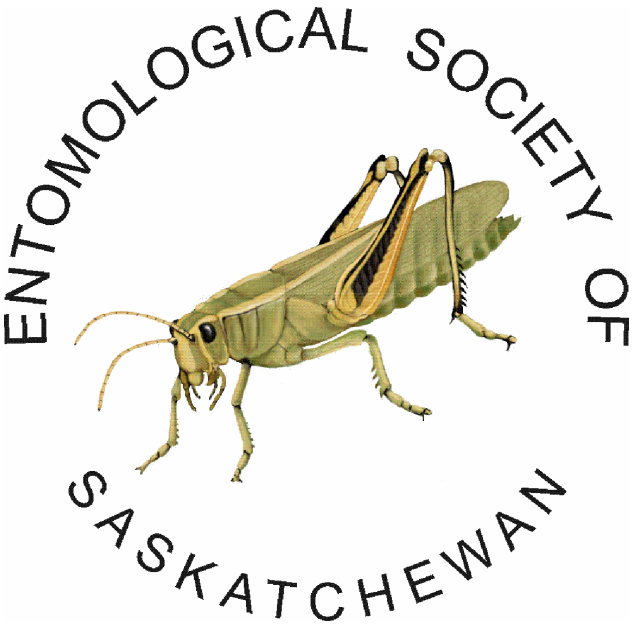
Proceedings of the



Volume 52

2004

Proceedings of the Entomological Society of Saskatchewan

Volume 52 Editor: Brian Galka

Contents

Editor's Comments

There were 59 members for 2003/2004, including 47 full and 12 student members. Included in this number are 5 Lifetime Members. This number is just slightly lower than the 2002/2003 membership of 60.

The Society lost three members in 2004. Glenn Gilkinson, a former technician at the Saskatoon Research Centre, passed away on February 29, 2004 at the age of 80. Glenn worked for many years at the Saskatoon Research Centre as a technician with Paul Riegert, Owen Olfert and Roy Pickford. He helped with studies on chemical control of grasshoppers, parasite collections, rearing of cultures, mapping, and forecast of outbreaks. Later, Glen was involved in studies of biology and control of the wheat blossom midge. Glenn retired in 1988.
Charlton (Charlie) Devlin passed away on March 28, 2004 at the age of 91 years. Charlie had a 36 year career at the Canada Agriculture Research Station on the University of Saskatchewan campus during which time he worked primarily on cutworm biology.

Lorne Paul passed away at the age of 100 years in December. Lorne worked as an entomologist for many years at the Dominion Entomological Laboratory examining

grasshopper movements, forecasting grasshopper outbreaks, and developing chemical controls for grasshoppers. He later joined the University of Saskatchewan Extension Department where he worked for 28 years.

Executive, Officers and Committee Members 2003/2004

Executive:

President..... Jack Gray
Vice President..... Phil Curry
Past President..... Cedric Gillott
Secretary..... Larry Grenkow
Treasurer..... Dwayne Hegedus
Regional Director..... Lorraine Braun

Auditor: Wayne Goerzen

ESS Committees:

Newsletter – Brian Galka
Teaching of Entomology – Cedric Gillott
Student and Amateur Encouragement – Chrystel Olivier
Proceedings – Brian Galka
A.R. Brooks Award – Art Davis
Microscope – John Kozial
Fall Meeting – Cedric Gillott
Nominations – Julie Soroka
ESS Membership – Dwayne Hegedus

Minutes of the Spring Meeting of the Entomological Society of Saskatchewan

Agriculture Canada Research Station, Saskatoon

13:30, April 30, 2004

PRESENT: Lorraine Braun, Murray Braun, Phil Curry, Brian Galka, Cedric Gillott, Jack Gray, Larry Grenkow, Scott Hartley, Dwayne Hegedus, Keith Moore, Chrystel Olivier, Tyler Wist.

The meeting opened with an absorbing and timely presentation by Dr. Phil Curry on
West Nile virus in Saskatchewan. An ensuing lively question period ended with the start of the business meeting at 14:45.

1. Call to order at 14:45 by President Jack Gray.

2. MOTION: Grenkow/Braun. THAT the agenda as modified be accepted.
CARRIED.

3. MOTION: Curry/Gillott. THAT the minutes of the Fall Meeting, December 1, 2003,
be accepted
CARRIED.

4. Business arising from the minutes.

4.1 <u>Margaret McKay Scholarship</u> – Jack Gray

Three applications were received. The prize was awarded to Tara Gariepy for this year, and for a second year pending budget approval. The prize likely will be for two years. The deadline for the next round of applications will be April or May 2006.

4.2 <u>ESA – ESS joint annual meeting</u> – Cedric Gillott

Representatives from the Entomological Society of Alberta are very busy so plans are slow to be organized. The ESA is following the ESS's recommendations and have nominated members for the committees. It is agreed that Lloydminster should be the venue. Dates suggested by the ESA are Oct. 28-30, Thursday afternoon, Friday, and Saturday morning. The next step is to begin to take action. Phil Curry volunteered to be part of the local arrangements committee, and together with a member of the ESA will scout out what Lloydminster has to offer.

MOTION: Gillott/Curry. Agree THAT the meeting will be held Oct. 28 – 30.

CARRIED.

The ESS representatives of committees have not yet been approached. They are: local arrangements – Phil Curry and Dwayne Hegedus, scientific program – Cedric Gillott and Martin Erlandson (Jack will contact Martin), registration and budget (accepts registration, monies, and abstracts) – Julie Soroka and Lorraine Braun.
Peter Naskrecki has been invited as a paid speaker. He might be a good choice as an after dinner speaker.

5. Treasurer's Report – Dwayne Hegedus

See Appendix A.

6. Secretary's Report - L. Grenkow

The ESS constitution with the amendments that were proposed and accepted at the business meeting on December 1, 2003, was put on the web site. The latest issues of the Proceedings have been filed with Saskatchewan Archives.

MOTION: Grenkow/L. Braun. THAT the Secretary's report be adopted.
CARRIED.

7. Report of the Newsletter and Proceedings Editor – Brian Galka.

The last edition of the ESS newsletter was published on September 27, 2003. The editor wishes to thank Jack Gray, Cedric Gillott, Larry Grenkow and Ron Hooper for their input. The next edition will likely be forthcoming in May or June of 2004. Submissions and suggestions are always welcome. The Proceedings of the Entomological Society of Saskatchewan have been completed for 2002 and 2003. Members, as well as the Saskatchewan Archives, have received copies from both years. Suggestions regarding content and format are welcome.

MOTION: Galka/Gillott. THAT the newsletter editor report be adopted.
CARRIED.

Cedric expressed gratitude to Brian for the extra effort taken to get out the 2002 Proceedings, as well as the 2003 issue.

8. Regional Director's Report. – Lorraine Braun.

The annual fall meeting of the Entomological Society of Saskatchewan was

held on December 1, 2003 at Saskatoon with 20 members present. The scientific program included presentations by graduate students Nina Mohr, Tim Saretski, Tyler Wist and Tara Gariépy, NSERC VF Dr. Muhammad Ashfaq, and Research Scientist Dr. Dwayne Hegedus. The graduate student competition was won by Tyler Wist for his presentation "Studies of *Echinacea angustifolia* and E. Purpurea, their native pollinators and the viability of using the alfalfa leaf cutting bee (*Megachile rotundata* F.) to increase seed production" [Tyler Wist and Dr. A.R. Davis, Department of Biology, University of Saskatchewan].

The Business Meeting included reports from the Treasurer, Secretary, and Newsletter Editor. Brian Galka took over as Newsletter editor from Wayne Goerzen. Although the Society remains fairly small (49 members in good standing), Society finances are in good shape. The ESS website has been updated [http://www.usask.ca/biology/ess/] and includes photos from the 50th Anniversary Spring 2003 meeting. Nina Mohr, a Ph.D. candidate with Dr. Jack Gray won the A. R. Brooks Memorial Prize.

A lively discussion of proposed Amendments to the ESS Constitution occurred. The members thanked Cedric Gillott, Diether Peschken, and Owen Olfert for their efforts in preparing the proposed participating in a joint meeting with Alberta in Lloydminister for fall 2004. And members unanimously agreed to host the 2007 JAM with the Entomological Society of Canada in 2007.

The executive for 2004 includes President - Jack Gray; Past President - Cedric Gillott; President Elect - Philip Curry; and Regional Director - Lorraine Braun. Executive staff includes Secretary - Larry Grenkow; Treasurer - Dwayne Hegedus; and Proceedings Archives and Newsletter Editor - Brian Galka.

Jack Gray has sent a formal acceptance to Peter de Groot that the ESS will host the joint meeting in 2007.

9. Student and Amateur Encouragement – Chrystel Olivier

See Appendix B.

The ESS had a booth at Gardenscape. ESS volunteers gave talks to 818 schoolchildren, which is fewer than last year, the reason being that two schools did not show up.

$600 has been received from ESC for youth encouragement. An option is to use the money to buy a digital camera, but in the letter of application for the funding it was stated that the money would be used for pinned insects, tapes, specimens, and or cds of slides.

MOTION: L. Braun/Olivier. THAT reports 9 & 10 be accepted.
CARRIED.

10. New Business.

10.1 Biological Survey of Canada- Lorraine Braun for Owen Olfert,

The Biological Survey of Canada (BSC) develops and coordinates systematic, faunistic and conservation entomology on behalf of the Canadian Museum of Nature and the Entomological Society of Canada. I attended my first meeting (April 22-23) of the BSC in Ottawa, replacing Kevin Floate on their scientific committee.

In addition to developing and coordinating scientific projects related to surveys of endangered species, native fauna and invasive species, the BSC also publishes scientific briefs on a broad range of related topics (see available copies), and maintains a comprehensive website of their activities and publications (http://www.biology.ualberta.ca/bsc/bschome.htm).

I would like to report on a few items that may be of particular interest to ESS:

(I) The BSC would like to request that ESS consider putting a link to the BSC website on our home page. If this is acceptable, they can provide a downloadable image/button for this purpose.

(ii) A major initiative that is currently underway for the BSC is the Arthropods of Canadian Grasslands. The objective of the project is to publish three volumes: (a) Ecology and Interactions in Grassland Habitats; (b) Arthropods and Altered Grassland Ecosystems and (c) Fauna of the Canadian Grasslands. Volume I is well underway with about 15-20 chapters on various topics related to grassland ecology. Kevin Floate (AAFC - Lethbridge) is currently drafting an outline of topics for Volume II and will probably be approaching ESS members for input into the volume on altered grassland ecosystems. Jeff Cumming (AAFC - Ottawa) is coordinating the volume on arthropod fauna. The BSC also publishes a grasslands newsletter periodically (see copy of No. 10, 2004)

(iii) Related to the grasslands project, the focus site for 2004 is Aweme, MB (Aweme is the homestead of Norman Criddle). The BSC has planned a "Bioblitz" at Aweme for June 5-6, 2004. A "Bioblitz" uses natural history, ecology and taxonomy to bring together public, local amateurs and scientists. The idea is to survey the flora and fauna of the focus area and identify and record all of the observed or collected species from as many taxonomic groups as possible in a 24-hour period. If interested, view the BSC website for more information or contact Bill Gallaway (gallaway@brandonu.ca).

The meeting adjourned at about 4 pm.

Minutes recorded by Larry Grenkow, Secretary

APPENDIX A

ENTOMOLOGICAL SOCIETY OF SASKATCHEWAN
MEMBERSHIP AND INTERIM FINANCIAL REPORT

01 September 2003 – 31 March 2004

MEMBERSHIP

- To this point in 2003-2004 the ESS has 59 members (47 full and 12 students – 5 Life Members) of which 49 are in good standing. A life membership was purchased by Owen Olfert.

ESS GENERAL ACTIVITIES

- The main sources of income were from membership dues with $850.00 collected and interest income of $809.22 during this period. A cheque for $600.00 was received from the ESC to support the Youth and Amateur Encouragement initiatives.

FINANCE

- The ESS total assets are as follows:

Term Deposits	$32,000.00 (2 @ $10,000 and 1 @ $12,000)
Chequing	2,290.14
Outstanding deposits	.00
Total	***34,290.14***

- The Society's Registered Charity and Non-Profit Corporations status were renewed.
- The Society's Registered Charity Tax Return was filed in November.

Please refer to the enclosed financial statement for further details.

Financial Statement – Entomological Society of Saskatchewan
01 September 2003 – 31 March 2004

MAXIMIZER ACCOUNT (ESS)

Receipts:

Memberships	$ 850.00	
Outstanding deposits	.00	
Interest (CU Maximizer and Term Deposit)	809.22	
TOTAL		**1,659.22**

Expenditures:

Printing	74.44	
Minister of Finance	10.00	
Brooks Award	500.00	
Meeting Expenses	455.35	
Postage	10.78	
Bank Charges	26.60	
Misc.	9.43	
TOTAL		**1,086.60**

Excess of Receipts over Expenditures $ 572.62

APPENDIX B

Appendix B was not presented at the business meeting, and is listed here for information only.

Youth and Amateur Encouragement

Adult and Youth Activities

GardenScape 2004 hosted a booth for the Entomological Society of Saskatchewan on Friday March 25th, Saturday March 26th and Sunday March 27th. The booth contained living and pinned insect display as well as posters on entomological work done at Agriculture and Agri-Food Canada. Thank you to Alison Patton for preparing living insects and thank you to Cedric Gillott, Nina Mohr, Larry Grenkow, Owen Olfert, Tiina Bundrock, Gillian Murza, Julie Soroka, Jon Geissler, Natalie Labbe, Art Davis and Dana Nordin for staffing the booth, showing the displays and answering a lot of questions.

Youth Activities

On January, 23rd 2004, C. Olivier gave a talk to grade 2 students at the Brunskill School in Saskatoon about insect life cycle and on April 23rd 2004, C. Olivier participated in a reading camp at the Ecole Canadienne Française in Saskatoon and read a lot of "bug stories".

The Saskatoon Prairieland Exhibition Corp. hosted this year's Gardenscape "Little Green Thumbs School Tour Program" on Thursday, March 25th and Friday March 26th, with the theme "Good Bugs, Bad Bugs". Volunteers from Agriculture and Agri-Food Canada and members of the Entomological Society of Saskatchewan educated 818 grade 2 and 3 students and their teachers on the impact that insects have on our lives. Thank you to Alison Paton for preparing the living insects displays, and to Brian Galka, Dwayne Hegedus, Owen Olfert, Tyler Wist, Amanda Neudorf, Keith Moore, Dan Sutherland, Lorie Jones-Flory, Tim Saretski and Stephanie Ethier for giving the presentations and answering a lot of "bug" questions.

Funding

In 2004, the ESS received $600.00 as education funds from the ESC. The use of this money is discussed (pinned insects, camera, video tapes).

Joint Annual Meeting
Entomological Societies of Alberta and Saskatchewan
October 28-30, 2004
Lloydminster, Alberta

Joint Annual Meeting
Entomological Societies of Alberta and Saskatchewan
October 28-30, 2004

PROGRAM

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Entomological Society of Alberta- Executive for 2004

President……...……Heather Proctor
Vice President……..……John Acorn
Past President…….……Derrick Kanashiro
Secretary……....Mike Undershultz
Treasurer……...…Darryl Williams
Proceedings Editor……Robert Holmberg
Webmaster…….….Troy Danyk
Directors……Stephanie Erb (southern)
……..…….Derek Sikes (central)
…….Jennifer Otani (northern)
Director to ESC……..Greg Pohl

Entomological Society of Saskatchewan-Executive for 2004

President……...……..……Jack Gray

Past President……..……...…...Cedric Gillott
Vice President……..……Philip Curry
Secretary……...Larry Grenkow
Treasurer……...…..…Dwayne Hegedus
Officers……...……...……Brian Galka
……Lorraine Braun

Joint Meeting Committees

Joint Meeting Co-Chairs……Heather Proctor
……Cedric Gillott

Local Arrangements Committee……..……Alec McClay
…….…….Michael Crowley
……...……..Phil Curry

Program Committee…….....Martin Erlandson
…….……Maya Evenden
……Cedric Gillott
…….……..Jennifer Otani

Registration and Budget Committee…….…..Lorraine Braun
…….…….Dwayne Hegedus
……..Julie Soroka
……...…….Darryl Williams

Joint Annual Meeting
Entomological Societies of Alberta and Saskatchewan
October 28-30, 2004

PROGRAM

Thursday October 28, 2004: Meeting begins 2:00

Introduction and Welcome: 2:00-2:15

Entomological Society of Alberta President: Heather Proctor
Entomological Society of Saskatchewan President: Jack Gray

Thursday Oral Presenters: Please submit your PowerPoint CDs or slide carousels to the audio/visual operator by 1:45.

Contributed Oral Papers: * indicates student paper: 2:15-5:30

Session moderator: Derek Sikes

- 2:15-2:30 **Species limits and biogeography of *Grammia* tiger moths: Molecular and morphological evidence.** C. Schmidt* and F. Sperling, Dept. Biological Sciences, University of Alberta.
- 2:30-2:45 **Comparison of Bayesian inference with parsimony in a possible case of morphological long-branch attraction (Coleoptera: Silphidae: *Nicrophorus*).** D.S. Sikes, Dept. Biological Sciences, University of Calgary.

- 2:45-3:00 **Reconstructed phylogeny and biogeography of species of *Brychius* Thomson, 1859 (Coleoptera: Haliplidae).** T. Mousseau*, Dept. Biological Sciences, University of Calgary.

- 3:00-3:15 **Molecular variability of *Ceutorhynchus neglectus* (Coleoptera: Curculionidae).** R. Laffin[1]*, L. Dosdall[2] and F. Sperling[1], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Agriculture, Food, and Nutritional Sciences, University of Alberta.

- 3:15-3:30 **Soil biosecurity: What we don't know can hurt us.** S. Bromilow*, H. Proctor and D. Walter, Dept. Biological Sciences, University of Alberta.

- 3:30-3:45 **REFRESHMENT BREAK**

Session moderator: Dwayne Hegedus

- 3:45-4:00 **Modeling the molecular architecture of lepidopteran peritrophic membrane**. D. Hegedus, Agriculture and Agri-Food Canada, Saskatoon Research Centre.

- 4:00-4:15 **Adult eclosion and reproductive diapause of the ash leaf coneroller, *Caloptilia fraxinella* (Lepidoptera: Gracillariidae).** G. Armitage[1]*, M. Evenden[1], B. Heming[1], R. Gries[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Biological Sciences, Simon Fraser University.

- 4:15-4:30 **Agroecology of ground beetles in southern Alberta.** S. Bourassa[1,2]*, J.R. Spence[1], H. Cárcamo[2], R.E. Blackshaw[2], F.J. Larney[2] and K. Floate[2], [1]Dept. Renewable Resources, University of Alberta, [2]Agriculture and Agri-Food Canada, Lethbridge Research Centre.

- 4:30-4:45 **Sex pheromone components of the large aspen tortrix, *Choristoneura conflictana* (Lepidoptera: Tortricidae).** M. Evenden[1], R. Gries[2], G. Gries[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Biological Sciences, Simon Fraser University.

- 4:45-5:00 **Male-produced aggregation pheromone of *Phyllotreta cruciferae* (Goeze): Behavioural responses of flea beetles and parasitoids in the field**. J. Soroka[1], R. Bartlet[2], A. Cossé[2], and B. Zilkoski[2], [1]Agriculture and Agri-Food Canada, Saskatoon Research Centre, [2]Agricultural Research Service, National Center for Agricultural Utilization Research, Bioactive Agents Research Unit, Peoria IL.

- 5:00-5:15 **A single-step multiplex PCR assay for the detection of European *Peristenus spp.* (Hymenoptera: Braconidae), parasitoids of *Lygus spp*. (Hemiptera: Miridae).** T.D. Gariepy[1,2,3], U. Kuhlmann[2], C. Gillot[3], and M. Erlandson[1], [1]Agriculture and Agri-Food Canada, Saskatoon Research Centre, [2]CABI Bioscience Switzerland Centre, [3]Dept. Biology, University of Saskatchewan.

- 5:15-5:30 **The Wheels from the Bus are Bad Bad Bad: The roll of used tires in generating potential WNV vector mosquitoes**. E. Laing[1]* and P. Curry[2], [1]Dept Community Health and Epidemiology, University of Saskatchewan, [2]Saskatchewan Health.

REGISTRATION AND MIXER 7:30-10:00

Friday October 29, 2004: Meeting begins at 8:30

Friday Oral Presenters: Please submit your PowerPoint CDs or slide carousels to the audio/visual operator by 8:00.

Symposium: New Discoveries, New Invasions 8:30-12:45

Introduction and Welcome: 8:30-8:45 Cedric Gillott

Session moderator: Cedric Gillott

- 8:45-9:30 **Keynote Address: Mantophasmatodea - a great discovery with an unfortunate name**. P. Naskrecki, Conservation International, Harvard University.

- 9:30-10:00 **Challenges and opportunities arising from the invasion of western Canada by the cabbage seedpod weevil.** L. Dosdall and co-authors, Dept. Agricultural, Food and Nutritional Science, University of Alberta.

- 10:00-10:30 ***Culex tarsalis*: An old mosquito carrying a new disease.** P.S. Curry[1] and S. Hartley[2], [1]Saskatchewan Health, [2]Saskatchewan Agriculture, Food and Rural Revitalization.

- 10:30-10:45 **REFRESHMENT BREAK**

- 10:45-11:15 **Birds: Another biotic frontier.** H. Proctor, Dept. Biological Sciences, University of Alberta.

- 11:15-11:45 **Biophysical inventories in wildland parks of northern Alberta**. W. Nordstrom, Alberta Natural Heritage Information Centre.

- 11:45-12:15 **What is it and where did it come from?** The art of differentiating endemic and exotic mites. D. Walter, Dept. Biological Sciences, University of Alberta.

- 12:15-12:45 **The impact of climate change on potential distribution and relative abundance of three insect pest species in Canada.** O. Olfert and R. Weiss, Agriculture and Agri-Food Canada, Saskatoon Research Centre.

12:45-1:45 **LUNCH BREAK**

Contributed Oral Papers: * indicates student paper: 1:45-5:15

Session moderator: Heather Proctor

- 1:45-2:00 **Saproxylic beetles, post-fire salvage logging, and nutrient dynamics of burned mixed-wood forests**. T. Cobb*, Dept. Renewable Resources, University of Alberta.

- 2:00-2:15 **The importance of coarse woody debris for saproxylic beetles**. J. Jacobs*, Dept. Renewable Resources, University of Alberta.

- 2:15-2:30 **Assessing the impact of forest harvesting on macroinvertebrate communities**. M. Barkway* and J.R. Spence, Dept. Renewable Resources, University of Alberta.

- 2:30-2:45 **Beetles as habitat?: *Antennoseius* mites on *Sericoda* beetles.** A.D. Dechene*, Dept. Biological Sciences, University of Alberta.

- 2:45-3:00 **Forest mosaic and ground-dwelling beetles.** C. Bergeron[1,2]*, J. Spence[1] and J. Volney[2]. [1]Dept. Renewable Resources, University of Alberta, [2]Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

- 3:00-3:15 **Biological control of an introduced birch sawfly**. C. MacQuarrie*, Dept. Renewable Resources, University of Alberta.

- 3:15-3:30 **The spiny ash sawfly, *Eupareophora parca* (Cresson), a pest of ash new to Alberta (Hymenoptera: Tenthredinidae).** D. Williams, Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

- 3:30-3:45 **REFRESHMENT BREAK**

Session moderator: Jack Gray

- 3:45-4:00 **Pollination of *Echinacea angustifolia* by native pollinators and the alfalfa leafcutting bee (*Megachile rotundata*) in Saskatchewan**. T.Wist* and A.R. Davis, Dept. Biology, University of Saskatchewan.

- 4:00-4:15 **Ballooning behaviour in *Dolomedes triton***. C. Frost[1]* and L. DeHaas[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Renewable Resources, University of Alberta.

- 4:15-4:30 **Defensive behaviour of ants in a mutualistic relationship with aphids.** I.D. Phillips[1]* and C.K.R. Willis[2], [1]Dept. Biological Sciences, University of Alberta, [2]Centre for Behavioural and Physiological Ecology, Zoology, University of New England.

- 4:30-4:45 **Adaptive responses of flying locusts to virtual conspecifics and predators.** N.A. Mohr* and J.R. Gray, Dept. Biology, University of Saskatchewan.

- 4:45-5:00 **Impacts of fertilization on soil Acari and Collembola under young lodgepole pine stands in the interior of British Columbia**. J. Battigelli[1], S. Berch[2] and R. Brockley[3], [1]Earthworks Research Group, St. Albert, [2]British Columbia Ministry of Forests Research Branch, [3]British Columbia Ministry of Forests Kalmalka Research Station.

- 5:00-5:15 **Response of soil microarthropod density and diversity five years after site preparation treatments at high elevation in southern British Columbia.** J. Battigelli[1], S. Berch[2] and G. Hope[3], [1]Earthworks Research Group, St. Albert, [2]British Columbia Ministry of Forests Research Branch, [3]British Columbia Ministry of Forests, Kamloops.

Contributed Poster Papers: + indicates presenter: 5:15-5:45

- **Development and application of a simplified field key to identify species of *Delia* (Diptera: Anthomyiidae) commonly occurring in canola grown in the Peace River region of Alberta.** J. Otani[1], A. Nemecz[1+], L. Dosdall[2], G. Clayton[3], N. Harker[3] and J. O'Donovan[1]. [1]Agriculture and Agri-Food Canada, Beaverlodge Research Farm, [2]Dept. Agricultural, Food and Nutritional Science, University of Alberta, [3]Agriculture and Agri-Food Canada, Lacombe Research Centre.

- **Fluctuating asymmetry and fitness of the wheat stem sawfly in relation to host quality**. H.A. Cárcamo, K. Floate, B. Lee and B.L. Beres. Agriculture and Agri-Food Canada, Lethbridge Research Centre.

- **The contribution of *Echinacea angustifolia* to grasshopper control**. T. Wist and A.R. Davis, Dept. Biology, University of Saskatchewan.

- **Ground beetles (Coleoptera: Carabidae), fire severity and post-fire logging**. M. Koivula, F.K.A. Schmiegelow, and J.R. Spence, Dept. Renewable Resources, University of Alberta.

BANQUET 6:30-10:00

Society Award Presentations

After Dinner Talk: The smaller majority and a search for charismatic invertebrates, P. Naskrecki, Conservation International, Harvard University.

Saturday, October 30, 2004: Meeting begins at 8:30

Saturday Oral Presenters: Please submit your PowerPoint CDs or slide carousels to the audio/visual operator by 8:15.

Contributed Oral Papers: 8:30-10:15

Session moderator: Hector Cárcamo

- 8:30-8:45 **A guided tour of the oak gall wasps (Hymenoptera: Cynipidae) of Riding Mountain National Park, MB**. S.C. Digweed, Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

- 8:45-9:00 **Alberta spider bite website**. R. Leech and T. Thormin, Provincial Museum of Alberta.

- 9:00-9:15 2004 **Alberta spider bites- actual and potential**. R. Leech and T. Thormin, Provincial Museum of Alberta.

- 9:15-9:30 **Earlier flowering canola trap strips lure weevils to their final supper**. H. Cárcamo[1], R. Dunn[2] and O. Olfert[3], [1]Agriculture and Agri-Food Canada, Lethbridge Research Centre, [2]Alberta Agriculture Food and Rural Development, [3]Agriculture and Agri-Food Canada, Saskatoon Research Centre.

- 9:30-9:45 **Effect of host plant and IPM strategies on wheat stem sawfly population dynamics and rates of parasitism**. B. Beres[1], H. Cárcamo[1], J.R. Byers[1], F. Clarke[2], and R. DePauw[2], [1]Agriculture and Agri-Food Canada, Lethbridge Research Centre, [2]Agriculture and Agri-Food Canada, Semi-Arid Prairie Research Centre.

- 9:45-10:00 **Spring emergence biology of the cabbage seedpod weevil (Coleoptera: Curculionidae) and the crucifer flea beetle (Coleoptera: Chrysomelidae)**. B. Ulmer and L. Dosdall, Dept. Agricultural, Food and Nutritional Science, University of Alberta.

- 10:00-10:15 **A tale of two host plants**. A.S. McClay, Sherwood Park, AB.

10:15-10:30 **REFRESHMENT BREAK**

10:30-12:00 **ESAlberta Business meeting**

12:00-1:00 LUNCH [provided]

1:00 Meeting adjourned

ABSTRACTS (alphabetical order by first author)

1. **Adult eclosion and reproductive diapause of the ash leaf coneroller, *Caloptilia fraxinella* (Lepidoptera: Gracillariidae).** G. Armitage[1]*, M. Evenden[1], B. Heming[1], R. Gries[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Biological Sciences, Simon Fraser University.

   The ash leaf cone roller is a new pest of ash (*Fraxinus* spp.) in Edmonton.
   Moths eclose from pupae in 50:50 sex ratio. Two putative pheromone components were recovered from females in reproductive diapause and a small number of males responded to pheromone-baited traps. Some moths held under summer conditions mated, however, wild moths captured in September and October were all virgins.

2. **Assessing the impact of forest harvesting on macroinvertebrate communities**. M. Barkway* and J.R. Spence, Dept. Renewable Resources, University of Alberta.

This paper will report on the status of a project using macroinvertebrate community structure to assess the condition of streams affected by forest harvesting in west-central Alberta.

3. **Impacts of fertilization on soil Acari and Collembola under young lodgepole pine stands in the interior of British Columbia**. J. Battigelli[1], S. Berch[2] and R. Brockley[3], [1]Earthworks Research Group, St. Albert, [2]British Columbia Ministry of Forests Research Branch, [3]British Columbia Ministry of Forests Kalmalka Research Station.

   We examined the effects of 9 years of annual nutrient additions on soil mesofauna abundance and community structure at one lodgepole pine "maximum productivity" study site in central British Columbia. Density and relative abundance of Acari were reduced while values for Collembola increased with higher Nitrogen applications.

4. **Response of soil microarthropod density and diversity five years after site preparation treatments at high elevation in southern British Columbia.** J. Battigelli[1], S. Berch[2] and G. Hope[3], [1]Earthworks Research Group, St. Albert, [2]British Columbia Ministry of Forests Research Branch, [3]British Columbia Ministry of Forests, Kamloops.

   The impact of mounding, scalping and burning on Acari and Collembola density and oribatid mite species diversity in an ESSF ecosystem is reported. Density and diversity in the untreated forest floor were higher than in burned plots. In the mineral soil, values were lower in both mounded and burned plots than in the untreated plots.

5. **Effect of host plant and IPM strategies on wheat stem sawfly population dynamics and rates of parasitism**. B. Beres[1], H. Cárcamo[1], J.R. Byers[1], F. Clarke[2], and R. DePauw[2], [1]Agriculture and Agri-Food Canada, Lethbridge Research Centre, [2]Agriculture and Agri-Food Canada, Semi-Arid Prairie Research Centre.

   This paper reports on the research findings of our studies on the population dynamics of the wheat stem sawfly, which aim to quantify effects of current and novel wheat germplasm on larval weights, overwintering survivorship, female fecundity, and interactions of cultivars with rates of parasitism by *Bracon cephi*. IPM study results which assess the effect of alternative seeding systems on wheat stem sawfly survivorship will also be presented.

6. **Forest mosaic and ground-dwelling beetles.** C. Bergeron[1,2]*, J. Spence[1] and J. Volney[2]. [1]Dept. Renewable Resources, University of Alberta, [2]Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

   Boreal forest habitats are created by ecological processes such as soil, fires, insect outbreaks, windthrows, floods and anthropogenic disturbances. In order to conserve the biodiversity associated to these habitats, the maintenance of ecological processes is essential. This study assesses the spatial association between ecological processes, forest habitat and ground-dwelling beetles.

7. **Agroecology of ground beetles in southern Alberta.** S. Bourassa[1,2]*, J.R. Spence[1], H. Cárcamo[2], R.E. Blackshaw[2], F.J. Larney[2] and K. Floate[2], [1]Dept. Renewable Resources, University of Alberta, [2]Agriculture and Agri-Food Canada, Lethbridge Research Centre.

   Two different farm locations were chosen to assess the impact of farming practices on ground beetle communities. At Vauxhall, we are studying a three year rotation of wheat, beans and potatoes under sustainable and conventional farming. At Lethbridge we are comparing weed control in Round Up Ready® and conventional corn.

8. **Soil biosecurity: What we don't know can hurt us.** S. Bromilow*, H. Proctor and D. Walter, Dept. Biological Sciences, University of Alberta.

   A discussion of the issues surrounding the import of foreign arthropods via soil. The results of a greenhouse soil microarthropod survey and an experiment on bare-rooting plants are presented.

9. **Fluctuating asymmetry and fitness of the wheat stem sawfly in relation to host quality**. H.A. Cárcamo, K. Floate, B. Lee and B.L. Beres. Agriculture and Agri-Food Canada, Lethbridge Research Centre.

   Over the past decade there has been an explosion of studies on fluctuating asymmetry (FA) as a measure of developmental instability in a variety of systems, but few have tested the relationship between FA and fitness. In our study, female sawflies that emerged from a hollow stem variety had higher egg loads than those from a solid stem variety (poor quality host) but fluctuating asymmetry was not affected negatively by variety or host stem diameter.

10. **Earlier flowering canola trap strips lure weevils to their final supper**. H. Cárcamo[1], R. Dunn[2] and O. Olfert[3], [1]Agriculture and Agri-Food Canada, Lethbridge Research Centre, [2]Alberta Agriculture Food and Rural Development, [3]Agriculture and Agri-Food Canada, Saskatoon Research Centre.

    The cabbage seedpod weevil (*Ceutorhynchus obstrictus* Marsham) is an important pest of canola in southern Alberta. From 2000 to 2003, we investigated a trap crop management strategy by establishing earlier flowering canola strips along the borders of commercial fields in southern Alberta. Weevils were highly concentrated along trap strips, and in most cases, spraying them there with an insecticide was sufficient to prevent their dispersal into the main crop.

11. **Saproxylic beetles, post-fire salvage logging, and nutrient dynamics of burned mixed-wood forests**. T. Cobb*, Dept. Renewable Resources, University of Alberta.

    Saproxylic beetles are species that are associated with dead wood and are generally considered to play key roles in nutrient cycling. Using survey and experimental approaches, we investigated the relationship between the abundance of saproxylic beetles feeding on burned white spruce and changes in soil nutrients after post-fire salvage logging.

12. ***Culex tarsalis*: An old mosquito carrying a new disease.** P.S. Curry[1] and S. Hartley[2], [1]Saskatchewan Health, [2]Saskatchewan Agriculture, Food and Rural Revitalization.

    Culex tarsalis, a prairie grassland mosquito, has been the primary species implicated in the spread of West Nile virus in Western Canada. This paper will discuss the impact of ecozone and temperature on the seasonal abundance and distribution of this mosquito in Saskatchewan during the 2003 and 2004 seasons.

13. **Beetles as habitat?: *Antennoseius* mites on *Sericoda* beetles.** A.D. Dechene*, Dept. Biological Sciences, University of Alberta.

    Two undescribed mite species (*Antennoseius* spp.) were recently discovered on two pyrophilous ground beetle species, *Sericoda quadripunctata* and *S. bembidiodes*, collected from burned forest stands in northern Alberta. This study investigated the occurrence of *Antennoseius* spp. on *Sericoda* spp. to describe the nature of this association.

14. **A guided tour of the oak gall wasps (Hymenoptera: Cynipidae) of Riding Mountain National Park, MB**. S.C. Digweed, Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

    Galls of at least 16 cynipid species were found on bur oak (*Quercus macrocarpa* Michx.) in Riding Mountain National Park, MB during 2004. This location is near the northern limit of the natural range of bur oak, but gall diversity was similar to that on bur oak further south.

15. **Challenges and opportunities arising from the invasion of western Canada by the cabbage seedpod weevil.** L. Dosdall and co-authors, Dept. Agricultural, Food and Nutritional Science, University of Alberta.

    The cabbage seedpod weevil, *Ceutorhynchus obstrictus* (Marsham) (Coleoptera: Curculionidae), was first discovered infesting canola in southern Alberta in 1995, and by 1999 its populations had increased to outbreak densities. The species range expanded rapidly over eight years to encompass many thousands of hectares in three ecoregions. The cabbage seedpod weevil is a serious pest of canola (*Brassica rapa* L. and *Brassica napus* L.), and it has presented several challenges in developing an integrated management strategy. No chemical insecticides were initially registered in Canada for its control, and a first research focus was to identify appropriate products and application rates, and to set a nominal economic threshold that could later be validated through research. At first, very little was known of its biology in temperate North America, and research has been ongoing to better understand factors affecting its population dynamics. Although the species was initially nonparasitized, evidence has recently been found to indicate that both adults and larvae are subject to attack by parasitoids, primarily indigenous species that have switched from endemic hosts to exploit a new resource. Several aspects of our research have relied upon the expertise of systematists, who have provided crucial collaborative support. In view of the threat posed by *C. obstrictus* to the canola industry in western Canada, an interdisciplinary

team of researchers was assembled to investigate aspects of its cultural, chemical, and biological control, in addition to host plant resistance. This approach has had considerable success, due primarily to strong funding support by the crops industry. A key strategy has been to involve extension specialists in our research to ensure that results are made readily available to producers.

16. **Sex pheromone components of the large aspen tortrix, *Choristoneura conflictana* (Lepidoptera: Tortricidae).** M. Evenden[1], R. Gries[2], G. Gries[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Biological Sciences, Simon Fraser University.

    Gas chromatographic-electroantennographic analysis determined the presence of three putative pheromone components in female pheromone glands. The major component, *Z*11-tetradecenyl aldehyde, was more attractive to male moths in field and lab bioassays than two and three component blends and more attractive than calling virgin females.

17. **Ballooning behaviour in *Dolomedes triton***. C. Frost[1]* and L. DeHaas[2], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Renewable Resources, University of Alberta.

    Shortly after hatching, some juveniles of the fishing spider *Dolomedes triton* balloon as a means of aerial dispersal. This experiment examined the effect of changes in wind speed, temperature, and time after hatching on ballooning behaviour.

18. **A single-step multiplex PCR assay for the detection of European *Peristenus spp.* (Hymenoptera: Braconidae), parasitoids of *Lygus spp*. (Hemiptera: Miridae).** T.D. Gariepy[1,2,3], U. Kuhlmann[2], C. Gillott[3], and M. Erlandson[1], [1]Agriculture and Agri-Food Canada, Saskatoon Research Centre, [2]CABI Bioscience Switzerland Centre, [3]Dept. Biology, University of Saskatchewan.

    Lygus spp. are serious pests of a wide variety of economically important crops. The present study describes species-specific PCR primers for three species of *Peristenus*, parasitoids of *Lygus* spp., and the use of a multiplex PCR assay to detect *P. digoneutis* and *P. stygicus* eggs and larvae from *Lygus* nymphs. Results indicate that the primers are specific and are capable of detecting single eggs in parasitized nymphs. When used in multiplex, the primers maintain their specificity and sensitivity.

19. **Modeling the molecular architecture of lepidopteran peritrophic membrane**. D. Hegedus, Agriculture and Agri-Food Canada, Saskatoon Research Centre.

    Genomics and proteomic approaches were used to characterize proteins from the peritrophic membrane (PM) of *Mamestra configurata* (bertha armyworm). MALDI-TOF mass spectrometry of PM proteins was coupled to midgut EST data to isolate cDNAs encoding PM – associated proteins. The role of two proteins in maintaining PM structure will be discussed.

20. **The importance of coarse woody debris for saproxylic beetles**. J. Jacobs*, Dept. Renewable Resources, University of Alberta.

Saproxylic insects, a functional group dominated by beetles, are dependent on dead or moribund trees. Saproxylic beetles were studied in a variety of habitats at the EMEND research site. The results of this study demonstrate that coarse woody debris should be an important part of any forest management plan.

21. **Ground beetles (Coleoptera: Carabidae), fire severity and post-fire logging**. M. Koivula, F.K.A. Schmiegelow, and J.R. Spence, Dept. Renewable Resources, University of Alberta.

    Forest fire is important boreal forest-succession initiator, after which salvage logging usually takes place, but its ecological consequences are poorly known. We trapped ground beetles at House River Fire, central Alberta (burned in 2002), 2003-2004. We present results of first post-fire year.

22. **Molecular variability of *Ceutorhynchus neglectus* (Coleoptera: Curculionidae).** R. Laffin[1]*, L. Dosdall[2] and F. Sperling[1], [1]Dept. Biological Sciences, University of Alberta, [2]Dept. Agriculture, Food, and Nutritional Sciences, University of Alberta.

    mtDNA of curculionids is thought to be rapidly evolving compared to other groups of insects. In the case of *Ceutorhynchus neglectus*, we have found extremely low variation across its native range in North America. Is this group more slowly evolving, or is there another explanation for this species?

23. **The Wheels from the Bus are Bad Bad Bad: The roll of used tires in generating potential WNV vector mosquitoes**. E. Laing[1]* and P. Curry[2], [1]Dept Community Health and Epidemiology, University of Saskatchewan, [2]Saskatchewan Health.

    A joint study between Saskatchewan Health and Saskatchewan Scrap Tire Corp was undertaken in the summer of 2003 to determine the contribution of used tires to WNV epidemiology. The dominant species found high numbers in tires were those implicated in WNV transmission. Implications for rural and agricultural settings with potentially high transmission rates are discussed.

24. **Alberta spider bite website**. R. Leech and T. Thormin, Provincial Museum of Alberta.

    A website is being set up through the Provincial Museum of Alberta to inform people about spiders and what to do after someone is bitten. Information is given on collecting and preserving (or keeping alive) the spider, taking pictures of the spider and the bite over time if there are changes (increase in affected area, pustule formation, etc.), recording symptoms displayed of the victim (e.g., nausea, local or widespread pain).
    SPECIAL NOTE:
    Robin Leech is preparing a bite protocol for the Calgary Poison Centre and for the Edmonton Capital Health Region. Included will be how to distinguish an arthropod bite from Herpes

sores, distinguishing spider bites from other arthropod bites, distinguishing between mosquito, blackfly, no-see-um and horsefly bites, hemiptera bites, and others. If anyone has information on bites (photos, descriptions, etc.), I will appreciate receiving any and all.

25. **Alberta spider bites- actual and potential**. R. Leech and T. Thormin, Provincial Museum of Alberta.

    Two spider bites were reported to us during August 2004. The bites were by females of *Araneus gemmoides* Chamberlin & Ivie, 1935, and *Araneus marmoreus* Clerck, 1758. Photos were taken of the spiders and the bite sites. A third bite by *A. gemmoides* was recorded in September 2004. Symptoms are a small red area, 4-5 mm diameter, swelling for a couple of hours, itchiness and sore muscles. There may be restlessness or anxiety, but we cannot determine if this is bite induced or stress from the situation. The symptoms are usually gone completely in 24 hours. Two specimens (1 male, 1 female) of a very painful biter, *Cheiracanthium inclusum* (Hentz, 1847) were found in Nanton and Stony Plain in grapes imported from California. Photos were taken of both specimens.

26. **Biological control of an introduced birch sawfly**. C. MacQuarrie*, Dept. Renewable Resources, University of Alberta.

    Profenusa thomsoni, an invasive European sawfly, causes severe damage to birch in Alaska. A joint project of the Canadian and US Forest Services began in 2003 to introduce a biocontrol agent, *Lathrolestes luteolator* (Hymenoptera: Ichneumonidae) to combat the pest. The sawfly's history in North America, and a summary of biocontrol efforts is presented.

27. **A tale of two host plants**. A.S. McClay, Sherwood Park, AB.

    The weevil *Thecesternus hirsutus* develops on the roots of *Parthenium* species in Mexico. Some puzzles about its adaptations to its host plants were resolved by further field observations almost 20 years after the original discovery.

28. **Adaptive responses of flying locusts to virtual conspecifics and predators.** N.A. Mohr* and J.R. Gray, Dept. Biology, University of Saskatchewan.

    We measured wing and body kinematics as well as flight muscle activity during visually-evoked flight steering manoeuvres of locusts presented with a computer-generated conspecific and bird. Locusts responded 400 ms earlier to a bird than to a conspecific and manoeuvred, with equal probability, either away from or toward either object.

29. **Reconstructed phylogeny and biogeography of species of *Brychius* Thomson, 1859 (Coleoptera: Haliplidae).** T. Mousseau*, Dept. Biological Sciences, University of Calgary.

A reconstructed phylogeny of species of *Brychius* indicated *Brychius hornii* Crotch 1873 + *Brychius hungerfordi* Spangler 1954 is the sister-group to *Brychius elevatus* Panzer 1794 + *Brychius glabratus* Villa 1833; and these combined are the sister-group to *Brychius pacificus* Carr 1928. The analysis was conducted with both Parsimony and Bayesian Phylogenetic Inference. It is thought that vicariance has played an important role in the present distribution.

30. **Keynote Address: Mantophasmatodea - a great discovery with an unfortunate name**. P. Naskrecki, Conservation International, Harvard University.

    As we enter the 21st century, most major breakthroughs and developments in entomology are happening largely within the realms of molecular genetics and genomics. Yet there is still room, and a need, for both field- and museum-based morphological research. The recent discovery of Mantophasmatodea, a new order of insects from Africa illustrates the point that even old, dusty collection drawers can hide amazing surprises for an open-minded entomologist.

31. **Biophysical inventories in wildland parks of northern Alberta**. W. Nordstrom, Alberta Natural Heritage Information Centre.

    Within the last ten years, 32 Wildland Parks have been established in Alberta, encompassing over 17,000 sq. km. of land, a very significant landbase. Within these parks and the wide variety of habitats that are found within them, reside significant and important elements of Alberta's biodiversity. Although much of this biodiversity still remains to be discovered, there have been significant finds from surveys conducted in several of the Wildland Parks in northern Alberta over the last five years. You will hear about some of these finds, the surveys and the parks themselves.

32. **The impact of climate change on potential distribution and relative abundance of three insect pest species in Canada.** O. Olfert and R. Weiss, Agriculture and Agri-Food Canada, Saskatoon Research Centre.

    Climate is the dominant force determining the distribution and abundance of most pest species. There has been considerable concern in recent years about climatic changes caused by human activities and the effects of these changes on agriculture. Previous bio-climatic models were developed to predict the potential distribution and relative abundance (current climate) of three species that have recently been introduced to Canada: *Ceutorhynchus obstrictus* (Marsham) (Coleoptera: Curculionidae), *Meligethes viridescens* (Fabricius) (Coleoptera: Nitidulidae), and *Oulema melanopus* L. (Coleoptera: Chrysomelidae). The bio-climatic models were extended by using incremental scenarios, representing potential climate change scenarios, as inputs into the models. Compared to modelled range and distribution for current climate, model results indicated that all three species would have increased range and relative abundance for temperature increases between 1-7 °C. The models predicted that *O. melanopus*, *C. obstrictus* and *M. viridescens* range would be extended to regions that are not currently used for agricultural production.

33. **Development and application of a simplified field key to identify species of *Delia* (Diptera: Anthomyiidae) commonly occurring in canola grown in the Peace River region of Alberta.** J. Otani[1], A. Nemecz[1+], L. Dosdall[2], G. Clayton[3], N. Harker[3] and J. O'Donovan[1]. [1]Agriculture and Agri-Food Canada, Beaverlodge Research Farm, [2]Dept. Agricultural, Food and Nutritional Science, University of Alberta, [3]Agriculture and Agri-Food Canada, Lacombe Research Centre.

    A simplified field key was developed using available taxonomic research synthesized with digital photographs of *Delia* specimens collected in 2003. The key was utilized to determine species of adults collected weekly in pan and sticky traps positioned in a canola (*Brassica napus* and *B. rapa*) field plot experiment at Beaverlodge AB in 2003.

34. **Defensive behaviour of ants in a mutualistic relationship with aphids.** I.D. Phillips[1]* and C.K.R. Willis[2], [1]Dept. Biological Sciences, University of Alberta, [2]Centre for Behavioural and Physiological Ecology, Zoology, University of New England.

    We tested the hypothesis that aphid-attending ants defend their aphid group against aphid predators more aggressively than ant competitors. Aphid-attending ants selectively attacked potential competitors as opposed to aphid predators when confronted with simultaneous introductions. We suggest this behavior may reduce the likelihood of raids by neighboring colonies.

35. **Birds: Another biotic frontier.** H. Proctor, Dept. Biological Sciences, University of Alberta.

    Birds are excellent habitats for mites, but have been poorly surveyed in Canada. I have embarked on a long-term project to survey acarines on Albertan birds. Two years into the project, feather mite generic records have increased from 2 to 23, and blood-feeding nasal mites from 0 to 12 spp.

36. **Species limits and biogeography of *Grammia* tiger moths: Molecular and morphological evidence.** C. Schmidt* and F. Sperling, Dept. Biological Sciences, University of Alberta.

    Members of the *Grammia nevadensis* species-group (Lepidoptera: Arctiidae) occur in xeric habitats throughout western North America. The taxonomy of this group, however, remains problematic, because adult phenotypic and morphological characters traditionally used to characterize species are few, making species delimitations unreliable. Initial results using mitochondrial DNA sequences and morphological characters to resolve the species-level taxonomy of the *G. nevadensis* group will be presented.

37. **Comparison of Bayesian inference with parsimony in a possible case of morphological long-branch attraction (Coleoptera: Silphidae: *Nicrophorus*).** D.S. Sikes, Dept. Biological Sciences, University of Calgary.

Phylogenetic analyses of the nepalensis group of species in the genus *Nicrophorus* have revealed a possible case of morphological-based long-branch attraction. Bayesian Inference using the Mkv model was compared with Parsimony in both the Felsenstein and Farris zones.

38. **Male-produced aggregation pheromone of *Phyllotreta cruciferae* (Goeze): Behavioural responses of flea beetles and parasitoids in the field**. J. Soroka[1], R. Bartlet[2], A. Cossé[2], and B. Zilkoski[2], [1]Agriculture and Agri-Food Canada, Saskatoon Research Centre, [2]Agricultural Research Service, National Center for Agricultural Utilization Research, Bioactive Agents Research Unit, Peoria IL.

    A male-produced aggregation pheromone was demonstrated for *Phyllotreta cruciferae* (Goeze) in field trials comparing numbers of flea beetles caught in unbaited traps with numbers caught in traps baited with allyl isothiocyanate and/or pheromone in low and high concentrations. While flea beetles were most strongly attracted to high doses of both lures, hymenopteran parasitoids appeared to be more attracted to treatments with high levels of pheromone than to treatments with the greatest number of flea beetles.

39. **Spring emergence biology of the cabbage seedpod weevil (Coleoptera: Curculionidae) and the crucifer flea beetle (Coleoptera: Chrysomelidae)**. B. Ulmer and L. Dosdall, Dept. Agricultural, Food and Nutritional Science, University of Alberta.

    Spring emergence of *Ceutorhynchus obstrictus* and *Phyllotreta cruciferae* was investigated in relation to habitat type, vegetative cover, and soil temperature. In each year peak emergence of both species occurred as mean ground temperature reached 15^{o}C. More weevils and flea beetles emerged from sheltered locations than from open grassy habitats. Weevils were predominantly male early and females late in the season, more female than male flea beetles emerged throughout the spring.

40. **What is it and where did it come from?** The art of differentiating endemic and exotic mites. D. Walter, Dept. Biological Sciences, University of Alberta.

    When mites become a problem, how do you discover their identity and origin? Usually you don't: taxonomic expertise is hard-to-find and needed ecological information seemingly non-existent. Reintegrating taxonomy with ecology is one necessary step towards solving this problem, especially when combined with new computer identification tools.

41. **The spiny ash sawfly, *Eupareophora parca* (Cresson), a pest of ash new to Alberta (Hymenoptera: Tenthredinidae).** D. Williams, Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre.

    In the last few years defoliation of planted green ash in the city of Edmonton has been noted by CFS personnel. The agent responsible is *Eupareophora parca* (Cresson), a tenthredinid sawfly that has been mentioned in extension-entomology literature (leaflets, etc.) and recorded as a minor pest of green and black ash in urban settings. No work has been done on the biology of this species. It has gone from being undetected in 2002 to

occuring in a number of localities around the city in 2004, this in spite of regular surveys of ash to monitor ash leafroller. Herein are presented preliminary observations on the biology of this species.

42. **Pollination of *Echinacea angustifolia* by native pollinators and the alfalfa leafcutting bee (*Megachile rotundata*) in Saskatchewan**. T.Wist* and A.R. Davis, Dept. Biology, University of Saskatchewan.

    Echinacea angustifolia must be cross-pollinated by insects to set seed as is typical of the family Asteraceae. An in-depth knowledge of *E. angustifolias's* pollination system is essential to developing *Echinacea* as a sustainable market crop. This study was performed in the summers of 2003 and 2004 to identify native insect pollinators and evaluate their contributions to pollination.

43. **The contribution of *Echinacea angustifolia* to grasshopper control**. T. Wist and A.R. Davis, Dept. Biology, University of Saskatchewan.

    Echinacea angustifolia is a specialty crop in Saskatchewan and may play a role in organic grasshopper control. *Echinacea's* long-lived inflorescence provides a nectar and pollen source adult stages of major grasshopper egg predators, the grasshopper bee fly (*Systoechus vulgaris*) and the golden blister beetle (*Epicauta ferruginea*). Also, grasshoppers will not readily feed on *E. angustifolia's* hirsute leaves.

Author index to abstract numbers

ANNUAL GENERAL MEETING OF ENTOMOLOGICAL SOCIETY OF SASKATCHEWAN

DATE: Nov. 26, 2004
TIME: 1:30 p.m.
PLACE: Room 307
Agriculture and Agri-Food Canada
107 Science Place, Saskatoon

Prior to the business meeting there will be a 15 minute Power Point presentation by visiting researcher, Emine Cikman, from the University of Harran, Turkey. Her interests lie in the area of parasitoids of leaf miners in Southeast Turkey.

PROPOSED BUSINESS AGENDA

1.) Call to Order – J. Gray
2.) Introductions
3.) Approval of Agenda
4.) Minutes of Spring Meeting, April 30, 2004
5.) Business Arising from Minutes
6.) Treasurer's Report - D. Hegedus
7.) Secretary's Report - L. Grenkow
8.) Newsletter and Proceedings - B. Galka
9.) Regional Director's Report – L. Braun
10.) Committee Reports
    10.1) Amateur Encouragement – C. Olivier
    10.2) A.R. Brooks Award - A. Davis
    10.3) Microscope: J. Kozial
    10.4) Nominations-
        President

Vice-President
Secretary
Treasurer
Auditors

11.) New Business
- 11.1) ESA – ESS Joint Meeting Report – C. Gillott
- 11.2) Proposed Joint Meeting with ESC in 2007
- 11.3) Installation of New Executive
- 11.4) Spring Meeting

12.) Adjournment

Minutes of the Fall Meeting of the Entomological Society of Saskatchewan

Agriculture Canada Research Station, Saskatoon
Room 307
13:30, Nov. 26, 2004

PRESENT: Lorraine Braun, Murray Braun, Emine Cikman, Phil Curry, Bob Elliott, Martin Erlandson, Brian Galka, Tara Gariepy, Cedric Gillott, Jack Gray, Larry Grenkow, Dwayne Hegedus, Nina Mohr, Owen Olfert, Chrystel Olivier, Julie Soroka, Melissa Strom, Tyler Wist.

1. Call to Order at 13:30 by President Jack Gray.

2. Introductions were made, new members were welcomed. Nina gave a warm introduction of guest speaker Dr. Emine Cikman, a visiting researcher from the University of Harran, Turkey. Prior to the formal executive meeting, Dr. Cikman presented a 15 minute Power Point talk on her work on parasitoids of leaf miners in Southeast Turkey.

3.1 MOTION: Wist/Mohr. THAT the agenda be approved. **CARRIED.**

3.2 MOTION: Wist/Gillott. THAT the minutes of the Spring Meeting, April 30, 2004, after the spelling of Piotr Naskrecki's name be corrected in item 4.2.**CARRIED.**

4. Business Arising from the Minutes.

None.

5. Treasurer's Report - Dwayne Hegedus

See Appendix A.
Fifty-nine members are in good standing, the highest % since Dwayne became Treasurer. Total assists are $34,991.89. Six hundred dollars was received from the ESC for the past 2 years for donations to the Youth and Amateur Encouragement Committee. The money will be spent on new insect collections and a CD ROM.
Owen Olfert took out a lifetime membership in the ESS.

MOTION: Hegedus/Erlandson. THAT the Treasurer's Report is accepted as submitted. **CARRIED**.

6. Secretary's Report - L. Grenkow

No report.

7. Newsletter Report – Brian Galka.

Entomological Society of Saskatchewan Newsletter Report - Brian Galka

The last edition of the ESS newsletter was published on August 20, 2004. The editor wishes to thank Cedric Gillott, Larry Grenkow, Lorraine Braun and Jack Gray for their input. The next edition will likely be forthcoming in December 2004. Submissions and suggestions are always welcome.

Brian Galka
Editor, ESS Newsletter
November 26, 2004

Entomological Society of Saskatchewan Proceedings Report - Brian Galka

The 50th and 51st editions of the Proceedings of the Entomological Society of Saskatchewan were published in February 2004. These Proceedings covered the years 2002 and 2003 respectively, and have been circulated to members currently listed with the Society. The 52nd edition of the Proceedings is expected to be completed and released in the spring of 2005.

Brian Galka
Editor, Proceedings of the Entomological Society of Saskatchewan
November 26, 2004

Cedric applauded Brian's efforts since taking over from Wayne Goerzen as editor on short notice.

MOTION: Galka/L. Braun. THAT the newsletter editor report be adopted. **CARRIED.**

8. Regional Director's Report. – Lorraine Braun.

See Appendix B.

MOTION: L. Braun/Olfert. THAT the report be accepted. **CARRIED.**

Committee Reports

9.1 Student and Amateur Encouragement – Chrystel Olivier

See Appendix C.

To supplement the report she presented, Chrystel will ask John Kozial what presentations he has made.

9.2 Brooks Award – Art Davis

The report was postponed to the end of the meeting due to the delayed arrival of Art. Three applications from students were received for consideration this year, one from the University of Regina and two from the University of Saskatchewan. Normally, the immediate Past President, Prof. Emeritus Cedric Gillott, would have chaired this year's 3-member Selection Committee. However, owing to the application by one of his graduate students, Cedric deferred to the Society's current President, Dr. Jack Gray. Rounding out this year's Selection Committee were Dr. Bob Elliott, AAFC, Saskatoon, and Mr. Scott Hartley, Government of Saskatchewan, Regina. On behalf of the E.S.S., I thank these individuals for accepting the challenge set before them. Also, Dr. Owen Olfert, AAFC, is thanked for preparing another fine certificate to accompany the monetary prize.

This year's winner of the A.R. Brooks Prize in Entomology is Mr. Daniel Contreras, an M.Sc. candidate in the Department of Biology, University of Regina. Daniel's graduate work deals with the molecular systematics and evolution of the grasshopper subfamily Gomphocerinae, and is being supervised by Prof. William Chapco.

Art or Dwayne will mail the cheque to Daniel. Phil will be in Regina to take a picture of Daniel receiving the award.

MOTION: Davis/Soroka. THAT the report be accepted. **CARRIED.**

9.3 Microscope - John Kozial read by Larry Grenkow

"The microscope, light and fiber optic light are all in my possession. I will continue to be the caretaker of the equipment. I've been caretaker since all items were new and will continue to be caretaker unless someone else wants. I'm practically the only amateur to use it."

Nominations – Julie Soroka, presenter

The committee consists of Julie Soroka, Martin Erlandson, and Cedric Gillott.
The only vacant position on the executive is Vice-president, for which Art Davis agreed to stand and he won by acclamation.
It is assumed the present auditors of the ESS accounts will continue in their role. Two ESS members will review the books afterwards.

MOTION: Gray / Erlandson. THAT all committee reports be accepted as read, minus the Brooks Award report. **CARRIED.**

10. New Business.

10.1 Report on the 5th Joint Meeting of the Entomology Society of Alberta and the ESS- Cedric Gillott.

See Appendix D.

MOTION: Gillott / Wist. THAT the report be approved after it is corrected to include Erin as one of the speakers. **CARRIED.**

10.2 Proposed Joint Meeting with the ESC-

All present agreed to hold the meeting in the fall of 2007 in Saskatoon. Cedric volunteered to be Chair of the Scientific Committee. By spring committees should be in place and information should be known about when hotels are available and what the competing meetings are so that a date for the joint meeting can be arrived at.
Martin informed that Wayne Goerzen and Keith Moore are looking at Saskatoon venues for the 2007 meeting. The Radisson Hotel provided excellent facilities last time.

10.3 Installation of the New Executive-

Phil Curry took over as the new President. Phil thanked the outgoing executive, in particular Cedric Gillott and Jack Gray for their hard work in planning and organizing the very successful events of the past year.

10.4 Spring Meeting-

Usually the meeting is one of business, but a guest speaker might be invited. The meeting will be held on Friday, April 29, 2005, in the second floor conference room, Agriculture and Agri-Food Canada.

The meeting adjourned at 2:50 pm.

Minutes recorded by Larry Grenkow, Secretary

APPENDIX A

ENTOMOLOGICAL SOCIETY OF SASKATCHEWAN
MEMBERSHIP AND INTERIM FINANCIAL REPORT

01 September 2003 – August 30, 2004

MEMBERSHIP

To this point in 2003-2004 the ESS has 59 members (47 full and 12 students – 5 Life Members) of which 51 are in good standing. A life membership was purchased by Owen Olfert.

ESS GENERAL ACTIVITIES

The main sources of income were from membership dues with $910.00 collected and interest income of $814.54 during this period. A cheque for $600.00 was received from the ESC to support the Youth and Amateur Encouragement initiatives.

FINANCE

The ESS total assets are as follows:

Term Deposits	$32,000.00 (2 @ $10,000 and 1 @ $12,000)
Chequing	2,133.21
Outstanding deposits	40.00
Accrued interest	818.68
Total	34,991.89

The Society's Registered Charity and Non-Profit Corporations status were renewed.
The Society's Registered Charity Tax Return was filed in November.

Please refer to the enclosed financial statement for further details.

Financial Statement – Entomological Society of Saskatchewan
01 September 2003 – August 30, 2004

MAXIMIZER ACCOUNT (ESS)

Receipts:		
Memberships $		870.00
Outstanding deposits		40.00
Interest (CU Maximizer and Term Deposit)		814.54
Amateur Encouragement		600.00
TOTAL		**2324.54**
Expenditures:		
Printing	74.44	
Minister of Finance	10.00	
Brooks Award	500.00	
Meeting Expenses	580.71	
Postage	16.24	
Bank Charges	45.60	
Misc.	9.43	
TOTAL	**1,236.42**	
Excess of Receipts over Expenditures		$**1085.12**

APPENDIX B

Regional Director Report to the ESS, 26 November 2004

The ESC Board Meeting took place at the Rodd Charlottetown Hotel on 15 October 2004. Executive members, Committee Chairs and Regional Directors presented reports, which will be included in the Minutes of the Governing Board Meeting to be posted in The Bulletin. A brief summary of items of importance to the ESS include the following:

- ESC President Charles Vincent reported on contract negotiations with NRC Press for publication of *The Canadian Entomologist*. Currently, NRC loses ca. $12K/year to publish CanEnt, and ESC has negotiated a 1 year extension with a 3% increase in cost to the ESC. Next year, the financial situation will be tighter as costs rise and membership decreases. We will need to look at a Fees increase (the last one was in 89/90). A graphics designer was contracted to provide 2 options for a new cover; one was selected by the Board. The inside covers will be updated also.
- Outgoing ESC Treasurer Gary Gibson presented the budget and membership statistics. The current Operational deficit must be addressed. A Strategic Review will look at our fee structure, Publications and website upgrades, use of on-line reviewing procedures.

- ESC Publications Committee chair Allan Carroll presented the new ESC logo options; Board members picked colours for the new logo and recommended the logo appear in b&w on the journal and bulletin.
- Achievement Awards Committee Chair Bob Lamb reminded Regional Societies to nominate people for the ESC awards or Honorary Membership
- Annual Meeting Committee Chair Terry Shore reminded the ESS to determine a location, set the dates, and get committees in place for the joint ESS/ESC meeting in 2007. ESC has negotiated a contract with Syncroscopy for a donation of $2000 USD/year to allow them to display their products at our JAM. The ESS will need to establish a link to the Syncroscopy webpage before the 2007 meeting.

Revisions were made to the Guidelines for Organization of the Annual Meeting of the Entomological Society of Canada (see website). There needs to be clarification in fundraising activities for the JAM, so that the ESC and the local societies do not duplicate their efforts and contact the same companies for funding.

- The 2005 ESA/ESC JAM will be held at the Radisson Hotel in Canmore, 3-5 November

The Entomological Society of Canada Governing Board and Trustees (2005) consists of the Executive: President, Dr. Robert Lamb, First Vice-President, Dr. Dan Quiring, Second Vice-President, Dr. Peggy Dixon, and Past-President, Dr. Charles Vincent; the Regional Directors Dr. Allan Carroll (ESBC), Dr. Hector Carcamo (ESA), Dr. Lorraine Braun (ESS), Dr. Patricia MacKay (ESM), Dr. David Hunt (ESO), Mr. Stéphane Le Tirant (SEQ), and Dr. Kenna MacKenzie (AES); the Directors-at-Large Dr. David Gillespie (2005), Dr. Rosemary De Clerck-Floate (2006), Dr. Rob Roughley (2007); the Student Representative Ms. Tonya Mousseau, and the Trustees, Dr. Patrice Bouchard (Treasurer), Dr. Rick West (Secretary), Dr. Richard Ring (Scientific Editor), Dr. Paul Fields (Bulletin Editor), Dr. Lucie Royer (Assistant Bulletin Editor), Dr. Barry Lyons (Webmaster); and Office Manager Ms. Alexandra Devine.

Respectfully submitted by Lorraine Braun

Report from the Entomological Society of Saskatchewan to the Governing Board of the Entomological Society of Canada, 15 October 2004.

The spring business meeting of the Entomological Society of Saskatchewan was held on 30 April 2004 at Saskatoon. Dr. Phil Curry opened the meeting with a timely presentation on West Nile virus in Saskatchewan. Dr. Jack Gray announced that Tara Gariépy was awarded the Margaret McKay Scholarship for a female entomologist in a graduate program at the University of Saskatchewan. The ESS nominated members to serve on the organizing committee for the joint meeting of the Entomological Societies of Saskatchewan and Alberta, to be held in Lloydminster from 28-30 October 2004. Preparations are well underway for the meeting. The Business Meeting concluded with reports from the Treasurer, Secretary, Newsletter Editor and Regional Director. Dr. Owen Olfert, a member of the advisory Scientific Committee for the Biological Survey of Canada, informed ESS members of the BSC project on Arthropods of Canadian Grasslands.

Members of the ESS volunteered at the Saskatoon Prairieland Exhibition Corp. Gardenscape "Little Green Thumbs School Tour Program" and at the ESS trade booth from 25 - 28 March 2004. Displays included live and pinned insects, posters and a video ("Discover Entomology").

The Entomological Society of Saskatchewan recently lost two long-time members, Glenn Gilkeson (d. 29 February 2004) and Charlton Devlin (d. 3 July 2004), both retired entomology technicians at AAFC in Saskatoon.

The executive for 2004 includes President - Jack Gray; Past President - Cedric Gillott; President Elect - Philip Curry; and Regional Director - Lorraine Braun. Executive staff includes Secretary - Larry Grenkow; Treasurer - Dwayne Hegedus; and Proceedings Archives and Newsletter Editor - Brian Galka.

Respectfully submitted

Lorraine Braun, Regional Director

APPENDIX C

Youth & Amateur Encouragement Report, Nov. 26/04

Brian Galka took the youth at Territorial Drive Alliance Church on a bug walk on Sunday, July 4th, 2004. There were about a dozen children under the age of seven who participated in sweeping for bugs and insect identification. On Sunday, July 11th, Brian led a nature hike at Pike Lake Provincial Park. About half a dozen people participated in the nature walk which was sponsored by Saskatchewan Parks and Recreation. Brian also talked to about 30 grade 2/3 kids about spiders at Victoria School on Wednesday, November 2.

During summer, Scott Hartley did insect / bug presentations at the Whitemore Child Care Co-op for approximately 20 pre-school and kindergarten children using the ESS insect collection. In addition, he did a similar presentation for about 35 Grade 2 children at St. Pious French emersion school. Along with the pinned insects, he took three microscopes and light sources with insect samples for the children to have a "hands-on", close-up experience with (dead) insects at both locations in Regina. Scott Hartley thanks for the use of the great pinned specimens provided by the ESS.

Chrystel Olivier talked to the ecological camps kids (University of Saskatchewan) about bug's life cycle on Tuesday 13 July.

Cedric Gillott has appeared on CBC Radio twice, answering the Good Question of the Day, and wrote an article for Nature Notes (in The Sun). Congratulations to Cedric who became a chip buddy since October 2004.

APPENDIX D

Report on the Joint Meeting of the Entomological Societies of Alberta and Saskatchewan 28-30 October, 2004

Best Western Wayside Inn, Lloydminster

The fifth joint meeting of the two societies was another very successful event. Some 80 registrants, including about 25 students, enjoyed some fine presentations, good discussion, an excellent banquet, and the odd drink! The size of the Saskatchewan contingent (about 12, including 4 students) was a little disappointing, but for a number of scientists expected to attend, unforeseen circumstances precluded their participation.

The scientific program included a plenary talk given by Piotr Naskrecki (Conservation International, Harvard University), a 6-speaker symposium, 4 poster presentations, and about 30 contributed papers. Of these, 17 were given by students, including Erin Laing, Tyler Wist, Nina Mohr and Tara Gariépy from Saskatchewan. Tara received an award for the best student paper.

Entomological Society of Saskatchewan members played a prominent role in the organization of the meeting, and thanks should be extended to the following for their efforts: Lorraine Braun, Julie Soroka and Dwayne Hegedus (Registration and Budget); Phil Curry (Local Arrangements); Cedric Gillott (Co-chair and Scientific Program); Martin Erlandson (Scientific Program); Jack Gray, Julie Soroka, Chrystel Olivier, and Cedric Gillott (judges for student competitions); Julie Soroka for the meeting logo; and Jack Gray for serving as the Master of Ceremonies at the banquet. Jack Gray and Cedric Gillott also served as moderators in scientific sessions, while Lorraine Braun showed her expertise as Power Point Projectionist. It would be fair to point out that the ESS contribution to the organization and running of the meeting was out of all proportion to the relative sizes of the two societies.

A financial statement is not yet available for the meeting. However, final figures for both income and expenditures are expected to be similar to the amounts budgeted, in which case the meeting should be close to a 'break even' situation.

A copy of the program for the joint meeting will be made available for inclusion in the ESS Proceedings.

Respectfully submitted
Cedric Gillott,
Past President

ESS Membership

First name	Surname	Organization	Address	City	Prov	PC	W Phone	Email
Ruwandi	Andrahennadi	Agriculture Canada		Saskatoon	SK			
Alf	Arthur			Saskatoon	SK			
Muhammad	Ashfaq	Agriculture Canada		Saskatoon	SK			
Douglas	Baldwin	Agriculture Canada		Saskatoon	SK			
Mano	Benjamin			Saskatoon	SK			
Lorraine	Braun	Agriculture Canada		Saskatoon	SK			
Murray	Braun	Agriculture Canada		Saskatoon	SK			
William	Chapco	Dept. of Biology		Regina	SK			
Philip	Curry			Melfort	SK			
Art	Davis	Dept. of Biology, U. of S.		Saskatoon	SK			
John	Doane			Saskatoon	SK			
Lyle	Drew	Cyanamid Canada		Regina	SK			
Bob	Elliott	Agriculture Canada		Saskatoon	SK			
Martin	Erlandson	Agriculture Canada		Saskatoon	SK			
Stephanie	Ethier	Agriculture Canada		Saskatoon	SK			
Nathan	Froese	Bayer Inc.		Saskatoon	SK			
Keith	Gabert							
Brian	Galka	Agriculture Canada		Saskatoon	SK			
Cedric	Gillott	Dept. of Biology, U. of S.		Saskatoon	SK			
Wayne	Goerzen	Sask. Alfalfa Seed Producers' Ass'n		Saskatoon	SK			
Jack	Gray	Dept. of Biology		Saskatoon	SK			
Larry	Grenkow	Agriculture Canada		Saskatoon	SK			
Margie	Gruber	Agriculture Canada		Saskatoon	SK			
Lloyd	Harris			Regina	SK			
Scott	Hartley	Sask. Agriculture & Food		Regina	SK			
Dwayne	Hegedus	Agriculture Canada		Saskatoon	SK			
Jennifer	Holowachuk	Agriculture Canada		Saskatoon	SK			
Ron	Hooper			Fort Qu'Appelle	SK			
Xingwei	Hou	Agriculture Canada		Saskatoon	SK			
William	Hrycan							

Gordon	Hutchings	971 Avundel Drive		Victoria	BC			
Dan	Johnson	Agriculture Canada		Lethbridge	AB			
Paul	Kneeshaw							
John	Kozial			Bjorkdale	SK			
Peter	Kusters	Agriculture Canada		Saskatoon	SK			
Anna	Leighton			Saskatoon	SK			
Peter	Mason	East. Cereal & Oilseed Research Centre		Ottawa	ON			
Alejandro	Matus	c/o Gustafson		Saskatoon	SK			
Rie	Miyazaki	University of Saskatchewan		Saskatoon	SK			
Nina	Mohr	Dept. of Biology		Saskatoon	SK			
Keith	Moore	Agriculture Canada		Saskatoon	SK			
Wade	Morrow	Parks & Recreation		Regina	SK			
Gillian	Murza	Dept. of Biology		Saskatoon	SK			
Owen	Olfert	Agriculture Canada		Saskatoon	SK			
Chrystel	Olivier	Agriculture Canada		Saskatoon	SK			
Toovey	Parker	University of Saskatchewan		Saskatoon	SK			
Dale	Parker	Aquatax Consulting		Saskatoon	SK			
Jeanette	Pepper	Sask Conservation Data Centre		Regina	SK			
Diether	Peschken			Regina	SK			
Keith	Roney	Royal Saskatchewan Museum		Regina	SK			
Bryan	Sarauer	Agriculture Canada		Saskatoon	SK			
Tim	Saretski	U of S		Saskatoon	SK			
Barb	Sharonowski	University of Saskatchewan		East York	ON			
Juliana	Soroka	Agriculture Canada		Saskatoon	SK			
Taz	Stuart			Regina	SK			
Blaine	Tomolak	Bayer Inc.		Saskatoon	SK			
Bryan	Ulmer			Edmonton	AB			
Rudolf	Valerio			Calgary	AB			
Jeff	Webb	Dept. of Biology		Saskatoon	SK			
Tyler	Wist			Saskatoon	SK			