



The Swallow



Volume 21, # 2
Spring 2004

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Treasurer: Bernd Krueger	625-2879	Chris Michener	Elizabeth Reeves
Secretary: Manson Fleguel	735-7703	Benita Richardson	Gwen Purdon



Our feature photographer in this issue, Lauren Trute, has captured Spring in this collage of images. Clockwise from top, young Red Maple leaves, Serviceberry species, baby American Robins and Spring run-off in hardwood bush.

Membership in the Pembroke Area Field Naturalists is available by writing to: the PAFN, Box 1242, Pembroke, ON K8A 6Y6. 2003/2004 (April 2003 to March 2004) dues are: Senior \$5, Student \$5, Individual \$7, Family \$10, Individual Life \$150, Family Life \$200.

Editor, The Swallow: Chris Michener, R.R.1, Golden Lake, ON K0J 1X0 - Submissions welcome!
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PAFN internet page: <http://www.renc.igs.net/~cmichener/pafn.index.html>

Owling Night

When: 7:30 PM, Friday, April 2th

Where: Wilberforce Twp Park parking lot. Go south of intersection of Hwy 41 and Lake Dore Rd., cross the bridge, turn right about 200 metres south of intersection and go a short distance to park. Trip Coordinator: Chris Michener, 625-2263 (cmichener@renc.igs.net)

A route will be followed by car parade (car-pooling encouraged!) passing through varied habitat. A tape of owl calls will be used to encourage owl response.

PAFN Annual Meeting

Wed., April 14, 2004, 7:00PM, Room 201, Algonquin College, Pembroke.

The Club's business meeting will last until 7:30 or so, followed by refreshments. After this, Norm Quinn, a park biologist in Algonquin Park and author of the recent book, Algonquin Wildlife...Lessons in Survival, will present a talk and slideshow on the history of wildlife studies in Algonquin, a talk he guarantees to be interesting and humorous.

A Trip to Bellow's Bay

Date: Saturday, April 24, 2004.

Time: at 9AM.

Trip Leader: Manson Fleguel, 732-7703.

Meet at the marina in Pembroke, at the mouth of the Muskrat River. Car pooling will be offered. Bring rubber boots as cowpies and mud will be encountered. Sometimes rare ducks such as Gadwall and Redhead are seen as well as uncommon Spring migrants such as Fox Sparrow and Rusty Blackbird.

2nd Annual Natural History Day - Free, but must pre-register!

Date: Saturday, May 1, 2004.

Time: 9 AM and continuous through the afternoon.

Where: Bonnechere Provincial Park, Davenport Centre. (free park entrance)

The morning is devoted to talks on various aspects of natural history including, Gray Jays (Dan Strickland) and moths (Jason Dombroskie). Also in the morning will be a childrens' program, probably starting around 10 AM. Walks are scheduled for the afternoon looking at birds, butterflies, plants, etc.

A phone number will be available in a couple of weeks to register along with more information. Check our website and watch the April valley papers.

A Walk in the Pembroke Crown Game Preserve (Fish Hatchery)

Date: Sunday May 16, 2004.

Time: 5 PM. Trip Leader: Myron Loback 732-1278.

Meet in the lower parking lot of the Preserve, off Laurentian Drive. (go west of Pembroke on Pembroke St. towards Petawawa, turn north on Laurentian Dr., watch for sign and drive through the open steel gates). Some migrant songbirds as well as waterfowl can be expected. Good outing for children as Canada Geese will likely be present and, quite possibly, with young. This is an enjoyable, relaxed outing.

PAFN Tri-wing Challenge. This is an event that a few members have talked about for a couple of years. Teams of one or more individuals are challenged to spend as much or as little time from **4 PM Friday June 25 to 4 PM Sunday June 27** counting all bird, butterfly and dragonfly species. At 4 PM Sunday, everyone is invited to a PAFN potluck picnic at the Wilberforce Township Park to tabulate the results. The park has swings, outhouses, tables under a roof and an extensive sand beach for swimming. Bring your own plates and utensils.

Categories of the **Tri-wing Challenge** will include:

- high count totals for bird species;
- high count totals for butterfly species;
- high count totals for dragonfly species;
- high count for total of all three.

We suspect that a combined total of 130 species may be possible in the **Tri-wing Challenge** area covered on the map of the new bird checklist. When discussing rules at the last directors' meeting, it was decided that each team member did not have to identify each species but did have to remain within earshot of each other. So a person who is identifying butterflies can go about their study while another team member is identifying birds. Species lists for dragonflies and butterflies are included at the end of this newsletter. Pre-registration is not necessary and for more information contact Chris or Carey.

16th Lake Dore Butterfly Count

Date: Saturday, July 3, 2004 (Rain/wind date, Sunday, July 4).

Time: 9 AM

Organiser: Chris Michener 625-2263.

Meet at the parking area Hwy. 41 and County Rd.30. Bring butterfly field guide, binoculars, footwear (optional) for the bog, net (for catch & release) and lunch. A map of the Count circle and species list will be available. A participants' fee (under 12 free) of \$3 is asked to cover publishing costs of the North American results (North American Butterfly Association). A partial subsidy is paid by the PAFN as fees are paid in \$US.

13th Hog Island Butterfly Count

Date: Sat., July 17, 2004 (lousy weather day, Sun., July 18).

Time: 9 AM.

Organiser: Chris Michener 625-2263.

Meet at Mullen's Esso, Pembroke St. E., near the turn to Quebec. The Count Circle for this butterfly Count is half in Ontario and half in Quebec.

In the past, some groups have gone to the Westmeath area; others have butterflyed on Allumette Island. You can choose the area you prefer. Maps of the circle and checklists will be available. A participants fee (under 12 free) of \$3 is asked to cover publishing costs. See previous event.

The 7th Lake Dore Odonate Count

Date: Sat., August 7, 2004 (lousy weather day Sun., August 8)

Time: 9 AM.

Organiser: Carey Purdon 625-2610.

This has proven to be an excellent opportunity for all of us to appreciate this group of insects. We have had rewarding counts to date despite being near the end of the flight season. The format will be similar to the previous years... search for dragonflies and damselflies within a 7.5 mile radius of Biederman Park, Lake Dore. Meet at parking area at Hwy.41 and Cty. Rd. 30 (Lake Dore Rd.). Picture guides will be available as well as experienced 'odonaters'. A large insect net, optional rubber boots, close focus binoculars, sun screen and lunch/water are suggested. There is no fee for this Count.



A cooperative Cherry-faced Meadowhawk allows a photo by Lauren

Marina/Waterfront Bird Walk

Date: Saturday, August 21, 2004

Time: 8 AM.

Trip Leader: Ken Hooles 735-4430.

Meet at the Pembroke marina, by the mouth of the Muskrat River in Pembroke. Ken will introduce us to migrant birdlife along the Pembroke waterfront. There are usually gulls, terns, ducks, geese, cormorants and songbirds such as vireos, warblers, sparrows and finches. Surprises usually occur and it's a good social outing... a chance to meet some very nice people!



For the complete results of the **2003 Eganville, Pembroke and Killaloe Christmas Bird Counts**, please follow the links on our web site:
<http://www.renc.igs.net/~cmichener/pafn.index.html>

Report of Shaw Woods Wildflower Hunt – May 4, 2003 by Grant Bickel

May 4 turned out to be one of the first spring-like days of 2003. The weather was sunny and warm and it attracted about 14 participants to the first ever Shaw Woods wildflower hunt. "Hunt" was the appropriate choice of wording for the event. The cold late spring had pushed the woodland bloom back a week or two. However, the beautiful weather and the diversity of life at Shaw Woods would not let us be disappointed.

Near the parking lot, we began the afternoon by learning some botany with remnants of last season's plants. Dead growth from Blue Cohosh (*Caulophyllum thalictroides*) plants still had some large blue berries attached. Nearby, new

Blue Cohosh plants were located and a few even had open flowers – our first blooming wildflower of the day. Soon we located Long-stalked Sedge (*Carex pedunculata*) in flower - not what you would call a wildflower, but blooming nonetheless.

Continuing up the hill, we identified a clubmoss and several ferns while a Black-throated Green Warbler sang overhead. Rob Cunningham helped us identify trees and someone caught a Gray Comma butterfly for all to see.

Soon we reached the old growth hardwood section on top of the ridge. Here we found towering beech, ash and sugar maple trees, much like a cathedral, with lots of open space below for the ephemeral spring wildflowers to put on their show. Large numbers of young Trillium plants were seen (*Trillium grandiflorum* and *Trillium erectum*) – unfortunately none of them with open buds. The Trout Lilies (*Erythronium americanum*), however, were in full bloom and spread out in the woods all around us. At this point, we heard a Barred Owl calling nearby. Carey Purdon called it in with an excellent Barred Owl impression and it perched in a tree just overhead. The owl looked confused and then annoyed as Carey continued to call to it. After a few minutes another Barred Owl called in the distance and it shortly came over to join in. The two owls met in the same tree and exchanged vocalizations together for another minute before they flew off together. Wow! Perhaps we were witness to a marriage in the cathedral.



Somewhere in her travels, PAFN member, Lauren Trute captured this Red Trillium in bloom.

After that we proceeded down the trail to the wetland at the back of Shaw Woods for a herpetology lesson. There we studied dozens of Midland Painted Turtles basking on logs in the warm sun. A large snapping turtle was also found resting at the side of the trail.

The walk soon ended but a few of us stayed behind and walked across the road to the old mill at Shaw Pond where we located Coltsfoot (*Tussilago farfara*) and Round-lobed Hepatica (*Hepatica americana*). That doubled our daily total to four blooming wildflower species. That number is a record that is sure to be beaten but it was a day that will not soon be forgotten.

I wish to thank all who attended. Everyone's participation made this outing all the more rewarding.



Eganville CBC - Dec14, 2003
by Carey Purdon

The opening of the CBC's in North America for the 2003 season was on Dec 14th, which granted us the privilege of being the first count in the area. The weather was interesting leading us to do much of the afternoon birding in a gentle snow fall which was quite unique!!

The feeder watchers added a White-throated Sparrow, Northern Cardinal and a good number of Evening Grosbeaks and the only Purple Finches to the count.

The Golden Lake birders (Jason & Christina Davis and Jean Brereton and Kendra Smith) found Common Goldeneyes and Lesser Scaup; Jason and Christina also added one of the new birds for the count, a Northern Saw-whet Owl . Great find!!

The Mink Lake sector (Chris Michener) had excellent numbers of Mourning Doves, Rock Pigeons, Common Redpolls and European Starlings. Chris also found a Sharp-shinned Hawk, Northern Shrike and a Rough-legged Hawk, all excellent birds....great birding Chris!

The birders in Green Lake sector included Manson Fleguel, Merv Fediuk and Ken Hooles. They noted American Tree Sparrows, Northern Goshawk and Gray Jays. They also got Golden-crowned Kinglets...excellent finds!

In the Micksburg sector, Rob Cunningham and Sheldon Davis nicely identified an American Kestrel, the second "new bird" for the count....They also got a Rough-legged Hawk and a Sharp-shinned Hawk....Super birding!

The 41South Sector was covered by Bruce Burnett. Bruce had a long day with few cooperative birds...but he was committed and found the only Dark-eyed Junco of the count....Great digging Bruce!

The last sector, Augsburg, birded by Jason Dombroskie and Carey Purdon found a Northern Goshawk, and a Barred Owl that was mobbed by Blue Jay's....a memorable sight and Wild Turkey's "grazing" in a farmers field.

Over all we had 41 species of 2619 individuals.

Great team work all...!!

Until next year,

Carey

Editor's note: Jason and Carey found a Swainson's Thrush a kilometre west of the circle and not countable, unfortunately.



Lauren lures a Gray Jay with a hand-out. These jays, unlike Blue Jays, will come to hand feeding.

The 2003 Pembroke CBC

By Manson Fleguel, Count Compiler

This year, the Count was held on December 20, 2003, a date very close to Christmas, but that didn't seem to deter any of the usual participants. There has been an unusually mild period around the count so the number of species is up from last year, but well off record numbers.

This year there were 23 field birders spread over the 6 sectors in the Pembroke circle and 48 feeders were watched. Our final count was 49 species, up from last years 42 species. Total birds counted were only 4539, down considerably from last years 6699. A real surprise, without the feeder birds being included, we had no House Sparrows! This was a first in the 27 years of the count. However, 2 feeders were able to contribute a few as the paperwork came in.

Here is a synopsis of the 6 sector findings and participants. Thanks to all that made the day another outstanding count day!

Sector 3E, led by co-ordinator Ken Hooles ended the day with 34 species found. His field birders were Pat Hooles, Jack Rumbles, Merv Fediuk and Moe Guimond. Feeder watchers were Floyd and Attie Milton, Dave and Nora Potts, Ron Bertrand, Bob and Julie Pick, Jack and Barbara Darbyson, John and Marcail MacGillivray, Dave and Mary Croft, Carolyn Lance, Gloria Lavigne, Ken Recoski, Edna Veinot, Nancy Armstrong, Merv and Mark Dougherty, Ray Brazeau, Marg and Jim Anderson, Francis Marcotte, Sue Ellis, Mac and Diane Thrasher, Wendell McLaughlin, Marilyn Rumbles, Dave Wainwright, Lorna Fediuk and Marilyn Kruschenske. This sector spotted the only Barrows Goldeneye, Wild Turkeys, Red-bellied Woodpecker, White-throated Sparrow, Pine Siskin and a bird of the Blackbird species. The latter bird was not identified positively on the day of the count and did not return to the feeder later for a positive ID.

Sector 2N had 28 species. Carey and Gwen Purdon were the only field people while feeders were watched by Viola Nitschke, Jim and Anne Clarke, Art and Shirley VanWinckle, Keith and Alice Curry, Ivy Levoy, Vic Harmer and Bruce Schoof and Sherry Soltysiak. This is one of the highest species counts ever, for this sector. They identified the only Scaup species of duck, the only Red-tailed Hawk and the only Hoary Redpoll.

Sector 1W had 23 species found. Field birders were Robin Cunningham, Alain Vallieres, Manson Fleguel and Bruce Burnett. Howard and Doris McLean (along with Paul and Drake McLean and Bryana Tysick), and Jean Berrigan watched feeders. No species were found only in this sector.

Sector 3W had 22 species. Led by Myron Loback, his field birders were Tony Mitchell, George Young, Teresa Frechette, Benita Richardson, and David and Sarah Beimers. This was the Beimers first count and even though they were quite young, (around 10) they contributed well to the count in this sector. Feeder watchers were Mac Nussey, Howard Doelle, Judy Fleguel, Gary and Sue Walton, Jeremy, Corrie and Joshua Inglis, Leona Junop, Wes Loback, Beth Loback, A J Recoskie and Harold and Shirley Wirth. They found the only

American Kestrel for the count.

21 species were found in Sector 2S. Co-ordinated by Chris Michener, his field people were Jean Brereton and Jason Dombroskie. Feeder watchers were Mark Raglin, Dwight and Lucy Dickerson, Erna and Victor Maves and Barb Beimers. The only Barred Owl, Iceland Gull and White-winged Crossbills were reported from this sector.

Close behind was Sector 1E with 20 species. Bruce DiLabio and Chris Traynor were the field birders and Einar Lund was the only feeder watcher. This sector reported the only Bufflehead and Canada Geese for the count. The 2 field birders traveled from the Ottawa area to bird here and were only able to stay for a part of the day.

The following is a listing and the numbers found (in brackets) of all species reported on the count. (CW) means the species was reported during the count week but not on the day:

Common Loon (2), Canada Goose (4), Mallard (CW), Scaup Species (1), Common Goldeneye (140), Barrows Goldeneye (1), Bufflehead (5), Common Merganser (12), Red-breasted Merganser (2), Bald Eagle (5), Northern Goshawk (2), Red-tailed Hawk (1), Rough-legged Hawk (3), American Kestrel (1), Ruffed Grouse (8), Wild Turkey (2), Gull Species (1), Iceland Gull (1), Rock Dove (379), Mourning Dove (378), Barred Owl (1), Downy Woodpecker (65), Hairy Woodpecker (75), Red-bellied Woodpecker (1), Pileated Woodpecker (11) Gray Jay (3), Blue Jay (261), American Crow (166), Common Raven (104), Black Capped Chickadee (1,120), Red Br. Nuthatch (54), White-breasted Nuthatch (73), Brown Creeper (4), Golden-crowned Kinglet (8), Bohemian Waxwing (8), European Starling (296), Northern Cardinal (4), American Tree Sparrow (20), White-throated Sparrow (1), Dark-eyed Junco (6), Snow Bunting (482), Blackbird Species (1), Pine Grosbeak (15), Purple Finch (8), White-winged Crossbill (3), Common Redpoll (576), Hoary Redpoll (1), Pine Siskin (1), American Goldfinch (85), Evening Grosbeak (123), House Sparrow (18)

Note: The gull Species and the Mallard (CW) are not considered separate species for this count day.





conservation updates for member groups

FON is Providing Staff Support to Member Groups!

FON is pleased to announce the *Building Ontario's Nature Network* project - a four year project funded by The Ontario Trillium Foundation. The goals of the project are to provide support to the Nature Network by establishing and supporting regional conservation hubs, as well as to develop a communications strategy to increase the profile of the Nature Network and FON.

Building Ontario's Nature Network will provide support to FON member groups through three Regional Coordinators who will be hired to provide support to Nature Network groups and act as information conduits between the provincial and local levels. The Coordinators will serve as resource people for information on provincial and local conservation issues. Supporting the Nature Network will involve answering inquiries, providing conservation expertise and providing conservation problem-solving advice to member groups. The media campaign developed to support *Building Ontario's Nature Network* will communicate the message of nature protection to a wide spectrum of people across Ontario, and help to promote a conservation ethic that honours responsibility and care for the environment.

The three Regional Coordinators will be professionals with a diversity of skills, knowledge and experience who are familiar with conservation issues at the local, regional and provincial levels, as well as FON's conservation priorities.

Benefits to FON Member Groups

- regional support to answer questions from FON member groups and the general public on numerous conservation issues (wildlife, conservation science, environmental policy);
- raise the profile of member groups within local communities which will increase membership and volunteer numbers;
- inform member groups and local communities about conservation issues at the provincial level;
- improve the application of conservation science and planning policy from the provincial to the local level;
- increase the profile of local conservation issues through media channels; and,
- serve as a resource centre for information on provincial and local conservation issues in Ontario.

Nature Network Team

Deanna Coop is the new Nature Network Manager. She comes to FON with a wealth of communications experience and will be helping to communicate

FON's messages, along with the good news stories that come out of the regions as a result of the Building Ontario's Nature Network Project. She will also be the main contact person for the Regional Directors as well as groups in the Northern region. Deanna will also be the staff person involved in organizing the Annual General Meeting and Conference. Deanna's previous experience includes being the Communications Director for CONE, as well as the Program Director for the RiverSafe Carwash Campaign. She has a Bachelor of Applied Integrated Environmental Management from Lakeland College in Alberta, as well as a Bachelor of Science Degree with a major in Biology from Wilfrid Laurier University.

Chris Grooms has been hired as the *Eastern Regional Coordinator*, based out of Harrowsmith, near Kingston. Chris has become well known for his work with the Eastern Loggerhead Shrike Recovery Project and will bring a wealth of knowledge and experience in habitat stewardship, landowner contact, fundraising and public education. He will bring creative means to arriving at solutions to the project, as well as experience in running a successful project that involves a lot of outreach and media contact.

Jennifer Baker is now the *Southern Regional Coordinator*;
Erin McGauley has been hired as the *Central Regional Coordinator*.

FUNDRAISING OPPORTUNITIES FOR MEMBER GROUPS

- **Merchandise**

The Federation of Ontario Naturalists (FON) offers great fundraising ideas for all member groups. FON sells many of our merchandise items "in bulk" at wholesale costs to member groups. This provides a great chance for groups to

sell the items at retail costs and make a profit!

- **New T-shirts Available!**

FON is now offering new t-shirts which feature our new family of logos as seen below. Please contact Deanna Coop for more information on these great shirts.

- **Nature Reserve Cards**

Use the note cards from our nature reserves, which feature five gorgeous colour images to send greetings and notes.

- **T-Shirts**

In addition to our popular short-sleeved t-shirts, long-sleeved t-shirts in the Frogs of Ontario and Butterflies of Ontario designs are available. We also have our popular woodcut-style t-shirt, featuring a wood thrush.

For more information on how your group can raise funds by selling FON products, contact Deanna Coop at 1-800-440-2366 or 416-444-8419 ext.224 deannac@ontarionature.org

Northbound to Superior - Protecting Ontario's Nature

Federation of Ontario Naturalists 73rd Annual General Meeting & Gathering - May 29, 2004

FON invites you to attend our 2004 gathering. Explore the natural areas of Greater Toronto through an array of exciting field trips. Learn how FON is Ontario's voice for nature. Join Joanie and Gary McGuffin for a tour of the Great Lakes Heritage Coast and see how you can protect Ontario's nature.

Spend the day with us at Black Creek Pioneer Village!

For more information please contact Deanna Coop as above.

CONSERVATION PROGRAM UPDATES Smart Growth

Linda Pim

In July, an exciting new network was established – the Ontario Smart Growth Network. FON was one of the key groups responsible for getting the network up and running. Any non-government organization – including any FON member club – that subscribes to the network’s Founding Agreement should consider becoming a member of the network. The *Founding Agreement* is a five-page document that outlines the mission, guiding principles, application of the principles, and administrative matters. The network was formed with the aim of having like-minded groups from many walks of life work collaboratively to stop urban sprawl and promote environmentally sustainable, compact and healthy communities across Ontario. To read the Founding Agreement, please go to the network’s website, which is temporarily being housed at the Conservation Council of Ontario:

www.greenontario.org/smartgrowth/osgn.html

At the time of writing, the network has 24 member groups (including FON) and at least an additional 30 groups actively considering membership.

The network has an e-newsletter.

- To sign up to receive this newsletter, please go to <http://list.web.net/lists/listinfo/getsmart-1>
- To make a submission to the e-newsletter, first join the network then e-mail your submission to getsmart-1@list.web.net.

Ontario is now the second province in Canada to have a smart growth network, the other being Smart Growth B.C. In the United States, there are smart growth organizations in many states and three nation-wide smart

growth networks. FON was involved in a meeting in Vancouver last May of a number of groups from across Canada that are interested in forming a Smart Growth Canada network. Work on the national front is continuing.

To keep up to date on what the Ontario government is doing about smart growth, please visit www.smartgrowth.gov.on.ca

Campaign update on Ontario’s Living Legacy

Paul Leadbitter

Shortly after the release of FON’s report card on the Ontario Living Legacy Land Use Strategy (OLL), which FON members received with the Summer issue of *Seasons*, the province made significant progress in its ongoing effort to complete its protected areas system.

This past June, the Ontario Cabinet regulated another 109 OLL sites, thus protecting them from logging, mining and hydroelectric development. Approximately 1.5 million hectares, or 60 percent, of the 2.4 million OLL hectares are now protected, representing 274 of the 378 promised OLL provincial parks and conservation reserves.

FON’s OLL Report Card documents the OLL process to date, highlights the government’s progress and outlines areas for improvement including the need to regulate all of the 378 OLL and nine Signature Sites in a timely manner. FON urges the government to fulfill its OLL commitments and looks forward to a continued and progressive working relationship with government staff.

To read the OLL Report Card, visit FON’s website at www.ontarionature.org.

W e b H i t s

choice internet sites

The Noctuoidea of Canada

The Noctuid Moths
Part 1: Noctuoidea

by J. T. Troubridge and J. D.
Lafontaine



Here we illustrate approximately 1,600 species of the superfamily Noctuoidea, almost half of the 3,400 North American species. The Noctuoidea include the Notodontidae (Prominents), Arctiidae (Tiger Moths), Lymantriidae (Tussock Moths), Noctuidae (Cutworm Moths), and Nolidae. Unfortunately, only a few groups of moths are popular with amateur collectors so distributional information on most families remains rather spotty. Popular groups are the Hawk or Sphinx Moths (family Sphingidae), the Giant Silk Moths (family Saturniidae), Tiger Moths (family Arctiidae), and a group of cutworm moths called Underwing Moths (family Noctuidae: genus *Catocala*). Except for the Tiger Moths and Underwing Moths, the Noctuoidea remain poorly collected.

The higher classification of the superfamily Noctuoidea is presently under study and recent North American check lists do not reflect modern thinking. We loosely follow Kitching and Rawlins, 1999 (The Noctuoidea. pp. 355–401. In Kristensen NP. (Ed.) *Lepidoptera: Moths and butterflies. Volume 1: Evolution, systematics and biogeography.* – *Handbook of Zoology/Handbuch der Zoologie.* Walter de Gruyter. Berlin/New York). Species are listed in alphabetical order by family, subfamily, tribe, genus, and species. The single exception to this sequence is found in the Noctuidae, which is divided into three natural groupings. Group two we call "noctuids with hairy larvae" for lack of a better term. This group is comprised of the subfamilies Acronictinae, Bryophylinae, Pantheinae, and Raphiinae. Groups one and three are made up of the quadrifid and trifid noctuids respectively.



Eudocima materna

<http://www.biology.ualberta.ca/facilities/strickland/noctuoidea/index2.htm>



Welcome to Avibase



Avibase is an extensive database information system about all birds of the world, containing over 1.2 million records about 10,000 species and 22,000 subspecies of birds, including distribution information, taxonomy, synonyms in several languages and more. This site is managed by Denis Lepage and hosted by Bird Studies Canada, the Canadian copartner of Birdlife International. Avibase has been a work in progress for nearly 12 years and I am now pleased to offer it as a service to the bird-watching and scientific community.

Enter a bird name (or partial bird name) in any language or select a bird family below to find a taxon. You can use % as a wildcard in the middle of the name to replace any characters (eg, colo%red will return coloured and colored).

Avibase has been visited 656040 times since 24 June 2003. © Denis Lepage

<http://www.bsc-eoc.org/avibase/avibase.jsp>

Biological Survey of Canada Terrestrial Arthropods

The Biological Survey of Canada (Terrestrial Arthropods) helps to coordinate scientific research among specialists on the Canadian fauna of insects, mites, and their relatives.

This website provides information about the structure of the Survey and its various scientific projects, general information about the fauna and about the people who work on it, and listings of the Survey's scientific publications, briefs and newsletters, many of which are available here in electronic form.

The Survey synthesizes knowledge and ideas, focuses available expertise on to topics that are particularly significant, and acts as a clearing-house for information. It thereby serves as a catalyst for more efficient scientific progress and provides national direction for work on Canada's insect fauna. Understanding this fauna is a prerequisite for many basic and applied scientific studies, and for the management of natural resources.

Insects and their relatives belong to the most varied group of animals. Information compiled by the Biological Survey shows that in Canada alone:

- * There are about 55,000 species of insects.
- * There are about 11,000 species of mites and spiders.
- * About 4,000 species live in arctic regions beyond the limit of trees.
- * Only about half the species living in Canada have even been described (compare faunal analysis project).

<http://www.biology.ualberta.ca/bsc/english/insectfauna.htm>

Nature watch



NatureWatch is a suite of community-based "citizen science" monitoring programmes including FrogWatch, WormWatch, IceWatch and PlantWatch. Through these programmes, Environment Canada collects national information on indicators of ecosystem health. New "citizen science" programmes will soon be available on lichens, tree health and benthic macroinvertebrates.

The NatureWatch programme is a direct partnership between the Canadian Nature Federation and Environment Canada's Ecological Monitoring and Assessment Network Coordinating Office.

We need your help to collect environmental information on plants and animals so that our scientists can quickly identify ecological changes in our country. We do not yet fully understand how environmental stressors such as global warming, acid rain, and invasive species will affect our Canadian ecosystem. This information will help decision makers to make better choices for our future! Working together, we can learn how the natural environment is changing in our local communities, regions, provinces and in our country.

<http://www.eman-rese.ca/eman/naturewatch.html>



OCEAN AND CLIMATE CHANGE INSTITUTE

Abrupt Climate Change

Most of the studies and debates on potential climate change have focused on the ongoing buildup of industrial greenhouse gases in the atmosphere and a gradual increase in global temperatures. But recent and rapidly advancing evidence demonstrates that Earth's climate repeatedly has shifted dramatically and in time spans as short as a decade. And abrupt climate change may be more likely in the future.



continued...

Salt levels changing in the oceans

Saltier tropical oceans and fresher ocean waters near the poles are further signs of global warming's impacts on the planet.

Abrupt Climate Change: Should We Be Worried?

A World Economic Forum white paper by WHOI President and Director Robert Gagosian presented in Davos, Switzerland, January 27, 2003.

Frequently Asked Questions

WHOI scientists answer frequently asked questions about abrupt climate change.

Are We on the Brink of a 'New Little Ice Age?'

By WHOI scientists Terrence Joyce and Lloyd Keigwin

The authors discuss the paradox that global warming could, counterintuitively, instigate a new 'Little Ice Age' in the northern hemisphere.

The Ocean's Role in Climate

By WHOI scientist Raymond W. Schmitt

Testimony to the Senate Committee on Commerce, Science and Transportation

On Watch in the North Atlantic

"Station W" Monitors Circulation North and South

WHOI oceanographers are taking a major step toward understanding North Atlantic climate by installing a permanent moored data collection system in 3,200 meters (10,500 feet) of water along the western boundary of the Gulf Stream at "Station W".

http://www.whoi.edu/institutes/occi/currenttopics/ct_abruptclimate.htm

