



June 2022 Vol. 42 (1)

Boreus

Newsletter of the Entomological Society of British Columbia

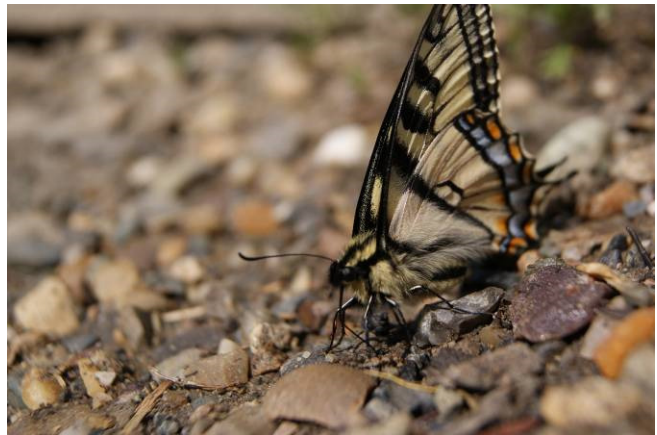




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The Executive

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Web Page Editor	Adam Blake University of Washington, Seattle

Publications of ESBC

Journal of the Entomological Society of British Columbia




The Journal of the Entomological Society of BC is a peer reviewed, open-access journal. Manuscripts dealing with all facets of the study of arthropods will be considered for publication. Submissions may be from regions beyond British Columbia and the surrounding jurisdictions provided that content is applicable or of interest to a regional audience. Authors are invited to submit ideas for review and forum articles as well. Line drawings or photographs as candidates for the cover are also accepted.

For more information please contact Dr. Kathy Bleiker, Editor-in-Chief at journal@entsocbc.ca.

The deadline for submissions to be included in the 2020 issue is 1 September, 2020. Please submit articles at the JESBC website: <http://journal.entsocbc.ca/>.

Boreus

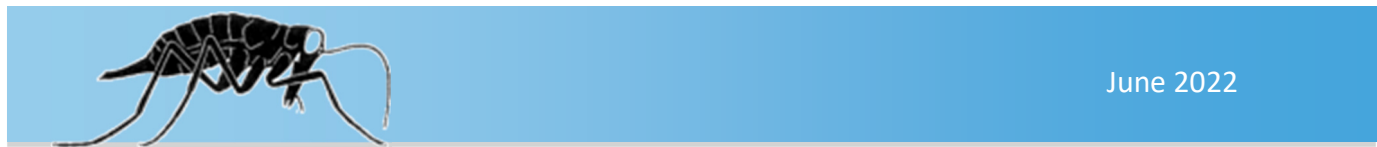


Boreus, the Newsletter of the Society is published in June and December. It contains entomological news, comments, reports, reviews and notices of meetings and other events. While emphasizing the Society's affairs, *Boreus* provides members with a forum for their views and news of British Columbia entomology, as well as informal articles, notes regarding research projects, and anything else that may be of interest to entomologists.

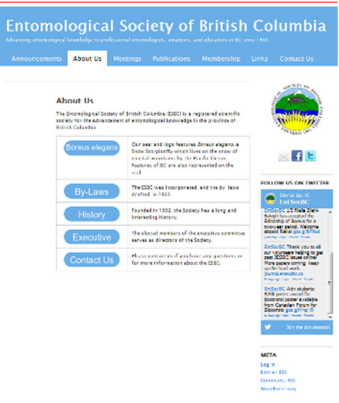
Please submit any entomological photograph, article, event or informational tidbit to the Editor!

Please send correspondence concerning *Boreus* to Dr. Gabriella (Riella) Zilahi-Balogh at boreus@entsocbc.ca.

The deadline for submissions to be included in the June issue is June 1, and the December issue is December 1. Submission dates are flexible. Submit before the end of the month.




ESBC Website



Main Webpage: <http://entsocbc.ca>

Update your bookmarks, and save our new URL to your browser favorites. Our website provides all the information you need, in one place: ESBC announcements, meeting info, publications, contact information, and other useful links.

Facebook



Find us on Facebook

Join us on Facebook:
<https://www.facebook.com/groups/13552445022/>

Keep in touch with students, colleagues, and friends! Stay up to date with the latest entomological happenings in BC, upcoming conferences, education and employment opportunities.

Twitter



@EntSocBC

Follow us on Twitter: <https://twitter.com/EntSocBC>

Join the conversation and connect with thousands of other entomologists and insect enthusiasts from all over the world. Stay up to date with insect news, announcements, conferences and job opportunities.



Membership

Membership of the Entomological Society of B.C. is available to anyone interested in entomology. Annual dues are:

- Regular Member (Canadian Resident):
 - BEFORE** MARCH 30 = \$20.00 (CDN)
 - AFTER** MARCH 30 = \$30.00 (CDN)
- Regular Member (International):
 - BEFORE** MARCH 30 = \$30.00 (CDN)
 - AFTER** MARCH 30 = \$40.00 (CDN)
- Student Member:
 - BEFORE** MARCH 30 = \$10.00 (CDN)
 - AFTER** MARCH 30 = \$15.00 (CDN)
- Honorary Members renew at no charge.

Join or renew your membership online via the Society’s website <http://entsocbc.ca/membership/>.

Inquiries concerning membership and back issues should be sent to the Treasurer, Marcus Clodius, E-mail: treasurer@entsocbc.ca

Cover Sketch: *Boreus elegans* (Mecoptera: Boreidae), one of the more conspicuous snow scorpionflies in B.C. Larvae and flightless adults live in, and feed on, moss and clubmoss. Adults appear in the fall and are active on snow on warm winter days. Cover sketch credit Ward Strong and Robert A. Cannings.

Cover Photographs:

Greater Night-stalking Tiger Beetle (<i>Omus dejeani</i>), taken on Denman Island, B.C. Photograph by Jennifer Heron.	Helliwell Provincial Park, May 2012. Photograph by Jennifer Heron
Photographs taken in the Peace Region, BC. Photographs by Jennifer Heron	



2022 Joint Annual Meetings of the Entomological Society of America, Canada and British Columbia

November 13-16
Vancouver Convention Centre
Vancouver, BC

REGISTRATION and **HOUSING** are now open for the 2022 ESA, ESC, and ESBC Joint Annual Meeting taking place this November 13-16, 2022 at the Vancouver Convention Centre in Vancouver, British Columbia. The theme for the Joint Meeting is Entomology as Inspiration: Insects through art, science, and culture.

SUBMIT now for an on-demand virtual non-competition 10-minute presentation, poster, or infographic. Submissions are due Wednesday, August 31.

The 2022 JAM will be offering opportunities to present and attend both in person in Vancouver as well as online virtual content only. Virtual content will be available starting November 28, after the in-person meeting.

The full online program will be posted in mid-August. Speaker acceptance notices will be sent at the same time.



Entomology in the News

Honey Bees and Industrial Agriculture: What Researchers are Missing, and Why it's a Problem

Maggie Shanahan

Journal of Insect Science, Volume 22, Issue 1, January 2022, 14

Abstract

Industrial agriculture is the root cause of many health problems that honey bees (*Apis mellifera* Linneaus, 1758) face, but honey bee researchers seldom call attention to this fact. We often discuss the stressors that contribute to colony loss (e.g., pathogens, pesticides, poor nutrition), but we rarely talk about where those stressors come from. This is a problem because we cannot resolve honey bee health issues unless we confront the systems that cause them harm. In this forum article, I unpack the relationship between honey bee health and industrial agriculture. I propose steps we can take to reframe our research to account for the impacts of this destructive system, and I discuss the uncomfortable questions that surface when we engage in this process. The goal of this article is to encourage conversation within the honey bee research community around the impacts of industrial agriculture, so that we can fully engage in the transformative change needed to support honey bee health.

Agriculture and climate change are reshaping insect biodiversity worldwide

Charlotte L. Outhwaite, Peter McCann, Tim Newbold

Nature, 2022; **605**, pages 97–102

Abstract

Several previous studies have investigated changes in insect biodiversity, with some highlighting declines and others showing turnover in species composition without net declines.



Although research has shown that biodiversity changes are driven primarily by land-use change and increasingly by climate change, the potential for interaction between these drivers and insect biodiversity on the global scale remains unclear. Here we show that the interaction between indices of historical climate warming and intensive agricultural land use is associated with reductions of almost 50% in the abundance and 27% in the number of species within insect assemblages relative to those in less-disturbed habitats with lower rates of historical climate warming. These patterns are particularly evident in the tropical realm, whereas some positive responses of biodiversity to climate change occur in non-tropical regions in natural habitats. A high availability of nearby natural habitat often mitigates reductions in insect abundance and richness associated with agricultural land use and substantial climate warming but only in low-intensity agricultural systems. In such systems, in which high levels (75% cover) of natural habitat are available, abundance and richness were reduced by 7% and 5%, respectively, compared with reductions of 63% and 61% in places where less natural habitat is present (25% cover). Our results show that insect biodiversity will probably benefit from mitigating climate change, preserving natural habitat within landscapes and reducing the intensity of agriculture.

AWARDS

EDI award announcement for Boreus and Twitter

At the ESBC we believe that all should be welcome and included in the entomological community. Sadly, in entomology, and STEM in general, this is not the case. As one step we are taking forward, the ESBC is pleased to announce our new Equity Diversity and Inclusion Award. We hope this award will help reduce some of the barriers faced by those historically excluded from entomology. Please apply!

Visit: <http://entsocbc.ca/scholarships-awards/> for more info!

Student award ad for Boreus and Twitter:

We are now accepting applications for our Graduate Student Scholarships and the Dexter Johnson Award in Insect Science, both of which have been increased to \$1000! Apply apply!

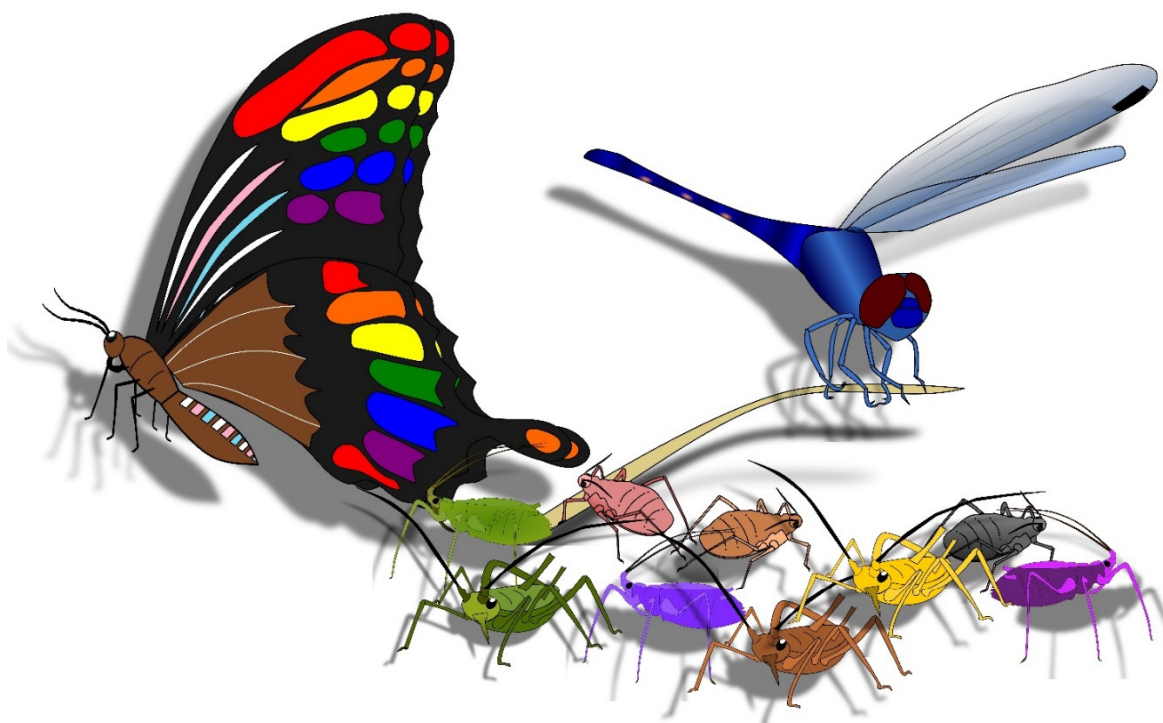
Visit: <http://entsocbc.ca/scholarships-awards/> to for more info!



ENTOMOLOGICAL SOCIETY
OF
BRITISH COLUMBIA



Equity diversity & inclusion award



For details visit:
<http://entsocbc.ca/>

The Entomological Society of British Columbia annually awards a scholarship of **\$1000** to support the participation of one graduate student from a group currently underrepresented within the ESBC. Funds may be used at the student's discretion. Applications should be submitted to the ESBC Secretary at secretary@entsocbc.ca by September 21st, 2022. Competition results will be announced at the AGM!



June 2022



ENTOMOLOGICAL SOCIETY
OF
BRITISH COLUMBIA



Student Oral Presentation Awards

Each year the Entomological Society of British Columbia presents up to three awards for the best student oral presentations. Prizes are awarded at the AGM.

Dexter Johnson Award in Insect Science

This is a **\$1000 annual award** for the best manuscript submitted in any peer-reviewed journal by a student in the field of insect ecology. Please submit a cover letter and the manuscript to secretary@entsocbc.ca by Sept 21st, 2022.

For details visit:
<http://entsocbc.ca/>

Graduate Student Scholarship Competition

The Entomological Society of British Columbia awards annually a scholarship of **\$1000** to up to two postgraduate students to encourage students engaged in entomological research in BC. Funds are to be used at the student's discretion. Applications should be submitted to the ESBC Secretary at secretary@entsocbc.ca by September 21st, 2022. Competition results will be announced at the AGM.



Bee foraging on a flower. Photo by: Elton Ko

Employment Opportunities

Position: Pest Management Support Lead, Semios

(Vancouver.) The Pest Management Support Lead oversees and executes the planning and delivery of the Semios variable rate mating disruption commercial trapping operations worldwide. Working in collaboration with various internal teams, you will also assist with the development of key internal tools and support related research.

Details on ESC website

Laboratory Manager – Nematology

Natural Insect Control

Natural Insect Control is a family owned and operated business since 1989. NIC specializes in bio-control for commercial growers, wholesalers, distributors and the consumer market. As the only Canadian producer of Beneficial Nematodes, NIC is in a unique position to lead the Canadian industry towards more sustainable and environmentally sound practices and offer products and services that are an alternative to chemicals for home, garden and commercial growers.

Details: See ESC website

For information, contact:

Susan Cavey, Managing Director / Owner



June 2022

susan@naturalinsectcontrol.com
www.naturalinsectcontrol.com

Entomology Lead

Spotta Smart Pest Control

Spotta is a VC backed, fast-growing startup in Cambridge, UK. We are commercialising our proprietary smart insect Pods to allow targeted, precision interventions and help solve the £320Bn problem of insect pests.

Details: See ESC website

We particularly encourage applications from women and under-represented minorities in science and engineering industries. To apply, send your CV and a brief covering letter to careers@spotta.co

Educational Opportunities

details on ESC website <https://esc-sec.ca/opportunities/>

MSc Student – Insect Flight Aerodynamics

Carleton University – Insect Flight Group

Application Deadline: Not specified

Details: See ESC website

MSc Student – Research project at the interface of behavioural ecology, energetics, and life-history evolution

University of Ottawa and Carleton University

Application Deadline: Not specified

Starting Date: May 2022 (September 2022 possible)

Details: See ESC website

MSc or PhD Students –Bark beetle pheromone ecology

The student will conduct field and laboratory experiments in both western and eastern Canada in collaboration with Canadian and US partners including provincial entomologists, USDA Forest Service scientists and industry to better understand the ecology and evolution of inter-population pheromone variation in tree-killing bark beetle.

Interested candidates are invited to send a letter of interest, CV, and transcripts to:

dezene.huber@unbc.ca or deepa.pureswaran@nrcan-rncan.gc.ca.

Application Deadline: Open until filled

Details: See ESC website

PhD opportunities in the UK

Details: See ESC website

MSc opportunities in the UK

Details: See ESC website

Global opportunities

Details: See ESC website

Graduate Students Graduating

Defended or planning to defend? Why not present your work in the Boreus? This is an excellent opportunity for graduate students to share their research. Send submissions to boreus@esbc.ca.

Elton Ko, MPM

Title - Multimodal mate-finding and floral foraging behavior of Aedes and Culex mosquitoes

Supervisors - Dr. Gerhard Gries, Simon Fraser University
Dr. Carl Lowenberger, Simon Fraser University
Dr. Fiona Hunter, Brock University

Abstract - I investigated mate location and nectar foraging behavior in the diurnal yellow fever mosquito, *Aedes aegypti*, and the crepuscular house mosquito, *Culex pipiens*. High-speed video recordings revealed that incident light reflects off the wings of swarming *Ae. aegypti* males. In behavioral experiments, LED assemblies flashing light at the wingbeat frequency of females (665 Hz) mediated swarm and mate recognition at long range, whereas play-back of wingbeat sound (665 Hz) mediated mate recognition at short range. As predicted by the sensory drive theory, light flashes had no signal function for swarming *Cx. pipiens*. All five milkweed species/varieties tested attracted *Cx. pipiens*. Phenylacetaldehyde and benzaldehyde were the key floral semiochemicals emitted by showy milkweed, *Asclepias*



speciosa. Combining floral attractant of *A. speciosa* with those of four other plant species did not result in a super-flower blend that was more attractive to *Ae. aegypti* than the *A. speciosa* floral blend on its own.

Official completion date – Defended January 21, 2022

Jaime M. Chalisery, MPM

Title - Trail pheromone ecology of the pavement ant, *Tetramorium immigrans*, and the European fire ant, *Myrmica rubra*

Supervisors - Dr. Gerhard Gries, Simon Fraser University
Dr. Jenny Cory, Simon Fraser University
Dr. Robert J. Higgins, Thompson Rivers University
Dr. Dong-Hwan Choe, University of California, Riverside

Foragers of many ant species deposit trail pheromones that guide nestmates to food resources. We identified 2-Methoxy-6-methylbenzoate ('MMMB') as the single-component trail pheromone of the pavement ant, *Tetramorium immigrans* (Hymenoptera: Formicidae). MMMB was sensed by worker antennae, induced trail following in laboratory bioassays, and effectively recruited nestmates to food baits in field settings. We deduced that only groups, and not individuals, of the European fire ant, *Myrmica rubra* (Hymenoptera: Formicidae) respond to pheromone trails. Furthermore, we determined that a 3-component pheromone blend comprising 3-ethyl-2,5-dimethylpyrazine ('EDP', the previously known trail pheromone component), (Z,E)- α -farnesene, and (Z,E)- α -homofarnesene, was superior to EDP in prompting (i) sustained trail-following behavior in laboratory bioassays and (ii) relatively faster recruitments of foraging ants to apple baits in a field experiment. All data combined provide impetus to develop synthetic trail pheromones coupled with lethal food baits as a tactic for integrated control of pest ants.

Official completion date – Defended April 14, 2022



Student Awards – administered by Entomological Society of America

There are numerous awards. Check them out for eligibility.

<http://www.entsoc.org/about/awards-honors>

DNA Barcoding Website:

There is a new blog exclusively on the topic of DNA barcoding with the aim to have newsworthy information posted a few times per week. The blog is lead by Dirk Steinke, Lead Scientist Barcoding of Marine Life Biodiversity Institute of Ontario University of Guelph, Ontario, EMail: dsteinke@uoguelph.ca and blog website <http://dna-barcoding.blogspot.ca/>

Entomological Society of Canada

Blog Available at <http://esc-sec.ca/blog/>

Canadian Entomologist Bulletin June 2022

<https://esc-sec.ca/wp-content/uploads/2022/06/2022-2-June-ESCBull.pdf>

Kelowna Museum request

Linda Digby of the Kelowna Museum Society is requesting help acquiring insect specimens for the natural history museum. Their interest is the south Okanagan region. They are seeking donations of identified, labelled specimens and photographs from members or students. Contact Linda directly at the museum,

www.kelownamuseums.ca



June 2022

Executive contact information

<i>President</i>	Chandra Moffat president@entsocbc.ca
<i>Secretary</i>	Rob Higgins secretary@entsocbc.ca
<i>Treasurer and Memberships</i>	Markus Clodius treasurer@entsocbc.ca
<i>Editor Entomological Society of BC Journal</i>	Kathy Bleiker journal@entsocbc.ca
<i>Boreus Newsletter Editor</i>	Gabriella Zilahi-Balogh boreus@entsocbc.ca
<i>Web Page Editor</i>	Adam Blake webmaster@entsocbc.ca