ONTARIO INSECTS

THE NEWSJOURNAL OF THE TORONTO ENTOMOLOGISTS' ASSOCIATION

VOLUME 11, NUMBER 2 JANUARY 2006

Contents

Front Cover Photograph: Fiery Skipper (*Hylephila phyleus*) on New England Aster (*Aster novae-angliae*). Photo taken on September 27, 2005 near Listowel, Ontario, by Glenn M. Richardson.

Issue Date: January 31, 2006

DEADLINE INFORMATION - Members Please Note:

The deadline for submissions to the May 2006 issue of Ontario Insects is March 31. Late submissions may be added at the discretion of the Editor after that date. If there are any questions or concerns regarding submissions, please feel free to contact Glenn Richardson at the address below.

Ontario Insects (ISSN: 1203-3995) is published tri-annually by the Toronto Entomologists' Association (TEA), 34 Seaton Drive, Aurora, Ontario, Canada, L4G 2K1.

Submissions to: Glenn M. Richardson, President of Ontario Insects, 18 McDonald Street West, Listowel, ON, N4W 1K4, richard@porchlight.ca, (519) 291-3544

TEA members are welcome to submit any entomologically relevent materials. Please see the inside back cover for Notice to Contributors for more information. Deadlines for submission are 1 month prior to publication.

For general inquiries about the TEA contact: Alan Macnaughton, Secretary, TEA, 49 Northforest Trail, Kitchener, ON, N2N 2Y7, amacnaug@uwaterloo.ca (519) 570-9898

ONTARIO INSECTS

Vol. 11, No. 2 Jan. 2006

Mission Statement

The Toronto Entomologists' Association (TEA) is a non-profit educational and scientific organization formed to promote interest in insects, to encourage co-operation among amateur and professional entomologists, to educate and inform non-entomologists about insects, entomology and related fields, to aid in the preservation of insects and their habitats and to issue publications in support of these objectives.

Membership Information:

Annual dues are as follows:

Individual	$25
Student	$15
Family	$30

All membership queries and payment of dues can be directed to Alan Hanks, Treasurer, 34 Seaton Drive, Aurora, Ontario, Canada, L4G 2K1. (905) 727-6993.

Publications received as part of a TEA membership include:

- 3 issues of Ontario Insects per year
- annual Ontario Lepidoptera Summary

THE TEA IS A REGISTERED CHARITY (#1069095-21); ALL DONATIONS ARE TAX CREDITABLE.

Announcements

T.E.A. to Support Karner Blue Project

The T.E.A. has announced that it will be providing financial support for a project to produce educational materials related to the Karner Blue Butterfly (extirpated in Ontario) and other endemic species of Black Oak savannah. The Toronto Zoo will also be participating in the project, which is also seeking funding from the World Wildlife Federation (WWF).

Notable areas of natural Black Oak savannah vegetation in Southern Ontario include Pinery Provincial Park and also High Park in Toronto.

Melissa Blue *Lycaeides melissa*, photographed June 29, 2003 near Quetico Provincial Park Ontario. The eastern supspecies *Lycaeides melissa samuelis,* also known as the Karner Blue has been extirpated in Ontario since the late 1980's *Photo by Tony Rapati*

Annual Student Symposium - Final Call for Titles

Saturday, March 25, 2006, 1 pm at University of Toronto

The T.E.A. is pleased to invite postdoctoral fellows, graduate students or senior undergraduate students to submit titles (include name, address, supervisor name, email address and phone number) for 10 minute talks or posters at the Annual Student Symposium. All are welcome to attend the symposium.

Please e-mail either of the following people if you are interested in participating or would like more information. Provisional titles will be published in Ontario Insects. Final submitted and edited abstracts will also be published in Ontario Insects. Longer reports are optional. We look forward to your participation and attendance at the symposium. Please pass this information on to anyone you now who might be interested.

Doug Currie, Symposium Organizer:
email: dougc@rom.on.ca

Award for Original Research into Ontario Insects

The T.E.A. announces that it is now taking applications for the W. John D. Eberlie Field Research Travel Award.

The T.E.A. is offering a research travel award of $300 to assist graduate or undergraduate students conducting original field research into Ontario insects. The award is intended as a travel grant to defray costs of travel to field sites used for research. The award will be made on the basis of merit and quality. Applicants must be members of the Toronto Entomologists' Association and a graduate or undergraduate student at an Ontario university. To apply, submit a properly completed application form (available from the TEA) postmarked no later than March 25, 2005.

Membership in the T.E.A. ($15 per year for students) gives the following benefits: subscription to Ontario Insects (published 3x per year); opportunity to submit articles for Ontario Insects; Ontario Lepidoptera: the annual summary of butterflies and moths in Ontario; discounts on book sales. The T.E.A. holds monthly meetings from September to April, including a student symposium in March. We run field trips over the summer months.

An application form for the award, or for membership in the TEA may be requested by writing to:

Glenn Richardson
President TEA
18 McDonald Street West
Listowel, Ontario N4W 1K4
Tel: 519-291-3544
email: richard@porchlight.ca

Toronto Zoo Bugzibitz - The World of Fascinating Bugs (March 10-19 2006)

The Toronto Zoo has announced a week long insect event during March 10-19, 2006. The T.E.A. plans to particpate in Bugzibitz with a booth set up for most of the week. Enjoy bug-tastic cookie treats or pose with one of our many six legged friends. Enjoy Indo Malayan butterflies a plenty and colourful and fragrant tropical flowers.

Spring Butterfly Count

An early spring butterfly count will be held May 23, 2006 Raindate-Wed May 24, 2006 (Tuesday) at MacGregor Point Provincial Park.

Meet at 9:30am at the Visitor Centre MacGregor Point Provincial Park (MacGregor Point is one hour north of Goderich, just outside of Port Elgin). We will be covering MacGregor Point and Inverhuron Provincial Parks looking for spring butterflies, including the Hoary Elfin *(Callopyrus polio*), which is common to abundant in the area. Please bring lunch, net and books. Some areas will be wet, so appropriate footwear is recommended.

Contact Tony or Mary Rapati by email: birdfest2006@bmts.com if you plan to attend.

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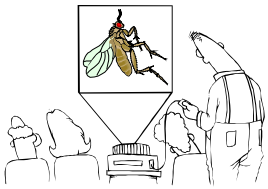


Upcoming Meetings

Everyone is welcome. Bring a Friend!

Saturday February 25 1 PM Room 302 Emmanuel College 75 Queen's Park Crescent E
NOTE LOCATION CHANGE

THE LONG REACH of the GENE: INSECT/PLANT INTERACTIONS
Marc Johnson

Marc is in his final Ph.D. year at U of T studying the ecology and evolution of plant-arthropod interactions. His research is part of a new discipline called community genetics which is quickly changing the way we think about the community ecology of insects.
He will discuss his research on how plant genes and genetic variation in plants shape the diversity and abundance of the arthropods who depend on plants.
Information on Marc's research is available at www.evoeco.org.

Saturday March 25 1 PM Room 432 Ramsay Wright Building 25 Harbord St (SW corner of St George & Harbord)

ANNUAL STUDENT SYMPOSIUM
Graduate students from Ontario universities present results of their research in entomology through brief talks and posters. The presentations cover a variety of insects and topics such as behaviour, ecology and genetics.
Coffee and refreshments will be served.

Saturday, April 22, 2006 1 pm

PURPLE LOOSESTRIFE: A BIOLOGICAL CONTROL SUCCESS STORY
Jim Corrigan

Jim Corrigan runs a biological consulting and services company, Bio-Logical Alternatives. From 1994 to 2000, he worked at the University of Guelph with the Ontario Biological Control Program against Purple Loosestrife, directing the program from 1996-2000.

In 1992, two species of Chrysomelid beetles (Galerucella calmariensis and G pusilla) were introduced into Ontario ecosystems as classical biological control agents against Purple Loosestrife (Lythrum salicaria). Jim will review the biological history of the Ontario Programs to 1997, summarize the 2004 observations for the Greater Toronto Area, and discuss the current status of this biological control initiative across southern Ontario

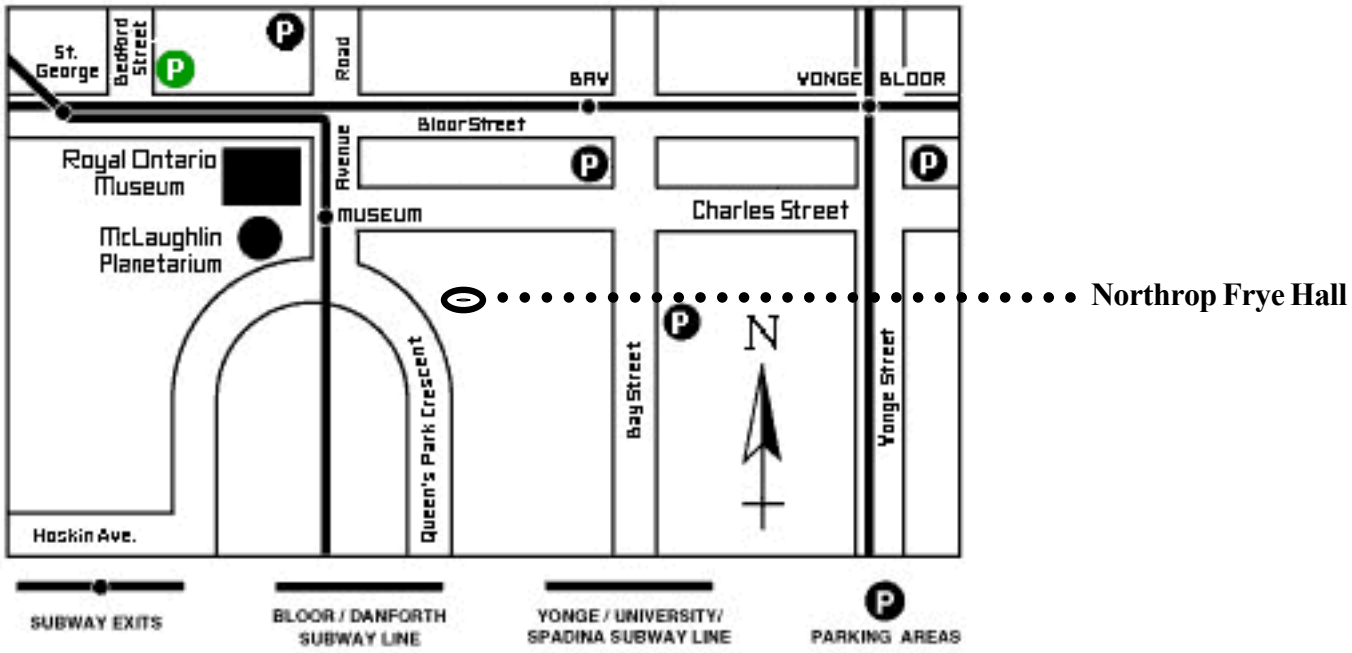
2006 FIELD TRIPS:
The May 2005 issue of Ontario Insects will provide a full listing of the field trips scheduled for the 2005 season.
If you have ideas for outings - a location, subject matter, or leader - please pass them along to:
Steve Laforest, Field Trips Coordinator
Telephone: 905-720-2784
email: fieldtrips@ontarioinsects.org

All meetings (except February and March - see above) are held at:

Northrop Frye Hall Room 119
Victoria University (at the University of Toronto)
73 Queens Park Crescent Toronto, ON
(Museum subway stop; opposite the Museum, on the east side).

See the next page for map and parking directions.
For more information, call Alan Hanks at (905) 727-6993

Also check www.ontarioinsects.org



To reach Northrop Frye Hall by subway or bus:

Get off at the **Museum** stop on the University-Spadina subway line or take the Avenue Bus #5 south from the Eglinton Subway Station. Go to the east side of Avenue Road and walk south. Northrop Frye Hall is on the left just at the bend.

To reach Northrop Frye Hall by highway:

QEW: If you are driving in on the Queen Elizabeth Way (QEW), follow the Gardiner Expressway to York Street. Go north on University Avenue (University Avenue changes into Queens Park Crescent above College St, and then into Avenue Road above Bloor St.). Northrop Frye Hall is just south of Bloor Street.

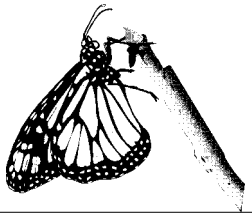
Highway 401: From Highway 401, take Avenue Road south to Bloor Street OR take the Don Valley Parkway south to the Bloor Street Ramp and proceed west along Bloor to Avenue Road.

Parking

There is some on-street parking in the area (check the signs carefully!) and there are several paid parking lots within walking distance of Northrop Frye Hall:

Bloor Street and Bedford Road, 1 Block west of Avenue Road.
On Cumberland Street, 1 block north of Bloor, east off Avenue Road.
Behind the Colonnade at 131 Bloor St. West.
One block north of Bloor Street West on Avenue Road

Parking on a Saturday is usually a flat rate of $5 or more depending on the lot.



Monarch News

submitted by Don Davis

Monarch Butterfly News

Observations noted from all over eastern North American suggest that the monarch butterfly population rebounded from the all-time low population masured in Mexico during the winter of 2004/2005. Mild conditions revailed though much of the northern half of the monarch's range, allowing any monarchs, who would otherwise might have emerged too late, to join the journey to Mexico. On September 15th, there was a strong movement of monarchs along the Toronto waterfront, with thousands stopping to feed on the goldenrod and other flowering plants at the Leslie Street Spit. A week later, hundreds of thousands of monarchs were found roosting near Long Point. Digital photographs taken at this undisclosed location suggest that one observer's estimate of one million monarchs at this site might not have been far off. T.E.A. member Barry Harrison spotted a very late monarch on November 12th at East Point Park, Toronto.

Weather conditions play a significant role during the migration. It is assumed that the strong residual winds from Hurricane Katrina blew one Cleveland-tagged monarch northeast to Oakville, Ontario, where it was re-captured by Don Davis. The 70-year old tagger from Cleveland was delighted to hear of this recovery.

Migrating monarchs began arriving at the Mexican overwintering sites in good numbers at the end of October and a few days prior to The Day of the Dead.

The Papalotzin Team – a group of Mexicans lead by ultralight pilot Vico Gutierrez – followed the monarch migration from Montreal, through Ontario, and then through the U.S.A. and Mexico. During their stopover in Breslau, Ontario, T.E.A. member Don Davis was taken up for a flight in this remarkable aircraft, whose wings bore a design resembling a monarch butterfly. Vico arrived at the Chincua overwintering site in Mexico on November 3rd, and this accomplishment was front- page news in the New York Times. Film footage taken during the expedition will be used to produce a one-hour documentary. Their trip log with many pictures can be found at www.papalotzin.com. Don Davis hopes to see Vico in Mexico in March 2006.

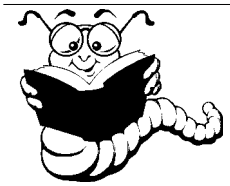
T.E.A. member Don Davis attended the annual meeting of the Board of Directors of the Michoacan Reforestaton Fund in Alameda, California on November 12, 2005. This foundation is dedication to the reforestation of private lands near the monarch overwintering sites, providing local citizens with an alternative source of income and taking some pressure off forests located at higher elevations. The foundation raises funds that are then directed to the La Cruz Habitat Protection Project to pay for the development of seedlings. Through 2005, over 2 million trees have been planted. With the passing of founder Bob Small, our meeting focused on the organization's leadership and steps to be taken to ensure that its mission is fulfilled. Dr. Orley "Chip" Taylor of Monarch Watch has accepted an appointment to act as Executive Director and the organization's operations will shift to the University of Kansas, Lawrence, Kansas.

Illegal logging remains a serious problem in both the protected buffer and core zones of the monarch overwintering areas. Combat with illegal loggers is dangerous. On Sept. 22/05, 10 agents of the Angangueo municipal police intercepted various trucks loaded with lumber. More than 100 armed men later liberated these trucks. On November 3rd, during a ceremony organized for the arrival of the Papalotzin ultralight, Michoacan governor Lazaro Cardenas Batel announced the creation of a State Forestry Police Force of 26 with all-terrain vehicles to protect the biosphere. At this event, commune members from Sierra Chincua accused a justice official from the nearby city of Ziticuaro of having freed from detention an illegal logger who was in possession of thousands of logs.

The Monarch Waystation Program, founded by Dr. Chip Taylor of Monarch Watch, now has over 300 registered and certified Monarch Waystations in Canada and the U.S.A. Habitats for monarchs have been created at home and public gardens, nature centers, butterfly houses, schools, zoos, park districts, botanical gardens and funeral homes. To learn how you can create, conserve and protect monarch habitat, go to: http://www.MonarchWatch.org/ws/.

The 12th annual Symbolic Migration of paper monarch butterflies – a project of Journey North (www.learner.org/jnorth) - was a complete success, with over 40,000 paper monarchs being shipped to Mexico. In the springtime, those students who created a paper monarch will receive a returning paper butterfly, but one made by a student from Mexico, U.S.A., or Canada.

...continued on page 16



The Bookworm

Reviews

Butterflies of the Great Lakes Region *by Matthew M Douglas; Jonathan Douglas: Ann Arbor: University of Michigan Press, 2005.*
ISBN: 0472098845 0472068849

The Butterflies of the Great Lakes Region, co-written by the father and son team of Douglas and Jon Douglas, is a regional butterfly reference as well a field guide that is illustrated with award winning photographs of butterflies under natural conditions. The information in this 400-page book is concise and easy to understand, and includes sections about the geographic features of the Great Lakes; climate factors that have affected butterfly fauna and their distribution; descriptions of ancient environments; recent information concerning each species' taxonomy, identification, food sources, behaviour and ecology; life history and description of larval host plants; a section on insect collection and preservation; extended reference section and glossary.

This book will give even novice butterfly enthusiasts the skills necessary to identify species found in the Great Lakes region, but will also be useful reference for professional biologists and those interested in natural history in general.

Matt Douglas is head of the biology department at Grand Rapids Community College. This is his third book. Matt is also the author of The Lives of Butterflies, also available through Michigan University Press. John Douglas will be graduating from the University of Chicago with a degree in evolutionary biology.

(A tagged monarch butterfly, released by Matt Douglas on the shore of Agawa Bay, Ontario, in 2001 was later recovered at Sierra Chincua, Mexico. Source: MONARCH WATCH – On-line Tag Recovery Database from 1992-present)

Don Davis.

Insights from Insects: What Bad Bugs Can Teach *Us by Gilbert Waldbauer, Prometheus Books, 2005, 311 pages. $23.50.*

This is a fascinating book reporting on recent research on 20 economically important or "pest" species of insects. The author is a great storyteller and the book is a fun read, perhaps because the author is often reporting on his own research. Two things I learned are:

-Corn earworm moths migrate from the US and their caterpillars can be abundant in southern Canada, even though their pupae seldom survive winters north of a line drawn from St. Louis to Virginia.

-Experimental evidence suggests that the notable declines in cecropia and promethea silkmoth populations since the early 1980s in the northeastern United States could be due to a parasitic Eurasian fly (Compsilura concinnata), which was introduced largely to control the gypsy moth. There may be effects on other Lepidoptera as well. (Research on luna moths (S. Kellogg et al., Population Ecology 2003) also found high parasitism rates, although without the clear population-level effect.).

Alan Macnaughton.

New Books

Damselflies of Alberta - Flying Neon Toothpicks in he Grass*, by John Acorn: University of Alberta Press, 2004. 156 pp., softcover, (www.uap.ualberta.ca) $29.95 Canadian*
ISBN: 0-88864-419-1

Damselflies of the North Woods, A Field Guide to all 46 Northern Damsels*, by Bob Dubois, photos by Mike Rees. 2005. North Woods Naturalist Series, Kollath+ Stensaas Publishing, Duluth, MN. 132 pp. &18.95 US*

ISBN:0-9673793-7-7

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Donations are welcome to support these initiatives of the TEA:

W. John D. Eberlie Research Travel Grant - to help to sponsor research into Ontario insects

All donations are tax-creditable and a receipt will be issued. Even $5 will help!

Please send to: Alan Hanks, Treasurer, TEA, 34 Seaton Drive, Aurora, Ontario L4G 2K1

Monarch News continued...

T.E.A. member Don Davis was unable to attend a monarch conference held on December 8 and 9th at the California Polytechnic State University in San Luis Obispo, California. However, Dr. Chip Taylor indicated that he would be making a major announcement at this conference, describing how spring weather conditions in Texas play a major role in the success of the monarch breeding population for that year.

Information on sexing monarch pupae can be found at: http://www.MonarchWatch.org/biology/sexing.htm. The text is accompanied by a line drawing showing the anterior-posterior line on the ventral side of the abdomen on the 8th sternite (abdominal segment) that distinguishes a female from a male, which has only a slight depression at this location. While this verbal description is clear, unless you are put off by the terminology, and the line drawing shows you what needs to be seen, there is nothing like a good picture. Ron Brancato sent Monarch Watch a wonderful photomontage that clearly shows the differences between male and female pupae.

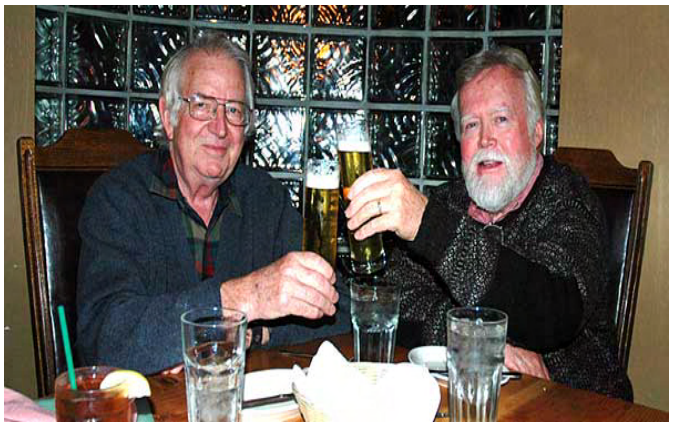
Pupae image: http://www.MonarchWatch.org/update/2005/0830_pupae.html

The Monarch Teacher Network Canada will be holding workshops in Canada in 2006: 1) Winnipeg, Manitoba - August 1 - 3, 2006), 2) Ottawa, Ontario - August 9 - 11, 2006, 3) Orillia, Ontario - August 14 - 16, 2006. Registration forms will be posted at: www.monarchcanada.org

Board of Directors of the Michoacan Reforestation Fund in Alameda, California on Nov. 12/05

Front from Left: Mia Monroe, Don Davis, DJ Agnew, Bob Small Jr.
Back from Left: Gary Small, Chip Taylor, Jose Luis Alvarez, Ed Rashin, Sue Sill, Lincoln Brower, Maraleen Manos Jones

Photo by Don Davis



Monarch researchers Dr. Lincoln Brower and Dr. Orley Taylor in Alameda California
Photo by Don Davis

Why We Still Tag Monarchs *by Dr. Orley "Chip" Taylor, Monarch Watch, University of Kansas, Lawrence, Kansas*

Given the obvious success of the tag recovery program, one might ask: why do we continue with the tagging program? Don't we have enough recoveries to learn all there is to learn about the migration? The simple answer to the questions is that we learn something new each year. When we started this program in 1992, only 99 monarchs tagged by Fred and Nora Urquhart and their associates had been recovered in Mexico. The number of recoveries from Mexico now exceeds 6800 with approximately 75% of those coming from the winters of 2002 and 2004 when severe January storms killed an estimated 75% and 70% of the population respectively. Yes, in general terms, we know where the monarchs come from that overwinter in Mexico but there are many details that are still not clear. One of the puzzles is why the recoveries are not a linear function of distance. In other words, given that the distance from St. Paul, MN to El Rosario (1791 miles) why does Don Davis have to tag more than 2.5 times as many butterflies for each recovery when the distance from Toronto, Canada to El Rosario (2053 miles) is only 1.1 times greater?

We have learned a great deal about the migration to date from all of your tagging efforts. The tagging data have revealed that there is a pattern to the timing and pace of the migration. When we initiated this program there were no data on the time course of the migration. It appeared to be primarily driven by the weather. We now know that the migration is intrinsically driven by an interaction of the monarchs with the changing celestial conditions in the fall such that the pace of the migration across the latitudes is remarkably predictable. This pattern is so robust that it allows us to anticipate the arrival of the wave of southerly

...continued on page 19

T.E.A. Lepidoptera and Odonata Summaries

T.E.A. invites all members and non-members to contribute sightings to the annual insect summaries. There are two summaries: one for Lepidoptera (butterflies and moths); and one for Odonata (dragonflies and damselflies). The sightings are published in two separate publications. Both summaries also feature papers, articles and notes on a variety of topics covering the respective insect orders. The Lepidoptera summary (Ontario Lepidoptera) is sent to members as a benefit of membership. The Odonata summary (entitled Ontario Odonata) is not included with membership but is offered to members at a discounted price. Either of the yearly summaries may be purchased by non-members. We recommend that you contact the compiler directly for more details.

What information to send:
Species name, county, precise location (e.g. 1 km W of Mine Centre on south shore of Little Turtle Lake), number of individuals seen, an accurate UTM and/or Lat./Long. reference either using a GPS or 1 inch maps (not completely mandatory for Lepidoptera but preferred), and observation date. Distinguishing between sight and specimen records is also tremendously useful. Please contact one of the compilers to receive an electronic form (or a hard copy) containing all of the necessary fields. It is strongly encouraged that (if possible) you compile your data using a database or spreadsheet application such as dBase, Access, or Excel.

Lepidoptera summary

When and where to send:
Submissions should be sent by February 28, 2006. Electronic submissions are encouraged, preferably in a spreadsheet or database application such as Microsoft Excel or Corel Quattro Pro. Records submitted in a wordprocessing application (e.g. Microsoft Word or Corel Wordperfect) are also fine as are handwritten records. Records should be sent to the following compilers:

Butterflies: Colin D. Jones (Box 182, Lakefield, ON K0L 2H0. work: 705-755-2166, home: 705-652-5004, colin.jones@mnr.gov.on.ca).
Moths: Jason Dombroskie (mothboy@canada.com).

Odonata summary

When and where to send:
All submissions should be received by January 31, 2006. Late submissions will be included at the discretion of the compilers.

Northern Ontario: The regional compiler for northern Ontario (all parts of Ontario north of Algonquin Park and Nipissing District, and including Haliburton, Muskoka, Renfrew and Peterborough) is Colin D. Jones (Box 182, Lakefield, ON K0L 2H0. work: 705-755-2166, home: 705-652-5004, colin.jones@mnr.gov.on.ca).
Central Southern and Eastern Ontario (Provincial Compiler): The regional compiler for this part of the province (most of the region east of a line from the south end of Georgian Bay east to the Ottawa and St. Lawrence valleys (with the exceptions of Peterborough, Haliburton, and Muskoka) is Paul Catling (catlingp@agr.gc.ca). Paul is also the Provincial Compiler.
Southwestern Ontario: The regional compiler for this region (the south and southwest of a line connecting the south end of Georgian Bay to Hamilton and Niagara on the Lake) is Paul Pratt (7100 Matchette Rd., LaSalle, ON N9C 2S3. 519 966 5852, prairie@netcore.ca).

For more details, see Ontario Insects, Volume 4, Number 3, May 1999, pages 48-52 or a previous issue of Ontario Odonata or contact a compiler.

Address to The Michigan Entomologists Society

by Alan Hanks, Treasurer Toronto Entomologist Asociation
July 2005

Early in 1967, there was a group of mostly amateur enthusiasts in the Toronto area, plus their mentor, Father Charles Riotte, who worked at the Royal Ontario Museum. Father Riotte was already a member of the M.E.S. and suggested that a branch might be formed in Toronto, so a letter was dispatched to Julian Donohue, the M.E.S. Secretary. He replied that this was not a problem under the M.E.S. Constitution, so the Toronto Branch of the M.E.S. was "formed".

However, although the first membership list I have from May of 1968 is titled "M.E.S. Toronto Branch", the 42 member group was never formalized as such and in early 1969, the Toronto Entomologists Association was formed. I noticed that one member on that first list was Dr. Paul Syme of the Forestry Insect Laboratory in Sault Ste. Marie, Ontario and Paul is still a member. In those early days, we had a good relationship with the entomology department at the Royal Ontario Museum and Father Riotte. Later on the head of the department was Professor Glen Wiggins, whose area of expertise was caddis flies, but he was a good friend to the association. I think that I joined the association in 1971 or 1972.

A Checklist of Ontario Skippers and Butterflies was produced by Father Riotte and published together with a 1969 Seasonal Summary and these summaries have been produced annually since that date. The first efforts were assembled handwritten by Quimby Hess and then typed on an old single-carriage machine by yours truly. Quimby continued producing the notes until 1990, and I continued producing the summaries, although I graduated first to an I.B.M. machine liberated from the Government when the computer started to take over and finally my own computer. I produced the summaries from 1991 to 2000 and now we have Colin Jones and Jeff Crolla doing the work, with the records also being made available on a floppy.

One thing that became apparent to the membership through the summaries was the fact that there were several butterfly species in Ontario that appeared to have low numbers of reports. One of these was the West Virginia White and in 1970 the only known locality, the Currie Tract in Halton County Forest, was under threat of quarrying by the Aggregate Producers Association of Ontario. A letter was sent by Paul Catling to the Dept. of Lands & Forests in Toronto apprising them of the situation and the potential quarrying operation was halted. In 1974, another letter was sent to the Ministry of Natural Resources requesting the butterfly be protected under the Endangered Species Act and in 1975, a publication was produced on the butterfly with all relevant data. In 1976, the butterfly was listed as an endangered species. Then, in 1977, a new Hydro corridor was proposed to pass through the Halton Co. Forest and letters were sent to the Ontario Hydro Chairman and the M.N.R. A task force was set up within Ontario Hydro and in 1978, the proposed corridor was diverted around the area of concern.

Later, in 1979, a colony of the butterfly was discovered in Frontenac County north of Kingston, followed by colonies being found in Elgin County near London and a location near Sault Ste. Marie. The butterfly was later taken off the Endangered list and some aggregate development has occurred at the original site with tree-cutting and other damage.

The Karner Blue and Frosted Elfin, both reliant on Wild Lupine, comprise another sad story, with two sites at St. Williams in Essex County and the Pinery at Grand Bend in Huron County being the only known locations in Ontario. Considerable work was carried out by the T.E.A. on both species, with reports appearing in our annual summaries and field studies carried out by many of the members. In 1979, the Karner Blue was nominated as a threatened species in the United States and the T.E.A. was writing letters to the M.N.R. Problems at the Pinery site included development and the advent of all-terrain vehicles tearing up the dune habitat where the wild lupine thrived.

Management plans were created for both sites and lupine seed collection and re-planting were attempted. At the Pinery, the deer population suddenly started to flourish and were not kept out of the Karner Blue areas. Since deer consume everything green within their reach, even the few lupine patches eventually disappeared. In June of 1990, the M.N.R. issued a press release placing both the Karner Blue and Frosted Elfin on the Endangered list, but by then it was almost certainly too late to do anything.

Do you know?

All donations to the TEA are tax-creditable (a receipt is issued). Any amount is welcome but the following suggested amounts support these TEA initiatives:

$300: W.J.D. Eberlie Research Travel Award
$50: Help to sponsor the printing of Ontario Odonata
$40: Sponsor the printing of the Kid's Page in Ontario Insects
$25: A copy of Ontario Odonata (annual) can be donated to a university library.
$15: A copy of Ontario Lepidoptera (annual) can be donated to a university library.

Please send your tax creditable donation to:
Alan Hanks, Tresurer, TEA
34 Seaton Drive, Aurora, Ontario L4G 2K1

Getting on to other publications, work was started in 1975 by Tony Holmes on an Annotated Checklist of Ontario Butterflies and Skippers, with distribution maps, life history timetables and other data. In 1976, the first section appeared dealing with the Hesperiidae, followed in 1978 by the second section on Danaidae, Satyridae and Nymphalidae. A third section on the Lycaenidae, Papilionidae and Pieridae appeared in 1981, but it was not until 1990 that work was started to put the three sections into book form and the idea of the "Ontario Butterfly Atlas" was born. There were four "authors" for the Atlas. Tony Holmes, who of course had done much preliminary work on his three volume checklist, with input from all the annual summaries. Next was Quimby Hess, who had an encyclopedic knowledge of Ontario butterflies in the northern and southwestern areas. Dr. Ronald Tasker contributed a good deal of sage advice and helped with finding the necessary funding. For myself, I acted as the nuts and bolts of the endeavour, dealing with the printer and publisher with regard to the maps, tables and photographs. Many other members made contributions and the association was very proud of the result. The funding consisted of close to $25000 raised from the Ontario Heritage Foundation, World Wildlife Fund and a few others. The printer already had a good record with natural history publications, but was located in Manitoba, which posed a few logistical problems. However, the finished work appeared in 1991, with production costs for 1000 books and cardboard mailers being approximately $24500.

Strangely, the W.W.F., who had partially funded the Atlas, sent us a listing of Canadian Endangered Species with mammals, birds, fish, amphibians and plants, but no insects! At the same time, a flyer for a commercial product appeared under the W.W.F. banner, asking for help protecting Canada's Endangered Species and illustrating the Karner Blue!

A recent increase in interest in Dragonflies has led to the T.E.A. publishing a series called "Ontario Odonata", with five annual releases to date, together with a Resource Guide. In addition, through the efforts of Nancy van der Poorten, our past president, we have been having reprints made by the University Press in Toronto of three publications on Dragonflies by E.M. Walker and a book on Cicindelidae by J.B. Wallis. These are out-of-print works which were highly sought after on the second hand market and as soon as the titles appeared on our website and that of the Dragonfly Society, demand was brisk for the three volume set "Odonata of Canada and Alsaka" and to date we have sold 177 sets in the U.S., 86 sets in Canada and 27 sets overseas in Europe and Asia.

These efforts, plus our journal "Ontario Insects" illustrates that the T.E.A., in similar fashion to the M.E.S., shows that amateur enthusiasts can have an important role in natural science study.

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Monarch News continued....

moving monarchs at each latitude. We are presently engaged in an extensive study of all the tagging data to date and anticipate that additional insights concerning the migration will result from this analysis.

One of our goals for the tagging program was to use this mark and recapture effort to derive estimates for the size of the fall migratory population, the amount of mortality during the migration and the size of the overwintering population. To be able to arrive at such estimates, traditional mark and recapture methods require that the number recaptured or viewed (in the case of dead butterflies on a forest floor) is known. In other words, we need specific measures of the number of untagged to tagged butterflies for each population estimate. Because the ratio of untagged to tagged may be 10s of thousands to one, establishing a true measure of the population using this method has eluded us. We've tried to estimate the number "viewed" in the winter population for each recovery and to use the total hectares occupied by overwintering monarchs, and the various estimates of the number of butterflies per hectare suggested by various studies, but none of these methods has yielded a satisfactory estimate of the total population. Estimates of the number of monarchs per hectare varies from 10 to over 50 million - too broad to be of much use particularly since the measurements of hectares varies (usually declining by 30% or more) from December to January at the same site. It remains that we are going to have to devise a way to establish the ratio of untagged to tagged monarchs to arrive at a reasonable estimate of the number of overwintering monarchs. This is doable but it will take some technological innovations to accomplish this objective. At present, we are limited to collecting thousands of dead monarchs from the overwintering sites and scanning them visually for tags. This is too time consuming as we discovered last winter since it took 4 of us many hours over 4 days to scan 40,000 dead monarchs for tags. We are confident that once we have developed and perfected the technique we have in mind, we will be able to arrive at consistent estimates of the number of untagged to tagged monarchs that can be used to arrive at more accurate population estimates.

There are two other reasons for continuing the tagging program. The involvement of thousands of taggers has created a veritable army of observers in the field. The reports from this large cohort of collaborators provide us with insights on the dynamics of the migration and the size and quality of the population each season. Perhaps of even greater importance is the fact that this program brings at least 100,000 people into intimate contact with one of the worlds most remarkable natural events each fall. Once people become familiar with monarchs,

...continued on page 21

Email Inquiries to the T.E.A.

by Alan Macnaughton

Alan Macnaughton is the Secretary of the Toronoto Entomologists Association

Our website lists one of the TEA's goals as "to educate and inform non-entomologists about insects". Perhaps as a result of that reference, about 60 people over the past year have sent in insect-related inquiries to the email address listed on our website, info@ontarioinsects.org. As website administrator, I have forwarded these inquiries to quite a number of TEA members. Thanks to all of you who have helped with this, especially Sheila Goodfellow, who until August was a grad student in entomology at the University of Guelph, and Glenn Richardson, TEA president.

Most people are asking for identifications of insects they have seen. We answer as best we can, since only about one-third of the emails contain photos. We usually also provide a link to a website which contains pictures and further information.

Most inquiries concerned bees, mosquitoes, crane flies, beetles, dragonflies, leafhoppers, aphids, ants, cicadas, wasps and crickets. Only 5 have been about butterflies and moths. Giant water bugs attracted attention because of their size, and midges have spurred interest because of their large swarms. Many inquiries are about household critters, such as spiders, centipedes and pseudoscorpions.

Some of the more interesting inquiries ranged far beyond insect identification:

- For a Valentine's Day article, the Toronto Star contacted us about the idea that "if you want to find someone special, your best bet is to join a group where people share something in common with you, such as a common interest or hobby or favourite activity." The TEA and its demographics were mentioned in the resulting article.
- A yacht chartering company asked about interest in a special trip for butterfly lovers to the eastern Mediterranean Sea near Turkey.
- One person sought information about wasps in Algonquin Park because of a life-threatening allergy to stings.
- The Discovery Channel asked for information about the medical effects of insect stings.
- A person organizing an insect-themed variety night at the Poor Alex Theatre wrote: "I am interested in having people bring in some specimens to put on display and if you'd like you can get up on stage and say a few words about what you do and about the specimens."
- An organization interested in promoting environmental careers among young people asked us to comment on a profile they had prepared on entomology as a career.
- The Toronto Star asked for "a count of the number of monarch butterflies over the GTA in August." The story was to be about airports and things that are in the air. Although Don Davis understandably couldn't answer this directly, the Star later published a story quoting him about the increased number of monarchs last year.

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2005 Butterflies From Across the Detroit River

by Roger Kuhlman & John Swales

As regular readers of Ontario Insects, we thought TEA members might like a few notes on butterfly highlights from the 2005 season in SE Michigan.

Ocala Skipper (Panoquina Ocala)

A pair found and collected by Roger Kuhlman at Petersburg State Game Area in Monroe County on 2 October. ID was certified by Mogens Nielson at Michigan State University. These are the first Michigan records for this skipper, although Layberry et al. note a few S. Ontario records, most from Point Pelee and the last in 1995.

Mitchell's Satyr (Neonypha mitchellii).

27 of this federally-endangered species on 7 July at an undisclosable fen west of Ann Arbor. The DNR hopes to restoration work at the site to improve the habitat for this very rare species.

Powesheik Skipperling (Oarisma powesheik)

21 of this state-threatened species found on the NABA Chelsea Count on 2 July. (The 2005 Chelsea count tallied a total of 56

****

Monarch News concluded...

the value of preserving the monarch migration in eastern North America becomes apparent. Saving the monarch migration is possible but the threats to the migration posed by a variety of human activities, e.g., illegal logging at the overwintering sites in Mexico, are such that the public in Canada, the United States and Mexico will have to lobby their politicians to enact and fund measures that assure the preservation of the migration.

****

The Silver-bordered Fritillary in Toronto

by Barry Harrison

This is a relatively common species across Ontario. In the Toronto Region it had been considered as extirpated (not having been recorded since 1933), until one was seen up Westney Road North by B. Harrison and J. Spottiswood (June 18, 2002).

Despite some searches of the immediate area in the next few years, no others turned up. Then on July 3, 2005, R. Yukich glimpsed a suspicious lesser fritillary in the general area, but on private property. On July 9, I returned and found a small colony of Meadow Fritillaries, with at least one Silver Bordered amongst the group. It is not uncommon for the two species to fly together in low damp fields. So, by a joint effort the Silver Bordered Fritillary can now be seen in at least one Toronto location.

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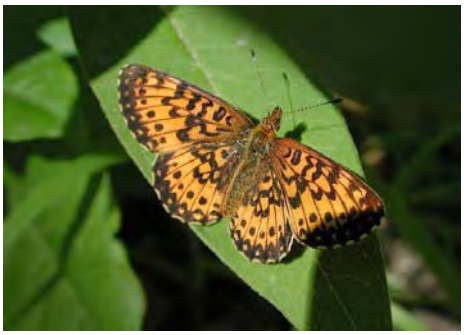

Silver-borderd Fritillary

Near Boshkung Lake, Haliburton Co. ON

Photo by Glenn Richardson 2002

Emerald Ash Borer Range Increases in Southwestern Ontario

Only three years after it was first identified in the Windsor/ Detroit area, the emerald ash borer continues to expand its range in Ontario, and this expansion has not been halted nor have pesticides been successful in eradicating it. Less than a year ago, 50,000 healthy ash trees were cut to create an "ash-free zone" in order to contain the infestation to the Chatham-Kent area.

This insect can now be found in Lambton County, from Sarnia south 40 kilometres to Lake St. Clair. This past October, Sault Ste Marie, Michigan, and near a Highway 401 service centre near Dutton, just west of London, Ontario. At Dutton, 200 infested trees were found. It has been estimated that there are over 15 million dead and dying ash trees in Michigan, and about 1 million in southwestern Ontario.

Foresters are concerned humans are aiding the spread of this insect when they transport wood out of the quarantine areas. There is one report of emerald ash borer being found in firewood taken to Banff National Park, Alberta. In Michigan, the maximum fine for breaching the quarantine is now $250,000.00 US. The Canadian Food and Drug Agency has spent $20 million over the past two years to contain the outbreak. Scientists are currently studying a range of natural predators, including birds, other insects and bacteria.

Summarized from an article written by Pat Currie entitled "So far, the little bug is winning big", and published on December 10, 2005 in the Toronto Star

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Emerald Ash Borer

Photo provided by the Canadian Food Inspection Agency

Nevada Buck Moth in Ontario

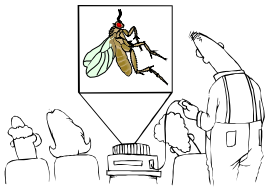
by George Bryant

On a warm sunny afternoon - September 9, 2005, a group of us were exploring a meadow at the end of Wilson Rd about 5 km north of Rainy River. In June this site harboured several Yellow Rails but by the time of our arrival it had dried out sufficiently to be mowed.

On the ground near willows edging the field, we discovered two impressively large black and white moths in copula. From Covell it was obvious that they were Buck Moths (Hemileuca sp.) in the Saturnid family. The range for Nevada Buck Moth (Hemileuca nevadensis), the most likely candidate, was given as "Western U.S. and Canada now extending east to Manitoba." This species is included in the Lepidoptera of Minnesota.

Hwang Miao took a picture of the unusual moths and I submitted it to Don Lafontaine of Agriculture Canada for his comments. He generously provided the following information:

- (From the photograph), the black thorax, white collar, and white central area of the wings, black outer area and the size and resting posture are all characteristic of this species.



Meeting Reports

Nevada Buck Moth, *Hemileuca nevadensis*
Photo by Hwang Miaofor

There have been several anecdotal reports from people saying they thought they saw something like a Nevada Buck Moth in NW Ontario but this is the first confirmed Ontario record.

Generally Nevada Buck Moth (Hemileuca nevadensis) has been treated as a separate species from Bogbean Buck Moth (Hemileuca maia) but apparent introgression between the two in Minnesota and Michigan, and the intermediate nature of the populations in eastern Ontario have many thinking that all these populations may be geographic and host plant races of maia.

The Bogbean Buck Moth is only known from four colonies, two near Ottawa (White Lake and Richmond fens) and two near the shore of Lake Ontario west of Syracuse New York. The early stages are restricted to Bogbean (Menyanthes) but later instars will feed on woody plants like other Hemileuca.

Don Lafontaine also pointed out the food plant of H. nevadensis is willow whereas that of H. maia is Bogbean, an unlikely plant to occur in Yellow Rail

Nevada Buck Moth cont...

Thanks are due to several people:

-to Bill Lamond and Alan Wormington for providing preliminary information on Buck Moths

-to Don Lafontaine for confirming the identification and providing information on the status of Buck Moths (Hemileuca sp.) in Ontario

-to Hwang Miao for photographing the moths.

Little did we know this was a first record for Ontario!

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September

T.E.A. Members Meeting

The September meeting was our tradional "Members Meeting" with T.E.A. individuals showing photos or slides of ther summer activities. Among the presenters were Glenn Richardson (Currently President), who had successfully reared Summer Azures dring the summer. Don Davis gave a Powerpoint presentation of the Papalotzin Project, in which two ultralights bearing the image of a monarch butterfly followed the monarchs to Mexico.

October

Joint T.E.A. ESO Meeting

In October we held out first joint meeting with the Entomological Society of Ontario, at the Bahen Centre on St George Street. In total, 13 T.E.A. members attended the plennary sessions in the morning and heard some very interesting talks.

Perhaps the most interesting speaker was Prof. Sherah VanLaerhoven of the University of Windsor, who provided an introduction to forensic entomology in Canada. One of the important uses of forensic evidence is to establish the time of death, which can be used to establish whether or not a suspect had a window of opportunity to commit the crime. One case in which she was able to provide this type of evidence concerned the killing of black bears for their gall bladders, which are used in traditional Chinese medicine. In this case the absence of blowfly eggs onthe carcasses provided that the slaughter occurred after sundown, since blowflies do not lay eggs at night.

November

Wings of Paradise Butterfly Conservatory: A Behind-The-Scenes Look At Exhibit Curating And Butterfly Research

At our November meeting Adrienne Kistner-Brewster gave us an inside look at the Wings of Paradise Butterfly Conservatory, in Cambridge Ontario. A large part of Adrienne's research involves various attempts to lengthen the life-span of butterflies in Conservatories.

Achievement of this result is desirable because butterflies in captivity typically live only a few days to a week, and the cost of purchasing and transporting tropical butterflies from overseas on a regular basis is extremely high. Several chemical treatments have been tried to allow butterflies to live longer.

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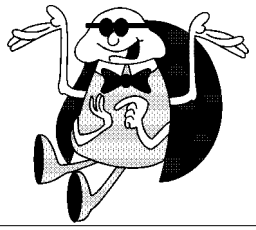

Flea Market

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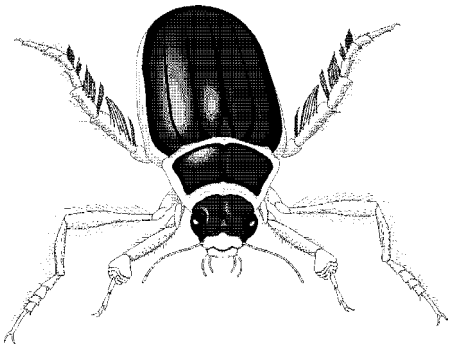

Notice to Contributors

Who Can Contribute:

Observations, articles, etc., to be published in **Ontario Insects,** are welcome from members of the **Toronto Entomologists' Association**. There are no page charges, however, submissions from non-members will require a membership purchase prior to publication. Classified ads may be placed by non-members at the rates outlined in the classified section.

Types of Submissions:

Contributions to **Ontario Insects** may address any subject or aspect related to entomological study. Submissions may be made in the following categories:

Research papers -may include original research or scholarly reviews following an appropriate journal fomat

Feature articles -informative & entertaining, format open to the author's choice

Notes or short communications -may be observations, interpretive, historical, review or experimental studies which do not fall under the purview of research papers

Book reviews -preferrably titles published within the last three years

Original artwork, puzzles -art should be clear, easliy reproduced in black & white

Guest columns in Entomophilia -any subject related to the love of insects

Opinions, Letters, Queries -anything entomological under 500 words that may be of interest to the membership

Classified ads -free to members

Format for Submissions:

Ontario Insects is produced on a PC. Text editing is done in **Microsoft Word**, graphics are scanned or obtained from licensed CD-ROM collections and edited in CorelDRAW 4.0 with final page layout in PageMaker 6.5. The original is printed on a 600 dpi laser printer.

All submissions are encouraged, however, submissions of articles and/or artwork on disk or email are preferred. If articles are submitted via email, formats in Microsoft Word (.DOC) or rich text format (.RTF) are preferred. Please send all submissions and questions to the editor (see inside cover for address). Offprints are available at cost + 10% + postage.

ITEMS FOR SALE THROUGH THE TEA

Books: reproductions of out-of-print books

The Odonata of Canada & Alaska (3 volumes) by E.M. Walker

$200 Can ($195 for TEA members who pick it up); In USA: $150 US surface; $160 US airmail

The Cicindelidae of Canada (tiger beetles) by J.B. Wallis (1961) with colour plates

$28 Can ($23 for TEA members who pick it up); In USA: $23 US surface: $26 US airmail

The North American Dragonflies of the Genus Aeshna by E.M. Walker (1921) with colour plates

$65 Can ($60 for TEA members who pick it up); In USA: $50 US surface; $53 US airmail

The North American Dragonflies of the Genus Somatochlora by E.M.Walker (1925)

$55 Can ($50 for TEA members who pick it up); In USA: $43 US surface: $46 US airmail

Books: Other publishers

Damselflies and Dragonflies (Odonata) of Ontario: Resource Guide and Annotated List

By P.M. Catling and V.R. Brownell 2000. Annotated list of 168 species of odonata in Ontario including conservation status, flight period, habitat, distribution and identification. $34 Can; In USA: $30 US.

Books: T.E.A. publications

The Ontario Butterfly Atlas by A.M. Holmes, R.R. Tasker, Q.F.Hess, A.J.Hanks (1991)

ISBN: 0921631111 $25 Can ($20 for TEA members who pick it up); In USA: $25 US

Ontario Insects – T.E.A. Newsjournal

Back Issues: $5 Can each; In USA: $5 US; Subscription: $25 Can; In USA: $25 US

Annual Ontario Lepidoptera Summaries (for 1987, '88, '93, '95 to present)

$10 each; In USA: $10 US surface; $15 US airmail; (free with T.E.A. membership)

Ontario Odonata: (annual summary or Odonata including articles, notes, recent literatre and news)

Volume 1 (16 articles plus summary of records). Articles cover topics such as conservation status ranks, natural history, migration, lists and records, and an illustrated key to the mature nymphs and exuviae of eastern Canadian Stylurus. Cost: $25 Can; In USA/overseas, $25 U.S.

Volume 3 (18 articles plus summary). Articles include county and regional lists, range expansions, behavioural notes, conservation status and identification problems. Cost: $25 Can; In USA/overseas, $25 U.S.

Volume 5 (6 articles plus summary). Also includes news, reviews and recent literature, Cost: $20 Can; In USA/ overseas, $25 U.S.

Volume 6 (6 articles plus summary). Also includes news, reviews and recent literature, Cost: $25 Can; In USA/ overseas, $25 U.S.

Checklist of the Butterflies of the Toronto Region: 135 years of history (Second edition)

Includes flight seasons. Compiled by Barry Harrison. $2.50 Can ($2 for TEA members who pick it up);

In USA: $3 US

For complete details and to order, contact:

Alan Hanks, 34 Seaton Drive, Aurora Ontario L4G 2K1; (905) 727-6993, alan.hanks@sympatico.ca

Please make cheques or money orders payable to the Toronto Entomologists' Association

ONTARIO INSECTS

THE NEWSJOURNAL OF THE TORONTO ENTOMOLOGISTS' ASSOCIATION

VOLUME 11, NUMBER 3 MAY 2006

Contents

NOTICE: Compiler Needed for Ontario Moth Summaries. Enquire to Colin Jones, Email: colin.jones@mnr.gov.on.ca, Work: 705-755-2166, Home: 705-652-5004

Front Cover Photograph: Mourning Cloak (*Nymphalis antiopia*) adult male perching to await females. Photo taken on April 11, 2006 near the Listowel Golf and Country Club, Listowel, Ontario, by TEA President Glenn M. Richardson.

Issue Date: May 1, 2006

DEADLINE INFORMATION - Members Please Note:

The deadline for submissions to the September 2006 issue of Ontario Insects is August 31. Late submissions may be added at the discretion of the Editor after that date. If there are any questions or concerns regarding submissions, please feel free to contact Glenn Richardson at the address below.

Ontario Insects (ISSN: 1203-3995) is published tri-annually by the Toronto Entomologists' Association (TEA), 34 Seaton Drive, Aurora, Ontario, Canada, L4G 2K1.

Submissions to: Glenn M. Richardson, President of Ontario Insects, 18 McDonald Street West, Listowel, ON, N4W 1K4, richard@porchlight.ca, (519) 291-3544

TEA members are welcome to submit any entomologically relevant materials. Please see the inside back cover for Notice to Contributors for more information. Deadlines for submission are 1 month prior to publication.

For general inquiries about the TEA contact: Alan Macnaughton, Secretary, TEA, 49 Northforest Trail, Kitchener, ON, N2N 2Y7, amacnaug@uwaterloo.ca (519) 570-9898

ONTARIO INSECTS

Vol. 11, No. 3 May 2006

Mission Statement

The Toronto Entomologists' Association (TEA) is a non-profit educational and scientific organization formed to promote interest in insects, to encourage co-operation among amateur and professional entomologists, to educate and inform non-entomologists about insects, entomology and related fields, to aid in the preservation of insects and their habitats and to issue publications in support of these objectives.

Membership Information:

Annual dues are as follows:

Individual	$25
Student	$15
Family	$30

All membership queries and payment of dues can be directed to Alan Hanks, Treasurer, 34 Seaton Drive, Aurora, Ontario, Canada, L4G 2K1. (905) 727-6993.

Publications received as part of a TEA membership include:

- 3 issues of Ontario Insects per year
- annual Ontario Lepidoptera Summary

THE TEA IS A REGISTERED CHARITY (#1069095-21); ALL DONATIONS ARE TAX CREDITABLE.

Announcements and Short Notes

Spring Butterfly Count

An early spring butterfly count will be held May 23, 2006 (Tuesday) Raindate-May 24, 2006 (Wednesday) at MacGregor Point Provincial Park.

Meet at 9:30am at the Visitor Centre MacGregor Point Provincial Park (MacGregor Point is one hour north of Goderich, just outside of Port Elgin). We will be covering MacGregor Point and Inverhuron Provincial Parks looking for spring butterflies, including the Hoary Elfin *(Callopyrus polios*), which is common to abundant in the area. Please bring lunch, net and books. Some areas will be wet, so appropriate footwear is recommended.

Contact Tony or Mary Rapati by email: birdfest2006@bmts.com if you plan to attend.

Hoary Elfin *Callophrys polios at* MacGregor Point Prov. Park, May 16, 2004
Photo by Glenn Richardson

DNA Barcoding Project

Paul Hebert, an evolutionary biologist at U of Guelph, has embarked on an ambitious and well-funded project to barcode all lepidopteran species very quickly. With prime lepidoptera season approaching, he has asked if any TEA members would be able to provide specimens for the project.

There are 2 excellent websites associated with the project:

http://www.universityaffairs.ca/issues/2006/april/barcode_life_01.html gives an overview of the project as a whole. This project is a real coup for Paul, Guelph and Canada.

www.barcodingleps.org shows gaps in the species collected so far. They now have records for nearly a quarter of the 12,500 lep species known in North America.

Guidelines for specimens:

. prefer pinned but papered is OK
. no more than 3 specimens of a species from any single locality
. captured within the last 2 years and stored dry
. exposure to mothball or Vapona strips not a problem
. killed by cyanide, ammonia, freezing or squeezing
. no need to identify specimens
. do not ship in vials
. Paul's lab can reimburse for shipping costs, and provide pins, glassine envelopes
. specimens should be donated so that they can be placed in the Canadian National Collection. Collectors will be credited.

For those TEA members interested in collecting for this project, please direct further questions to Paul Hebert (phebert@uoguelph.ca).

Carol Sellers

Eberlie Field Research Travel Award for 2006

The TEA has announced that the 2006 W. John Eberlie Field Research Travel Award, has been awarded to Aynsley Thielman for her morphological and cytogenetic studies of Anopheles mosquitoes in a variety of habitats in four regions of Ontario.

A major factor favouring Aynsley's research was its potential to control the spread of West Nile virus in Ontario. Details of her research can be found in the TEA Student Symposium Abstracts on page 27 of this Issue

There were two excellent applications for the award, which were adjudicated by TEA member W.D. McIlveen.

2006 Vanessa Butterfly Migration Project

The Vanessa Migration Project is underway for 2006. For more information about this project and how to report your observations, visit the Red Admiral and Painted Lady Research Site at:

http:/www.public.iastate.edu/~mariposa/homepage.html

Additional Contact Info:

Royce Bitzer:
mariposa@iastate.edu

Department of Natural Resource
Ecology and Management
83 Science I,
Iowa State University
Ames, Iowa 50011-3223

BUGS! A Rainforest Adventure

BUGS! A Rainforest Adventure, is live-action nature drama filmed in awe inspiring totally immersive 3D. This film follows the life-cycles of a Butterfly and a Praying Mantis and ends with the inevitable consequences.

BUGS! A Rainforest Adventure opens at The Ontario Science Centre's OMNIMAX® Theatre in Toronto, ON, April 3, 2006.

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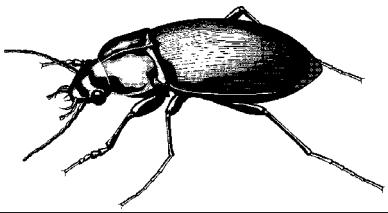


Upcoming Field Trips

HUNTING CATERPILLARS & PHOTOGRAPHING BUTTERFLIES

Saturday June 18, 1:00 PM, Leader: Glenn Richardson

Glenn will be taking us out to his favourite spots for finding butterfly caterpillars and eggs. This is a good time of year to see Red Admirals, Painted Ladies and Monarchs beginning their life cycles. He has a local Milbert's Tortoiseshell colony too! At this event last year we saw thirteen species of butterflies and several kinds of dragonflies on the wing. He will also show us how he raises butterflies from eggs and larva and takes those great shots of chrysalis creation and emerging adults (see www.ontarioinsects.org *"Techniques for Rearing Butterflies and Moths"*). You will have an opportunity to photograph some of the butterfly larvae and pupae he has been raising indoors. Bring sunscreen & water, and you may need boots for some areas. Optional: digital or regular cameras with close-up capability.

Directions: *From Hwy.401 take Hwy.8 (exit 268) north to Kitchener. Exit at Hwy.86 and follow it north and west to where it meets Hwy.23 at the main intersection in Listowel. Turn right on Hwy.23 (Wallace Ave. N.) to McDonald St. W., near the edge of town (at Tim Haines Chev-Olds). Turn left on McDonald St.W. to Number 18.*

INSECTS OF THE COPETOWN BOG

Saturday June 24, 10:00 AM, Leader: Marvin Gunderman

The Copetown Bog near Ancaster is a great place for lepidoptera, including the Bog Copper. With Marvin's expertise, we should also be able to find some interesting beetles. Bring nets, insect containers, lunch, water and waterproof footwear.

Directions: *Take the QEW to Hwy 403 to Hwy 6 North to Hwy 5 West to Hwy 52 South. Copetown is at the junction of Hwys 52 and 99. Continue south on Hwy 52 past Hwy 99 (Governor's Rd) a little over a kilometre to the large parking lot on the right side.*

TEA EAST TORONTO BUTTERFLY COUNT

Friday July 1, 9:00 AM, Co-ordinator: Tom Mason

Bone up on your ID skills and help count butterflies in the Rouge or Don Valley. This is an official NABA count and the TEA will pay your participation fee.

Directions: *For those counting in the Rouge, meet at the Pearse House. From Sheppard Ave go north on Meadowvale Rd; take the exit to the Toronto Zoo but turn RIGHT at the first turn and park along the side of the road. Bring nets, containers, lunch and water. No collecting in the Rouge. Call Tom Mason (905-839-6764) if you plan to participate.*

HIGH PARK MOTH NIGHT

Tuesday July 11, 8:15 PM, Leaders: Dave Beadle, Tom Mason

This is a joint outing with the High Park Community Advisory Council. Members of the public are invited to join TEA members Dave Beadle, Carolyn King, Tom Mason and Karen Yukich for an evening of moth-catching and identification. A $2 donation is requested. Meet at the benches across from the Grenadier restaurant at 8:15 pm. This outing is especially good for children – bring the whole family! No collecting. Bring insect containers, a flashlight, moth guides if you have them.

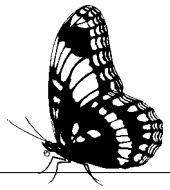
SPIDERS OF BLACKWATER/BEAVER CREEK

Saturday August 12, 10:00 AM, Leader: Tom Mason

This has been a popular outing for a number of years. The Beaver Creek rail trail has a wealth of habitats for all kinds of insects and spiders. Streams, ponds, bridges, weedy vegetation: all the places spiders like to be. *Meet on the road shoulder where Beaver Creek flows under Hwy 12 just south of Blackwater. Bring insect containers, nets, hand lens, water and lunch. (Note: Easy walking)*

****NOTE: Occasionally we have to change the date or start time of an outing, so it's important that we know whether you plan to attend. Please contact the organizers: Carolyn King (416)222-5736 cking@yorku.ca or Steve LaForest (905)720-2784***

For more details and for updates, visit www.ontarioinsects.org



2006 Ontario Insect Counts

BUTTERFLY COUNTS

DATE (Rain Date)	LOCATION	CONTACT	TELEPHONE	EMAIL
Sat. June 3	Algonquin East Side	Colin Jones	(705) 652-5004	colin.jones@mnr.gov.on.ca
Mon. June 19	Sandbanks Prov. Park	Yvette Bree	(613) 393-3319 x227	yvette.bree@mnr.gov.on.ca
Sat. June 24 (25)	Pinery Prov. Park	Brenda Kulon	(519) 869-2833	kulon@cogeco.ca
Sun. June 25	Oshawa	James Kamstra	(905) 985-4497	jkamstra@gartnerlee.com
Sat. July 1	**T.E.A. Toronto East**	**Tom Mason**	**(905) 839-6764**	**tmason@torontozoo.ca**
Sat. July 1 (2)	Lake Dore	Chris Michener	(613) 625-2263	cmichener@renc.igs.net
Sat. July 1*	Long Point	Doug Timpf	(519) 586-9964	timpf@nornet.on.ca
Sun. July 2	Skunk's Misery	Ann White	(519) 457-6586	doug.ann.white@rogers.com
Sun. July 2	Sunderland	James Kamstra	(905) 985-4497	jkamstra@gartnerlee.com
Sat. July 2	Muskoka Bala	Ron Stager	(705) 684-9194	ronstager@sympatico.ca
Mon. July 3	Orillia	Bob Bowles	(705) 325-3149	rbowles@rogers.com
Wed. July 5	Hwy 60 Algonquin	Colin Jones	(705) 652-5004	colin.jones@mnr.gov.on.ca
Wed. July 5	Presqu'ile Prov. Park	David Bree	(613) 475-4324 x225	david.bree@mnr.gov.on.ca
Sat. July 8	Hamilton	Bill Lamond	(519) 756-9546	kathgard@hotmail.com
Sat. July 8	Toronto Centre	John Carley	(416) 766-1330	carley.la@sympatico.ca
Sat. July 8	Haliburton Highlands	Ed Poropat	(705) 457-3018	edporopat@halhinet.on.ca
Sat. July 8	Windsor	Paul Pratt	(519) 966-5852	ppratt@city.windsor.on.ca
Sat. July 8*	Clear Creek	Heather Prangley	(519) 674-3200	rwc@ciaccess.com
Sat. July 8 (9)	McGregor Point	contact the Park	(519) 389-6231	birdfest2006@bmts.com
Sun. July 9	Carden Alvar	Bob Bowles	(705) 325-3149	rbowles@rogers.com
Sun. July 9	Rondeau Prov. Park	Emily Slavik	(519) 674-1774	emily.slavik@mnr.gov.on.ca
Sat. July 15 (16)	Hog Island	Chris Michener	(613) 625-2263	cmichener@renc.igs.net
Sat. July 15 (16)	Petroglyphs Prov. Park	Jerry Ball	(705) 745-3272	
Sat. July 15	Cambridge *(rare)*	Larry Lamb	(519) 888-4567 x2646	lelamb@fes.uwaterloo.ca
Sat. August 5	Pelee Island	Bob Bowles	(705) 325-3149	rbowles@rogers.com
Sat. August 12 (13)	Point Pelee Nat'l Park	Sarah Rupert	(519) 322-5700	sarah_rupert@pc.gc.ca

** date not confirmed*

Counts held in the past but without dates for this year

Misery Bay, Manitoulin I. Nancy Ironside (705)326-4384 nancy.ironside@sympatico.ca

Severn Township Nancy Ironside (705)326-4384 nancy.ironside@sympatico.ca

ODONATE COUNTS

DATE	LOCATION	CONTACT	TELEPHONE	EMAIL
Sun. July 9	Hamilton	Carl Rothfels	(905) 527-7684	crothfels@yahoo.ca
Thu. July 6	Algonquin	Colin Jones	(705) 652-5004	colin.jones@mnr.gov.on.ca
Sat. July 15	Carden Plains	Bob Bowles	(705) 325-3149	rbowles@rogers.com
Thu. July 20	Royal Bot. Gardens	Carl Rothfels	(905) 527-7684	crothfels@yahoo.ca
Sun. August 6	Pelee Island	Bob Bowles	(705) 325-3149	bowles@bconnex.net
Sat. August 5 (6)	Lake Dore	Chris Michener	(613) 625-2263	cmichener@renc.igs.net

Dates are subject to change! Please check with the count organizer in advance. Everyone is welcome, whatever your skill level. Note that many of these counts are done for the North American Butterfly Association and that there may be a nominal charge for participating. Please be prepared for the count activity with sunscreen, water, hat, food and other items suggested by the count organizer. This list has been compiled by Carolyn King and the Toronto Entomologists' Association.

Toronto Entomologists' Association Student Symposium

On Saturday, March 25, 2006 several talks and posters were presented by students from Brock University, York University and the University of Toronto. Abstracts of the talks and posters are featured below.

The ecology and conservation of eastern North American bumble bees (*Bombus spp.*).

Sheila Colla
Department of Biology, York University
Toronto, Ontario

Abstract. Bumble bees have been declining rapidly in many temperate regions of the Old World. Despite their ecological and agricultural importance as pollinators, few surveys have been performed to precisely determine the conservation status of North American bumble bees. As a result of this lack of data, no bumble bee species in North America has received federal protection as endangered or threatened despite strong anecdotal evidence suggesting dramatic declines in four of five North American species in the subgenus *Bombus* (i.e. *Bombus occidentalis*, *B. franklini*, *B. affinis* and *B. terricola*). In fact, *B. franklini* seems to have become extirpated in its native habitat of California and Oregon. I present preliminary data on two approaches using temporal and geographical replication techniques to determine the conservation status of eastern North American bumble bees. First, surveys conducted throughout the summers of 2004-2006 in southern Ontario will be compared to surveys conducted in 1971-1973 in the same area to look at changes in relative species abundance in one of the most Bombus diverse areas in North America. Second, the extent of range decline for a focal species (*Bombus affinis* Cresson) will be determined by surveying over 50 sites throughout eastern Canada and the USA. This species was chosen because it is most closely related to B. franklini, it seems to be declining throughout its range, and it was previously among the top four most common bumble bee species in the east. The loss of any *Bombus* species may result in substantial changes in wildflower populations, availability of fall berries for birds and small mammals and reduced agricultural production. The remaining populations of rare species urgently need to be found and protected to avoid cascading impacts on native flora and fauna. Only once these populations are located and the causes for decline outlined can management plans be designed and implemented.

Restoration, degradation and maintenance: a study of annual variation in Niagara Region bee population dynamics.

Sandra Rehan
Department of Biological Sciences, Brock University
St. Catharines, Ontario

Abstract. In 2001 the Glenridge Quarry landfill was closed and converted into a naturalization site of Carolinian grassland and meadow. From 2003 to 2005, bees were collected in six to nine sites at the naturalization site and the adjacent Brock University campus using standardized collection methods. Bee specimens were identified, counted and measured to examine population dynamics and response to annual weather and disturbance changes. In years with hot and dry weather, ideal foraging conditions, bee brood should be larger in terms of abundance or body size. In cold wet years, brood should experience reduced abundance or body size. I found a significant effect of annual variation on bee abundance but not body size. In 2003 collection sites were established and classified by disturbance levels. Since 2003, two high disturbance landfill sites have decreased in disturbance accompanied by an increase in bee abundance. Two low disturbance old field sites have experienced an increase in surrounding disturbance leading to a decrease in bee abundance. Meanwhile, an intermediate disturbance meadow has maintained both interference level and relatively stable bee abundance through three years of collection with slight variation accounted for by annual weather conditions. Annual abundance fluctuations show how rapidly bee populations respond to anthropogenic impacts through both restoration and degradation. Abundance does vary with annual weather change but patterns are noticeable only in relatively stable landscapes where the impacts of ongoing habitat alterations do not override.

A Cytogenetic Analysis of the Mosquito Genus *Anopheles* (*Diptera*: *Culicidae*) in Ontario

Aynsley Thielman
Department of Biological Sciences, Brock University
St. Catharines, Ontario

Abstract. Mosquitoes of the genus *Anopheles* are worldwide in distribution (except Antarctica) and many species are involved in the transmission of malaria and other diseases around the world. Although morphological identification of species has been difficult in the past, studies of the polytene chromosomes found in the salivary glands of fourth instar larvae (and the ovarian nurse cells of gravid adult females), have been instrumental in the discovery of isomorphic species. Cytogenetic studies of *Anopheles* in regions where malaria is endemic have revealed the existence of morphologically similar or identical species complexes, the members of which have been found to vary in their degree of vectorial capacity. Chromosomal inversions are believed to be involved in the speciation process

and can be used to infer phylogenetic relationships among species. It is apparent that an integrated approach to anopheline systematics is required for accurate species identification. Therefore, cytogenetic studies of the *Anopheles* of Ontario could provide insight into the taxonomy of *Anopheles* in Ontario. Larvae were collected from a variety of habitats in 4 regions of Ontario (Niagara, Windsor, Ottawa, Manitoulin Island). Fourth instar larvae were examined cytogenetically to: a) determine the presence of any new species or changes in known distributions, and b) to elucidate any sibling/isomorphic species.

Social Structure of *Xylocopa virginica* in southern Ontario

Sean Prager
Department of Biological Sciences, Brock University
St. Catharines, Ontario

Abstract. One technique for understanding the factors leading to the evolution of eusociality is to examine and compare the behaviour of species that exhibit different colony social behaviour. These include communal, quasi-social and semi-social colony structures. *Xylocopa virginica*, the species of large carpenter bee native to eastern North America, can be used for such comparisons. My studies of this species in Ontario suggest that is has a colony social structure that resembles, but is not, semi-sociality. Semi-social colonies, as defined by Michener, exhibit division of labour, cooperative work on cells, progressive feeding, structurally similar females, and are matrifilial. I collected nests of *Xylocopa virginica* and examined the female inhabitants for evidence of wear and reproductive status. I also conducted behavioural observations of foraging females to determine if nests contain multiple foraging females. Finally, video observation was used to determine the number of females contained in a nest. These results suggest that *Xylocopa virginica* does have division of labour and structurally similar females, as in most semi-social bees. However, the division of labour is peculiar – dominant females seem to monopolize oviposition but also monopolize colony work. This suggests a rather unique colony social structure, which currently has no name, and presents another point of comparison in studies of social evolution.

Identification of the morphologically monotonous taxon *Dialictus (Halictidae: Lasioglossum)* using DNA barcodes

Jason Gibbs
Department of Biology, York University
Toronto, Ontario

Abstract. Bees play a vital role as pollinators of both wildflowers and agricultural crops worldwide. But pollination services worldwide are in decline. Evidence also suggests that bees may be excellent predictors of ecosystem health, because they are more extinction prone than almost all other organisms. Despite their importance, our knowledge of bee species richness is poor. Identification and classification of species is integral for the understanding of biology and so an efficient taxonomy is a prerequisite for the development of sustainable use of natural and anthropogenically altered systems. There are approximately 250 known species of the bee subgenus *Dialictus* in Canada and the United States. *Dialictus* are the most commonly collected bees in North America, representing over 50% of specimens in some bee biodiversity surveys. *Dialictus* remains one of the most difficult problems in bee taxonomy. *Dialictus* are so morphologically monotonous that even experienced bee taxonomists cannot confidently identify them to species. The use of molecular methods, such as DNA barcoding, in conjunction with traditional taxonomic approaches, can be used to resolve existing taxonomic problems within such difficult groups. Resolution of the *Dialictus* problem would be of enormous benefit for the study of North American bee biodiversity and conservation and pollination biology. As part of an international effort to allow the identification of all life, I am generating DNA barcode sequences for all 250 species of *Dialictus* in Canada and the United States. *Dialictus* barcodes are being uploaded to the Barcode of Life Database (BOLD; www.barcodinglife.org) to provide a tool for identifying Dialictus specimens. Preliminary evidence from DNA barcodes shows a high level of misidentifications among *Dialictus*. DNA barcodes were used to test the reliability of identifications by the leading *Dialictus* expert, revealing that over 15% of specimens were misidentified. *Dialictus* specimens in museum collections would likely show higher rates of misidentification. However, due to the difficult nature of this taxon museum specimens often remain unidentified at the species level. Comparisons of DNA barcode sequences suggest the possibility of cryptic species within common and widespread *Dialictus* 'species'. DNA barcodes of *Dialictus* demonstrate the potential of molecular evidence to both resolve long standing taxonomic problems and to discover new ones that warrant further study.

Introducing the 'Not So New' Insect Order: *Mantophasmatodea* or Heel-Walkers

Julio Rivera
Department of Zoology, University of Toronto &
Royal Ontario Museum, Department of Natural History
Toronto, Ontario

Abstract. In 2002, a totally new group of insects was discovered. Previously thought to belong to an extinct member of the order *Orthoptera*, the *Mantophasmatodea* (as they were officially named), were found alive and crawling around in southern Africa. This order resembles a sort of hybrid between walking sticks (order *Phasmatodea*) and praying mantises (order *Mantodea*). This discovery brought new enthusiasm to the entomological community around the world, because it was back in 1915 when the last insect order, the *Grylloblattodea* (discovered in the

Canadian Rockies), was described. Very few details of these insects are known to the general public and insect enthusiasts, mostly due to a combination of their ubiquitous distribution and information which remains primarily within the boundaries of formal science. In this presentation, the mystery that surrounds the *Mantophasmatodea* will be revealed.

Overwintering of the large Carpenter bee, *Xylocopa virginica*, at the Northern extent of its range

Dimitri Skandalis
Department of Biological Sciences, Brock University
St. Catharines, Ontario

I presented at the 2005 TEA meeting preliminary data in a study of the overwintering strategy employed by the large carpenter bee, *Xylocopa virginica*. Since this species' closest relatives, *X. arizonensis* and *X. californica* are native to the desert of Southwestern United States, *X. virginica* might not be expected to have great overwintering capacity. However, *X. virginica* is the only member of the lineage to have extended its range into Canada, and in Southern Ontario, we are likely at its northernmost extent. Sub-zero winter temperatures induce intra-tissue ice crystals which are always fatal to this bee, so it must employ a strategy that prevents this occurrence. Supercooling is the main opposing strategy employed by invertebrates, allowing survival of sub-zero temperatures in their tissues. Our current focus has been to quantify the range of supercooling available to an individual, and ultimately to a population. Since freezing takes place in the tissue, we hypothesized that this range of supercooling capability (from 0°C to the induction of ice crystals) should be proportional to the amount of tissue present (an individual's body size). Insofar as a population exhibits a certain body size distribution, we then expected the range of supercooling to be reflective of a given population, and ultimately reflective of latitude. Unfortunately, in a comparison of *X. virginica* populations from the Niagara, Ontario and Beltsville, Maryland regions, we cannot show a statistical difference in the range of supercooling and have begun investigating more complex physiological interactions.

POSTERS

DNA barcoding for constructive taxonomy and diversity evaluation of black fly populations from Manitoba.

Alina Cywinska[1], Mike Spironello[2], Fiona F. Hunter[1]
[1]Department of Biological Sciences, Brock University, St.Catharines, Ontario
[2]Department of Zoology, University of Toronto, Toronto, Ontario

Classification of simuliids is still a work in progress and cytological analysis is often needed to resolve taxonomic relationships. In this study we utilized the DNA barcoding technique (using mitochondrial cytochrome oxidase subunit1), as it allows not only the rapid collection of data needed to obtain effective taxonomy but also to test congruence between morphological taxonomy and sequence divergence thresholds. The mt CO1sequence diversity allowed us to assign unique sets of DNA barcodes to most of the simuliid species from our study. All species formed tight monophyletic clusters. The CO1 sequence differences among congeneric species were on average almost 14 times higher than the total average difference within species and slightly higher than those among other insects, such as mosquitoes (by 0.3% and 2.7% respectively). Patterns of species richness were not significantly different when using morphological taxonomy vs sequence divergence thresholds. Diversity of simuliid species in the surveyed area of Manitoba didn't changed significantly between 1986 and 2005 in terms of average number of species per site. However, the standard deviation of the species richness was significantly higher in 2005 than in 1986 which indicates a more uneven distribution of species in recent years.

Influence of body size on egg size in solitary and eusocial bees.

Marianne Peso
Department of Biological Sciences, Brock University
St. Catharines, Ontario

Fully developed bee oocytes (eggs) are sausage-shaped, slightly curved and variable in size. Egg size varies across bee species in accordance with the level of sociality (Michener 1974), solitary bees laying the largest eggs and highly eusocial bees laying the smallest eggs relative to their body sizes. I examined bees from different taxa exhibiting different levels of sociality. Since most solitary bees produce only one brood per season, they may be able to invest more resources into each egg than eusocial bees that have several broods per season. I recorded a number of body size measurements, including head width, subcostal vein length, intertegular width, abdomen width, and femur length as well as egg length and egg width measurements. Egg volume was approximated by using egg width and length measurements to calculate the volume of a cylinder. Preliminary results from *Augochlorella striata*, *Halictus ligatus* and *Osmia conjuncta* indicate different relationships between egg size and body size across species. In *A. striata*, abdomen width is significantly correlated with egg length and width and head width is significantly correlated with egg length. In *H. ligatus*, head width and subcostal vein length are also significantly correlated with egg length. In *O. conjuncta*, there are no significant correlations between any of the measurements of body size and egg size measurements. A principle components analysis including all three species showed no overall relationship between measures of body size and egg length and no obvious interspecific relationships. Further investigation will include information on two other bee species.

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Meeting Reports

Saturday, January 28, 2006

IT'S GOOD TO BE QUEEN: SOCIAL BEE-HAVIOUR AND THE MYTH OF THE HAPPY SLAVE

Miriam Richards

In her primary research, Miriam Richards from the Department of Biological Sciences at Brock University is interested in the evolution of altruism in colonial social insects. Her model species are sweat bees with much of her studies being done on the European species Lasioglossum malachurum. The question raised is what does advantage does an individual worker contribute to furthering the genetic stock of the species if it does not actually reproduce itself. The key is the fact that the closer one individual is related to another individual, the more genetic information that is shared between them. One's offspring or a sibling typically share half the genetic information with any individual. Grandchildren share only a quarter of the genetic information and so on. Parental love notwithstanding, the more close kin one has, the higher the probability of having one's genes continue to be represented in subsequent generations. It is therefore genetically advantageous to ensure that as many as possible of one's kin survive and reproduce, not through offspring alone. From a genetic perspective, the question becomes one of where one places effort and resources – to reproduce one's self or to ensure that their close kin reproduce. Because of the special fertilization and reproductive patterns in social bees, sister bees actually share three quarters of their genetic information. It therefore is of some added advantage to worker bees to participate in the social structure of the colony through raising sister bees, thus ensuring that the colony survives, rather than to live a solitary life. The queen does obtain the greatest genetic advantage through exploitation of her offspring; however, she does play an important role by maintaining order in the colony. A number of worker bees in the species studied have the potential to lay their own eggs. This could potentially offer a means for colony survival if the queen bee is lost; however, chaos often ensues without the presence of the queen. Colony structure is not always fully prescribed into the typical castes in *L. malachurum.* Using microsatellite tracking techniques (genetic markers), it was possible to show that colony composition could vary in a number of nests. It was shown some colonies existed where more than queen had contributed to the population in the nest, that a worker had laid eggs, and that stray workers had entered the hive, among other situations. The social and genetic implications of all these relationships are still under study. As well as the inherent drive to preserve one's genes in the population, whether it is in bees or in other organisms, there is also a need to ensure that the species survives. Evolution of the species will always continue, perhaps only extremely slowly (sweat bees have existed for about 30 million years), but this slow evolution will be controlled by the selection of the fittest. In the case of the sweat bees, it may be through the survival of the fittest colony and not the fittest individual.

Saturday, February 25, 2006

THE LONG REACH OF THE GENE: INSECT/ PLANT INTERACTIONS

Marc Johnson

At our February meeting, Marc Johnson of U of T introduced us to his research in the new discipline of community genetics. His work uses the common Evening Primrose (Oenothera biennis) to study the ecology and evolution of plant-insect interactions. At his study site he has established plots with varying numbers of plant genotypes and tallied the arthropods that use the plants. A full discussion of his findings to date is available at his website www.evoeco.org but, in brief, genetically diverse patches had more arthropod species. So far he has identified 177 different species using the Evening Primrose.

Early Spring Butterflies

Milbert's Tortoiseshell, *Nymphalis milberti* (Top) and Eastern Comma, *Polygonia comma* (Bottom). Photographed at Listowel, ON, April 11-13, 2006, by Glenn M. Richardson.

NEXT MEETING

TEA Members Meeting

Saturday September 23, 2006
1:00 PM
Rm 113, Northrop Frye Hall

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The *Bookworm*

New Books

The Life Cycles of Butterflies
by Judy Lynn Burris, Gary Wayne Richards

160 pages, 9 3/4 x 7 1/2 trim size, full-color photographs throughout.
paperback - $16.95 US
ISBN# 1-58017-617-8, Order# 67617
http://www.storey.com/books/book.php/y/9/p/0/isbn/1-58017-617-8

Insect Ecology - An Ecosystem Approach (Second Edition)
by Timothy Schowalter

ISBN# 0-12-088772-x $79.95 US
http://books.elsevier.com/us//elsevier/us/subindex.asp?maintarget=&isbn=012088772x&country=United+States&srccode=&ref=&subcode=&head=&pdf=&basiccode=&txtSearch=&SearchField=&operator=&order=&community=elsevier

Kaufman Field Guide to Insects of North America
by: Kenn Kaufman; Eric Eaton

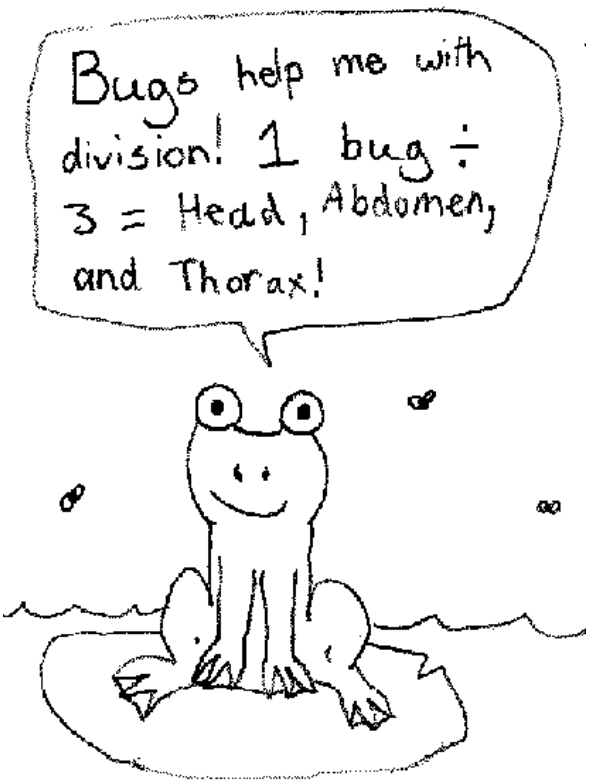
Paperback; 384 pages
Publication Date: 11/13/2006
Illustrations: More than 2,000 digitally enhanced color photographs
ISBN-13/EAN: 9780618153107; $18.95 US
http://www.houghtonmifflinbooks.com/catalog/titledetail.cfm?titleNumber=688009

Insects: Their Natural History and Diversity With a Photographic Guide to Insects of Eastern North America
by Stephen A. Marshall

hardcover with jacket
Firefly Books $95.00
ISBN: 1552979008
http://www.fireflybooks.com/advance/bookdetail.asp?id=8760

Sweetness and Light
"The Mysterious History of the Honeybee"
by Hattie Ellis

Trade Paperback
Three Rivers Press
Nature, History
April 2006
978-1-4000-5406-0 (1-4000-5406-0) $ 13.95 US
http://www.randomhouse.com/crown/catalog/display.pperl?isbn=9781400054060



Cartoon by Ellie Kubisz, *Aged 9*

TEA Insect Collecting Code

"Code for Insect Collecting" for the TEA, summarized and paraphrased from the "Code for Insect Collecting" issued by the Joint Committee for the Conservation of British Insects in 1971 and also from the statement of the Committee on Collecting policy of the Lepidopterists' Society in the USA.

Benefits of collecting Lepidoptera and other insects:

1. It is a means of introducing people, particularly children to an awareness and study of an important part of their natural environment.
2. It has an essential role in the elucidation of scientific information, both for its own sake and as a basis from which to develop rational means for protecting the environment and its resources.
3. It is a recreational activity which can be pursued in a manner not detrimental to the environment.

Purpose of collecting:

1. To create a reference collection for study, appreciation and education.
2. To document regional diversity, frequency and variability of species and as voucher material for published records. This includes the important matter of monitoring the fluctuation of populations.
3. To document faunal representation in environments threatened with alteration by man or natural forces.
4. To participate in the development of regional checklists and institutional reference collections. The Canadian National Collection and collections in museums and universities have depended to a large extent on the efforts of amateur collectors.
5. To complement a planned research endeavor.

Ethics of collecting:

1. A collection of adults should be limited to sampling the population concerned.
2. Insects should be examined while alive, and if not required, released where they were captured.
3. The same species should not be taken in numbers year after year from the same locality.
4. Specimens for exchange should be taken sparingly.
5. Insects should not be collected for commercial purposes; for such purposes, they should be reared or obtained from old collections.
6. Species which are listed as threatened, vulnerable or rare should be collected with the greatest restraint. It is suggested that one pair is sufficient. Likewise, one pair of distinct local forms should also be regarded as sufficient.
7. When collecting where the extent or fragility of the population is unknown, great caution and restraint should be exercised.
8. Previously unknown localities for rare species should be reported, e.g. to the editors of the TEA Seasonal Summary, but the exact locality should not be published, only the township or nearest town or village.
9. Light traps: live traps are preferable and should be visited regularly and the catch should not be killed wholesale for subsequent examination.
10. Always respect restrictions on collecting in national and provincial parks, nature reserves and conservation areas. Cause as little damage to the environment as possible.
11. Rearing from a captive fertilized female, or from pairing in captivity is preferable to taking a series in the field, if for personal collection.
12. Never collect more larvae than can be supported by the available food supply.
13. Insects reared in excess of need should be released in the original locality.
14. Malaise traps probably should not be used by amateurs. In any case, they should be limited to planned studies.

Responsibilities for collected material:

1. All specimens should be preserved with full data attached.
2. All material should be protected from physical damage and deterioration.
3. Collections should be available for examination by qualified researchers.
4. Collections, with their full data, should be willed or offered to an appropriate scientific institution, e.g. a museum or university, in case of lack of space, loss of interest, or death.
5. Type specimens, especially holotypes or allotypes, should be deposited in appropriate institutions.

Related activities:

1. Collecting should include field notes regarding habitat, weather conditions and other pertinent information.
2. Recording of observations of behaviour and biological interactions should receive as high a priority as collecting; such observations are particularly welcomed for inclusion in TEA Seasonal Summaries or Newsletters.
3. Photographic records are to be encouraged, but it is emphasized that full data for each photograph should be recorded.
4. Education of the public regarding collecting and conservation as reciprocally beneficial activities should be undertaken whenever possible.

Monarch News

submitted by Don Davis

March 2006 Expedition to Mexico to Observe Overwintering Monarchs

From March 6 to 13, 2006, TEA member Don Davis traveled through Mexico to observe the migrating monarch butterflies and visit other points of interest. Monarchs and monarch people were everywhere. I was accompanied by Dr. Lincoln Brower, Dr. Karen Oberhauser, Dr. Dick Vane-Wright (British Museum of Natural History) and Dr. Michael Boppre from Germany. During our visit to Mexico we also spoke with Dr. Chip Taylor, Dr. Bill Calvert, Vico Guttierez and Gregory Allan from Papalotzin, Carlos Galindo-Leal of WWF Mexico, and the famous Mexican writer and founder of the Group of 100, Homero Aridjis. Jose Luis Alvarez, of La Cruz Habitat Protection Project, was our knowledgeable and experienced trip leader. What an amazing gathering of monarch butterfly enthusiasts and researchers.

Weather conditions in the vicinity of the monarch overwintering sites remained exceptionally dry and warmer than usual in this the dry season. There is an extreme risk of forest fire, and we could smell smoke from one such fire burning on the mountain Sierra Chincua.

During our trip, we made 2 visits each to the mountains Sierra Chincua and Pelon. To reach these sites meant driving slowly up extremely rugged dirt roads and at one point, we actually had to build a ramp out of wood and flat stones in order to continue. The hikes took us though jagged, steep, rock-filled pathways sometimes covered with inches of fine dust, while at other times our path doubled as a flowing stream. We walked an hour and a half or more, stopping to catch our breath in the thin air at 9,900 feet.

Monarch Cluster at Pelon (March 2006). *Photo by Don Davis*

The monarchs were moving down the mountains from the oyamel fir trees at higher elevations. The monarchs were now clustered on pines, cedars and oaks. When clusters warmed up, they would sometimes explode like fireworks and a mass of orange butterflies would flee in all directions. A great deal of mating behaviour was observed. We found various flowering shrubs and plants, including clusters of yellow senecios. The sanctuary guides called vigilantes reminded us to speak in a quiet voice.

At the base of some mountains, we were greeted at mid-day by a river of monarchs, soaring effortlessly down the mountain ravines in search of moisture. In some locations, masses of monarchs were photographed foraging for water on the ground.

We saw evidence of illegal logging in the core zone, and we came upon one illegal logger trimming a fallen tree with a portable mill. He fled into the forest, leaving behind his equipment.

During our last trip to Pelon, we sat and reflected on the magnificence of the huge clusters of hundreds of thousands of monarchs that surrounded us, and the amazing voyage they had traveled. For me, this was a special moment. Thirty years earlier, my mentor the late Dr. Fred Urquhart and his wife, Norah had also walked on this very mountain. (After the trip, I wrote to Mrs. Urquhart, who will be 88 years old this summer. She thanked me for the memories my letter brought back).

Of course, Mexico has a great deal to offer visitors. We visited the copper artisans at Santa Clara de Cobre and hiked through a mammoth lava field to view the volcano Paricutin, that emerged from a farmer's field in 1943, destroying a town except for the

top of it's huge church.

Two pages of photographs taken during this trip can be viewed at: http://www.learner.org/jnorth/tm/monarch/DavisDonMX031706.html. Click on each photograph to enlarge it. Click on "More Images" to see the second page of photos.

Journey North 2006

Over 17,000 classrooms representing more than 440,000 students are participating in the 2006 Journey North Program. These students are from 55 U.S. States and 7 Canadian Provinces. The journeys of a dozen migratory species are tracked each spring. Students are linked with scientists who provide their expertise directly to the classroom. Several migrations are tracked by satellite telemetry, providing live coverage of individual animals as they migrate. As the spring season sweeps across the Hemisphere, students note changes in daylight, temperatures and all living things as the food chain comes back to life. Journey North is a free online educational service, established in 1991.

We invite your active participation by sharing your observations! Please go to: www.learner.org/jnorth. After registering your e-mail address, you can report your observations directly to Journey North on the form provided for following target species or phenomenon.

Monarchs in the Classroom Newsletter 2006

This excellent educational newsletter was recently mailed out and will soon be available for viewing in color and for downloading in PDF format at: www.monarchlab.org. This site also offers many other resources for monarch enthusiasts and teachers. In the meantime, you can also go to the above noted website to register and be mailed your own personal 16-page copy of the newsletter

The Monarch Lab Director is Dr. Karen Oberhauser, co-editor of "The Monarch Butterfly - Biology and Conservation" (Cornell University Press, 2004)

Teaching and Learning with Monarch Butterflies Workshop

Each summer, volunteers from the Monarch Teacher Network Canada offer workshops to all interested educators. It is a three-day combination of classroom and field experiences. Participants learn:

-the life cycle, ecology and conservation of monarchs

-to raise and tag them

-to teach effective, cross-curricular lessons

-to develop a school butterfly garden and natural classroom and more!

The goal is to provide teachers with the knowledge, experience, materials and confidence to raise monarchs in their classroom in September and produce an outstanding learning experience for students.

Workshops in 2006

1) Winnipeg, Manitoba - August 1 - 3, 2006 (location to be determined)

2) Ottawa, Ontario - August 9 - 11, 2006 (Cairine Wilson High School, Orleans)

3) Orillia, Ontario - August 14 - 16, 2006 (location to be determined)

Similar workshops may also be attended in various locations in the United States. The deadline for applications is June 15, 2006. Last year, all workshops were completely filled.

For more information and an application form, go to: www.monarchcanada.org

Military Applications for Insects?

The April 1/06 edition of the Toronto Star carried a front page story entitled *"Uncle Sam's Scientists Busy Building Insect Army"*. This story concerns research to create landmine-sniffing insects.

When the story continues on page A18, the monarch butterfly is offered as an example. The color diagrams show that a microchip with the ability to control, monitor and transmit, is inserted into the larval stage of metamorphosis and organs then grow around the chip. The adult insect, controlled remotely through the MEMS chip powered by the insect's body heat or movement is ready to track explosives or transmit conversations.

The complete story can be found at: http://www.thestar.com/NASApp/cs/ContentServer?pagename=thestar/Layout/Article_Type1&c=Article&cid=1143846635791&call_pageid=968332188492&col=968793972154&t=TS_Home

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Monarchs Covering a Tree Trunk at Pelon Mexico (March 2006).

Photo by Don Davis

T.E.A. Lepidoptera and Odonata Summaries

T.E.A. invites all members and non-members to contribute sightings to the annual insect summaries. There are two summaries: one for Lepidoptera (butterflies and moths); and one for Odonata (dragonflies and damselflies). The sightings are published in two separate publications. Both summaries also feature papers, articles and notes on a variety of topics covering the respective insect orders. The Lepidoptera summary is sent to members as a benefit of membership. The Odonata summary (entitled Ontario Odonata) is not included with membership but is offered to members at a discounted price. Either of the yearly summaries may be purchased by non-members. We recommend that you contact the compiler directly for more details.

Lepidoptera summary

What information to send:
Make note of the name of the butterfly or moth, the date seen, and where it was seen. Be fairly specific if possible indicating at least a city/town/conservation area and the county. Including geographic coordinates in the form of a UTM or Latitude and Longitude (read from a topographic map or derived from a handheld GPS unit) would also be beneficial but is not mandatory. Please also note how many individuals you see and, if possible, whether they are male or female. Distinguishing between sight and specimen based records is also tremendously useful. Any particular behaviour such as nectaring, egg-laying etc. is also of interest. Please send in the order that the species are listed in the summary.

When and where to send:
Submissions should be sent by January 31, 2007. Electronic submissions are encouraged, preferably in a spreadsheet or database application such as Microsoft Excel or Corel Quattro Pro. Records submitted in a wordprocessing application (e.g. Microsoft Word or Corel Wordperfect) are also fine as are handwritten records. Records should be sent to the following compilers:

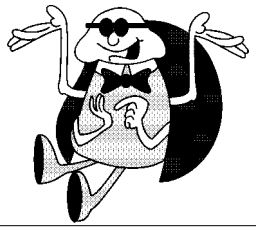
Butterflies: Colin D. Jones (Box 182, Lakefield, ON K0L 2H0. work: 705-755-2166, home: 705-652-5004, colin.jones@mnr.gov.on.ca).
Moths: Compiler needed. *See details on inside front cover*

Odonata summary

What information to send:
Species name, county, precise location (e.g. 1 km W of Mine Centre on south shore of Little Turtle Lake), number of individuals seen, an accurate UTM and/or Lat./Long. reference either using a GPS or 1 inch maps, and observation date. Please contact one of the compilers to receive an electronic form (or a hard copy) containing all of the necessary fields. It is strongly encouraged that (if possible) you compile your data using a database file such as dBase, Access, or Excel.

When and where to send:
All submissions should be received by December 31, 2006. Late submissions will be included at the discretion of the compilers.
Northern Ontario: The regional compiler for northern Ontario (all parts of Ontario north of Algonquin Park and Nipissing District, and including Haliburton, Muskoka, Renfrew and Peterborough) is Colin D. Jones (Box 182, Lakefield, ON K0L 2H0. work: 705-755-2166, home: 705-652-5004, colin.jones@mnr.gov.on.ca).
Central Southern and Eastern Ontario (Provincial Compiler: The regional compiler for this part of the province (most of the region east of a line from the south end of Georgian Bay east to the Ottawa and St. Lawrence valleys (with the exceptions of Peterborough, Haliburton, and Muskoka) is Paul Catling (2326 Scrivens Drive, RR 3 Metcalfe, Ontario K0A 2P0. 613-821-2064, brownell@achilles.net). Paul is also the Provincial Compiler.
Southwestern Ontario: The regional compiler for this region (the south and southwest of a line connecting the south end of Georgian Bay to Hamilton and Niagara on the Lake) is Paul Pratt (7100 Matchette Rd., LaSalle, ON N9C 2S3. 519 966 5852, prairie@netcore.ca).

For more details, see http://nhic.mnr.gov.on.ca/MNR/nhic/odonates/atlas.html



Flea Market

Viceroy (Limenitis archippus) 3rd stage larvae emerging from winter diapause in a rolled willow leaf (hibernaculum). *Photo April 11, 2006 by TEA President Glenn Richardson*

Rent this Space!

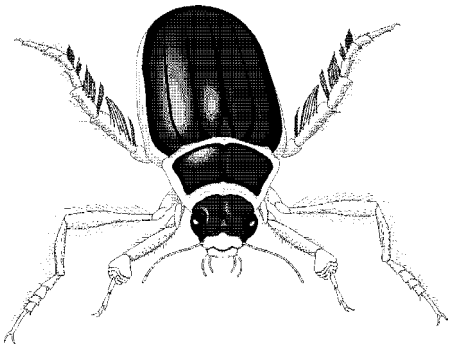
Commercial Advertising Space Available for Members and Non-Members

Size: 10 cm x 5.5 cm (as shown)

Cost per Ad: $10 per issue OR
$20 for 3 issues

Layout can be vertical or horizontal. Ad must be layout/print/camera ready. Layout and design available for extra charge.

Personal Ads Free to Members as Always!!!



Notice to Contributors

Who Can Contribute:

Observations, articles, etc., to be published in **Ontario Insects,** are welcome from members of the **Toronto Entomologists' Association**. or from anyone interested in insects. There are no page charges. Classified ads may be placed by non-members at the rates outlined in the classified section.

Types of Submissions:

Contributions to **Ontario Insects** may address any subject or aspect related to entomological study. Submissions may be made in the following categories:

Research papers -may include original research or scholarly reviews following an appropriate journal format

Feature articles -informative & entertaining, format open to the author's choice

Notes or short communications -may be observations, interpretive, historical, review or experimental studies which do not fall under the purview of research papers

Book reviews -preferably titles published within the last three years

Original artwork, puzzles -art should be clear, easily reproduced in black & white

Guest columns in Entomophilia -any subject related to the love of insects

Opinions, Letters, Queries -anything entomological under 500 words that may be of interest to the membership

Classified ads -free to members

Format for Submissions:

Ontario Insects is produced on a PC. Text editing is done in **Microsoft Word**, graphics are scanned or obtained from licensed CD-ROM collections and edited in CorelDRAW 4.0 with final page layout in PageMaker 6.5. The original is printed on an HP 1200 laser printer.

All submissions are encouraged, however, submissions of articles and/or artwork on disk or email are preferred. If articles are submitted via email, formats in Microsoft Word (.DOC) or rich text format (.RTF) are preferred. Please send all submissions and questions to the editor (see inside cover for address). Offprints are available at cost + 10% + postage.

ITEMS FOR SALE THROUGH THE TEA

Books: reproductions of out-of-print books

The Odonata of Canada & Alaska (3 volumes) by E.M. Walker

$210 Can ($195 for TEA members who pick it up); In USA: $160 US surface; $170 US airmail

The Cicindelidae of Canada (tiger beetles) by J.B. Wallis (1961) with colour plates

$28 Can ($23 for TEA members who pick it up); In USA: $23 US surface: $26 US airmail

The North American Dragonflies of the Genus Aeshna by E.M. Walker (1921) with colour plates

$115 Can ($105 for TEA members who pick it up); In USA: $100 US surface; $110 US airmail

The North American Dragonflies of the Genus Somatochlora by E.M.Walker (1925)

$60 Can ($50 for TEA members who pick it up); In USA: $48 US surface: $51 US airmail

Books: Other publishers

Damselflies and Dragonflies (Odonata) of Ontario: Resource Guide and Annotated List

By P.M. Catling and V.R. Brownell 2000. Annotated list of 168 species of odonata in Ontario including conservation status, flight period, habitat, distribution and identification. $40 Can; In USA: $35 US.

Books: T.E.A. publications

The Ontario Butterfly Atlas by A.M. Holmes, R.R. Tasker, Q.F.Hess, A.J.Hanks (1991)

ISBN: 0921631111 $25 Can ($20 for TEA members who pick it up); In USA: $25 US

Ontario Insects – T.E.A. Newsjournal

Back Issues: $5 Can each; In USA: $5 US; Subscription: $25 Can; In USA: $25 US

Annual Ontario Lepidoptera Summaries (for 1987, '88, '93, '95 to present)

$10 each; In USA: $10 US surface; $15 US airmail; (free with T.E.A. membership)

Ontario Odonata: (annual summary or Odonata including articles, notes, recent literature and news)

Volume 1 (16 articles plus summary of records). Articles cover topics such as conservation status ranks, natural history, migration, lists and records, and an illustrated key to the mature nymphs and exuviae of eastern Canadian Stylurus. Cost: $25 Can; In USA/overseas, $25 U.S.

Volume 3 (18 articles plus summary). Articles include county and regional lists, range expansions, behavioural notes, conservation status and identification problems. Cost: $25 Can; In USA/overseas, $25 U.S.

Volume 5 (6 articles plus summary). Also includes news, reviews and recent literature, Cost: $20 Can; In USA/ overseas, $25 U.S.

Volume 6 (6 articles plus summary). Also includes news, reviews and recent literature, Cost: $25 Can; In USA/ overseas, $25 U.S.

Checklist of the Butterflies of the Toronto Region: 135 years of history (Second edition)

Includes flight seasons. Compiled by Barry Harrison. $2.50 Can ($2 for TEA members who pick it up);

In USA: $3 US

For complete details and to order, contact:

Alan Hanks, 34 Seaton Drive, Aurora Ontario L4G 2K1; (905) 727-6993, alan.hanks@sympatico.ca

Please make cheques or money orders payable to the Toronto Entomologists' Association

ONTARIO INSECTS

THE NEWSJOURNAL OF THE TORONTO ENTOMOLOGISTS' ASSOCIATION

VOLUME 12, NUMBER 1 SEPTEMBER 2006

Contents

NOTICE: Compiler Needed for Ontario Moth Summaries. Enquire to Colin Jones, Email: colin.jones@mnr.gov.on.ca, Work: 705-755-2166, Home: 705-652-5004

Front Cover Photograph: Arctic Skipper (*Carterocephalus palaemon*) adults mating. Photo taken on June 3, 2006 at Listowel, Ontario, by TEA President Glenn M. Richardson.

Issue Date: September 30, 2006

DEADLINE INFORMATION - Members Please Note:

The deadline for submissions to the January 2007 issue of Ontario Insects is December 31. Late submissions may be added at the discretion of the Editor after that date. If there are any questions or concerns regarding submissions, please feel free to contact Glenn Richardson at the address below.

Ontario Insects (ISSN: 1203-3995) is published tri-annually by the Toronto Entomologists' Association (TEA), 18 McDonald Street West, Listowel, Ontario, Canada, N4W 1K4.

Submissions to: Glenn M. Richardson, Editor of Ontario Insects, 18 McDonald Street West, Listowel, ON, N4W 1K4, richard@porchlight.ca, (519) 291-3544

TEA members are welcome to submit any entomologically relevant materials. Please see the inside back cover for Notice to Contributors for more information. Deadlines for submission are 1 month prior to publication.

For general inquiries about the TEA contact: Alan Macnaughton, Vice President, TEA, 49 Northforest Trail, Kitchener, ON, N2N 2Y7, amacnaug@uwaterloo.ca (519) 570-9898

ONTARIO INSECTS

Vol. 12, No. 1 September 2006

Mission Statement

The Toronto Entomologists' Association (TEA) is a non-profit educational and scientific organization formed to promote interest in insects, to encourage co-operation among amateur and professional entomologists, to educate and inform non-entomologists about insects, entomology and related fields, to aid in the preservation of insects and their habitats and to issue publications in support of these objectives.

Membership Information:

Annual dues are as follows:

Individual	$25
Student	$15
Family	$30

All membership queries and payment of dues can be directed to Chris Rickard, Treasurer, 1606 Crediton Parkway, Mississauga, Ontario, Canada, L5G 3X3. (905) 274-2692.

Publications received as part of a TEA membership include:

- 3 issues of Ontario Insects per year
- annual Ontario Lepidoptera Summary

THE TEA IS A REGISTERED CHARITY (#1069095-21); ALL DONATIONS ARE TAX CREDITABLE.

Announcements

Call for Applicants: The W.J.D. Eberlie Award for Original Research into Ontario Insects

The T.E.A. announces that it is now taking applications for the W. John D. Eberlie Field Research Travel Award 2007.

The T.E.A. offers an award of $300 to assist graduate or undergraduate students conducting original field research into Ontario insects. The award is intended as a travel grant to defray costs of travel to field sites used for research. The award will be made on the basis of merit and quality. Applicants must be a graduate or undergraduate student at an Ontario University. To apply, submit a completed application form postmarked no later than March 23, 2007.

Membership in the T.E.A. ($15 per year for students) includes a subscription to Ontario Insects and the annual Lepidoptera summary.

An application form for the award or for membership in the TEA may be downloaded from the TEA website: www.ontarioinsects.org.

Student Symposium 2007 - First Call for Titles

The T.E.A. is pleased to invite postdoctoral fellows, graduate students and senior undergraduate students to present a talk or poster at the Annual Student Symposium on **Saturday, March 24, 2007** at 1 pm. Everyone is welcome to attend the symposium.

If you are interested in participating or would like more information, please e-mail the TEA (info@ontarioinsects.org). Provisional titles, final submitted and edited abstracts will be published in Ontario Insects. Longer reports are optional. We look forward to your participation and attendance at the symposium.

November 2006 Insect Fair and Reptile Expo

Preparations are under way for the combined Insect Fair and Reptile Expo. By popular demand we are incorporating a second Insect Fair for 2006. The April 19, 2006 was a great success. This one will be held on Sunday Nov 19, 2006.

Details can be found by going to www.thornesinsects.com and clicking on the link for the Ontario Insect Fair. Vendor participation forms can be downloaded here.

If you are considering being a vendor now is the time to sign up as space is limited. Costs, details and contact information can be found at www.thornesinsects.com Oct 31 is the deadline for commitments. We look forward to haveing you join us.

Ken Thorne

Record Monarch Count in Algonquin East

Despite less than perfect conditions (overcast for most of the day) the *Algonquin Park East Butterfly Count* (June 3, 2006) tallied 34 Monarchs, which is more than quadruple the previous high of 8 in 1999 (previous count average was less than 2)

Colin Jones

Journal of the Lepidopterists Society Online

All of the issues of the *Journal of the Lepidopterists Society* from its start in 1947 to the last 5 years is now available on the web in full text. You can browse to particular issues or do in searches for particular terms. For example, searching for "Toronto Entomologists Association" produces 7 hits, including a review of our book "Ontario Butterfly Atlas" in 1994. Online at: (http://facweb.furman.edu%7Esnyderjohn/lepsoc/)

Alan Macnaughton

Meeting Notices

143rd Annual Meeting

ENTOMOLOGICAL SOCIETY OF ONTARIO

October 27-29, 2006

OMAFRA
Conference Centre
Guelph, Ontario

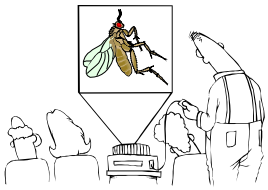
Full schedule details can be downloaded from the ESO 2006 conference website (www.uoguelph.ca/eso2006) or contact the Program Chair Dr. Gard Otis (gotis@uoguelph.ca or 519-824-4120 Ext. 52478).

Questions regarding registrationcan be directed to Dr. Rebecca Hallett, Registration Committee Chair (519-824-4120ext. 54488) or Lisa Conroy, Registration Committee at eso2006@uoguelph.ca

Registration Fees and Dates:

Before Sept. 30	After Sept. 30
Regular $95	**$110**
Student $55	**$70**
Banquet only	
$40	**$45**

Special Rate
$30.00
For TEA Members attending the Plennary Session only



Upcoming Meetings

Everyone is welcome. Bring a Friend!

Saturday, October 21, 2006 1 PM Room 113 Northrop Frye
EXTINCTION OF INSECTS
W.D. McIlveen

Bill is presently employed as an environmental consultant after a career with the Ontario Ministry of the Environment. He has a diverse set of interests that spans just about everything in the natural world extending from the flora and fauna to the physical environment. He is interested in all things that affect the functioning of the environment and the interactions among the components that make up the natural world. In particular, he is interested in the way the human species and its activities has altered the natural order. His talk will discuss what little we know about insects that are near or are believed to be extinct, and the role of human activities in the population declines of certain insect species.

Saturday, November 25, 2006 1 PM Room 113 Northrop Frye
VIGNETTES OF INSECT NATURAL HISTORY
Chris Darling

Chris is Senior Curator of Entomology in the ROM's Centre for Biodiversity and Conservation Biology as well as Professor of Zoology at U of T. He'll be discussing a number of interactions between insects and their hosts (parasitism) and insects and plants (herbivory) using examples from Ontario and Vietnam. Examples include: goldenrod gallmakers and their parasitoids, a local parasitoid of wood-boring beetles, a Vietnamese caterpillar that produces cyanide, and a Vietnamese beetle that attacks the leaves of elephant ear plants. Chris will also talk about the importance of natural history in the generation of new research questions in biology.

Saturday, January 27, 2007 1 PM Room 113 Northrop Frye
A JOURNEY INTO THE JUNGLES OF MONTEVERDE, COSTA RICA: LIVING AMONG THE CREEPY CRAWLIES
Jessica Grealey

Jessica Grealey is a graduate from the University of Waterloo's Environment and Resource Studies Honors Co-op program with a minor in biology. For two of her five co-op work terms she traveled to the cloud rain forest of Monteverde, Costa Rica to work at an insect and butterfly education centre. Currently, Jessica has been contracted by Environment Canada's Ecological Monitoring and Assessment Network Coordinating Office (EMAN CO) to develop a citizen science butterfly monitoring protocol and an additional protocol to monitoring the abundance and diversity of butterflies in Canada. As well, she has been sub-contracted by the *rare* Charitable Research Reserve in Cambridge, Ontario to test her methodologies on the property and engage local community members in monitoring butterflies.

Monteverde is an area rich in diversity. Tens of thousands of insect species inhabit the area, including over 4000 species of moth. The number of butterfly species occurring on the mountain in which it is located outnumbers all the butterfly species of North America. Jessica's presentation will provide a look at the education centre where she worked and highlight some of the insects and arachnids she encountered while staying in the area.

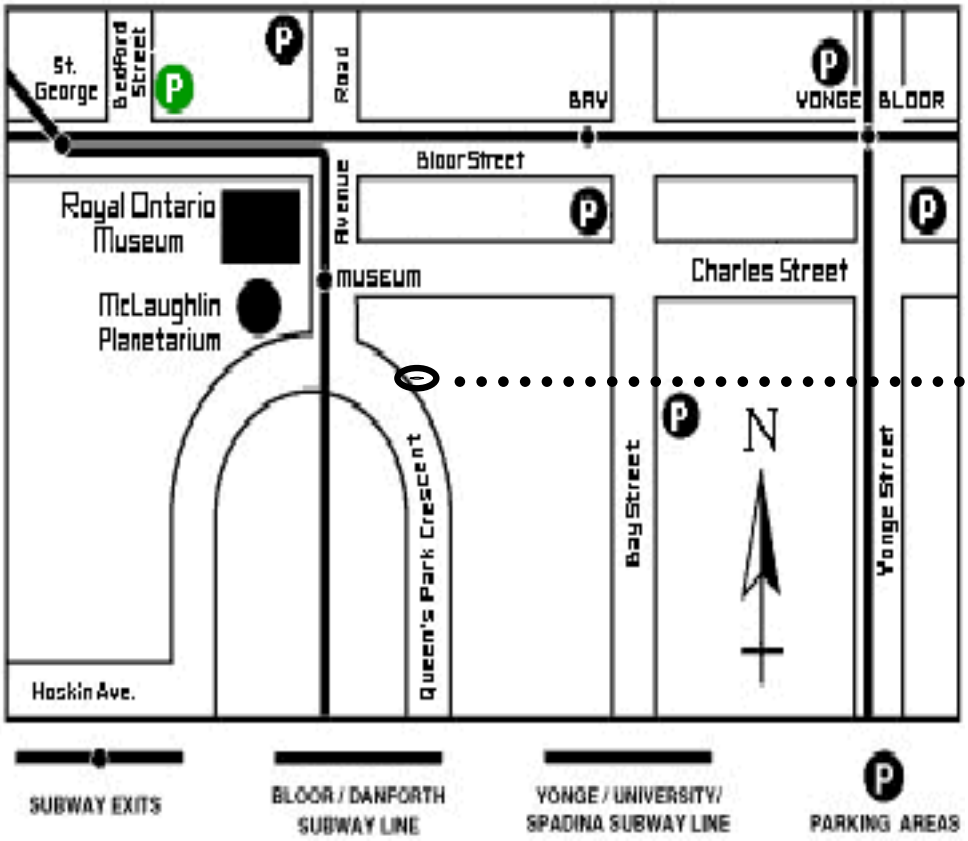
Additional Meetings to be Arranged

All meetings are held at:

Northrop Frye Hall Room 113
Victoria University (at the University of Toronto)
73 Queens Park Crescent Toronto, ON
(Museum subway stop; opposite the Museum, on the east side).

See the next page for map and parking directions.
For more information, call Carol Sellers at (416) 421-7398

Also check www.ontarioinsects.org



To reach Northrop Frye Hall by subway or bus:

Get off at the **Museum** stop on the University-Spadina subway line or take the Avenue Bus #5 south from the Eglinton Subway Station. Go to the east side of Avenue Road and walk south. Northrop Frye Hall is on the left just at the bend.

To reach Northrop Frye Hall by highway:

QEW: If you are driving in on the Queen Elizabeth Way (QEW), follow the Gardiner Expressway to York Street. Go north on University Avenue (University Avenue changes into Queens Park Crescent above College St, and then into Avenue Road above Bloor St.). Northrop Frye Hall is just south of Bloor Street.

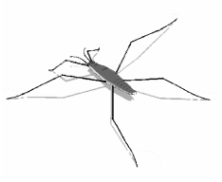
Highway 401: From Highway 401, take Avenue Road south to Bloor Street OR take the Don Valley Parkway south to the Bloor Street Ramp and proceed west along Bloor to Avenue Road.

Parking

There is some on-street parking in the area (check the signs carefully!) and there are several paid parking lots within walking distance of Northrop Frye Hall:

Bloor Street and Bedford Road, 1 Block west of Avenue Road.
On Cumberland Street, 1 block north of Bloor, east off Avenue Road.
Behind the Colonnade at 131 Bloor St. West.
One block north of Bloor Street West on Avenue Road

Parking on a Saturday is usually a flat rate of $8 or more depending on the lot.



Field Trip Reports

This year we held a total of 6 outings. Many thanks to our capable leaders and to all TEA members who shared their expertise to make the outings a success.

June 17

HUNTING CATERPILLARS & PHOTOGRAPHING BUTTERFLIES

Leader: Glenn Richardson

This was a successful field trip, with paticipants noting a large number of early season *Lepidoptera* and *Odonata* species.. Monarch eggs and larvae were seen in greater than usual numbers. Other butterfly highlights included Question Mark and Viceroy caterpillars. Among dragonflies, Widow Skimmer, Twelve Spotted Skimmer, Green Darners and Dot Tailed White Face were also obseved. A Silver Bordered Fritillary was sighted and photographed early in the morning before the start of the field trip, for the first time since 1984.

Silver Bordered Fritillary (*Boloria selene*)
Photo by Glenn M. Richardson

June 24

INSECTS OF THE COPETOWN BOG

Leader: Marvin Gunderman

Although no one sighted a Bog Copper at Copetown, this proved to be a rewarding field trip. Milbert's Tortoishell caterpillars were found in abundance with 5 colonies spotted on one nettle plant. Also, Painted Skimmer and Frosted Whiteface (both relatively uncommon odonates in Ontario) were sighted.

Red-Waisted Whiteface (*Leucorrhinia* proxima)
Photo by Glenn M. Richardson

July 1

TEA TORONTO EAST BUTTERFLY COUNT

Leader: Tom Mason

Report by Tom Mason

This year the July 1 Butterfly Count did not record any new species. However, a large colony of Baltimores was discovered in the Don Valley. As has generally been observed in 2006, the Monarch was found in greater than expected numbers (127 counted). The Eastern Tailed Blue was also counted in abundance (157 counted). A single Broad Winged Skipper was sited at the mouth of the Rouge River. (*For a complete list of species please see Page 8*)

July 12

HIGH PARK MOTHS

Leader: Dave Beadle, Tom Mason

The High Park Moth Night was well attended, with a number of children enjoying the evening Excellent summer weather contributed to our finding a wide variety of moths, both by light luring and tree baiting. Thanks to Dave Beedle and other members of the TEA for indentifying the moths, and also to members of the High Park Community Advisory Council (HPCAC) for co-sponsoring the event.

....continued

Girlfriend Underwing *(Catocala lineella)*
Photo by Glenn Richardson

List of Species

Coleophora mayrella	10
Dichomeris flavocostella	1
Apotomis funerea	1
Olethreutes melanomesa	1
Croesia forskaleana	15
Choristoneura rosaceana (Oblique-banded Leafroller)	3
Archips packardiana	4
Clepsis melaleucana	1
Sparganothis pettitana	1
Eudonia strigalis	1
Phlyctaenia coronata	1
Nomophila nearctica	2
Plume Moth *sp.*	3
Crambus agitatellus	1
Chrysoteuchia topiaria	2
Urola nivalis	2
Dolichomia olinalis	2
Itame pustularia (Lesser Maple Spanworm)	2
Ennomos subsignaria (Elm Spanworm)	2
Eusarca confusaria (Confused Eusarca)	1
Nematocampa limbata (Horned Spanworm)	6
Idaea dimidiata (Single-dotted Wave)	4
Pleuroprucha insulsaria (Common Tan Wave)	1
Scoparia limboundana (Large Lace Border)	2
Eulithis gracilineata (Lesser Grapevine Looper)	1
Haploa confusa (Confused Haploa)	1
Cisseps fulvicollis (Yellow-necked Scape Moth)	1
Idia americalis (American Idia)	2
Idia aemula (Common Idia)	5
Idia lubricalis (Glossy Black Idia)	3
Phalaenophana pyramusalis (Dark-banded Owlet)	1
Bleptina caradrinalis (Bent-winged Owlet)	1
Plathypena scabra (Green Cloverworm)	1
Zale galbanata (Maple Zale)	1
Caenurgina erechtea (Forage Looper Moth)	1
Catocala lineella	2
Autographa precationis (Common Loper Moth)	2
Leuconycta diphteroides (Green Leuconicta)	1
Apamea amputatrix (Yellow-headed Cutworm)	1
Apamea ophiogramma (Double Lobed)	1
Oligia exhausta	1
Amphipoea velata (Veiled Ear Moth)	1
Ogdoconta cinereola (Common Pinkband)	1
Cosmia calami (American Dun Bar)	4
Lacinipolia renigera (Bristly Cutworm Moth)	1
Pseudaletia unipuncta (Armyworm Moth)	1
Leucania multilinea (Many-lined Wainscot)	1
Leucania pseudargyria (False Wainscot)	2
Euxoa tessellata (Tessellate Dart)	8
Noctua pronuba (Large Yellow Underwing)	4

July 23

BRANCHTON

Leader: Carolyn King
Report By: Carolyn King

Arge Moth (*Grammia arge*)
Photo by Ann C. Gray

Despite threatening clouds, our small group of eager insect-hunters gathered at a Tim Horton's south of Cambridge, then travelled south to the rail trail near Branchton, the home of a very large number of butterfly species. Unfortunately, both butterflies and odonates were discouraged by the ensuing drizzle. We identified 5 butterfly species and several odonates. Two striking moths were caught and released, an Arge Moth (see photo) and a Confused Haploa (H. confusa). We continued in the rain, to locate and observe some of the area's rich insect life, until it became a downpour and we were forced to return to the cars. The field trip was not at an end, however, as Adrienne Brewster of Wings of Paradise had arranged for us to get free admission there for the day

*(*A complete species list (including Black-billed Cuckoo!) is available on request.)

August 14

SPIDERS OF BLACKWATER/BEAVER CREEK

Leader: Tom Mason
Report by Tom Mason

(Argiope aurantia)
Photo by Ann C. Gray

A total of 18 species were found this trip. The count this year was very low in orb weavers. Five species were observed but there was no representation of the genus Araneus. Webs of *Araneus cavaticus* were observed on the wooden bridges but no living specimen was observed. Pompilid spider wasps were observed searching the bridges. This would account for missing or at least hiding spiders. Sac spiders and nursery web spiders both were not observed this year. Hides and sites were well covered but specimens were not seen. One sac spider hide resulted in finding a Neoscona orb weaver inside. As the main concrete bridge was under construction, it was not part of the collecting area this year.

In all 9 families were represented. Actual species identity was difficult in assessing due to the juvenile status of some specimens. Many of the families were only represented by a single specimen. Species collected (in order of family) were:

Theridiidae	*Theridion sp.*
Linyphiidae	*Neriene sp.* Domed webs in low bushes.
	Microlinyphia sp. Sheet webs in grass
Tetragnathidae	*Tetragnatha elongata*
Araneidae	*Argiope aurantia*
	Argiope trifasciata
	Larinioides patagiatus
	Mangora gibborosa
	Neoscona domicilorum
Lycosidae	*Schistocosa sp.*
	(probably a pardosa, my apologies)
Agelenidae	*Agelenopsis naevia*
Dictynidae	*Dictynia sp.*
Thomisidae	*Misumena vatia*
	Mesumenops asparatus
	Xysticus transversatus
Salticidae	*Bassaniana sp.*
	Eris militaris
	Pelegrina galathea

One Word or Two?

by Alan Macnaughton

When I was putting this year's student symposium paper titles on the website, something didn't look right when I saw the spellings "black fly" and "bumble bee" instead of the one-word spellings "blackfly" and "bumblebee". My Canadian Oxford and Funk & Wagnalls dictionaries listed only the latter spellings. On the other hand, a check of the Lexis Nexis database of newspapers showed both spellings were commonly accepted. For the entomological perspective, Carol Sellers put me in touch with Doug Currie of the ROM.

Doug tells me that the entomological standard is for two words for true flies; hence, black flies, horse flies, deer flies, house flies, etc. This contrasts with "flies" of other orders, such as butterflies, dragonflies, mayflies, stoneflies, and caddisflies. Bumble bees are true bees, so entomologists prefer that this name should also be spelled as two words. R.E. Snodgrass's (1956) book Anatomy of the Honey Bee puts it nicely: "Regardless of dictionaries, we have in entomology a rule for insect common names that can be followed. It says: If the insect is what its name implies, write the two words separately; otherwise run them together…The honey bee is an insect and is pre-eminently a bee; 'honeybee' is equivalent to 'Johnsmith.' ." The official list of common names of insects published by the Entomological Society of America (http://www.entsoc.org/Pubs/Common_Names/search.asp) follows this policy.

So it appears that confusion reigns: the entomologists want "black fly" and "bumble bee" as two words, the commonly-used dictionaries want both of them as one word, and the general public accepts either spelling.

I looked for some way out of this using the authoritative 20-volume Oxford English Dictionary. No luck. It sides with the entomologists on "black fly", but then goes its own way on the other issue, using "bumble-bee".

The Cherry Gall Azure (*Celastrina serotina*) in Toronto

by Barry Harrison
and Bob Yukich

Cherry Gall Azure (*Celastrina serotina*) ovipositing
Photo by Bob Yukich

On June 5, 2006 at 1pm (*Temp, approx, 25C*), I was with R. Yukich on the Oak Ridges Moraine (near Glen Major) when we came across a small group of five or six Cherry Gall Azures around some Black Cherry (*Prunus serotina*) saplings.

These trees were springing up in normally sunny openings of maturing Red Pines (Pinus resinosa). It was noticed that while most of the other butterflies nearby had retired (during this temporary cloudy period of an otherwise sunny day); these azures remained quite active. They were all females and were constantly flying to and from the Cherry leaves to oviposit on the upright leaf galls.

(*Celastrina serotina*) adult female
Photo by Bob Yukich

There were some Chokecherry bushes (*Prunus virginiana*) in the general area, but these showed no signs of either leaf galls or visiting Cherry Gall Azures. Although one individual showed the marginata form below, the rest were the typical violacea forms. Also, instead of being approximately as light as Spring Azures (*C. ladon*) below these butterflies were all a uniform light gray, presumably indicating some wear from the advancing season, The upper hind wings showed whitish borders, which was very significant as there were Spring Azures in the area with their more even blue pattern above. The Summer Azures (*neglecta*) with variably lighter upper hind wings had not yet put in an appearance.

The Cherry Gall Azure had been reported in the Toronto area before by W. D. McIlveen (Ontario Insects 2004) and has now been reported from various locations across this province. It is very probable that with the increasing awareness of its appearance habits and flight period (roughly the latter part of May through early June) that more observers will be participating in the future.

Leaf Galls on Black Cherry (*Prunus serotina*)
Photo by Bob Yukich

Typical Cherry Gall Azure Habitat
Photo by Bob Yukich

SPRING BUTTERFLY COUNT

MacGregor Point Park & Inverhuron Park
also New Park Addition ({NPA)
of MacGregor Point Park
23 MAY 2006, 10am to 6:30pm

Overcast, partly sunny in the morning, sunny all afternoon. Cool in the morning, warm in the afternoon with a high of 18 deg C. Note that on Sunday the weather was cold and there was a very heavy west wind (we had some snow in the air). On Monday it was cold with a heavy west wind.

Butterflies
Black Swallowtail -1 on roadside
Mustard White -1 male on NPA Forest Trail
Cabbage White - 2 females in NPA Large Dune Field, 1 male in NPA Large Dune Field, 2 in NPA Large Dune Field, 3 on Lakerange drive from NPA to Inverhuron.
Hoary Elfin - 3 at 5:30pm on the Visitor Centre Beach - while searching the far end, a mating pair fell at my feet and we all got a great look and lots of pictures.

Hoary Elfins (*Callophrys polio*) mating on the beach
Photo by Glenn Richardson

Spring Azure - 2 females on NPA Forest Trail, 10 males on NPA Forest Trail, 2 males in NPA Small Field, 3 males in NPA Large Dune Field, 3 males on Inverhuron Forest Trail, 4 males on Inverhuron Swamp Trail, 1 male (may have been female) on the Inverhuron Beach Trail. *Note that some of these may be Cherry Gall Azures but without some way to tell, for now we will call them Spring Azures.*

Other Species
Hummingbird Moth - 1 on Lilac Flowers on the Inverhuron Forest Trail - it sat still (no fluttering at all) while we took a picture.
Dot-Tailed Whiteface - 1 female on the Inverhuron Forest Trail.
Striped Coralroot Orchid - on the Inverhuron Forest Trail.

TEA TORONTO EAST BUTTERFLY COUNT

Rouge Area Scarborough ,Don River Valley
July 1, 2006

Species List

Tiger Swallowtail (*Pterourus glaucus)*	25
Cabbage White (*Pieris rapae*)	366
Clouded Sulphur (*Colias philodice*)	101
Orange Sulphur (*Colias eurytheme*)	14
Coral Hairstreak (*Harkenclenus titus*)	4
Acadian Hairstreak (*Satyrium acadicum*)	83
Banded Hairstreak (*Satyrium calanus*)	18
Striped Hairstreak (*Satyrium liparops*)	2
Eastern Tailed Blue (*Everes comyntas*)	157
Summer Azure (*Celastrina l. neglecta*)	105
Spring Azure (*Celestrina ladon*)	1
Silvery Blue (*Glaucopsyche lygdamus*)	14
Great Spangled Fritillary (*Speyeria cybele*)	66
Baltimore (*Euphadryas phaeton*)	70
Northern Crescent (*Phyciodes selenis*)	256
Pearl Crescent (*Phyciodes tharos*)	3
Comma (*Polygonia comma*)	22
Question Mark (*P. interrogationis*)	21
Mourning Cloak (*Nymphalis antiopa*)	5
Compton Tortoiseshell (*N. vau-album*)	2
Red Admiral (*Vanessa atalanta*)	2
American Painted Lady (*V. virginiensis*)	6 larva
White Admiral (*Basilarchia a. arthemis*)	74
Red Spotted Purple (*B. arthemis astyanax*)	14
The Viceroy (*Basilarchia archippus*)	23 + 26 larva
Pearly Eye (*Enodia anthedon*)	27
Little Wood Satyr (*Megisto cymela*)	83
Inornate Ringlet (*Coenonympha inornata*)	75
Wood Nymph (*Cercyonis pegala*)	268
Monarch (*Danaus plexippus*)	127 + 9 larva
Silver Spotted Skipper (*Epargyreus clarus*)	41
Northern Cloudywing (*Thorybes pylades*)	38
Dreamy Duskywing (*Erynnis icelus*)	1
Least Skipper (*Ancyloxypha numitor*)	7
European Skipper (*Thymelicus lineola*)	2686
Peck's Skipper (*Polites peckius*)	18
Tawny-Edged Skipper (*Polites themistocles*)	54
Long Dash (*Polites mystic*)	61
N. Broken Dash (*Wallengrenia egeremet*)	88
Little Glassywing (*Pompeius verna*)	14
Delaware Skipper (*Atrytone logan*)	10
Hobomok Skipper (*Poanes hobomok*)	38 + 1 pocohontas
Broad-Winged Skipper (*Poanes viator*)	1
Dun Skipper (*Euphyes vestris*)	40

Total43 species + 2 colour morphs 5,123 butterflies

Observers: Tom Mason, Bob Yukich, Karen Yukich, Glenn Richardson, Daryl Stewart, Siglinde van der Grinten, Carol Sellers, Sharon Lamers, Zack Lamers, Gail Trenholm, Ann Millett, John Stirrat, Ann Gray, James Kamstra, Steve LaForest, Carolyn King, Barry Harrison

TWELFTH ANNUAL TORONTO CENTER BUTTERFLY COUNT

July 8, 2006

By: John Carley

On Saturday, July 8, 2006, the Twelfth Annual Butterfly Count for the Toronto Centre count circle took place. Twenty-five counters, in nine parties, counted butterflies in the 15 mile diameter circle centred on the intersection of Dundas Street West and Bloor Street West, Toronto.

This year's count took place on a warm temperate day, with temperatures ranging from 20°C in the morning to 28°C later in the day. The routes censussed included the Leslie Street Spit, the Toronto Islands, High Park, the Humber River, the Lambton prairie, Downsview Airport, and other parklands, ravines and so-called "wastelands" in the city.

In total, 4915 individual butterflies were counted, of 44 species. This species total ties the high count of 2004; the numeric count total is the second highest (1996 is the high count leader at 6069). The overall cumulative species list increased by two (Gray Comma and Meadow Fritillary) to 59!

Baltimore (*Euphydryas phateon*) adults mating
Photo by Jean Iron

The 1455 Cabbage Whites spotted set a new high total for that species: the most numerous species for the count. In addition to the Gray Comma and Meadow Fritillary (singles of each spotted) mentioned earlier, there was a record high, for our count, of 601 Eastern Tailed-Blues. All nine routes recorded these, to eclipse the previous high of 95 (2000). European Skipper numbers were low at 946, compared to a high of 3597 (1996), while Mourning Cloak, at 79, almost doubled the previous high of 40 in 2000.

19 Eastern Commas edged out the previous high of 17 (2001); while 16 Limenitis arthemis doubled the previous high of 8 (1996). [4 were Red-spotted Purples while 11 were White Admirals, and one was an intergrade!]

On our first count in 1996, one Baltimore Checkerspot was counted. Until this year, they had not been seen since on count day. With the addition of a new route (within our count circle, at Sunnybrook Park) a staggering 82 were counted!!

The 336 Monarchs spotted set a new high (249 in 1997 was previous high), and, notably, for the first year in 12, no Viceroys were seen.

The 2007 Count date is set for Saturday, July 14. Those interested in participating in the Thirteenth Annual Toronto Centre Butterfly Count should contact the writer at 218 Humbercrest Blvd., Toronto, M6S4L3, (416) 766-1330 or carley.la@sympatico.ca.

Black Swallowtail - *Papilio polyxenes*	31
Eastern Tiger Swallowtail - *Papilio glaucus*	16
Cabbage White - *Pieris rapae*	1455
Clouded Sulphur - *Colias philodice*	142
Orange Sulphur - *Colias eurytheme*	15
Coral Hairstreak - *Satyrium titus*	9
Acadian Hairstreak - *Satyrium acadica*	57
Edwards' Hairstreak - *Satyrium edwardsii*	2
Banded Hairstreak - *Satyrium calanus*	32
Hickory Hairstreak - *Satyrium caryaevorum*	1
Striped Hairstreak – *Satyrium liparops*	11
Eastern Tailed-Blue - *Everes comyntas*	601
Summer Azure - *Celastrina neglecta*	290
Great Spangled Fritillary - *Speyeria cybele*	3
Meadow Fritillary - *Boloria bellona*	1
Silvery Checkerspot- *Chlosyne nycteis*	5
Pearl Crescent - *Phyciodes tharos*	44
Northern Crescent – *Phyciodes cocyta*	42
Baltimore Checkerspot – *Euphydryas phaeton*	82
Question mark - *Polygonia interrogationis*	26
Eastern Comma – *Polygonia comma*	19
Gray Comma – *Polygonia progne*	1
Compton Tortoiseshell – *Nymphalis vau-album*	3
Mourning Cloak - *Nymphalis antiopa*	79
American Lady - *Vanessa virginiensis*	3
Red Admiral - *Vanessa atalanta*	7
Limenitis arthemis	
White Admiral (11)	
Red-spotted Purple (4)	
Intergrade (1)	16
Northern Pearly Eye – *Enodia anthedon*	2
Little Wood-Satyr - *Megisto cymela*	73
Common Wood-Nymph - *Cercyonis pegala*	216
Monarch - *Danaus plexippus*	336
Silver-spotted Skipper - *Epargyreus clarus*	67
Northern Cloudywing - *Thorybes pylades*	23
Wild Indigo Duskywing – *Erynnis baptisiae*	5

Least Skipper - *Ancyloxypha numitor*	1
European Skipper - *Thymelicus lineola*	946
Tawny-edged Skipper - *Polites themistocles*	5
Crossline Skipper - *Polites origenes*	8
Long Dash – *Polites mystic*	3
Northern Broken-Dash - *Wallengrenia egeremet*	126
Little Glassywing – *Pompeius verna*	2
Delaware Skipper - *Anatrytone logan*	7
Dion Skipper – *Euphyes dion*	1
Dun Skipper - *Euphyes vestris*	59
Sulphur *sp.*	1
Satyrium *sp.*	2
Blue *sp.*	16
Anglewing *sp.*	2
Crescent *sp.*	6
Skipper *sp.*	15

Total: 44 species, 4915 individuals.

Observers: A. Adamo, S. Blayney, D. Bone, S. Campbell, J. Carley, T. Christensen H. Currie, A. Gray, J. Iron, C. King, S. LaForest, N. McHugh, S. McHugh, N. McPherson, A. Millett, D. Peuramaki, R. Pittaway, A. Riley, G. Riley, C. Sellers, K. Seymour, J. Stirrat, G. Trenholm, K. Yukich, R. Yukich.

Spectacular Spring Monarch Migration

by Don Davis

Most Ontario residents and butterfly observers noted a sharp increase in the number of Monarch butterflies observed this spring and summer. According to Dr. Orley "Chip" Taylor, Professor of Ecology and Evolutionary Biology and Director of the Monarch Watch program at the University of Kansas, just-right weather conditions during the spring trip out of Mexico contributed to this year's expanded population.

In a telephone conversation with TEA member Don Davis, Taylor reported that "the temperatures were perfect, the moisture conditions were perfect. It was neither too hot, nor too dry, nor too rainy or too windy," he said. The returning butterflies produced a large number of offspring, who reproduced even more as they traveled north. "So every step of the way this year has been favorable for the butterflies, and that doesn't happen often".

This year's population is probably the biggest Monarch watchers have seen in 10 years. Record Monarch numbers were found on many Ontario butterfly counts.

However, summer's extreme temperatures and lack of rain have left dry conditions in Texas and some of southern Oklahoma and could present dire consequences for the southbound Monarchs.

"It means there aren't going to be any flowers. It means there isn't going to be any water, and there isn't going to be any nectar," Taylor said.

"They're going to be going through what looks like about 1,000 miles of really dry habitat," Taylor said. "So unless there is rainfall in this region between now and October, the death toll for these butterflies going through Texas is going to be pretty severe."

The first migrating Monarchs to arrive in Ontario were observed in late April 2006 in extreme south-western Ontario by Allan Wormington. By late May, Monarchs had arrived in Thunder Bay, about the same time they were being spotted in the Toronto area. Interestingly enough, also at the end of May, numerous Monarch butterflies were spotted in Winnipeg, Manitoba and vicinity. Residents and visitors in the northern section of southern Ontario, including Muskoka, reported seeing many Monarch caterpillars on individual milkweed plants.

From a national perspective, Monarchs were observed across the nation, first in Saskatchewan, followed by Quebec and the Maritime Provinces and lastly southern British Columbia. While Monarchs are not native to Newfoundland and milkweed does not grow there, a few are reported here each year and one observer e-mailed TEA member Don Davis a photograph of a specimen she observed on the Avalon Peninsula. One of the more northerly reports, deemed to be accurate, came from Edmonton, Alberta. Larva were also found at Brook, Alberta, east of Calgary.

Let's hope for a strong fall migration and favourable weather.

(See page 12 for a spectacular photo of the fall Monarch migration in Ontario)

Description of Butterfly Metamorphosis

Dr. Karen Oberhauser, University of Minnesota
(condensed with permission of the author by Don Davis)

A recent Gainesville newspaper printed an often-cited misconception about insect metamorphosis, that has become my personal "fingernail on a blackboard." The cells inside the pupa DO NOT break into butterfly soup; this idea is printed over and over in the popular literature, and could not be more wrong.

Here is a brief description of the process (from the Monarch Lab website (www.monarchlab.org/default.aspx).

"While the process of complete metamorphosis looks like four

...continued on Page 12

The Bookworm

Book Review:

Insects: Their Natural History and Diversity

With a Photographic Guide to Insects of Eastern North America by Stephen Marshall (Firefly Books, 2006)

Steve Marshall at Wings of Paradise Butterfly Conservatory, July 23, 2006
Photo by Don Davis

On July 23, 2006, members of the TEA attended a book signing and reception for Dr. Stephen Marshall at Wings of Paradise Butterfly Conservatory near Cambridge, Ontario. Dr. Marshall, a professor in the Department of Environmental Biology at the University of Guelph, is the author of "Insects – Their Natural History and Diversity", lauded as a landmark tool for the study of insects. As pointed out by publisher Firefly Book, the reader will find:

- Detailed chapters covering all insect orders and insect families of eastern North America
- Brief examinations of common families of related terrestrial arthropods
- 4,000 color photographs illustrating typical behaviours and key characteristics
- Expert guidance on observing, collecting and photographing insects

An excellent book review was written by Jeffrey Cumming, Agriculture and Agri-Food Canada, Ottawa, and published in Bulletin of the Entomological Society of Canada, Volume 38(2), June 2006 (and available for reading on-line at the ESC website). As Jeffrey Cumming points out, this book "is the most comprehensive photographic overview of insects ever published".

Dr. Marshall describes "Bugwatching" as "The Natural History Frontier for the 21st Century". Noting the popularity of birdwatching, Dr. Marshall suggests that insects should be designated as "honourary birds"!

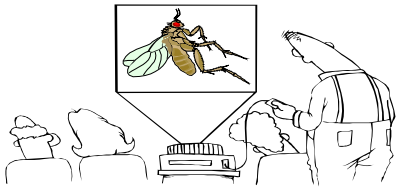
Advances which have promoted the study of insects include new digital cameras (and digital collections of insects), new books and papers on taxonomy (including the Canadian Journal of Arthropod Identification), and the World Wide Web (i.e. BugGuide.net).

Dr. Marshall notes that several small, obscure families were not illustrated in the book, including some microlepidopterans and an extremely rare family of minute beetles. The family Hydraenidae was represented only by pinned specimens, and the small beetle family Agyrtidae (one rare species in eastern North America) was in the key but not represented by a photo. Live photos of both will appear in the next edition. Such a large collection of insect images necessarily requires a great deal of organization, facilitated by Dr. Marshall's array of 4 hard drives!

Dr. Marshall has been studying insects for 50 years and has been a University of Guelph professor since 1982. In a University of Guelph news release, Dr. Marshall states, "Although many new discoveries were made while writing this book (including the bee fly discovered for the first time in Canada), I initiated this project to provide something badly needed by naturalist and students….". In light of the increasing number of "Citizen Scientist" programs, Dr. Marshall writes in his introduction that "Entomology is both an absorbing hobby and scientific frontier we can push forward through backyard observations."

We were indeed fortunate to have had the opportunity to meet Steve Marshall. His passion for insects is infectious, and he is extremely generous in sharing his knowledge and enthusiasm with others. His important book will no doubt generate a new generation of "Bugwatchers".

by Don Davis



TEA Activities

Migrating Monarchs Roosting at Thicksons Woods, ON
August 26, 2006
Photo by Harvey Medland

...continued from page 10

very distinct stages, continuous changes actually occur within the larva. The wings and other adult organs develop from tiny clusters of cells already present in the larva, and by the time the larva pupates, the major changes to the adult form have already begun. During the pupal stage this transformation is completed."

I like to compare this process to what happens to a mammalian embryo - we have many forms during the process from single cell to newborn baby; at times looking like a fish or reptile, but continually developing. The same is true for a butterfly, but it just spends part of that time outside its mother, getting nutrients from its host plants. At no time does it break down and start over. Dr. Sonia Altizer dissected several pupae in various stages of development, and it was quite amazing to see the monarch progress towards the fully-formed adult. There are lots of very scientific references. My favorite is a book called The Insects: Structure and Function, by R.R. Chapman.

Give us your ideas!

Programs: Carol Sellers is the Programs Coodinator and welcomes any ideas for speakers for the Oct - Apr meetings. Who would you like to hear from? Please write to her at: programs@ontarioinsects.org.

Field Trips Steve LaForest and Carolyn King are the Field Trips Coordinators and also welcome ideas for places to go and leaders. Do you have a favorite spot to share with others or is there somewhere you'd like to go? Please write to them at: fieldtrips@ontarioinsects.org.

Do you know?

All donations to the TEA are tax-creditable (a receipt is issued).

Any amount is welcome but the following suggested amounts support these TEA initiatives:

$300: W.J.D.Eberlie Research Travel Award

$50: Help to sponsor the printing of *Ontario Odonata*

$40: Sponsor the printing of the Kid's Page in Ontario Insects

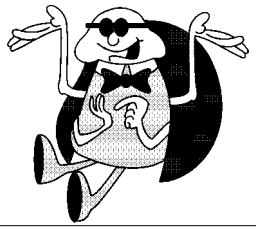
$34: A copy of *Damselflies and Dragonflies (Odonata) of Ontario: Resource Guide and Annotated List* can be donated to a university library

$25: A copy of *Ontario Odonata* (annual) can be donated to a university library.

$15: A copy of *Ontario Lepidoptera* (annual) can be donated to a university library.

Note: The University of Guelph library has indicated their interest in receiving TEA publications. If you have contacts at other universities, we would be happy to pursue those options as well.

Please send your tax creditable donation to: Chris Rickard, Treasurer, TEA, 1606 Crediton Parkway, Mississauga, Ontario L5G 3X3



Flea Market

Viceroy (*Limenitis archippus*) adult male. This is the same individual, which was featured as a hibernating larvae, in our May 2006 issue (see inset). *Photo taken May 27, 2006 (5 days after release in the same location) by TEA President Glenn Richardson*

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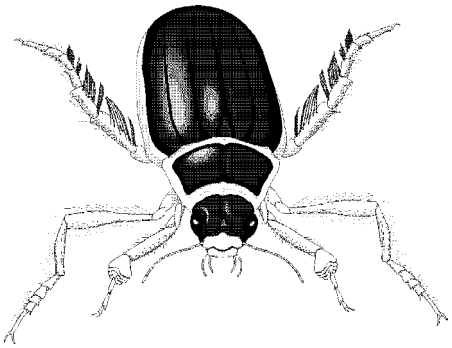

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Types of Submissions:

Contributions to **Ontario Insects** may address any subject or aspect related to entomological study. Submissions may be made in the following categories:

Research papers -may include original research or scholarly reviews following an appropriate journal format

Feature articles -informative & entertaining, format open to the author's choice

Notes or short communications -may be observations, interpretive, historical, review or experimental studies which do not fall under the purview of research papers

Book reviews -preferably titles published within the last three years

Original artwork, puzzles -art should be clear, easily reproduced in black & white

Guest columns in Entomophilia -any subject related to the love of insects

Opinions, Letters, Queries -anything entomological under 500 words that may be of interest to the membership

Classified ads -free to members

Format for Submissions:

Ontario Insects is produced on a PC. Text editing is done in **Microsoft Word**, graphics are scanned or obtained from licensed CD-ROM collections and edited in CorelDRAW 4.0 with final page layout in PageMaker 6.5. The original is printed on an HP 1200 laser printer.

All submissions are encouraged, however, submissions of articles and/or artwork on disk or email are preferred. If articles are submitted via email, formats in Microsoft Word (.DOC) or rich text format (.RTF) are preferred. Please send all submissions and questions to the editor (see inside cover for address). Offprints are available at cost + 10% + postage.

ITEMS FOR SALE THROUGH THE TEA

Books: reproductions of out-of-print books

The Odonata of Canada & Alaska (3 volumes) by E.M. Walker

$210 Can ($195 for TEA members who pick it up); In USA: $160 US surface; $170 US airmail

The Cicindelidae of Canada (tiger beetles) by J.B. Wallis (1961) with colour plates

$28 Can ($23 for TEA members who pick it up); In USA: $23 US surface: $26 US airmail

The North American Dragonflies of the Genus Aeshna by E.M. Walker (1921) with colour plates

$115 Can ($105 for TEA members who pick it up); In USA: $100 US surface; $110 US airmail

The North American Dragonflies of the Genus Somatochlora by E.M.Walker (1925)

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Books: Other publishers

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By P.M. Catling and V.R. Brownell 2000. Annotated list of 168 species of odonata in Ontario including conservation status, flight period, habitat, distribution and identification. $40 Can; In USA: $35 US.

Books: T.E.A. publications

The Ontario Butterfly Atlas by A.M. Holmes, R.R. Tasker, Q.F.Hess, A.J.Hanks (1991)

ISBN: 0921631111 $25 Can ($20 for TEA members who pick it up); In USA: $25 US

Ontario Insects – T.E.A. Newsjournal

Back Issues: $5 Can each; In USA: $5 US; Subscription: $25 Can; In USA: $25 US

Annual Ontario Lepidoptera Summaries (for 1987, '88, '93, '95 to present)

$10 each; In USA: $10 US surface; $15 US airmail; (free with T.E.A. membership)

Ontario Odonata: (annual summary or Odonata including articles, notes, recent literature and news)

Volume 1 (16 articles plus summary of records). Articles cover topics such as conservation status ranks, natural history, migration, lists and records, and an illustrated key to the mature nymphs and exuviae of eastern Canadian Stylurus. Cost: $25 Can; In USA/overseas, $25 U.S.

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Includes flight seasons. Compiled by Barry Harrison. $2.50 Can ($2 for TEA members who pick it up);

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For complete details and to order, contact:

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