



Entomological Society of Saskatchewan Inc.

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The editors wish to thank Cedric Gillott, Ron Hooper, Lori-Ann Kaminski, Owen Olfert, and Christine Varnam for their contributions to this issue of the ESS Newsletter.

In Memorium

The University of Saskatchewan and its affiliates have suffered the loss of three biologists, Dr. Malcolm Ramsay, Dr. James Newstead, and Dr. James (Bernie) Gollop, within the last few months. The passing of Bernie Gollop on May 26, at the age of 74, is of special note since Bernie was recently awarded the Norman Criddle Award by the Entomological Society of Saskatchewan for the best contribution by an amateur to the field of entomology in Saskatchewan. The award was presented to Bernie following the banquet at the 1999 Entomological Society of Canada meeting held in Saskatoon last September.

Bernie graduated with a M.Sc. from Cornell University and a Ph.D. from the University of Saskatchewan. He began working for the Canadian Wildlife Service (CWS) in 1949 and in the same year married his wife of fifty years, Madeleine. Bernie was the first resident representative of the CWS in Saskatchewan and had a major influence on the design of the Prairie Wildlife Research Centre on the U of S campus, which currently houses more than 60 staff and graduate students.

In the mid 1980's, Bernie's interests switched from birds to butterflies. For a number of years, Bernie organized and conducted butterfly workshops. He co-edited *Saskatchewan Butterflies - 1998*, which was the first annual report on butterflies of Saskatchewan. Bernie also co-produced the first annotated checklist of Saskatchewan butterflies, and contributed to the butterfly section in the new edition of the *Atlas of Saskatchewan*. He was also a regular contributor of butterfly and bird articles to both *The Blue Jay* (the quarterly journal of the Saskatchewan Natural History Society) and *Nature Notes* (a weekly column produced by the Saskatchewan Natural History Society).

International Congress of Entomology - 2000

Brazil will host the next International Congress of Entomology (ICE), which will be held from August 20 - 26, 2000 at Iguassu Falls. Iguassu Falls is in southern Brazil, on the borders of Brazil, Argentina and Paraguay. The XXI ICE is being billed as the "Entomological Gateway for the Next Century - and for the Next Millenium". The congress is expected to be well attended; with 24 simultaneous symposia over a wide range of topics. The opening lecture, by Dr. John H. Lawton of the UK, is entitled, "Entomologists Preserving Biodiversity". For more information one can visit the congress website at "<http://www.embrapa.br/ice/>".

Entomological Society of Canada Postgraduate Awards - 2000

The Entomological Society of Canada will offer two postgraduate awards of \$2,000 each to assist students beginning graduate study and research leading to an advanced degree in entomology. The postgraduate awards will be made on the basis of high scholastic achievement.

Invitation for Applications

Eligibility: Applicants for either scholarship must be members of the Entomological Society of Canada. The successful applicants must be either Canadian citizens or landed immigrants with Bachelor's degrees from Canadian universities. Applicants must begin their first year of postgraduate studies between 15 June 1998 and 31 December 2000. The studies and research must be carried out at a Canadian university. Each award is conditional upon certification by the Department Head that successful applicants have been accepted into the first year of a program of study and research for an advanced degree with full graduate status. A student who was unable to gain admission or enters graduate school as a qualifying candidate is not eligible to receive an award.

Method of Application: Applicants must submit a properly completed form, with support documents. Application forms are available at <http://www.biology.ualberta.ca/esc.hp/form.htm>, or from the Chair of the ESC Student Awards Committee. The original and 3 copies of the application must be submitted to the Chair of the Student Awards Committee postmarked no later than 10 June 2000. Please specify if you are applying for the Postgraduate Award, the Keith Kevan Scholarship, or both.

Process of Selection and Award Presentation: Applications will be reviewed by a committee of the Society. An announcement of the two winners will be made at the annual meeting of the Society and each winner will receive a certificate. Payment of the award will be made in October 2000.

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Poster Competition Winner

Congratulations to Mano Benjamin, who recently won a student poster competition among biology students from the University of Saskatchewan Biology Department. Mano is currently working on her Master's degree under the supervision of Bob Elliot (AAFC - Saskatoon) and Cedric Gillott, who recently retired from the Biology Department at the University of Saskatchewan. Mano's poster is entitled "Influence of application method and temperature on contact toxicity of Spinosad to flea beetles".

Deadline for Submissions for the Joint ESS / ESA Meeting

Montreal, December 03 - 07, 2000

(Dan Johnson, AAFC - Lethbridge)

June 27: Deadline for submission of regular and student competition 10-minute papers. Use the electronic submission form at "www.entsoc.org".

July 25: Deadline for submission of regular and student competition poster display presentations.

August 15: Deadline to be listed in the Annual Meeting Program Book:

- Request for meeting rooms for the Annual Meeting functions
- Increase your visibility by advertising in the Annual Meeting Program Book
- Exhibitors submit your applications and company description by this date
- Student Entomology Clubs interested in sales at the Annual Meeting
- Sponsorships of meeting functions

Early November: Deadline for submission for housing reservations and meeting registrations.

December 3 - 7: The 2000 Joint Annual Meeting of the ESC / SEQ / ESA

Palais des Congres de Montreal.

Please refer to: www.entsoc.org

The ESC homepage is: www.biology.ualberta.ca/esc/hp/homepage.htm

The SEQ homepage (also reachable from the ESC homepage) is: <http://www.seq.qc.ca>

New Saskatchewan Insect Records

(Ron Hooper)

Oxyomus silvestris (Scop.) - two collected near Simmie, SK on June 05, 1995, and July 30, 1995, by Jeanette Pepper *et al*, in pit traps. This Old World species of dung beetle has been taken in eastern Canada west to Quebec, and in western Canada in British Columbia.

Rhyssalus neglectus Brown - one taken in a pit trap near Cadillac, SK, on May 30, 1995, and one taken in a pit trap near Simmie, SK., on July 09, 1995. These were collected by Jeanette Pepper *et al*. This species was formerly collected from Nebraska north to Alberta. In Nebraska it was collected in Richardson's ground squirrel burrows.

Profiles in Entomology

One of the new faces at AAFC Saskatoon is Christine Varnam. Christine has just begun work on a Ph.D. under the supervision of Drs. Martin Erlandson and Cedric Gillott. She will be working on aspects of the mating system and sexual selection of the bertha armyworm (*Mamestra configurata*) including genetic variation within and among diverse populations across western Canada and perhaps in the USA.

“Living in Saskatoon and working on caterpillars could be seen as a bit of a departure from my previous “instar” where I lived in North Carolina and studied fruit flies but also as a return to even earlier stages. I was raised in Alberta and spent many summers raising tent caterpillars and grasshoppers. My scientific interests include behaviour and genetics. My Master’s thesis was with Dr. Marla Sokolowski at York University in Toronto. I determined the genetic interactions between three independent genes (one a naturally occurring polymorphism) in *Drosophila melanogaster*. Each gene had one allele which increased the distance larvae crawl during feeding and/or one allele which decreased this foraging path length. We also demonstrated that the alleles of the naturally occurring polymorphism influenced how adult flies were attracted to food sources. Importantly, in the absence of food, the genes did not affect adult locomotion, larval locomotion, or adult olfaction.

Most recently I worked with Dr. Trudy Mackay, at North Carolina State University in Raleigh. I began a screen of the third chromosome of *D. melanogaster* in four inbred lines, looking for naturally occurring variation in longevity. We found significant and often very specific variation. For example, a chromosome region could affect the lifespan of only mated females from one line, but not the mated males or any of their virgin siblings, or any flies in the other three lines. This and other genetic work in Dr. Mackay’s lab suggest that naturally occurring genetic variation can be common and complex; subtle and significant. I am looking forward to exploring and understanding my new model organism and also my new environment - the prairies.”

Christine would appreciate YOUR observations. If you spot a bertha armyworm infestation please give Christine a call at (306) 956-7267 or e-mail her at ‘varnamc@em.agr.ca’.

Entomology-related Websites

(Lori-Ann Kaminski)

Maps

Our forecast maps for major prairie crops are on the web at:

AAFC Saskatoon	http://res2.agr.ca/saskatoon/howto.html
AAFC Lethbridge	http://res2.agr.ca/lethbridge/
Alberta	http://www.agric.gov.ab.ca/navigation/pests/plantinsects/index.html
Saskatchewan	http://www.agr.gov.sk.ca/
Manitoba	http://www.gov.mb.ca/agriculture/crops/insects/index.html

Integrated Pest Management

Integrated Plant Protection Center (IPPC) hosts a collaborative effort of a number of American IPM organisations called the Database of IPM Resources at “<http://ippc.orst.edu/dir/>”. It contains a wealth of information with an index and a search engine. IPPC also maintains a section called Outstanding IPM-Related Sites on the Internet.

“<http://ippc.orst.edu/dir/bests.html>” is a site where an editor lists some of the best sites in the categories of entomology, general resources, integrated pest management (IPM), pesticides and pesticide management, plant pathology & nematology, and weeds.

“<http://www.agr.gov.sk.ca>” is the Saskatchewan Agriculture and Food (SAF) site. It provides comprehensive information and guides for entomology and plant pathology. In addition, The Crop Protection Guide, use of pesticides, chemical control guide for weeds, insects and diseases are listed. Weed control notes and identification of weeds and their control are given, in addition to up-to-date information on topics such as integrated weed management, sustainable agriculture, forecasts for grasshoppers and wheat midge, and plant pathology.

Radcliffe’s IPM World Textbook

<http://ipmworld.umn.edu/>

Integrated Pest Management at Iowa State University

<http://www.ipm.iastate.edu/ipm/>

Just a few of the many agricultural entomology extension sites

North Dakota State Crop and Pest Report

<http://www.ag.ndsu.nodak.edu/aginfo/entomology/ndsucpr/index.htm>

Montana Crop Health Report

<http://scarab.msu.montana.edu/mchr/index.html>

Kansas Cooperative Economic Insect Reports

<http://www.ink.org/public/kda/phealth/phprot/insprts.html>

Extension Entomology Newsletter and Pest Reports Co-ordinated by the Department of Entomology at Texas A&M University

<http://entowww.tamu.edu/extension/newsletters>

General Entomology

Moths of North America is co-ordinated by Paul A. Opler from the United States Geological Survey - Northern Prairie Wildlife Research Center. This is a huge site with many distribution maps and photos.

<http://www.npwrc.usgs.gov/resource/distr/lepid/moths/mothsusa.htm>

The Tree of Life - a multi-authored internet project containing information about phylogeny and biodiversity. Another huge site which is packed with info.
<http://phylogeny.arizona.edu/tree/phylogeny.html>

Insect Parasitoids of Canadian Insect Pests - AAFC ECORC brings you this website for some of the most amazing insect photos and online keys.
<http://res.agr.ca/ecorc/isbi/pest/pesthom.htm>

Tachinid Times Newsletter
<http://res.agr.ca/brd/tachinid/times>

The Pherolist: List of Sex Pheromones of World Lepidoptera; indexed and cross-referenced, by chemical constituents, by genus, by family. Complete with photos.
<http://www.nysaes.cornell.edu/fst/faculty/acree/pheronet/index.htm>

Commercial Sites

Biocontrol Network - a weird and wonderful American commercial site.
<http://www.biconet.com/>

Natural Insect Control - a Canadian commercial source for traps, beneficial insects, and “stuff”.
<http://www.naturalinsectcontrol.com/>

Food for Thought...and Maybe Consumption

While Lori-Ann Kaminski, AAFC Saskatoon, was web-surfing one day she came across some interesting 'tidbits' which we thought could be of interest to newsletter readers. The following is data collected from *The Food Insects Newsletter*, July 1996 (vol. 9, No. 2, edited by Florence V. Dunkel, Montana State University) and *Bugs in the System*, by May Berenbaum, and taken from the Iowa State University entomology website at : <http://www.ent.iastate.edu/misc>.

Nutritional Value of Various Insects per 100 Grams

Insect	Protein (g)	Fat (g)	Carbohydrate	Calcium (mg)	Iron (mg)
Giant Water Beetle	19.8	8.3	2.1	43.5	13.6
Red Ant	13.9	3.5	2.9	47.8	5.7
Silk Worm Pupae	9.6	5.6	2.3	41.7	1.8
Dung Beetle	17.2	4.3	.2	30.9	7.7
Cricket	12.9	5.5	5.1	75.8	9.5
Insect	Protein (g)	Fat (g)	Carbohydrate	Calcium (mg)	Iron (mg)
Small Grasshopper	20.6	6.1	3.9	35.2	5.0
Large Grasshopper	14.3	3.3	2.2	27.5	3.0
June Beetle	13.4	1.4	2.9	22.6	6.0
Caterpillar	6.7	N/A	N/A	N/A	13.1
Termite	14.2	N/A	N/A	N/A	35.5
Weevil	6.7	N/A	N/A	N/A	13.1
Beef (Lean Ground)	27.4	N/A	N/A	N/A	3.5
Fish (Broiled Cod)	28.5	N/A	N/A	N/A	1.0

Also on the Iowa State University entomology website are a number of insect recipes, a few of which are given below:

Rootworm Beetle Dip

Ingredients:

2 cups low-fat cottage cheese
1 ½ teaspoons lemon juice
2 tablespoons skim milk
½ cup calorie-reduced mayonnaise
1 tablespoon parsley, chopped
1 tablespoon onion, chopped
1 ½ teaspoon dill weed
1 ½ teaspoon *Beau Monde* (?)
and of course....
1 cup dry-roasted rootworm beetles

Directions:

Blend first three ingredients. Add remaining ingredients and chill.

Chocolate Chirpie Chirp Cookies

Ingredients:

2 ¼ cups flour
1 teaspoon baking soda
1 teaspoon salt
1 cup butter, softened
¾ cup sugar
¾ cup brown sugar
1 teaspoon vanilla
2 eggs
1 12-ounce chocolate chips
1 cup chopped nuts
½ cup of dry-roasted crickets

Directions:

Preheat oven to 375. In small bowl, combine flour, baking soda and salt; set aside. In large bowl, combine butter, sugar, brown sugar and vanilla; beat until creamy. Beat in eggs. Gradually add flour mixture and insects, mix well. Stir in chocolate chips. Drop by rounded measuring teaspoonfuls onto ungreased cookie sheet. Bake for 8-10 minutes.

Banana Worm Bread

Ingredients:

½ cup shortening
¾ cup sugar
2 bananas, mashed
2 cups flour
1 teaspoon soda
1 teaspoon salt
½ cup chopped nuts
2 eggs
¼ cup of dry-roasted armyworms (instar not specified)

Directions:

Mix together all ingredients. Bake in a greased loaf pan at 350 degrees for about 1 hour.

Bug Blox

Ingredients:

2 large packages gelatin
2 ½ cups boiling water (do not add cold water)

the authors left out the main ingredient, the leafhoppers, in the original recipe, so we are going to 'wing it' from here...

1 cup dry-roasted leafhoppers (or to taste, as the case may be)

Directions:

Stir boiling water into gelatin. Dissolve completely. Stir in dry-roasted leaf-hoppers. Pour mixture slowly into 9 x 13 inch pan. Chill at least three hours. Blox will be firm after one hour, but it may be difficult to remove them from the pan. Cutting blox: dip bottom pan in warm water for 15 seconds to loosen gelatin. Cut shapes with cookie cutters all the way through the gelatin. Lift with index finger or metal spatula. If blox stick, dip pan in warm water again for a few seconds.

