



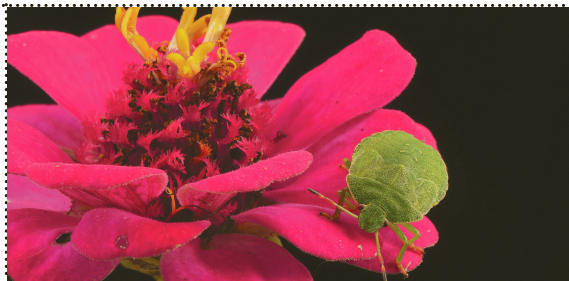
# THE CANADIAN ENTOMOLOGIST

VOLUME 150  
NUMBER 4

AUGUST 2018



Published Bi-monthly by  
Cambridge University Press  
[www.cambridge.org](http://www.cambridge.org)



ISSN 0008-347X

# The Canadian Entomologist

**Manuscripts.** *The Canadian Entomologist* accepts manuscript submissions through the ScholarOne Manuscripts system at <http://mc.manuscriptcentral.com/tce>. For questions concerning "General Information and Instructions to Authors," please contact the Editor Dezene Huber by email at [dezene.huber@unbc.ca](mailto:dezene.huber@unbc.ca) or telephone at +1 250-960-5119.

**Publishing, Subscription, and Advertising Offices.** Cambridge University Press, One Liberty Plaza, New York, NY 10006, U.S.A.; or Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.

*The Canadian Entomologist* (ISSN 0008-347X) is published bimonthly by Cambridge University Press, One Liberty Plaza, New York, NY 10006; Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK. Annual subscription rates for Volume 150, 2018: Institutions print and online £424/\$678; institutions online only £284/\$457; single part £81/\$130, payable in advance or on receipt of invoice; institutional check or credit card only. *The Canadian Entomologist* and all other Cambridge Journals can be found at <http://journals.cambridge.org/>

© Entomological Society of Canada 2018. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms, and contacts are available at: <http://www.cambridge.org/rights/permissions/permission.htm>

The Entomological Society of Canada grants permission to individuals to make single copies of articles for personal use. Short excerpts from articles in the journal may be reproduced for any purpose that respects the moral rights of authors, provided that the source is fully acknowledged.

Although the Entomological Society of Canada holds the copyrights to *The Canadian Entomologist*, it does not hold the copyrights to the contents of any papers published prior to 2002. Therefore, authorization to reproduce items for other than personal use, as stated above, for material published before 2002 requires the consent of the authors or their descendants. Authorization to reproduce material published since 2002 can be obtained by contacting the Chair of the Publications Committee, Maya Evenden at [mevenden@ualberta.ca](mailto:mevenden@ualberta.ca).

[www.esc-sec.ca](http://www.esc-sec.ca)

Entomological Society of Canada, 386 Broadway, Suite 503, Winnipeg, Manitoba, R3C 3R6 Canada

Publications Mail Registration No. 09572

Publications Mail Agreement No. 40033986

Date of issue: August 2018

Permission to copy (for users in the U.S.A.) is available from Copyright Clearance Center, <http://www.copyright.com>, email: [info@copyright.com](mailto:info@copyright.com).

Periodicals postage paid at New York, NY, and additional mailing offices.

Postmaster: Send address changes in the U.S.A., Canada, and Mexico to: *The Canadian Entomologist*, Journals Dept., Cambridge University Press, One Liberty Plaza, New York, NY 10006, U.S.A. Send address changes elsewhere to: *The Canadian Entomologist*, Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.

---

**Manuscripts.** *The Canadian Entomologist* accepte les soumissions de manuscrits par le système ScholarOne Manuscripts sur <http://mc.manuscriptcentral.com/tce>. Pour des questions concernant les informations générales et les instructions aux auteurs veuillez contacter le rédacteur en chef, Dezene Huber par courriel [dezene.huber@unbc.ca](mailto:dezene.huber@unbc.ca) ou téléphone +1 250-960-5119.

**Bureaux de publication, abonnements et publicité.** Cambridge University Press, One Liberty Plaza, New York, NY 10006, É.-U. ; ou Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.

*The Canadian Entomologist* (ISSN 0008-347X) est publié tous les deux mois par Cambridge University Press, One Liberty Plaza, New York, NY 10006; Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK. Abonnement annuel pour le volume 150, 2018 : version papier et en ligne pour les institutions 424 £/678 \$ ; version en ligne seulement pour les institutions 284 £/457 \$ ; pièce unique 81 £/130 \$, payables à l'avance ou sur réception de la facture ; chèque institutionnel ou carte de crédit seulement. *The Canadian Entomologist* et les autres revues de Cambridge se trouvent sur <http://journals.cambridge.org/>

© La Société d'entomologie du Canada 2018. Tous droits réservés. Aucune partie de cette publication ne peut être reproduite, sous quelque forme ou par quelque moyen que ce soit, électronique, photocopie, ou autre, sans l'autorisation écrite de Cambridge University Press. Les politiques, formulaires de demande, et les contacts sont disponibles sur : <http://www.cambridge.org/rights/permissions/permission.htm>

La Société d'entomologie du Canada donne la permission à des individus de faire des copies uniques des articles pour usage personnel. De courtes sections des articles peuvent être reproduites pour tout usage qui respecte le droit moral des auteurs, en autant que la source est pleinement reconnue.

Bien que la Société d'entomologie du Canada détienne les droits d'auteur de la revue *The Canadian Entomologist*, elle ne possède pas ces droits pour tout article publié avant 2002. Par conséquent, l'autorisation pour reproduire du matériel publié avant 2002 pour toutes autres fins que personnelles, tel que cité précédemment, requière le consentement de l'auteur ou de ses descendants. Vous pouvez obtenir l'autorisation de reproduire du matériel publié depuis 2002 en contactant le président du Comité des publications, Maya Evenden à [mevenden.ualberta.ca](mailto:mevenden.ualberta.ca).

[www.esc-sec.ca](http://www.esc-sec.ca)

La Société d'entomologie du Canada, 386 Broadway, Suite 503, Winnipeg, Manitoba, R3C 3R6 Canada

Poste-publications enregistrement n° 09572

Convention du service poste-publication n° 40033986

Date de publication: août 2018

La permission de reproduire (pour les utilisateurs aux États-Unis) est disponible à partir du *Copyright Clearance Center*, <http://www.copyright.com>, courriel : [info@copyright.com](mailto:info@copyright.com).

Port payé à New York, NY, et dans les bureaux de poste supplémentaires.

Maître de poste : Envoyer les changements d'adresse aux États-Unis, au Canada et au

Mexique à : *The Canadian Entomologist*, Journals Dept, Cambridge University Press, One Liberty Plaza, New York, NY 10006, États-Unis. Envoyer tout changement d'adresse ailleurs dans le monde à : *The Canadian Entomologist*, Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.

---

# The Canadian Entomologist

Volume 150

August 2018

Number 4

---

## Systematics & Morphology

---

- T. Yasunaga, H. Asanabe, A. Hirano, H. Momosaka, T. Nagashima, M. Hayashi**—A unique new species of halophilous water strider of the genus *Aquarius* Schellenberg (Hemiptera: Gerridae: Gerrinae) endemic to Omura Bay, Nagasaki, Japan . . . . . 413
- Z. Nedeljković, A. Ricarte, L. Šašić Zorić, M. Đan, D.O. Vidaković, A. Vujic**—The genus *Xanthogramma* Schiner, 1861 (Diptera: Syrphidae) in southeastern Europe, with descriptions of two new species. . . . . 440
- S.K. Korb**—Notes on some primary types of Papilionidae (Lepidoptera) deposited in the Museum für Naturkunde, Berlin, Germany . . . . . 465
- M.F. López, F. Armendáriz-Toledano, A. Albores-Medina, G. Zúñiga**—Morphology of antennae of *Dendroctonus vitei* (Coleoptera: Curculionidae: Scolytinae), with special reference to sensilla clustered into pit craters. . . . . 471
- R.J. Pivar, L.C. Pinho, W.E. Klingeman, J.K. Moulton, B.J. Sinclair**—A new genus and species, and first record of the family Thaumaleidae (Diptera) from Brazil . . . . . 481

## Systematics & Morphology—Note

---

- D.L.J. Quicke, P.D.N. Hebert, B.A. Butcher**—DNA barcoding reveals the Palearctic species *Histeromerus mystacinus* (Hymenoptera: Braconidae: Rhyssalinae) in eastern North America. . . . . 495

## Behaviour & Ecology

---

- R. Sabbahi, L. Royer, J.E. O'Hara, A.M.R. Bennett**—A review of known parasitoids of hemlock looper (Lepidoptera: Geometridae) in Canada and first records of egg and larval parasitoids in Labrador forests . . . . . 499

## Biodiversity & Evolution

---

- J.-C. Tourneur**—Factors affecting the egg-laying pattern of *Forficula auricularia* (Dermaptera: Forficulidae) in three climatologically different zones of North America. . . . . 511
- B.J. Hicks, B.L. Pilgrim, E. Perry, H.D. Marshall**—Observations of native bumble bees inside of commercial colonies of *Bombus impatiens* (Hymenoptera: Apidae) and the potential for pathogen spillover . . . . . 520

## Insect Management—Note

---

- J.J. Mlynarek, R.M. Labbé**—*Trialeurodes abutiloneus* (Haldeman) (Hemiptera: Aleyrodidae), a species long present but never officially recorded in Canada. . . . . 532



# The Canadian Entomologist

## Editor-in-Chief/Directeur scientifique en chef

Dezene Huber  
*Prince George, British Columbia*

## Editorial Assistant/Adjoint à la rédaction

Andrew B.T. Smith  
*Ottawa, Ontario*

## Subject Editors/Rédacteurs thématiques

Barbara Bentz  
*United States Department of  
Agriculture–Forest Service  
Logan, UT*

Susan Bjornson  
*St. Mary's University, Halifax, NS*

Suzanne Blatt  
*Agriculture and Agri-Food Canada  
Kentville, NS*

Christopher Buddle  
*McGill University, Montréal, QC*

Hervé Colinet  
*CNRS, Université de Rennes 1  
Rennes, France*

Christopher Cutler  
*Dalhousie University  
Truro, NS*

Leah Flaherty  
*MacEwan University, Edmonton, AB*

Kevin Floate  
*Agriculture and Agri-Food Canada  
Lethbridge, AB*

Robert Johns  
*Natural Resources Canada–  
Canadian Forest Service  
Fredericton, NB*

Cécile Le Lann  
*Université de Rennes 1  
Rennes, France*

Zoë Lindo  
*University of Western Ontario  
London, ON*

Lisa Lumley  
*Royal Alberta Museum  
Edmonton, AB*

Veronique Martel  
*Natural Resources Canada–  
Canadian Forest Service  
Québec, QC*

Julia Mlynarek  
*Agriculture and Agri-Food Canada  
Harrow, ON*

Chandra Moffat  
*Agriculture and Agri-Food Canada  
Fredericton, NB*

Matthew O'Neal  
*Iowa State University  
Ames, IA*

Dylan Parry  
*State University of New York  
Syracuse, NY*

Therese Poland  
*United States Department of  
Agriculture–Forest Service  
Lansing, MI*

Deepa Pureswaran  
*Natural Resources Canada–  
Canadian Forest Service  
Québec, QC*

Mark Rheault  
*University of British Columbia–  
Okanagan  
Kelowna, BC*

Amanda Roe  
*Natural Resources Canada–  
Canadian Forest Service  
Sault Ste. Marie, ON*

Christian Schmidt  
*Agriculture and Agri-Food Canada  
Ottawa, ON*

Cory Sheffield  
*Royal Saskatchewan Museum  
Regina, SK*

David Siaussat  
*Université Pierre et Marie Curie  
Paris, France*

Derek Sikes  
*University of Alaska  
Fairbanks, AK*

Bradley Sinclair  
*Canadian Food Inspection Agency  
Ottawa, ON*

Andrew Smith  
*Entomological Society of Canada  
Ottawa, ON*

Chris Starr  
*University of the West Indies  
St. Augustine, Trinidad and Tobago*

Jianghua Sun  
*Institute of Zoology  
Chinese Academy of Sciences  
Beijing, China*

Jon Sweeney  
*Natural Resources Canada–  
Canadian Forest Service  
Fredericton, NB*

John Wise  
*Michigan State University  
Fennville, MI*

Alejandro Zaldívar-Riverón  
*Universidad Nacional  
Autónoma de México  
Mexico City, Mexico*

Zhou Zhen  
*Chinese Academy of Sciences  
Beijing, China*