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# Boreus

Newsletter of the Entomological Society of British Columbia





# Table of Contents

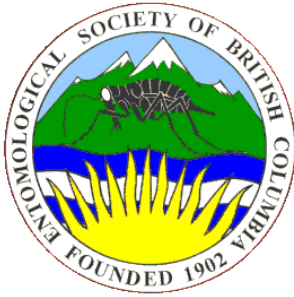
The Society ..... 4  
 Society News ..... 5  
     *ESBC Symposium & AGM 2023* ..... 5  
 Featured Article..... 8  
     *The British Columbia species of stoneflies (Plecoptera) in the Canadian National Collection of Insects, Arachnids and Nematodes (CNC)*..... 8  
 Kudos! .....13  
     *Graduate Students Graduating*.....13  
     *Happy Retirement Jenny!*.....14  
 In Memoriam .....16  
     *Geoffrey G.E. Scudder (1934-2023)*.....16  
     *Lisa Poirier*.....20  
 Classifieds .....20  
     *Lisa Poirier Memorial Scholarship* .....20  
     *Kelowna Museum request*.....21  
 Upcoming Grant and Funding Opportunities .....22  
     *EntSocBC Special Projects Grant* .....22  
     *Entomological Society of Canada Student Awards*.....22  
 Employment and Research Postings .....23  
     *Permanent Opportunities* .....23

### 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	



The Entomological Society of British Columbia is a scientific Society founded in 1902 for the advancement of entomological knowledge in the province.

### Follow Us On Social Media!

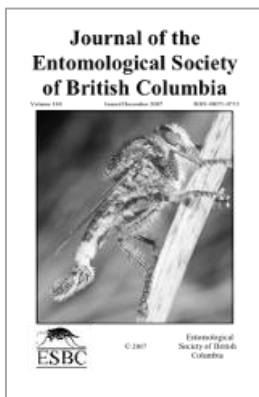


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### Check out our other publications!



# The Society

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## Become a Member!

**Membership** of the Entomological Society of B.C. is available to anyone interested in entomology. Annual dues are due **March 30<sup>th</sup>** of each year.

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



## Society News

### ESBC Symposium & AGM 2023 Insects: The Environmental Heartbeat

ESBC members gathered this year at Thompson River University in Kamloops for the annual AGM and symposium. The theme this year was 'Insects: The Environmental Heartbeat'. The day started off with a message from our outgoing president Lorraine McLaughlin, followed by our first keynote speech delivered by Dr. Michelle Tseng (University of British Columbia) who talked about her work on insect responses to climate change.

Michelle was followed by a showcase of our amazing student members where they shared their work on everything from the role of light in stable fly attraction (Emmanuel Hung, Simon Fraser University) to how important it is to involve children in insect conservation (Eva Burghardt, UBC). Dr. Celia Boone who is the province's Forest Entomologist based out of the Skeena region, gave the afternoon plenary where she shared about the role of bark beetles on the cycle of life in conifer forests.

After the proceedings on the first day, members met at The Noble Pig to enjoy good company and good food before retiring for an early morning the next day.

The second day was packed full of presentations with featured talks including a presentation on BC's Community Bumble Bee Project (Jennifer Heron, BC Ministry of Environment and an update on the Japanese Beetle status in BC (Tracy Hueppelsheuser, BC Ministry of Ag).

Finally the day ended with the AGM and awards presentations. This was the first year that the ESBC Legacy Award was awarded, to recognize BC entomologists that have made a significant contribution to the field of entomology. The Society had the pleasure of awarding the inaugural award to Dezene Huber (University of Northern British Columbia). While he couldn't be at the meeting, he had these words to say when he accepted the award:

"I was both surprised and honored to be presented with this award, and it is even more meaningful to me that it is the first such award given. I'm thankful to all of you in the ESBC — past and present. You have been mentors, collaborators, students, co-committee members, JESBC and TCE volunteer editors and reviewers, or combinations of all of those. I'm very privileged to be working with such a supportive, active, and engaged Society, and I look forward to our continued work together. Thank you from the bottom of my heart."



Congratulations to Dezene, and all of our other award winners. It was a pleasure seeing everyone and we look forward to seeing everyone again next year!

*Joyce Leung*

ESBC 2023 Program: [https://entsocbc.ca/wp-content/uploads/2023/09/ESBC-2023\\_Conference-AGM-Program-v1.pdf](https://entsocbc.ca/wp-content/uploads/2023/09/ESBC-2023_Conference-AGM-Program-v1.pdf)

Contact Rob Higgins at [secretary@entsocbc.ca](mailto:secretary@entsocbc.ca) for 2023 AGM minutes.



*Top: A good looking bunch of entomologists; Bottom Left: Celian Boone; Bottom Right: Michelle Tseng. Photos by Adam Blake.*



<b>Award</b>	<b>Recipient</b>
Graduate Student award	Claire Gooding <i>Simon Fraser University</i>
Equity, Diversity and Inclusion Award	Karina Torres, <i>University of British Columbia</i>
Dexter Johnson Award (sponsored)	Saif Nayani <i>Simon Fraser University</i>
MSc Oral Presentation (sponsored): James Grant (North Okanagan Naturalists) Award	Claire Gooding <i>Simon Fraser University</i>
MSc Oral Presentation	Saif Nayani <i>Simon Fraser University</i>
PhD Oral Presentation	Sam Maraj <i>Simon Fraser University</i>
Undergraduate	Charlotte Pinard <i>Simon Fraser University</i>
	Jacob McPherson <i>Agriculture and Agri-Food Canada &amp; University of British Columbia</i>



*Student Award winners. From left to right: Charlotte Pinard, Claire Gooding, Sam Maraj, Saif Nayani, Jacob McPherson. Photo by Adam Blake.*



## Featured Article

### The British Columbia species of stoneflies (Plecoptera) in the Canadian National Collection of Insects, Arachnids and Nematodes (CNC)

David K. Burton, Faculty of Education, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5 and Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture Canada, Central Experimental Farm, Ottawa, Ontario, Canada K1A 0C6, [dburton@uottawa.ca](mailto:dburton@uottawa.ca)

In January 2017 I began a project to curate the entire CNC collection of Plecoptera. Phase 1 of this study involved confirming species identification, updating the taxonomic names, updating labeling, renewing preservatives, replacing vials and stoppers, databasing the specimens, and georeferencing of the localities. Examination and identification of the unidentified adult specimens from Canadian localities was also completed during this phase. This phase was completed in January of 2023, creating over 11,000 specimen records, representing both pinned and alcohol preserved specimens, <https://www.cnc.agr.gc.ca/taxonomy/TaxonMain.php>.

Of the approximately 660 described species of Plecoptera from Canada and the United States (DeWalt *et al.* 2023), 457 species or 69 % are present in the CNC collection. This study raises the recorded species of Plecoptera in Canada to 287 from the 267 species reported by Kondratieff *et al.* (2019). Of the 287 species identified from Canada only five species are not represented in the CNC collection: *Bolshecapnia milami* (Nebeker & Gaufin, 1967); *Alloperla acadiana* Harper, 1984; *Isoperla obscura* (Zetterstedt, 1840); *Neoperla mainensis* Banks, 1948 and *Yoraperla siletz* Stark & Nelson, 1994. The province of British Columbia has 146 species reported, which is over 50% of the species in Canada.

Species of Plecoptera added to the Canadian list of Kondratieff *et al.* (2019) include: *Agnentina flavescens* (Walsk, 1862); *Arsapnia tumida* (Claassen 1924); *Diura washingtoniana* (Hanson, 1940); *Helopicus nalatus* (Frison, 1942); *Isoperla citronella* (Newport, 1851); *Isoperla katmaiensis* Szczytko & Stewart 1979; *Isoperla marmorata* (Needham & Claassen 1925); *Isoperla obscura* (Zetterstedt, 1840); *Lednia borealis* Baumann & Kondratieff, 2010; *Leuctra carolinensis* Claassen, 1923; *Nemoura sahlbergi* Morton, 1896; *Neoperla coosa* Smith & Stark, 1998; *Neoperla stewarti* Stark & Baumann, 1978; *Paraleuctra jewetti* Nebeker & Gaufin, 1966; *Paraleuctra projecta* (Frison, 1942); *Perlesta dakota* Kondratieff & Baumann, 1999; *Perlesta lagoi* Stark 1989; *Perlesta nitida* Banks, 1948; *Perlesta xube* Stark & Rhodes 1997; *Sweltsa lyrata* Stark & Baumann, 2018 and *Taenionema uinta* Strange & Baumann, 1993.



Species removed from the list of Kondratieff *et al.* (2019) include: *Diura nanseni* (Kempny, 1900) (replaced by *D. washingtoniana*); *Nemoura rickeri* Jewett, 1971 (junior syn. of *N. sahlbergi*); *Nemoura trispinosa* Claassen, 1923 (junior syn. of *N. arctica* Esben-Petersen, 1910); *Sweltsa coloradensis* (Banks, 1898) (replaced by *S. lyrata*) and *Utacapnia distincta* (Frison, 1937) (these specimens from Alberta in the CNC are either an undescribed species or a hybrid between *Utacapnia trava* (Nebeker & Gaufin, 1965) and *U. distincta*). Phase 2 of this study is underway, involving the identification and databasing of the unidentified adult specimens from American localities.

The following is a list of those species present in British Columbia.

### References:

DeWalt RE, Maehr M, Hopkins H, Neu-Becker U, Stueber G (2023) Plecoptera Species File. Version 1.0/4.1. <http://plecoptera.speciesfile.org>. 24.

Kondratieff BC, DeWalt RE, Verdone CJ (2019) Plecoptera of Canada. In: Langor DW, Sheffield CS (Eds) The Biota of Canada – A Biodiversity Assessment. Part 1: The Terrestrial Arthropods. ZooKeys 819: 243–254. <https://doi.org/10.3897/zookeys.819.23535>.

List of British Columbia species of Stoneflies. In the Canadian National Collection (CNC) in black type; not present in the CNC in red type.

\* - holotype # - paratypes, allotypes, lectotypes \$ - syntypes

<p>Superfamily Nemouroidea</p> <p><b>Family Capniidae</b></p> <p>Subfamily Capniinae</p> <p>Genus <i>Arsapnia</i> Banks, 1897</p> <p style="padding-left: 20px;"><i>A. pileata</i> Jewett, 1966</p> <p style="padding-left: 20px;"><i>A. tumida</i> (Claassen, 1924)</p> <p>Genus <i>Bolshecapnia</i> Ricker, 1965</p> <p style="padding-left: 20px;"><i>B. gregsoni</i> (Ricker, 1965) * #</p> <p style="padding-left: 20px;"><i>B. milami</i> (Nebeker &amp; Gaufin, 1967)</p> <p style="padding-left: 20px;"><i>B. rogozera</i> (Ricker, 1964) *</p> <p style="padding-left: 20px;"><i>B. spenceri</i> (Ricker, 1964) * #</p> <p>Genus <i>Capnia</i> Pictet, 1841</p> <p style="padding-left: 20px;"><i>C. cheama</i> Ricker, 1965 * #</p> <p style="padding-left: 20px;"><i>C. coloradensis</i> Claassen, 1937</p> <p style="padding-left: 20px;"><i>C. confusa</i> Claassen, 1936</p> <p style="padding-left: 20px;"><i>C. elongata</i> Claassen, 1924</p> <p style="padding-left: 20px;"><i>C. excavata</i> Claassen, 1924</p> <p style="padding-left: 20px;"><i>C. glacilaria</i> Claassen, 1924</p>	<p><i>C. melia</i> Frison, 1942</p> <p><i>C. nana</i> Claassen, 1924</p> <p><i>C. nearctica</i> Banks, 1919 * #</p> <p><i>C. petila</i> Jewett, 1954 #</p> <p><i>C. promota</i> Frison, 1937</p> <p><i>C. sextuberculata</i> Jewett, 1954 #</p> <p><i>C. vernalis</i> Newport, 1848</p> <p>Genus <i>Eucapnopsis</i> Okamoto, 1922</p> <p style="padding-left: 20px;"><i>E. brevicauda</i> (Claassen, 1924)</p> <p>Genus <i>Isocapnia</i> Banks, 1938</p> <p style="padding-left: 20px;"><i>I. abbreviata</i> Frison, 1942</p> <p style="padding-left: 20px;"><i>I. agassizi</i> Ricker, 1943 #</p> <p style="padding-left: 20px;"><i>I. grandis</i> (Banks, 1907)</p> <p style="padding-left: 20px;"><i>I. integra</i> Hanson, 1943</p> <p style="padding-left: 20px;"><i>I. spenceri</i> Ricker, 1943</p> <p style="padding-left: 20px;"><i>I. vedderensis</i> (Ricker, 1943) #</p>
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<p>Genus <i>Mesocapnia</i> Rauser, 1968 <i>M. autumn</i> (Bauman &amp; Gaufin, 1970) # <i>M. oenone</i> (Neave, 1929) <i>M. projecta</i> (Frison, 1937) <i>M. variabilis</i> (Klapalek, 1920)</p> <p>Genus <i>Sasquacapnia</i> Baumann &amp; Broome, 2019 <i>S. sasquatchi</i> (Ricker, 1965) *</p> <p>Genus <i>Utacapnia</i> Nebeker &amp; Gaufin, 1967 <i>U. columbiana</i> (Claassen, 1924) <i>U. trava</i> (Nebeker &amp; Gaufin, 1965)</p> <p style="text-align: center;"><b>Family Leuctridae</b></p> <p>Subfamily Leuctrinae Genus <i>Despaxia</i> Ricker, 1943 <i>D. augusta</i> (Banks, 1907)</p> <p>Genus <i>Moselia</i> Ricker, 1943 <i>M. infuscata</i> (Claassen, 1923)</p> <p>Genus <i>Paraleuctra</i> Hanson, 1941 <i>P. forcipata</i> (Frison, 1937) <i>P. jewetti</i> Nebeker &amp; Gaufin, 1966 <i>P. occidentalis</i> (Banks, 1907) <i>P. projecta</i> (Frison, 1942) <i>P. vershina</i> Gaufin &amp; Ricker, 1974</p> <p>Genus <i>Perlomyia</i> Banks, 1906 <i>P. collaris</i> Banks, 1906 <i>P. utahensis</i> Needham &amp; Claassen, 1925</p> <p>Genus <i>Pomoleuctra</i> Stark &amp; Kyzar, 2001 <i>P. purcellana</i> (Neave, 1934)</p> <p>Subfamily Megaleucetrinae Genus <i>Megaleuctra</i> Neave, 1934 <i>M. stigmata</i> (Banks, 1900) \$</p> <p style="text-align: center;"><b>Family Nemouridae</b></p> <p>Subfamily Amphinemurinae Baumann, 1975 Genus <i>Amphinemura</i> Ris, 1902 <i>A. palmeni</i> (Koponen, 1917)</p>	<p>Genus <i>Malenka</i> Ricker, 1952 <i>M. californica</i> (Claassen, 1923) <i>M. cornuta</i> (Claassen, 1923) <i>M. flexura</i> (Claassen, 1923)</p> <p>Subfamily Nemourinae Genus <i>Lednia</i> Ricker, 1952 <i>L. borealis</i> Baumann &amp; Kondratieff, 2010</p> <p>Genus <i>Nemoura</i> Latreille, 1796 <i>N. arctica</i> Esben-Petersen, 1910 <i>N. sahlbergi</i> Morton, 1896</p> <p>Genus <i>Ostrocerca</i> Ricker, 1952 <i>O. dimicki</i> (Frison, 1936) <i>O. foersteri</i> (Ricker, 1943) #</p> <p>Genus <i>Podmosta</i> Ricker, 1952 <i>P. decepta</i> (Frison, 1942) <i>P. delicatula</i> (Claassen, 1923) # <i>P. weberi</i> (Ricker, 1952) #</p> <p>Genus <i>Prostoia</i> Ricker, 1952 <i>P. besametsa</i> (Ricker, 1952) #</p> <p>Genus <i>Soyedina</i> Ricker, 1952 <i>S. interrupta</i> (Claassen, 1923) <i>S. producta</i> (Claassen, 1923)</p> <p>Genus <i>Visoka</i> Ricker, 1952 <i>V. cataractae</i> (Neave, 1933)</p> <p>Genus <i>Zapada</i> Ricker, 1952 <i>Z. cinctipes</i> (Banks, 1897) <i>Z. columbiana</i> (Claassen, 1923) <i>Z. frigida</i> (Claassen, 1923) <i>Z. haysi</i> (Ricker, 1952) # <i>Z. oregonensis</i> (Claassen, 1923)</p> <p style="text-align: center;"><b>Family Taeniopterygidae</b></p> <p>Subfamily Brachypterainae Zwick, 1973 Genus <i>Doddsia</i> Needham &amp; Claassen, 1925 <i>D. occidentalis</i> (Banks, 1900)</p>
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Genus <i>Taenionema</i> Banks, 1905 <i>T. kincaidi</i> (Hoppe, 1938) <i>T. pacificum</i> (Banks, 1900) <i>T. pallidum</i> (Banks, 1902)	<i>S. revelstoka</i> (Jewett, 1955) * #
<p style="text-align: center;">Superfamily Perloidea <b>Family Chloroperlidae</b></p> Subfamily Chloroperlinae Genus <i>Alaskaperla</i> Stewart & DeWalt, 1991 <i>A. ovibovis</i> (Ricker 1965) * #	Genus <i>Triznaka</i> Ricker, 1952 <i>T. signata</i> (Banks, 1895)
Genus <i>Alloperla</i> Banks, 1906 <i>A. delicata</i> Frison, 1935 <i>A. elevata</i> Frison, 1935 # <i>A. fraterna</i> Frison, 1935 <i>A. medveda</i> Ricker, 1952 # <i>A. serrata</i> Needham & Claassen, 1925 * # <i>A. severa</i> (Hagen, 1861)	Subfamily Paraperlinae Genus <i>Paraperla</i> Banks, 1906 <i>P. frontalis</i> (Banks, 1902) <i>P. wilsoni</i> Ricker, 1965 * #
Genus <i>Gaufinia</i> Stark & Baumann, 2021 <i>G. albertensis</i> (Needham & Claassen, 1925)*#	Genus <i>Utaperla</i> Ricker, 1952 <i>U. sopladora</i> Ricker, 1952 #
Genus <i>Haploperla</i> Navás, 1934 <i>H. brevis</i> (Banks, 1895) @ <i>H. chilnualna</i> (Ricker, 1952) # @	<p style="text-align: center;"><b>Family Kathroperlidae</b></p> Subfamily Kathroperlinae Genus <i>Kathroperla</i> Banks, 1920 <i>K. perdita</i> Banks, 1920
Genus <i>Plumiperla</i> Surdick, 1985 <i>P. diversa</i> (Frison, 1935)	<p style="text-align: center;"><b>Family Perlidae</b></p> Subfamily Acroneuriinae Genus <i>Calineuria</i> Ricker, 1954 <i>C. californica</i> (Banks, 1905)
Genus <i>Suwallia</i> Ricker, 1943 <i>S. autumnna</i> (Hoppe, 1938) <i>S. dubia</i> (Frison, 1935) <i>S. lineosa</i> (Banks, 1918) <i>S. forcipata</i> (Neave, 1929) <i>S. pallidula</i> (Banks, 1904) # <i>S. starki</i> Alexander & Stewart, 1999	Genus <i>Doroneuria</i> Needham & Claassen, 1922 <i>D. baumanni</i> Stark & Gaufin, 1974 <i>D. theodora</i> (Needham & Claassen, 1922)
Genus <i>Sweltsa</i> Ricker, 1943 <i>S. borealis</i> (Banks, 1895) <i>S. exquisita</i> (Frison, 1935) <i>S. fidelis</i> (Banks, 1920) <i>S. lyrata</i> Stark & Baumann, 2018 <i>S. occidentis</i> (Frison, 1937) <i>S. oregonensis</i> (Frison, 1935) <i>S. pacifica</i> (Banks, 1895)	Genus <i>Hesperoperla</i> Banks, 1938 <i>H. pacifica</i> (Banks, 1900)
	Subfamily Perlinae Genus <i>Claassenia</i> Wu, 1934 <i>C. sabulosa</i> (Banks, 1900)
	<p style="text-align: center;"><b>Family Perlodidae</b></p> Subfamily Isoperlinae Genus <i>Cascadoperla</i> Szczytko & Stewart, 1979 <i>C. trictura</i> (Hoppe, 1938)
	Genus <i>Isoperla</i> Banks, 1906 <i>I. decolorata</i> (Walker, 1852) <i>I. fulva</i> Claassen, 1937 <i>I. fusca</i> Needham & Claassen, 1925 * # <i>I. katmaiensis</i> Szczytko & Stewart, 1979 <i>I. longiseta</i> Banks, 1906



<p><i>I. marmorata</i> (Needham &amp; Claassen, 1925) <i>I. mormona</i> Banks, 1920 <i>I. petersoni</i> Needham &amp; Christenson, 1927 <i>I. pinta</i> Frison, 1937 # <i>I. quinquepunctata</i> (Banks, 1902) <i>I. sobria</i> (Hagen, 1874) <i>I. sordida</i> Banks, 1906 <i>I. transmarina</i> (Newman, 1838)</p> <p>Subfamily Perlodinae Genus <i>Arcynopteryx</i> Klapálek, 1904 <i>A. dichroa</i> (McLachlan, 1872)</p> <p>Genus <i>Cultus</i> Ricker, 1952 <i>C. aestivalis</i> (Needham &amp; Claassen, 1925) <i>C. pilatus</i> (Frison, 1942) <i>C. tostonus</i> (Ricker, 1952) #</p> <p>Genus <i>Diura</i> Billberg, 1820 <i>D. knowltoni</i> (Frison, 1937)</p> <p>Genus <i>Frisonia</i> Ricker, 1943 <i>F. picticeps</i> (Hanson, 1942) # @</p> <p>Genus <i>Isogenoides</i> Klapálek, 1912 <i>I. colubrinus</i> (Hagen, 1874) <i>I. elongatus</i> (Hagen, 1874) <i>I. zionensis</i> Hanson, 1949</p> <p>Genus <i>Kogotus</i> Ricker, 1952 <i>K. modestus</i> (Banks, 1908) <i>K. nonus</i> (Needham &amp; Claassen, 1925)</p> <p>Genus <i>Megarcys</i> Klapálek, 1912 <i>M. irregularis</i> (Banks, 1900) <i>M. signata</i> (Hagen, 1874) <i>M. subtruncata</i> Hanson, 1942 <i>M. watertoni</i> (Ricker, 1952) #</p> <p>Genus <i>Osobenus</i> Ricker, 1952 <i>O. yakimae</i> (Hoppe, 1938)</p>	<p>Genus <i>Setvena</i> Ricker, 1952 <i>S. bradleyi</i> (Smith, 1917) <i>S. tibialis</i> (Banks, 1914)</p> <p>Genus <i>Skwala</i> Ricker, 1952 <i>S. americana</i> (Klapálek, 1912) <i>S. curvata</i> (Hanson, 1942)</p> <p>Superfamily Pteronarcyioidea <b>Family Peltoperlidae</b> Genus <i>Yoraperla</i> Ricker, 1952 <i>Y. brevis</i> (Banks, 1907) <i>Y. mariana</i> (Ricker, 1943) # <i>Y. siletz</i> Stark &amp; Nelson, 1994</p> <p><b>Family Pteronarcyidae</b> Genus <i>Pteronarcella</i> Banks, 1900 <i>P. badia</i> (Hagen, 1874) @ <i>P. regularis</i> (Hagen, 1874) @</p> <p>Genus <i>Pteronarcys</i> Newman, 1838 <i>P. californica</i> Newport, 1848 @ <i>P. dorsata</i> (Say, 1823) @ <i>P. princeps</i> Banks, 1907 @</p>
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*Forestfly (Plecoptera:Nemouridae). Photo by Bob Lalonde*

## Kudos!

### 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](mailto:boreus@esbc.ca).

#### **Danielle Halington Ogilvie, MPM**

- |             |   |  |
|-------------|---|--|
| Title       | - | The effect of antibiotic treatment and diet on life history traits and virus susceptibility in an insect   |
| Supervisors | - | Dr. Jenny Cory, Professor, Senior Supervisor<br>Dr. Jane Fowler, Associate Professor, Committee Member<br>Dr. Laura Parfrey, Associate Professor, Committee Member<br>Dr. Zamir Punja, Professor, Committee Member<br>Dr. Michelle Franklin, Research Scientist, External Examiner |



Abstract - Insects may develop close or transient associations with the microorganisms that they encounter. A particular focus has been on the gut microbiome which may have profound effects on insect life history traits, including defence against parasites and pathogens. Here, I first examine the effects of different antibiotic combinations on life history traits in the cabbage looper (*Trichoplusia ni*) as well as examining potential transgenerational effects in their offspring. Only some of the antibiotic treatments affected larval growth and development in *T. ni*, and these effects were negative. However, I found no transgenerational effects. I then examined the effect of antibiotic exposure, host plant and growing site on susceptibility to a host specific baculovirus, as well as measuring life-history traits. Antibiotic treatment only had relatively small effects on larval survival and this was host plant specific. I found no effects of antibiotic treatment on virus mortality or virus yield. Plant effects were much stronger and influenced by site and I found that larvae fed cabbage had reduced overall survival and increased rates of viral-induced mortality in comparison to insects fed kale. Likewise, larvae fed kale had consistently heavier pupal and larval weights in comparison to cabbage-fed larvae, although antibiotic exposure did affect this in kale. We suggest that host plant diet plays an important role in pathogen susceptibility and life history traits and is likely to overwhelm more subtle effects of antibiotic treatment.

Official completion date – Defended September 8, 2023

## Happy Retirement Jenny!

As Dr. Jenny Cory retired from the Biological Science department at SFU at the end of August 2023, Jenny's last student (Danielle Ogilvie) successfully defended her M.Sc thesis on September 8<sup>th</sup>, 2023. A great way to celebrate Dr. Jenny Cory's research career and work as the inaugural Thelma Finlayson Chair at SFU since 2008 and as the Director of the Master of Pest Management (MPM) program for more than 10 years. Throughout her career, 11 Ph.D., 4 M.Sc. students and 10 MPM students came to the Cory lab and graduated under her supervision. A few of her MPM students were even able to gather at the joint ESA-ESC-ESBC meeting in November 2022, the perfect occasion to commemorate the work done by Dr. Jenny Cory and her students throughout the years.

Dr Jenny Cory's research work at SFU covered a large variety of topics from biological pest control to host-parasite interaction and nutritional ecology. Throughout her career, Jenny's passion and research on entomopathogen ecology and evolution led her to work all over the Gulf Islands and Vancouver alongside Dr. Judy Myers on an impressive, long-term database on the interaction between the western tent caterpillar (*Malacosoma californicum*) populations and a baculovirus.

Congratulations Jenny and Happy Retirement! I will always be grateful to have been a part of the Cory lab.

*Pauline Deschodt (former PhD, postdoc of the Cory lab)*



*Dr. Jenny Cory (on the right) with a few of her current and former students at the 50 years anniversary of the Master of Pest Management program celebrations (Nov 2022).*



*Jenny Cory on Mandarte Island during the 2022 tent caterpillar survey*



## In Memoriam

### Geoffrey G.E. Scudder (1934-2023)

Geoffrey George Edgar Scudder died in Vancouver, BC on 4 July 2023 after several years of ill-health. He was 89 years old. Geoff was born in Fawkham, Kent, UK, on 18 March 1934. He received his B.Sc. from the University of Wales (Aberystwyth) in 1955 and his D.Phil. from Oxford in 1958. He is survived by his wife Jacqueline and daughter Nicola.

Geoff was Professor Emeritus in the Zoology Department of the University of British Columbia (UBC) and spent his entire post-graduate university career (1958-1999) there. He is the only UBC faculty member ever to receive all four of the highest honours the university can bestow—The Master Teacher Award (1976), The Killam Research Prize (1989), the President's Service Award for Excellence (1993), and the UBC Alumni Faculty Citation Award (1997).

Geoff was a giant in the Canadian science museum community. His museum work centred on the Spencer Entomological Collection (SEM) at UBC (now part of the Beaty Biodiversity Museum), where he was director from 1958 to 1999. During this time, the collection more than doubled in size through his collecting efforts, those of his students and curators, and from the donations that he organized. Geoff collected widely across Canada and the world, and few places accessible by road in British Columbia escaped his attention. However, he focused his efforts on the Cariboo-Chilcotin, the South Okanagan, and the Gulf Islands and especially documented the rare and endangered species of these grassland habitats.

As he developed the SEM into one of the most important insect collections in Canada, he also helped curate and improve many other insect collections across Canada and the world. Geoff's support of the Royal BC Museum, for example, was significant. He had been a Museum Research Associate since 2001. He published numerous scientific papers with RBCM entomologists but, more importantly, his curatorial and collections work was invaluable. Geoff identified to species (a supremely specialized task) more than half of the 8000 specimens of Hemiptera in the Museum's collection, many of which he donated himself. He also collected almost 32,000 accessioned specimens of many arthropod groups and many more of his specimens await cataloguing. Extensive collections from his biodiversity surveys in Okanagan grasslands and Cariboo-Chilcotin saline lakes are deposited in the RBCM collection; they provide important baseline data for ongoing studies of environmental and faunistic change.

Geoff's credentials were impressive. He received many awards—from the Order of Canada to the Entomological Society of Canada's Gold Medal, from Fellow of the Royal Society of Canada to the Bruce Naylor Award for exceptional contributions to museum-



based natural history in Canada. When he was presented the last award in 2020, the citation stated: “He has made a brilliant mark on academic life in our nation. But it is the tripartite work of a natural history museum curator and administrator that lies at the heart of his career—field study, collections development and curation; research to expand understanding of the organisms collected and classified; and interpretation, the passing of the knowledge gained to the scientific community and the public.”

How does one begin to describe the phenomenon that was Geoff Scudder? Superb zoologist, intellectual whirlwind, prodigious writer, forceful speaker. Enthusiastic and supportive teacher and mentor. Relentless researcher, tireless insect collector, curious naturalist. Efficient administrator and organizer. Dedicated conservationist, lobbyist for biological causes, and servant of science.

Geoff published more than 250 refereed papers, 6 books, 12 book chapters and nearly 100 other publications ranging from symposium papers to book reviews, from internet articles to scientific briefs. He was a great supporter of the Entomological Society of BC’s publications—he published many papers in the Society’s *Proceedings* and *Journal*. The breadth of his biological interests was astounding—from taxonomy and morphology to ecology and physiology, from biogeography and biological diversity to evolutionary theory and conservation biology. Geoff was a world authority on the seed bug families (Rhyparochromidae, Lygaeidae, and relatives). He described at least two new families, 68 new genera and 275 new species. In addition to his international systematic studies, he made impressive contributions to the taxonomy and diversity of the Canadian fauna of the suborder Prosorrhyncha (= Heteroptera) and was the Canadian expert on this huge group of true bugs.

Geoff’s deep understanding of biological diversity, his scientific commitment, and his work in rare and threatened habitats such as the South Okanagan made him a champion in the conservation movement. For many years he served as a director of the Nature Trust of BC, an influential organization buying land for nature conservation. To honour his work in helping preserve the Okanagan Valley’s natural environments, the Nature Trust of BC established the Dr. Geoff Scudder South Okanagan Grasslands Research Field Station at Vaseux Lake in 2006. Geoff was a founder of the Osoyoos Desert Society and was heavily involved in habitat restoration research and public education at the society’s Osoyoos Desert Centre. He was active in the development of the Canadian Biodiversity Strategy and the federal Species at Risk Act. He was an enthusiastic public educator—writing, speaking, cajoling—just as effective urging students and naturalists into action as he was convincing politicians and bureaucrats to change policies.

As a university teacher and administrator, Geoff was renowned. He received the UBC Master Teacher Award; his lectures overflowed with un-registered students. He supervised 28 master’s students, 10 doctoral students, and 7 post-doctoral fellows. These students went on to careers in natural history museums or are university professors, government researchers, conservation biologists, medical doctors, and





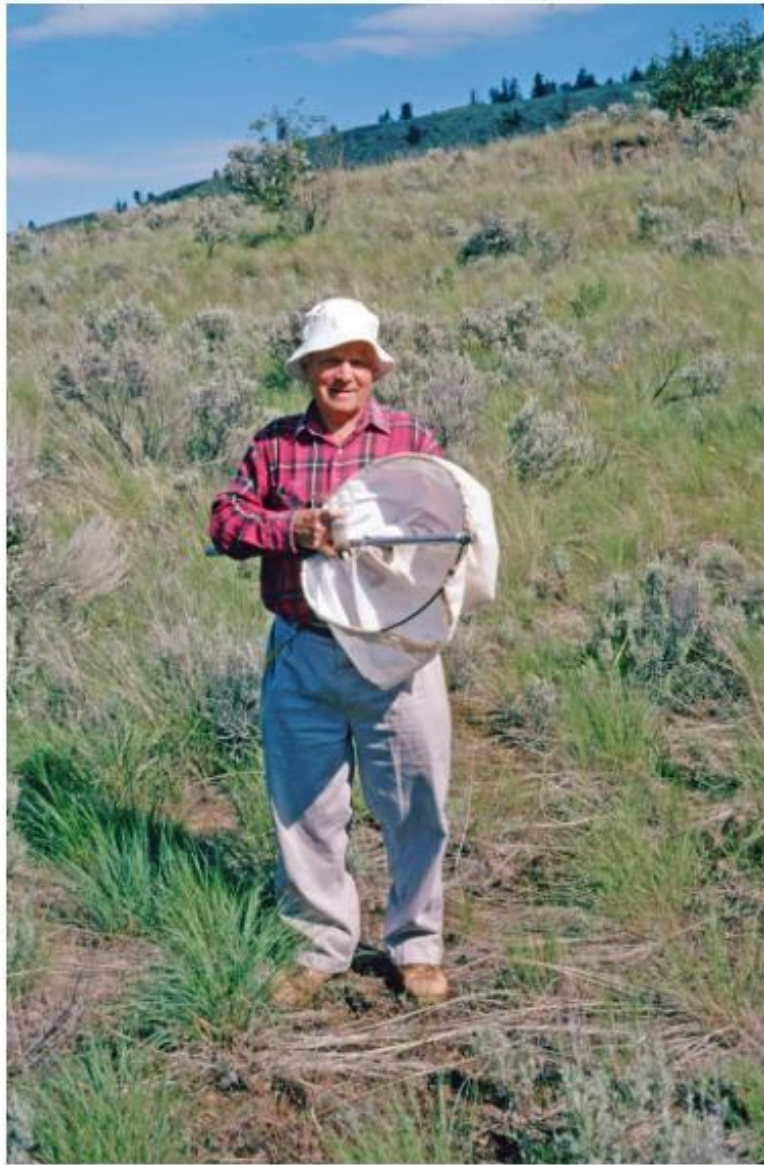
teachers. He was an important mentor to many. Geoff took all university life seriously and spent an inordinate amount of time in exhausting administrative work at UBC. He was head of the Zoology Department from 1976 to 1991. He served on the UBC Senate from 1978 to 1993, most of this time in the challenging job of chair of the budget committee. Similarly, for most of his time on the executive of the Biology Program (1976-1991), he was its chair.

Geoff had a distinguished record of service in science, from the local schoolroom to the world stage. He was a great supporter and promoter of scientific societies and served on dozens, from the Entomological Society of BC (president 1966-67) and Entomological Society of Canada (president 1986-87) to the Royal Society, from the Biological Survey to the American Association for the Advancement of Science. He sat on advisory committees to Agriculture and Agri-food Canada, the Canadian Space Agency, the Canadian Museum of Nature, Environment Canada, and others. As a member of various granting committees of the Natural Sciences and Engineering Research Council of Canada, Geoff helped dispense resources for biological research.

Geoff Scudder led by his example – love of nature, hard work, and scholarship. His energy, commitment and accomplishments profoundly affected, both nationally and internationally, all the diverse aspects of science that he championed.

A more detailed tribute to Geoff Scudder is published in the December 2023 issue of the *Bulletin of the Entomological Society of Canada*.

*Rob Cannings, Curator Emeritus of Entomology, Royal BC Museum*  
*Karen Needham, Lecturer and Curator, Spencer Entomological Collection, Beatty Biodiversity Museum*



*Geoff Scudder, Kilpoola Lake grasslands, Osoyoos, BC, 2006. Photo by Robert A. Cannings*



## Lisa Poirier

The entomological community was sad to learn of the loss of Lisa Poirier, who passed away suddenly and unexpectedly on October 15th of this year. We will be publishing an article on her life in the upcoming issue, to celebrate her accomplishments and contributions to the entomological community. The University of Northern British Columbia, where Lisa was based, are establishing a bursary in her honour – the Lisa Poirier Memorial Scholarship. See Classified section for more details.

## Classifieds

### Lisa Poirier Memorial Scholarship

Dear Friends and Colleagues of Dr. **Lisa** Poirier

We were all saddened at the sudden loss of Lisa earlier this fall. Lisa was a wonderful friend and colleague, and passionate in her support of Entomological teaching, research and promotion at UNBC and in Canada.

It is for this reason that UNBC and Lisa's family are initiating a bursary in her honour – the **Lisa** Poirier Memorial Scholarship. This scholarship will be presented annually to an undergraduate or graduate student at UNBC who is pursuing their studies in the field of Entomology.

Our goal is to establish an endowment for this award that maintain this as a legacy scholarship for future generations of entomologists. UNBC has established a special fund on the UNBC Giving website that allows designated donations to be made towards establishing this endowment.

If you would like to contribute to this endowment in memory of **Lisa**, you can do so via the UNBC Giving website - <https://www.unbcgiving.ca/>  
On the linked page, you can select drop-down menu on the "Give to:" donation category, and select "**Lisa** Poirier Memorial Scholarship"  
Donations are tax-deductible, and receipts are automatically generated and sent to donators.

Please distribute this announcement freely to all that you feel were moved by Lisa's life.

All of us in the Department of Ecosystem Science & Management thank you for your support towards building this legacy in Lisa' honour.

Dr. Ken Otter, Chair, Dept of ESM



## 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](http://www.kelownamuseums.ca).



*Buckell's Grig on snow. Or as this Editor would title the photo "Snowy Cricket". Photo by Bob Lalonde*



## Upcoming Grant and Funding Opportunities

### EntSocBC Special Projects Grant

Every year, the ESBC invites applications for funding requests for projects that advance and promote entomological knowledge in the province of British Columbia. Projects address the following goals:

- Contribute to the understanding of insects and relatives in British Columbia
- Raise appreciation of insects and relatives in British Columbia
- Contribute to insects and relatives' conservation in British Columbia

The amount and number of projects funded annually depends on available funds. Up to a total of \$5000 CAD across all projects is available annually. Requests for funds that exceed this amount will be considered on a case-by-case basis.

Applications are accepted and evaluated twice annually. The next deadline is **March 1<sup>st</sup> 2024**. Visit <https://entsocbc.ca/awards-scholarships/esbc-special-projects-grant/> to find out more.

**Application Deadline: March 1<sup>st</sup> 2024**

### Entomological Society of Canada Student Awards

Details of Awards at <https://esc-sec.ca/student/student-awards/> . Deadline for all awards is **March 1 of each year**. Look on the website for eligibility for each award.

- Entomological Society of Canada Danks Scholarships
- Entomological Society of Canada Graduate Research Travel Scholarships
- Entomological Society of Canada Postgraduate Awards
- Entomological Society of Canada John H. Borden Scholarship
- Entomological Society of Canada Dr Lloyd M Dodsall Memorial Scholarship
- Biological Survey of Canada Scholarship
- Keith Kevan Scholarship
- Entomological Society of Canada Ed Becker Conference Travel Awards

**Application Deadline: March 1<sup>st</sup> 2024**



# Employment and Research Postings

## Permanent Opportunities

### Provincial Forest Entomologist (LSO FORS 3/ STO-RE 27R)

The Ministry of Forests is responsible for the stewardship of provincial Crown land and ensures the sustainable management of forest, wildlife, water and other land-based resources. The Ministry works with Indigenous and rural communities to strengthen and diversify their economies.

This position provides provincial oversight and expertise in the prevention and management of insect threats to forest resources and values. This position represents entomology interests on proposed and amended legislation and policy initiatives as well as acts as the Ministry's forest entomology expert in identifying and creating key linkages to other related Ministry, provincial and federal programs.

**Application Deadline: January 2<sup>nd</sup> 2024**

### E.S. Cropconsult Ltd. Supervisor & Assistant Supervisor Positions

E.S. Cropconsult personnel provide professional consulting in pest and disease monitoring to local farmers and have expert knowledge of local agricultural challenges. At present, we provide services to 10,000+ acres of 12 agricultural commodities of perennial and annual field crops. With a long-term commitment to our clients and staff, E.S. Cropconsult provides a unique opportunity to learn not only leadership and management skills but also a vast knowledge of the agriculture industry, crops, pest biology and their management. We are a small woman-owned and operated company that values integrity, career progression, and inclusivity within the workplace.

We have an exciting opportunity for a full-time permanent Supervisor Position and two Assistant Supervisor Positions in the Fraser Valley and Metro Vancouver.

#### ***Supervisor Position (1 position)***

This position is responsible for the supervision of 5-15 client contracts by leading a team to collect pest information and ensuring the best possible management solutions according to an IPM strategy. This position is in-person during the growing season with workflow flexibility in the winter months.

#### ***Assistant Supervisor Position (2 positions)***



A successful applicant in this position will collaborate with a supervisor to lead a team in collecting pest information and ensuring the best possible management solutions according to an IPM strategy for numerous clients. This position is in-person during the growing season with workflow flexibility in the winter months.

The chosen applicant is expected to meet the requirements of a Supervisor Position after one year following the start date. An evaluation will be held and position title and pay will be increased accordingly.

Visit [www.escropconsult.com/employment](http://www.escropconsult.com/employment) or contact Megan Gray at [megan@escrop.com](mailto:megan@escrop.com) for more information.

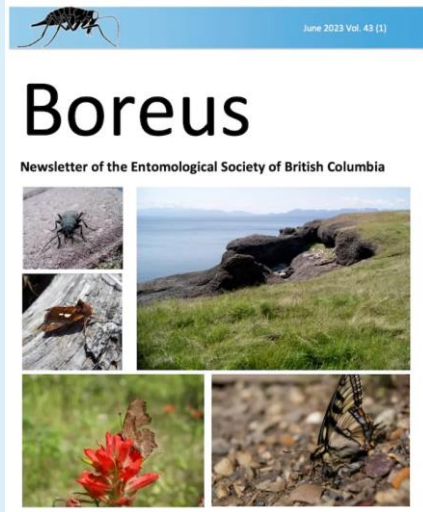
**Application Deadline: January 31<sup>st</sup> 2024**



*Katydid nymph on rose. Photo by Bob Lalonde*



## Got something to share? Submit to 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 Joyce Leung at [boreus@entsocbc.ca](mailto: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.