Entomological Society of Ontario 2015 AGM

Reed and Iris Fitzsimmons with an anonymous bumble bee. Photo by Jay Fitzsimmons.

When: September 18-20, 2015 (Friday evening to Sunday afternoon)

Where: 280 Queen's University Road, Elgin, Ontario, north of Kingston
Directions: http://www.queensu.ca/qubs/contact Map: https://goo.gl/maps/8Blya

Venue: Queen's University Biological Station (QUBS)

WiFi Access: User ID: Guest Password: biostation

Url: http://www.entsocont.ca/agm-2015.html

Twitter: @OntInsects2015 / #OntInsects2015

Theme: Outreach and engagement for entomology

Overview

Insects. Friends. Learning. Fun. This year's ESO AGM should be a great time. Everything will all be on-site: delicious food, cabins for sleeping, talks and posters, and all surrounded by the great outdoors. There will be indoor and outdoor demonstrations of insect trapping and other collection approaches. Oh yeah, and a BIObus.

ESO 2015 AGM Organizing Committee

Co-organizers:

Jay Fitzsimmons, Ontario Ministry of Natural Resources and Forestry
Dave Beresford, Trent University
Amanda Roe (Entomology 101 event), Entomica

Generous volunteers:

Entomology 101 Event

Amanda Roe *	Mike Lavender	Allison Brown
Entomica	Queens University	BIObus
Colin Jones	Casey Nelson	Crystal Sobel
MNRF	Queens University	BIObus
Leslie Holmes	Kaitlynne Low	
Queens University	Queens University	

Program

Sarah Langer*	Kaitlyn Fleming	Kathryn Vezsenyi
Trent University	Trent University	Trent University

Awards

Ian Scott*	Michelle Locke	Joel Gibson
Agriculture and Agri-food Canada	American Museum of Natural History	Environment Canada

Website	**Sponsorship**	**Helpful Host of Last AGM**
Trevor Burt	Donald Bourne	Antonia Guidotti
Carleton University	Trent University	Royal Ontario Museum

*Lead

We thank the wonderful staff at QUBS including Frank Phelan (Manager), Andrew Rodmell (Assistant Manager), and Veronika Jaspers-Fayer (Chef).

ESO 2015 Executive Officers

President:	Ian Scott, Agriculture and Agri-Food Canada
President-elect:	Joel Gibson, Environment Canada
Past President:	Jeremy McNeil, University of Western Ontario
Secretary:	Michelle Locke, American Museum of Natural History
Treasurer:	Shiyou Li, Agriculture and Agri-Food Canada
Student reps:	Casey Peet-Paré (Carleton) & Lauren Des Marteaux (Western)
Librarian & archivist:	Jim Brett, Guelph University
Webmaster:	Trevor Burt, Carleton University
JESO Editor:	Chris MacQuarrie, Canadian Forest Service
JESO Technical Editor:	Thomas Onuferko, York University
Newsletter Co-editors:	Kruti Shukla, Ryerson University
	Lauren Des Marteaux, University of Western Ontario
Directors:	2013-15 Sophie Cardinal (CNC) & Brent Sinclair (Western)
	2014-16 Wayne Knee (CNC) & Antonia Guidotti (ROM)
	2015-17 Dave Beresford (Trent) & Jocelyn Smith (Guelph)
ESC rep to ESO:	Patrice Bouchard, Canadian National Collection

AGM Sponsors

Gold: $250 Donation

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Silver: $100 Donation

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Table of contents

The Venue:

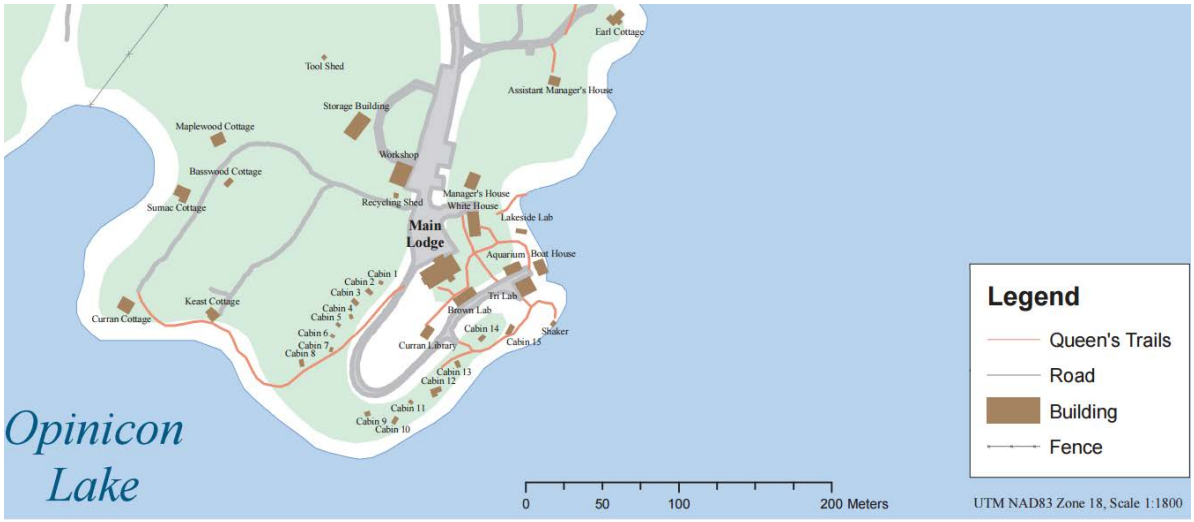
About QUBS

ESO will have QUBS mostly to ourselves for the weekend. It will be great.

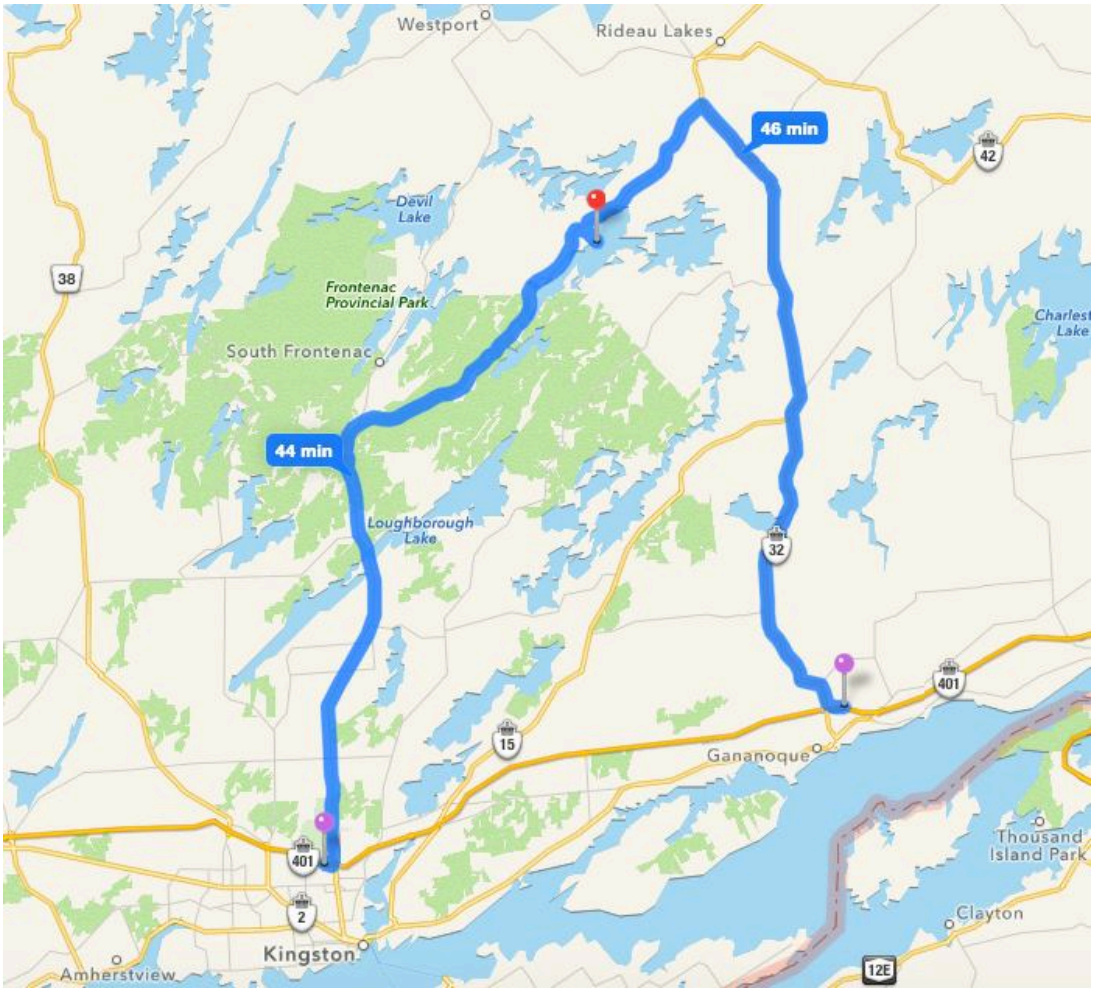
QUBS has made memories for generations of Ontario biologists. Since the late 1940s it has been home to collections of botanists, ichthyologists, ornithologists, and other –ists, sharing the sweat of field work and the joy of unwinding afterward. However, surprisingly few ESO members have done field work at QUBS. That may change after you see what QUBS has to offer: microscopes, a new herbarium, a wet lab, and extensive trails through a beautiful Ontario landscape fully mapped with soil and geographic data. Maybe you can add to QUBS' insect species list (http://www.queensu.ca/qubs/resources/species-lists).

With everything happening on-site in a beautiful spot, we hope to foster the social aspect of the conference. Informal chats with friends old and new are what makes a conference memorable.

Wifi is available in the main lodge and conference room. Ethernet is available only in the conference room. Wifi User ID: Guest Password: biostation.



Directions



From the East

Take exit 645 onto County Rd-32 toward Crosby, Gananoque. At the end of the road, turn right onto Coutny Road 32 toward Seeleys Bay, Crosby. At the end of County Road 32 turn right onto Highway 15. Turn left onto Chaffey's Lock Rd (turning west), go through the village of Chaffey's Lock, cross the Rideau Canal Bridge, go west approx. 2km past Indian Lake Rd and turn left onto Queen's University Rd.

From the West

Take exit 617 onto County Rd-10, Division St. toward Kingston, Westport. Turn left onto Division St. toward Perth Rd. From Perth Rd, turn right (east) onto Opinicon Rd. (just north of Perth Road Village), follow road for approx. 20km; then turn right onto Queen's University Rd.

Schedule at a glance

Friday September 18

ESO Board Meeting: 4:30-6:30 pm – Board members, however, all are welcome.
Supper: Not provided by the conference
(Options: The Opinicon (menu & hrs), or fast food at Division St. exit from 401)

Arrival and Mixer: 6:30-8:30 pm – Registration at the front desk, including finding out what room you've been assigned. Mixer continues as guests arrive.
Bonfire Social: 8:30-9:30 pm
Overnight: on-site

Saturday September 19

Breakfast and Registration: 7:30-8:30 am – Main Lodge. The registration desk will be open for Saturday arrivals, after which, register through organizer Jay Fitzsimmons.

Break: 8:30-9:00 am – Main Lodge

Guided tour of QUBS: 9:00-9:30 am – Meet outside of the Main Lodge.

Plenary speakers: 9:30-10:45 am – Downstairs conference room.

Break: 10:45-11:15 am – Main Lodge

Oral Presentations: 11:15 am-12:00 pm – Downstairs conference room

Lunch: 12:00-1:00 pm – Main Lodge

Entomology 101: 1:00-3:00 pm – Meet outside of the Main Lodge

Break: 3:00-3:30 pm - Main Lodge

Oral Presentations: 3:30-4:15 pm – Downstairs conference room

Lightning Talks: 4:15-4:35 pm – Downstairs conference room

Poster Session: 4:35-5:30 pm – Downstairs conference room

Banquet: 5:30-7:30 pm – Main Lodge. Speaker: Antonia Guidotti

Social: 7:30-9:30 pm – Downstairs conference room. Possible bonfire and moth trap

Overnight: on-site

Sunday September 20

Breakfast: 7:30-8:30 am – Main Lodge.

Break: 8:30-9:00 am – Main Lodge

Oral Presentations: 9:00-10:00 am – Downstairs conference room

Break: 10:00-10:30 am – Main Lodge

Oral Presentations: 10:30-11:30 am – Downstairs conference room

ESO Business: 11:30 am-12:00 pm – Vote on matters brought forward by the board

Lunch: 12:00-1:00 pm – Main Lodge

Guidelines for tweeting talks

It is now common for people to live-tweet talks at scientific conferences. It's a good way to get your research out there to fellow researchers and the public alike, especially considering how many of our AGM registrants are on twitter. Morgan Jackson will discuss some of the benefits and challenges of tweeting in his plenary. But there are circumstances when it may not be beneficial. Here are our guidelines for tweeting talks at our AGM:

- The default assumption is that presenters are ok with people tweeting their presentations.
- If a presenter does not wish to have their talk tweeted, they should indicate this at the start of their presentation, and the audience should respect their wishes.
- When tweeting a talk, you CAN share messages, but do NOT share detailed information (e.g., data, pictures of slides other than title slide) without explicit permission.
- When tweeting a talk, try to include:
    - #OntInsects2015 hashtag (to allow context for talk tweets and allow all AGM tweets to later be compiled)
    - The presenter's twitter handle, if they have one. This gives credit and lets readers know with whom to follow up for more info on topics of interest. Authors' twitter handles can be found associated with their abstracts in this program.
- For more information on live-tweeting scientific conferences see:
    - Dr. Terry Wheeler (McGill entomologist) blog post on why conferences should allow live-tweeting by default, as we have https://goo.gl/bgoqTq
    - Tips on how to live-tweet a biology conference, from Canadian fisheries biologist Natalie Sopinka. http://goo.gl/XdHl03
    - Article published in academic journal on the benefits of live-tweeting biological conference talks, from U.S. shark biologist David Shiffman http://goo.gl/zT0xT5 (pdf)

Plenary speakers

Allison Brown (15 minutes)

BIO's Bio-Inventory and Collections Unit (BIC): specimen vouchers and barcodes create a unique natural history resource

Allison Brown, Angela Telfer, Paul D.N. Hebert, and Jeremy R. deWaard

Abstract: The BIC Unit of BIO has committed substantial resources to the collection of Canadian and global arthropods. The BIC's natural history collection contains over 2 million voucher specimens. Opportunities for collaboration with other institutions are being pursued via our outgoing loan program. Since 2012, BIC has loaned nearly 20,000 specimens to taxonomists around the world. Case studies illustrate the ways in which BIC's collection has contributed to work by taxonomists. Mass collecting samples combined with high-throughput processing and DNA barcoding has created a constantly evolving natural history collection. BIC is expanding its role as a valuable resource for researchers worldwide.

Bio: Allison began working at BIO in August of 2014 as the lead technician of the natural history collection. Part of her job entails loaning specimens to taxonomic experts from museums around the world and even visiting museums to collect specimens to add to the International Barcode of Life project. Prior to starting at BIO, Allison completed a Master's degree in Integrative Biology and the University of Guelph studying behavioural plasticity and personality of larval damselflies. In addition to her talk, she and Crystal will be giving BIObus demonstrations during Entomology 101.

Website: biobus.ca Email: abrown21@uoguelph.ca Twitter: @Alli187

Crystal Sobel (15 minutes)

The Global Malaise Program: assessing global biodiversity using mass sampling and DNA barcoding.

Crystal N. Sobel, Kate H.J. Perez, Jayme E. Sones, Jeremy R. deWaard, and Paul D.N. Hebert

Abstract: The Global Malaise Program (GMP), a collaboration between the Biodiversity Institute of Ontario (BIO) and international contributors, represents a first step toward the acquisition of detailed temporal and spatial information on terrestrial arthropod communities across the globe. The standard methods of Malaise trapping and DNA barcoding makes it possible to carry out largescale sampling programs and enables a time- and cost-efficient approach for biodiversity assessments. Results: To date, 63 sites from 30 countries have participated in GMP. Over 638 000

specimens have been sorted from 36 sites (21 different countries), and a total of 65 841 BINs were discovered.

Bio: Crystal has been with BIO since 2010. She has travelled across Canada on the BIObus conducting field work with undergraduate students and teaching them field collecting methods in addition to basic identification of insects. She enjoys educating the public on the importance of biodiversity and using DNA barcoding as a tool for identification. In addition to her talk, she and Allison will be giving BIObus demonstrations during Entomology 101.

Website: biobus.ca Email: csobel@uoguelph.ca

Morgan Jackson (45 minutes)

#YOLO: The Impact of Social Media Use on an Entomology Career

Abstract: Is social media the next big thing in academia, or simply another fad fated to fade like a hypothesis with $p > 0.05$? The role that social media has played in the development of an early career entomologist will be critically examined, and broad, sweeping conclusions will be presented in short, tweetable sections. Additionally, tips and tricks on how other academics can jump in and take their social media usage from on the fence to on fleek will be discussed. Also, the etymology of "on fleek".

Bio: Morgan is a PhD Candidate at the University of Guelph who, when not tweeting, blogging, and podcasting, is working out the taxonomy and systematics of stilt-legged flies in the genus Micropeza. He has been screwing around on the internet since 2010, and has published more than 300 articles about entomology, taxonomy, and life as a grad student on his blog, Biodiversity in Focus, as well as a book and a half-dozen peer-reviewed papers.

Blog: www.biodiversityinfocus.com/blog/
Twitter: @BioInFocus
Tumblr: morgandjackson.tumblr.com/
Vine: vine.co/Morgan.Jackson
Pinterest: pinterest.com/morgandjackson/
Instagram: instagram.com/morgandjackson/

Banquet speaker

Antonia Guidotti, Entomology Technician, Royal Ontario Museum.

Sharing the Ento-love

Bio: In addition to assisting curators with preparation of manuscripts and research, she identifies insects for the public, museums and other institutions, and responds to general inquiries about insects. Part of her time is spent curating and databasing the insect collection. She is an occasional contributor to the ROM blog. Antonia was a member of the working group that wrote the "Butterflies of Toronto: A Guide to Their Remarkable World", part of the City of Toronto Biodiversity Series published in 2011. She has been Program Co-ordinator for the Toronto Entomologists' Association since 2010. She is a co-author of the "ROM Field Guide to the Butterflies of Ontario," published in 2014.

Website: www.rom.on.ca/en/collections-research/rom-staff/antonia-guidotti
Twitter: @AntoniaGuidotti

Entomology 101

Septmber 19th, 1:00-3:00 pm

We are welcoming the public and conference attendees to spend the afternoon exploring a variety of methods used to collect and preserve insects. Volunteers will be on hand to lead demonstrations and answer questions. Hands-on collecting for the kids will also be available.

We will be demonstrating:

- Pinning Techniques
- Sweep Netting
- Malaise Traps
- Pitfall Trapping
- Aquatic Sampling

…and even a Front Mounted Truck Trap!

We are looking forward to a relaxed outdoor session where entomophiles can geek out and talk bugs...

Full Schedule

Friday September 18

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- Options: The Opinicon (menu & hrs), or fast food at Division St. exit from 401.

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Saturday September 19

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Break: 8:30-9:00 am – Main Lodge

Guided tour of QUBS: 9:00-9:30 am – Meet outside of the Main Lodge.

Plenary speakers: 9:30-10:45 am – Downstairs conference room.

- **9:30-9:45 am – Crystal Sobel (BIObus):** The Global Malaise Program: assessing global biodiversity using mass sampling and DNA barcoding
- **9:45-10:00 am – Allison Brown (BIObus):** BIO's Bio-Inventory and Collections Unit (BIC): specimen vouchers and barcodes create a unique natural history resource
- **10:00-10:45 am – Morgan Jackson (UGuelph):** #YOLO: The Impact of Social Media Use on an Entomology Career

Break: 10:45-11:15 am – Main Lodge ***Sponsored by: BioQuip***

Oral Presentations (Student): 11:15 am-12:00 pm – Downstairs conference room

See abstract section for full description and affiliations.

- **11:15-11:30 am – Kevin Moran** – A review of the North American Criorhinina (Diptera: Syrphidae)
- **11:30-11:45 am – Victoria Nowell** – How difficult can the taxonomy of big, showy syrphids possibly be? Revising Nearctic *Chrysotoxum* (Diptera: Syrphidae) from the comfort of a padded cell
- **11:45 am-12:00 pm – Andrew Young** – Anchored hybrid enrichment produces a highly-resolved phylogeny of world Syrphidae

Lunch: 12:00-1:00 pm - Main Lodge. ***Sponsored by: Atelier Jean Paquet***

Entomology 101: 1:00-3:00 pm – Meet outside of the Main Lodge

- The public is welcome to attend
- Demonstrations of insect trapping and collection methods
- BIObus talk and tour

Break: 3:00-3:30 pm - Main Lodge

Oral Presentations (Student): 3:30-4:15 pm – Downstairs conference room

See abstract section for full description and affiliations.

- **3:30-3:45 pm – Aaron Fairweather –** The effect of anthropogenic disturbance on diversity and phylogenetic structure of ants (Hymenoptera: Formicidae)
- **3:45-4:00 pm – Hailey Ashbee –** Haliplidae of Eastern Canada
- **4:00-4:15 pm – Catherine Scott –** #NotABrownRecluse: adventures in (mis)identification of arthropods online, and why Twitter is an excellent tool for entomological outreach

Lightning Talks: 4:15-4:35 pm – Downstairs conference room

See abstract section for full description and affiliations.

- **4:15-4:20 pm – Yeritza Bohorquez –** Evaluating the effects of root exudates from buckwheat, *Fagopyrum esculentum,* on larvae of *Agriotes* spp.
- **4:20-4:25 pm – Gard Otis –** Rainforest spider uses "Tarzan" hunting technique to capture termites
- **4:25-4:30 pm – Robert Alvo –** BABINA, a new kind of book
- **4:30-4:35 pm – Casey Peet-Paré –** Mimicry in the Ultraviolet: A Predator Perspective

Poster Session: 4:35-5:30 pm – Downstairs conference room

See abstract section for full description and affiliations.

Student:

- **Ivan Aguilar –** Effects of host plants, nectar sources, and habitat features on the spatial distribution of Mottled Duskywing butterflies
- **Donald Bourne –** A Rapid, Non-invasive, Accurate Insect Measuring Method via Digital Image Analysis
- **Sarah Langer –** Morphology, Genetics and Distribution of Blow Fly Species in Canada
- **Casey Peet-Paré –** Mimicry in the Ultraviolet: A Predator Perspective

Non-Student:

- **David Beresford –** Trap bias of autogenous and anautogenous Tabanidae
- **Joel Gibson –** Determining grasshopper (Orthoptera: Acrididae) diet and niche overlap using high throughput sequencing and DNA barcodes recovered from gut contents

Banquet: 5:30-7:30 pm – Main Lodge

- Bug Eye photo contest display and awards
- Banquet speaker: Antonia Guidotti (talk title: Sharing the Ento-love)

Social: 7:30-9:30 pm – Downstairs conference room

- Bonfire and Moth trap weather permitting.

Overnight: on-site

Sunday September 20

Breakfast: 7:30-8:30 am – Main Lodge.

Break: 8:30-9:00 am – Main Lodge

Oral Presentations (Student): 9:00-10:00 am – Downstairs conference room

See abstract section for full description and affiliations.

- **9:00-9:15 am – Lauren Des Marteaux –** How does cold acclimation affect ion transport function and ultrastructure of the insect hindgut?
- **9:15-9:30 am – Chris Ho –** The impacts of anthropogenic disturbance on arthropod biodiversity and community structure in protected areas
- **9:30-9:45 am – Ellen Richard and Chelsie Xavier-Blower –** Is Forestry Impacting Dipteran Communities in Algonquin Park? Part I: abundance
- **9:45-10:00 am – Christina Cortes and Natasha Welch –** Is Forestry Impacting Dipteran Communities in Algonquin Park? Part II: body size

Break: 10:00-10:30 am – Main Lodge ***Sponsored by: Next Millennium Farms***

Oral Presentations (Non-Student): 10:30-11:30 am – Downstairs conference room

See abstract section for full description and affiliations.

- **10:30-10:45 am – Colin Jones –** How Can I Contribute to Conservation Status Assessments of At Risk Arthropods?
- **10:45-11:00 am – Alex Smith –** Elevation, crypsis and phylogenetic community structure of Neotropical arthropods
- **11:00-11:15 am – Sean McCann –** The enemy of my enemy is probably my enemy: Demonstrating interspecific alarm pheromone recognition in three ground-nesting yellowjackets using an awesome new bioassay device
- **11:15-11:30 am – Margaret Pickles –** Bugs are cool – so let's tell everyone!

ESO Business: 11:30 am-12:00 pm

- Opportunity to vote on matters brought forward by the board
- Amanda Roe will announce the AGM 2016!

Lunch: 12:00-1:00 pm - Main Lodge. ***Sponsored by: Orkin Canada***

Thank you for attending! See you all next year.

Abstracts

Talks

Student Talks

Kevin Moran

A review of the North American Criorhinina (Diptera: Syrphidae)

Kevin Moran

Carleton University, Ottawa, Ontario

Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario

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North American species concepts of the Syrphidae subtribe Criorhinina are reviewed. The North American region contains 26 recognized species in three genera: *Criorhina* Meigen, 1822, *Sphecomyia* Latreille, 1829 and *Merapioidus* Bigot, 1879. The 21 concepts representing valid species are re-described and 16 new species are recognized totaling 8 new Nearctic *Sphecomyia*, 2 new Nearctic *Criorhina* and 4 new Neotropical *Matsumyia*. Additionally, evidence is presented indicating that generic concepts need to be revisited.

Victoria Nowell

How difficult can the taxonomy of big, showy syrphids possibly be? Revising Nearctic *Chrysotoxum* (Diptera: Syrphidae) from the comfort of a padded cell

Sommaggio, D., Skevington, Jeffrey H. and Nowell, Victoria

Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario

victoria.nowell@hotmail.com

Chrysotoxum are large, colourful flower flies (Diptera, Syrphidae) that are commonly encountered buzzing around low in grasses or pollinating flowers in meadow habitats. Our mentor and predecessor, Dick Vockeroth, stated that the taxonomy of the group was difficult and unresolved in his last publication relating to the genus. Indeed, all of the traditional characters seem to vary and adding molecular data to the problem helps somewhat but still leaves many unanswered questions. We think that we have resolved the eastern species but still have work to do to create robust species concept hypotheses for some of the western taxa.

Andrew D. Young

Anchored hybrid enrichment produces a highly-resolved phylogeny of world Syrphidae

Young, Andrew D., Skevington, Jeffrey H., Mengual, X., Ståhls, G., Reemer, M., Jordaens, K., Kelso, S., Lemmon, A.R., Lemmon, E.Moriarty, Wiegmann, Brian M., Hauser, M., De Meyer, M., Misof, B.

Carleton University, Ottawa, Ontario

Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario

a.d.young@gmail.com

Anchored hybrid enrichment is a form of next-generation sequencing that uses oligonucleotide probes in order to acquire data useful for phylogenetics. Due to their diverse nature, importance as pollinators, and historical instability with regards to higher classification, Syrphidae (flower flies or hoverflies), are an ideal candidate for anchored hybrid enrichment-based phylogenetics, especially since recent molecular phylogenies of the syrphids using only a few markers have resulted in highly unresolved topologies. We present the first use of this technique in Diptera phylogenetics on a dataset containing 30 flower fly species from across all four subfamilies and 11 out of 15 tribes.

Aaron Fairweather

The effect of anthropogenic disturbance on diversity and phylogenetic structure of ants (Hymenoptera: Formicidae)

Aaron Fairweather, Donald McAlpine, M. Alex Smith

University of Guelph, Guelph, Ontario

fairweaa@uoguelph.ca @insectAaron

Tree cover loss has surged within Canada over the past two years due to forestry and fire. This affects many organisms living within these forests including the most diverse groups – the arthropods. The objectives of our project are; determine the diversity of ant species in Parks and Protected Natural Areas (PNAs) within Ontario and New Brunswick. Assess how forestry within and around these protected areas has shaped these ant communities. In order to test the diversity and community structure of ants we will be using an integrated analysis of morphology and DNA barcodes, allowing for a cohesive analysis of diversity.

Hailey Ashbee

Haliplidae of Eastern Canada

Hailey Ashbee

University of Guelph, Guelph, Ontario

hashbee@mail.uoguelph.ca

Haliplidae, or crawling water beetles, are a largely Nearctic family of small aquatic beetles commonly found in a variety of lentic habitats. A review of the 24 species of Haliplidae currently known from eastern Canada will be presented, including *Brychius hungerfordii*, which is recognized as endangered by Ontario's Endangered Species Act. *Haliplus falli* is recorded from Ontario for the first time. I will discuss the techniques used throughout my review, the creation of an intuitive, interactive digital identification key, and its future publication in the online journal, Canadian Journal of Arthropod Identification.

Catherine Scott

#NotABrownRecluse: adventures in (mis)identification of arthropods online, and why Twitter is an excellent tool for entomological outreach

Catherine Scott

University of Toronto, Scarborough, Ontario

catherine.elizabeth.scott@gmail.com @Cataranea

Engaging with the public is easier than ever thanks to social media. Twitter is a popular online social networking service that allows real-time sharing of information with people from all over the world. I will discuss the (many) advantages and (few) disadvantages of using Twitter for science communication, using an education campaign called #NotABrownRecluse as an example. Although spiders are the focus of my outreach efforts, I hope to inspire and encourage engagement in entomological outreach more generally on Twitter and other forms of social media.

Lauren Des Marteaux

How does cold acclimation affect ion transport function and ultrastructure of the insect hindgut?

Lauren Des Marteaux, and Brent J. Sinclair

University of Western Ontario, London, Ontario

ldesmart@uwo.ca

Insects in chill coma lose ion and water homeostasis, which implies that epithelial transport function is lost at low temperatures. Cold-acclimated insects enter chill coma and maintain homeostasis at lower temperatures than warm-acclimated conspecifics, but little is known about the mechanisms underlying loss of transport function in the cold, or how cold acclimation alters transport function. The insect hindgut (a major site of ionoregulation) is a likely target for modification during cold acclimation. To generate hypotheses about the mechanisms underlying cold-tolerance plasticity we investigated the effect of acclimation on *Gryllus pennsylvanicus* cricket hindgut ultrastructure, Na^+/K^+ ATPase activity, and gene expression.

Chris Ho

The impacts of anthropogenic disturbance on arthropod biodiversity and community structure in protected areas

Chris Ho, M. Alex Smith

University of Guelph, Guelph, Ontario

hoc@uoguelph.ca @Xhristmas

“Protected Areas” in Ontario preserve cultural and natural features, maintain biodiversity, and provide economic opportunities. Balancing conservation and economic usage exposes protected areas to numerous types of disturbance. Forestry is the primary form of anthropogenic disturbance in North American forests. Algonquin Provincial Park is the largest and only industrially logged provincial park within Ontario. Arthropods such as spiders constitute a major component of forest biodiversity and are often used as forest health indicators. My research focuses on the impact of forestry on arthropod biodiversity and community structure between sites with different disturbance histories within Algonquin Park.

Ellen Richard and Chelsie Xavier-Blower

Is Forestry Impacting Dipteran Communities in Algonquin Park? Part I: abundance

Ellen Richard, Chelsie Xavier-Blower, Cristina Garrido Cortes, and Natasha Welch

University of Guelph, Guelph, Ontario

ericha03@mail.uoguelph.ca @isopodEllen

cxavierb@mail.uoguelph.ca @Chelsie_X_B

Current logging within Algonquin Park is done in accordance to the Crown Forest Sustainability Act to avoid directly impacting native wildlife and diversity. However, knowledge regarding how forestry affects the diversity and abundance of the most diverse animals – the insects – is lacking. Diptera are amongst the most abundant and diverse insect groups and have large ecosystem effects both terrestrial and environmental (including pollination and decomposition). Our objective was to determine how the abundance and diversity of Algonquin Park Dipteran communities might differ due to historical harvesting of timber.

Cristina Cortes and Natasha Welch

Is Forestry Impacting Dipteran Communities in Algonquin Park? Part II: body size

Cristina Garrido Cortes, Natasha Welch, Ellen Richard and Chelsie Xavier-Blower

University of Guelph, Guelph, Ontario

cgarrido@mail.uoguelph.ca @Cristinalsa29

nwelch@mail.uoguelph.ca @NatashaWelch22

Timber harvesting creates spatial variability within forests. Within Algonquin Provincial Park, the Crown Forest Sustainability Act was created to protect wildlife from the deleterious effects of forestry. However, little is known on how forestry may affect the morphology of Diptera and how this may vary between families. Our objective was to determine how body size might differ within Algonquin Park Dipteran communities, due to historical harvesting of timber.

Non-Student Talks

Colin Jones

How Can I Contribute to Conservation Status Assessments of At Risk Arthropods?

Colin Jones

Ontario Ministry of Natural Resources and Forestry

colin.jones@ontario.ca

A growing number of arthropods thought to be at risk are being assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Committee on the Status of Species at Risk in Ontario (COSSARO). These are exciting times for the field of entomology. By focusing some survey effort toward candidate species (which are posted on the COSEWIC website) and reporting any results (both positive and negative) to the co-chairs of the Arthropod Species Specialist Committee, both amateur and professional entomologists have the ability to make significant contributions to these status assessments.

Alex Smith

Elevation, crypsis and phylogenetic community structure of Neotropical arthropods

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The diversity and phylogenetic community structure of many organisms is negatively affected by factors that covary with elevation. Many Neotropical species whose range is restricted to tropical montane cloud forests are in danger of local or total extinction due to warming and drying as air warmed by climate change ascends these mountains. On the Pacific slope of the Cordillera Guanacaste within Area de Conservación Guanacaste (ACG) in northwestern Costa Rica we used standardised collections and DNA barcodes to quantify community size and diversity for some of the most abundant leaf-litter fauna (ants, spiders, microgastrine parasitoid wasps, springtails and isopods).

Sean McCann

The enemy of my enemy is probably my enemy: Demonstrating interspecific alarm pheromone recognition in three ground-nesting yellowjackets using an awesome new bioassay device

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Pheromone-mediated defensive stinging could very well be ubiquitous in the Vespinae, but every study to date uses different methods for assessing pheromone activity. We investigated pheromone-mediated defence in three species of *Vespula* yellowjackets, using a novel bioassay device. Our device is cheap to construct, simple to use, and uses a paired design which makes experimentation efficient. We show not only pheromone mediated defensive behaviour, but also interspecific pheromone recognition and response, indicating probable conservation of alarm pheromone chemistry in these wasps.

Margaret Pickles

Bugs are cool – so let's tell everyone!

Margaret Pickles

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Most people are in awe of insects – they just may not know it yet!
With a little enlightenment the public are quick to move from "yuk" and "ugly" to "awesome" and "cool" to describe bugs. I truly believe that Bugs are Cool and I have spent a lot of my career and leisure time promoting insect public relations by increasing awareness of the wonders of the insect world. I will share some of the ways I spread the word and raise the profile of insects with the people around me. Learn why I think that everyone deserves a little entomology in their lives.

Lightning Talks

Yeritza Bohorquez

Evaluating the effects of root exudates from buckwheat, *Fagopyrum esculentum,* on larvae of *Agriotes* spp.

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Wireworms (Coleoptera: Elateridae) are serious pests of many agricultural crops. As generalist soil-dwelling herbivores, they rely most on chemical cues to detect suitable and avoid unsuitable plants. Preliminary studies observed reduced wireworm densities (genus *Agriotes*) after buckwheat (*Fagopyrum esculentum*) is used as a cover crop; potentially due to the plant releasing repellent, antifeedant and/or toxic chemicals into the soil. I will explore the potential effects of chemicals from buckwheat roots on wireworm behaviour, using a six arm olfactometer and small plot experiments. My results will be the basis for subsequent chemical analyses, as these compounds could offer a management strategy.

Gard W. Otis

Rainforest spider uses “Tarzan” hunting technique to capture termites

Gard W. Otis, Stephen A. Marshall, Art Borkent, Ingi Agnarsson, Lyndsay Fraser, &

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We describe the prey-capture technique of an undescribed spider species in the genus *Jamula* (family Theriidae) from the rainforest of Ecuador. The spiders are quickly attracted to holes created in the arboreal nests of Nasutitermes ephratae (family Termitidae) termites. They capture termite soldiers that emerge from the hole in their nest, bundle them together, swing out “Tarzan style” on a silk thread, and feed upon them. Four species of biting midges (family Ceratopogonidae), rare associates of spiders, acted as kleptoparasites by also feeding on the immobilized termites.

Robert Alvo

BABINA, a new kind of book

Robert Alvo

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Being a Bird in North America, North of Mexico (BABINA), is a unique book on birds. It is the first in a series of books on the Earth's biota using much the same model. One of the project's major goals is to sensitize people to the importance of biodiversity by teaching them about the various taxonomic groups, their tricks for survival, real problems they face in nature or because of humans, their conservation status, and anything else of particular interest. If more people understand biota, especially non-bird taxa, this should enhance conservation. www.babina.ca

Casey Peet-Paré

Mimicry in the Ultraviolet: A Predator Perspective

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Abstract: Hoverflies are well-known mimics of bees and wasps. However, research on this study system has focused on the appearance of hoverflies and their models in visible light (400-700nm). This disregards the fact that many animals can see ultraviolet (UV) light (300-400nm). We have assessed hoverfly mimicry from a predator perspective using UV photography, and have found UV colour in 48 of 83 hoverfly species. A remaining question is whether hoverflies match their models in the UV. Photographs of live and museum specimens will allow us to quantify variation in UV colour, and track the strength of UV colour over time.

***Casey will also present a poster on this research.**

Posters

Student Posters

Ivan C. Aguilar

Effects of host plants, nectar sources, and habitat features on the spatial distribution of Mottled Duskywing butterflies.

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We studied adult Mottled Duskywing (MODU) butterflies to better understand the influence of (i) nectar sources, (ii) density and distribution of its larval host plant, New Jersey Tea (NJT), and (iii) habitat conditions on their spatial distribution. This species is becoming increasingly rare throughout its range, and greater understanding of its biology is required for its conservation. Through various field techniques, we discovered that female and to a slightly lesser extent male MODUs are closely associated with NJT and flowers from which they obtain nectar. Frequent burning has improved the open habit with scattered patches of NJT preferred by MODUs.

Donald Bourne

A Rapid, Non-invasive, Accurate Insect Measuring Method via Digital Image Analysis
Donald R. Bourne, D. V. Beresford, and C. Kyle

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Occasionally entomologists require measurements of size and shape (length and width) of small live insects without destroying a specimen. The measurement of insect morphology (morphometry) plays a vital part in the development of insect growth models. Previous methods used to measure insect size have relied on destructive, time consuming, and limited measurements of insect morphology. My work has established a novel and relatively simple technique for measuring forensically relevant insects using digital imaging techniques/analysis. This method allowed for accurate, rapid, and non-invasive measurements to be taken. I used this method in field and in laboratory conditions on two larval species of forensically relevant human cadaver colonizers (*Phormia regina* and *Necrodes surinamensis*).

Sarah V. Langer

Morphology, Genetics and Distribution of Blow Fly Species in Canada

Sarah V. Langer, David V. Beresford and Christopher J. Kyle

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Blow flies (Diptera: Calliphoridae) are often studied for their role in the decomposition of animal tissues, and their use in forensic investigations. We collected blow flies through a 3 year Canada wide sampling program with the RCMP and OPP. Our research focused on species determination and distribution. Species are most commonly determined using morphological features, however this may not provide correct identifications where variations or damage exists, emphasizing the need for complimentary methods, such as DNA barcoding. Our research on blow fly distribution will add to the growing knowledge of species ranges in Canada and aid in selecting trapping locations.

Casey Peet-Paré

Mimicry in the Ultraviolet: A Predator Perspective

***See Lightning Talk section for Casey's abstract and affiliation information.**

Non-Student Posters

David V. Beresford

Trap bias of autogenous and anautogenous Tabanidae

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31 species of Tabanidae were caught in Northern Ontario in 2011, 2012: 3 spp. by incidental and individual hunting, 29 spp. using standardized methods of unbaited passive intercept traps (Malaise traps) and sweep netted catches (human operator acting as possible bait). We compared species caught by trap types: 4 spp. were only caught by sweep netting, 7 spp. were only caught in Malaise traps. Obligate bloodfeeding species (anautogenous) were prevalent in sweep netted samples, whereas faculative bloodfeeders (autogenous) were prevalent in passive Malaise trap samples.

Joel F. Gibson

Determining grasshopper (Orthoptera: Acrididae) diet and niche overlap using high throughput sequencing and DNA barcodes recovered from gut contents

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Grasshoppers have been divided into three diet classifications based on mandible morphology: forbivorous, graminivorous, and broad-scale generalists. Specimens of four species were collected and diet analysis was performed using DNA metabarcoding of the gut contents. The *rbcLa* gene region was amplified and sequenced using Illumina MiSeq. Measures of niche breadth and niche overlap were calculated using operational taxonomic units (OTUs). Gut contents confirm both *Dissosteira carolina* and *Melanoplus bivittatus* as generalists and *Chortophaga viridifasciata* as a specialist on grasses. For *Melanoplus femurrubrum*, a high niche breadth was observed and species of grasses were identified in the gut as well as forbs.

Index of abstracts


Entomological Society of Ontario
1863