

Joint Annual Meeting of the Entomological
Societies of Canada and Saskatchewan
Entomology in a Changing World

Saskatoon, Saskatchewan

Sunday 28 September – Wednesday 1 October, 2014

Radisson Hotel

405-20th Street E

Entomology
IN A CHANGING WORLD
ESC-ESS 2014
SASKATOON

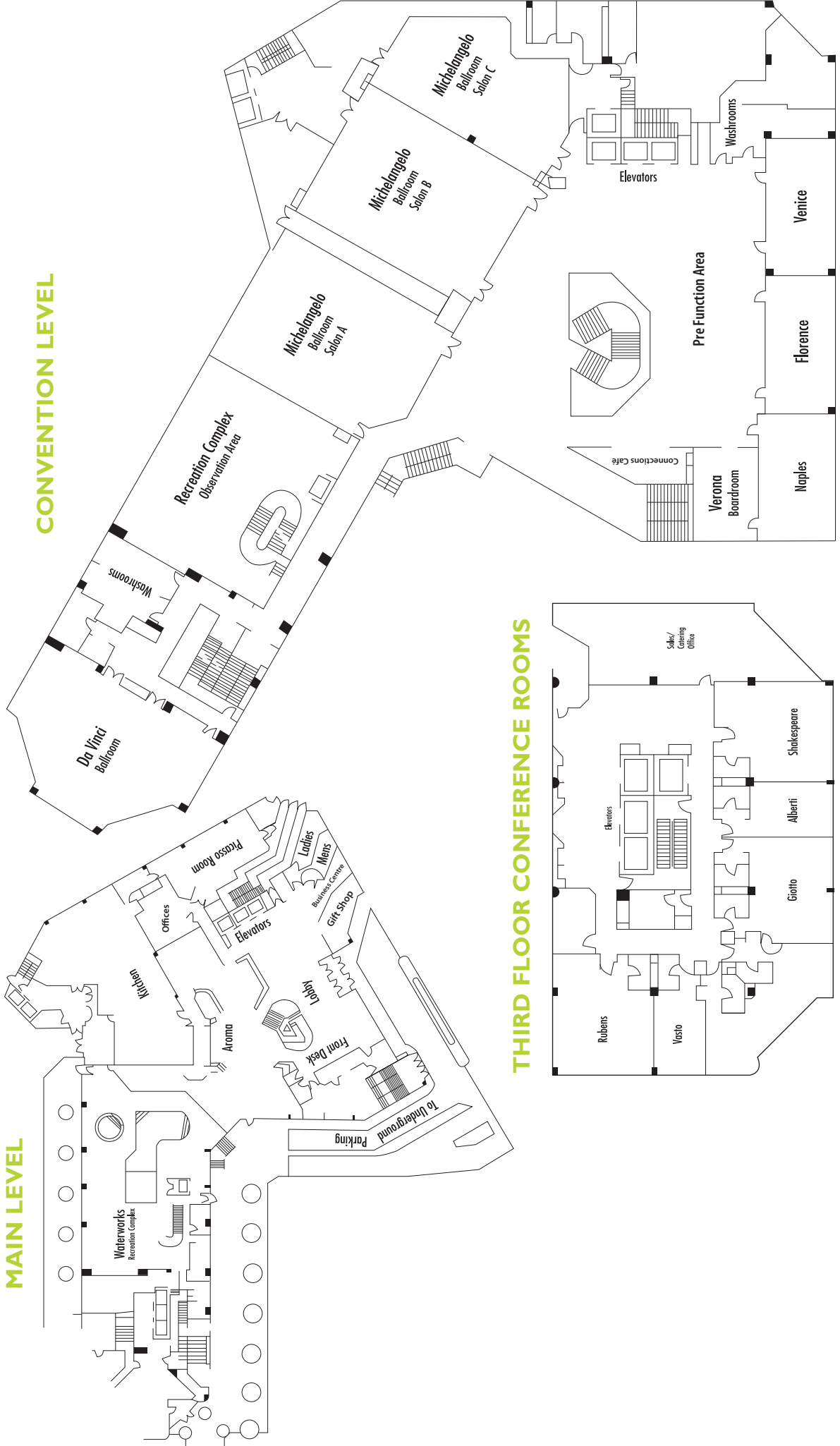


Réunion annuelle conjointe des Sociétés
d'entomologie du Canada et de la Saskatchewan
L'entomologie dans un monde en changement

Dimanche 28 septembre – mercredi 1 octobre 2014

Hôtel Radisson





MAIN LEVEL

CONVENTION LEVEL

THIRD FLOOR CONFERENCE ROOMS

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Society Officers - 2014

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Secretary/Secrétaire

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Staffan Lindgren

Treasurer/Trésorier

Scott Brooks

Second Vice-president/Deuxième vice-président

Terry Wheeler

Past President/ Présidente sortant

Rose DeClerck-Floate

Scientific Editors/Editeurs scientifique

Chris Buddle (**The Canadian Entomologist**)

Cedric Gillott (**Bulletin**)

Entomological Society of Saskatchewan

President

Margie Gruber

Secretary

Iain Phillips

Vice-president

Dave Halstead

Treasurer

Dwayne Hegedus

Past President

Jeff Boone

Regional Director to E.S.C.

Jeff Boone

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Julie Soroka
Chrystel Olivier

Scientific Program

Martin Erlandson
Cedric Gillott
Ross Weiss

Treasurer/Registration

Dwayne Hegedus

Fundraising

Jeff Boone
Iain Phillips

Local Arrangements/Accommodations

Keith Moore
Wayne Goerzen

Registration Desk

Julie Soroka
Dwayne Hegedus

Audio-visual/Displays

Doug Baldwin
Wayne Goerzen

Banquet/Receptions

Keith Moore
Owen Olfert
Chrystel Olivier
Tyler Wist
Wayne Goerzen

Awards

Art Davis
Julie Soroka

Photography

Tyler Wist
Larry Grenkow
Brittney Hoemsen
Marianna Horn

Publicity

Tyler Wist
Chrystel Olivier
Jeff Boone (Web Site)

Printing

Cedric Gillott
Ruwandi Andrahennadi (layout)

JAM2014 THEME

ENTOMOLOGY IN A CHANGING WORLD

The theme *Entomology in a Changing World* was selected to reflect the advanced state of entomological knowledge and expertise in 2014 and beyond. The physical and ecological changes in our environment, including climate change, environmental degradation, desertification and reductions in agricultural land, raise issues such as: How are insects adapting? How are we adapting to insects' adaptations? The entomological world is becoming exceedingly complex and technological. As individuals become more specialized, collaboration with others who have complementary skills is key. The options for technology transfer are increasingly diverse. Entomological innovations need to be presented in a format where non-experts can seamlessly use it in people's daily lives. Societal changes, including increased human populations and a more urbanized landscape, have resulted in a need to become more familiar with insect function. Social expectations are changing – How can entomology support society's desire for less pesticide use but with low food prices and unblemished food? Advances in chemical ecology, biological processes and genome mapping are changing the scope of our entomological knowledge (e.g., bar code of life) – How are cutting edge scientific techniques and breakthroughs affecting entomology and vice versa? In conclusion, succession planning has become an issue – What is the relevance of entomological research now and in the future? What is the role of government policy in science?

JAM2014 LOGO



The Entomological Society of Saskatchewan would like to express their sincere appreciation to Leila Benmerrouche for her artistic design of the JAM2014 logo. Leila is a University of Saskatchewan Biology and SIAST Integrated Resource Management student intent on pursuing a career in Entomology. She comes by her artistic talent through web-design and photography.

Insects are proving to be especially fertile ground for new ideas. They serve as model organisms for advances in a diverse array of disciplines including nanotechnology, robotics, social networking, architecture and art. They also function as bio-indicators and are used extensively for biological control and remediation. These and many other notable applications are transforming the way we view insects. This transformation is symbolized by our ESC-ESS JAM2014 logo that features a chrysalis- enveloped planet. The logo highlights the North American perspective as evidenced by the continental face of the developing pupa; including the three oceans associated with Canada's land mass. The Arctic Ocean is also coloured blue to highlight the loss of polar ice bodies due to recent warming trends. The hues of the theme text pay tribute to the host province by emphasizing Saskatchewan's provincial colours of green and gold.

General Information

Registration Desk

The registration desk will be located in the Crush Lobby. The registration desk will be open during the following hours: Saturday, 27 September – 15:00 to 19:00; Sunday 28 September – 08:00 to 18:00; Monday 29 September – 08:00 to 18:00; Tuesday 30 September – 08:00 to 18:00; and Wednesday, 1 October – 08:00 to 12:00.

Oral Presentations

Contributed oral presentations and President's Prize oral presentations are 12 minutes each plus 3 minutes for questions. Moderators are asked to strictly adhere to the 15 minute time limit as there are a number of concurrent sessions. All oral talks (President's Prize, contributed and symposium) must be uploaded in the Conference Office, the Verona Room, in a Microsoft Power Point or Adobe Reader compatible format on USB memory sticks. The presenters are asked to upload their presentations one day before their scheduled time slot. The Verona Room will be open for uploading of talks on Saturday, 27 September from 15:00 to 18:00 and on Sunday, 28 September through Tuesday, September 30 from 08:00 to 17:00. No 'rehearsal room' is available.

Posters

Posters (maximum of 1.2 m high x 1.2 m wide) should be set up in the Crush Lobby between 12:00 and 17:00 on Sunday, 28 September 2014. Each poster has been assigned a number (see Program) and should be set up in the space allocated.

Pins or Velcro will be provided dependent on the type of board.

Poster presenters should be in attendance at their poster from 17:00 to 18:30 on Monday, 29 September 2014.

Posters may be taken down at the presenter's discretion, but not later than 16:00 on Tuesday, 30 September 2014.

Session Locations

All of the Scientific Program and meeting sessions will be held in rooms on the Conference Level of the Radisson Hotel. Please consult the schedule of events and the scientific program for the exact times and room locations.

Refreshment Breaks

Refreshment breaks are included during the meeting and will take place in the Crush Lobby.

Social Functions

A welcome reception will be held in the Da Vinci ballroom on Sunday, 28 September from 19:00 to 21:00. The President's Reception, *by invitation only*, will be held in the River Room on Monday, 29 September starting at 19:30. All students are encouraged to attend the Student Mixer in the Picasso Room on Monday, 29 September starting at 19:30. The annual banquet and awards presentations will be held Tuesday, 30 September in Michelangelo B/C starting with a cocktail hour 18:00 -19:00 and the banquet to follow.

Silent Auction

Graduate student members of the ESC and ESS will be holding a silent auction of items of entomological interest. Items will be displayed in the Crush Lobby all day Monday and Tuesday. Please submit all bids by Tuesday, 30 September at 16:00.

Other Business Meetings

Affiliated business meeting will be held during the conference. The ESC Governing Board meeting will be held on Saturday, 27 September starting at 08:30 in the Florence room. The editorial board meeting of *The Canadian Entomologist* will be in the Da Vinci Ballroom on Monday, 29 September from 12:00 to 14:00. The Entomological Society of Canada Annual General Meeting will be held on Tuesday, 30 September at 17:00 in Michelangelo A. All society members are encouraged to attend.

SUMMARY OF MEETING SCHEDULE

Saturday, 27 September

08:30 – 17:30	Entomological Society of Canada Governing Board meeting	<i>Florence Room</i>
15:00 – 19:00	Registration	<i>Crush Lobby</i>

Sunday, 28 September

08:00 – 18:00	Registration	<i>Crush Lobby</i>
10:00 – 12:00	Opening Ceremonies, ESC Awards, Gold Medal Address, Heritage Lecture	<i>Michelangelo B/C</i>
13:30 – 15:00	Plenary Session: Entomology in a changing world	<i>Michelangelo B/C</i>
12:00 – 17:00	Poster set-up	<i>Crush Lobby</i>
15:30 – 17:30	Graduate Student Showcase	<i>Michelangelo B/C</i>
19:00 – 21:00	Welcome reception	<i>Da Vinci Ballroom</i>

Monday, 29 September

08:00 – 18:00	Registration	<i>Crush Lobby</i>
08:30 – 12:00	Symposium I: Biological Control in a Changing World	<i>Naples Room</i>
08:30 – 12:00	President's Prize Oral Papers Session I (Bees, Pollination) Session II (Biodiversity, Conservation)	<i>Florence Room</i> <i>Venice Room</i>
12:00 – 14:00	TCE Editorial Board Meeting	<i>Da Vinci Ballroom</i>
13:30 – 17:00	Symposium II: Urban Forest Entomology	<i>Naples Room</i>
13:30 – 16:45	President's Prize Oral Papers Session III (Arthropod Biology) Session IV (Pest Management)	<i>Florence Room</i> <i>Venice Room</i>

17:00 – 18:30	Poster Session (President’s Prize Entries and Contributed) (presenters in attendance)	<i>Crush Lobby</i>
19:30 – 21:30	Student Social	<i>Picasso Room</i>
19:30 – 21:30	President’s reception (by invitation)	<i>River Room</i>

Tuesday, 30 September

08:00 – 18:00	Registration	<i>Crush Lobby</i>
08:30 – 12:00	Symposium III (Biological Survey of Canada): Opposite ends of the time scale - ancient and recent changes in insect diversity (followed by BSC AGM)	<i>Naples Room</i>
08:30 – 12:00	Symposium IV (Canadian Forum for Biological Control): Novel approaches to improve and understand biological control (followed by CFBC AGM)	<i>Venice Room</i>
08:30 – 12:00	Contributed Paper Session I (Pest Management)	<i>Florence Room</i>
12:00 – 13:30	Lunch and Learn (sponsored by Dow Agrosciences)	<i>Florence Room</i>
13:30 – 17:00	Symposium V: Arthropod “omics” – Impact on management	<i>Naples Room</i>
13:30 – 17:00	Contributed Paper Session II (Biodiversity, Phylogeny, Evolution)	<i>Venice Room</i>
17:00 – 18:00	ESC Annual General Meeting (followed by ESC Governing Board Meeting)	<i>Michelangelo A</i>
18:00 – 19:00	Pre-banquet Reception	<i>Michelangelo B/C</i>
19:00 – 23:00	Banquet and Award Presentations	<i>Michelangelo B/C</i>

Wednesday, 1 October

08:00 – 12:00	Registration	<i>Crush Lobby</i>
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08:30 – 12:00	Contributed Paper Session III (Forestry, Semiachemicals, Insect Biology)	<i>Naples Room</i>
08:30 – 12:00	Contributed Paper Session IV (Biocontrol, Bees, Pollination)	<i>Florence Room</i>

Gold Medal Award / Médaille d'or

David R. Gillespie

Dr David R. Gillespie is the 2014 recipient of the Entomological Society of Canada's Gold Medal. This award, now in its 52nd year, recognizes outstanding achievement in Canadian entomology, including "superior research accomplishment", "meritorious contribution to entomological scholarship", and "dedicated and fruitful service in the field of entomological education in Canada", all of which eminently exemplify Dave Gillespie's career.



Dave Gillespie grew up on the west coast of British Columbia, where tide pools and things under rocks sparked his interest in biology and biodiversity. He enrolled at Simon Fraser University (SFU), fully intending to pursue a career in marine biology. An introductory course in insect biology, taught by Professor Thelma Finlayson, dramatically and permanently changed his career course. Thelma Finlayson, Bryan Beirne, John Borden and Manfred Mackauer had a strong influence on his career and were especially important teachers and mentors for Dave. Thelma's focus on student mentoring had a particularly strong influence.

Since obtaining his PhD at SFU in 1982, Dave has been employed by Agriculture Canada / Agriculture and Agri-Food Canada at Sidney, Vancouver, and Agassiz, British Columbia. Dave has maintained a close association with faculty and students of the Centre for Pest Management at SFU, and is currently an adjunct Professor in the Department of Biological Sciences. He has held many research grants and contracts, some in collaboration with the faculty of the Centre for Pest Management at SFU and the Department of Biology, University of Windsor, Ontario, where Dave has been an adjunct professor since 2009. He was also appointed *ad hoc* professor, Department of Entomology, Cornell University, New York, in 2009.

Dave Gillespie has had a highly productive career with over 200 publications, including 88 peer reviewed and 34 books or book chapters. His research on natural enemies of insects and mites has contributed directly to the widespread use of many of these species for biological control in commercial greenhouse operations around the world. Research on responses of greenhouse insects to colour led to the use of colour traps for monitoring greenhouse pests, specifically the development of yellow sticky traps for monitoring greenhouse whitefly and blue sticky traps for monitoring western flower thrips. On a more fundamental level, his research program has centred on developing a theoretical framework for selecting a natural enemy for use in classical, augmentative and

inundative release programs. Inherent in this are studies on the biotic and abiotic constraints that affect the interaction between natural enemies and target and non-target organisms, and between natural enemies in food webs. During the past 10 years of his career, Dave has concentrated his efforts on developing biological control agents for outdoor vegetable and field crops. He is currently the principal investigator for an AAFC project on the biological control of cabbage seedpod weevil in Canada. This insect pest costs the canola industry millions of dollars per year in yield loss. Under Dr Gillespie's capable leadership, considerable progress has been made by his team in identifying a key European biological control agent that may significantly reduce both the damage from the pest weevil and reduce the pesticide input in the canola crop. The second aspect of his program has been to develop theoretical structure that lets researchers think about and study pest-natural enemy interactions in the context of sustainable landscapes. These projects have focused on global change effects on ecosystem processes, and the influence of landscape and community structure on natural enemy impacts on target pests. His significant contributions include

- *Use of omnivorous predators in biological control*
- *Biological control of aphids in greenhouses*
- *Climate change and biological control communities*
- *Classical biological control and non-target host evaluation*

Dave has had a very significant impact in agriculture, and has contributed many innovative ideas and new natural enemies for biological control of important arthropod pests. Brian Spencer, General Manager, Applied Bio-nomics, Sidney, summed up Dave's impact in a statement made in 2010: "*In the world of Biological Pest Control, Dave Gillespie stands out as the single most productive and supportive researcher for the past 30 years in Canada. In my opinion, no other individual has contributed as much during this period.*"

Dave Gillespie worked for the first 20+ years of his career with the greenhouse vegetable industry in Canada. He has played an important role in the development of an international industry for the production of natural enemies for use in greenhouse agriculture, including companies based in Canada, resulting in drastic reduction of reliance on pesticides on our greenhouse vegetables (tomatoes, peppers and cucumbers). In recognition of Dave's extraordinary contributions to the biocontrol producers, both in terms of providing new agents and expert advice, Applied Bio-nomics requested that a previously unknown predaceous mite be named in Dave's honour. This species was formally named *Gaeolaelaps gillespiei* Beaulieu, 2009. In addition to this species, Dave has been directly involved in introducing to the greenhouse industry a number of beneficial insects and mites as biological control agents including *Amblyseius cucumeris*, a predatory mite for western flower thrips control; *Stratiolaelaps scimitis*, a predatory mite for fungus gnat and thrips control; *Feltiella acarisuga*, a predatory midge for two-spotted spider mite control; *Dicyphus hesperus*, a true bug for whitefly control; *Micromus variegatus*, a brown lacewing for whitefly control (being developed currently by Applied Bio-nomics); and *Praon unicum*, a parasitic wasp for foxglove aphid control (being developed currently by Koppert, The Netherlands).

These biological control agents are offered by major international producers, such as Koppert, Biobest (Belgium), and Hydro-Gardens (USA). One of Dave's first discoveries, *S. scimitus*, continues to be one of the largest selling and most widely used

beneficial mites in the world. This mite is also the most common “first introduction” for greenhouse managers making the transition from pesticide applications into biological pest control of greenhouse crops.

Dave has had a significant impact on the careers of many students of entomology in Canada. He has co-supervised and served on the thesis supervisory committees for 15 graduate students (MSc, Master of Pest Management [MPM] and PhD) at SFU and other institutions, and has served as external and public examiner on thesis defenses. In addition, Dave has supervised undergraduate co-operative education students, providing many with their first experience in a research environment. Some of the recipients of his mentorship are now conducting productive research in academic, government and private institutions across the country. For example, Dave’s former post-doctoral fellow, Dr Sherah VanLaerhoven, is now a professor at the University of Windsor, and has been recognized with “Canada’s Top 40 under 40” award (2006), and the Entomological Society of Canada’s “C. Gordon Hewitt Award” (2009). In addition to direct supervision of students, Dave has generously committed time to share his expertise with students and the public through lectures, courses, and field trips. Dave has interacted with hundreds of students in the above mentioned capacities, sharing his wealth of knowledge and enthusiasm for natural history, pest management, entomological research, experimental design, statistical analyses, and much more. He has also contributed to increased awareness of ongoing research and the importance of agricultural research in general through public presentations such as *Ag in the City*, a technology transfer event. Dave Gillespie is a member of many professional societies. He has contributed to the Entomological Society of Canada as Director at Large (2002–2005); Chair, Student Awards Committee (2000–2003); and Chair, Finance Committee (2004–2007). He has also served as the President, Entomological Society of British Columbia (1997); President, Professional Pest Management Association of British Columbia (1986–1987); Secretary, Canadian Forum for Biological Control (1998–1999); and Chair, Organizing Committee for the International Organisation for Biological Control (IOBC) joint meeting of the West Palearctic and Nearctic greenhouse IPM working groups, Victoria, British Columbia, 2002.

Dave Gillespie has been recognized for his contributions to pest management, biocontrol and agriculture through several prestigious awards, including the *Award of Excellence* from the Professional Pest Management Association of British Columbia (1997), the *Award of Excellence from the Association of Natural Biological Control Producers* (ANBP) of North America (2003), the *Gold Harvest Award* from Agriculture and Agri-Food Canada (2011), and most recently he became an *Honorary Member of the International Organization for Biological Control*, awarded at the International Congress of Entomology in Korea, 2012.

Dr David R. Gillespie est le récipiendaire 2014 de la Médaille d’or de la Société d’entomologie du Canada. Ce prix, qui en est à sa 52^e année, reconnaît des contributions exceptionnelles en entomologie canadienne, incluant « l’exécution de recherches de qualité supérieure », « la contribution méritoire à l’avancement des connaissances en entomologie », ainsi que « l’engagement dévoué et fructueux en matière d’éducation en entomologie », qui sont tous éminemment représentés par la carrière de Dave Gillespie.

Dave Gillespie a grandi sur la côte ouest de la Colombie-Britannique, où les mares et les bestioles cachées sous les roches ont allumé son intérêt pour la biologie et la biodiversité. Il s'est inscrit à l'Université Simon Fraser (SFU) avec la ferme intention de poursuivre une carrière en biologie marine. Un cours d'introduction sur la biologie des insectes donné par Thelma Finlayson a drastiquement changé le cours de sa carrière. Thelma Finlayson, Bryan Beirne, John Borden et Manfred Mackauer ont eu une forte influence sur sa carrière, et ont été des professeurs et mentors particulièrement importants pour Dave. Le don de Thelma pour guider les étudiants a eu une influence particulièrement forte.

Depuis l'obtention de son doctorat à SFU en 1982, Dave a été embauché par Agriculture Canada à Sidney, Vancouver, et Agassiz, en Colombie-Britannique. Dave a conservé des liens serrés avec la faculté et les étudiants du Centre de gestion des ravageurs à SFU, et est présentement professeur associé au département des sciences biologiques. Il a obtenu de nombreuses subventions de recherche et des contrats, certains en collaboration avec la faculté du Centre de gestion des ravageurs à SFU et du département de biologie de l'Université de Windsor, en Ontario, où Dave est associé depuis 2009. Il a aussi été nommé professeur *ad hoc* au département d'entomologie de l'Université Cornell à New York en 2009.

Dave Gillespie a eu une carrière très productive avec plus de 200 publications, incluant 88 articles évalués par les pairs et 34 livres ou chapitres de livre. Ses recherches sur les ennemis naturels des insectes et des acariens ont contribué directement à l'utilisation étendue de plusieurs espèces pour la lutte biologique dans des serres commerciales autour du monde. La recherche sur les réponses aux couleurs des insectes en serre a mené à l'utilisation de pièges colorés pour dépister les ravageurs des serres, plus spécifiquement le développement de pièges collants jaunes pour surveiller les aleurodes en serre et les pièges collants bleus pour surveiller les thrips des petits fruits. À un niveau plus fondamental, son programme de recherche s'est centré sur le développement d'un cadre théorique pour sélectionner un ennemi naturel pour l'utilisation dans des programmes de lâchers classiques, inoculatifs et inondatifs. En lien avec ces recherches se situent les études sur les contraintes biotiques et abiotiques qui affectent l'interaction entre les ennemis naturels et les organismes ciblés et non-ciblés, et entre les ennemis naturels dans les réseaux trophiques. Durant les 10 dernières années de sa carrière, Dave a concentré ses efforts sur le développement d'agents de lutte biologique pour les cultures de légumes et des grandes cultures à l'extérieur. Il est actuellement le chercheur principal d'un projet d'AAC sur la lutte biologique du charançon de la graine du chou au Canada. Ce ravageur coûte des millions de dollars par année en perte de récolte à l'industrie du canola. Sous la gouverne de Dr Gillespie, des progrès considérables ont été faits par son équipe en identifiant un agent de lutte biologique européen important qui pourrait réduire significativement les dommages du charançon ravageur et réduire l'utilisation de pesticides dans les cultures de canola. Le second aspect de son programme a été de développer un cadre théorique qui permet aux chercheurs de penser à, et d'étudier les interactions ravageur-ennemi naturel dans le contexte de paysages durables. Ces projets se sont concentrés sur les effets des changements globaux sur les processus des écosystèmes, et l'influence du paysage et de la structure des communautés sur les impacts des ennemis naturels sur les ravageurs ciblés. Ses contributions importantes incluent :

- *Utilisation de prédateurs omnivores en lutte biologique*
- *Lutte biologique contre les pucerons en serre*
- *Changement climatique et lutte biologique des communautés*
- *Lutte biologique classique et évaluation des hôtes non-ciblés*

Dave a eu un impact très important en agriculture, et a contribué à plusieurs idées innovatrices et à l'utilisation de nouveaux ennemis naturels en lutte biologique contre les arthropodes ravageurs importants. Brian Spencer, directeur général de Applied Bio-nomics, Sidney, a résumé l'impact de Dave dans une déclaration faite en 2010 : « *Dans le monde de la lutte biologique contre les ravageurs, Dave Gillespie ressort comme le chercheur le plus productif et apportant le plus de soutien des 30 dernières années au Canada. Selon moi, personne d'autre n'a contribué autant durant cette période* »¹.

Dave Gillespie a travaillé pendant les 20 premières années de sa carrière avec l'industrie de légumes en serres au Canada. Il a joué un rôle important dans le développement d'une industrie internationale pour la production d'ennemis naturels pour utilisation en agriculture de serre, incluant des compagnies situées au Canada, résultant en une réduction drastique de notre dépendance aux pesticides sur nos légumes de serres (tomates, poivrons et concombres). En reconnaissance des contributions extraordinaires de Dave pour les producteurs en lutte biologique, autant pour fournir des nouveaux agents que des conseils d'expert, Applied Bio-nomics a demandé qu'un acarien prédateur anciennement inconnu soit nommé en l'honneur de Dave. Cette espèce a été formellement nommée *Gaeolaelaps gillespiei* Beaulieu, 2009. En plus de cette espèce, Dave a été directement impliqué dans l'introduction d'un nombre d'insectes et d'acariens bénéfiques comme agents de lutte biologique pour l'industrie des serres, incluant *Amblyseius cucumeris*, un acarien prédateur pour le contrôle de thrips des petits fruits; *Stratiolaelaps scimitis*, un acarien prédateur pour le contrôle des mouches du terreau et des thrips; *Feltiella acarisuga*, un acarien prédateur pour le contrôle des tétranyques à deux points; *Dicyphus hesperus*, une punaise pour le contrôle des aleurodes; *Micromus variegatus*, un névroptère pour le contrôle des aleurodes (présentement développé par Applied Bio-nomics); et *Praon unicum*, une guêpe parasitoïde pour le contrôle du puceron de la digitale (présentement développé par Koppert aux Pays-Bas).

Ces agents de lutte biologique sont vendus par les principaux producteurs internationaux, tels que Koppert, Biobest (Belgique), et Hydro-Gardens (É.-U.). Une des premières découvertes de Dave, *S. scimitus*, continue d'être un des plus grands vendeurs et l'acarien bénéfique le plus utilisé dans le monde. Cet acarien est aussi la « première introduction » la plus commune pour les gestionnaires de serres qui font la transition de l'application de pesticides vers la lutte biologique des ravageurs en production de serre. Dave a eu un impact significatif sur la carrière de plusieurs étudiants en entomologie au Canada. Il a co-supervisé et fait partie de comité de thèse pour 15 étudiants gradués (maîtrises, maîtrise en gestion des ravageurs [MPM] et doctorats) à SFU et dans d'autres institutions, et il a été examinateur externe et public pour des soutenances de doctorat. De plus, Dave a supervisé des étudiants de premier cycle coopératif en éducation, fournissant à plusieurs d'entre eux leur première expérience dans un environnement de

¹ Traduction du comité du bilinguisme de la SEC

recherche. Certaines personnes qui ont été sous son mentorat mènent actuellement des recherches productives dans des institutions académiques, gouvernementales et privées dans tout le pays. Par exemple, l'ancienne post-doc de Dave, Dr Sherah VanLaerhoven, est maintenant professeure à l'Université de Windsor, et a été récompensée par le prix « Canada's Top 40 under 40 » (2006), et le prix C. Gordon Hewitt de la Société d'entomologie du Canada (2009). En plus de la supervision directe d'étudiants, Dave a généreusement donné de son temps pour partager son expertise avec les étudiants et le public par des séminaires, des cours et des sorties de terrain. Dave a interagi avec des centaines d'étudiants dans les fonctions mentionnées plus haut, partageant la richesse de ses connaissances et son enthousiasme pour l'histoire naturelle, la gestion des ravageurs, la recherche entomologique, le design expérimental, les analyses statistiques et bien plus. Il a également contribué à augmenter la conscience de la recherche en cours et l'importance de la recherche en agriculture en général par des présentations grand public tel que *Ag in the City*, un événement de transfert de technologie.

Dave Gillespie est membre de plusieurs sociétés professionnelles. Il a contribué à la Société d'entomologie du Canada en tant que conseiller (2002-2005), président du comité des prix étudiants (2000-2003), et président du comité des finances (2004-2007). Il a également été président de la Société d'entomologie de Colombie-Britannique (1997), président de l'association professionnelle de gestion des ravageurs de Colombie-Britannique (1986-1987), secrétaire du Forum canadien pour la lutte biologique (1998-1999), et président du comité organisateur pour la réunion conjointe des groupes de travail sur la lutte intégrée en serre des régions paléarctique ouest et néarctiques de l'Organisation internationale pour la lutte biologique (OILB) à Victoria en Colombie-Britannique en 2002.

Dave Gillespie a été reconnu pour ses contributions à la gestion des ravageurs, la lutte biologique et l'agriculture par différents prix prestigieux, incluant le *Prix d'excellence* de l'association professionnelle de gestion des ravageurs de Colombie-Britannique (1997), le *prix d'excellence* de l'Association des producteurs en lutte biologique naturelle (ANBP) de l'Amérique du Nord (2003), le prix *Moisson d'or* d'Agriculture et agroalimentaire Canada (2011), et il est plus récemment devenu un *Membre honoraire de l'Organisation internationale de lutte biologique*, remis au congrès international d'entomologie en Corée en 2012.

C. Gordon Hewitt Award / Prix C. Gordon Hewitt

Patrice Bouchard

Dr Patrice Bouchard is the recipient of the 2014 Entomological Society of Canada C. Gordon Hewitt Award. This award recognizes outstanding achievement in Canadian entomology by a researcher within 12 years of defending their PhD.



Pat obtained his BSc (1995) in Applied Zoology and MSc (1997) in Entomology at McGill University, before moving “down under” to complete a PhD (2002) in Entomology at the University of Queensland, where he was co-supervised by Dr D.K. Yeates, a renowned Diptera systematist, and Dr Geoff Monteith, curator at the Queensland Museum. Pat’s dissertation work investigated the systematics and biogeography of Coelometopini (Coleoptera: Tenebrionidae: Coelometopinae) of the Australian wet tropics. After his dissertation, Pat returned to his native Canada, where he was a NSERC Post-Doctoral Fellow with Dr R.S. Anderson at McGill and the Canadian Museum of Nature, studying the evolution and natural history of Neotropical darkling beetles (Tenebrionidae). In 2003 he was hired to his current position as a Research Scientist in the Canadian National Collection of Insects, Arachnids and Nematodes (CNC), Agriculture and Agri-Food Canada (AAFC), Ottawa, to conduct research on the systematics of two important groups, weevils (Curculionidae) and darkling beetles (Tenebrionidae).

During his relatively short tenure at CNC, Pat has established a well-funded and productive independent research program that continues to advance the systematics of beetles in Canada and other parts of the world. Much of his work since arriving at the CNC has focused on weevils, an insect group that continues to be a source of both alien pests and beneficial biological control agents. Pat is the project coordinator of a large, multi-institutional and multidisciplinary project funded by the Government of Canada with the objective to improve Canada's ability to monitor invasive alien and quarantine species for protection of Canadian biodiversity and trade from the impacts of global change. This project makes up almost half of the approximately \$8.8 million Pat has attracted either independently or as a key member of collaborative teams. He is also Co-Principal Investigator of the AAFC-funded Invertebrate Biodiversity project, involving a team of 16 scientist colleagues plus support staff.

Although his research broadly encompasses the systematics of Coleoptera (beetles), as noted the focus is on the Curculionidae and the Tenebrionidae. He has been extremely

productive, and has already authored or co-authored more than 41 journal articles, 4 books, 8 book chapters, 5 book reviews, and 5 popular articles. He is a sought-after speaker and has made more than 29 invited and submitted presentations. Of particular note are his contributions as senior author of the widely acclaimed *Family-group Names in Coleoptera (Insects)* published in 2011, and as co-author of *Tenebrionidae Beetles of Australia: Descriptions of tribes, keys to genera, catalogue of species*, published in 2008, and awarded the "Whitley Commendation for Systematic Zoology" in 2009. A book project entitled "*The Book of Beetles: A life-size guide to six hundred species from around the world*" that he has led will be published by the University of Chicago Press in the fall of 2014. Pat's work is widely cited, and his broad approach provides a stabilizing influence to the taxonomy and nomenclature of the Coleoptera. He has been involved in the supervision and mentoring of both undergraduate and graduate students. He has also contributed significantly to public outreach, for example, through participation as a scientific advisor in the development and production of a factual television series on arthropods. He has provided expert opinion for a court case involving major losses of goods to stored product beetle infestations (he generously donated his professional fees from that case to the ESC Scholarship Fund), and reviewed petitions for release of non-native organisms into North America. Pat has a strong record of service at the federal and department level, serving as CNC Curator of Coleoptera, Co-Chair of the Database Committee, and Chair of the CNC Handbook Committee. He has chaired and participated in staff hiring committees, and provided expert identifications for the AAFC National Identification Service. He is also highly engaged in both national and regional societies. He has been an active supporter of the Entomological Society of Canada, for which he served as Treasurer from 2004-2011 and continues to serve as Chair of the Finance Committee and representative for the Entomological Society of Ontario (ESO) on the ESC Board of Directors. He is currently a Subject Editor (2011-present) and was Associate Editor under the previous editorial system for *The Canadian Entomologist*. He also serves as Director and Treasurer of the Biological Survey of Canada as well as the Biological Survey Foundation, and Chair and member of the Grants Committee of the CanaColl Foundation, and was formerly a Director of the ESO. Pat is a member of the Editorial Boards of the journals *Zoological Bibliography* and *ZooKeys*. Pat Bouchard is an exceptionally talented scientist, a model citizen, and is early in what will become a long and distinguished career in entomology in Canada.

Dr Patrice Bouchard est le récipiendaire du prix C. Gordon Hewitt 2014 de la Société d'entomologie du Canada. Ce prix reconnaît une contribution exceptionnelle à l'entomologie canadienne par un chercheur dans les 12 ans suivant sa soutenance de thèse de doctorat.

Pat a obtenu son baccalauréat (1995) en zoologie appliquée et sa maîtrise (1997) en entomologie à l'Université McGill avant de compléter son doctorat (2002) en entomologie à l'Université de Queensland, où il a été co-supervisé par Dr D.K. Yeates, un systématicien des diptères renommé, et Dr Geoff Monteith, curateur au Musée Queensland. Pat travaillait sur la systématique et la biogéographie des Coelometopini (Coleoptera : Tenebrionidae : Coelometopinae) des milieux tropicaux humides

australiens. Après son doctorat, Pat est retourné dans son Canada natal où il obtenu un financement postdoctoral CRSNG avec Dr R.S. Anderson à McGill et le Musée canadien de la nature afin d'étudier l'évolution et l'histoire naturelle des ténébrionides (Tenebrionidae) sub-tropicaux. En 2003, il a été embauché dans son poste actuel comme chercheur scientifique à la Collection nationale canadienne d'insectes, d'arachnides et de nématodes (CNC), à Agriculture et agroalimentaire Canada (AAC) à Ottawa afin de conduire des recherches sur la systématique de deux groupes importants, les charançons (Curculionidae) et les ténébrionides (Tenebrionidae).

Durant son relativement court mandat depuis ses débuts à la CNC, Pat a établi un programme de recherche indépendant, bien financé et productif qui contribue à faire avancer la systématique des coléoptères au Canada et dans d'autres parties du monde. La plupart de ses travaux depuis son arrivée à la CNC se sont concentrés sur les charançons, un groupe d'insectes qui continue à être la source autant de ravageurs exotiques que d'agents de lutte biologique bénéfiques. Pat est le coordonnateur d'un gros projet multi-institutionnel et pluridisciplinaire financé par le gouvernement du Canada avec pour objectif d'améliorer la capacité du Canada à détecter les exotiques envahissants et les espèces de quarantaine pour la protection de la biodiversité canadienne et les effets des changements globaux. Ce projet prend pratiquement la moitié des 8.8 millions \$ approximatifs que Pat a attiré soit indépendamment, soit en tant que membre clé d'équipes collaboratives. Il est également un des deux chercheurs principaux du projet financé par AAC sur la biodiversité des invertébrés, impliquant une équipe de 16 scientifiques ainsi que du personnel de soutien.

Bien que ses recherches englobent la systématique globale des coléoptères, tel que mentionné, celles-ci se concentrent davantage sur les Curculionidés et les Ténébrionidés. Il a été extrêmement productif, ayant déjà publié ou co-publié plus de 41 articles de revues, 4 livres, 8 chapitres de livre, 5 révisions de livres et 5 articles vulgarisés. Il est un conférencier recherché et a donné plus de 29 présentations invitées ou soumises. Mentionnons particulièrement ses contributions comme auteur sénior sur la publication acclamée *Family-group Names in Coleoptera* publiée en 2011, et comme co-auteur de *Tenebrionidae Beetles of Australia: Descriptions of tribes, keys to genera, catalogue of species*, publié en 2008 et ayant reçu le prix "Whitley Commendation for Systematic Zoology" en 2009. Un projet de livre intitulé *The Book of Beetles: A life-size guide to six hundred species from around the world* qu'il a mené sera publié par les presses de l'Université de Chicago à l'automne 2014. Les travaux de Pat sont largement cités et son approche apporte une influence stabilisatrice à la taxonomie et la nomenclature des coléoptères.

Il a été impliqué dans la supervision et le mentorat d'étudiants de premier cycle et diplômés. Il a également contribué significativement à la sensibilisation du public, par exemple par la participation en tant que consultant scientifique dans le développement et la production d'une série télévisée factuelle sur les arthropodes. Il a donné son opinion d'expert pour un procès en cour impliquant des pertes majeures de produits entreposés par des infestations de coléoptères (il a généreusement donné ses frais professionnels provenant de ce procès au Fonds des bourses étudiantes de la SEC), et a révisé des pétitions pour les lâchers d'organismes non-natifs en Amérique du Nord.

Pat a un fort dossier de service aux niveaux fédéral et départemental, servant comme curateur des coléoptères à la CNC, co-président du comité des bases de données, et

président du comité des manuels de la CNC. Il a présidé et participé à des comités d'embauches et a fourni des identifications expertes pour le service national d'identification d'AAC. Il est également très engagé dans les sociétés nationale et régionale. Il a été un défenseur actif de la Société d'entomologie du Canada, pour laquelle il a servi comme trésorier de 2004 à 2011 et continue à servir comme président du comité des finances et représentant de la Société d'entomologie d'Ontario (SEO) sur le conseil d'administration de la SEC. Il est actuellement éditeur thématique (2011-aujourd'hui) et a été éditeur associé dans le précédent système éditorial de *The Canadian Entomologist*. Il a aussi servi comme directeur et trésorier de la Commission biologique du Canada ainsi que pour la fondation de la Commission biologique, président et membre du comité des subventions pour la Fondation CanaColl, et a été directeur de la SEO. Pat est membre du comité éditorial des revues *Zoological Bibliography* et *ZooKeys*.

Pat Bouchard est un scientifique exceptionnellement talentueux, un citoyen modèle, et n'en est qu'au début de ce qui sera certainement une carrière longue et distinguée en entomologie au Canada.

Bert and John Carr Award / Prix Bert et John Carr

Mr Todd Lawton

The 2014 recipient of the Entomological Society of Canada Bert and John Carr Award is Mr Todd Lawton. The Bert and John Carr Award is a cash award given to support research activities on the faunistics, natural history or taxonomy of Canada's insect fauna.

Mr Lawton will use the award to complete a survey of northern Manitoba tiger beetles in the genus *Cicindela* initiated in August 2005.

Surveys conducted by Mr Lawton to date (2005-2008) have resulted in range extensions for seven species in northern Manitoba.

Additionally, the purpose is to collect specimens to investigate variation in colour and maculations for *C. limbalis*, *C. tranquebarica* and any other species where atypical colour or pattern is observed, and to document any unusual behaviours in the north; for example, in 2008 Mr Lawton observed *C. limbalis* feeding and mating near dusk, well beyond their normal activity period. Emphasis will also be placed on finding additional populations of *C. hirticollis*, a rare and ecologically sensitive species. Mr Lawton will revisit previous sites as well as extend the survey into the northwest corner of the province. The field work would be completed during 3 weeks in May and early June 2015. Results from these northern surveys will be published in *Cicindela*, an American quarterly journal devoted to Cicindelidae.

Mr Lawton studied Ecology and Evolution at the University of Western Ontario 1979-1981, and has research experience from summer positions at UWO and the National Museum of Canada, and as a technician with Atomic Research Canada. Since 1989, he has been a Client Support Worker at the Main Street Project, Inc. (a shelter for homeless persons in Winnipeg), and he is Founder and Executive Director of Quagga Stray Cat Rescue, a no-kill cat shelter in Winnipeg.

Mr Lawton has a long-standing interest in the Carabidae, and particularly the Cicindelinae. He has studied and collected *Cicindela* for 16 years and maintains the most complete (and perhaps largest [20,000 specimens]) Canadian collection of North American species. He has also assembled a collection of domestic and international *Carabus*, comprising approximately 4000 specimens and 450 species, and North American *Scaphinotus*, with approximately 2000 specimens and 50 species.

Of particular note is that Mr Lawton had the pleasure of meeting the Carrs several times during the 1980's. He first met them at the Fox Valley Sand Dunes in Saskatchewan, where they happened to be searching for tiger beetles on the same day. Thus, he has a personal connection to both the people for which the award is named and the province in which the 2014 JAM is held.



Le récipiendaire 2014 du prix Bert et John Carr de la Société d'entomologie du Canada est M. Todd Lawton. Le prix Bert et John Carr est un prix en argent remis afin de soutenir des activités de recherche sur la faunistique, l'histoire naturelle ou la taxonomie de la faune entomologique du Canada.

M. Lawton utilisera ce prix pour terminer un inventaire des cicindèles du genre *Cicindela* dans le nord du Manitoba débuté en août 2005. Les inventaires menés jusqu'à maintenant par M. Lawton (2005-2008) ont fourni des extensions de l'aire de répartition pour sept espèces dans le nord du Manitoba. De plus, le but est de capturer des spécimens afin d'étudier les variations de couleur et de maculations pour *C. limbalis*, *C. tranquebarica* et toute autre espèce pour laquelle des couleurs ou des patrons atypiques sont observés, et afin de documenter tout comportement inhabituel dans le nord. Par exemple, en 2008, M. Lawton a observé *C. limbalis* se nourrissant et s'accouplant presque à la brunante, bien au-delà de la période normale d'activité. L'emphase sera également mise afin de trouver des populations additionnelles de *C. hirticollis*, une espèce rare et écologiquement sensible. M. Lawton visitera des sites antérieurs en plus d'étendre son inventaire dans le coin nord-ouest de la province. Le travail de terrain sera complété durant 3 semaines en mai et début juin 2015. Les résultats de ces inventaires au nord seront publiés dans *Cicindela*, une revue trimestrielle dédiée aux cicindèles.

M. Lawton a étudié l'écologie et l'évolution à l'Université de l'ouest de l'Ontario (UWO) de 1979 à 1981, et a de l'expérience en recherche par des postes d'été à l'UWO et au musée national du Canada et en tant que technicien avec Énergie atomique du Canada. Depuis 1989, il a été préposé de soutien pour le Main Street Project Inc. (un refuge pour les sans-abris à Winnipeg) et il est le fondateur et directeur exécutif de Quagga Stray Cat Rescue, un refuge pour les chats sans euthanasie à Winnipeg. M. Lawton a un intérêt de longue date pour les carabes, et particulièrement les cicindèles. Il a étudié et capturé des *Cicindela* pendant 16 ans et maintient la collection canadienne la plus complète (et peut-être la plus grosse [20 000 spécimens]) d'espèces nord-américaines. Il a également assemblé une collection de *Carabus* domestiques et internationaux, comprenant environ 4000 spécimens et 450 espèces, et de *Scaphinotus* nord-américains, avec environ 2000 spécimens et 50 espèces.

À noter que M. Lawton a eu le plaisir de rencontrer les Carr à plusieurs reprises durant les années 1980. Il les a rencontrés pour la première fois à Fox Valley Sand Dunes en Saskatchewan, où ils cherchaient justement des cicindèles le même jour. Il a donc une connexion personnelle avec les gens en l'honneur de qui le prix a été nommé et la province dans laquelle la réunion conjointe 2014 se tient.

Norman Criddle Award / Prix Norman Criddle

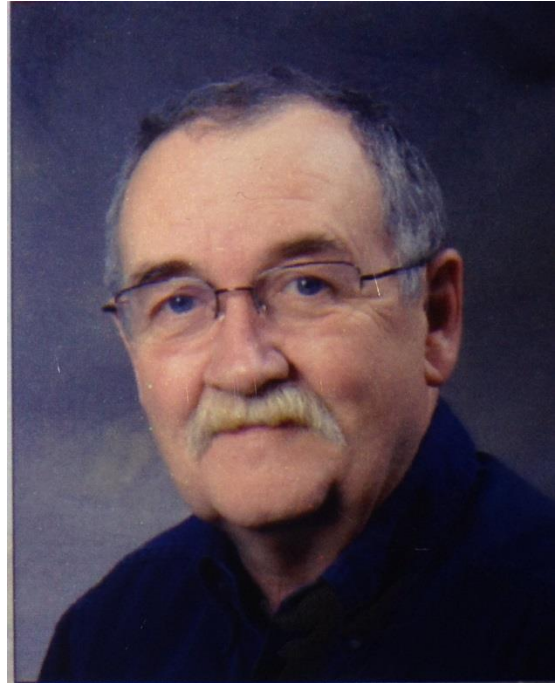
Brian Olson

The Norman Criddle Award recognizes the contribution of an outstanding non-professional entomologist to the furtherance of entomology in Canada. The recipient is selected by the affiliate society that hosts the annual meeting of the Entomological Society of Canada. The Entomological Society of Saskatchewan is pleased to nominate Brian David Olson of Hazlet, Saskatchewan, as the 2014 Criddle Award winner.

Brian Olson is a teacher by inclination and training. He received his Bachelor of Education degree from the University of Regina, and was a classroom teacher, vice-principal, principal, and school division administrator for 30 years spanning 1974 to 2004. During that time, Brian focused his teaching on senior science programs, especially biology. In his role as a biology teacher Brian instilled in his students a wonder of their natural environment and introduced them to the fascinating world of insects.

In his commitment to personal and professional growth, Brian obtained a Bachelor of Science degree from the University of Regina in 2000. His keen eye for detail led him to take a class in scientific illustration by distance from the University of Nebraska from 2001-2005. Brian has numerous published illustrations to his credit. He drew the illustrations for the book *Grasshopper Identification and Control: Methods to Protect Crops and the Environment*, written by Dan Johnson of the University of Lethbridge and published by AAFC and Sask Pulse Growers. The illustration below of the grasshopper *Metator pardalinus* (Saussure) is an example of Brian's formidable drawing talent. In 2006 Brian obtained a Master of Science degree with a specialization in Entomology from the University of Nebraska in the subject area of grasshopper diversity in disturbed habitats (oilfield reclamation). As an example of "Once a teacher, always a teacher", Brian was contracted by the Graduate Studies Department of the University of Nebraska to develop an evaluation instrument which would be administered to all potential graduates as a pre-requisite to granting a M.Sc. in Entomology.

Besides introducing students to the fascination of insects, Brian has furthered the knowledge of entomology in Canada by working with Dan Johnson in a survey of entomological species in the Great Sand Hills of Saskatchewan-Alberta. His broad knowledge of biological systems was recognized when he recently served as the Integrated Pest Management Specialist with the Saskatchewan Ministry of Agriculture. Brian is truly a renaissance man. Prior to his 30 year career as a biology teacher, Brian was an instructor in weaponry and the outdoors to recruits in the Canadian Armed Forces Reserves; there he specialized in the subjects of mines, high-explosives, and



chemical and biological warfare. He has been a fur trapper, municipal weed inspector, pest control officer, and hail adjuster for a hail insurance company, where he developed new methods in determining hail losses in lentils. He oversaw the establishment of insects for the biological control of leafy spurge in a Saskatchewan municipality. Brian worked for the Biology Department of the University of Regina one season, establishing a biology field station at Fort Walsh, Saskatchewan. In the process of cataloguing the natural history of the area, he fenced approximately 10 km of bush land. This experience may have whetted his appetite for wood work; Brian is an experienced house contractor, and has built a log house from cutting and peeling logs to completely finishing the home.

Brian is an active member of the Saskatchewan Natural History Society, the Canadian Wildlife Federation, and the World Wildlife fund, where he is a member of the Operation Rescue Team for Endangered Wildlife.

Brian Olson is the quintessential field naturalist, and is well deserving of the Norman Criddle Award for 2014.

Le prix Norman Criddle reconnaît la contribution exceptionnelle d'un entomologiste amateur à l'avancement de l'entomologie au Canada. Le récipiendaire est sélectionné par la société affiliée qui reçoit la réunion annuelle de la Société d'entomologie du Canada. La Société d'entomologie de Saskatchewan est heureuse de nommer Brian David Olson de Hazlet, Saskatchewan, comme récipiendaire du prix Criddle 2014. Brian Olson est enseignant par intérêt et formation. Il a reçu son baccalauréat en éducation de l'Université de Regina, et a été enseignant, vice-directeur, directeur et administrateur de commission scolaire durant 30 ans de 1974 à 2004. Durant ce temps, Brian a concentré ses enseignements aux programmes de sciences séniors, particulièrement en biologie. Dans son rôle d'enseignant en biologie, Brian a instillé à ses étudiants les merveilles de leur environnement naturel et les a introduits au monde fascinant des insectes.

Dans son engagement pour la croissance personnelle et professionnelle, Brian a obtenu un baccalauréat en science de l'Université de Regina en 2000. Son œil de lynx pour les détails l'a amené à prendre un cours en illustration scientifique à distance de l'Université du Nebraska de 2001 à 2005. Brian a de nombreuses illustrations publiées à son crédit. Il a dessiné les illustrations du livre *Grasshopper Identification and Control: Methods to Protect Crops and the Environment*, écrit par Dan Johnson de l'Université de Lethbridge et publiés par AAC et Sask Pulse Growers. L'illustration du criquet *Metator pardalinus* (Saussure) plus bas est un exemple du formidable talent pour le dessin de Brian.

En 2006, Brian a obtenu une maîtrise en science avec une spécialisation en entomologie de l'Université du Nebraska sur la diversité des criquets dans les habitats perturbés (remise en état des champs pétrolifères). Pour illustrer la devise « prof un jour, prof toujours », Brian a été engagé sous contrat par le département des études graduées de l'Université du Nebraska pour développer un outil d'évaluation qui pourrait être administré à tous les étudiants gradués potentiels comme prérequis pour accéder à la maîtrise en entomologie.

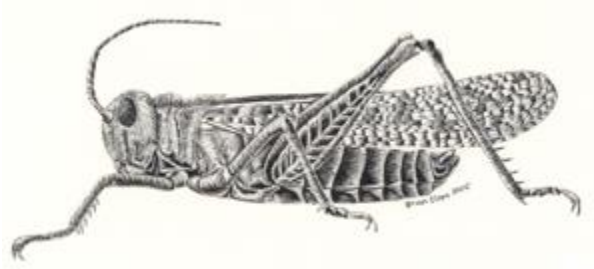
En plus d'introduire les étudiants au monde fascinant des insectes, Brian a approfondi la connaissance de l'entomologie au Canada en travaillant avec Dan Johnson sur un

inventaire des espèces entomologiques à Great Sand Hills en Saskatchewan-Alberta. Sa vaste connaissance des systèmes biologiques a été reconnue quand il a récemment servi comme spécialiste de la lutte intégrée auprès du ministère de l'agriculture de Saskatchewan.

Brian est réellement polyvalent. Avant ses 30 ans de carrière comme professeur de biologie, Brian était instructeur en armes et plein air afin de recruter dans la réserve des forces armées canadiennes : il s'est spécialisé dans les mines, explosifs et armes chimiques et biologiques. Il a été trappeur, inspecteur municipal de mauvaises herbes, officier du contrôle des ravageurs, et expert en grêle pour une compagnie d'assurance contre la grêle, où il a développé de nouvelles méthodes pour déterminer les pertes causées par la grêle dans les lentilles. Il a surveillé l'établissement d'insectes pour la lutte biologique contre l'euphorbe érule dans une municipalité de Saskatchewan. Brian a travaillé pour le département de biologie de l'Université de Regina durant une saison, établissant une station biologique à Fort Walsh, Saskatchewan. Afin de documenter l'histoire naturelle de la région, il a clôturé environ 10 km de brousse. Cette expérience a peut-être aiguisé son appétit pour le travail du bois : Brian est un entrepreneur d'expérience, et a bâti une maison en bois rond, de la coupe des bûches à la finition de la maison.

Brian est un membre actif de la Société d'histoire naturelle de Saskatchewan, de la Fédération canadienne de la faune, du Fonds mondial pour la nature pour lequel il est membre d'une équipe d'opération de sauvetage pour les espèces menacées.

Metator pardalinus (Saussure) drawn by Brian Olson. Ink on Scratchboard. Hexapod Herald Vol. 17, No. 3, June 2005. Department of Entomology, University of Nebraska - Lincoln, Lincoln, Nebraska.



Metator pardalinus (Saussure) dessiné par Brian Olson. Encre sur carton de grattage. Hexapod Herald Vol. 17, No. 3, juin 2005. Département d'entomologie, Université du Nebraska - Lincoln, Lincoln, Nebraska.

Scientific Program JAM 2014

Sunday, 28 September

10:00 – 12:00

Michelangelo B/C

Opening Ceremonies, Awards, Gold Medal Address, and Heritage Lecture

Moderator: **Dave Halstead**

10:00 Welcomes and award presentations

10:30 **Dave Gillespie***

Agriculture and Agri-Food Canada, Agassiz; *Dave.Gillespie@agr.gc.ca

Gold Medal Address – *A changing entomologist in a changing world*

Through the study of insects, entomologists both observe and effect change. Change is a constant feature of the natural world: evolution, metamorphosis, succession, growth and aging are common themes in many entomological research programs. Our studies change the understanding of the natural world, and change practices, for example in conservation, agriculture and forestry. Similar processes pervade our working lives and we don't stop often enough to think about how the changes in the world around us affect us personally. This talk allows me to reflect on the nature of change itself and the theories that describe change. I use as examples some of the recent trends that have influenced the work of entomologists and my hypothesis is that talking about these changes is a way to separate the important trends from the merely trivial.

11:15 **Owen Olfert***

Agriculture and Agri-Food Canada, Saskatoon Research Centre;

*owen.olfert@agr.gc.ca

Heritage Lecture – *The entomological thread within agricultural research: Saskatoon 1918-2014*

The demand for entomological expertise within the Prairie Ecozone increased with expanded settlement and agricultural production in the 1900's. This need arose in large part due to the large-scale disturbance of native prairie soils that was influencing the pest status of native insects. Though our neighbouring provinces had staffed entomologists in 1913 (N. Criddle in Manitoba; E.H. Strickland in Alberta), it wasn't until 1918 that the Dominion Entomological Laboratory (DEL) in Saskatoon was created with the joint appointment between government and the U. of S. of A.E. Cameron. In 1957, a new government laboratory was opened on the U. of S. campus, allowing for consolidation of federal 'Science Service' staff. As a result, the DEL, the Dominion Laboratory of Plant Pathology and the Dominion Forage Crops Laboratory were combined, forming the new Canada Agriculture Research Station (CARS). Largely due to pressure from lead Saskatchewan farm groups on the Ministry of Agriculture, entomology flourished in Saskatchewan during the CARS years. In the mid-1990's, Agriculture Canada's Research Branch was

significantly downsized. However, facilities at CARS in Saskatoon were retrofitted and greatly expanded and renamed the Saskatoon Research Centre (SRC). The presentation focuses on the role of insect ecology, population monitoring and crop risk forecasting in agricultural research in Saskatchewan through the DEL, CARS and SRC.

12:00 - 13:30 Lunch

Sunday, 28 September

13:30 – 15:00

Michelangelo B/C

Plenary Session

Moderator: **Martin Erlandson**

13:30 *Introduction* **Martin Erlandson**

13:40 **Bernie Roitberg***

Simon Fraser University; *roitberg@sfu.ca

The changing face of entomology: Collaboration is the key but keep your eyes on the prize

The entomological world is becoming exceedingly complex and technological. As such, successful jack-of-all-trades entomologists are becoming exceedingly rare. One key to success is for individuals to specialize but then collaborate with others who have complementary skills. I will discuss opportunities and pitfalls (no pun intended) that entomologists should be aware of when they enter into such collaborations, using some examples from my own work and those of others. I will conclude by emphasizing the importance of articulating a clearly defined set of goals that facilitates creativity and independence within a group framework.

14:20 **Barry Pittendrigh***

University of Illinois Urbana-Champaign; *pittendr@illinois.edu

Scientific Animations without Borders: A platform for the deployment of entomological research innovations from researcher to practitioner

Over the past half-century a considerable number of research innovations, with practical applications, have made their way into the peer-reviewed literature. However, a considerable amount of this information has not been translated into a format where non-experts can seamlessly use it in people's daily lives. Scientific Animations Without Borders is a technological platform aimed at working with global experts to place research for development innovations into a format where people of all literacy levels, around the world, can access this knowledge in easy to follow 3-D and 2-D animations. These animations are voice overlaid into a great diversity of languages from around the planet and made available to educators using a diversity of online and offline platforms. We

will discuss the use of crowdsourcing and high throughput collaborative approaches to accomplish these aforementioned goals.

15:00 Refreshment break

Sunday, 28 September

15:30 – 17:30

Michelangelo B/C

Graduate Student Showcase

Moderators: **Tyler Wist and Sarah Loboda**

15:30 **Bekka S Brodie***¹, Tamara Babcock¹, Alysha Martins¹, Regine Gries¹, Sherah VanLaerhoven² and Gerhard Gries¹

¹Simon Fraser University, ²University of Windsor; *bbrodie@sfu.ca

A tale of two stinkies: Young and gravid blow flies differ in their behavioral responses to semiochemicals from feeding and oviposition sites

Resources such as feeding and oviposition sites that insects must acquire change in accordance with their ontogenetic development and physiological state. We investigated the effect of physiological state on foraging decisions by adult blow flies (*Lucilia sericata*), and the foraging cues that they exploit to locate resources. When we gave female flies a choice between fresh canine feces (feeding site) and freshly deceased rat carrion (oviposition site), 3-day-old females preferred feces whereas reproductively mature (gravid) females preferred carrion, indicating contrasting resource preferences based on physiological state. To determine the semiochemical cues that attract flies to feces or carrion, we obtained headspace volatile extracts of both resources, and subjected aliquots of these extracts to gas chromatographic-electroantennographic detection (GC-EAD) and GC-mass spectrometric analyses. Synthetic blends of all feces or carrion volatiles that consistently elicited responses from blow fly antennae proved as attractive to flies as feces or carrion. In a series of experiments in which we tested complete synthetic blends versus blends lacking groups of specific organic chemicals (e.g., esters) or individual components, we then determined further that indole and 2 or more lower-molecular-weight alcohols are the key semiochemicals of feces and dimethyl trisulfide (DMTS) is the key semiochemical of carrion. With DMTS and alcohols emanating from both feces and carrion, and indole originating only from feces, we hypothesized, and gathered experimental evidence for the conclusion, that indole is the indicator semiochemical of feces that mediates resource partitioning between young flies foraging for protein meals and gravid flies seeking oviposition sites.

15:54 **Bryan M T Brunet***, Felix Sperling

University of Alberta; *bbrunet@ualberta.ca

Differential introgression identifies speciation genes at varying levels of phylogenetic divergence within the spruce budworm, Choristoneura fumiferana, species complex

Genomes are increasingly identified as porous structures where species boundaries are maintained at “islands of divergence” while much of the genome is free to introgress. This semi-permeable characteristic of genomes can be exploited to identify genes associated with species boundaries and/or adaptive introgression. Here, we examine genetic differentiation and differential introgression between two pairs of spruce budworm species, *C. occidentalis* with *C. fumiferana* and *C. occidentalis* with *C. biennis*. These represent deep and recent divergences in the spruce budworm phylogeny, respectively, and can be used to identify loci exhibiting non-neutral patterns of divergence. Loci with significant allele frequency differences in each comparison were mutually exclusive and resulted in different ancestry coefficient distributions. Whereas the gradient in ancestry coefficients between *C. fumiferana* and *C. occidentalis* was step-like, suggesting strong selection against hybrids, that between *C. biennis* and *C. occidentalis* was linear and gradual. Remarkably, despite these species spanning at least two million years of divergence, similar modes of selection are shown to operate between them. Directional selection was the predominant form of selection acting between species in both comparisons, and may relate to differences in cross-attraction and egg weight. Further work is needed to determine the linkage relationships of these loci and identify “islands of divergence”.

16:18 **Joelle K Lemmen***, Maya L Evenden

University of Alberta; *jlemmen@ualberta.ca

Plasticity in response to semiochemicals as part of a reproductive diapause syndrome in a long-lived moth, Caloptilia fraxinella (Lepidoptera: Gracillariidae)

In phytophagous insects that experience a delay in mating as an adult, the timing of mating and host plant location is vital to optimize their own fitness and the fitness of their offspring. *Caloptilia fraxinella* undergoes a nine-month reproductive diapause, including a period of overwintering, before mating and host location occurs. Male response to pheromone and male and female response to host plant volatiles is plastic, and depends on physiological state. The physiological state of reproductive diapause is confirmed by the presence of smaller accessory glands in males during the period of reproductive diapause, and longer glands when moths are reproductively active. Behavioural and electroantennographic assays are used to elucidate the mechanisms underlying the plasticity of moth response to these semiochemicals during different physiological states. Male response to pheromone is highest when moths are reproductively active, which increases their opportunity for mating when females are most receptive. The environmental conditions that male moths experience as an adult impact reproductive status, and long day/warm conditions terminate reproductive diapause while cool/short day or natural outdoor conditions maintain reproductive diapause as measured by pheromone responsiveness. Treatment with a juvenile hormone analogue (JHA) also terminates diapause and

increases male responsiveness to pheromone during the period of reproductive diapause. As in pheromone responsiveness, male and female response to host plant volatiles is also highest when moths are reproductively active, at the appropriate time for female host location and oviposition. Treatment with a JHA and female mating status both impact response to host plant volatiles.

16:42 **Julia J Mlynarek***, Mark R Forbes
Carleton University; *julia.mlynarek@unb.ca
Why some damselfly species are so parasitized

Insect parasites are often overlooked but they have a negative impact on their hosts. Not all host species are infected by parasites equally. But there are few studies that try to understand why host species' have different levels of parasitism. Because many parasites infect damselflies, I used damselfly (Coenagrionidae) host-water mite (*Arrenurus*) parasite associations to observed levels of parasitism (prevalence and intensity) and parasite species richness differences in 16 host species. After these preliminary observations, I determined which host characteristics can explain the observed interspecific variation in parasitism. I measured five host characteristic at several ecological scales: geographic range size, regional occurrence, relative local abundance, phenology and body size, to determine which one had the highest explanatory power of three measures of parasitism (prevalence, intensity of mite parasites and mite species richness). A total of 7107 damselfly individuals were collected representing 16 species from 13 sites in Southeastern Ontario and Southwestern Quebec. Using comparative methods, differences in prevalence and intensity of parasitism could be predicted by a host species' geographic range and phenology. The number of *Arrenurus* species known to infect a given host species was explained by a host species' regional occurrence. These findings suggest the need to measure factors at several ecological scales in order to understand the breadth of evolutionary interactions with host-parasite associations.

17:06 **Catherine Scott***, Devin Kirk, Sean McCann, Regine Gries, Grigori Khaskin, Gerhard Gries
Simon Fraser University; *ces14@sfu.ca
Web reduction behaviour and the chemical communication system of the western black widow, Latrodectus hesperus

Polyandry in animals has led to diverse adaptations that allow males to avoid sperm competition, including mate guarding, mating plugs, and altering a female's attractiveness or receptivity. In spiders, pheromones mediate intersexual attraction, mate recognition, and courtship behaviour. Here we report on aspects of the chemical communication system of the western black widow, *Latrodectus hesperus*. Females attract males to their webs with silk-borne sex pheromone. Contact with the silk elicits courtship behaviour by males. Often, the courting male engages in web reduction behaviour, during which he excises and bundles up sections of the web and wraps them with his own silk. Using analytical chemistry, and behavioural experiments in both the laboratory and the field, we

investigated (1) the molecular structure and function of the female's contact sex pheromone, (2) the function of web reduction behaviour, and (3) the factors that influence whether or not web reduction occurs. We show that a contact pheromone on the silk elicits web reduction behaviour, and that a serine derivative similar to the pheromone of congeneric *L. hasselti* is likely part of a multi-component pheromone blend. Web reduction decreases the attractiveness of webs to rival males in the field, thereby limiting male-male competition. Female body condition and mating status affect silk cues that trigger web reduction, but whether males engage in this behaviour also depends on their own condition. Our work contributes to the understanding of the complex sexual communication systems of spiders, highlighting the role that interference can play in chemical communication.

Monday, 29 September

08:30 – 12:00

Naples Room

Symposium: *Biological Control in a Changing World*

Moderators: **Bernie Roitberg and Dave Gillespie**

08:00 **Bernie Roitberg***¹, **Dave Gillespie**²

¹Simon Fraser University, ²AAFC, Agassiz; *roitberg@sfu.ca

Introduction to the symposium

08:05 **Mary Buhr***

University of Saskatchewan; *mary.buhr@usask.ca

Trends in land use and populations in Canada in the coming century – what impacts will these have on agriculture and forestry?

08:40 **Elaine Wheaton***

Saskatchewan Research Council; *wheaton@src.sk.ca

Trends and projections for climate change in Canada in the coming century – what impacts will these have on agriculture and forestry?

09:15 **Christian Krupke***

Purdue University; *ckrupke@purdue.edu

Trends in insecticide and miticide technology – how will these affect biological control?

09:40 **Tim Haye***

CABI, Delemont, Switzerland; *T.Haye@cabi.org

Classical biological control in a changing world

10:05 Refreshment break

- 10:30 **Sherah VanLaerhoven***
University of Windsor; *vanlaerh@uwindsor.ca
Inundative biological control in a changing world
- 10:55 **Alejandro Costamagna***
University of Manitoba; *Ale.Costamagna@umanitoba.ca
Conservation biological control in a changing world
- 11:20 **Jon Sweeney***
Canadian Forest Service, Natural Resources Canada; *jon.sweeney@nrca-nrcan.gc.ca
Invasive species and biological control in a changing world
- 11:45 **Bernie Roitberg*¹, Dave Gillespie²**
¹Simon Fraser University, ²AAFC, Agassiz; *roitberg@sfu.ca
Symposium conclusion
-

Monday, 29 September

08:30 – 12:00

Florence Room

President's Prize Session: *Bees and pollination*

Moderator: **Cory Sheffield**

- 08:30 **Kyle Bobiwash***, Elizabeth Elle
Simon Fraser University; *kbobiwas@sfu.ca
Creating pollinator communities for specialty crop pollination
- 08:45 **Amélie Gervais***, Madeleine Chagnon, Cory S Sheffield, Valérie Fournier
Université Laval; *amelie.gervais.3@ulaval.ca
Biodiversity of pollinators in cranberry crop: the effect of management practices and soil types
- 09:00 **Andony Melathopoulos***, Steve Javorek, Tyedmers Peter, Chris Cutler
Dalhousie University; *Andony.Melathopoulos@dal.ca
Does (pollinator) quantity have a quality all its own for yield in lowbush blueberry?
- 09:15 **Danae Frier***, Christopher M Somers, Cory S Sheffield
University of Regina; *s.d.frier@gmail.com
Bumblebees do it better: the importance of native bees to the pollination of haskap crops
- 09:30 **Megan J Colwell***, Dave Shutler, Geoffrey R Wilson, Rodger C Evans
University of Manitoba; *meganjcolwell@gmail.com
Nutrition and pesticide content of honey bee-collected pollen

- 09:45 Refreshment break
- 10:30 **Megan K McAulay***, Gard W Otis, Angela E Gradish
University of Guelph; *mmcaulay@uoguelph.ca
Honey-pot visitation enables scent learning and heightens forager response in bumblebees (Bombus impatiens)
- 10:45 **Zoe D Rempel***, Rob W Currie
University of Manitoba; *zdlremp@gmail.com
Recapping rates and hygienic behaviour of honey bees
- 11:00 **Veronika Lambinet***, Marco Bieri, Mike Hayden, Gerhard Gries
Simon Fraser University; *vlambinet@gmail.com
Bee talk - do honeybees use the earth magnetic field as a reference to align their waggle dance?
- 11:15 **Cole Robson-Hyska***, Rob W Currie, Suresh Desai
University of Manitoba; *radicole@hotmail.com
*Detection of pathogen spillover from managed honey bees *Apis mellifera* L. to native pollinators (*Bombus* spp.) through the quantification of RNA viruses*
-

Monday, 29 September

08:30 – 12:00

Venice Room

President's Prize Session: *Biodiversity and conservation*

Moderator: **Felix Sperling**

- 08:30 **Andres F Herrera Florez***, Barb J Sharanowski
University of Manitoba; *andresfhf@gmail.com
Higher-level molecular phylogeny of Ophioniformes (Hymenoptera: Ichneumonidae)
- 08:45 **Yuanmeng M Zhang***, Barbara J Sharanowski
University of Manitoba; *yuanmeng.zhang@umanitoba.ca
*Resolving the *Peristenus pallipes* (Braconidae: Euphorinae) complex using an integrative taxonomic approach*
- 09:00 **James S Armstrong***
University of Saskatchewan; *plutocracy2060@gmail.com
*The mitochondrial genome of the common bed bug (*Cimex lectularius*)*
- 09:15 **Jessica Stolar***, Scott E Nielsen
University of Alberta; *stolar@ualberta.ca
Climate change and Alberta's rare butterflies

- 09:30 **Sarah Loboda***, Jade Savage, Toke Høye, Chris Buddle
 McGill University; *sarah.loboda@gmail.com
Ecological and evolutionary responses of Arctic flies to recent climate change in Zackenberg, Greenland
- 09:45 Refreshment break
- 10:30 **Joshua Pol***, Andrew Gould, Christopher Guglielmo, Jeremy McNeil
 Western University, Simon Fraser University; *jpol229@gmail.com
Do short term atmospheric pressure changes affect the calling behaviour of male crickets?
- 10:45 **Sebastian Ibarra***, Sean McCann, Regine Gries, Huimin Zhai, Gerhard Gries
 Simon Fraser University; *sibarra@sfu.ca
The wrath of the bald-faced hornet - pheromone-mediated nest defense
- 11:00 **Seung-II Lee***, John R Spence, David W Langor
 University of Alberta; *seungil1@ualberta.ca
Variable retention harvesting and saproxylic beetle conservation in white spruce stands of boreal ecosystem
- 11:15 **Melanie L Scallion***, Gary Gibson, Barbara J Sharanowski
 University of Manitoba; *scalliom@myumanitoba.ca
Review of the genus Paranastatus (Eupelmidae, Eupelminae) with descriptions of four new species and a key to species
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Monday, 29 September

13:30 - 17:00

Naples Room

Symposium: *Urban Forest Entomology*

Moderator: **Jeff Boone**

Sponsored by the City of Saskatoon

- 13:30 **Robert McGregor***
 Douglas College; *mcgregorr@douglascollege.ca
Ground beetles in the city: community structure in urban forest fragments
- 14:00 **Kathleen Ryan***
 Silv-Econ Ltd.; *kathleen.ryan@silvecon.com
Filling the gaps: tools to aid the fight against emerald ash borer

- 14:30 **Claire Rutledge***
Connecticut Agricultural Experiment Station; *Claire.Rutledge@ct.gov
The Connecticut Wasp Watchers Experience: Using a native wasp and citizen scientists to detect the emerald ash borer
- 15:00 Refreshment break
- 15:30 **Rory L McIntosh***
Forest Service Branch, Saskatchewan Ministry of Environment;
*Rory.McIntosh@gov.sk.ca
Dutch elm disease in Saskatchewan
- 16:00 **Tyler Wist***, Maya L. Evenden
Agriculture and Agri-Food Canada, Saskatoon Research Station, and University of Alberta; *Tyler.Wist@agr.gc.ca
Natural enemies of the ash leaf coneroller, Caloptilia fraxinella
- 16:30 **Jeff Boone***
Pest Management Supervisor, City of Saskatoon; *Jeff.Boone@Saskatoon.ca
Concluding remarks
-

Monday, 29 September

13:30 – 17:00

Florence Room

President's Prize Session: Arthropod biology

Moderator: **Michel Cusson**

- 13:30 **Aldo F Rios***, Alejandro C Costamagna
University of Manitoba; *aldorios@live.com
Contribution of soybean aphid alates to colony fitness under predation
- 13:45 **Vincent A Hervet***, Rob A Laird, Kevin D Floate
University of Lethbridge; *vincent.hervet@yahoo.fr
Effects of diet protein concentration on the development of caterpillars (Noctuidae) and their parasitoids (Braconidae)
- 14:00 **Loay Jabre***, Peggy Dixon, Richard Hopkins, Kirk Hillier
Acadia University; *loay.jabre@acadiau.ca
Response of the cabbage maggot, Delia radicum, to Brassica spp. volatiles
- 14:15 **Michael Onley***
Western University; *monley@uwo.ca
Costs of migration and the effects of temperature and photoperiod on Pseudaletia unipuncta

- 14:30 **Asha N Wijerathna***, Caroline M Whitehouse, Maya L Evenden
University of Alberta; *wijerath@ualberta.ca
The potential for trade-offs between flight and reproduction of the mountain pine beetle (Coleoptera: Curculionidae: Scolytinae) on two pine hosts
- 14:45 Refreshment break
- 15:30 **Sharleen Balogh***, Dezene Huber, Staffan Lindgren
University of Northern British Columbia; *jackso3@unbc.ca
Host selection of lodgepole pine (Pinus contorta) by the Warren root collar weevil (Hylobius warreni)
- 15:45 **Michael C Cavallaro***, Iain D Phillips, Kerry Peru, John Headley, Christy Morrissey, Karsten Liber
University of Saskatchewan; *michael.cavallaro@usask.ca
Investigating the impacts of neonicotinoid insecticides on macroinvertebrate communities in limnocorrals in a prairie pond
- 16:00 **Marianna E Horn***, Douglas Chivers
University of Saskatchewan; *marianna.horn@usask.ca
Damselflies in distress: stress and hatching times in Enallagma ebrium
- 16:15 **Chaminda De Silva Weeraddana***, Maya Evenden
University of Alberta; *weeradda@ualberta.ca
Effect of crop cultivar and soil fertility on larval performance, and oviposition behavior of bertha armyworm, Mamestra configurata
- 16:30 **Ian S McDonald***, Anne Simon, Jeremy McNeil
Western University; *imcdona2@uwo.ca
Factors affecting the release of and response to the Stress Odorant (dSO) by Drosophila melanogaster
-

Monday, 29 September

13:30 – 17:00

Venice Room

President's Prize Session: Pest management

Moderator: **Owen Olfert**

- 13:30 **Dennis Quach***, Tim Haye, Serge Fischer
CABI; *dqa@sfu.ca
The bionomics of Anastatus bifasciatus and its potential for the control of Halyomorpha halys: a case study from Europe

- 13:45 **Tina Dancau***, Tim Haye, Peter Mason, Dave Gillespie
CABI; *tda12@sfu.ca
Mortality factors affecting the diamondback moth (Plutella xylostella) in continental Europe: a preliminary life table analysis
- 14:00 **Diana C Fernandez***, Héctor A Cárcamo, Robert A Laird, Peter Mason, Jennifer K Otani, Simon Lachance
Agriculture and Agri-food Canada; *diana.fernandez@uleth.ca
Ecological interactions between lygus bugs and Peristenus: an approach in Southern Alberta
- 14:15 **Ishan KGL Samaranayake***, Alejandro C Costamagna
University of Manitoba; *samakgli@myumanitoba.ca
Soybean aphid control in different agricultural landscapes and movement of natural enemies from adjacent habitats
- 14:30 **Arash Kheirodin***, Hector Carcamo, Alejandro Costamagna
University of Manitoba; *kheiroda@myumanitoba.ca
Field and laboratory tests of predation on cereal leaf beetle
- 14:45 Refreshment break
- 15:30 **Justine Y Shiell***, Cynthia Scott-Dupree, Michele T Guerin, Simon Lachance
University of Guelph; *jshiell@uoguelph.ca
Controlling house fly (Musca domestica) pressure in duck production facilities using management techniques to reduce manure suitability
- 15:45 **Amanda J St.Onge***, Héctor A Cárcamo, Scott Meers, Maya L Evenden
University of Alberta; *ajstonge@ualberta.ca
Development of a semiochemical monitoring system for pea leaf weevil (Sitona lineatus) in Canadian field pea crops
- 16:00 **Jon Williams***, Hugh J Earl, Rebecca H Hallett
University of Guelph; *williamj@uoguelph.ca
Laboratory investigations of swede midge, Contarinia nasturtii, oviposition and damage symptoms on canola
- 16:15 **Udari Wanigasekara***, Jennifer Otani, Jim Broatch, Jeremy Hummel, Barb Sharanowski
University of Manitoba; *udari_madu@yahoo.com
The parasitoid community associated with economically important cutworms in Canada
-

Monday, 29 September

17:00 – 18:30

Crush Lobby

Poster Session (President's Prize Entries [^Ω] and Contributed) (presenters in attendance)

Poster 1

Mary Ruth McDonald*, Dennis Van Dyk, Kevin Vander Kooi
University of Guelph; *mrmcdona@uoguelph.ca

Integrated pest management of insect pests of onions and carrots

Poster 2

Mary Ruth McDonald*, Cynthia Scott-Dupree, Dennis Van Dyk, Suzanne Blatt
University of Guelph; *mrmcdona@uoguelph.ca

A comparison of trapping methods for carrot insect pests

Poster 3

Suzanne Blatt*, Joanne Driscoll, Kim Hiltz
Agriculture and Agri-Food Canada; *suzanne.blatt@agr.gc.ca

Carrot weevil and carrot rust fly in Nova Scotia and Prince Edward Island

Poster 4

Mary Ruth McDonald*, Kevin Vander Kooi, Alan G Taylor
University of Guelph; *mrmcdona@uoguelph.ca

*Evaluation of methods to reduce damage from onion maggot (*Delia antiqua*)*

Poster 5

Tyler J Wist*, Chrystel Olivier, John Gavlovski, Owen Olfert
Agriculture and Agri-Food Canada; *Tyler.Wist@agr.gc.ca

Development of a dynamic action threshold for aphids in cereal crops

Poster 6^Ω

Kimberley A Achtymichuk*, Arthur R Davis
University of Saskatchewan; *kaa334@mail.usask.ca

Excavation of halictid bee nests to investigate their associated mites

Poster 7

Bill Riel*, Andrew Fall
Natural Resources Canada; *bill.riel@nrcan.gc.ca

Assessing landscape scale risk of mountain pine beetle using connectivity modelling

Poster 8^Ω

Seung-II Lee*, John R Spence, David W Langor
University of Alberta; *seungill@ualberta.ca

Succession of saproxylic beetles associated with decomposition of boreal white spruce logs

Poster 9

Aaron J Bell*, Erik J Boyes, Alix T Schmidt, Iain D Phillips

University of Alberta; *aab068@mail.usask.ca

Hidden in plain view: the range expansion of Carabus granulatus L. (Coleoptera: Carabidae) and new provincial record for Saskatchewan

Poster 10

Aaron J Bell*, Iain D Phillips, Kevin D Floate, Brittney M Hoemsen, Colin E Phillips

University of Alberta; *aab068@mail.usask.ca

Effects of pitfall trap lid transparency on catches of carabid beetles (Coleoptera: Carabidae) in tame pasture

Poster 11 ^Ω

Charlie P Roy*, Arthur R Davis

University of Saskatchewan; *charlie.roy@usask.ca

Parasitism of the willow pinecone gall midge, Rabdophaga strobiloides (Diptera, Cecidomyiidae)

Poster 12

Julia J Mlynarek*, Stephen Heard

University of New Brunswick; *julia.mlynarek@unb.ca

What is known about leafminers of goldenrods (so far)

Poster 13 ^Ω

Diana M Wilches Correal*, Paul Coghlin, Kevin Floate

Agriculture and Agri-Food Canada; *Diana.Wilches@agr.gc.ca

Wolbachia and the effect of antibiotic treatments on the microbiome of Drosophila suzukii

Poster 14

Beverly Dunlop*, Dustin Ostrander, Rob Bouchier

Agriculture and Agri-Food Canada; beverly.dunlop@agr.gc.ca

Time Travellers: Re-visiting historical leafy spurge biocontrol agents on the prairies

Poster 15

Rob Bouchier*, Paul Coghlin, Bev Dunlop, Dustin Ostrander, Laurent Lesage, Kevin Floate

Agriculture and Agri-Food Canada; *robert.bouchier@agr.gc.ca

Assessment of the diversity of Aphthona flea beetles for biological control of leafy spurge on the prairies

Poster 16

Joan Cossentine*, Suzanne Blatt, Peter Mason, Jeff Franklin, Andrea Brauner,

Mairi Robertson, Margaret Appleby, Kristy Grigg-McGuffin, Hannah Fraser,
Tracy Hueppelsheuser, Tara Garipey
Agriculture and Agri-Food Canada; *joan.cossentine@agr.gc.ca
*Adventures in moving: the challenges in introducing a classical biological
control agent into other provinces*

Poster 17

Danielle Hoefele*, Maya L Evenden
University of Alberta; *dhoefele@ualberta.ca
Enhancing parasitism of Caloptilia fraxinella by Apanteles polychrodosis

Poster 18^Ω

Edyta A Sieminska*, Martin A Erlandson, Dwayne D Hegedus, John R Gray
Agriculture and Agri-Food Canada; *edyta.sieminska@usask.ca
*Characterization of the pheromone communication channel in bertha
armyworm, Mamestra configurata*

Poster 19

Simon P Pawlowski*
Acadia University; *104992p@acadiau.ca
*Chemical ecology of the beech leaf mining weevil, Orchestes fagi L.
(Curculionidae: Curculioninae), in Nova Scotia, Canada*

Poster 20

Doug J Baldwin*, David Theilmann, Just Vlak, Martin Erlandson
Agriculture and Agri-Food Canada; *baldwindj@agr.gc.ca
*Genomic variation of Mamestra configurata nucleopolyhedroviruses from
noctuid host species across Holarctic regions*

Poster 21

Stephanie T Harris*, Edyta Sieminska, David Theilmann, Dwayne Hegedus,
Martin Erlandson
Agriculture and Agri-Food Canada; *stephanie.harris@agr.gc.ca
*Interaction between baculovirus infection and Cotesia parasitism in Trichoplusia
ni larvae*

Poster 22

Joyce P Leung*, Alida F Janmaat, Jenny S Cory, J Todd Kabaluk
Simon Fraser University; *jpl15@sfu.ca
*Assessing the potential of pheromone granules for the augmentation of Agriotes
obscurus control with Metarhizium brunneum*

Poster 23^Ω

Sabrina Rochefort*, Terry A Wheeler
McGill University; *sabrina.rochefort@mail.mcgill.ca
Taxonomy and Diversity of Parapiophila (Diptera: Piophilidae)

Poster 24^Ω

Élodie Vajda*, Terry Wheeler

McGill University; *elodie.vajda@mail.mcgill.ca

Diversity and Ecology of Canadian Arctic Rhamphomyia (Diptera: Empididae)

Poster 25

Md Habibullah Bahar*, Chrystel Olivier, Juliana J Soroka, Dwayne Hegedus

Agriculture and Agri-Food Canada; *bablu91@yahoo.com

Phytoplasma-leaf hopper-plant interactions in changing climate

Poster 26

Chrystel Olivier*, Tim Dumonceaux, Christine Hammond, Julien Saguez,

Charles Vincent

Agriculture and Agri-Food Canada; *chrystel.olivier@agr.gc.ca

New phytoplasma strains in Quebec vineyards

Poster 27^Ω

Sarah Loboda*, Crystal Ernst, Chris Buddle

McGill University; *sarah.loboda@gmail.com

Yellow pan traps vs pitfall traps: best monitoring tool for ground-dwelling arthropods in the Arctic?

Poster 28

Jeremy D Hummel*, Jim Broatch, Jennifer Otani, Patty Reid, Martin Erlandson

Lethbridge College; *jeremy.hummel@lethbridgecollege.ca

Getting a picture for cutworm outbreaks in Alberta

Poster 29

Jennifer Holowachuk*, Edyta Sieminska, Jennifer Otani and Martin Erlandson

Agriculture and Agri-Food Canada; *Jennifer.holowachuk@agr.gc.ca

Development of DNA marker technology for identification of common cutworm species in the cutworm complex attacking canola in western Canada

Poster 30

Kate S Prestie*, Tim Jardine, Douglas P Chivers, Iain D Phillips

University of Saskatchewan; *kate.prestie@gmail.com

Crayfish increase trophic food chain length in aquatic communities

Poster 31

Natasha M Kreitals*, Joel Houston, Douglas P Chivers, Bjoern Wissel, Iain D Phillips

Saskatchewan Wildlife Federation; *natasha.kreitals@gmail.com

Ontogenetic and sex-specific trophic plasticity of Orconectes virilis in aquatic invertebrate communities

Poster 32

Kateryn Rochon*, Timothy J Lysyk

University of Manitoba; *kateryn.rochon@umanitoba.ca

*Variation in abundance of *Dermacentor variabilis* in southern Manitoba*

Poster 33^Ω

Yahya Al Naggar*, John Giesy, Christopher Cutler

University of Saskatchewan; *Yaa007@mail.usask.ca

Effects of chronic exposure of sublethal doses of organophosphorus insecticides on honey bees

Tuesday, 30 September

08:30 – 12:00

Naples Room

Symposium: Biological Survey of Canada - *Opposite ends of the time scale - ancient and recent changes in insect diversity*

Moderators: Greg Pohl, Cory Sheffield, and Rob Longair

08:30 **Greg R Pohl***¹, John H Acorn²

¹Canadian Forest Service, Natural Resources Canada; ²University of Alberta;
*gpohl@nrcan.gc.ca

Recent changes in Lepidoptera diversity in the Prairie Provinces

08:45 **Cory Sheffield***

Royal Saskatchewan Museum; *cory.sheffield@gov.sk.ca

Conservation status of bees in the Prairie Provinces – why are they at risk?

09:00 **Kevin D Floate***

Lethbridge Research Centre, Agriculture and Agri-Food Canada;
*Kevin.Floate@agr.gc.ca

The changing diversity of dung beetles on the Canadian prairies: a never-ending story

09:15 **Hector Cárcamo***¹, Lloyd Dosedall², Owen Olfert¹, Scott Meers³, John Gavloski⁴,
Scott Hartley⁵

¹Agriculture and Agri-Food Canada, Lethbridge Research Centre; ²deceased;
formerly of the University of Alberta; ³Alberta Agriculture and Rural
Development; ⁴Manitoba Agriculture, Food and Rural Initiatives; ⁵Saskatchewan
Agriculture and Food; *Hector.Carcamo@agr.gc.ca

*Recent changes in insect communities associated with agricultural systems in the
Prairies*

09:30 **Véronique Martel***, Rob Johns, Deepa Pureswaran, Louis de Grandpré, Jacques
Régnière

Canadian Forest Service, Natural Resources Canada;
*veronique.martel@rncan.gc.ca
The spruce budworm parasitoids: variation in their diversity

- 09:45 **Rémi Hébert***
Environment Canada, Canadian Wildlife Service; *remi.hebert@ec.gc.ca
Using the program on the General Status of species in Canada to track changes in insect conservation
- 10:00 Refreshment break
- 10:30 Darren A Pollock¹, **Neil J Holliday^{2*}**, and Anita Stjernberg²
¹Eastern New Mexico University; ²University of Manitoba;
*Neil_Holliday@UManitoba.CA
A Century of Carabidae of Aweme, Manitoba
- 10:45 **Ryan McKellar***
Royal Saskatchewan Museum; *ryan.mckellar@gov.sk.ca
Changes in western Canadian insect diversity, as revealed through the fossil record
- 11:00 **David Shorthouse***
Université de Montréal; *david.shorthouse@umontreal.ca
What do accessible occurrence data and checklists tell us about species diversity in Canada?
- 11:30 **Biological Survey of Canada – Annual General Meeting**
-

Tuesday, 30 September

09:00 – 12:00

Venice Room

Symposium: Canadian Forum for Biological Control - *Novel approaches to improve and understand biological control*

Moderators: **Joan Cossentine and Gary Peng**

- 09:00 **Joan Cossentine***
Agriculture and Agri-Food Canada, Summerland; *Joan.Cossentine@agr.gc.ca
Introduction
- 09:05 **Scott Behie***
Brock University; *sb07fh@brocku.ca
Discovering the hidden life of biological control agents

- 09:30 **Michelle Hubbard***
 Agriculture and Agri-Food Canada, Saskatoon Research Centre;
 *Michelle.Hubbard@agr.gc.ca
Exploring the mode(s) of action of macrocidins, the phytotoxins produced by the bioherbicidal fungus Phoma macrostoma
- 10:00 Refreshment break
- 10:30 **Gerhard Gries***
 Simon Fraser University; *gries@sfu.ca
Studying the reproductive strategies of parasitoid wasps – can we learn something benefitting biological control?
- 10:55 **Tim Dumonceaux***
 Agriculture and Agri-Food Canada, Saskatoon Research Centre;
 *Tim.Dumonceaux@agr.gc.ca
Metagenomic sequencing – a novel tool to reveal biological antagonism
- 11:30 **Canadian Forum for Biological Control – Annual General Meeting**
-

Tuesday, 30 September

08:30 – 12:00

Florence Room

Contributed Papers: *Pest management*

Moderator: **Charles Vincent**

- 08:30 **Juliana J Soroka***, Lars Andreassen, Owen O Olfert, Ross Weiss
 Agriculture and Agri-Food Canada; *julie.soroka@agr.gc.ca
Distribution of swede midge on the Prairies
- 08:45 **Lars D Andreassen***, Julie J Soroka
 Agriculture and Agri-Food Canada; *Andreassen@agr.gc.ca
Swede midge injury as influenced by crucifer species, and canola planting date and cultivar
- 09:00 **Maya L Evenden***, Jessica J Kwon, Jose Rossato, Boyd A Mori
 University of Alberta; *mevenden@ualberta.ca
Effect of crop cultivar and fertilization regime on preference and performance of the true armyworm, Mythimna unipuncta Haworth (Lepidoptera: Noctuidae)
- 09:15 **Brahim Soufiane, Charles Vincent***, Jean-Charles Côté
 Agriculture et agroalimentaire Canada; *charles.vincent@agr.gc.ca
A novel toxin produced by a psychrotolerant Bacillus thuringiensis serovar

- 09:30 **Wim van Herk***, Bob Vernon, Romain Richard
Agriculture and Agri-Food Canada; *wim.vanherk@agr.gc.ca
Towards a new approach for managing wireworms
- 09:45 **Abdul Hakeem***, Megha Parajulee
Texas A & M AgriLife; *ahakeem@vols.utk.edu
Thrips management on cotton in the Texas High Plains
- 10:00 Refreshment break
- 10:30 **Robert J Lamb***, Patricia A MacKay
University of Manitoba; *lambmack@mts.net
Seasonal abundance of a native aphid: implications for population dynamics
- 10:45 **Patricia A MacKay***, Robert J Lamb
University of Manitoba; *PA_MacKay@umanitoba.ca
Role of predators in the longevity of wild colonies of a native aphid
- 11:00 **Diana M Wilches Correal***, Robert Laird, Kevin Floate, Paul G Fields
Agriculture and Agri-Food Canada; *Diana.Wilches@agr.gc.ca
Effects of extreme temperatures on the survival of the quarantine stored-product pest, Trogoderma granarium (khapra beetle)
- 11:15 **Paul Fields***, Ahmed Abdelghany
Agriculture and Agri-Food Canada; *paul.fields@agr.gc.ca
Freeze-outs to control insects in flour mills
- 11:30 **Ian Scott***, Luis Caceres, Sneha Challa, Les Shipp, Mark Sumarah, Lining Tian, Abdelali Hannoufa
Agriculture and Agri-Food Canada; *ian.scott@agr.gc.ca
Deterring tomato pests by manipulating the flower volatiles
-

Tuesday, 30 September

12:00 – 13:30

Florence Room

Workshop: Lunch and Learn

Sponsored by Dow AgroSciences

Tuesday, 30 September

13:30 – 17:00

Naples Room

Symposium: *Arthropod “omics” – Impact on Management*

Moderator: **Martin Erlandson**

13:30 **Martin Erlandson***

Agriculture and Agri-Food Canada, Saskatoon Research Centre;
*martin.erlandson@agr.gc.ca

Introduction

13:35 **Leonard Foster***

University of British Columbia; *Foster@chibi.ubc.ca

Using proteomics to inform honey bee breeding for pathogen resistance

14:05 **Kevin Wanner***

Montana State University, Bozeman; *Kwanner@montana.edu

Insights into insect-insect communication – molecular characterization of pheromone production and detection

14:35 **Neil Chilton***

University of Saskatchewan; *neil.chilton@usask.ca

Understanding ticks and tick-borne bacteria

15:00 Refreshment break

15:30 **Michel Cusson*, Lisa Lumley***

Natural Resources Canada, Laurentian Forestry Centre; *mcusson@rncan.gc.ca

Spruce budworm management in the genomics era

16:00 **Patrice Bouchard***¹, Sahra-Taylor Mullineux^{1, 2}, Christopher T Lewis¹, Iyad Kandalaft¹, Eric Maw¹, Leland Humble², Robert Footitt¹

¹Agriculture and Agri-Food Canada, Research Centre, Ottawa; ²Pacific Forestry Centre, Natural Resources Canada, Victoria; *patrice.bouchard@agr.gc.ca

Rapid detection of quarantine and invasive species using Next Generation Sequencing technology

Tuesday, 30 September

13:30 – 17:00

Venice Room

Contributed Papers: *Biodiversity, phylogeny, evolution*

Moderator: **Sean McCann**

13:30 **Aynsley Thielman***, Marla Schwarzfeld, Anne-Marie Flores, Mark Shrimpton, Lisa Poirier, Daniel Erasmus, Brent Murray, Allan Costello, Jeanne Robert,

- Dezene Huber, Michael Gillingham
University of Northern British Columbia; *aysley.thielman@gmail.com
Arthropod biodiversity in the central coastal and interior mountain ecosystems of British Columbia
- 13:45 **Sean M McCann***, Erin Adams, Robert Higgins
Simon Fraser University; *smccann27@gmail.com
Invasive ants in British Columbia: a report from the front lines
- 14:00 **Julien J Saguez***, Chrystel Olivier, Jacques Lasnier, Charles Vincent
Agriculture and Agri-Food Canada; *saguezj@yahoo.com
Biodiversity of leafhoppers in Quebec vineyards
- 14:15 **Tara D Gariepy***, Tim Haye, Hannah Fraser, Peter Mason, Dave Gillespie
Agriculture and Agri-Food Canada; *tara.gariepy@agr.gc.ca
Anatomy of an invasion: brown marmorated stink bug in Canada and Europe
- 14:30 **Marla D Schwarzfeld***, Aynsley Thielman, Anne-Marie Flores, Adam O'Dell, Allan Costello, Daniel Erasmus, Brent Murray, Lisa Poirier, Jeanne Robert, Michael Gillingham, Mark Shrimpton, Dezene Huber
University of Northern British Columbia; *marla.schwarzfeld@unbc.ca
Metabarcoding as a tool for assessing stream biodiversity and ecosystem function at pipeline crossings
- 14:45 Refreshment break
- 15:30 **Jason J Dombroskie***, James K Liebherr
Cornell University; *jjd278@cornell.edu
How to save our entomology collections: the undergrad solution
- 15:45 **Jesse Jarvis***, Christina Caruso, Gard Otis, Alex Smith
University of Guelph; *jjarvis@uoguelph.ca
*Assessing wild lupine (*Lupinus perennis* L.) habitat in Ontario, Canada, for the feasibility of karner blue butterfly (*Lycaeides samuelis* Nabokov) reintroduction*
- 16:00 **Felix Sperling***, Julian Dupuis
University of Alberta; *felix.sperling@ualberta.ca
*Characterizing hybrids in the *Papilio machaon* group of swallowtail butterflies in North America*
- 16:15 **Gary Gibson***
Agriculture & Agri-food Canada; *gary.gibson@agr.gc.ca
The future of chalcid higher classification (Hymenoptera: Chalcidoidea)

- 16:30 **Alex Smith***
University of Guelph; *salex@uoguelph.ca
Neotropical diversity gradients: inferences and assumptions
- 16:45 **Jennifer Heron***
B.C. Ministry of Environment; *jennifer.heron@gov.bc.ca
COSEWIC and the Arthropods Specialist Subcommittee: how all entomologists can contribute to the conservation of Canada's arthropod fauna
-

Wednesday, 1 October

08:30 – 12:00

Naples Room

Contributed Papers: Forestry, semiochemicals, insect biology

Moderator: **Maya Evenden**

- 08:30 **Kathryn Berry***, Dezene Huber
University of Northern British Columbia; *berryk@unbc.ca
Comparative seasonal cold hardening of douglas-fir beetles (Dendroctonus pseudotsugae) and spruce beetles (Dendroctonus rufipennis) in north-central British Columbia
- 08:45 **Dezene Huber***, Jeanne A Robert, Luke J Spooner, Caitlin Pitt, Tiffany R Bonnett, Jordie D Fraser, Macaire Yuen, Christopher I Keeling, Jörg Bohlmann
University of Northern British Columbia; *huber@unbc.ca
Seasonal shifts in gene transcription in overwintering mountain pine beetle larvae
- 09:00 **Bill Riel***, Art Stock
Natural Resources Canada; *bill.riel@nrcan.gc.ca
Assessing the efficacy of direct control of mountain pine beetle
- 09:15 **Chris J MacQuarrie***
Canadian Forest Service; *cmacquar@nrcan.gc.ca
Effect of tree condition on emerald ash borer performance
- 09:30 **Kirk N Hillier***
Acadia University; *kirk.hillier@acadiau.ca
Modern strategies in applied chemical ecology
- 09:45 **Nathan Derstine***, Regine Gries, Huimin Zhai, Gerhard Gries
Simon Fraser University; *nderstin@sfu.ca
W.A.S.P.S. - Wondering about sex pheromones (Hymenoptera: Vespidae)
- 10:00 Refreshment break

- 10:30 **Angela Marinas, Jeremy McNeil***
Western University; *jmcneil2@uwo.ca
Do the densities of migrant moths always increase in the summer range?
- 10:45 **Julien J Saguez***, Philippe Giordanengo, Chrystel Olivier, Jacques Lasnier, Charles Vincent
Agriculture and Agri-Food Canada; *saguezj@yahoo.com
Feeding behavior of three Erythroneura spp. (Cicadellidae) on grapevine
- 11:00 **Heather Proctor***, Maninder Longowal
University of Alberta; *hproctor@ualberta.ca
Polymorphism in male nest mites (Acari: Astigmata: Pyroglyphidae): discrete morphs or continuous variation?
- 11:15 **Nichole J Prestie***
Saskatchewan Water Security Agency; *nichole.prestie@gmail.com
The role of caddisfly larvae cases in predatory defence

**Wednesday, 1 October
Room**

08:30 – 12:00

Florence

Contributed Papers: Biocontrol, bees, pollination

Moderator: **Peter Mason**

- 08:45 **Robert McGregor***, Alysha Martins, Katelyn Crisp
Douglas College; *mcgregorr@douglascollege.ca
Predators on the farm: augmentative releases for biological control of blueberry aphid in British Columbia
- 09:00 **Rebecca H Hallett***, Justin M Renkema, Zachariah Telfer, Tara D Garipey
University of Guelph; *rhallett@uoguelph.ca
Dalotia coriaria as a predator of the invasive fruit pest Drosophila suzukii
- 09:15 **Simon Lachance***
Alfred Campus, University of Guelph; slachanc@uoguelph.ca
Effectiveness of various essential oils as repellent for pest flies on pastured dairy animals
- 09:30 **Guy Boivin***
Agriculture et Agroalimentaire Canada; *guyboivin40@hotmail.com
Host-mediated phenotypic plasticity in developmental rate in an egg parasitoid

- 09:45 **Peter G Mason***, Andrea M Brauner, Jacob H Miall, Margaret Appleby
Agriculture and Agri-Food Canada; *Peter.Mason@agr.gc.ca
*Biologically based management of leek moth, Acrolepiopsis assectella:
integrating the pieces*
- 10:00 Refreshment break
- 10:30 **Rose De Clerck-Floate***
Agriculture and Agri-Food Canada; *Rosemarie.DeClerck-Floate@agr.gc.ca
*Understanding plant morphology in the successful application of weed
biocontrol*
- 10:45 **Nigel E Raine***, Richard J Gill, Dara A Stanley
University of Guelph; *nraine@uoguelph.ca
*The impacts of pesticides on bumblebees: from individual behaviour to colony
function*
- 11:00 **Chris Cutler***
Dalhousie University; *chris.cutler@dal.ca
Neonicotinoid insecticides and the bee decline debate: sizing up the evidence
- 11:15 **Sandra Gillespie***, Elizabeth Elle
Simon Fraser University; *sgillesp@sfu.ca
*Bumblebee competition may affect pollination service to invasive and native
species in the endangered Garry oak ecosystem*
- 11:30 **Gard W Otis***, Heather R Mattila, Lien P Nguyen, Hanh D Pham, Olivia Knight
University of Guelph; *gotis@uoguelph.ca
*Giant hornet (Vespa soror) attacks elicited by collection by Asian honeybees
(Apis cerana)*

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