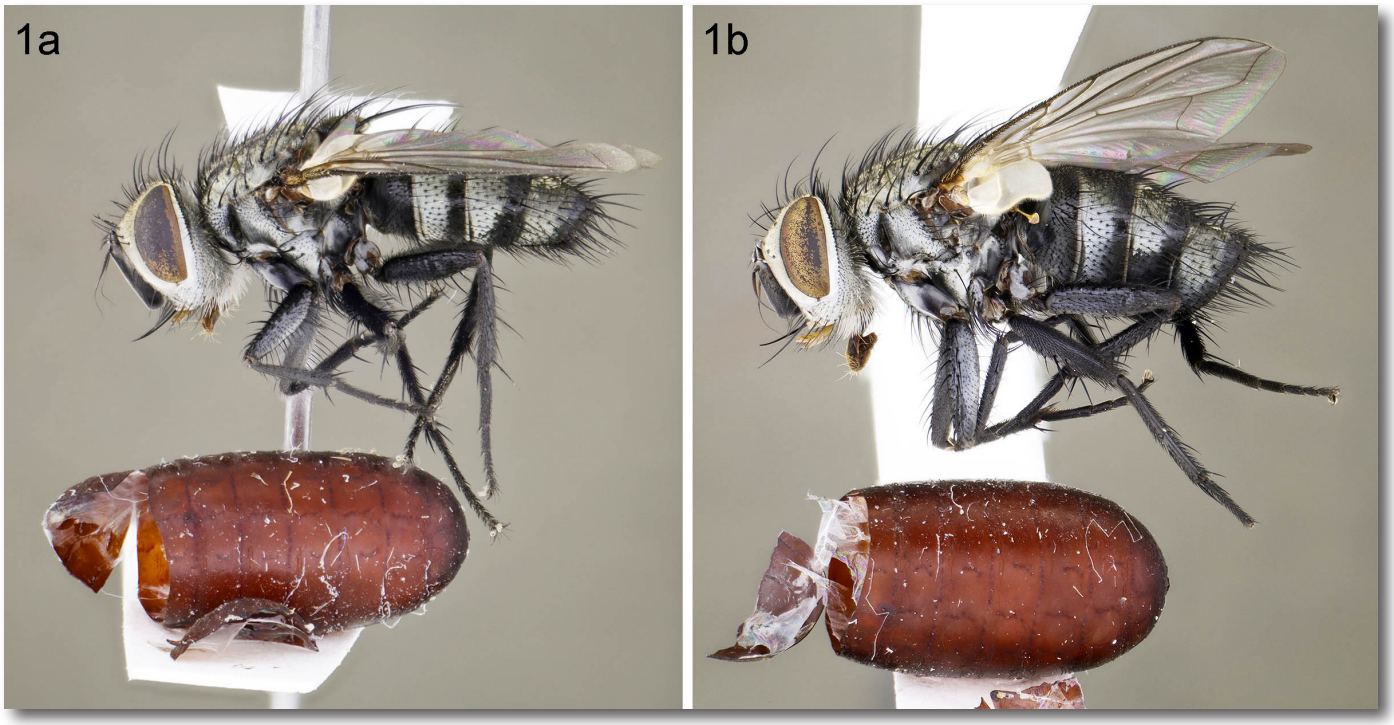


Figure 1. Male (**1a**) and female (**1b**) *Compsilura concinnata* specimens with puparia reared from *Lophocampa caryae* in southwest Ohio (see text).

Our Record from Ohio

On July 2, 2024, as part of a project surveying caterpillars and their parasitoids on woodland shrubs and trees, we collected 16 caterpillars of the hickory tussock moth, *Lophocampa caryae* (Harris) (Lepidoptera: Erebidae). They were collected from bitternut hickory (*Carya cordiformis*) in Sugar Creek Metropark, which is located on the south side of the Dayton Metropolitan area (39.617, -84.096). These caterpillars were brought back to the lab and fed leaves of their host plant until they died, pupated, or a parasitoid emerged. Parasitoid larvae/puparia were noted in the rearing tubs of two of these caterpillars on August 5, 2024, and two adult *C. concinnata* (one male, one female; Fig. 1a,b, respectively) were noted on August 21. *Compsilura concinnata* has previously been recorded from this host species (as *Halysidota caryae*; Arnaud 1978 and references therein), which is widespread in the midwestern and northeast U.S. and southeastern Canada.

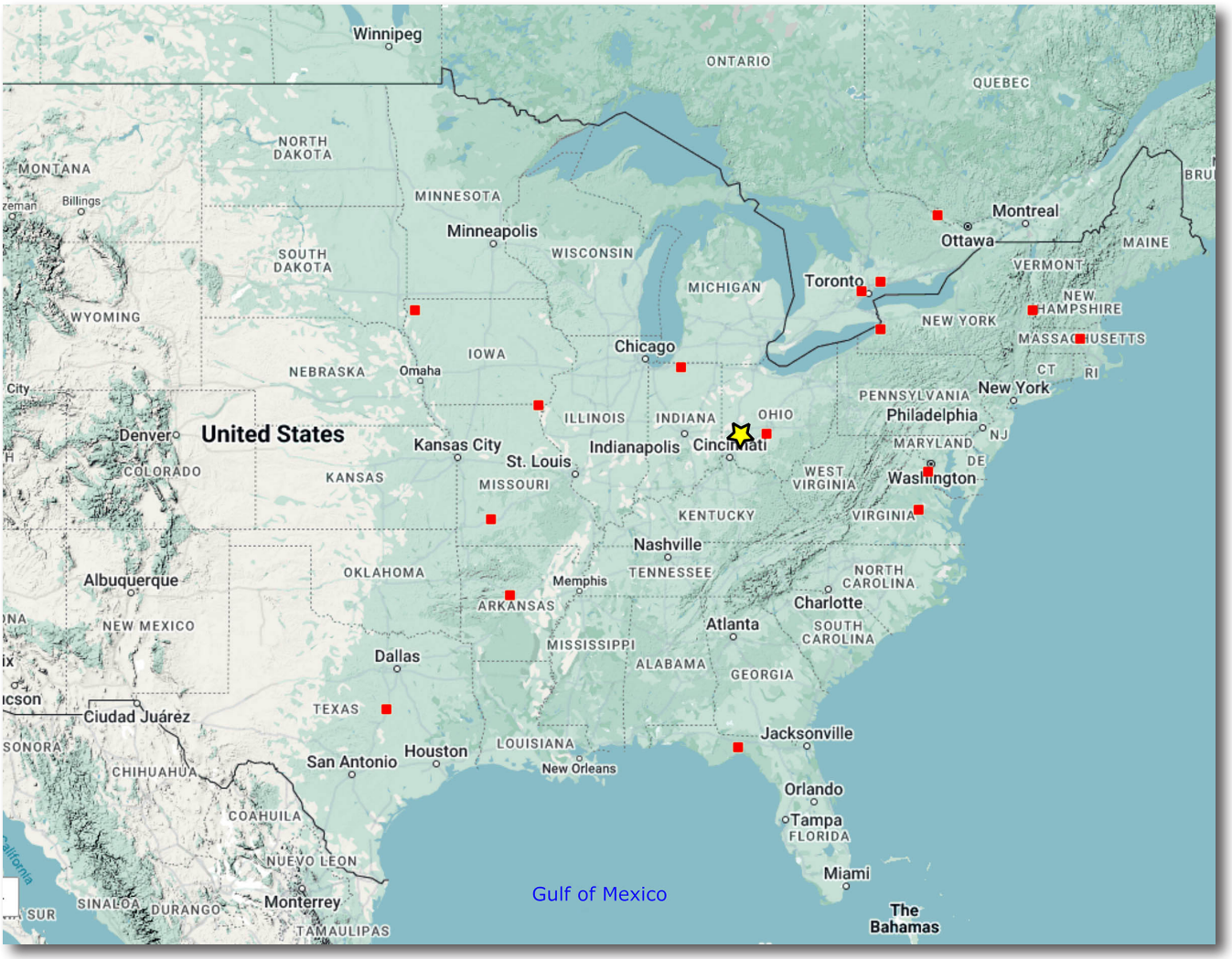


Figure 2. Map of iNaturalist records of *C. concinnata* in the middle and eastern U.S. and southeastern Canada. Red squares indicate photographic records. The yellow star indicates the Dayton area of southwestern Ohio, where the authors are based.

Records from Public Databases

As this was a new observation for us in this area, I examined the public natural history database iNaturalist (https://www.inaturalist.org) to see if there were other records in or near southwest Ohio. I then expanded this query to look at other records of *C. concinnata* west of the Appalachian region and east of the Rocky Mountains. The results of this brief survey can be seen in Figure 2 and assessment of the records in Table 1. Of the 12 records examined (including one from BugGuide) only one, from western Iowa, can be classified as likely to be *C. concinnata*. Two additional records of adult flies are possibly correct, but the flies cannot be identified with confidence from the images. Four records are based on immature stages, which could be any of a number of Tachinidae. The single record from Ohio is an adult specimen of *Archytas* sp. (Tachininae: Tachinini), and five other records are either clearly incorrect or unlikely based on observable features. Examination of these records leaves us with a couple of conclusions:

1. Records of tachinids (and probably many other fly groups) on iNaturalist should not be trusted without inspection. It should be noted that these records are all flagged as "needs ID" and *C. concinnata* is just a "suggested ID" for them, but these records show up on maps and in data regarding this species, even though most of them are incorrect, unlikely, or impossible to verify. We are not necessarily criticizing iNaturalist, which is a fantastic public resource, just advising the use of caution in accepting records derived from the database without verification.
2. There seems to be a tendency for *C. concinnata* to be assumed as an identity for flies reared from Saturniidae – perhaps stemming from Boettner et al.'s (2000) study documenting high rates of parasitism of this family by *C. concinnata* in Massachusetts. Finally, we note that the common name for *C. concinnata* used by iNaturalist is "European Tachinid Fly", which seems somewhat problematic given the many hundreds of other European tachinid fly species that exist.

Table 1. Evaluation of records of *C. concinnata* east of the Appalachian region and west of Rockies from iNaturalist and BugGuide.

Record	Validity	Notes
S. Ohio	X	This is *Archytas* sp. (adult)
N. Indiana	Possible	Reared from *Lymantria dispar*, photos are consistent, but inadequate for determination. (adults)
W. New York	Possible	Only pupae. Impossible to identify.
SW. Ontario 1	Possible	Only larva. Impossible to identify. (Mississauga, ON)
SW. Ontario 2	Possible	Only pupae. Impossible to identify. (Oshawa, ON)
SE. Iowa	X	Exoristini? (adult), not *C. concinnata*.
NW. Iowa	Likely	Reared from *Euptoieta claudia* (Nymphalidae). Appearance consistent with *C. concinnata*. (adult)
S. MO	X	Possibly *Lespesia* sp. (adult)
C. Arkansas	X	Reared from *Polyphemus* caterpillar (Saturniidae). Probably *Lespesia* sp. (adults)
E. Texas	Unlikely	Cannot identify from photo, but probably not. Appears parasitized by fungus? (adult)
N. Florida	Possible	Only larvae/pupa. Impossible to identify. Reared from *Actias luna* (Saturniidae).
Minnesota*	Possible	Cannot identify from photo. Abd. discal setae not apparent. Reared from *Hyalophora cecropia* (Saturniidae). (adult)

*from BugGuide (https://bugguide.net)

Why haven't we observed it earlier?

I find it curious that we have not observed this species in southwestern Ohio up until this past season, despite regular collecting over the past 20 years by hand and with various traps, and extensive rearings of caterpillars. Below, we explore some possible explanations for this lack of observation.

Hypothesis 1: *Compsilura concinnata* has been present but at low densities

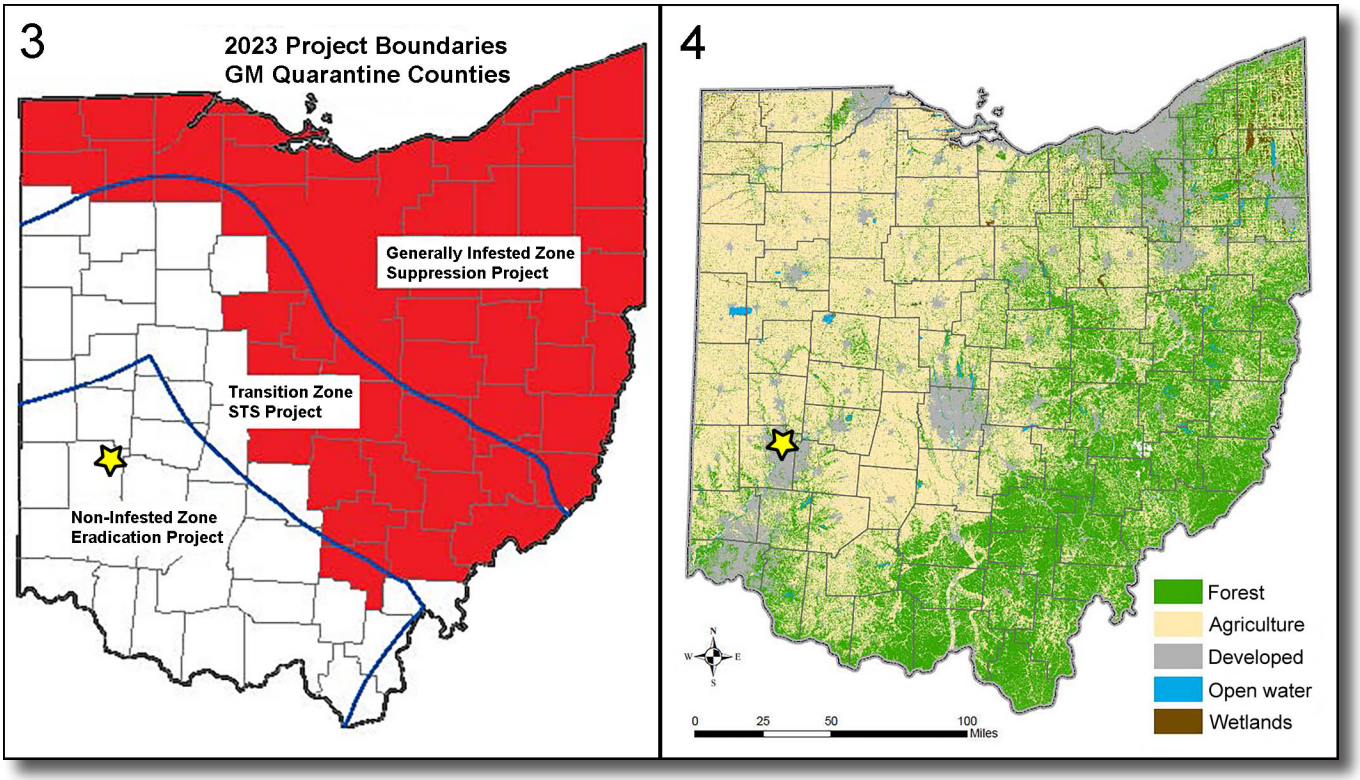
This is entirely possible. There are certainly a number of tachinid species that occur in southwestern Ohio that we have yet to encounter, whether due to chance, or lack of collecting during appropriate season or in the appropriate habitat. Thus, perhaps *C. concinnata* has been present for decades in the region, but at relatively low densities, and has somehow escaped the attention of me and my various students over the years. However, a few lines of evidence suggest that this may not be the case. First, I have collected *C. concinnata* in both West Virginia and Kentucky, despite having collected flies in these areas only a few times. This would suggest that the species should not have escaped our notice locally. Second, my lab has reared approximately 7,500 field-collected caterpillars over the past 18 years in southwest Ohio, including hundreds of *L. caryae* (the host species recorded here) and have never before reared *C. concinnata*. Given its broad polyphagy and the high parasitism rates sometimes reported, it seems likely we would have encountered the species previously.

Hypothesis 2: *Compsilura concinnata* has only recently colonized the region

The other possibility is that *C. concinnata* has been absent from the Dayton region in recent decades and has only recently expanded into southwestern Ohio. This seems a reasonable conclusion, but why should this be the case? Why, after having been established in North America for well over 100 years, with subsequent introductions into the northern U.S. Midwest, and a definitive record from northern Ohio over 60 years ago, would this tachinid species not have made it to southwest Ohio?

It could be proposed that *C. concinnata* are simply limited in their ability to disperse. This however, does not seem likely. Although data are sparse, the general view of those that study tachinids is that they are quite adept at dispersing and individuals are capable of flying considerable distances. Case studies support this conjecture. For example, the phasiine tachinid *Trichopoda pictipennis* Bigot (as *T. pennipes*; see Dios et al. 2021) was first recorded in central Italy in the early 1980s (Colazza et al. 1996, Tschorsnig et al. 2012, Bystrowski 2012); within a dozen years it was distributed throughout Italy and had reached Spain (Catalán & Verdú 2005). By 2012 this species had spread across much of Europe and has been recorded as far east as Israel (Tschorsnig et al. 2012) (although part of this spread could have been facilitated by human-mediated movement of parasitized hosts, Bystrowski 2012). As another tachinid example, the polyphagous leafroller parasitoid *Trigonospila brevifacies* (Hardy) (Blondeliini) was estimated to disperse naturally at a rate of 8–15 km/year after its introduction into New Zealand to control the light brown apple moth *Epiphyas postvittana* (Walker) (Lepidoptera: Tortricidae; Munro 1998). [At this rate, ca. 10 km/yr, *C. concinnata* could have arrived in the Dayton region years ago if dispersing only from coastal Massachusetts.] Indeed, early indications suggested that *C. concinnata* was able to disperse and colonize new areas quite rapidly (Howard & Fiske 1911) and reports have indicated that this tachinid has spread as much as 25 miles in a single season (Burgess & Crossman 1929). Thus, limited dispersal ability seems an unlikely explanation for the apparent absence of *C. concinnata* in southwest Ohio.

An alternative hypothesis is that the spread of *C. concinnata* is not limited by inherent dispersal abilities, but by ecological factors. For one, *L. dispar* has not yet colonized southwest Ohio. This is the species which *C. concinnata* was most often introduced to control and which it parasitizes consistently and, at least sometimes, at high frequencies (reviewed in Elkinton & Boettner 2012). The spread of *L. dispar* has been actively slowed through a combination of outreach, quarantine, pheromone trapping, and pesticide spraying (e.g., https://www.slowthespread.org/), and these efforts have resulted in a somewhat steady line of advance or static front, with established populations being limited to eastern parts of Ohio (Fig. 3). It may be that although *C. concinnata* can use many other hosts, it is reliant on *L. dispar* to become established in an area or to remain so. While possible, this seems unlikely based on the enormous global range of *C. concinnata* and many reliable records of this species in North America well-outside the distribution of *L. dispar* (e.g., Iowa record above; West Coast populations). Also, Burgess & Crossman (1929) noted that *C. concinnata* spread much faster than its host *L. dispar* after establishment, being recorded 125 miles beyond the spongy moth dispersion line.



Figures 3–4. 3. Map showing (in red) the current county distribution of *Lymantria dispar* (spongy moth) in Ohio along with "Slow the Spread" (STS) and eradication zones (Ohio Department of Agriculture 2023). **4.** Map showing forest cover in Ohio from the Forest Resource Assessment of Ohio's Statewide Forest Action Plan (Ohio Department of Natural Resources, 2020: 6). The yellow star in both figures indicates the Dayton area of southwestern Ohio.

Finally, it may be that spread of *C. concinnata* is limited by habitat affinities. *Compsilura concinnata* appears to be a primarily forest dwelling species, mainly attacking forest dwelling host Lepidoptera such as gypsy moths and (most) Saturniidae. Although forests historically covered most of Ohio, the glaciated region of Western Ohio has largely been cleared for agriculture due to its relative flatness and rich soils. The remaining forested lands in the area are highly fragmented (Fig. 4). It is possible that *C. concinnata* individuals require forested habitat for dispersal. They may be reluctant to fly across large open areas between forest fragments or require particular conditions (e.g., light gaps) for mating – although their apparent conduciveness to laboratory propagation would suggest otherwise (e.g., Fusco et al. 1978). Records of parasitism of caterpillars in open habitats (e.g., monarch butterflies and cabbage moths mentioned above) indicate that females do seek out hosts in open habitats, but it is possible that these interactions tend to occur near forest edges.

In summary, the reasons for this abrupt appearance of *C. concinnata* in our area of southwest Ohio, and its apparent absence or rarity previously, are unclear. There are a number of possible hypotheses raised here and probably other explanations that we have not considered. Now that we know the species is in the area, we look forward to seeing if we will collect adults in the coming field season or rear them from additional caterpillar species. If we do not encounter more, this would support the "present but low density" hypothesis (which in itself would still require explanation). If we do begin to encounter *C. concinnata* more frequently, this would support the "recent colonization hypothesis". It sounds like a good excuse to continue venturing out into the woods to collect flies and caterpillars!

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Tachinid collecting in southwestern Saskatchewan, with a list of species of the Canadian Prairies

Figure 1. Hay bales in a field in southwestern Saskatchewan during harvest time (14 July 2024).

by James E. O'Hara

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Last summer I had the opportunity to travel to southern Saskatchewan, in the heart of the Canadian Prairies, to collect tachinid flies (Diptera: Tachinidae) for the Canadian National Collection of Insects (CNC) in Ottawa. The tachinids of Saskatchewan are poorly known and I suspected even a brief trip targeting them would yield some interesting results. This is a report of that trip and includes some background about the area, the localities where I collected, and what I caught. A list of Tachinidae known from the Canadian Prairies (i.e., the provinces of Alberta, Saskatchewan and Manitoba) is given at the end of this report and documents for the first time the species recorded from Saskatchewan.

Saskatchewan (Fig. 27) is a province in western Canada that is bordered by Alberta to the west, Manitoba to the east, the Northwest Territories to the north, and the American states of Montana and North Dakota to the south. It is approximately 651,900 km² and in relative terms is larger than France and smaller than Texas. The province has a population of about 1.25 million people with about half living in the cities of Saskatoon and Regina and the rest mostly spread throughout the southern half of the province in smaller cities and towns, and on ranches and farms.

Prairie Grasslands of Saskatchewan

The prairie grasslands of Canada are recognized as a distinct ecozone that stretches from central Alberta to southwestern Manitoba (Fig. 2). This ecozone is defined on the basis of a suite of characteristics ranging from soils, climate and topography to plants, animals and agricultural activities, that together function as an ecosystem[1]. There are several other ecozones north of the prairie grasslands that are characterized by forest type (aspen parkland,

[1] http://www.ecozones.ca/english/introduction.html

deciduous and coniferous boreal forests, taiga shield), soils, and increasingly harsher climates[2].

The Prairie Grasslands ecozone is also known as the "Prairie Pothole Region", so named for the many "pothole" wetlands that dot the region and date back to the retreat of the Laurentian Ice Sheet at the end of the Pleistocene (ca. 17,000–10,000 years ago) (Christiansen 1979). It extends southward into Montana in the United States, and southeastward to western Minnesota, eastern Nebraska and Iowa (Millett et al. 2009, Fig. 2 therein).

The prairie grasslands are subdivided into eight ecozones, four of which occur in Saskatchewan and are shown in Fig. 2: Aspen Parkland, Moist Mixed Grassland, Mixed Grassland, and Cypress Upland. A fifth ecozone, Fescue Grassland, is not extensive in Saskatchewan but does occur in patches in the Cypress Upland. A few pictures from the Mixed Grassland ecozone are shown in Figs. 3–7.

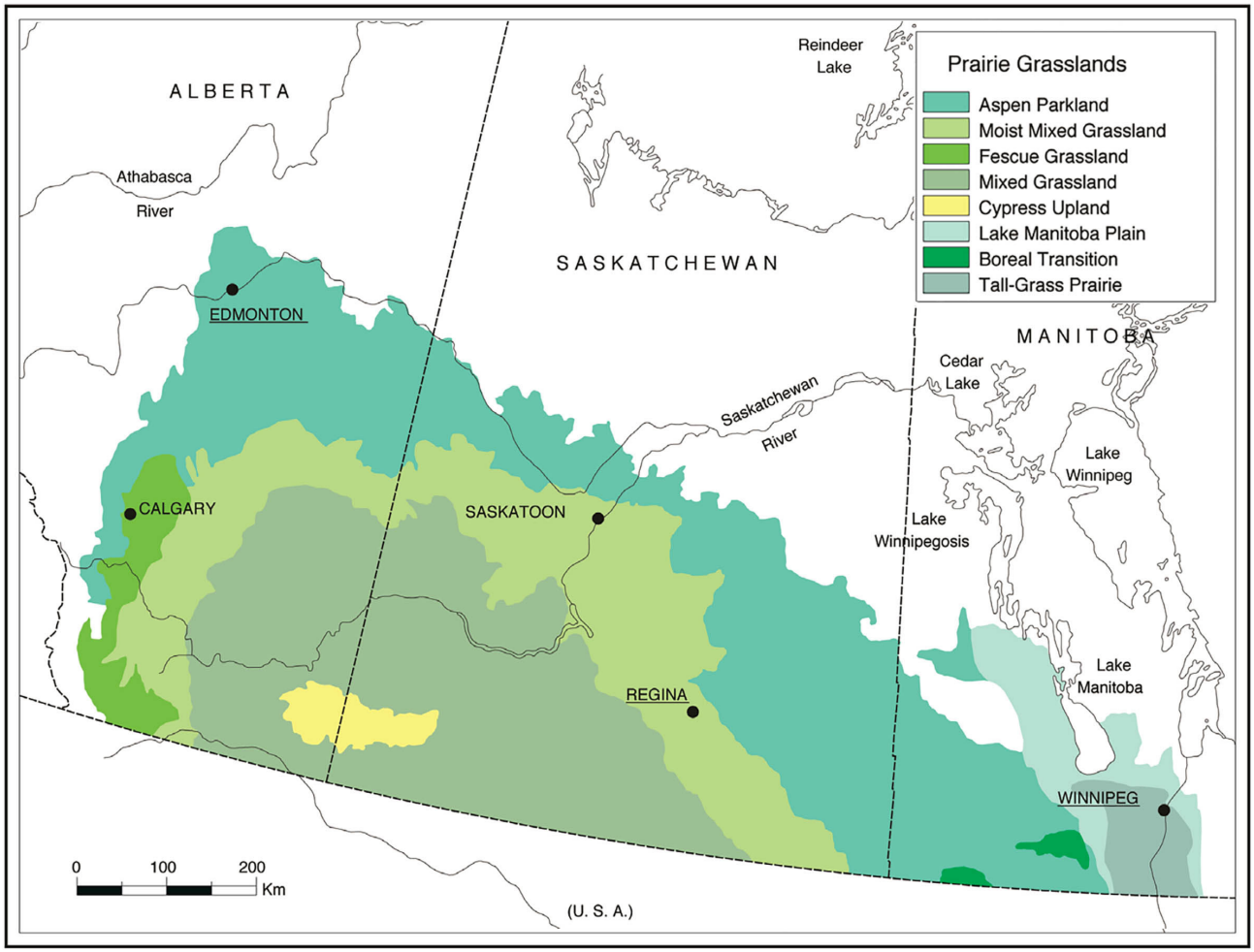

Figure 2. Ecoregions of the Prairie Grasslands ecozone in the Canadian provinces of Alberta, Saskatchewan and Manitoba. The capital city of each province is underlined. Reproduced from Shorthouse (2010: 55, used with permission).

[2] Ecoregions of Saskatchewan:
https://biolwww.usask.ca/rareplants_sk/root/htm/en/researcher/4_ecoreg.php (University of Saskatchewan)
https://biodiversity.sk.ca/eco.htm (Saskatchewan Conservation Data Centre)

Figures 3–7. Arable land in the Mixed Grassland ecozone of southwestern Saskatchewan is mostly in use for growing crops like cereals (barley, oats, wheat), oilseeds (canola, flax) and forage (alfalfa, grass), and for cattle ranching. The non-arable land includes rugged hills and valleys, badlands and sand dunes. **3.** A decaying barn in a grass field near Val Marie. **4.** Flowering canola turns a field into an undulating sea of yellow. **5.** Free-ranging cattle are a common sight on dirt roads passing through pasture lands. This picture was taken in the prairies north of the Cypress Hills (visible in the distance). **6.** Barren hills rise out of the prairie near Grasslands National Park. **7.** Pronghorn antelope are common and roam freely throughout croplands, rangeland, and semi-arid badlands.

Cypress Upland and Cypress Hills

The Trans-Canada Highway runs through the southern portion of the prairie provinces on its route across the country. The portion passing through Saskatchewan is about 650 kms long. I had considered driving along the Trans-Canada and using it as a jumping-off point to potential collecting sites across the province, but chose instead to pick one area as my main location from which I could work outward. This would allow me to return to a spot if the weather was uncooperative on the first visit, or if the site was so good that I would want to collect there again.

I chose the Cypress Upland ecozone as my focus for collecting tachinids. This area has the most topographic relief of anywhere in Canada between the Rocky Mountains and eastern Canada (up to 1465 m [4810 ft] in elevation in the Cypress Hills), and rises above the surrounding grassland by about 600 m. Associated with the elevational gain are changes in vegetation and most notably the presence of forests of aspen (*Populus* spp.), white spruce (*Picea glauca*) and particularly Lodgepole pine (*Pinus contorta*)[3]. Completely absent, and never present in the past, is any "cypress" (*Cupressus*, family Cupressaceae), the namesake of the Cypress Hills. The name is thought to have come about as an error in translation. The early Métis, who spoke a language that included words from Canadian French, called the Cypress Hills "les montagnes des Cyprès". To them this meant "mountains of pine", but this was "lost in translation" and the English name became, and continues to be, the Cypress Hills.

A small portion of the upper Cypress Hills escaped the direct effects of the last ice age as a nunatak (an area protruding above the surrounding ice), while the Laurentide Ice Sheet advanced into Montana. The ice sheet began retreating northward through southern Saskatchewan about 15,000 years ago (Christiansen 1979)[4]. The Cypress Hills were covered with snow and ice during the glacial maximum but were spared the ravages of a moving ice sheet. They would have been repopulated with a fauna and flora much sooner than the surrounding lowlands. Some species of the current Cypress Hills biota are recognized as relict disjunct populations of cordilleran/montane species, including 32 bird species and a few small mammal species (Cypress Hills Provincial Park Management Plan 2011).

The unique and fragile nature of the Cypress Upland area led to the creation of Cypress Hills Provincial Park in Saskatchewan in 1931, and its expansion into Alberta in 1951. Later, these two portions of the park became co-managed by the two provinces and renamed the Cypress Hills Interprovincial Park. The Saskatchewan side is split into two discrete parts, the West Block (continuous with the Alberta side of the park) and the Centre Block (ca. 20 kms to the east).

Collecting in Southwestern Saskatchewan

I drove from Ottawa to Saskatchewan and reached the West Block of Cypress Hills Interprovincial Park on 9 July 2024. I had been approved for a Research Permit from the Government of Saskatchewan that allowed me to collect tachinid flies for the CNC in Ottawa (Permit Number 24AR014 NEW-2024). My first stop was the Ranger Station in the West Block where I met Melody Nagel-Hisey, park naturalist and West Block Park Supervisor. We had corresponded a few times prior to my departure from Ottawa. Melody advised me about habitats and locations that I might want to visit within the park, and allowed me to stay for free in either of the two rustic campgrounds nearby. Park policy did not allow me to camp on my own in more remote parts of the park. I was pleased to learn, however, that there are no bears and few ticks in the Cypress Hills, either of which can interfere with tachinid collecting. There are no bison either, with free-roaming cattle having taken their place as grazers to help preserve the fragile mixed grassland and other habitats[5].

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[3] A list of plants of Cypress Hills Interprovincial Park is available here:
https://www.npss.sk.ca/docs/2_pdf/Plants_of_Cypress_Hills_Provincial_Park.pdf

[4] Geology and physical geography of Cypress Hills:
https://www.albertaparks.ca/media/2850121/cypress_hills_-_geology_fact_sheet.pdf
https://uregina.ca/~sauchyn/geog497&897/hills.html

[5] Domestic Livestock Grazing on Public Lands (Alberta Wilderness Association):
https://albertawilderness.ca/wp-content/uploads/2021/02/AWA-PS-Grazing-Domestic-Livestock-on-Public-Lands-1994-2021.pdf

A total of 11 days, 9–19 July, were spent collecting in various places in southwestern Saskatchewan during the day, and nights were spent either camping or in a hotel. The collecting localities and dates are given below and all are accompanied by pictures except for one (no. 12). Locations are indicated on the map in Fig. 8. Localities are numbered roughly from west to east rather than by date in order to consecutively number the sites in the Cypress Hills, which were visited on multiple dates.

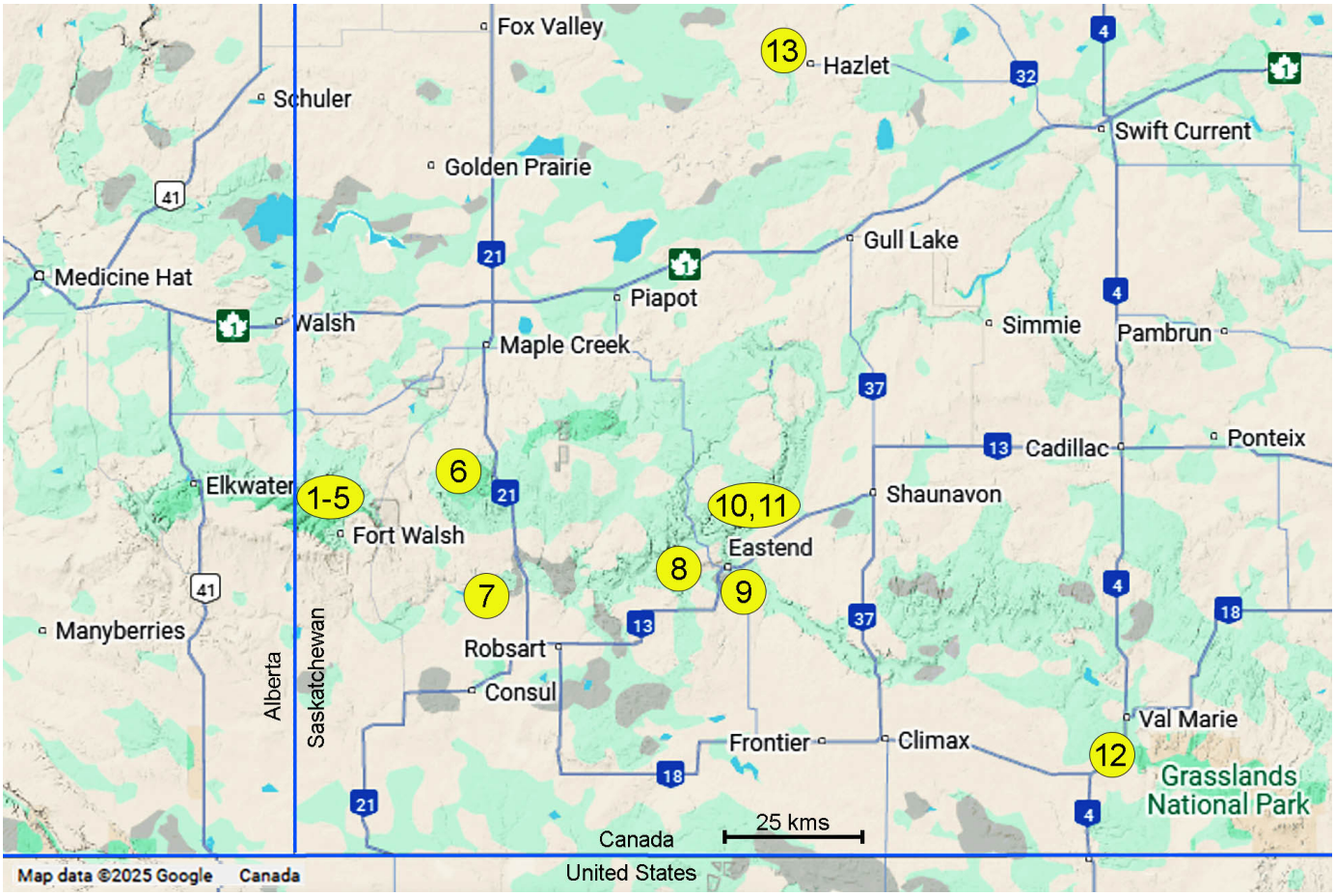


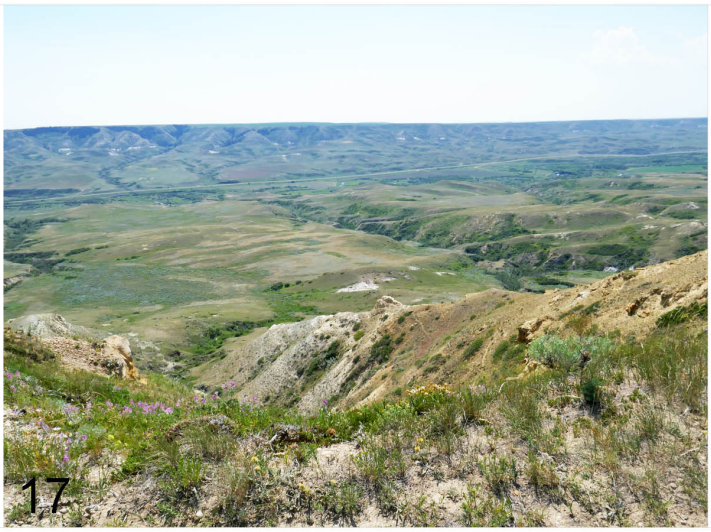
Figure 8. Map of southwestern Saskatchewan with collecting localities indicated. Localities: **1–5**, Cypress Hills Interprovincial Park, West Block; **6**, Cypress Hills Interprovincial Park, Centre Block; **7**, Cypress Lake Recreation Area; **8**, Jones Peak (Frenchman River Overlook); **9**, Frenchman River at Eastend; **10** & **11**, Pine Cree Regional Park; **12**, Hwy. 4 south of Val Marie; and **13**, near Hazlet Regional Park. See Collecting Localities section for further details about these localities, including their coordinates.

Collecting localities and tachinid numbers

1–5. Cypress Hills Interprovincial Park, West Block.

1. Campground next to Battle Creek, 49.604°N 109.926°W, 1150 m, 9–10.vii.2024.
   Tachinids: 17 (CNC2077290–2077298, CNC207731–2077319). Lush vegetation along creek with patchy stands of conifers. Only a few tachinids seen or swept.
2. A nearby Battle Creek area, 49.599°N 109.923°W, 1135 m, 14–15.vii.2024 (Fig. 9).
   Tachinids: 21 (CNC2077368–2077381, CNC2077405–2077411). Most tachinids caught while sweeping lush vegetation along a dirt path beside the creek.
3. Base of Baldy Mountain, 49.600°N 109.932°W, 1145 m, 18.vii.2024 (Figs. 10, 11).
   Tachinid: 1 (CNC2077526). Caught beside car while preparing to leave area after hilltopping on Baldy Mountain.
4. Summit of Baldy Mountain, 49.5983°N 109.9434°W, 1240 m, 16, 18.vii.2024 (Fig. 12).
   Tachinids: 48 (CNC2077429–2077460, CNC2077487–2077502). Great hilltopping site. Male Tachinini (*Deopalpus*,

Figures 9–14. Cypress Hills Interprovincial Park, West Block. **9.** Battle Creek, locality 2. **10.** Curious onlookers at base of Baldy Mountain (locality 3), as I prepare to ascend Baldy Mountain for hilltopping. **11.** View of Baldy Mountain from locality 3. **12.** View from summit of Baldy Mountain, locality 4, looking northeastward. Red arrow points to locality 3. **13.** Plaque at Conglomerate Hills overlook, locality 5, commemorating “A Special Place”. **14.** Forested slope at edge of Conglomerate Hills.



Figures 15–20. 15. Cypress Hills Interprovincial Park, Centre Block, Lookout Point, locality 6. **16.** Jones Peak, Frenchman River Overlook, locality 8. **17.** Frenchman River Valley as seen from Jones Peak. **18.** A riparian habitat along the Frenchman River at Eastend, locality 9. **19.** View of Pine Cree Regional Park from hilltop, localities 10 & 11. **20.** Near entrance to Hazlet Regional Park, locality 13.

Peleteria) landed mostly on the bare ground of the summit. High numbers of male *Aplomya theclarum* landed on the leaves and twigs of low bushes on one side of the hilltop.

5. Conglomerate Hills, 49.646°N 109.847°W, 1325 m, 10.vii.2024 (Figs. 13, 14).
   Tachinids: 2 (CNC2077323–2077324). The area is noted for its rare fescue prairie vegetation. Despite sunny weather and abundant flowers, tachinids were inexplicably difficult to find and even "sugaring" leaves did not attract them.
6. Cypress Hills Interprovincial Park, Centre Block, Lookout Point, 49.681°N 109.548°W, 1275 m, 11.vii.2024 (Fig. 15).
   Tachinids: 9 (CNC2077338–2077346). No tachinids landed around or on shelter despite its expected potential as a hilltopping site. Tachinids were caught while sweeping the nearby grassy vegetation. Plaque in shelter reads in part:

   "Imagine staring straight into the face of a gigantic, cold, mass of ice! That is what you would see standing at this point 18,000 years ago. The Wisconsinian Laurentide Ice Sheet was one of the greatest and last glaciers to shape this land. While living things were quieted during this cooling-off period, the plains below were stripped and sculpted. The high plateau of the Cypress Hills was left as an island, or nunatak, covered only by a thin layer of ice in some areas, untouched in others."
7. Cypress Lake Recreation Area, 49.457°N 109.508°W, 980 m, 17.vii.2024.
   Tachinids: 3 (CNC2077518–2077520). Heavily managed area for fishing and camping. Tachinids were caught while sweeping grassy areas along tree rows.
8. Frenchman River overlook, Jones Peak, 49.502°N 108.954°W, 1125 m, 10.vii.2024, 13.vii.2024 (Figs. 16, 17).
   Tachinids: 4 (CNC2077327–2077330). Appeared to have hilltopping potential, but little activity.
9. Eastend along Frenchman River, 49.5055°N 108.8075°W, 910 m, 19.vii.2024 (Fig. 18).
   Tachinids: 3 (CNC2077527–2077529). Tachinids caught while sweeping lush vegetation along river edge.
10. Pine Cree Regional Park, hilltop, 49.616°N 108.759°W, 1050 m, 12.vii.2024 (Fig. 19).
    Tachinids: 2 (CNC2077350–2077351). Another hilltop that failed to live up to its perceived potential.
11. Pine Cree Regional Park, campground, 49.615°N 108.762°W, 1005 m, 12.vii.2024.
    Tachinids: 3 (CNC2077356–2077358). Beautiful spot, diverse vegetation, but few tachinids seen and "sugaring" ineffective. See park webpage for links to lists of forest and grassland flowers of Pine Cree Regional Park: https://www.townofeastend.com/p/pine-cree-park-
12. Hwy. 4 south of Val Marie, 49.160°N 107.784°W, 825 m, 13.vii.2024.
    Tachinids: 3 (CNC2077365–2077367). Swept from roadside vegetation.
13. Near entrance to Hazlet Regional Park, 50.408°N 108.647°W, 715 m, 17.vii.2024 (Fig. 20).
    Tachinid: 1 (CNC2077515). Swept from vegetation at lake edge.

Results

A total of 117 specimens belonging to 44 species of Tachinidae were collected over a period of 11 days, 9–19 July, 2024. Most notable among the named species are the following new records:

Zizyphomyia crescentis (Reinhard), new record for Canada.
Panzeria incisa (Tothill), new record for Canadian Prairies.
17 species are new records for Saskatchewan.

Each species is discussed below in a numbered list. The taxonomy of North American Tachinidae is a "work in progress" and few genera of any size are well resolved. This is reflected in the list below by recognizing several levels of certainty in species identifications depending upon the state of the taxonomy of the genus and its level of curation in the Canadian National Collection of Insects (CNC) in Ottawa. My predecessor at the CNC, Monty Wood, curated many genera into named, questionably named (e.g., unresolved species complexes), and undescribed species while he was preparing his key to the tachinid genera for the *Manual of Nearctic Diptera* (Wood 1987). Generic synonymies in that work brought the number of genera in America north of Mexico down to about 330 from over 400 (reviewed in O'Hara & Wood 1998) and that number was further reduced to 303 genera in O'Hara & Wood (2004). This last work recognized 1345 named species of Tachinidae in America north of Mexico.

The classification of Tachinidae in the following list, and the geographical divisions of North America and the world, follow O'Hara et al. (2020). Each species name is followed by the CNC database numbers of the specimens assigned to it, and sex of each specimen. Superscript numbers at the end of each database number refer to the locality where the specimen was collected, as listed above under *Collecting localities*. Specimens that were COI

DNA barcoded have their numbers shown in red. BIN (Barcode Index Numbers) assignments are given and sometimes discussed. The DNA barcoding was based on a leg taken from each selected specimen that was sent to the Biodiversity Institute of Ontario (BIO) at the University of Guelph for analysis. The resultant sequences were compared to my "DNA barcode library" of over 4400 CNC Tachinidae in the Barcode of Life Data Systems (BOLD) repository to help with my identifications. A "match" was generally interpreted as sequences belonging to the same "BIN" (Barcode Index Numbers) in the BOLD system. Specimens that could not be identified beyond genus have been assigned a species number preceded by "SK" (= Saskatchewan; e.g., *Blepharipa* sp. SK1, Figs. 21, 22).

Distributions for named species are given in the following order and are based on the subdivisions of the Nearctic Region shown in Fig. 27:

Distribution order: Canada: Yukon, N.W.T. [Northwest Territories & Nunavut], B.C. [British Columbia], Prairies, Ontario, Québec, Maritimes, Labrador, Newfoundland. USA: Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida.

Named species known from Saskatchwan prior to this report as listed as "(Prairies [incl. Saskatchewan]" and new records from Saskatchwan are listed as "Prairies [incl. new for Saskatchewan]". New records for Canada and/or Prairies are also indicated in red.

DEXIINAE, Dexiini

1. *Dinera grisescens* (Fallén), CNC2077365[12]♂, CNC2077366[12]♂, CNC2077367[12]♂, CNC2077518[7]♀ [BIN AAG2123].

Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Southwest, Great Plains, Northeast). Palaearctic: widespread.

This is *D. grisescens*, as the name is understood in North America. It is a common species and the DNA barcode matches those of 10 specimens from Oregon, Utah, New Mexico, Alberta, Wyoming, Nebraska, Ontario and Québec. The DNA barcode of a specimen of *D. grisescens* from "Central Bohemia" [Czech Republic] is in a different BIN (CNC DIPTERA 104707, BIN AAZ3904), raising some uncertainty about the name of the North American species.

Hosts. Scarab beetles in North America (*Phyllophaga* spp., Arnaud 1978: 179) and a carabid beetle reported in Europe (*Harpalus* sp., Tschorsnig 2017: 296).

Voriini

2. *Cyrtophloeba* sp. SK1, CNC2077444[4]♀ [BIN AAP3780].

Cyrtophloeba species SK1 and SK2 can be distinguished by both morphology and DNA barcodes. They are probably *C. coquilletti* Aldrich and *C. nitida* Curran but I cannot distinguish between them because identifications are mixed in the CNC.

Hosts. Members of this genus have been recorded from Noctuidae (Lepidoptera) (Arnaud 1978: 174).

3. *Cyrtophloeba* sp. SK2, CNC2077340[6]♀ [BIN AAG2130].

See note under *Cyrtophloeba* sp. SK1.

4. *Spathidexia dunningii* (Coquillett) complex, CNC2077410[2]♂ [BIN AAZ3939].

Distribution [as *S. dunningii*]. Nearctic: Canada (Yukon, Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Greater Antilles (Jamaica, Puerto Rico).

The single specimen is a small slender male, mostly black and about 5 mm long. It keys to *Spathidexia dunningii* in the review of the genus by Arnaud (1960) and resembles specimens identified as this species in the CNC. However, DNA barcoding of 16 CNC specimens of "*S. dunningii*" separates these into three BINS, suggesting that *S. dunningii* is an unresolved species complex:

BIN AAP2716: 12 specimens from eastern North America (Massachusetts, New Brunswick, Ohio, Ontario).
BIN AAZ3939: 3 specimens from Saskatchewan (present survey), New Mexico, Utah.
BIN AAZ4033: 1 specimen from Alberta.

Host. Lepidoptera, Hesperiidae, *Ochlodes yuma* (Edwards) (Arnaud 1960: 25).

5. *Voria ruralis* (Fallén) complex, CNC2077370[2]♂ [DNA barcode failed].
Distribution [as *V. ruralis*]. Nearctic: Canada (all [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Widespread throughout the world.

Voria ruralis is a species complex of cosmopolitan distribution (O'Hara et al. 2020).

Hosts. Various Noctuidae (Lepidoptera) in North America (Arnaud 1978: 503).

EXORISTINAE, Acemyini

6. *Acemya oestriforme* (B. & B.), CNC2077314[1]♂ [DNA barcode failed].
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies [incl. new for Saskatchewan]), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

This is one of two species of *Acemya* R.-D. in North America with wing vein M_1 fading out at bend (i.e., does not reach wing margin). The other species is *A. plankii* (Walton), shown in Fig. 25 in Greene (1934: 38, as *Hemithrixion oestriforme*).

Hosts. Various grasshoppers (Orthoptera, Acrididae) (Rees 1973: 73).

7. *Acemya tibialis* Coquillett complex, CNC2077515[13]♀ [BIN ABZ6360].
Distribution [as *A. tibialis*]. Nearctic: Canada (Yukon, B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast).

Acemya tibialis is not difficult to distinguish from other *Acemya* species and is without exceptional variation morphologically. Nevertheless, my BOLD barcode library separates the barcodes of seven *A. tibialis* specimens into four BINs. The DNA barcode of the Saskatchewan specimen is in the same BIN as barcodes of three specimens from New Mexico. The other three BINs each have a barcode of a single specimen, one from Arizona and two from Ontario. These preliminary results suggest that *Acemya tibialis* is an unresolved species complex.

Hosts. Various grasshoppers (Orthoptera, Acrididae) (Rees 1973: 68).

8. *Ceracia dentata* (Coquillett), CNC2077528[9]♀ [BIN ABX6290].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Middle America (Mexico), South America (Chile).

The DNA barcode of this common species matches those of six specimens from Arizona, New Mexico, Alberta, Ontario and Virginia.

Hosts. Various grasshoppers (Orthoptera, Acrididae) (Rees 1973: 70).

Blondeliini

9. *Medina* sp. SK1, CNC2077358[11]♀ [DNA barcode failed].

My comments on *Medina* in O'Hara (2024: 60) apply equally well here:

> "Four species of *Medina* R.-D. are currently recognized from America north of Mexico (O'Hara et al. 2020). There are morphological differences that help to separate these species, but more study is needed to fully resolve species limits. Curiously, the 29 *Medina* in my BOLD barcode library from throughout North America appear to belong to several species based on morphology but are all assigned to the same BIN in BOLD. This is one of the rare instances in which DNA barcodes do not seem to differentiate putative species."

Hosts. *Medina* species are parasitoids of beetles in the families Chrysomelidae, Coccinellidae and Curculionidae in the Nearctic and Palaearctic regions (Arnaud 1978: 20, Tschorsnig 2017: 53). An undescribed *Medina* species was reared from the bean leaf beetle, *Cerotoma trifurcata* (Forster) (Chrysomelidae), a soybean pest, in Minnesota (Loughran & Ragsdale 1986).

10. *Myiopharus macellus* (Reinhard), CNC2077520[7]♂ [BIN ABV8803].
Distribution. Nearctic: Canada (Prairies [incl. new for Saskatchewan], Ontario), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Comments from O'Hara (2007: 33):

"A few species of *Myiopharus* have an ovipositor that has been modified into a curved and pointed piercer, and these species are thought to form a monophyletic lineage, termed here the *M. doryphorae* (Riley) species group. This species group comprises *M. americanus* (Bigot), *M. doryphorae*, and *M. macellus* (Reinhard) in America north of Mexico and includes at least several Neotropical species."

Hosts. Best known as a parasitoid of the sunflower beetle, *Zygogramma exclamationis* (Fab.) (Chrysomelidae) (e.g., Charlet 2003). It was listed as *Doryphorophaga macella* in Arnaud (1978: 185). See Wood (1985) and O'Hara (2007) for taxonomic information on *Myiopharus*.

Eryciini

11. *Aplomya theclarum* (Scudder) complex, CNC2077339[6]♂, CNC2077441[4]♂, CNC2077446[4]♂, CNC2077447[4]♂, CNC2077448[4]♂, CNC2077449[4]♂, CNC2077450[4]♂, CNC2077451[4]♂, CNC2077452[4]♂, CNC2077453[4]♂, CNC2077454[4]♂, CNC2077455[4]♂, CNC2077456[4]♂, CNC2077457[4]♂, CNC2077458[4]♂, CNC2077459[4]♂, CNC2077460[4]♂, CNC2077497[4]♂, CNC2077498[4]♂, CNC2077499[4]♂, CNC2077500[4]♂, CNC2077501[4]♂, CNC2077502[4]♂ [BIN ABY9410].
Distribution [as *A. theclarum*]. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

All specimens are males caught at hilltops, one at Lookout Point (Fig. 15) and the rest on Baldy Mountain (Figs. 11, 12). They were present in high numbers at the latter locality where they were landing on the leaves of several low bushes on one side of the hilltop, or landing on the ground nearby. The rest of the hilltop was mostly bare with scattered flowering plants low to the ground. Many more males could have been collected. I have caught *A. theclarum* on a hilltop in New Mexico (O'Hara 2012).

O'Hara (2023: 58, New Brunswick survey) wrote that: "DNA barcodes suggest there are two species under the name *A. theclarum* from Missouri westward". O'Hara (2024: 60) commented further:

"The DNA barcodes of these Henry Mtns specimens match those of about 20 specimens from Arizona, Kentucky, Missouri, New Mexico, Ohio, Tennessee, Utah, New Brunswick, Ontario and Quebec. A second BIN (ABY9410) comprises unidentified *Aplomya* from Arizona, Missouri, New Mexico and Utah. O'Hara (2012: 39, Gila N.F.) listed *A. theclarum* as a species complex".

The DNA barcodes of the Saskatchewan specimens match those of the "second BIN" of O'Hara (2024: 60); i.e., a species of western distribution. They do not match the barcodes of the more wide-ranging species that was caught by the author in New Brunswick (O'Hara 2023) and in Utah's Henry Mtns (O'Hara 2024).

Hosts. Lepidoptera, Lycaenidae (Arnaud 1978: 71), including Reakirt's blue (*Echinargus isola* (Reakirt)) (Weeks 2003), Melissa blue (*Plebejus melissa* (Edwards)) (Scholl et al. 2014), and gray hairstreak (*Strymon melinus* Hübner) (Capinera 2020).

12. *Blepharipa* sp. SK1, sp. n.? (Figs. 21, 22), CNC2077292[1]♂, CNC2077526[3]♂, CNC2077293[1]♀ [BIN AEM2847].
Distribution. Nearctic: Canada (Saskatchewan).

This is a *Blepharipa* species but not *B. fimbriata* (Wulp) or *B. pratensis* (Meigen), the two described Nearctic species. It does not key to *Blepharipa* in Wood (1987) because the prosternum is bare (haired in key) and there are four (three in key) katepisternal setae. The katepisternal setae are arranged as described by Wood for *Blepharipa* with "posteroventral one absent", but there are four in an irregular row rather than three. This is not a significant difference and contrary to the key, there are some *B. fimbriata* in the CNC with four setae arranged as in the Saskatchewan specimens. The latter also agree with *Blepharipa* in having "anterodorsal bristles on hind tibia forming an even closely spaced row" (couplet 67) and male tergite 4 with a sexual patch (couplet 69). The barcode results match these morphological similarities, pairing the BIN of the Saskatchewan specimens with that of the single barcoded specimen of *B. fimbriata* from Missouri, CNC1394268, BIN AAA1966).

Hosts. *Blepharipa* species have been reared from various Lepidoptera in the families Lasiocampidae, Lymantriidae, Noctuidae (Arnaud 1978: 31). *Blepharipa pratensis* (Meigen) was successfully introduced into eastern North America for control of the spongy moth (formerly "gypsy moth", *Lymantria dispar* (L.)) (e.g., Fuester et al. 2014).

Figures 21–22. *Blepharipa* sp. SK1 (Exoristinae, Eryciini), CNC2077526♂. **21.** Lateral view. **22.** Close-up of head showing setation and colouration. Body length: 10 mm.

13. *Carcelia* (*Carcelia*) sp. nr. *reclinata* (Aldrich & Webber), CNC2077371[2]♂, CNC2077372[2]♂ [BIN AAG2429].

O'Hara (2024: 60–61) reported on the DNA barcodes of two closely-related *Carcelia* (*Carcelia*) species and argued for one of them being *C. reclinata*. The other species is the one here called "*C.* sp. nr. *reclinata*" from BIN AAG2429:

> "A second BIN (AAG2429) in my BOLD barcode library contains barcodes of four specimens identified as *C. reclinata* (from Maine, New Mexico, Alberta and Yukon) and these specimens are presumed to belong to a misidentified species close to *C. reclinata*. The type locality of *C. reclinata* is in the Manzano Mtns of central New Mexico, the same mountain range where a barcoded specimen of the presumed "true" *C. reclinata* was collected (CNC DIPTERA 104456)." (O'Hara 2024: 60–61).

Hosts. *Carcelia reclinata* has been reared from various Noctuidae (as Arctiidae) (Arnaud 1978: 122), including a woolly bear caterpillar, *Grammia incorrupta* (Hy. Edwards). See Singer et al. (2009) for a study involving self-medication of plant toxins by *G. incorrupta* in response to parasitism by *Carcelia reclinata*.

14. *Madremyia saundersii* (Williston), CNC2077338[6]♂, CNC2077324[5]♀ [BIN AAX3393].
Distribution. Nearctic: Canada (all [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

This is a common and widespread species in North America. In the same BIN are three specimens from Ontario and Arizona.

Hosts. Lepidoptera, several families (Arnaud 1978: 367). It is an important parasitoid of *Choristoneura* species (Tortricidae) in forests, including spruce budworm (*C. fumiferana* (Clemens)) and obliquebanded leafroller (*C. rosaceana* (Harris)) (O'Hara 2005). It has been reared in low numbers from monarch larvae (*Danaus plexippus* L., Nymphalidae) (Oberhauser et al. 2017).

15. *Nilea erecta* (Coquillett) complex, CNC2077373[2]♀ [BIN AER3186].
Distribution [as *N. erecta*]. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska).

There are two BINS in my BOLD barcode library for CNC "*Nilea erecta*": BIN AAA1961 for multiple specimens from Ontario and Québec, and BIN AER3186 for three specimens from British Columbia and my single specimen from Saskatchewan. A few of the eastern specimens were identified by Monty Wood as *N. unipilum* (Aldrich & Webber), a species recorded only from Oregon in O'Hara & Wood (2004). The three barcoded specimens from B.C. belong to a series of ca. 25 specimens that I collected at Shuswap Lake in 1987; these were initially identified as *N. erecta* but are now under *N. unipilum* – moved there by Monty or myself.

I offer the following as a possible interpretation of the preceding comments as the basis for further investigation:

a) the BINS are correct and two morphological similar species are involved, likely *N. erecta* and *N. unipilum*,
b) identifications of *N. unipilum* from eastern Canada are incorrect (male surstylus seems to have been used as a distinguishing feature),
c) specimens in BIN AAA1961 are *N. erecta*, and
d) specimens in BIN AER3186 are a different species and are possibly *N. unipilum* (type in USNM, Washington).

Hosts. Like *Madremyia saundersii* above, *Nilea erecta* has been reared from various Lepidoptera (Arnaud 1978: 448, as *Pseudoperichaeta erecta*), pest budworms (O'Hara 2005, Pfannenstiel et al. 2012) and monarch larvae (Oberhauser et al. 2017).

16. *Zizyphomyia crescentis* (Reinhard) (Figs. 23, 24), CNC2077409[2]♂ [BIN AEA1817].
Distribution. Nearctic: new for Canada (incl. Prairies and Saskatchewan), USA (Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

There are three species of *Zizyphomyia* Townsend in the Nearctic Region, none of which has been recorded from Canada until now. The abdominal colour pattern of male *Z. crescentis* is unique to this species (Figs. 23, 24). The DNA barcodes of two unidentified *Zizyphomyia* females from southern Arizona and New Mexico belong to a sister BIN (AAZ1273).

Hosts. Unknown.

Exoristini

17. *Chetogena* sp. SK1, CNC2077327[8]♂ [BIN ACB4456].

This shares a BIN with three other unidentified specimens of *Chetogena*, one from Arizona and two from Nebraska.

18. *Chetogena* (*Stomatomyia*) *parvipalpis* (Wulp), CNC2077527[9]♀ [BIN AAG2337].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico), South America (Argentina, Chile).

This common species is smaller than most *Chetogena* species (Sask. specimen is 5 mm) and its maxillary palpus is cylindrical along its length, not clubbed at tip as in species of subgenera *Chetogena* Rondani and *Diplostichus* B. & B.

Hosts. Recorded as a parasitoid of the beet webworm, *Loxostege sticticalis* (L.) (Lepidoptera: Crambidae) in Arnaud (1978: 475) and Capinera (2020: 396), as *Stomatomyia parvipalpis* in both.

19. *Exorista* (*Adenia*) *dydas* (Walker), CNC2077433[4]♂, CNC2077529[9]♀ [BIN ABZ7039 for male, DNA barcode failed for female].
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (all mainland except Alaska).

O'Hara (2024: 61) recorded this species from "sugared" oak leaves in the Henry Mountains of Utah and commented:

> "This widespread species is represented by about 20 barcoded specimens in my BOLD barcode library, from British Columbia to New Brunswick as well as Colorado, Maryland and Utah. It was not listed from Gila N.F. by O'Hara (2012)."

Hosts. Sawflies in the families Diprionidae and Tenthredinidae (Hymenoptera) (Arnaud 1978: 272, as *Guerinia dydas*).

Figures 23–24. *Zizyphomyia crescentis* (Reinhard) (Exoristinae, Eryciini), CNC2077409♂. **23.** Lateral view. **24.** Close-up of abdomen showing colouration and banding. Body length: 6 mm.

Goniini

20. *Gonia distincta* Smith, CNC2077438[4]♀, CNC2077439[4]♂ [BIN ACC0772].
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Southwest, Northeast, Southeast).

Two species of *Gonia* Meigen were caught hilltopping on Baldy Mountain. They are superficially similar in colouration with abdominal tergites 3 and 4 black medially and reddish-orange laterally. The parafacial of *Gonia* species is typically quite wide but is uncharacteristically narrow (for a *Gonia* species) in *G. distincta* (Morrison 1940).

Hosts. Unknown.

21. *Gonia porca* Williston, CNC2077437[4]♂ [BIN ACV7169].
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

This species resembles *G. distincta* in abdominal colouration (see above) but can be recognized by its scattered golden (rather than black) hairs on the thoracic pleura and especially behind the row of anepisternal setae (Morrison 1940).

Hosts. Several cutworms in the family Noctuidae (Lepidoptera) (Arnaud 1978: 268).

22. *Platymya confusionis* (Sellers), CNC2077411[2]♀ [DNA barcode failed].
Distribution. Nearctic: Canada (all [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Hosts. Sod webworms of the genus *Crambus* Fab. (Lepidoptera, Crambidae) (Arnaud 1978: 68, as *Aplomya confusionis*).

Winthemiini

23. *Hemisturmia parva* (Bigot), CNC2077407[2]♀ [DNA barcode failed].
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Hosts. Lepidoptera, several families (Arnaud 1978: 278, as *H. tortricis*). It has been reared from multiple pest species of the genus *Choristoneura* Lederer (Tortricidae) (O'Hara 2005).

24. *Smidtia fumiferanae* (Tothill), CNC2077295[1]♀, CNC2077296[1]♀ [BIN AAB5914].
Distribution. Nearctic: Canada (all [incl. new for Saskatchewan]), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Hosts. Lepidoptera, several families (Arnaud 1978: 403, as *Omotoma fumiferanae*). It has been reared from multiple pest species of the genus *Choristoneura* Lederer (Tortricidae) (O'Hara 2005).

PHASIINAE, Cylindromyiini

25. *Besseria anthophila* (Loew), CNC2077342[6]♂, CNC2077343[6]♂, CNC2077346[6]♂, CNC2077344[6]♀, CNC2077345[6]♀ [DNA barcode failed].
Distribution. Nearctic: Canada (N.W.T., Prairies [incl. new for Saskatchewan], Ontario), USA (Alaska). Palaearctic: widespread.

This is the only *Besseria* species of the three in North America in which wing vein M_1 fades out at bend (i.e., does not reach wing margin). Vein M_1 reaches wing margin in *B. ater* (Coquillett) and meets vein R_{4+5} before wing margin in *B. brevipennis* (Loew).

Hosts. Unknown but assumed to be true bugs belonging to the order Hemiptera.

Gymnosomatini

26. *Gymnosoma par* Walker, CNC2077313[1]♂ [BIN AAG2156].
Distribution. Nearctic: Canada (Yukon, Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northern Rockies, Great Plains, Northeast, Southeast).

Hosts. Stink bugs (Hemiptera: Heteroptera: Pentatomidae), including *Euschistus servus* (Say) (Tillman 2010).

27. *Gymnosoma* sp. SW1, CNC2077351[10]♀ [BIN AAV0936].

This is the same *Gymnosoma* species caught in Utah's Henry Mtns on "sugared" oak leaves (O'Hara 2024). It is here called "SW1" to match the term used for the Utah species. O'Hara (2024: 65) noted: "The DNA barcode matches that of a specimen from Utah (Juab Co., Fish Springs WR) tentatively identified as *G. fuliginosum* R.-D."

Leucostomatini

28. *Leucostoma simplex* (Fallén), CNC2077519[7]♂ [DNA barcode failed].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: South America (Argentina, Chile). Widespread in Old World except for Oriental Region.

Hosts. Hemipteran bugs in the families Lygaeidae, Nabidae, Rhopalidae (Arnaud 1978: 340, Tschorsnig 2017: 333) and grasshoppers (Orthoptera, Acrididae) (Arnaud 1978: 341).

Tachininae, Ernestiini

29. *Linnaemya* sp. SK1, CNC2077323[5]♂, CNC2077368[2]♀, CNC2077429[4]♀ [BIN AAI1339].

The two DNA barcodes are virtually the same and belong to the same BIN as the barcodes of about 30 other *Linnaemya* specimens from across Canada that had been tentatively identified as four described species. Collectively these specimens could belong to a single variable species but I suspect they instead represent a complex of closely related species.

Hosts. *Linnaemya* species are often parasitoids of Noctuidae (Lepidoptera) (Arnaud 1978: 109, as *Bonnetia*).

30. *Panzeria incisa* (Tothill), CNC2077291[1]♂ [BIN ACA7380].
Distribution. Nearctic: Canada (B.C., new for Prairies [Saskatchewan], Ontario, Québec), USA (Northeast, Northern Rockies).

O'Hara & Wood (2004: 247) recorded this species from British Columbia, Montana, Wyoming, Michigan, Ohio, Pennsylvania, Ontario and Québec. This known distribution would suggest the likely presence of *P. incisa* in the Canadian Prairies but it had not been recorded from there until now. The DNA barcode matches that of two specimens from Ontario.

Hosts. Unknown. *Panzeria* species, as *Mericia* R.-D., parasitize various Lepidoptera (Arnaud 1978: 375).

Graphogastrini

31. *Phytomyptera* sp. SK1 (Figs. 25, 26), CNC2077297[1]♂, CNC2077298[1]♂, CNC2077315[1]♂, CNC2077316[1]♂, CNC2077317[1]♂, CNC2077318[1]♂, CNC2077319[1]♂, CNC2077380[2]♂, CNC2077381[2]♂, CNC2077445[4]♂ [DNA barcodes failed].

Phytomyptera Rondani is a large genus of tiny tachinids (ca. 4 mm) with over 20 described and many undescribed species in North America. The genus is one of the most morphologically diverse within the Tachinidae with all sorts of varied features including size and shape of the antennal postpedicel, wing colouration and venation, and abdominal colouration and setation.

Phytomyptera sp. SK1 is an undescribed, but not unknown, species. I found a 4"x4" tray of this species in the CNC that was labelled as "*Plectops* sp. 14" by Frank McAlpine, probably in the early 1960s (Frank was the CNC dipterist in charge of Tachinidae before Monty Wood was hired and took over the family; see Cumming et al. 2011). *Plectops* was later synonymized with *Elfia* R.-D. by Sabrosky & Arnaud (1965: 1065) and the two names were synonymized with *Phytomyptera* by Wood (1987: 1220).

Hosts. This species (as *Plectops* sp. 14) is represented in the CNC by specimens from California, Arizona, Alberta, Saskatchewan, Ontario, Québec, New York and North Carolina. A few of the Saskatchewan specimens were reared from the banded jack-pine needleminer, *Coleotechnites canusella* (Freeman) (Lepidoptera: Gelechidae) (as "*Eucordylea canusella*"), collected in Nisbet Provincial Forest and nearby Fort à la Corne Provincial Forest. This *Phytomyptera* species is presumably the same one reared from "*Eucordylea canusella*" in Québec by McLeod (1969, as "*Elphia* sp." [error for *Elfia*]). I have collected this species in my backyard in Ottawa.

Figures 25–26. *Phytomyptera* sp. SK1 (Tachininae, Graphogastrini), CNC2077297♂. **25.** Lateral view. **26.** Close-up of abdomen showing silvery bands of microtomentosity. Body length: 3 mm.

32. *Phytomyptera* sp. SK2, CNC2077376[2]♂, CNC2077378[2]♂, CNC2077379[2]♂, CNC2077377[2]♀, CNC2077408[2]♀ [DNA barcode failed].

I did not find a match for this species among the identified or miscellaneous CNC *Phytomyptera*. It is dark with a shiny black abdomen and only a hint of microtomentosity [formerly "pruinosity"] at the base of the abdominal tergites. The species is unusual among *Phytomyptera* in having a tiny downcurved proepimeral seta; a well-developed downcurved seta is generally characteristic of the genus.

Nemoraeini

33. *Xanthophyto* sp. SK1, CNC2077357[11]♀ [DNA barcode failed].

This *Xanthophyto* species has abdominal tergite 5 completely black, without a trace of yellowish orange; differing in this respect from *Xanthophyto* sp. SW1 in O'Hara (2024: 68, Figs. 21, 22). This species is almost certainly undescribed. John Stireman of Wright State University is revising the genus.

Hosts. Lepidoptera, several families (Arnaud 1978: 531). Recorded from coneworms (*Dioryctria* spp., Pyralidae) in Belmont & Habeck (1983) and from hemlock looper (*Lambdina fiscellaria* (Guenée), Geometridae) in Sabbahi et al. (2018).

Siphonini

34. *Ceromya americana* (Townsend) species group, CNC2077341[6]♀ [DNA barcode failed].

The single female belongs to the *C. americana* species group and is probably one of the six described species (see O'Hara 1994). Males of this group are difficult to identify morphologically and females are seldom identifiable. DNA barcoding works well to recognize species but the barcode of the single Saskatchewan female failed.

Hosts. The known hosts of members of the *Ceromya americana* species group are listed in O'Hara (1994) and include species of Noctuidae (*Achytonix praeacuta* (Smith), *Feralia jocosa* (Guenée) and *Lithophane* sp.) and Notodontidae (*Heterocampa guttivitta* (Walker) and *Schizura concinna* (Smith)).

35. *Siphona* (*Siphona*) *medialis* O'Hara, CNC2077374[2]♂, CNC2077375[2]♀ [DNA barcode failed].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Siphona species have a long and geniculate proboscis and are usually small (under 6 mm long) and pale-coloured. The North American species were revised by O'Hara (1983).

Hosts. Unknown.

Tachinini

Many species of Tachinini "hilltop" for mating purposes, with males spending more time than females on a hilltop. All of the nine species below were caught on hilltops or a prominent overlook, mostly on Baldy Mountain (locality 4). A few specimens (mostly females) of three species were also caught elsewhere.

36. *Deopalpus* sp. SK1, CNC2077431[4]♂, CNC2077432[4]♂, CNC2077436[4]♂, CNC2077442[4]♂, CNC2077443[4]♂ [BIN AAM7880].

Deopalpus Townsend is a New World genus with its greatest diversity in the Neotropics. Most of the 11 Nearctic species are confined to the southern portion of the region. Only one species, *Deopalpus contiguous* (Reinhard), is recorded from Canada. The Saskatchewan specimens resemble *D. contiguous* (possibly a species complex) but the single barcode places the species in a BIN of its own among five BINs of identified and unidentified *Deopalpus* species.

37. *Peleteria anaxias* (Walker), CNC2077435[4]♀, CNC2077494[4]♂, CNC2077496[4]♀. [BIN ACI6315].
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Southwest, Northeast, Southeast).

The unpublished Ph.D. thesis on the *Peleteria* of America north of Mexico by Lynda L.E. Richards (1973) was helpful for the identification of the species listed here, as were specimens in the CNC identified by her.

Peleteria anaxias and *P. haemorrhoa* below are characterized by a dark abdomen with tergite 5 partially or entirely red. They can be identified by significant differences in abdominal sternite 5 and male terminalia. Most

noticeable in undissected males is the broader posterior edge of each lobe of sternite 5 in *P. haemorrhoa*.

Hosts. Arnaud (1978) did not list any known hosts for the species of *Peleteria* listed here. The Ph.D. thesis on *Peleteria* by Richards (1973) noted that the collections she examined "include adults reared from the following genera of cutworms and armyworms (Noctuidae): *Agrotis*, *Chorizagrotis*, *Euxoa*, *Graphiphora*, *Heliophila*, and *Peridroma*" (p. 5).

38. *Peleteria biangulata* Curran, CNC2077434[4]♂, CNC2077356[11]♂ [BIN AEB0151].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

This is one of the *Peleteria* species with a darkish orange abdomen and black median vitta. The median vitta is discernable but less conspicuous than in *P. iterans* because of the generally darker colouration of the abdomen. *Peleteria biangulata* is one of the few North American species of the genus with an orange (not black) tegula at the base of the wing, and is the only *Peleteria* species listed here with this character state. I called this species "*Peleteria* sp. SW1" in my report last year on the Tachinidae of the Henry Mountains in Utah (O'Hara 2024: 69).

Hosts. See note under *Peleteria anaxias*.

39. *Peleteria conjuncta* Curran, CNC2077487[4]♂, CNC2077488[4]♂, CNC2077489[4]♂, CNC2077490[4]♂, CNC2077491[4]♂ [BIN ACA6975].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Northern Rockies, Southwest).

The single DNA barcode of *P. conjuncta* is in a BIN with the barcodes of two specimens of *Peleteria pseudoershovi* Zimin, a Palaearctic species in Northeast Asia. The two barcoded specimens were collected by Monty Wood in 1990 on the summit of Rodinka Mtn. in the Chersky Range of the Sakha Republic, Russia. The posterior lobes of male sternum 5 of both species are distinctive in having a small medially-projecting appendage distally. The abdomens differ in colouration, that of *P. pseudoershovi* being black medially and orange laterally, and that *P. conjuncta* being entirely black. The two forms are closely related but I doubt they are conspecific, despite their DNA barcodes belonging to the same BIN.

Hosts. See note under *Peleteria anaxias*.

40. *Peleteria cornuta* Curran, CNC2077312[1]♂, CNC2077430[4]♂, CNC2077369[2]♀, CNC2077405[2]♀ [BIN AAI2974].
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, Northern Rockies, Southwest). Neotropical: Middle America (Mexico).

The DNA barcodes of four *P. cornuta* and three *P. cornigera* Curran in my BOLD barcode library form two slightly separate groups, but both within BIN AAI2974. The male terminalic characters given in Curran (1925) for the two species appear to be reliable and are here the basis for treating the Saskatchewan specimens as *Peleteria cornuta*.

Hosts. See note under *Peleteria anaxias*.

41. *Peleteria haemorrhoa* (Wulp), CNC2077495[4]♂ [BIN ACG7558].
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (California, Southwest, Great Plains, Northeast, Southeast).

This species is characterized by a partially or entirely red abdominal segment 5 and male cerci divided by a deep groove.

Hosts. See note under *Peleteria anaxias*.

42. *Peleteria iterans* (Walker), CNC2077350[10]♂, CNC2077440[4]♂ [BIN AAG2186].
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast). Neotropical: Middle America (Mexico).

This is a common and distinctive species. The abdomen is yellow with a narrow black median vitta (sometimes interrupted or absent) and lobes of male sternite 5 shiny black and directed outwards.

Hosts. See note under *Peleteria anaxias*.

43. *Peleteria malleola* (Bigot), CNC2077294[1]♂, CNC2077406[2]♂, CNC2077492[4]♂, CNC2077493[4]♂ [BIN AAG2129].

Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

The abdomen is varied among specimens of this common species, with a mix of light red to black in ground colour and varying degrees of overlying microtomentosity.

Hosts. See note under *Peleteria anaxias*.

44. *Tachina* (*Rhachogaster*) *latianulum* (Tothill), CNC2077328[8]♂, CNC2077329[8]♂, CNC2077330[8]♂, CNC2077290[1]♀ [BIN AAH6662].

Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

This is one of several large and shiny black *Tachina* species and it can be identified by the male terminalia characters given in the key and shown in the figures in Rowe (1931). The three males were caught at a high point (Jones Peak) along the top of a ridge overlooking the Frenchman River Valley (Figs. 16, 17). I visited this spot twice expecting better hilltopping results (only two species, the other being *Chetogena* sp. SK1 [a single male, and maybe there by chance and not "hilltopping" for a mate?]). Perhaps the windy conditions on both visits contributed to the poor collecting.

Hosts. Unknown.

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Checklist of Tachinidae (Diptera) of the Canadian Prairies
... with first list of Saskatchewan species

The species of Tachinidae known from the Canadian provinces of Alberta, Saskatchewan and Manitoba (i.e., "Canadian Prairies") are listed below. This list began as an output for "Prairies" from a FileMaker Pro database of tachinid names, types and distributions that will be used to create a world catalogue of Tachinidae in the near future (see O'Hara & Henderson 2022). This initial output provided a list of species known from the Canadian Prairies but without information on species known from Saskatchewan. For that, I turned to the catalogue of O'Hara & Wood (2004), and to an unpublished physical list of distributions by province and state for CNC specimens that was prepared in advance of that catalogue by my former technician Bruce Cooper.

Distributional information

Distributions are given in a similar style to those in the world checklist of Tachinidae (O'Hara et al. 2020), with the following subdivisions recognized within Canada and United States and arranged roughly from west to east within each country (Fig. 27):

Distribution. Canada: Yukon, N.W.T., B.C., Prairies, Ontario, Québec, Maritimes, Labrador, Newfoundland. USA: Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida.

Abbreviations and subdivisions listed above represent:

Canada

B.C.: British Columbia.
Maritimes: New Brunswick, Nova Scotia and Prince Edward Island.
N.W.T.: Northwest Territories & Nunavut.
Prairies: Alberta, Saskatchewan and Manitoba.

United States

Alaska.
California.
Florida.
Great Plains: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota.
Northeast: Connecticut, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia, Wisconsin.
Northern Rockies: Idaho, Montana, Wyoming.
Pacific Northwest: Oregon, Washington.
Southeast: Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee.
Southwest: Arizona, Colorado, Nevada, New Mexico, Utah.
Texas.

A distribution for a species known previously from Saskatchewan is listed as:

Distribution. Canada: Yukon, N.W.T., B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Labrador, Newfoundland. USA: Alaska …

A distribution for a species newly recorded from Saskatchewan is listed as:

Distribution. Canada: Yukon, N.W.T., B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes, Labrador, Newfoundland. USA: Alaska …

Summary of species numbers:

Species recorded from the Canadian Prairies:	405
Species known previously from Saskatchewan:	112
Species currently known from Saskatchewan:	129
– including new only for Saskatchewan	15
– including new only for Canadian Prairies & Sask.	1
– including new for Canada	1
Species with their type locality in Saskatchewan	11

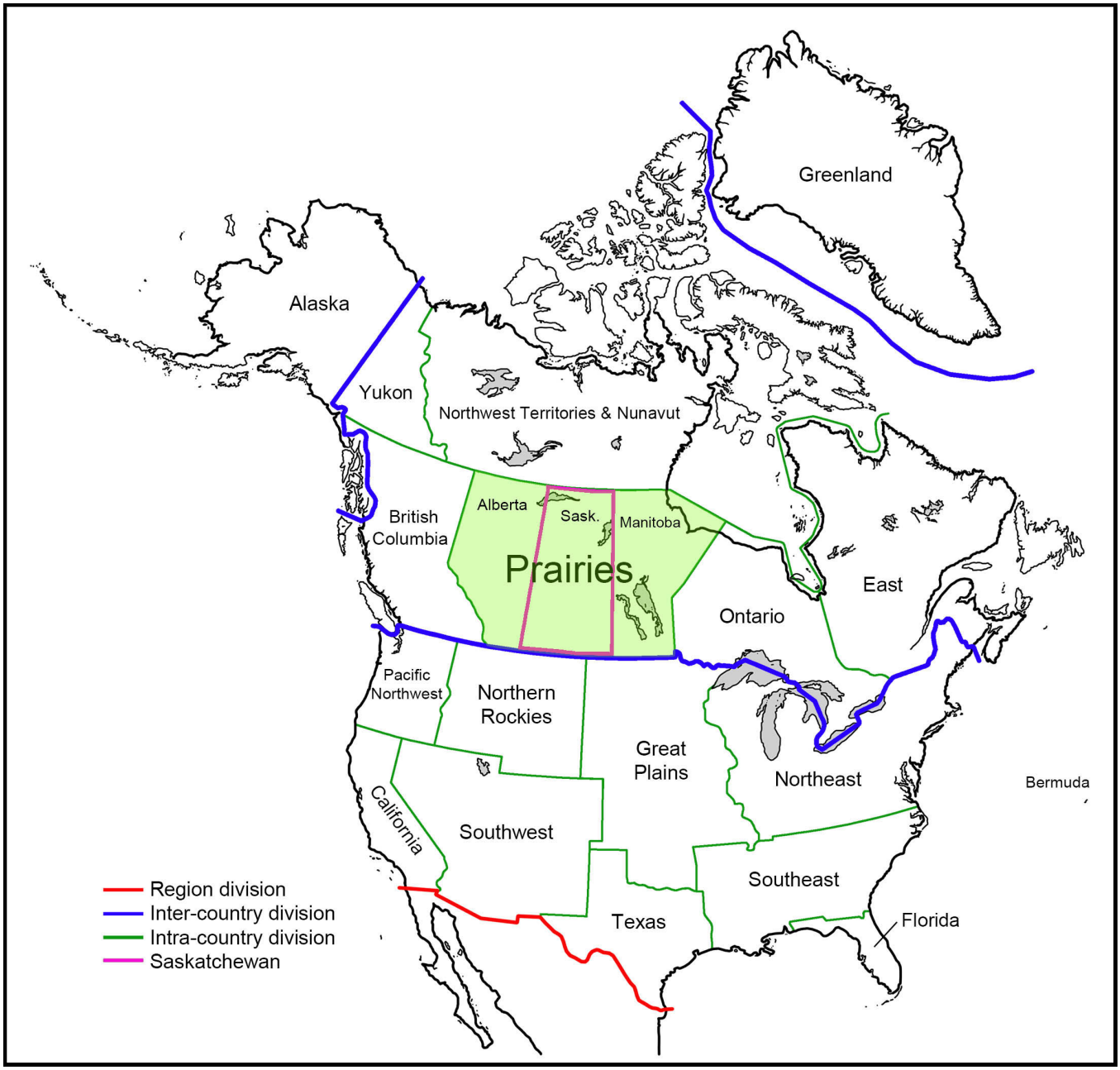

Figure 27. Map of the Nearctic Region with the subdivisions of O'Hara et al. (2020). The Canadian prairie provinces of Alberta, Saskatchewan and Manitoba are highlighted in green and Saskatchewan is outlined in pink. [Map adapted from O'Hara et al. 2020: 18.]

List of Tachinidae of the Canadian Prairies

DEXIINAE

Dexiini

Ateloglossa algens (Curran)
Distribution. Nearctic: Canada (Yukon, Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Southwest).

Ateloglossa gillettei (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Texas).

Ateloglossa johnsoni (West)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Southwest, Northeast).

Ateloglossa marginalis (Curran)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, Northern Rockies, Southwest).

Ateloglossa wickhami (Townsend)
Distribution. Nearctic: Canada (Yukon, Prairies), USA (Alaska).

Billaea nipigonensis Curran
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec).

Dinera grisescens (Fallén)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Southwest, Great Plains, Northeast). Palaearctic: widespread.

Estheria cinerea (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Eumegaparia flaveola (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Northern Rockies, Southwest).

Mochlosoma validum Brauer & Bergenstamm
Distribution. Nearctic: Canada (B.C., Prairies, East), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast). Neotropical: Middle America (Mexico).

Ptilodexia agilis Reinhard
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Texas).

Ptilodexia canescens (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northern Rockies, Southwest, Great Plains, Northeast).

Ptilodexia carolinensis Brauer & Bergenstamm
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Ptilodexia conjuncta (Wulp)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico).

Ptilodexia harpasa (Walker)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Great Plains, Northeast, Southeast).

Ptilodexia incerta West
Distribution. Nearctic: Canada (Prairies), USA (Great Plains, Texas, Northeast, Southeast).

Ptilodexia mathesoni (Curran)
Distribution. Nearctic: Canada (Prairies Ontario, Québec, Maritimes), USA (Northeast).

Ptilodexia obscura West
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast).

Ptilodexia rufipennis (Macquart)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Eutrixini

Eutrixa exilis (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Southwest, Great Plains, Texas, Northeast, Southeast).

Freraeini

Freraea montana (Coquillett)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Oestrophasiini

Oestrophasia calva Coquillett
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Maritimes), USA (California, Northern Rockies, Southwest, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Oestrophasia clausa Brauer & Bergenstamm
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (California, Northern Rockies, Southwest).

Uramyini

Uramya limacodis (Townsend)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northeast, Southeast).

Voriini

Athrycia cinerea (Coquillett)
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

Blepharomyia tibialis (Curran)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Alaska, Northeast, Southeast).

Campylocheta orbitalis (Webber)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Northeast).

Chaetovoria seriata (Aldrich)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies), USA (Pacific Northwest, Southwest, Texas).

Cyrtophloeba coquilletti Aldrich
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast, Southeast).

Cyrtophloeba nitida Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, Southwest, Northeast, Southeast).

Eriothrix penitalis (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Great Plains, Northeast, Southeast).

Euptilopareia erucicola (Coquillett)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec), USA (Northern Rockies, Great Plains, Northeast).

Euptilopareia vicinalis Reinhard
Distribution. Nearctic: Canada (Prairies), USA (California, Northern Rockies, Southwest).

Hypovoria cauta (Townsend)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

Hypovoria discalis (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Maritimes), USA (California, Northern Rockies, Southwest, Northeast).

Kirbya (*Hesperophasiopsis*) *aldrichi* (Curran)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Great Plains). Type locality of *Hesperophasia aldrichi* Curran: Canada, Sask., Biggar.

Meledonus californicus (Coquillett)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Metaplagia brevicornis Brooks
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Maritimes, Newfoundland), USA (Northeast).

Muscopteryx chaetosula Townsend
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico).

Muscopteryx evexa (Reinhard)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Newfoundland), USA (Northern Rockies, Great Plains, Northeast).

Periscepsia (*Ramonda*) *cinerosa* (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Periscepsia (*Ramonda*) *clesides* (Walker) complex
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Quebec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, Southwest, Great Plains, Northeast).

Periscepsia (*Ramonda*) *helymus* (Walker)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Periscepsia (*Ramonda*) *labradorensis* (Brooks)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Québec, Maritimes, Labrador, Newfoundland), USA (Alaska).

Periscepsia (*Ramonda*) *rohweri* (Townsend)
Distribution. Nearctic: Canada (Yukon, Prairies), USA (Pacific Northwest, Northern Rockies, Southwest).

Phyllomya fuscicosta Curran
Distribution. Nearctic: Canada (B.C., Prairies), USA (Northern Rockies, Southwest).

Phyllomya limata (Coquillett)
Distribution. Nearctic: Canada (Prairies), USA (California, Northern Rockies, Southwest).

Phyllomya washingtoniana (Bigot)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Plagiomima spinosula (Bigot)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario), USA (California, Southwest, Great Plains, Texas, Northeast).

Spathidexia dunningii (Coquillett) complex
Distribution. Nearctic: Canada (Yukon, Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Greater Antilles (Jamaica, Puerto Rico).

Spathidexia reinhardi Arnaud
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: southern Lesser Antilles (Trinidad & Tobago).

Thelaira americana Brooks
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Thelaira bryanti Curran
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest).

Uclesia retracta Aldrich
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, Southwest).

Voria aurifrons (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Great Plains, Northeast).

Voria ruralis (Fallén)
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Widespread throughout the world but likely a species complex, including in Nearctic Region.

Wagneria pacata Reinhard
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Maritimes), USA (California, Southwest, Great Plains, Northeast).

Wagneria vernata West
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

EXORISTINAE

Acemyini

Acemya favilla Reinhard
Distribution. Nearctic: Canada (Prairies), USA (Northern Rockies, Great Plains, Northeast).

Acemya oestriforme (Brauer & Bergenstamm)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies [incl. new for Saskatchewan]), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Acemya tibialis Coquillett
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast).

Ceracia dentata (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Middle America (Mexico), South America (Chile).

Blondeliini

Admontia degeerioides (Coquillett)
Distribution. Nearctic: Canada (all), USA (California, Southwest, Great Plains, Northeast, Southeast).

Admontia pollinosa Curran
Distribution. Nearctic: Canada (N.W.T., Prairies [incl. Saskatchewan], Ontario), USA (California, Northern Rockies, Southwest, Great Plains, Northeast). Type locality of *Admontia dubia* Curran, a synonym of *Admontia pollinosa*: Canada, Sask., Holdfast.

Admontia washingtonae (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (Alaska, Northeast).

Belida chaetoneura (Coquillett)
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Northeast, Southeast).

Belida dexina (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Northeast).

Blondelia eufitchiae (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Blondelia hyphantriae (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, Southwest, Great Plains, Northeast, Southeast, Florida). Palaearctic: China. Oriental: China, Taiwan.

Blondelia polita (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest). Neotropical: Middle America (Mexico).

Compsilura concinnata (Meigen)
Distribution. Nearctic (introduced): Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Great Plains, Northeast). Widespread in Old World.

Cryptomeigenia demylus (Walker)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Northeast, Southeast).

Cryptomeigenia hinei (Coquillett) complex
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northeast).

Cryptomeigenia muscoides Curran
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Great Plains, Texas, Northeast).

Cryptomeigenia nigripes Curran
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec), USA (Pacific Northwest, Texas, Northeast).

Cryptomeigenia ochreigaster Curran
Distribution. Nearctic: Canada (Prairies).

Cryptomeigenia theutis (Walker) complex
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Texas, Northeast, Southeast).

Cryptomeigenia triangularis Curran
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northeast).

Dolichotarsus kingi Brooks
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, Southwest). Type locality of *Dolichotarsus kingi* Brooks: Canada, Sask., Saskatoon.

Eribella exilis (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Northeast, Southeast).

Eribella polita (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Southwest, Great Plains, Northeast).

Eucelatoria dimmocki (Aldrich)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Euthelyconychia nana (Curran)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (California, Northern Rockies, Southwest, Great Plains).

Euthelyconychia vexans (Curran)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northeast).

Euthelyconychia xylota (Curran)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Texas, Northeast, Southeast).

Lixophaga alberta (Curran)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec).

Lixophaga discalis (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes), USA (Southwest, Great Plains, Northeast, Southeast).

Lixophaga impatiens (Curran)
Distribution. Nearctic: Canada (Prairies).

Lixophaga opaca Reinhard
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Québec, Maritimes), USA (Pacific Northwest, Northern Rockies, Northeast).

Lixophaga plumbea Aldrich
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Lixophaga unicolor (Smith)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, Northern Rockies, Southwest Northeast).

Lixophaga variabilis (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Great Plains, Texas, Northeast, Southeast, Florida).

Medina barbata (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Alaska, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Meigenia submissa (Aldrich & Webber)
Distribution. Nearctic: Canada (Yukon, Prairies), USA (Northern Rockies, Southwest, Great Plains, Northeast).

Myiopharus americanus (Bigot)
Distribution. Nearctic: Canada (Prairies), USA (Southwest, Texas, Southeast, Florida). Neotropical: Middle America (Mexico).

Myiopharus doryphorae (Riley)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Myiopharus macellus (Reinhard)
Distribution. Nearctic: Canada (Prairies [incl. new for Saskatchewan], Ontario), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Myiopharus neilli O'Hara
Distribution. Nearctic: Canada (Prairies), USA (Southwest, Great Plains).

Oswaldia albifacies (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Northeast).

Oswaldia assimilis (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast).

Oswaldia aurifrons (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Southwest, Texas, Northeast).

Oxynops anthracinus (Bigot)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: eastern Lesser Antilles (Saint Vincent), Middle America (Mexico, Costa Rica).

Picconia derisa (Reinhard)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast).

Zaira eleodivora (Walton)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (California, Southwest, Great Plains).

Eryciini

Aplomya theclarum (Scudder)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Buquetia obscura (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Great Plains, Texas, Northeast).

Carcelia (*Carcelia*) *languida* (Walker)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico, Nicaragua).

Carcelia (*Carcelia*) *protuberans* (Aldrich & Webber)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Southwest, Texas, Northeast, Southeast).

Carcelia (*Carcelia*) *reclinata* (Aldrich & Webber)
Distribution. Nearctic: Canada (all), USA (all mainland except Alaska). Neotropical: Middle America (Mexico), South America (Colombia).

Carcelia (*Carcelia*) *yalensis* Sellers
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario), USA (California, Northern Rockies, Texas, Northeast).

Drino (*Drino*) *bakeri* (Coquillett)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Alaska, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Drino (*Drino*) *rhoeo* (Walker)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Greater Antilles (Jamaica), eastern Lesser Antilles (Dominica), Middle America (Mexico, Costa Rica), South America (Argentina).

Eunemorilla comosa (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast).

Gymnophryxe claripennis (Reinhard)
Distribution. Nearctic: Canada (Yukon, Prairies), USA (Pacific Northwest, Northern Rockies, Southwest).

Hubneria estigmenensis (Sellers)
Distribution. Nearctic: Canada (all), USA (Alaska, California, Northern Rockies, Southwest, Great Plains, Northeast).

Lespesia anisotae (Webber)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Northeast).

Lespesia archippivora (Riley)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (all mainland except Alaska). Neotropical: Greater Antilles (Cuba, Puerto Rico), eastern Lesser Antilles (Guadeloupe), southern Lesser Antilles (Trinidad & Tobago), Middle America (Guatemala, Honduras, Mexico, Nicaragua, Panama), South America (Argentina, Brazil, Colombia, Peru, Uruguay, Venezuela). Australasian & Oceanian: Hawaii (introduced).

Lespesia cuculliae (Webber)
Distribution. Nearctic: Canada (Prairies), USA (Great Plains, Texas, Northeast, Southeast, Florida).

Lespesia datanarum (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (all mainland except Alaska).

Lespesia flavifrons Beneway
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, East), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Southeast, Northeast).

Lespesia frenchii (Williston)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (all mainland except Alaska).

Lespesia melalophae (Allen)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies,

Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Lespesia parviteres (Aldrich & Webber)
Distribution. Nearctic: Canada (Prairies), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Greater Antilles (Puerto Rico), Middle America (Costa Rica, Honduras, Nicaragua).

Lespesia sabroskyi Beneway
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Lespesia samiae (Webber)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Lespesia schizurae (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Lydella radicis (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Lydella thompsoni Herting
Distribution. Nearctic (introduced): Canada (Prairies, Ontario, Québec, Maritimes). USA (Great Plains, Northeast, Southeast). Palaearctic: widespread. Oceanian: Guam.

Madremyia saundersii (Williston)
Distribution. Nearctic: Canada (all [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

Nilea carpocapsae (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Southeast).

Nilea dimmocki (Webber)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Northeast).

Nilea erecta (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (all mainland except Alaska).

Nilea mathesoni (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Florida, Northeast).

Nilea sternalis (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Phebellia cerurae (Sellers)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Southwest, Northeast).

Phebellia crassiseta (Aldrich & Webber)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast).

Phebellia curriei (Coquillett),
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Texas, Northeast).

Phebellia epicydes (Walker)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Great Plains, Northeast).

Phebellia helvina (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, Southwest, Great Plains, Northeast).

Phebellia imitator (Sellers)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Pacific Northwest, Northern Rockies, Southwest, Northeast, Southeast).

Phebellia nigripalpis (Robineau-Desvoidy)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Northeast). Palaearctic: widespread.

Phebellia pheosiae (Sellers)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Northeast).

Phebellia trichiosomae (Sellers)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, Northeast).

Phryxe pecosensis (Townsend)
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Phryxe vulgaris (Fallén)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast). Palaearctic: widespread. Oriental: China, India.

Siphosturmia confusa Reinhard
Distribution. Nearctic: Canada (Prairies), USA (California, Southwest, Texas).

Siphosturmia phyciodis (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Sisyropa alypiae Sellers
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (Northern Rockies, Northeast, Southeast). Neotropical: Middle America (Mexico).

Zizyphomyia crescentis (Reinhard)
Distribution. Nearctic: new for Canada (incl. Prairies and Saskatchewan), USA (Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Euthelairini

Neomintho celeris (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast, Florida).

Exoristini

Bessa harveyi (Townsend)
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Chetogena claripennis (Macquart)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (all mainland). Neotropical: Greater Antilles (Puerto Rico), Middle America (Mexico), South America (Venezuela).

Chetogena lophyri (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec,

Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast, Florida).

Chetogena omissa (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Chetogena parvipalpis (Wulp)
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico), South America (Argentina, Chile).

Chetogena vibrissata (Brauer & Bergenstamm)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Southwest, Northeast).

Exorista (*Adenia*) *dydas* (Walker)
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (all mainland except Alaska).

Exorista (*Adenia*) *trudis* (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

Exorista (*Exorista*) *mella* (Walker)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes), USA (all mainland except Alaska).

Gueriniopsis setipes (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Great Plains, Northeast).

Phorocera (*Pseudotachinomyia*) *compascua* (Reinhard)
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, Northern Rockies, Southwest, Texas).

Phorocera (*Pseudotachinomyia*) *exigua* Wood
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Northeast).

Phorocera (*Pseudotachinomyia*) *slossonae* (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Northeast).

Tachinomyia apicata Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Great Plains, Northeast).

Tachinomyia cana Webber
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Great Plains, Texas, Northeast).

Tachinomyia dakotensis Webber
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario), USA (California, Great Plains, Northeast, Pacific Northwest).

Tachinomyia montana (Smith)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Tachinomyia nigricans Webber
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast).

Tachinomyia panaetius (Walker)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Great Plains, Northeast).

Tachinomyia similis (Williston)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Tachinomyia variata Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Florida). Neotropical: Middle America (Mexico).

Goniini

Allophorocera aldrichi (Curran)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Allophorocera delecta (Curran)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario), USA (Northeast).

Allophorocera sajanica Mesnil
Distribution. Nearctic: Canada (Prairies), USA (Alaska). Palaearctic: Russia, Mongolia, China.

Belvosia canadensis Curran
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario), USA (Great Plains, Northeast, Pacific Northwest, Northern Rockies, Southeast, Southwest, Texas). Type locality of *Belvosia canadensis* Curran: Canada, Sask., Piapot Reserve.

Belvosia splendens Curran
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario), USA (Northern Rockies, Great Plains, Northeast, Southeast). Type locality of *Belvosia splendens* Curran: Canada, Sask.

Ceromasia auricaudata Townsend
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Ceromasia hybreas (Walker)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Ontario), USA (Alaska). Palaearctic: Russia (Eastern Siberia).

Chaetogaedia desertorum (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico).

Chaetogaedia townsendi Sabrosky & Arnaud
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Great Plains, Northeast, Southeast).

Cyzenis pullula (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, Northern Rockies, Southwest, Northeast).

Cyzenis ustulata (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Southwest, Northeast, Southeast).

Erynnia tortricis (Coquillett)
Distribution. Nearctic: Canada (all), USA (all mainland except Alaska).

Euceromasia spinosa Townsend
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Northeast).

Euexorista rebaptizata Gosseries
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Eumea caesar (Aldrich)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Frontiniella mitis (Curran)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northeast).

Frontiniella spectabilis (Aldrich)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Southwest, Northeast, Southeast).

Frontiniella surstylata O'Hara
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Northeast, Florida).

Gaediopsis ocellaris Coquillett
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Great Plains, Northeast).

Gonia albagenae Morrison
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Gonia aldrichi Tothill
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northern Rockies, Southwest, Great Plains, Northeast).

Gonia aturgida Brooks
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Gonia breviforceps Tothill
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Gonia brevipulvilli Tothill
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Gonia chilonis Walker
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Southwest).

Gonia distincta Smith
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Southwest, Northeast, Southeast).

Gonia frontosa Say
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast). Type locality of *Knabia hirsuta* Townsend, a synonym of *Gonia frontosa*: Canada, Sask., Oxbow.

Gonia fuscicollis Tothill
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Great Plains, Northeast, Southeast).

Gonia longiforceps Tothill
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

Gonia longipulvilli Tothill
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas). Neotropical: Middle America (Mexico). Australasian & Oceanian: Hawaii (introduced).

Gonia nigra (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, Northern Rockies). Type locality of *Rhedia nigra* Brooks: Canada, Sask., Swift Current.

Gonia pilosa Brooks
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Gonia porca Williston
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Gonia robusta Brooks
Distribution. Nearctic: Canada (Prairies), USA (California).

Gonia senilis Williston
Distribution. Nearctic: Canada (Prairies), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Gonia sequax Williston
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico), South America (Brazil).

Gonia setifacies (Brooks)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Northern Rockies). Type locality of *Rhedia setifacies* Brooks: Canada, Sask., Pike Lake.

Gonia setigera Tothill
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Gonia smithi Brooks
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Maritimes), USA (Northeast).

Houghia sternalis (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast).

Hyphantrophaga blanda (Osten Sacken)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Costa Rica).

Hyphantrophaga virilis (Aldrich & Webber)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico, Costa Rica).

Leschenaultia americana (Brauer & Bergenstamm)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest). Neotropical: Middle America (Mexico).

Leschenaultia exul (Townsend)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northeast, Southeast).

Leschenaultia fulvipes (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Texas, Northeast, Southeast).

Myxexoristops fronto (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (California, Northern Rockies, Southwest, Northeast).

Myxexoristops neurotomae (Sellers)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Pacific Northwest, Southwest, Northeast, Southeast).

Onychogonia fissiforceps (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific

Northwest, California, Northern Rockies, Southwest).

Onychogonia flaviceps (Zetterstedt)
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest). Palaearctic: Europe, Russia, Mongolia, Japan.

Onychogonia tenuiforceps (Morrison)
Distribution. Nearctic: Canada (Prairies, Labrador), USA (Alaska, Northern Rockies).

Patelloa facialis (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Southwest, Great Plains, Texas).

Patelloa pachypyga (Aldrich & Webber)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Great Plains, Northeast).

Patelloa setifrons (Aldrich & Webber)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (California). Type locality of *Phorocera* (*Patelloa*) *setifrons* Aldrich & Webber: Canada, Sask., Oxbow.

Patelloa silvatica (Aldrich & Webber)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Great Plains, Northeast).

Platymya confusionis (Sellers)
Distribution. Nearctic: Canada (all [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Platymya trisetosa (Coquillett)
Distribution. Nearctic: Canada (Yukon, Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Pseudochaeta (*Pseudochaeta*) *argentifrons* Coquillett
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (California, Southwest, Texas, Northeast, Southeast, Florida).

Spallanzania hebes (Fallén)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (all mainland except Alaska). Neotropical: Middle America (Mexico). Palaearctic: widespread. Oriental: China, India.

Spallanzania hesperidarum (Williston)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Winthemiini

Hemisturmia parva (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Nemorilla pyste (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (all mainland except Alaska). Neotropical: eastern Lesser Antilles (Virgin Islands), southern Lesser Antilles (Trinidad & Tobago), Middle America (Mexico).

Smidtia fumiferanae (Tothill)
Distribution. Nearctic: Canada (all), USA (Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Winthemia aurifrons Guimarães
Distribution. Nearctic: Canada (B.C., Prairies), USA (California, Southwest).

Winthemia borealis Reinhard
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, Northeast).

Winthemia cecropia (Riley)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (California, Great Plains, Northeast).

Winthemia datanae (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Winthemia occidentis Reinhard
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Northern Rockies, Southwest, Great Plains, Northeast). Neotropical: Middle America (Mexico).

Winthemia quadripustulata (Fabricius)
Distribution. Nearctic: Canada (all), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast). Palaearctic: widespread. Oriental: China.

Winthemia rufopicta (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (all mainland except Alaska). Neotropical: Middle America (Panama).

Winthemia sinuata Reinhard
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northern Rockies, Great Plains, Texas, Northeast, Southeast, Florida).

Winthemia vesiculata (Townsend)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northeast).

PHASIINAE

Catharosiini

Catharosia calva (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Texas).

Cylindromyiini

Besseria anthophila (Loew)
Distribution. Nearctic: Canada (N.W.T., Prairies [incl. new for Saskatchewan], Ontario), USA (Alaska). Palaearctic: widespread.

Besseria brevipennis (Loew)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Southeast).

Cylindromyia (*Calocyptera*) *intermedia* (Meigen)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico). Palaearctic: widespread.

Cylindromyia (*Cylindromyia*) *alticola* Aldrich
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Northern Rockies, Southwest, Great Plains).

Cylindromyia (*Cylindromyia*) *binotata* (Bigot)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Cylindromyia (*Cylindromyia*) *decora* Aldrich
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Greater Antilles (Haiti, Jamaica), Middle America (Mexico).

Cylindromyia (*Cylindromyia*) *euchenor* (Walker)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Cylindromyia (*Cylindromyia*) *fumipennis* (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Cylindromyia (*Neocyptera*) *compressa* Aldrich
Distribution. Nearctic: Canada (Prairies), USA (Northern Rockies, Southwest, Great Plains, Northeast).

Hemyda aurata Robineau-Desvoidy
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Gymnosomatini

Euclytia flava (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Labrador), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Gymnoclytia dubia (West)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (?California, Texas, Northeast).

Gymnoclytia immaculata (Macquart)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (all mainland except Alaska). Neotropical: Greater Antilles (Jamaica), Middle America (Mexico).

Gymnosoma amplifrons (Brooks)
Distribution. Nearctic: Canada (Prairies), USA (Southwest).

Gymnosoma filiola Loew
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Gymnosoma fuliginosum Robineau-Desvoidy
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Greater Antilles (Puerto Rico), Middle America (Mexico).

Gymnosoma occidentale Curran
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Gymnosoma par Walker
Distribution. Nearctic: Canada (Yukon, Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Northern Rockies, Great Plains, Northeast, Southeast).

Leucostomatini

Clairvillia timberlakei (Walton)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas).

Leucostoma simplex (Fallén)
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: South America (Argentina, Chile). Widespread in Old World except for Oriental Region.

Phasiini

Phasia aeneoventris (Williston)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Southeast). Neotropical: Middle America (Mexico).

Phasia albipennis (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest). Type locality of *Paraphasia albipennis* Brooks: Canada, Sask., Saskatoon.

Phasia aldrichii (Townsend)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico). Palaearctic: Europe, Kazakhstan, Mongolia, Russia.

Phasia aurulans Meigen
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, Northeast, Southeast). Palaearctic: Europe, Kazakhstan, Russia, Korean Peninsula, Japan.

Phasia fenestrata (Bigot)
Distribution. Nearctic: Canada (N.W.T., Prairies, Ontario, Québec), USA (Southwest, Great Plains, Northeast, Southeast).

Phasia purpurascens (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Phasia robusta (Brooks)
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas).

Strongygastrini

Opesia americana (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast).

Strongygaster didyma (Loew)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec), USA (Alaska, California, Southwest, Great Plains, Northeast).

Strongygaster triangulifera (Loew)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: eastern Lesser Antilles (Dominica), Middle America (Mexico), South America (Argentina, Brazil, Chile).

TACHININAE

Ernestiini

Cleonice bigelowi (Curran)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario), USA (Alaska, California, Northeast).

Cleonice setosa (Reinhard)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Great Plains, Southeast).

Eloceria nigra (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Northeast, Southeast).

Gymnocheta frontalis Brooks
Distribution. Nearctic: Canada (B.C., Prairies), ?USA (questionable record from New Mexico cited in O'Hara & Wood 2004: 240).

Hyalurgus clistoides (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Great Plains, Northeast).

Linnaemya (*Linnaemya*) *comta* (Fallén)
Distribution. Nearctic: Canada (all), USA (all). Neotropical: Middle America (Honduras, Mexico), South America (Chile, Peru). Palaearctic: widespread. Oriental: China.

Linnaemya (*Ophina*) *anthracina* Thompson
Distribution. Nearctic: Canada (Yukon, N.W.T., Prairies, Ontario, Québec).

Linnaemya (*Ophina*) *glauca* (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, Northern Rockies, Southwest, Great Plains, Northeast).

Linnaemya (*Ophina*) *nigrescens* Curran
Distribution. Nearctic: Canada (all).

Linnaemya (*Ophina*) *tessellata* (Brooks)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Linnaemya (*Ophina*) *varia* Curran
Distribution. Nearctic: Canada (Yukon, N.W.T., Prairies, Ontario, Québec, Labrador), USA (Alaska). Palaearctic: Russia, Japan.

Melanophrys flavipennis Williston
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Melanophrys insolita (Walker)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Panzeria alberta (Curran)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan]), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Northeast).

Panzeria aldrichi (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Southwest, Great Plains, Northeast).

Panzeria ampelus (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Panzeria arcuata (Tothill)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario), USA (Alaska, Great Plains, Northeast, Southeast).

Panzeria bicarina (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Maritimes, Labrador), USA (Northern Rockies, Southwest, Great Plains).

Panzeria campestris (Curran)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Northeast, Southeast).

Panzeria fasciventris (Curran)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (California, Southwest, Great Plains, Northeast).

Panzeria flavicornis Brauer
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Panzeria frontalis (Tothill)
Distribution. Nearctic: Canada (all), USA (Alaska, Northern Rockies, Southwest, Northeast).

Panzeria genalis (Coquillett)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan]), USA (California, Northern Rockies, Southwest).

Panzeria hirta (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Southwest).

Panzeria incisa (Tothill)
Distribution. Nearctic: Canada (B.C., new for Prairies [Saskatchewan], Ontario, Québec), USA (Northeast, Northern Rockies).

Panzeria johnsoni (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (California, Southwest, Northeast).

Panzeria longicarina (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Southwest).

Panzeria manitoba (Brooks)
Distribution. Nearctic: Canada (Prairies), USA (Northeast).

Panzeria nigrocornea (Tothill)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Labrador), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest).

Panzeria nigropalpis (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northeast, Southeast).

Panzeria platycarina (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Panzeria setifrons (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Northern Rockies).

Panzeria sulcocarina (Tothill)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Ontario, Québec), USA (Alaska, Pacific Northwest, California, Southwest, Northeast).

Panzeria triangularis (Curran)
Distribution. Nearctic: Canada (Yukon, Prairies, Ontario, Newfoundland), USA (California, Southwest, Northeast, Southeast).

Graphogastrini

Graphogaster alberta (Curran)
Distribution. Nearctic: Canada (Yukon, N.W.T., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Graphogaster brunnea (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Northern Rockies, Southwest, Northeast).

Graphogaster fuscisquamis (Brooks)
Distribution. Nearctic: Canada (Prairies).

Graphogaster grandis (Brooks)
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, Northern Rockies, Southwest).

Graphogaster macdunnoughi (Brooks)
Distribution. Nearctic: Canada (N.W.T., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Northeast).

Graphogaster orientalis (Brooks)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Northeast).

Graphogaster pollinosa (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Southwest).

Graphogaster pseudonuda (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Northern Rockies).

Graphogaster psilocorsiphaga (Brooks)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Alaska, Northeast).

Phytomyptera aenea (Coquillett)
Distribution. Nearctic: Canada (Yukon, Prairies, Ontario, Québec, Maritimes), USA (California, Southwest). Neotropical: Middle America (Mexico).

Phytomyptera longicornis (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Phytomyptera melissopodis (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (California, Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Phytomyptera nigra (Brooks)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Northeast, Southeast).

Phytomyptera palpigera (Coquillett)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast, Southeast).

Phytomyptera ruficornis (Greene)
Distribution. Nearctic: Canada (Prairies), USA (Southwest, Great Plains, Northeast, Florida).

Phytomyptera vitinervis (Thompson)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Maritimes, Labrador), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida).

Leskiini
Clausicella opaca (Coquillett)
Distribution. Nearctic: Canada (Yukon, Prairies), USA (California, Southwest, Great Plains, Texas).

Drepanoglossa lucens Townsend
Distribution. Nearctic: Canada (Yukon, Prairies), USA (California, Northern Rockies, Southwest, Great Plains).

Drepanoglossa tenuirostris (Reinhard)
Distribution. Nearctic: Canada (Prairies), USA (Northern Rockies, Northeast).

Solieria piperi (Coquillett)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Ontario, Québec, Newfoundland), USA (Pacific Northwest, California, Southwest).

Megaprosopini
Microphthalma disjuncta (Wiedemann)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (all mainland except Alaska). Neotropical: Middle America (Guatemala, Mexico).

Microphthalma michiganensis (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Southwest, Great Plains, Texas, Northeast).

Microphthalma ruficeps Aldrich
Distribution. Nearctic: Canada (Prairies), USA (Southwest, Great Plains, Texas, Southeast).

Minthoini
Paradidyma melania (Townsend, 1919)
Distribution. Nearctic: Canada (Prairies), USA (California, Southwest, Great Plains, Northeast, Southeast, Florida).

Neaerini
Neaera leucoptera (Johnson)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Southwest, Great Plains, Northeast).

Nemoraeini
Xanthophyto "*antennalis*" (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (California, Southwest, Northeast, Southeast). Neotropical: Middle America (Mexico).

Pelatachinini
Pelatachina limata Coquillett
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

Polideini
Dichocera lyrata Williston
Distribution. Nearctic: Canada (B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Euscopolia dakotensis Townsend
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Pacific Northwest, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Homalactia harringtoni (Coquillett)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast).

Hystricia abrupta (Wiedemann)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Lydina americana (Townsend)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Lydina areos (Walker)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (California, Northern Rockies, Southwest, Great Plains, Northeast).

Lypha cristiverpa O'Hara
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec), USA (Great Plains, Texas, Northeast).

Lypha fumipennis Brooks
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Northern Rockies, Great Plains, Northeast, Southeast).

Lypha parva Brooks
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Great Plains).

Lypha setifacies (West)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (California, Great Plains, Northeast).

Mauromyia brevis (Coquillett)
Distribution. Nearctic: Canada (Prairies), USA (Great Plains, Northeast, Southeast, Florida).

Mauromyia finitina Reinhard
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Great Plains).

Micronychia maculipennis (Aldrich)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Québec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, Northeast).

Siphonini

Actia diffidens Curran
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Texas, Northeast, Southeast). Neotropical: Middle America (Mexico).

Actia interrupta Curran
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Northeast, Southeast).

Ceromya balli O'Hara
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Great Plains, Northeast).

Ceromya bicolor (Meigen)
Distribution. Nearctic: Canada (all [incl. Saskatchewan]), USA (Southwest, Great Plains, Northeast). Palaearctic: Europe, Transcaucasia, Russia, Korean Peninsula, China.

Ceromya ontario (Curran)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Great Plains, Northeast, Southeast).

Siphona (*Siphona*) *cristata* (Fabricius)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Southwest). Palaearctic: widespread. Oriental: China, Taiwan.

Siphona (*Siphona*) *hokkaidensis* Mesnil
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, Northeast). Palaearctic: Europe, Russia, Japan.

Siphona (*Siphona*) *illinoiensis* Townsend
Distribution. Nearctic: Canada (Prairies), USA (Great Plains, Northeast, Southeast).

Siphona (*Siphona*) *intrudens* (Curran)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, California, Great Plains, Texas, Northeast, Southeast).

Siphona (*Siphona*) *lutea* (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec), USA (Northeast).

Siphona (*Siphona*) *maculata* Staeger
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, Southwest, Great Plains, Northeast). Palaearctic: Europe, Transcaucasia, Russia.

Siphona (*Siphona*) *medialis* O'Hara
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Siphona (*Siphona*) *multifaria* O'Hara
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Northeast, Southeast, Florida).
[Note: *Siphona multifaria* is likely a species complex based on DNA barcoding of CNC specimens.]

Tachinini

Adejeania vexatrix (Osten Sacken)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest). Neotropical: Middle America (Mexico).

Archytas (*Archytas*) *apicifer* (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: widespread.

Archytas (*Archytas*) *californiae* (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes), USA (all mainland except Alaska). Neotropical: Middle America (Mexico).

Archytas (*Nemochaeta*) *aterrimus* (Robineau-Desvoidy)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: Middle America (Mexico).

Archytas (*Nemochaeta*) *lateralis* (Macquart)
Distribution. Nearctic: Canada (B.C., Prairies), USA (California, Northern Rockies, Southwest, Great Plains, Texas, Southeast, Florida). Neotropical: Middle America (Mexico).

Copecrypta ruficauda (Wulp)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec), USA (Southwest, Great Plains, Texas, Northeast, Southeast, Florida). Neotropical: southern Lesser Antilles (Trinidad & Tobago), Middle America (Mexico).

Epalpus signifer (Walker)
Distribution. Nearctic: Canada (B.C., Prairies, Ontario, Québec, Maritimes, Newfoundland), USA (all mainland except Alaska).

Pararchytas decisus (Walker)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Texas, Northeast). Neotropical: Middle America (Mexico).

Pararchytas hammondi Brooks
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario), USA (Pacific Northwest, Great Plains, Northeast, Southeast).

Peleteria alberta Curran
Distribution. Nearctic: Canada (Prairies), USA (Pacific Northwest, California).

Peleteria anaxias (Walker)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Southwest, Northeast, Southeast).

Peleteria angulata Curran
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Southwest).

Peleteria biangulata Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Peleteria bryanti Curran
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Ontario), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Southeast).

Peleteria clara Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Peleteria conjuncta Curran
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan]), USA (Northern Rockies, Southwest).

Peleteria cornigera Curran
Distribution. Nearctic: Canada (B.C., Prairies), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest).

Peleteria cornuta Curran
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, Northern Rockies, Southwest). Neotropical: Middle America (Mexico).

Peleteria cornuticaudata Curran
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies), USA (Pacific Northwest, Northern Rockies, Southwest).

Peleteria curriei (Townsend)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies), USA (California).

Peleteria haemorrhoa (Wulp)
Distribution. Nearctic: Canada (B.C., Prairies [incl. new for Saskatchewan], Ontario, Québec, Maritimes), USA (California, Southwest, Great Plains, Northeast, Southeast).

Peleteria iterans (Walker)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast). Neotropical: Middle America (Mexico).

Peleteria malleola (Bigot)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Texas, Northeast). Neotropical: Middle America (Mexico).

Peleteria neglecta (Townsend)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Pacific Northwest, California, Northern Rockies, Southwest).

Peleteria obsoleta Curran
Distribution. Nearctic: Canada (B.C., Prairies), USA (Northern Rockies, Southwest, Texas). Neotropical: Middle America (Mexico, Costa Rica).

Tachina (*Nowickia*) *dakotensis* (Townsend)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Labrador), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast). Neotropical: Middle America (Mexico).

Tachina (*Nowickia*) *garretti* Arnaud
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario, Québec, Maritimes), USA (Alaska, Pacific Northwest, Northern Rockies, Southwest, Northeast).

Tachina (*Nowickia*) *hispida* (Tothill)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies, Ontario, Québec, Nova Scotia, Newfoundland), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast), Greenland. [This species was listed as *Tachina* (*Nowickia*) *ampliforceps* (Rowe) in the Tachinidae of the Maritimes (O'Hara 2023) but the name has been corrected here to *T. hispida*, a senior synonym.]

Tachina (*Nowickia*) *latiforceps* (Tothill)
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Québec), USA (Northern Rockies, Southwest, Northeast).

Tachina (*Nowickia*) *marklini* Zetterstedt
Distribution. Nearctic: Canada (Yukon, N.W.T., B.C., Prairies, Québec, Labrador), USA (Alaska, Pacific Northwest, Northern Rockies, Southwest, Northeast). Palaearctic: widespread.

Tachina (*Nowickia*) *piceifrons* (Townsend)
Distribution. Nearctic: Canada (N.W.T., B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast, Southeast).

Tachina (*Rhachogaster*) *algens* Wiedemann
Distribution. Nearctic: Canada (all), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast).

Tachina (*Rhachogaster*) *latianulum* (Tothill)
Distribution. Nearctic: Canada (B.C., Prairies [incl. Saskatchewan], Ontario, Québec, Maritimes, Newfoundland), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

Tachina (*Rhachogaster*) *latifrons* (Tothill)
Distribution. Nearctic: Canada (N.W.T., Prairies), USA (Northern Rockies, Southwest, Great Plains, Northeast).

Tachina (*Rhachogaster*) *rostrata* (Tothill)
Distribution. Nearctic: Canada (Yukon, B.C., Prairies, Ontario), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest, Great Plains).

Unplaced genus of Tachininae

Eulasiona cinerea (Curran)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Great Plains, Northeast, Southeast).

Unplaced tribes of Tachinidae

Imitomyiini

Imitomyia sugens (Loew)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Great Plains, Northeast). Type locality of *Saskatchewania canadensis* Smith, a synonym of *Imitomyia sugens*, is Canada, Sask., Farwell Creek.

Macquartiini

Macquartia albertana (Reinhard)
Distribution. Nearctic: Canada (Prairies).

Macquartia catskillensis (West)
Distribution. Nearctic: Canada (Yukon, N.W.T., Prairies [incl. Saskatchewan], Ontario), USA (Northeast).

Macquartia erythrocera (Reinhard)
Distribution. Nearctic: Canada (Prairies, Ontario, Québec, Maritimes), USA (Southeast).

Myiophasiini

Gnadochaeta clistoides (Townsend)
Distribution. Nearctic: Canada (Prairies), USA (California, Southwest, Great Plains, Texas, Northeast).

Gnadochaeta fulvicornis (Zetterstedt)
Distribution. Nearctic: Canada (Yukon, N.W.T., Prairies, Québec),

USA (Alaska). Palaearctic: Europe, Mongolia, Russia.

Gnadochaeta globosa (Townsend)
Distribution. Nearctic: Canada (Prairies, Ontario), USA (Southwest, Texas, Northeast, Southeast, Florida). Neotropical: southern Lesser Antilles (Trinidad & Tobago), Middle America (Mexico).

Gnadochaeta lasia (Reinhard)
Distribution. Nearctic: Canada (B.C., Prairies), USA (Alaska, Pacific Northwest, California, Northern Rockies, Southwest).

Gnadochaeta setigera (Townsend)
Distribution. Nearctic: Canada (Prairies [incl. Saskatchewan]), USA (Pacific Northwest, California, Northern Rockies, Southwest, Texas).

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Included here are references on the Tachinidae that have been found during the past year and have not appeared in past issues of this newsletter. This list has been generated from an EndNote 'library' and is based on online searches of literature databases, perusal of journals, and reprints or citations sent to me by colleagues. The complete bibliography, incorporating all the references published in past issues of *The Tachinid Times* and covering the period from 1980 to the present is available online at: https://www.uoguelph.ca/nadsfly/Tach/WorldTachs/Bib/Tachbiblio.html. I would be grateful if omissions or errors could be brought to my attention.

Please note that citations in the online Tachinid Bibliography are updated when errors are found or new information becomes available, whereas citations in this newsletter are never changed. Therefore, the most reliable source for citations is the online Tachinid Bibliography.

I am grateful to Shannon Henderson for performing the online searches that contributed most of the titles given below and for preparing the EndNote records for this issue of *The Tachinid Times*.

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