

# The Entomological Society of Manitoba *Newsletter*



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## **About the ESM Newsletter**

The Entomological Society of Manitoba Newsletter is published three times per year. It is a forum whereby information can be disseminated to Society members. As such, all members are encouraged to contribute often. The Newsletter is interested in opinions, short articles, news of research projects, meeting announcements, workshops, courses and other events, requests for materials or information, news of personnel or visiting scientists, literature reviews or announcements and anything that may be of interest to ESM members.

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## **\*Important\***

PLEASE NOTIFY US OF  
ANY CHANGES IN  
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## **President's Report**

The Entomological Society of Manitoba has been a key organization for me since my arrival in Winnipeg almost 22 years ago. It's been important both professionally and recreationally and life would have been a lot duller without it. The Society has always relied heavily on volunteers from among its members to keep it running. Unfortunately, over the last few years membership has declined as the number of entomologists in both professional positions and graduate school has declined. As a result positions in the Society have become more and more difficult to fill, and we are having to recycle

the membership through some of the more time consuming positions. Consider this both a warning and a plea. The Society really does need you! Consider volunteering for a key position and especially, PLEASE, if approached to participate, think very carefully before declining. Without an active membership, the Society cannot function.

Two of the most important positions have changed hands this year. Ian Wise has stepped down as Secretary to take over as President-Elect. Noel White has agreed to take on the secretary ship. Noel was Secretary for many years until he too had to step down to become President-Elect. He did a great job then and will no doubt do a great one now. Randy Gadawski has stepped down from the position of Treasurer after several years of bookkeeping for us. Bill Preston has agreed to take over from Randy. The Chair of the Scientific Program Committee this year is Robbin Lindsay and we look forward to an

exciting meeting as a result. Jason Diehl has moved from Assistant Editor of the Newsletter to Editor, and has recruited Nicole Lauro as Co-Editor. Thanks to Brent Elliott for many interesting newsletters in the past. Most of the other committee chairs agreed to continue in their positions for another year, much to the relief of yours truly. New chairs include Colin Demianyk as Scrutineer, James Tucker as Membership Chair, and Richard Westwood who is going to organize combining the Scholarship and Student Awards Committees into a single entity. Many thanks to Bill Gallaway for doing longstanding duty as chair of the former Student Awards Committee.

I look forward to seeing many of you at the next Society event, which will probably be the New Members Social, to be organized by our incredibly imaginative Social Chairs, the Wytrykushs, (Carla and Debra). Below is a list of the Society's Executive and Committee Chairs for 1999/2000.

#### **Executive & Committee Chairs for 1999-00**

##### **Executive officers:**

President - Pat MacKay  
Past-President - Marj Smith  
President-Elect - Ian Wise

##### **Executive members:**

Member-at-large - Rheal Lafreniere  
Regional director - Bob Lamb

##### **Executive staff:**

Secretary - Noel White  
Treasurer - Bill Preston  
Proceedings Editor –  
Desiree Vanderwel

##### **Committee Chairs:**

Endowment Fund - Blaine Timlick  
Finance - Blaine Timlick  
Scientific Program -  
Robbin Lindsay  
Newsletter - Jason Diehl -  
Nicole Lauro  
Youth Encouragement &  
Public Education - Robyn Underwood  
Social - Carla & Debra Wytrykush  
Archives - Rob Roughley  
Scholarship & Awards -  
Richard Westwood  
Fund-raising - Joel Gosselin  
Nominating - Marj Smith  
Membership - James Tucker  
Scrutineer - Colin Demianyk

##### **Pat MacKay**

##### **ESM President**

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PA\_MacKay@umanitoba.ca

#### **Note from the Editor**

Well its official, I have taken over editorship of the ESM newsletter (it wasn't even a hostile takeover, just ask Brent). My first duty as editor is to

thank Brent Elliott on behalf of the entire ESM membership, for the time and effort he put into the newsletter as editor during the last two years. He did an outstanding job and deserves congratulations.

It didn't take long for me to find a new co-editor for the newsletter. I am happy to report that Nicole Lauro, an M. Sc. Student with Dr. N. J. Holliday, is now officially a co-editor. Her enthusiasm (she jumped in the air when I asked her!) is welcomed and we have already implemented some new ideas for columns in this issue (member profiles).

Brent has also done an excellent job of teaching me his special skills for harassing people without getting arrested. Fair warning to all who read, I will be putting these newly acquired skills to the test during this year. I apologize in advance to anyone who I contact more than 5 times for a submission to the newsletter.

As Brent mentioned in his last issue we are having some problems obtaining submissions. I am asking all of the ESM membership to please put their writing and storytelling skills to good use and come up with some interesting new submissions for the newsletter. Please do not be shy! Submissions do not have to include information related to entomology. As Brent

mentioned, we also welcome natural history submissions that are not entomological in nature. Finally, anyone interested in receiving the newsletter by e-mail should let me know as I have the master list. If I miss you electronically this time, I apologize.

**Jason Diehl,  
Newsletter Editor  
diehl55@hotmail.com**

### **Colin Hawkins** **Biography**

On February 3, 1999, amateur entomologist Colin Hawkins of Rapid City, Manitoba, passed away while at work with the Highways Department in Brandon. With the assistance of his wife Pat, Colin succeeded in amassing a major collection of Manitoba butterflies, moths and exotic beetles. Colin was born in 1942 at Whealy Castle, England, where as a youngster he began a lifelong passion with the field of entomology. Following a military career, he became a welder by trade. When Colin attempted the difficult task of shipping his insect collection to Canada, most of it suffered damage, and while this was a great blow, he persevered and began anew. Colin also loved miniature trains, and set up an extensive landscape in his basement

on which to operate his rail line. His hands were large, yet he was able to build and paint both trains and miniature soldiers with great detail. Colin also fashioned charming insects from discarded machine parts, and a number of his friends feel fortunate to have examples of his artwork.

Colin maintained active correspondence and 'swaps' (as he called exchanges) with many entomologists all over the world. Consequently there are thousands of Manitoba specimens in numerous collections. He spent a number of weeks in the field in France with a medical doctor friend, and also hosted a visit from another friend from Japan. The result of these two long-term relationships was an impressive collection of ground and long-horned beetles. He generously sent packages of exotic beetles to me, addressed to "Tiger Beetle Bob." In return, I sent him specimens under his nickname "Hawk Moth Hawkins."

I first met Colin through another friend, the late Paul Klassen of Culross, Manitoba (senior author of *The Butterflies of Manitoba*). These two gentlemen were similar in many ways - meticulous collectors and preparators, and keen observers of insect natural history from their youth. Colin was quick to form a strong

friendship with those of similar interests and nature. He and his wife Pat often hopped into their specially outfitted van and headed off to visit and collect with friends in Canada and the United States. He looked forward with keen enthusiasm to the annual gathering of both amateur and professional entomologists at my home, and used this opportunity to renew contact with Dr. Rob Roughley, Department of Entomology at the University of Manitoba. It was Colin's greatest desire on retirement to help curate this major Manitoba collection. Consequently, it was only fitting that his wife Pat approved of donating to the University his large collection of butterflies and moths totaling 2600 specimens (mostly mounted) and cabinets.

Colin was an avid collector of hawk moths and tiger beetles, and through extensive field work succeeded in extending the range of the vulnerable Shining Tiger Beetle (*Cicindela fulgida westbournei*) beyond the single-known locality in the province. He reported numerous distribution records of insects to Jim Duncan of the Manitoba Conservation Data Center, and drafted species accounts that have been incorporated into a proposed book on the Tiger Beetles of Manitoba

(with Dr. Bill Preston as senior author).

Colin demonstrated what is best in an amateur naturalist. By sharing field information and his thousands of specimens with museum collections, and stimulating the production of a book on tiger beetles, he achieved important contributions to the knowledge of Manitoba's natural history.

**Written by Bob Wrigley**

## **Meeting and Conference Reports**

### ***Lygus Biological Control Network Meeting***

Researchers from across Canada and Europe interested in the biological control of Lygus plant bugs attended a networking meeting at ECORC in Ottawa from January 10-12, 2000. The main focus of the meeting was to promote discussion on research needs, to develop collaborative strategies for addressing those needs and to determine their costs. Topics discussed included: data collection, rearing methods, mirid identification, *Peristenus* and *Leiophron* identification, egg parasitoids, pathogens, host finding, parasite release and monitoring, commercialization of

biocontrol agents, funding issues and benefit/cost of Lygus biological control. Anyone interested in further information should contact the organizer of the meeting, Dr. P.G. Mason.

Dr. P.G. Mason,  
IPM Study  
Eastern Cereal & Oilseed  
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Canada 960 Carling Ave.  
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Email: [masonp@em.agr.ca](mailto:masonp@em.agr.ca)

### ***Mirid Parasitoid Specimens Wanted***

Dr. Henri Goulet is currently working on the taxonomy of the braconid genera *Peristenus* and *Leiophron*. He needs specimens of adults and larvae (pinned or in alcohol) of these genera from Manitoba and other areas in Western Canada. These parasitoids can be field collected from any habitat or reared from mirid bugs. Although the focus of the project is on Lygus bugs, parasitoids from other mirid bugs would be very useful. Label data should include locality data, date of collection or emergence of parasitoid from reared hosts, any additional data such as habitat, latitude and longitude would also be useful. Fresh

specimens should be preserved in 95% alcohol. Anyone interested in sending specimens to Dr. Goulet should contact him at the address below.

Dr. H. Goulet,  
Biological Resources  
Program  
Eastern Cereal and Oilseed  
Research Center  
Agriculture and Agri-Food  
Canada 960 Carling Ave.  
Ottawa, Ontario  
Canada, K1A 0C6

Tel: (613) 759-1832  
Fax: (613) 759-1927  
Email: [gouleth@em.agr.ca](mailto:gouleth@em.agr.ca)

**Heather White**  
Dept. of Entomology,  
University of Manitoba

### ***2000 MFSA Alfalfa and Forage Seed Conference***

Over a hundred growers from the prairies attended the 2000 MFSA Alfalfa and Forage Seed Conference, hosted by Manitoba forage Seed Association and held at Hotel Crowne Plaza in Winnipeg from January 9 to 11. Many issues relevant to forage seed crop production were discussed during the conference and a large amount of time was devoted to insect pollinators, insect pests and their management in forage crops. New information pertaining to leafcutter bee shelter

designs and incubators was presented by Mr. Rheal Lafreniere. Rheal is the leafcutter bee specialist with Manitoba Agriculture and details of his talk can be obtained by contacting him at his Winnipeg office (204)945-4825. Results from the chalkbrood monitoring program were also presented and beekeepers will be happy to learn that the Canadian Cocoon Testing Center found no incidence of chalkbrood in samples they tested from Manitoba. However, compared with other provinces, a slightly higher per cent parasitism of leaf cutter cocoons was found in Manitoba samples.

Other research interests included the timing of clipping and its impact on populations of pollinators, *Lygus* bugs and aphids. Results of trials for a number of new American insecticides against *Lygus* bugs and pea aphids were presented. Preliminary results from a silvertop study were also presented and it was suggested that insects might be associated with this disease. The presentation by Dr. N.J. Holliday on IPM in alfalfa seed crops dealt with the population trends of several insects in alfalfa fields. The effects of production practices on the pest insects and their natural enemies, particularly predators, highlighted his speech.

An identification workshop focusing on insects in forage seed crops was also conducted. During the workshop, individuals interested in forage insects were shown traits that can be used to identify both beneficial and harmful insect species commonly found in forage crops. Speeches delivered during the conference were informative and helped contribute to our knowledge of forage production in Manitoba.

**Md. Jashim Uddin**  
Dept. of Entomology  
University of Manitoba

### Youth Encouragement Committee Activities

In the past year, the youth encouragement committee has gone through some changes. We have created some insect games and have attained a number of pets. We now house 4 species of cockroach (Madagascar hissing cockroaches, *Blaberus giganteus*, Hawaiian Beetle Roaches, and the typical American cockroaches), Milkweed Bugs, and Giant Prickly Stick Insects from Australia. We've found that giving kids something to touch makes all the difference in their level of enthusiasm. We've seen petrified kids turn into

insect-lovers who want to take "Prickles" home! Throughout 1999, we visited over 80 groups with a total of over 1,000 kids! With many volunteers eagerly joining in, we hope to keep this up for the year 2000. If you think you might like to encourage youth, contact Robyn Underwood at [umunder0@cc.umanitoba.ca](mailto:umunder0@cc.umanitoba.ca)

**Robyn Underwood**  
Dept. of Entomology  
University of Manitoba

### Greetings from the Gulf coast

Hi y'all! When Jason Diehl requested that I write this article about my new surroundings in Louisiana I told him sure, no problem. Well, that was easier said than done. It is mid-January in Baton Rouge (pop'n 220,000) and it feels more like mid-July in Winnipeg. This is unusual weather for someone who is adapted to the harsh climate north of the 49th parallel. The general climate of Baton Rouge, and for most of southern Louisiana in general, is humid sub-tropical. What this means is that for seven or eight months of the year the temperature ranges from 32-38°C during the day, with high humidity levels just to make things all that more uncomfortable. Most evenings offer little

respite, with overnight minimums barely falling below 23°C. It could be a lot worse. The moderating influence of the Gulf of Mexico often prevents temperatures from reaching the extreme values experienced by those poor souls farther inland. I have noticed that 'winter' conditions are very pleasant, with mild temperatures and lots of sunshine, giving me the impression of spring and summer days of old in Winnipeg. Even the humidity falls to tolerable levels in winter. I have not seen or experienced any severe weather around here, yet. Hail is rare as are strong tornadoes. Thunderstorms are usually nothing more than brief summer rainstorms, with a few claps of thunder for variety. In true tropical fashion these usually develop in late afternoon on most summer days and abate by six or seven o'clock in the evening. More spectacular frontal thunderstorms usually occur during the spring and fall months. I have not yet experienced a hurricane or tropical storm. Apparently, the last hurricane to pass through this area was Andrew in 1992. Snow hasn't been seen around here in recent memory. Thick fog seems to be more of a threat around here during the winter. On some mornings I swear that I could barely make

out my outstretched hand, let alone drive in the stuff.

As many of you have heard, I am now a research associate with the Dept. of Entomology at Louisiana State University in Baton Rouge. Some of the work that I am doing here is releasing and evaluating a little parasitic fly, *Pseudacteon tricuspus* (Diptera: Phoridae, a.k.a. 'decapitating fly') for biological control of the imported fire ant, *Solenopsis invicta*. Fire ants are extremely abundant along the Gulf coast of the United States and are said to have caused severe ecological and agricultural damage, not to mention the nuisance factor. Being stung by a fire ant feels like a flame brought too close to the skin. These ants have huge colonies, made all the more conspicuous by their mounds which dot the landscape. When a mound is disturbed in any way, seething masses of ants come boiling out of the ground and begin to spread out in search of the perpetrator. Sometimes I will intentionally disturb fire ant mounds, just to observe this process. We will be releasing another species of parasitic fly, *Ormia depleta* (Diptera: Tachinidae), this spring in New Orleans for mole cricket biocontrol as well as surveying citrus orchards for thrips and

Leptoglossus bugs. Entomologically, a lot of the insect groups have not been very well collected in Louisiana. I am excited at the prospect of collecting an insect fauna that I have never seen before. It was interesting to see Gulf fritillaries (*Heliconius charitonius*), present in the same abundance as cabbage white butterflies in Manitoba, as well as pipevine and zebra swallowtails.

Louisiana has a lot of history behind it and celebrated its tricentennial in 1999. Some of this history is preserved in the beautiful plantation homes that can be found all over the state. The LSU campus itself is breathtaking, with over 1,100 live oaks (*Quercus virginiana*) dominating the tree fauna. Some of these trees are over 200 years old. The live oaks are never very tall but they make up for it in lateral branch growth. This, plus the fact that they are evergreen trees (they drop their leaves in February but replace them soon after), makes them an excellent shade tree throughout the year. I am told that some of the other common tree species here, such as magnolias, and tulip trees offer beautiful blooms.

Food appears to be one of the main attractions around here. The others are partying and jazz

music. I have experienced the best of all worlds, from raucous behavior in New Orleans' French Quarter during Halloween to eating in some very fine restaurants in Baton Rouge, New Orleans and Lafayette. Much of the cuisine here has a Cajun flavor to it. Even McDonalds has a Cajun McChicken sandwich on their menu!

The Cajuns, as many of you know, were French-speaking Acadians who were expelled from Nova Scotia by the British in the 1760s. Because I love seafood I am eagerly looking forward to spring, when crawfish & shrimp are abundant. Additional seafood that is caught down here includes channel bass, bluefish, common jack, mackerel, marlin and snappers.

I have had to adjust to such differences in units of measurement as MPH, Fahrenheit, and gallons. Roads here are covered with thousands of little reflectors. On many roads in Baton Rouge shoulders are entirely absent, giving one a slight feeling of claustrophobia. As for wildlife, I have seen an abundance of armadillos (mainly road kill), possums and raccoons. I have yet to see an alligator, although I am told they have been spotted right here in Baton Rouge! There are a number of poisonous snakes (e.g. cottonmouths)

and spiders in Louisiana. Just the other day I observed a big, fat black widow spider nesting right next to a fire ant colony. Hanging from many of the trees is the common Spanish moss, prevalent throughout the Gulf coast. Not a true moss, nor Spanish, it is actually an epiphyte related to the pineapple. In the East, tall loblolly and longleaf pines abound forming the so-called 'ozone belt', so named because it was thought that the abundance of pine trees improved the quality of the air.

I get a kick out of being able to eat pecans and satsuma oranges right off the tree. Well, I hope that this small glimpse of Louisiana has maybe convinced some of you to come down and visit.

Overall, people here are friendly. A few have found my Canadian accent a bit peculiar (or was it just me in general) although I have dropped the use of 'eh' from my everyday speech. On the whole, I seem to have adapted to subtropical life. Next step? The tropics!

Best Wishes,  
**Don Henne**

### **Social Committee** **News**

The Social Committee has plans in the works for luncheons in the upcoming months. Keep your eyes

open for invitations in the mail. If you have any suggestions for potential speakers please let Carla or Debra know. The New Member's Social will be coming up in the spring. The Ethnic Potluck dinner is still an option, but perhaps people are interested in something different. Darren Pollock has suggested Bingo-Glow Bowling, so we are investigating that possibility. Once again, we encourage you to forward any suggestions for social events/venues. Debra has been examining the possibility of an ESM evening/weekend at Delta Marsh Field Station. We can arrange to use the facilities for an evening, or a full day/evening, or an entire weekend. We can plan entomological activities such as a guest speaker or collecting insects. The Field Station is also a great place for many other activities including: canoeing, fishing, hiking, beach-combing, birding, and swimming. It is also a great place for children, so ESM families can all take part. If you have any suggestions to help us plan an event like this (what time of year is best, what activities should we plan, how long should we stay, is this a good idea, I want to be a guest speaker etc.), please let Carla or Debra know. We would appreciate any input you have so that we can

arrange events that are enjoyable and well attended by all ESM members.

**Carla Wytrykush**  
Social Committee Chair

## **ESM Member Profiles**

### **New Member:**

#### **Lisa Baspaly**

B.Sc. Univ. of Winnipeg  
Address: 214 Animal Science/Entomology Building, Dept. of Entomology, Univ. of Manitoba Winnipeg, MB R3T 2N2

Lisa is one of the newest members of the ESM. She obtained her B.Sc. from the Univ. of Winnipeg with a major in Biology. She is currently working on a Masters degree under Dr. Galloway and Dr. Robbin Lindsay. Her project involves studying head lice in Manitoba to determine if there is resistance to common pediculicides. After obtaining her Masters, Lisa hopes to continue on to do a Ph.D. in some area of Medical Entomology. She would very much like to work on mosquito control in third world countries, but any human disease vector will do. Lisa enjoys reading, Latin dancing, and long distance running. Her free time is predominated mainly by the demands of her cat, little sister, and Dr.

MacKay's Insect Physiology class. She is also looking for a new part-time job (hint hint).

### **Accomplished Member: Dr. Noel White**

B.S.A. (1974), M.Sc. (1976) Guelph;  
Ph.D. (1979) Manitoba  
Address: Cereal Research Station, Agriculture Canada 195 Dafoe Road Winnipeg, MB R3T 2M9

Noel acquired his interest in entomology while working as a student for Bill Elliott at Harrow, Ontario, and for Freeman McEwen at Guelph. He nurtured that interest with studies of ecological factors affecting predator and prey mite populations in orchards, then came to Winnipeg in 1976 to investigate the ecological relationships in stored-grain ecosystems. After completing his doctorate he served for two years as a Research Associate in the Department of Agricultural Engineering, University of Manitoba, conducting a study on the feasibility of detecting carbon dioxide emission as a sign of stored grain deterioration. He then joined the Agriculture Canada Research Station, Winnipeg, where he is conducting research on methods of physical and chemical control of stored products insects and mites, insecticide resistance, and the

ecological impact of control practices. Noel has generously served the society and held a number of executive chair and committee positions. He is currently the new Secretary for the ESM.

## **History of the Entomological Society of Canada**

The Entomological Society of Canada is one of the largest and oldest professional societies in Canada. Founded in Toronto on 16 April 1863, the Society was open to "all students and lovers of Entomology". The first officers were Prof. H. Croft, President; W. Saunders, Secretary Treasurer; and Rev. J. Hubbert, Curator. The organization flourished as interested collectors of insects showed their acquisitions at meetings, discussed the natural history of their favorite species, exchanged specimens, described and named new species, and started museum collections of Canadian insects.

The Society obtained legal status in 1871 and was incorporated under a new section of the Agricultural Arts Act as "The Entomological Society of Ontario". The headquarters of this Society was moved to



London, Ontario in 1873, and then to Guelph, Ontario in 1906.

The Entomological Society of Canada, as it is known today, was founded by members of the Entomological Society of Ontario on 3 November 1950. The founding officers were W.A. Ross, President; A.W. Baker, Vice President; W.R. Thompson, Editor; R.H. Wigmore, Secretary; A.B. Baird, Treasurer; plus seven Directors. The headquarters of the national Society then moved to Ottawa.

### **Roles of the ESC**

The Entomological Society of Canada represents hundreds of entomologists from all parts of Canada and around the world. The Society is a dynamic force in promoting research, disseminating knowledge of insects, & encouraging the continued participation of all “students and lovers of Entomology” in the most fascinating of all natural sciences. It is especially well known for its widely distributed and used publications.

The Society also advises government departments and agencies, and publishes briefs to highlight matters of particular interest. In this capacity, the Society has mobilized many of its members to use their skills

and expertise to review and advise on a wide variety of entomological problems ranging from crop losses caused by insects and biological surveys of Canadian insects to reports on education and resources for entomology in Canada. The Society’s activist approach has provided entomologists with a strong and credible voice on entomological research priorities in Canada. The Biological Survey of Canada has become a long-term program for national coordination of work on the Canadian fauna, and is now jointly administered by the Society and the Canadian Museum of Nature.

### **From the Entomological Society of Canada Website**

### **Calendar of Events**

#### **A conference on Organic Agriculture and Sustainable Food Systems in Manitoba.**

#### **Meeting Information**

Strategies to keep people on the land could also have widespread implications for environmental integrity and preservation of communities across the prairies. Organic agriculture is such a strategy. It also meets a growing consumer demand

for pesticide free and non-genetically modified food.

What are some of the practical aspects of making the transition to organic farming? How do we go about ensuring a steady market for organic products? What role can the urban dweller play to help create safe and more sustainable food systems on the prairies?

These and other questions will be addressed in the second conference on organic agriculture in Manitoba: **Our Food... Our Health... Our Future...** Keynote presentations and workshops will bring together people of all ages: farmers and non-farmers, urban and rural citizens alike.

February 18-19, 2000.  
University of Winnipeg,  
Bulman Center (entrance off Spence Street). 515 Portage Avenue. Space is limited, so pre-registration is requested. Please contact Manitoba Eco-Network, 2-70 Albert Street, Winnipeg, MB R3B 1E7 for registration details.

**XXI International Congress of Entomology,**  
20-26 August 2000,  
Iguassu Falls, Brazil  
**Website:**

<http://www.embrapa.br/ice>

**Department of  
Entomology Spring  
Seminars,  
Univ. of Manitoba**

All seminars are held in Room 220, Animal Science/Entomology Building at 10:10 a.m. on Tuesday mornings.

**Tuesday, 1 February.** Dilantha Fernando. Dept. of Plant Science, University of Manitoba. Fusarium head blight of small grains: An old problem in the east is now a problem in the west.

**Thursday, 3 February.** Carla Wytrykush. Dept. of Entomology, University of Manitoba. Essay Seminar: A reflection on insect iridescence.

**Tuesday, 8 February.** Robbin Lindsay. Federal Laboratories of Health. Winnipeg, Manitoba. Hantavirus in Manitoba.

**Tuesday, 15 February.** Mid Term Break.

**Tuesday, 22 February.** Cheryl Podemski. Freshwater Institute. Winnipeg, MB. Ecological effects of bleached kraft pulp mill effluent in the Athabasca River.

**Tuesday, 29 February.** Dr. Neil Holliday. Dept. of Entomology, University of Manitoba. Colorado potato beetle: biology and

interactions of an adaptable insect.

**Tuesday, 7 March.** Dr. Terry Galloway, Dept. of Entomology, University of Manitoba. What I did in my "spare time" on research study leave.

**Tuesday, 14 March.** Dr. Desiree Vanderwal, Dept. of Chemistry, University of Winnipeg. Sex and the virgin mealworm: Biology and biochemistry of 4-methylnonal production in female *Tenebrio molitor*.

**Tuesday, 21 March.** Heather White. Dept. of Entomology, University of Manitoba. Research Seminar: Insights into relationships between European parasitoids, *Peristenus* species, and their mirid hosts.

**Tuesday, 28 March.** Glenn Klassen, Dept. of Botany, University of Manitoba. Ribosomal gene spacers as Tools for species assignment & populations studies.

**Books for Sale**

**Diseases and Pests of Vegetable Crops in Canada.** Published by The Canadian Phytopathological Society and the Entomological Society of Canada 1994. A practical guide giving information on infectious and non-infectious diseases, insect,

mite, nematode, mollusc and weed pests of vegetable crops including: asparagus, bean, beet, carrot, celery, corn, crucifers, cucurbits, eggplant, garlic, ginseng, greenhouse vegetables, herbs and spices, lettuce, mushrooms, onion, pea, potato, tomato and others. Provides information on symptoms/damage, disease cycle and epidemiology /life cycle & management of important diseases and pests of vegetable crops. Published July 1994.

REGULAR PRICE:  
\$ 65.00 Cdn. soft cover  
DISCOUNT - Members of the ESC-10%. Bulk Purchase (combined total of five or more soft and hard cover copies)-10%.

**Order form on the Entomological Society of Canada Website**  
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