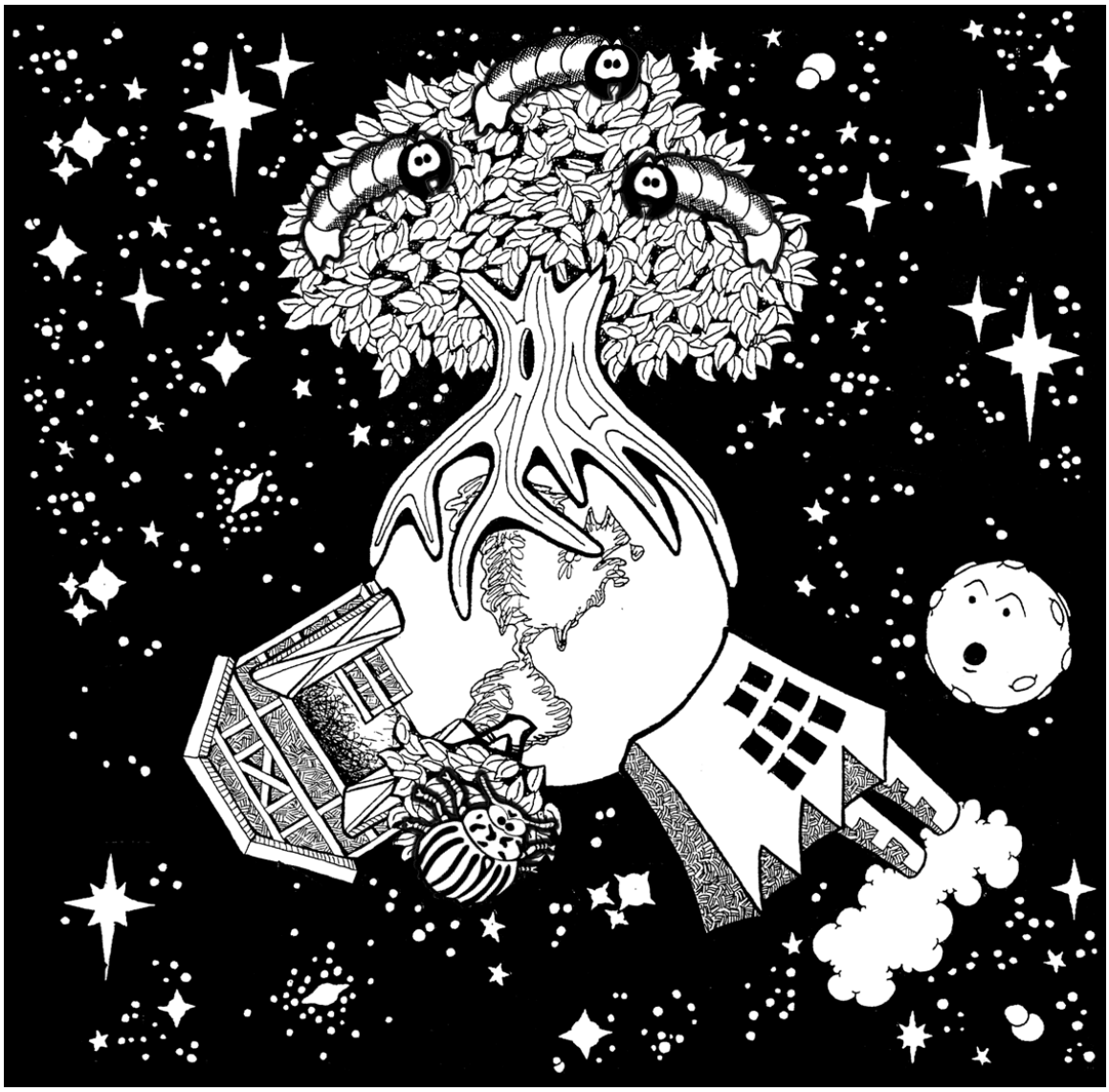
The Acadian Entomological Society



73rd Annual Meeting / 73e Réunion annuelle

Holiday Inn, Truro, NS

27 July to Aug. 1 2014

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Schedule / Horaire provisoire

Wednesday, July 30 / Mercredi 30 Juillet	
18:00-19:00	Registration
19:00-	**AES Mixer**

Thursday, July 31 / Jeudi 31 Juillet	
8:00-8:30	Registration
8:30-8:45	Opening talks

Session I: Keynote Address

8:45-9:15	**TITLE** David McCorquodale

Session II: President's Prize session	
9:15-9:30	**Studies on the interaction between the cabbage maggot, *Delia radicum*, and its host plants volatiles** L. Jabre, P. Dixon, C. Parsons, R. Hopkins and K. Hillier
9:30-9:45	**Exposure of honey bees (*Apis mellifera* L.) to Organophosphorous insecticides in Saskatchewan, Canada** Yahya Al Naggar, Anja Vogt, Garry Codling, Elsaied Naiem, Mohamed Mona, Amal Seif, Albert Robertson, and John P. Giesy
9:45-10:30	**Break**

Session III: President's Prize session

10:30-10:45	**Impact of wild pollinator service flows to lowbush blueberry production** Laurel M. Schut
10:45-11:00	**The Effect of Sublethal Insecticide Exposure on Gene Expression in *Myzus persicae* (Sulzer)** Rachel R. Rix and G. Christopher Cutler
11:00-11:15	**Is commercial lowbush blueberry yield primarily pollen**

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	limited? A.P. Melathopoulos, S. Javorek, P. Tyedmers and G. C. Cutler
11:15-13:00	**Poster Session and Lunch Break**

Session IV: Submitted talks

13:00-13:15	**Effect of starvation on green peach aphid previously exposed to hormetic concentration of imidacloprid** Murali-Mohan Ayyanath and Chris Cutler
13:15-13:30	**From grasslands to forests: Using soil communities to study ecosystem responses to environmental change** Zachary A Sylvain, Robert C Johns and Diana H Wall
13:30-13:45	**Assessing the threat of the invasive beech leaf mining weevil (*Orchestes fagi* L.) to secondary host plants in Atlantic Canada.** Eric R. D. Moise, Andrew Morrison, Glen Forbes, N. Kirk Hillier, Jon Sweeney, and Robert Johns
13:45-14:00	**Assessing the impact of moth migration to the rise and spread of spruce budworm** Rob Johns, Drew Carleton*, Deepa Pureswaran, Benoit Morin, Andrew Morrison
14:00-14:15	**The origin and population structure of the European fire ant in Eastern Canada** Barry Hicks and Dawn Marshall
14:15-14:30	**Field studies examining exposure and effects of neonicotinoid insecticides on bee colony health** G.C. Cutler and Cynthia D. Scott-Dupree
14:30-15:00	**Break and Poster session**

Session V: Submitted talks

15:00-15:15	**Effect of essential oils on behavior of diamondback moth (*Plutella xylostella*)** Jatinder Singh Sangha and Chris Cutler
15:15-15:30	**Tropical Chemical Ecology – Opportunities and Challenges**

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	N. Kirk Hillier, Will Haines and Dan Rubinoff
15:30-15:45	**Is the importation of bumble bees practical for Newfoundland cranberry pollination?**
	Barry Hicks and Julie Sircom
15:45-16:00	**Is dietary mixing of different-aged foliage within conifers adaptive for Asian gypsy moth?**
	Rob C. Johns, Kenichi Ozaki, Hiroyuki Tobita and Hideho Hara
19:00-	**Banquet**

Friday, August 1 / Vendredi 1er Août	
9:00-	**AGM**

AES 2014 President's Welcome

It is a great pleasure to welcome you all to Truro, Nova Scotia, for the 73rd Annual Meeting of the Acadian Entomological Society.

Our theme for this year's meeting is "Keeping Entomology on Track". This theme is of course appropriate for the location of Truro – the "Hub" of Nova Scotia – but more importantly serves as a reminder for us, the members of AES. It is critical that we not only pursue our own entomological interests, but also continue to work towards serving the entomological needs of the region, which are probably more pressing than ever. We also need to ensure that we keep our society "on track". The AES serves us as a mechanism for building collegiality, transferring knowledge (though our meetings, our Journal, and outreach), generating ideas and collaborations, and training students. Our society is also our regional voice for entomology, representing the nation's east coast on the many issues discussed at Entomological Society of Canada meetings. Let's all work to ensure that going forward we continue strengthen the presence and impact of the Acadian Entomological Society.

Thank you all for coming to Truro, and for your valued contributions to the Society. Enjoy the meeting and the Hub!

Chris Cutler
President
Acadian Entomological Society

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Oral presentation abstracts / Résumés des présentations orales

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Effect of starvation on green peach aphid previously exposed to hormetic concentration of imidacloprid

ORAL SUBMITTED

Murali-Mohan Ayyanath and Chris Cutler

Pesticides kill insects, but increased survival or reproduction is often noted in insects exposed to low doses, a phenomenon called hormesis. Previously, we reported increased population growth of aphids exposed to low doses of insecticide. We tested the hypothesis that aphids exposed to a low concentration of imidacloprid would perform better under nutritional stress than unexposed aphids. We observed that in the absence of food, aphids previously exposed to the insecticide survived 37% longer than aphids not exposed to insecticide. This indicates that previous exposure to sublethal stress not only can result in increased reproduction, but can prime insects to better cope with a different subsequent stressor.

Field studies examining exposure and effects of neonicotinoid insecticides on bee colony health

ORAL SUBMITTED

G.C. Cutler and Cynthia D. Scott-Dupree

Neonicotinoid insecticides are widely used plant-systemic compounds that have been subject to intense scrutiny as a potential cause of recent honey bee and wild pollinator declines. Laboratory-based studies have shown that neonicotinoids may elicit various acute or chronic effects on bees. However, higher-tier studies, where dietary exposure to pollen and nectar occurs through plants grown from soil or seed-treatment applications, have failed to demonstrate significant effects. In this talk, we describe results from field studies we have conducted with honey bees and bumble bees that suggest

exposure to neonicotinoid seed-treated canola and corn, respectively, pose low risk to colony health.

The origin and population structure of the European fire ant in Eastern Canada.

ORAL SUBMITTED

Barry Hicks[1] and Dawn Marshall[2]

[1]College of the North Atlantic, Carbonear, NL; [2]Department of Biology, Memorial University, St. Johns, NL

The European fire ant is an invasive ant species in Eastern Canada that is believed to have originated from established Eastern US populations. Molecular data (mDNA sequencing and nDNA microsatellites) has shown that some populations in Eastern Canada have originated directly from Britain. This talk will discuss the possible routes of introduction. Data on the population structuring will be presented along with supporting evidence from aggression testing between ants from different colonies.

Is the importation of bumble bees practical for Newfoundland cranberry pollination?

ORAL SUBMITTED

Barry Hicks[1] and Julie Sircom[2]

[1]College of the North Atlantic, Carbonear, NL; [2]Grenfell Campus, Memorial University, Corner Brook, NL

Cranberry flowers must be pollinated by insects for fruit to develop and bees are their main pollinators. This talk outlines research conducted to determine the bee species important for cranberry pollination in Newfoundland, and the utility of importing commercial bumble bees to supplement pollination of cranberry flowers. Several native bumble bee and solitary bee species were shown to be important pollinating species. The use of commercial bees did not increase

pollination on the cranberry farms studied. Several native species were observed inside the colony boxes of the commercial bees. The potential for disease transmission to native species will be discussed.

Tropical Chemical Ecology – Opportunities and Challenges

ORAL SUBMITTED

N. Kirk Hillier[1], Will Haines[2] and Dan Rubinoff[2]

[1]Acadia University, Wolfville, NS, B4P 2R6; [2]College of Tropical and Human Resources, University of Hawai'i Manoa, Honolulu, HI

The islands of Hawai'i are a unique venue for studying insect and island biodiversity, invasive species and chemical ecology. Endemic species are often isolated to this region, and invasive species can have massive and devastating effects. During the spring of 2014, I spent 6 weeks at the conducting collaborative field studies at the University of Hawai'i, Manoa in Honolulu. In this presentation, I will highlight my search for elusive/endangered Noctuids, along with pheromone studies on: 1) cryptic *Hyposmocoma kahamanoa* moths; 2) outbreaking Koa moths, *Scotorythra palludicola* - endemic forestry threats, and 3) invasive Chinese Rose Beetles, *Adoretus sinicus*.

Studies on the interaction between the cabbage maggot, *Delia radicum*, and its host plants volatiles

STUDENT SUBMITTED

L. Jabre, P. Dixon, C. Parsons, R. Hopkins and K. Hillier

The cabbage maggot, *Delia radicum,* is an economically important pest because its larvae attack and destroy Brassicaceous crops around the globe. By understanding the relationship between this species and its hosts, we can develop better ways for its management. Using electroantennography (EAG), this study has shown that *D. radicum* responds strongly to several host plant volatiles

including 2-methyl anisole, β-citronellol and (Z)-3-hexen-1-ol. Field studies also suggest that certain conventional trap types are ineffective at monitoring the fly. More bioassays are underway to determine attractive/repellent properties of those compounds eliciting strongest EAG responses, which will subsequently be tested in the field.

Assessing the impact of moth migration to the rise and spread of spruce budworm

ORAL SUBMITTED

Rob Johns, Drew Carleton, Deepa Pureswaran, Benoit Morin and Andrew Morrison

Spruce budworm, *Choristoneura fumeriferana*, populations are outbreaking in Quebec, and populations are beginning to rise in northern New Brunswick. Current efforts are underway to investigate the potential for early intervention strategies to mitigate the potential damage to balsam fir and spruce forests in New Brunswick. A key issue in developing these strategies relates to how populations grow and spread throughout the region. In particular, it remains unclear the extent to which adult migration contributes to the rise and spread of a spruce budworm outbreak. With reference to extensive past work on the subject, we discuss a new, multi-year collaborative study that seeks to identify how budworm populations rise and the extent to which migration contributes to outbreaks at various spatial scales.

Is dietary mixing of different-aged foliage within conifers adaptive for Asian gypsy moth?

ORAL SUBMITTED

Rob C. Johns[1,2], Kenichi Ozaki [1], Hiroyuki Tobita[1,3] and Hideho Hara[4]

[1]Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, PO Box 4000, 1350 Regent Street, Fredericton, New Brunswick, E3B 5P7, Canada; [2]Hokkaido Research Center, Forestry and Forest Products Research Institute, 7 Hitsujigaoka, Toyohira Sapporo, Hokkaido, 062-8516, Japan; [3]Forestry and Forest Products Research Institute, 1 Matsunosato, Tsukuba, Ibaraki, 305-8687 Japan; [4]Hokkaido Forestry Research Inst., Kôsyunai, Bibai, Hokkaido, 079-0198, Japan

Variation in nutritional quality of different-aged foliage within plants can significantly influence the performance and associated distribution and abundance of herbivorous insects. Although some insects specialize on either mature or developing foliage, there some may mix small amounts of typically non-preferred foods in a diet to enhance fitness. I will discuss results from laboratory and field experiments carried out to investigate the foliage-age feeding preference and associated performance of larval Asian gypsy moth (*Lymantria dispar japonica* L.) on four common conifer species in its native range of northern Japan.

Is commercial lowbush blueberry yield primarily pollen limited?

STUDENT SUBMITTED

A.P. Melathopoulos, S. Javorek, P. Tyedmers and G.C. Cutler

Our work attempts to define the factors that determine final yield of wild blueberries in order to better advice growers on managing their pollinator resources. We tracked berry development from initial pollination to final fruit production across commercial wild blueberry fields in PEI and NS in 2013 and 2014. Although fields experienced quite large differences in pollination rate, the more noticeable trend was the consistent and dramatic loss of potential fruit, commonly known as "June drop". Roughly half of the flowers on stems translated into early set fruit and 75% of them failed to turn into harvestable fruit.

Assessing the threat of the invasive beech leaf mining weevil (*Orchestes fagi* L.) to secondary host plants in Atlantic Canada.

ORAL SUBMITTED

Eric R. D. Moise[1], Andrew Morrison[1], Glen Forbes[1], N. Kirk Hillier[2], Jon Sweeney[1], and Robert Johns[1]

[1]Canadian Forest Service – Natural Resources Canada, 1350 Regent Street, Fredericton, New Brunswick, Canada, E3C 2G6; [2]Acadia University, 15 University Avenue, Wolfville, Nova Scotia, Canada, B4P 2R6

Beech leaf mining weevil (*Orchestes fagi*) is a relatively new invasive in Atlantic Canada that causes significant defoliation to American beech (*Fagus gradifolia*). However, it remains unclear the extent to which secondary hosts might also be exploited. Field surveys, enclosure studies, and lab assays were employed to assess host preference across a range of native hosts. Results confirmed that early-season feeding was significantly greater on beech than on any other secondary host. However, late season feeding varied little between hosts owing to a substantial reduction in beech consumption. Overall, our results suggest that *O. fagi* poses minimal risk to forest plants in eastern Canada other than beech.

Exposure of honey bees (*Apis mellifera* L.) to Organophosphorous insecticides in Saskatchewan, Canada

STUDENT SUBMITTED

Yahya Al Naggar[1, 2], Anja Vogt[2], Garry Codling[2], Elsaied Naiem[1], Mohamed Mona[1], Amal Seif[1], Albert Robertson[4], and John P. Giesy[2, 3]

[1]Department of Zoology, Faculty of Science, Tanta University 31527, Tanta, Egypt; [2] Toxicology Centre, University of Saskatchewan, 44 Campus Drive, Saskatoon, SK, S7N 5B3, Canada; [3] Department of veterinary Biomedical Sciences, University of Saskatchewan; [4] Meadow Ridge Enterprises LTD, Saskatoon, Sk, S7K 3J9.Saskatchewan, Canada.

A factor proposed to explain losses of honey bee colonies is the wide-spread application of agrochemicals. Concentrations of 14 organophosphorous pesticides (OPs) in bees and hive matrices were measured to assess their hazard to honey bees. Samples were collected from 7 randomly selected colonies in Saskatchewan during summer of 2013. LC/MS-MS was used to identify and quantify individual OPs by use of a modified QUECHERS method. Diazinon, dimethoate and chlorpyrifos-oxon were the only OPs detected in honey with mean concentrations of 0.25, 1.5 and 0.21 ng/g, respectively. Fenamiphos,

chlorpyrifos and chlorpyrifos methyl were the only OPs detected in bee bread, with mean concentrations of 0.3, 2.69 and 15.82 ng/g, respectively. Total Hazard quotients (HQs) for lethality of bees exposed to OPs in honey and pollen consumed by bees ranged from 0.06 to 0.16, which suggests little hazard of OPs to European honey bees.

The Effect of Sublethal Insecticide Exposure on Gene Expression in *Myzus persicae* (Sulzer)

STUDENT SUBMITTED

Rachel R. Rix and G. Christopher Cutler

Chemical hormesis is a dose-response where low doses of a poisonous substance (e.g. pesticide) can elicit stimulatory effects in an organism. We examined trans-generational changes in expression of three genes involved in insecticide detoxification and stress responses in aphids exposed to low doses of an insecticide. Gene expression varied within and across generations, with overall increased gene expression in the parental generational, decreased gene expression in first generation progeny, and a return to expression levels equal to or greater than controls in second generation progeny. Further study is required to understand how hormetic responses at the phenotypic level manifest from effects on gene expression.

Effect of essential oils on behavior of diamondback moth (*Plutella xylostella*)

ORAL SUBMITTED

Jatinder Singh Sangha and Chris Cutler

Certain plant essential oils have demonstrated activity against insects and have potential for use in crop protection. We examined in the laboratory how eight commercially available essential oils affect the behavior of diamondback moth (DBM) larvae and adults. Two oils (rosewood and thymol) showed significant effect on oviposition response of DBM adults on cabbage plants, and rosewood oil deterred larval feeding on treated leaf discs. In addition, strong ovicidal activity was observed with rosewood, thymol and garlic oils. The results suggest rosewood and thymol may be useful in DBM management.

Impact of wild pollinator service flows to lowbush blueberry production

STUDENT SUBMITTED

Laurel M. Schut

School for Resource and Environmental Studies
Dalhousie University

Lowbush blueberry is a major driver of agricultural economic activity within the Atlantic Provinces. Since this crop cannot set fruit without cross-pollination by insects, mainly bees, managed pollinators are typically deployed to augment pollination flows during peak flowering. Yet growing evidence suggests that wild pollinators are often superior pollinators: they have been found to deliver pollen of higher quality (Garibaldi et al. 2013) and deposit greater quantities of pollen and do so at a faster rate than honey bees (Javorek et al. 2002). This study aims to elucidate the potential differences between wild and managed pollination service flows on lowbush blueberry. Preliminary results suggest that there are noticeable berry yield differences between plants exposed to early (wild) pollinators versus those exposed to late (wild and managed) pollination.

From grasslands to forests: Using soil communities to study ecosystem responses to environmental change

ORAL SUBMITTED

Zachary A Sylvain[1,2], Robert C Johns[1] and Diana H Wall[2]

[1]Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick, Canada; [2]Department of Biology and Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO, USA

Environmental changes (e.g. altered precipitation regimes, insect defoliator outbreaks) can severely impact ecosystem functioning. Communities of soil organisms (e.g. mites and nematodes) are used as environmental indicators as

they respond quickly to ecosystem changes and play important roles in decomposition, nutrient cycling and other ecosystem functions. We present soil community data from a cross-site grassland experiment studying changing moisture availability and preliminary data from a rising outbreak of spruce budworm in New Brunswick. By comparing these two datasets, we demonstrate how soil community changes may be used to examine current ecosystem functioning and implications for future ecosystem recovery following outbreak.

Poster presentation abstracts / Résumés des présentations d'affiches

Olfactory responses of *Drosophila suzukii* (spotted-winged drosophila) to mid and late season cultivars of *Vaccinium corymbosum* (highbush blueberries).

SUBMITTED POSTER

Heather Crozier[1], Debra Moreau[2] and N. Kirk Hillier[1]

[1]Acadia University, Wolfville, NS, B4P 2R6; [2]Agriculture and AgriFood Canada, 32 Main Street, Kentville, NS B4N 1J5

Drosophila suzukii (Matsumura) (Diptera: Drosophilidae) are an invasive and newly established pest of soft bodied fruit, such as blueberries and strawberries in Nova Scotia. Methods for early detection are required to improve integrated pest management of this species. Evidence suggests that certain cultivars may be attacked more frequently by *D. suzukii.* Are *D. suzukii* differentially attracted to different volatile compositions emitted from mid- and late-season cultivars of highbush blueberries *Vaccinium corymbosum*? This study will use gas chromatography-electroantennagraphic detection and two choice bioassays to determine which volatile compounds produced by Bluecrop or Jersey cultivars are the most attractive to *D. suzukii.*

Chemical attractants to control *Varroa* infestations of honey bees

PRESIDENT'S PRIZE POSTER

Mark Hanes, Rylee Oosterhuis, Cate Little, N. Kirk Hillier and Dave Shutler
Acadia University, Wolfville, NS, B4P 2R6

Varroa destructor is a destructive, obligate, ectoparasitic mite of western honey bees (*Apis mellifera*). These mites feed on haemolymph of adult bees and developing brood, frequently vectoring viruses that cause additional pathology. *Varroa destructor* is of utmost importance to apiculturists because varroosis is purportedly the most serious honey bee disease worldwide. We are testing and developing traps using known mite attractants, as well as collecting and identifying volatiles from infested hives. Putative attractants and other behaviorally active compounds will be further assayed via coupled gas chromatography and electroantennographic detection.

AES Presidents Report, 2014

- 22 people attended. I hope you will agree that it was an enjoyable meeting. Many great talks, particularly by students, as usual
- I would like to thank the Holiday Inn for their hospitality. Very flexible and helpful, great facilities, food, etc.
- Many thanks to Rob Johns and Drew Carlton for their contributions throughout the past year, particularly in their roles as Treasurer/Secretary and VP, but also as a sounding board for me for ideas, organizing, and decision making around this year's annual meeting.
- Thanks to our judges: Suzie Blatt, Eric Mois, and Sylvain, Zachary. It is an important job and full day commitment. Not something that we take for granted.
- Thanks to our moderators: Kirk Hillier, Nicoletta Faraone, and Barry Hicks for keeping us on track
- Thanks to Nicoletta also for photography
- CFS and Dal for printing, AV, swag
- Dr. David McCorquodale for his excellent keynote talk.
- I also want to acknowledge the awardees – presented later this evening – as well as all the other students that participated in the student competition.
- Other notes
    - ESC Annual Meeting is in Saskatoon 26 September - 1 October 2014
    - Kirk Hillier is Director at Large, Gaetan Moreau is our regional ESC representative, and I (likely) an incoming ESC Director at Large. We officially represent you at ESC. Any concerns may go through us, if you wish
    - C. Cutler was elected as candidate for Director at large. Has to be passed at ESC
    - Rick West will continue as Web Master
    - Was visited by reps from signature resorts regarding location for future meetings. They have some nice options but these are "out of the way"

- Journal report to follow. More on this but we need to think about how to increase submissions
- Next year meeting
    - Options
- Honorary members
    - We have not had a nomination in a while. Consider nominating an outstanding long-standing member of the Society
    - Consult the By-Laws
- Society numbers and participation are dipping. E.g. now one day of talks, whereas an extra half day was traditionally required? Why is this? Should we be concerned? How do we turn the corner?
    - Loss of the 'old guard'?
    - Sign of the times → ESC numbers also slowly declining?
    - More public engagement?

Journal of the Entomological Society (JAES) – Editor's Report 2014

From the last AGM (2013) to date, there have been 5 manuscripts published (4 Notes and 1 Manuscript). There still remain 4 manuscripts that have not been resubmitted after a decision requiring major review. Two additional manuscripts are close to publication; one in galley proof form and one is with the corresponding author (Minor Review).

Again, some discussion should centre around how to encourage more submissions. What are the feelings of the group about the review process, i.e., Are the reviews too critical? Are the types of manuscripts too restrictive? Is the process too long? (**Editor's Note**: I have tried to impress upon the Associate Editors the need for keeping their reviewers to the time frame for the review process. I will continue to do this.).

We will need a replacement for Graham Thurston (papers dealing with Pathology and Pesticides). Any suggestions welcomed.

My thanks to our Associate Editors Peter Silk, Chris Majka, Rob Johns, Chris Cutler and Gaétan Moreau.

Respectfully submitted,
Don Ostaff, Editor
Journal of the Acadian Entomological Society

Editor's Response to President's Questions:

1) An award for the best student paper published in JAES

It would be a good idea however I think it should be only be awarded or acknowledged if there were a minimum number of submissions (3 – 5??).

2) Student has to be first author, must be a student at time of submission, etc

Agree.

3) Do we want to make an award this year, and if so how should we do this?

Not sufficient papers published this year!

4) If we do proceed, where I am not familiar with the first author, I could follow up with a co-author to confirm whether or not a student was the lead.

It probably should be me as I will know how many manuscripts may have been published by students.

5) Prize money or just an acknowledgement? Either way, the winner should be noted on the Journal website.

We have been receiving money for publishing in JAES so why not make it prize money, say $50. The students could always use the money and it would give them something extra to put on their CV's. It may also stimulate submission of manuscripts.

We really do not have a vehicle for noting this on the Journal website but there are other sites on AES where it could be noted. What

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about the "Student's News Link" that we always talked about setting up?

6) How do we decide? Perhaps the easiest option would be a vote among the editors ranking the top 2-3 choices (as necessary), although I suppose biases would come into play where one's own student was involved. Suggestions to get around this?

I think the Associate Editors would vote 'without bias'. An alternative would be for the Editor to nominate 3 referees (e.g., Associate Editors, Professors, federal or provincial scientists).

7) Instructions for authors should be updated with a brief note indicating that students are eligible for this prize and that to be considered for the award advisors should provide a short letter/email confirming that the lead author was a student upon submission of the manuscript.

I will do that.

8) Would be a good idea to highlight on the main page that there is a student prize for best paper.

Main page of what?

Treasurer's Report 2014 – Rob Johns

General Finances

Details are summarized below. We are in good financial standing and have a decent surplus of cash. Our GIC's have also matured and we may want to look at shifting these into new investments.

The only extra expense this year was for checks, which cost $201.46.

Tentative summary:

Summary of Expenses		$
Webmaster (R. West)	$	180.00
Journal Editor (D. Ostaff)	$	180.00
Bank fees	$	55.00
Deposits	$	414.75
Debit	$	2,012.51
Conference (net cost)	?	
Total	**$**	**2,842.26**

Revenue		$
Memberships, AGM,	?	
and Journal	?	
Total	$	-

Main account	
August 1, 2013	$13,706.32
to	1010.93
August 1, 2014	$13,059.72
Net loss in 2013	$364.33

Other investments	
GIC's	**$6,359.90**

Total holdings	$19,419.62

Memberships

Membership as of July 2014 was at 36 members (students and regular), slightly up from the previous year's membership of 31.

73rd Annual AGM

Approximately 22 attendees of the AGM in Truro, NS this past July, with 16 talks and 2 posters total. Just over one third of the attendees were students.