



Blomidon Naturalists Society
Spring 2008 – Volume 35 Number 1

Blomidon Naturalists Society

The primary objective of the Society shall be to encourage and develop in its members an understanding and appreciation of nature. For the purpose of the Society, the word "nature" will be interpreted broadly and shall include the rocks, plants, animals, water, air, and stars.

(from the BNS constitution)

BNS Executive

Past president	Liz Vermeulen	681-0061
President	John Harwood	582-3320
Vice-president	Richard Stern	678-1975
Treasurer	Ed Sulis	678-4609
Secretary	Helen Archibald	582-1561

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The Blomidon Naturalists Society is a member of the Sable Island Preservation Trust and the Federation of Nova Scotia Naturalists (Nature Nova Scotia) and is an affiliate member of the Canadian Nature Federation (Nature Canada).

The Blomidon Naturalists Society is a registered charity. Receipts (for income tax purposes) will be issued for all donations.

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Contributions to the BNS newsletter are always welcome. Members are encouraged to share unusual or pleasurable nature stories through the pages of the BNS newsletter. If you have a particular area of interest, relevant articles and stories are always welcome. Send them to Jean Timpa by mail (1 - 25 Gaspereau Avenue, Wolfville, NS B4P 2C5) or by e-mail <jtimpa@ns.sympatico.ca>.

Upcoming newsletter deadline

Spring, June 15, 2008

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Editorial

Out and About

While the new calendar year begins in January, it is about now, with the disappearance of the snowflakes, the greening of the plants, a few bees in the crocus, and the arrival of some of the early migrating birds with their cheerful songs, that it really begins to feel like a new year. Indeed, it is a new year of life for the greater majority of plants and animals.

It will be a time to observe and hope that their struggles with the snow, cold, ice, lack of food, and inherent dangers associated with migration have not decimated their numbers. Bird counts of all sorts and atlassing can give us necessary details and resulting trends. It is so important that we participate in as many of these counts as possible. The results of several recent ones are recorded in this issue, as well as dates for new ones and a plea to help with the atlassing. Neophytes are encouraged to participate with some of the veterans, who will be glad for the company.

Counts of butterflies are also becoming more widespread. I believe Peter and Linda Payzant conduct at least one such count in Nova Scotia and perhaps organize others. Results are sent to a site in the United States that retains the numbers for population and distribution studies. Sightings of snakes, turtles, and amphibians are still welcomed by Fred Scott at the Acadia Biology Department, under whose direction a formal five-year study was undertaken a few years ago. Send observations and photographs to Fred by e-mail <fwscott@eastlink.ca> or fax (902 585-1059). He wants photos of mountain lions or panthers in Nova Scotia, too!

Plants, the very basis of all our existence, are of major importance, of course. Are you seeing more individuals of a certain species, or fewer? Have you found a new species – perhaps not yet recorded in Nova Scotia? Perhaps it is invasive and not such a good thing to have here. If you have questions or concerns about plants, contact Ruth Newell at the Acadia Herbarium by e-mail <ruth.newell@acadias.ns.ca> or phone (902 585-1335), with photos whenever possible. Ruth is the Nova Scotia representative on the vascular plant committee of COSEWIC, so she knows the latest information about rare and endangered plants as well as new and invasive ones.

We do have endangered plants and animals in Nova Scotia, so it is very important to monitor their presence, their numbers, their habitat. There are not enough scientists or funds to do all the urgent work necessary to save some of the familiar plants and animals of our province. Volunteers have already made a big difference to some of our critters. Please give it some thought and contact Fred or Ruth if you feel you can help in any way.

—Jean Timpa, editor

Acknowledgements

Thanks to all of you for your efforts to come out to meetings and field trips (only one cancelled due to lack of tracking snow, and one postponed but rescheduled) during a rather long, slippery winter that wore us all down. Also, the executive is very grateful to a number of BNS members who raised funds for the Green Dragon camp and the Nature Canada meetings in August 2007, assisted in so many ways with our newsletter production, provided leadership for meetings and field trips, made suggestions, took photographs, helped with the Eagle Watch weekend display, and participated in bird counts and their record keeping. All this energy toward our goals makes us one of the best natural history groups in Nova Scotia, if not Canada.

Regrets: We ran out of room in this issue for a report by Pat Kelly on a late winter sighting of a Great Egret in eastern Kings. But we couldn't pass up Mary's rendering of the bird. (ed.)



Blomidon Naturalists Society

Spring 2008

Meetings

Unless otherwise noted, all meetings are held at 7:30 p.m., usually on the third Monday of each month, in the auditorium of the K.C. Irving Environmental Science Centre on University Avenue, Wolfville. Parking is available at Wheelock Dining Hall, along Crowell Drive immediately east of the Centre, at the Acadia Arena, the Student Union Building, or on Westwood Avenue. Everyone is welcome.

Monday, April 21, 2008 – Nature and Astronomy in Ireland, by Patrick Kelly. The natural history of Ireland is much more varied than one would expect for such a small location. There is lot to see on the Emerald Isle, both natural and man-made. In addition to natural history on the ground, two locations have significant astronomical associations. Come and see some aspects of natural history that most would not associate with Ireland.

Patrick Kelly has a background in astronomy and computer science. He is the director of faculty computing in the Faculty of Architecture and Planning at Dalhousie University and is the editor of the *Observer's Handbook* of the Royal Astronomical Society of Canada.

Monday, May 19, 2008 – The Maritimes Breeding Bird Atlas, by Becky Stewart. This will be the second edition, a follow-up to the atlas undertaken from 1986 to 1990, with the first atlas results being printed in 1992. So far, more than 700 volunteers have logged over 18,000 hours in the field on the new atlas. When published, the new atlas will not only provide a summary of current breeding activity; it will also show what has changed over the last 20 years. Becky will describe the atlas project and discuss some results to date.

Becky tell her own story: Since October 2006, I have been the coordinator for the Maritimes Breeding Bird Atlas. I started working with birds in 1999 while doing my honours thesis at Queen's University. I began volunteering at migration monitoring stations including Long Point,

Thunder Cape, and Delta Marsh Bird Observatories. At the University of Manitoba I got my master's degree studying brood parasitism with Dr. Spencer Sealy. From spring through fall, in 2003 and 2004, I worked as the bander in charge at Delta Marsh Bird Observatory in Manitoba and did some volunteer banding in Mexico and Costa Rica. In 2004, I had a lengthy stop-over at Audubon's Starr Ranch Sanctuary in California, where I worked as the biologist for bird programs and ran the sanctuary bird research and education programs until I returned to Canada. Although I miss my surfboard, the warblers here are much better. I have published in the *Wilson Bulletin* and twice received the Josephine C. Rauch award (University of Manitoba) for excellence in undergraduate teaching.

Monday, June 16, 2008 – Discover the Bay of Fundy's Rare Mussel Reefs. Join marine geologist Gordon Fader, the discoverer of the globally unique and little-known Bay of Fundy mussel reefs, as he recounts their discovery and relates what we know about them so far. Then hear from Laura Hussey about the need to protect the reefs and the efforts by of the Nova Scotia chapter of the Canadian Parks and Wilderness Society (CPAWS-NS) to ensure that these amazing features are studied and maintained. The reefs, or bioherms, are formed by Horse Mussels (*Modiolus modiolus*) when the shells of dead mussels mix with sand and mud to form mounds on top of which live mussels grow. Images of the Bay of Fundy seafloor show multiple rows, each about 20 m wide, up to 3 m high, and up to 1.2 km long, making them the largest mussel reefs yet to be documented in the world. Like coral reefs, bivalve reefs function to create a productive and biodiverse marine environment. However, they are at risk of damage from human activities such as bottom trawling.

Laura Hussey is the marine coordinator for CPAWS-NS, where she works on a variety of issues, including the development of a network of marine protected areas, the protection of special marine elements such as the Bay of Fundy mussel reefs, and the sustainable use of ocean and coastal resources. She is a graduate of the masters program in resource and environmental management from Dalhousie's School for Resource and Environmental Studies. Laura has been living in the Halifax area for eight years now, but is originally from Newfoundland, where her love of the ocean and interest in marine management and protection were born. She loves spending time in and near the ocean, though some of her drier interests include hiking and farming.

Gordon Fader is a professional marine geologist, now retired from the Geological Survey of Canada. He had been responsible for seabed mapping and research on the surficial sediments and shallow bedrock geology of the southeast Canadian Continental Shelf, and has published over 300 maps, reports, and scientific papers in government publications and the scientific literature. He is a specialist in the acquisition and interpretation of high-resolution seismic reflection and sidescan sonar data, and the study of seabed processes and sediment characteristics. During his research he discovered many shipwrecks on the seabed off Atlantic Canada and has been featured in associated documentaries. He is completing a major publication on the geology of Halifax Harbour and a study on the effects of fishing activity and essential fish habitat with Fisheries and Oceans Canada, and writing a book on Halifax Harbour.

Monday, September 15, 2008 – TBA

Monday, October 20, 2008 – North of Norway, North of 80: Voyages in Svalbard and Greenland, by Blake Maybank. Canada shares the Arctic with four other nations, including Norway (the Svalbard islands) and Denmark (Greenland). Blake spent five weeks last summer in Svalbard and Greenland on an expedition cruise ship, and returned with tales and photos of Arctic wildlife, wildflowers, history, and landscapes. And ice. Lots of ice. Join Blake as he shares his adventures, and bring your thermal underwear.

Blake Maybank is a former employee of Parks Canada (chief park naturalist in Gros Morne, among other posts) and is now a writer, naturalist, and guide. He is author of *Birding Sites of Nova Scotia* and *The National Parks and Other Wild Places of Canada*. A member of the Nova Scotia Bird Society for 25 years, he is currently the editor of *Nova Scotia Birds* and is a regional editor for *North American Birds*. He wrote the Code of Birding Ethics for the American Birding Association.

Field Trips

Unless otherwise indicated, all field trips will begin at the Wolfville waterfront park. Everyone is welcome.

Saturday, April 26, 2008 – Earth Day Native Plant Sale. Help us celebrate Earth Day at the Harriet Irving Botanical Gardens at Acadia University. Learn more about gardening native, purchase native plants for your home garden, and take an early spring tour of the Gardens. Plant material grown by our volunteers from seed collected in the Gardens will be available for sale as well as material from several local nurseries. One of the best ways to attract local wildlife is to plant native vegetation. A variety of information from local groups will be displayed in the main lobby. All are welcome. 9 a.m. to 12 noon.

Sunday April 27, 2008 – Early Spring Birds, led by Jim Wolford (902 542-9204) <jimwolford@eastlink.ca>. This will be a joint trip with the Nova Scotia Bird Society, pond hopping for ducks and early migrants. Meet at the Wolfville waterfront at 10 a.m. Dress warmly and bring a lunch. No rain date.

Saturday, May 3, 2008 – Cloud Lake Wilderness Area Canoe Trip. Patrick Kelly (902 798-3329) and Larry Bogan (902 678-0446) will lead this trip. The trip will be at about five hours long, so be sure to bring a hearty lunch, water, drinks, etc., and, of course, life jackets, canoe, and paddles. If you have access to a life jacket but not a canoe there will likely be extra room in one of the canoes. Check with one of the leaders to be sure. Meet at 9 a.m. at the parking lot of Avery's Market on Highway 1 in South Berwick (about a 30-minute drive from Wolfville).

Tuesday, May 6, 2008, AND EVERY TUESDAY – Acadia University Woodland Trail Biodiversity List. For a third year, we will take a walk every Tuesday evening throughout the spring and summer to look for flowering plants, nesting birds, fungi, butterflies, dragonflies, etc. This is a long-term project, in cooperation with the K.C. Irving Environmental Science Centre, to observe the changes in biodiversity over the seasons and over the years. Everyone is welcome – for one week or every week. You don't have to be an expert, but we need lots of people to help spot and identify the different forms of natural history. Some weeks we will have a special leader with an emphasis on a specific area of natural history. If you would like to lead a walk or be on one with a particular emphasis, call Melanie at 902 585-1916. Meet at 6:30 p.m. at the main entrance to the Harriet Irving Botanical Gardens on University Avenue.

Saturday, May 10, 2008 – Nova Scotia Bird Migration Count.

Everyone interested in counting birds is invited to participate in the 16th annual North American Migration Count. Come and participate in this worthwhile project. This is a wonderful way to get out for a day's enjoyment while discovering possible rarities visiting the Valley.

Contact your local Annapolis Valley coordinators:

Hants East: Roslyn MacPhee (Shubenacadie) – Tel: 902 758-3265
and Rob Woods <rirtwoods@yahoo.com>

Hants West: Patrick Kelly (Falmouth) – Tel : 902 798-3329 <patrick.kelly@dal.ca>

Kings County: Judy Tufts (Wolfville) – Tel : 902 542-7800

Kings County (Kingston area): Sheila Hulford – Tel: 902 765-4023

Annapolis County: Contact Hans Toom <htoom@hfx.eastlink.ca> (902 868-1862). Anyone interested in helping coordinate Annapolis County would be most welcomed by Hans.

Sunday, May 11, 2008 – The Russian Space Program. The year 2007 marked the 50th anniversary of the launch of the world's first artificial satellite, Sputnik, by the Soviet Union. In the entire history of space exploration, only three countries have launched their own manned space missions: the USSR (1961), the United States (1962), and China (2003). The Russian space program actually started in 1905 with Tsiolkovsky's publication of *The Exploration of Cosmic Space by Means of Reaction Devices*. Join Dr. Svetlana Barkanova of the Acadia University physics department <svetlana.barkanova@acadiau.ca>. Her talk will outline the century of the Russian space program from 1905 to 2005, underlining such defining moments as the launch of the first artificial satellite 50 years ago, the first earthling in space, the first human in space, the first group flight, the first planet landing, and the first space station. Meet at 1 p.m. in Room 10 of the Huggins Science Hall at Acadia University.

Saturday, May 17, 2008 – Cape Split Hike 1. Take a trip to Cape Split with leaders Sherman Williams (902 542-5104), Jim Wolford (902 542-9204), and Patrick Kelly (902 798-3329). We will make interpretive stops along the way. Spring wildflowers and birds should be abundant. The tide will be low at the start of the hike, and the incoming tide will likely be at maximum when we reach the end of the cape. Meet at the Wolfville waterfront at 8:15 a.m. or at the start of the trail in Scots Bay at 9 a.m.

Monday, May 19, 2008 – Historic Hants County. This is a Nova Scotia Bird Society field trip led by Suzanne Borkowski (902 445-2922) <sborkowski@hfx.eastlink.ca>. We will start by exploring some of the grounds at Mt. Uniacke Estate Park, then continue along back-country roads through Hants County. Bring a lunch to be enjoyed at Smileys Park. Meet at 8 a.m. in the parking lot of Mount Uniacke Estate Park. The main gate will be locked, but the second gate (coming from Halifax) will be open. No rain date.

Sunday, May 25, 2008 – Blomidon Provincial Park. In conjunction with Parks Are for People, Jim Wolford <jimwolford@eastlink.ca>, (902 542-9204), will lead a walk from the campground about 2 km to the temporary pond that has the very rare and beautiful Fairy Shrimps, etc., and to the lookoff toward Five Islands Park. This is a beautiful time of year and location for spring flowers and birds. Meet at the Wolfville waterfront at 9:15 a.m. or at the Blomidon Park registration building at 10 a.m.

Saturday, May 31, 2008 – Cape Split Hike 2. Take a trip to Cape Split with leaders Sherman Williams (902 542-5104), Jim Wolford (902 542-9204), and Patrick Kelly (902 798-3329). We will make interpretive stops along the way. Spring wildflowers and birds should be abundant. In contrast to the walk two weeks earlier, the tide will be high at the start of the hike, and the outgoing tide will likely be at minimum when we reach the end of the cape. Meet at the Wolfville waterfront at 8:15 a.m. or at the start of the trail in Scots Bay at 9 a.m.

Saturday, June 7, 2008 – Back Yard Walk 1. Our hosts for this event will be John and Avril Harwood (902 582-3320), who live at 257 Woodside Road (back of) Canning. To find the Harwood place, go to Canning Main Street, and at the Borden monument take the road to Scots Bay and The Lookoff. Three kilometres from the monument, turn left toward Woodside. Look for the white house with a red roof on the right 3 km along the road. The tour will start at 10 a.m. and last until noon. Sturdy shoes are recommended. Rain date is Sunday, June 8.

This is the first in a series of walks that we hope will prove popular. Many members have properties large enough to support a variety of flora and fauna and allow residents to enjoy nature without leaving the comforts of home. If you would like to give a tour of your “back 40,” contact Patrick

Kelly (902 798-3329).

Saturday, June 14, 2008 – Herbert River Trail. Patrick Kelly (902 798-3329), <patrick.kelly@dal.ca>, will be leading this easy walk for the Nova Scotia Bird Society. We will follow the former rail line from Windsor to Truro via Kennetcook. It runs along the Herbert River for a good part of its length. In addition to birds, this walk is great for spotting floodplain vegetation. Meet at the Newport Rink parking lot at 9 a.m. Take Exit 5 from Highway 101 and follow Highway 14 east for about 10 km to the village of Brooklyn. At the cenotaph, keep left and follow Highway 14 north for just under 1 km. At the intersection (Petro Canada station), Highway 14 turns right. Continue straight on Highway 215 (Note the YIELD sign – you do NOT have the right of way!) The rink is on the right as soon as you exit the intersection. Bring insect repellent. We should be done by lunch. Rain date: Sunday, June 15.

Saturday, June 21, 2008 – Palmeters Woods. Judy Tufts (902 542-7800) and Nancy Nickerson (902 542-9332) will lead a walk through the woods behind Evergreen Home for Special Care (655 Park Street), located in the western end of Kentville. Come and explore this little green gem with us. Look and listen for local birds, and search the woodland floor for flora and fauna. There will be a good chance to see a variety of warblers and other migrants, and fascinating woodland plants. Meet at the Wolfville waterfront at 7:30 a.m. or at the parking lot behind Evergreen Home for Special Care in Coldbrook at 8 a.m. (The early meeting time will give more time to hear bird songs as they are most active in the early morning.) Juniors to seniors are welcome.

Saturday, July 5, 2008 – Back Yard Walk 2. Our hosts for this event will be Richard and Liz Stern. Their home is at 317 Middle Dyke Road, north from the lights at the intersection of Belcher Street and the dyke road from New Minas, and just before Chipmans Corner. The walk will start at 9 a.m. Rain date: Sunday, July 6.

Friday, August 29, to Monday, September 1, 2008 – NOVA EAST 2008. Atlantic Canada's longest-running star party will be held at Smileys Provincial Park near Brooklyn in Hants County. Some of the presentations and workshops, as well as the Saturday evening observing session, are open to the public. NOVA EAST is hosted jointly by the Halifax Centre

of the Royal Astronomical Society of Canada, the Minas Astronomy Group, and the Nova Central Astronomy Club. This year the guest speaker will be Terence Dickinson. Dickinson is the author of many astronomy books, including the best-selling *NightWatch* (now in its 4th edition), and is the editor of *SkyNews*, Canada's national astronomy magazine. More information can be found at <http://halifax.rasc.ca/ne>.



Executive Notes Spring 2008 by John Harwood, president BNS

At our last meeting, the BNS executive dealt with several items of general interest to all members. Membership and finances are always discussed. Ed Sulis, our treasurer and membership secretary, told us that we have a total of 144 ordinary members. Unfortunately, not everyone has paid dues for 2008. We were forced to increase dues last year because it was costing us more to produce and distribute the newsletter than we were taking in. Increasing the dues doesn't help much if they are not paid. 'Nuf said. Incidentally, we have 16 honorary life members.

The society's overall financial health is satisfactory. Our investments have fared not badly in the recent turbulence. Nonetheless, if we wish to continue with our very successful Green Dragon young naturalists program we need to watch our finances carefully. On page 39, you will find an article by Ed pointing out some ways that you may be able to assist the society and avoid paying some taxes. Give it a read.

The Green Dragon planning team is hard at work lining up funding for this summer's program. If you have any suggestions about possible sources, please give Harold Forsyth a call (902 542-5983)

One of our programs, the Art and Nature Competition for elementary school children, seems to have run aground. I would guess that teachers are so hard-pressed with all the curriculum requirements that they can't

find time for this non-curriculum art competition. If you know of a school in our area that would like to take part, please let me know. If we are unsuccessful in finding a school before the end of the school year, we will, perhaps, run the program as an add-on to the summer program.

The BNS newsletter is one of our strengths. Jean, our long-serving and hard-working editor, and her team will continue to produce an interesting and informative product. How about submitting an article yourself? Have you seen something of interest or been somewhere with a particularly fascinating natural-history slant? Have you got a new book on a natural-history subject? Why not tell us all! Jean would love to hear from you.

Pat Kelly, your program committee chair, has pulled together another splendid collection of presentations and field trips, including one of a different sort – a back yard field trip. Anyone familiar with Merritt Gibson's *The Old Place* is aware that nature starts in our own back yards. We are starting the series at my place, where you'll see some old apple trees, and some new, grape vines for wine, lawns and flower beds, a veggie plot, and fruit bushes. There are streams and a pond. There are woodland walks as well. There is not a lot of life showing at the time of writing, but things should be different in June. Come and have a look around. The view of the Valley from Woodside isn't bad at all.

Nature Canada Conference: Final Report Time and Tide 2007

On behalf of Nature Nova Scotia and the organizing committee, I would like to say a special thank you to Blomidon Naturalists. Many of you donated your time and talents to take participants on very interesting and informative field trips, while others, well recognized in your fields, gave entertaining talks. Others helped with the more mundane but necessary tasks related to publicity, registration, and physical set-up and take-down. And many of you, along with businesses and other organizations, donated items for a highly successful silent auction and raffle. Acadia University also gave us an unexpected donation that helped save on costs. We

received many compliments about the quality of the information sessions and field trips and the beauty of our local area.

Like all conference organizers, we hoped at least to break even financially. I would like to report that, happily, we had a surplus of just under \$15,000, one-half of which goes to Nature Canada. The other half stays with Nature Nova Scotia, the umbrella organization for naturalist clubs in Nova Scotia. BNS, a long-standing member of Nature Nova Scotia, contains a wealth of talent among its members, and the success of this conference would not have been possible without your participation. Thank you!

—Jean Gibson Collins, treasurer, Nature Nova Scotia

2009 BNS Natural History Calendar Call for Photos

The calendar committee is looking for your photographs.

We prefer photos of natural history interest – no more than 10, please, from any one person. Suitability for publication involves technical quality (sharp focus, not under- or overexposed), composition (object of interest nicely positioned, no distracting background), and content (a photo that calendar users will enjoy looking at for a month).

Please submit in one of the following forms: Electronic images – the preferred method – in jpeg format (file size between 300 KB and 2 MB); Colour slide; Colour negative plus a small print for evaluation.

If only a print is available, it should be at least 8 x 10 (inch). Negatives, slides, and prints will be returned, so be sure to include your name, telephone number, and postal address.

Send submissions before September 1, 2008, to Roy Bishop <roy@xcountry.tv> or RR 1, Avonport, NS B0P 1B0, 902 542-3992.

—Calendar committee: Roy Bishop, Merritt Gibson, Sherman Williams

BNS 2008 Science Fair Awards
Annapolis Valley Regional Science Fair
by John Belbin (BNS science fair judge)

April 2, 2008, Avon View Regional High School Windsor – The Annapolis Valley Regional Science Fair is a competition for the best science projects produced by the students of Annapolis, Kings, and Hants Counties. Normally, each school that takes part submits the top projects from its own science fair. A few projects are also submitted directly from students in those schools that do not have a formal science fair, if they are considered to be at a high enough standard. BNS provides two awards, one at the senior level, grades 10–12, and the second at the junior level, grades 7–9.

As is well known by now, the greatest enthusiasm for this kind of event regionally is at the elementary and middle school levels, with some astounding efforts being made. In contrast, there is relatively little interest or effort at the high school level, with few projects being submitted and little apparent support for students to enter. I find that very surprising, as the successful students at this level have received some extensive rewards and recognition for their efforts. All of them are getting great experience that will be highly valuable in the university and college years to come. All this is a significant change from just a few years ago when the senior high school level was by far the most competitive.

Of a mere handful of high school projects listed for this year, only two seemed to have the potential to be of interest to BNS. I examined additional projects in the math, space, and engineering categories but could find nothing else that would be suitable. I was well aware of one individual in life sciences – he won last year’s BNS and CARP awards – but could not find the young lady listed with a second project. After literally reading every project in the room, I learned that she had not arrived to set up her project. That left me in a bad position, with only a single option for the senior high school level. I interviewed our only possibility at length to ensure that significant aspects of his project would be of interest to BNS and our members. Fortunately, that student is one of the best-prepared, knowledgeable, and enthusiastic people you will ever meet. The junior level had a large number of entries, some very keen

students, and some projects that would put a few of those in the senior level to shame. I learned quite a lot from those young people.

BNS Senior Award, grades 10–12

McCall Robinson – Western Kings District High School, grade 11: “The unseen benefactor.”

This is a follow-on project to his major award-winning effort of last year called “Aquatic Pathways,” a tropical salt-water aquarium built upon a completely balanced ecosystem. It contained a fully functioning miniature coral reef system, which contained hard and soft corals, polyps, and tropical invertebrates supporting a balanced population of reef fish. The \$5,000 cost was supplied by McCall from his jobs at the Aylesford zoo. This project was selected for the Nationals, and from there McCall was invited to Australia for a 25-day science trip. He will soon be embarking on a similar journey to Brazil.

“The unseen benefactor” studies just how varied and extremely sensitive coral reef environments are. McCall was able to demonstrate that, even in his own tanks, different corals were able to go from stressed and dying to highly flourishing, with relatively small changes in depth of water, illumination, turbidity, temperature, water flow, and levels of minor nutrients and pollutants. Each one he studied had a unique set of requirements.

The project title comes from the symbiotic relationship corals have with dinoflagellate algae called zooxanthellae that live inside a thin layer of tissue that connects the coral polyps to one another. Some corals get more food from the zooxanthellae than they do from capturing plankton. The algae provide them with calcium carbonate to form their skeletons and remove their CO₂, phosphorous, and nitrogen wastes. As coral polyps have no colour, it is the algae that make the reef appear to be pink, brown, yellow, purple, or whatever you see. A stressed, or “bleached,” reef is one in which the algae are in trouble.

To do this study, McCall had to invest in a \$1,500 microscope, again from his own funds. He had nine different kinds of coral in his study tank and was able to discover the level of zooxanthellae in each – there were huge variations. One of his significant discoveries was the dramatic

sensitivity of the algae to levels of phosphates in waters running off the nearby land – it is literally killing many reefs. Many others are being affected by relatively small changes in water temperature. McCall tried these variations in his tanks and reported on them.



Healthy and bleached corals (from NOAA Ocean Service via MicrobeWiki)

BNS Junior Award, grades 7–9

Marrisa Murphy, Pine Ridge, grade 8: “Are you able to make a working homemade magnetometer?”

The simple answer to this of course was “yes,” and Marrisa did just that. She was well aware of the problems in using such a sensitive device to detect changes; a great number of sources can disrupt such an instrument. However, she was able to use it at night and minimize the disturbances to the point where she detected minor auroral displays over a period of several nights in February. She has a great deal of knowledge about these upper atmospheric events, and it was a pleasure to talk to her. Let’s hope that she keeps up the interest in the future.

Honorable mentions

- Morgan McAloney, Pine Ridge: “Winter Wonderland: Do varying weather conditions affect the shape of snowflakes?”
- Brooke Barkhouse, Horton: “Nova’s Ark: Is it time for Nova Scotians to build an ark because of rising sea levels?”
- Joshua Thomas and Alexander Thomas, Windsor: “Warm up to Kyoto.”

There were some exceptionally fine projects at the elementary levels, grades 4–6, but BNS has no award established for that level.

Biography
Cyril K. Coldwell – Gaspereau Birder
by Merritt Gibson

Cyril Coldwell (1917–1994) had a lifelong interest in birds and thoroughly enjoyed sharing his stories and knowledge with others. Cyril farmed in the Gaspereau Valley and also worked in the biology department at Acadia University, where he generously assisted in the research studies of both students and faculty. Most noteworthy, Cyril maintained a raptor rehabilitation centre on his farm, nurturing many injured birds back to health and returning them to the wild.

For 20 years, Cyril worked with students and faculty at Acadia University and today is fondly remembered by wildlife biologists across Canada and the United States, as well as in England, France, Belgium, Africa, and New Zealand. A few years ago, one graduate wrote, “My active interest in birds came when I enrolled at Acadia and had the very good fortune to meet Cyril Coldwell. Cyril was such an inspiration and such fun for me that I became busy learning everything I could about birds.” Today, this student has been a university professor of ornithology for the past 25 years. Similar stories are told by his other students and testify to the immense influence that Cyril had on their careers.

In the 1960s, local Barred Owls were becoming scarce. Cyril thought the problem might be caused by the cutting of large trees, which had the large cavities needed for nesting. Recognizing the problem and realizing that these owls would accept nest boxes, Cyril, Bernard Forsythe, and Mark Elderkin started building owl boxes and placing them about local woodlands. The owls readily nested in these boxes. In 1992, for example, owls nested in 16 of Forsythe’s boxes, and 32 young fledged. Forsythe still maintains about 20 boxes each year. Today, thanks to these birders, Barred Owls are again one of our most common raptors.

Cyril also looked after owls at his rehabilitation centre. In 1982, a forestry company cut a tree with a Great Horned Owl nest and an owlet in it. The owlet was sent to the Shubenacadie Wildlife Park and in the autumn it was given to Cyril to look after. Cyril cared for it for a year and a half and

released it in the spring of 1984. It hunted in the neighbourhood during summer and returned to Cyril's barn for the winter.

That November, in preparation for spring, Bernard Forsythe built a platform in the maple tree beside Cyril's house. He also placed sticks on it so that, according to Cyril, "it looked like a better owl's nest than the ones in the woods." The owl agreed and moved onto the nest in February 1985. That year she laid two eggs, but neither hatched, and the same thing happened in 1986. In 1987 she laid three eggs. Thinking the eggs again might not be fertile, Cyril added two eggs from wild nests, and two owlets hatched. The owl remained nearby and nested each year over the next three years, fledging seven owlets. Through the years, Cyril cared for about 30 owls that had been injured or orphaned and, when they were strong again, returned them to the wild.

The story of Cyril Coldwell and his eagles is well known to local birders. During the 1930s through the 1960s, eagles were scarce in the Maritime provinces. Cyril started feeding eagles at his farm in the late 1960s, and in the 1980s up to 50 eagles visited his feeding site at one time. Other farmers followed Cyril's practice. Feeding eagles in winter helps the young birds survive this difficult season and enter the breeding population. In 1979, Cyril organized the first Eagle Count, during which local birders, assigned to different areas, counted all eagles seen in a one-hour period. In 1979, observers saw a total of 22 eagles. This count is now named the "Cyril Coldwell Eagle and Raptor Count" and continues to be held each year. Today, more than 300 eagles are regularly seen, and occasionally the count is above 400. Nova Scotia now has a healthy population of eagles, with birds dispersing to re-populate northeastern New Brunswick, Prince Edward Island, and other centres. One of Cyril's eagles was recaptured in California!

Injured eagles were also cared for at Cyril's rehabilitation centre. He received his first eagle in 1976. It had been shot and its wing damaged. A local veterinarian x-rayed the bird, removed the shot, and placed a pin in the broken bone. Cyril cared for this bird through a six-week recovery period, and then successfully released it. Some of Cyril's eagles had been shot or caught in traps, others were injured when they hit wires, and one or two low-flying birds were hit by cars. One eagle had so gorged itself on a dead whale and soaked its feathers in whale oil that it could not fly.

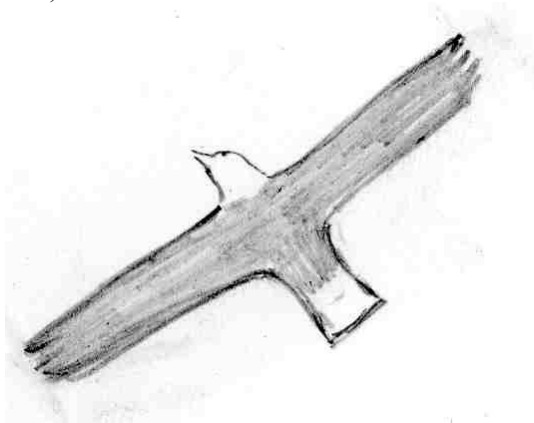
Cyril provided shelter for the few days the bird required to digest the food and clean its feathers. Through the years, Cyril cared for 38 injured eagles. Most recovered and were released.

Cyril also cared for about 20 injured hawks. One was a Rough-legged Hawk with a badly broken wing, perhaps caused by hitting a wire. Again, following treatment by a local veterinarian, Cyril looked after this hawk until the wing regained its strength, and then released it on the Grand Pre dikelands.

Cyril always hoped that a pair of eagles would nest on his farm. There are several tall pine trees on the hill overlooking his home, and in October 1992, Bernard Forsythe built a nesting platform near the top of one. Regrettably, Cyril died in 1994 without seeing his hope fulfilled. Eagles explored the platform in 1995, returned to build a nest in 1996, and raised two young. Eagles nested there again in 1997 and have nested there most years since. Today (2008), eagles are again in the nest. This nest is a much deserved tribute to Cyril's work.

I sometimes wonder if we would have healthy Bald Eagle and Barred Owl populations today had it not been for Cyril and those who worked with him. Whether on his farm, on the top floor of the biology building, or about a campfire at Bon Portage Island, Cyril was a good friend and mentor, always ready to share his knowledge of birds.

“Let the eagle be your guide to go further than you can see.”
(Mi'kmaq lore)



Back Yard Nature
Owls in my Back Yard
by **Bernard Forsythe**

January 1992 – A Barred Owl was hunting behind our house. I asked Cyril Coldwell if Barred Owls would take carrion. “Only one way to find out, boy,” he replied as he handed me several frozen hamsters, I put up a feeding platform in a maple tree and a nestbox in another tree in our yard.

The following is a sample of the many records I have kept on this owl family:

- Jan 22, 1992 – The first hamster was taken by the Barred Owl.
- Mar 24, 1992 – The first egg was laid in the nestbox.
- May 30, 1992 – 2 young fledged. Feeding was stopped soon after young fledged; they have to learn how to hunt for themselves.
- Dec 1, 1992 – Barred Owl back taking hamsters from the platform.
- Mar 24, 1993 – First egg laid.
- Jun 3, 1993 – 2 young fledged.
- Dec 18, 1993 – Owls returned for hamsters, the male has legbands.
- Mar 26, 1994 – First egg laid; June 4, 3 young fledged.
- Dec 2, 1994 – Owls back for another winter of free suppers.
- Mar 20, 1995 – First egg laid.
- May 30, 1995 – 3 young fledged; adults now attack me at nestbox.
- Oct 27, 1995 – Owl took food; they do not come every night until March.
- Mar 20, 1996 – First egg laid.
- May 28, 1996 – 3 young fledged.
- Nov 15, 1996 – Owl returned to feeder.
- Mar 14, 1997 – First egg.
- May 30, 1997 – The 3 eggs failed to hatch, also last day female in nestbox.
- Oct 4, 1997 – Owl back at feeder.
- Mar 14, 1998 – First egg laid.
- May 27, 1998 – 4 young fledged.
- Nov 17, 1998 – Owls back for free hamsters.
- Mar 14, 1999 – First egg laid.

May 28, 1999 – 3 young fledged.
Late Oct, 1999 – Owls back for a road-killed pheasant.
Mar 16, 2000 – First egg laid.
May 25, 2000 – 2 young fledged.
Nov 16, 2000 – Owls returned to feeder.
Mar 17, 2001 – First egg laid.
May 28, 2001 – 3 young fledged.
Nov 21, 2001 – Owl at feeder, having these fine birds around helps shorten a long winter.
Apr 7, 2002 – A new male without bands had replaced banded male at least 17 years old.
Mar 22, 2002 – First egg laid.
May 29, 2002 – 2 young fledged.
Oct 30, 2002 – Owls back at feeder.
Mar 16, 2003 – First egg laid.
Jun 3, 2003 – 3 young fledged.
Oct 2, 2003 – Owl took road-killed Red Squirrel from feeder.
Mar 18, 2004 – First egg.
May 29, 2004 – 2 young fledged.
Aug 17, 2004 – Young still in our yard.
Nov 10, 2004 – 5:30 p.m. owl took part of a Shad I placed on feeder.
Mar 20, 2005 – First egg.
May 30, 2005 – 3 young fledged, adult struck me at empty nest.
Nov 16, 2005 – Owl took road-killed Ruffed Grouse.
Mar 18, 2006 – First egg; female incubated until early May but the 2 eggs were infertile.
Nov 15, 2006 – Owl took a Deer Mouse out of my hand as I placed it on the platform.
Mar 13, 2007 – My earliest first egg laid.
May 24, 2007 – 3 young fledged.
Dec 18, 2007 – Owl at the feeder for the 16th winter; 38 young fledged to date.

March 2008 – Yes, Cyril, Barred Owls do take carrion. Many people of all ages have visited us to see and learn how these large owls can live successfully even in a back yard if a nestbox is provided.

Report
Cyril K. Coldwell Eagle Watch 2008
by Jim Wolford

Thanks to everyone who participated, particularly to Zelda, who did so much for us and had the great idea to group up in CKC's kitchen, as of yore, and to Bernard Forsythe for bringing that historic sheet from the first CKC count back in 1979, which had 10 participants who tallied 22 eagles. As Bernard observed, if the first count was in 1979, then this is the 30th year of such counts (ignoring the four years without counts).

This year's results tentatively were 291 eagles, 77 Red-tailed Hawks, and an immature Peregrine Falcon. Uncountable is the Barred Owl that Sherman Williams had looking into one of his windows in late afternoon and evening at Avonport. This year's total of eagles is about the same as two years ago, but significantly less than last year's 427.

Seen in the Wild
Killer Red Squirrel
by Barry Yoell

Long have we enjoyed the antics of our Red Squirrel population. They frolic and play in our neighbouring woods, helping to speed up the birdseed consumption and providing lessons in carefree and exuberant lifestyles. They chase each other and play games. They create a network of tunnels under the snow near the bird feeders and rush in and out of these tunnels with gay abandon. They have always been a great source of pleasure for us, and apart from a brief desire to nest in our garage attic, or wood shed, have always been wonderful neighbours.

Imagine our surprise and shock when we saw the largest of the squirrels hurtle into a large flock of redpolls feeding on the ground, scattering them in all directions, and emerging from this headlong rush with a bird in

its mouth. We had never seen such an attack, and though the particular squirrel seemed to be the dominant one of the three or four residents, and more given to chattering and scolding us when we were nearby, we had not observed it in this aggressive mode before. Soon after this episode, we noted that this *squirrelus horribilus* had taken to crouching in a cat-about-to-pounce position on a branch above our hanging bird feeders and chasing the birds as soon as they came to the feeders.



We also saw it pounce on a hapless redpoll that landed near him on his branch, killing it instantly. The number of birds coming to our feeders rapidly declined, and we decided that we must intervene. A live trap, baited with peanuts, was successful, and I reversed the usual practice of releasing town-caught nuisance animals in the country by bringing our country squirrel to live in town! Perhaps it can work on the Gray Squirrel problems that seem to be emerging there.

An interesting aside on this Red versus Gray Squirrel thought:

In Pennsylvania there was a popular misconception that red and gray squirrels are enemies, and that during fights, the red squirrels castrate gray squirrels so that reproduction is prevented! Because of this idea, red squirrels are ruthlessly hunted and killed.

(from *Mammals of the World*, vol. 2, Johns Hopkins)

Report
Wolfville 2007 Christmas Bird Count
by Alison Bogan, coordinator

December 16, 2007 – The weather “out there” was frightful for the 2007 Wolfville Christmas Bird Count, but 50 field observers braved the severe wind chills to cover the 24 areas, while 96 feeder watchers added to the observations. Our total of 71 species plus 4 during count week was lower than previous years, but reflected the fact that many bodies of water were frozen and many birds were sensibly hunkered down out of the wind and out of view.

The most abundant species were the usual – crow, starling, Herring Gull, American Goldfinch, Black Duck, Blue Jay, chickadee, junco, and Mourning Dove. The excitement was in reports of the unusual and scarce birds. In the field there were reports of a Winter Wren, Vesper Sparrow, Pine Warbler, Bufflehead, Iceland Gull, Boreal Chickadee, cowbirds, and Ruby-crowned Kinglet. Feeder notables included Eastern Towhee, Clay-colored Sparrow, Yellow-breasted Chat, Red-winged Blackbird, and Common Grackle. White-crowned Sparrows and Northern Shrikes were reported in both field and at feeders. Redpolls, including one Hoary, were abundant this year. No owls were reported on count day, but a Barred and Great Horned Owl were reported during count week. The other two count-week species were a Barrow’s Goldeneye and White-winged Scoters.

The Christmas Bird Count is possible only because of the efforts of many people. Thanks to all the intrepid field observers and faithful feeder watchers, and special thanks to Jim Wolford for coordinating and compiling the feeder watch and to Larry Bogan for computer assistance.

The Count

Species (field# feeder# total#)

Canada Goose (418 86 504), Black Duck (1,064 250 1,314), Mallard (640 50 690), Common Eider (50 – 50), Common Goldeneye (4 – 4), Bufflehead (1 – 1), Common Merganser (44 – 44), Bald Eagle [adult] (116 14 130), [immature] (80 7 87), [unknown] (4 7 11), Northern Harrier

(5 – 5), Sharp-shinned Hawk (6 3 9), Northern Goshawk (1 – 1), Red-tailed Hawk (106 6 126), Merlin (3 – 3), Rough-legged Hawk (7 – 7), Ring-necked Pheasant (170 98 268), Ruffed Grouse (3 – 3), Peregrine Falcon (3 – 3), Sanderling (3 – 3), Ring-billed Gull (18 7 25), Herring Gull (1,562 69 1,631), Iceland Gull (2 – 2), Great Black-backed Gull (484 16 502), gull (sp.) [immature] (3 – 3), Rock Pigeon (380 14 394), Mourning Dove (407 504 911), Downy Woodpecker (30 63 93), Hairy Woodpecker (26 39 65), Northern Flicker (18 31 49), Pileated Woodpecker (4 1 5), Horned Lark (245 – 245), Blue Jay (670 402 1,072), American Crow (9,148 2,209 11,357), Black-capped Chickadee (748 438 1,186), Boreal Chickadee (3 – 3), Red-breasted Nuthatch (9 8 17), White-breasted Nuthatch (28 31 59), Winter Wren (1 – 1), Brown Creeper (4 – 4), Golden-crowned Kinglet (51 – 51), Ruby-crowned Kinglet (1 – 1), American Robin (10 – 10), Bohemian Waxwing (182 25 207), Cedar Waxwing (5 24 29), Northern Shrike (1 1 2), European Starling (8,873 621 9,494), Pine Warbler (2 – 2), Yellow-breasted Chat (– 1 1), American Tree Sparrow (165 25 190), Chipping Sparrow (5 12 17), Savannah Sparrow (21 1 22), Song Sparrow (106 34 140), White-throated Sparrow (57 45 102), White-crowned Sparrow (2 1 3), Clay-colored Sparrow (– 1 1), Vesper Sparrow (1 – 1), Dark-eyed Junco (942 73 1,015), Lapland Longspur (6 – 6), Snow Bunting (51 30 81), Northern Cardinal (4 18 22), Eastern Towhee (– 1 1), Common Grackle (– 2 2), Red-winged Blackbird (– 2 2), Brown-headed Cowbird (2 – 2), Pine Grosbeak (75 12 87), Purple Finch (20 18 38), Common Redpoll (327 79 406), Hoary Redpoll (1 – 1), Pine Siskin (33 10 43), American Goldfinch (569 897 1,466), Evening Grosbeak (83 95 178), House Sparrow (157 34 191)

Summary of observations

71 species counted
 28,580 individual birds in the field
 6,467 at feeders
 35,047 total

Time and distance

On foot: 64.5 h, 125.5 km
 By car: 65.5 h, 677.3 km
 Totals: 130 h, 802.8 km



Report
West Hants 2007 Christmas Bird Count
by Patrick Kelly, coordinator

December 29, 2007 – As usual, BNS members played a crucial role in conducting a successful count.

Here is a complete list of birds counted (single sightings in boldface): Canada Goose 66; American Black Duck 546; Mallard 81; **Bufflehead** 1; Ring-necked Pheasant 101; Ruffed Grouse 4; Bald Eagle 8; **Northern Harrier** 1; Sharp-shinned Hawk 4; Red-tailed Hawk 40; Rough-legged Hawk 3; **Peregrine Falcon** 1; Ring-billed Gull 36; Herring Gull 508; **Lesser Black-backed Gull** 1; **Glaucous Gull** 1; Great Black-backed Gull 122; Rock Pigeon 232; Mourning Dove 386; Barred Owl 6; Downy Woodpecker 24; Hairy Woodpecker 26; Northern Flicker 16; Pileated Woodpecker 6; Blue Jay 670; American Crow 1,058; Common Raven 153; Horned Lark 15; Black-capped Chickadee 344; Boreal Chickadee 3; **Red-breasted Nuthatch** 1; White-breasted Nuthatch 12; Golden-crowned Kinglet 7; American Robin 26; **Northern Mockingbird** 1; European Starling 2,829; Bohemian Waxwing 694; Cedar Waxwing 42; American Tree Sparrow 41; Chipping Sparrow 2; **Vesper Sparrow** 1; Song Sparrow 14; White-throated Sparrow 11; Dark-eyed Junco 323; Snow Bunting 12; **Baltimore Oriole** 1; Pine Grosbeak 37; Purple Finch 2; **White-winged Crossbill** 1; Common Redpoll 585; Hoary Redpoll 2; Pine Siskin 5; American Goldfinch 617; Evening Grosbeak 284; House Sparrow 102.

We counted a total of 10,115 birds, compared with over 16,000 in 2006. The weather was a much bigger factor this year. Although it changed over the course of the day, the poor weather in the early part of the day meant that some field observers had to stop early.

What surprised me was that even with about 6,000 fewer birds, we had 55 species, up from 54 in 2006. That by itself would not be unusual, but 12 species seen in 2006 were not seen in 2007 (American Wigeon, Northern Shoveler, Green-winged Teal, Ring-necked Duck, Common Merganser, Merlin, Wilson's Snipe, Short-eared Owl, Black-backed Woodpecker, Brown Creeper, Red-winged Blackbird, Savannah Sparrow),

and 13 seen in 2007 were not seen in 2006 (Bufflehead, Peregrine Falcon, Lesser Black-backed Gull, Glaucous Gull, Horned Lark, Northern Mockingbird, Bohemian Waxwing, Cedar Waxwing, Chipping Sparrow, Vesper Sparrow, Purple Finch, Common Redpoll, and Hoary Redpoll).

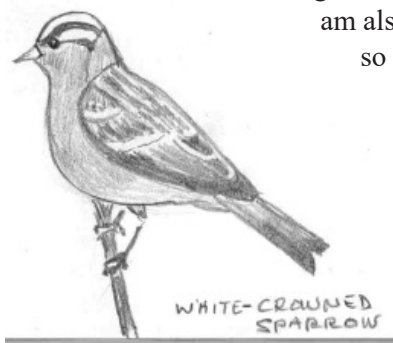
If my reading of the Audubon data-entry website is correct, the Peregrine Falcon and Hoary Redpoll have never before been recorded for this count. Other rare birds are Baltimore Oriole and Northern Harrier, one of each seen in both 2006 and 2007.



Three extra species were reported in the count week: Great Blue Heron, Green-winged Teal, and a Pine Warbler. The warbler was the more frustrating bird as it has been coming daily to my feeder and was there on the 28th and 30th, but not on the 29th. In fact, it is still here as I write this (January 20).

The total number of party-hours travelled by car was 44:45, with 30:10 on foot. The total distance covered by car was 661 km, 57 km on foot.

I would like to thank everyone who participated this year. A big thank you to Frank and Beth Woolaver, who host the after-count potluck. It is always wonderful to get together afterwards and compare notes. For 2008 I am planning to have the maps redone to break the circle up into even smaller regions, as is done with the Wolfville count. I am also planning to change the reporting form so that it lists only those species that have been seen on this count for the last number of years. I hope that many of you will be able to participate.



BNS/NSBS/AFNC Field Trip Report

Birding along the Fundy Shore

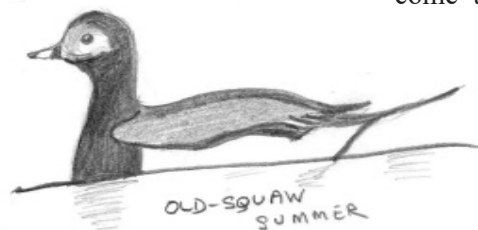
by Wayne Neily, Tremont, Kings Co.

March 22, 2008 – The weather was not ideal, with temperatures ranging mainly from minus 9 to minus 5 (before wind-chill), and a NW wind along the coast of 35–50 km/h in exposed areas. The snow held off except for an occasional light flurry, and generally we had reasonably good viewing as long as we could find shelter from the wind. I understand that slippery roads in the interior of the province kept some South Shore birders away, but we had a good group of 10 birders from Kings and Halifax counties – close to an ideal size for a birding trip to allow everyone to see as much as possible. I'd still like to have a way to communicate quickly with all the cars when something is seen as we're moving along. Does anyone have experience with a low-power radio transmitter or some such device?

We had about 40 species – not counting a recently deceased Ruffed Grouse along the road at Margaretsville – with no great rarities but several species of interest. The highlights included the flock of 13 Harlequin Ducks at their usual spot at Port George, seemingly trying to prove that they were not unlucky by hugging the shore despite the high wind and wave action. Most sea ducks, including the Common Eiders, were farther out and could

be seen only by patiently waiting for them to come to the surface close enough to

the crest of a wave. Scanning at Morden, Port George, and Margaretsville produced fair numbers of eiders and Red-breasted Mergansers (25+), but only a few Long-tailed Ducks, Common Loons,



and scoters (White-winged and Black were identified). Even gulls were difficult to get; besides our two basic ones, we had a Ring-billed, and Clarence Stevens (Sr.) managed to pick out an Iceland at Cottage Cove. Other coastal species eluded us and we decided to continue westward in the Valley because of the cold wind and swells at the shore.

Our first stop of the day was at Aylesford, where Audrey Wellwood's excellent feeding station adjoins a ravine with a pond in it. There we were treated to the sight of pairs of early Mallards and Black Ducks, as well as large flocks of redpolls (only Common identified) and American Goldfinches and a White-throated Sparrow, as well as other common feeder birds, including Dark-eyed Juncos. The Northern Cardinal that she had occasionally did not appear while we were there; nor did we find any of the famed Middleton ones later in the day, but Shawn Hicks and I were lucky enough to see a male fly across the Wellwood driveway when we returned to pick up a car in the late afternoon.

Between Aylesford and Morden, at Welton's Corner, we had another highlight – a large flock of Bohemian Waxwings perched in roadside trees gave us a good view for about five minutes until they all took off with the arrival of a Merlin. It, in turn, perched near the road and gave us a view through scopes and binoculars. I had estimated the waxwing flock to be about 400 birds, but Gary Myers got a photo of them in flight and said that by using a grid he was able to count more than 700! Other bright spots: flocks of Canada Geese going over Morden and Middleton; Hoary Redpolls (at least two *C. hornemanni exilipes*) along with many more regular species at Helen Sharp's feeding station in Margaretsville. Singing Song Sparrows there and elsewhere were encouraging, as were small numbers of American Robins seen at various points. Sharp-eyed Clarence Stevens found a White-crowned Sparrow at another feeder in Margaretsville (Peter Harvie's) for a surprise highlight. Ring-necked Pheasants were resplendent at various points, but at one stop in Granville, about nine of them took off from a small area between the road and the Annapolis River.

At the west end of the trip, additions were Common Goldeneye, Bufflehead, and Red-necked Grebe (and a Harbour Seal) below the dam at Annapolis Royal, and a male Northern Harrier over the marshes along the river – probably a migrant. We were not



able to find the two “possible Thayer’s Gulls” seen there recently; nor were we successful in turning an apparent small Common Loon there into a Pacific, although it might be worthwhile for others in the area to check for it, as our view was not great.

All in all, it was an enjoyable day, and I would like to thank especially those feeder owners whose hospitality added so much.

Tree Huggers versus Forest Muggers **by Mike McCall**

J.D. Irving Ltd. is defending itself in New Brunswick on a charge of violating the Migratory Birds Convention Act, the full title of which is the somewhat splendidous “The 1916 Convention Between the United Kingdom and the United States of America for the protection of migratory birds in Canada and the United States.” The act was updated in 1995.

The charge was laid following the destruction of 12 to 20 (the number varies) Great Blue Heron nests in an area of New Brunswick where Irving was building a logging road. Not only is Irving fighting the charge, but in a preemptive strike is also challenging the validity of the act as being “unconstitutional.”

I’ve never been accused of being a deep thinker or of having a fine legal mind, but a reading of the Migratory Birds Convention Act leads me to think that the Irvings, whose deep pockets and bullying tactics have cowed provincial and municipal governments in New Brunswick for years, could win this one as well. Why? Because while the act in the preamble and in Article II is very touchy-feely about sustaining healthy bird populations and protecting habitat, it is narrow in that its main thrust is to prohibit hunting of birds by establishing open and closed seasons (Article II) and prohibiting the “taking of nests or eggs of migratory game or insectivorous or non-game birds” (Article V), but it does not specifically prohibit the destruction of nests of any species, pestiferous or otherwise, although its earnest language leaves little doubt that such activity is at odds with what the act seeks to accomplish. (Contrary to a *Globe and Mail* report

on the court case, nowhere does the act prohibit anyone from disturbing or destroying a migrating bird's nest. At least in my copy.)

I had a light brush with the act 40 years ago. In the sixties I was instructing new helicopter pilots, and one of the navy's practice flying areas was near Chezzetcook, east of Shearwater. One lesson plan intended to enhance control of airspeed, power, turn rate, and altitude was conducted between 1,000 and 2,000 feet. The student pilot was directed to do a series of climbing and descending turns in a fixed pattern. Following one of these trips, I was summoned to explain why I had been chasing migrating Canada Geese around. I hadn't seen any geese, but someone who lived in the area had seen a flock of geese and a helicopter in the sky at the same time and thought, "By heck, that navy feller is chasing the geese!" and he phoned Shearwater to complain. He also told his tale to a Halifax paper. The matter was raised in question period by the opposition (Diefenbaker leading the charge: a perfect goose chasing geese!), the minister's office queried our admiral, and there was some muttering about applying the Migratory Birds Convention. Which is why a week later, with the Minister of National Defence, Paul Hellyer, in the student's seat, I repeated the lesson plan over Chezzetcook.. He was satisfied that my flight with my student was what I'd said it was and also seemed sympathetic to my observation that I would go to great lengths to avoid running into a flock of eight-pound Canada Geese, an event that could easily knock my frail machine – with me in it – out of the sky, or at the least, damage it severely. My point is, though, that even if I had been intent on mayhem, I was unlikely to be prosecuted under the act as written because I wasn't hunting the birds or taking their nests or eggs.

It might have come up again had someone reported on another local flight hazard. Sometimes to get to the harbour entrance or to sea, low visibility over Eastern Passage forced us to fly low over McNabs Island, where there was a large heron colony. I know that some birds were scared off the nest and probably some young were lost, but once again I don't think the navy's pilots could have been prosecuted under the Migratory Bird Convention.

So I think Irving's lawyers have a valid point about the vagueness of the act, while conservation groups are right in wishing to make it more enforceable. I'm sure our sainted Robie would agree.

While the outcome of the present trial is not yet known, a news report on March 28, 2008, sums up the situation: “However, the review (of the act) will likely be put on hold while the case is before the courts. Many experts believe the case will take years to resolve and will end up in the Supreme Court of Canada.”

And finally, I append this apropos quote from a recent article on corporations:

In his book *The Corporation*, Joel Bakan asks the question, “If a corporation is legally a person under the law, what is the psychological make-up of that person?” Through the examination of case studies and interviews it was concluded that for the most part corporate entities behave like sociopaths. The reason is that the primary obligation of the corporation is to maximize wealth for shareholders, public or private. If birds are in the way, god help them. Unless compelled in unambiguous legal language by the responsible authorities, corporations are not obligated to share the same values as the communities in which they reside.

Natural History

Shipwrecked: The Life of a Parasite

Part 3: Passive refinements on the shotgun strategy

by Dave Shutler

Previously, I explored the remarkable capacity of parasites to spray hopeful life stages (spores, eggs, larvae, whatever) into the hostile environment around them, hoping that some of those life stages would encounter a fresh host. I called this blind approach the shotgun strategy. Under this strategy, the staggering waste of life stages would be pretty depressing to parent parasites; fortunately, they would usually be blissfully unaware. (The image of a blissful parasite is a bit foreign, but I digress.) It wasn't depression or bliss that led parasites to try to improve their success rate; it was natural selection. In fact, it is highly unlikely that a pure shotgun strategy would persist for any interval, and there are several ways that

natural selection has improved on random spraying of life stages.

A pure shotgun strategy of “all life stages all of the time” might succeed in getting to new hosts, but will it succeed as well as a parasite that only sprays when there is a target in range? In many species, parent parasites cannot track the success of their life stages or compare their success with their competitors; their kids just don't write. More likely, there was just natural genetic variation wherein some parents may have been programmed to be pure shotguns, while others were spewing, say, from September to March, and others only from April to August. If hosts were only around for the latter interval, like bears out of their caves, guess which genetic variant would be around a few generations later. Thus, an important improvement on a shotgun strategy is temporal. Parasite life cycles have become remarkably well-aligned to their hosts' life cycles. For example, malaria parasites only start producing special life stages when there are mosquitoes present, shortly after the rainy season in some parts of Africa. These special life stages are the ones that get to have sex in a mosquito. One of the most amazing examples of synchrony occurs in a kind of fluke that lives in bladders of spadefoot toads. These toads may spend 10 or more months each year buried beneath the sands of southern U.S. deserts, essentially dormant. Parasites that decided to spew life stages during this time would be silly effort-wasters. Instead, the parasites produce life stages, but hold on to them until the rains come after 10 months, creating temporary pools, and waking the toads up. Toads dig their way to the surface, hop to a likely pond, and then purge their bodies of all the beer and other fluids they've been storing all those months. The parasite sends a year's worth of eggs with the toad urine into the pond in a few seconds. If the parasites are too slow, they may miss a chance to spread life stages for another year, because these toads might only stay in the water for 24 hours. It's a bit disgusting that the toads pee in the pool, and then have sex. But, even if the parasites are disgusted, they have to hatch from their eggs, and swim to and infect another toad. There are many similar examples of parasites saving waste by proper timing, but I think you get the drift.

Aside from temporal improvements to a shotgun strategy, there are also spatial ones. In other words, why not send your life stages to areas where hosts are likely to hang out? This also saves wastage of life stages, and may make parents even less depressed. If there are no alternate hosts in

the neighbourhood, be patient. If the life stages you're producing can stay viable, you should steal food from your host, and start producing. And when you're ready to spew, spew life stages that sink, stay mid-water, or float, according to where the next host spends the most time. Once again, you get the drift (snicker here).

Thus, as any hunter or photographer will tell you, shoot only when you have something to shoot at; and also, you're more likely to hit the target if you aim at it. Parasites may have to find their targets using cues that humans are unable to detect, such as subtle changes in photoperiod, changes in hormones, chemical odours, and so on. Often, we don't know the manner in which parasites accomplish this. For example, do malaria parasites change strategies in response to mosquito bites, or do they pay more attention to changes in the physiology of their hosts as their hosts get ready to breed or migrate? In the case of the flukes living in spadefoot toads, the evidence suggests that hormones are the key. In any case, despite all the improvements that parasites have made to become greener, so to speak, they are still colossal wasters. For example, some tapeworms might produce more than a million eggs, but on average, only one makes it to the next host. So, the non-sympathetic among us might be cheered to know that parasites may be depressed.

Not-so-natural History
Mute Swans Are Coming
by **John Belbin**

In early February, the NatureNS online discussion forum had a flurry of concerns over the sighting of Mute Swans in the Halifax-Dartmouth-Bedford region. Much of the concern was over the wild or tame nature of the birds and thus whether individuals could "tick" them off on their various lists. That discussion won't last long, as virtually all the Mute Swans in North America are descended from domesticated stocks, and they are headed this way. In fact, some people believe that all North American stocks are descended from the "Royal" birds of Great Britain. Certainly, some of them are. Queen Elizabeth herself presented a handful of birds to the city of Ottawa some years ago to decorate the capital's

parks. Their offspring are now often seen nesting up and down the Ottawa River. Almost all the birds on this continent started out as graceful attractions in our parks and urban water bodies.

The Bedford Mute Swans were first noted as a single female in August 1992. She was thought to be “lonely,” so a male was procured in 1995. They bred successfully in 1997. Swans that have been reported elsewhere since, including New Minas, are thought to derive from this stock. Unfortunately, this is not an unusual story; the same thing has occurred over the entire continent, and we now have a rapidly expanding feral population. It is all too easy to obtain Mute Swans for your own property or for general release. “Royal Mute Swans” are currently listed on Kijiji (classified ad website) from a supplier in London, Ontario.

The 1999 US Atlantic Flyway summer survey counted 12,541 Mute Swans, most of them in the coastal wetlands running from Massachusetts to Maryland. At the same time, they were moving into the Great Lakes region in considerable numbers. They have been expanding there ever since and have obviously found a desirable environment, which is similar to their original regions in Eurasia. The population has been expanding at rates that can run from 10 to 21 percent a year; even the lower figure will provide a doubling every seven to eight years.

In most American states, stringent measures have been undertaken to reduce the population explosion, but even the heavy culls are only slowing down the expansion. From 1986 to 2002, New Hampshire’s population increased by 121 percent, New Jersey’s by 202 percent, Maryland’s by 1272 percent. Fortunately for us, Maine decreed a zero percent expansion target and is moving aggressively to achieve that. However, it is just a matter of time before they are overrun or bypassed. Vermont is making similar efforts. In Quebec, the first free-flying birds were seen in 1965, and they are beginning to breed there. How long will it take? The Canadian Wildlife Service is moving to control the numbers, but its ability is limited.

So what is the problem with these beautiful birds, and why doesn’t everyone welcome them the way many of their fanciers obviously do? Mute Swans are extremely aggressive, and they occupy and defend large areas of wetland habitat for their breeding, rearing, and foraging. They literally drive other waterfowl out of the area and have been reported to

kill other species that threaten their territories, including things the size of geese. In fact, there is little they will not attack when provoked, and they can be a real threat to small children.

I grew up with Mute Swans in southern England, and they were something to be feared. A swan once attacked me after my free-running small dog had aggravated it while it was on the nest. The bruise was large and took a long time to heal. Even worse was the memory of the huge wingspan and outstretched neck of the hissing monster that went for me. Mute they are not! It would probably have killed the dog if it had got near it. If one of them coils its neck back and opens its wings at you, RUN!

An aquatic forager that does not dive but reaches for food with its long neck, a Mute Swan will consume 3–4 kg of water plants daily, including the rhizomes. Much of the vegetation is simply destroyed or uprooted; the area can no longer support other species. Another huge volume of plant material is used to make their extremely large nests. As a result, they often severely overgraze an area before they move on to another. Some studies have shown that they can entirely eliminate certain species from the area they are working.

From that point of view, I suppose the people who feed them might actually be doing the environment some small but temporary service. However, in encouraging them, the long-term result must be like feeding a plague. I won't tell that to my sister. She lives on the Avon River in southern England and is known locally as the "swan lady." I have enough trouble already.



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Financial Affairs
A Way to Give
by Ed Sulis, BNS treasurer

As a registered non-profit charitable organization, the Blomidon Naturalist Society has a business number and is therefore able to issue donation receipts. We are but one of some 83,000 such organizations in Canada. The federal government recognizes that donors are very valuable to non-profit groups and years ago allowed donors to deduct the total value (worked through a formula) of their donations to save income tax dollars. And then a year ago, the Canada Revenue Agency added to this tax advantage by allowing donations of appreciated Canadian securities (stocks, mutual funds) to be transferred to registered charities, with the donor capital gain reduced from 50 percent to zero, thus providing a major incentive for donors with securities to consider.

Within Canada, at least two non-profit organizations have been established to help donors facilitate both of the above options. Their basic format is to accept from donors a sum of money or a number of shares, for which the donor receives a single and immediate tax receipt. The organization then issues to one or several charities, as directed by the donor, a cheque representing the chosen part of the total dollar value of the single donation.

Two of the non-profit groups (BNS has received donations from both) providing this service:

Canada Helps

phone 416 628-6948

web <www.canadahelps.org>

Link Charity

phone 416 410-4244

web <www.linkcharity.ca>

For more information, call these organizations or check their websites.

Blomidon Naturalists Society

Box 2350 Wolfville, Kings County, NS, B4P 2N5

Statement of Income, Expenditures and Net Worth as of 23 February 2007

Description	Year 2005/2006	Budget 2006/2007	To 23 February 2006/2007
	From 1 Sep to 31 Aug.	From 1 Sep to 31 Aug.	From 1 Sept to 23 Feb.
INCOME			
Advertising	105.00	200.00	375.00
Book / Crest Sales	325.00	200.00	224.00
Blomidon Naturalist Society Dues	3,266.00	3,300.00	1,950.00
Within the View of Blomidon: Sold 180		10,000.00	3,400.00
Calendar 2007: Sold 514	7,993.00	8,500.00	7,720.00
Hat Sales: Sold 8		450.00	90.00
Donations	2,474.00	3,000.00	2,852.00
Nature Nova Scotia Dues	240.00	250.00	165.00
Grants for Young Naturalists	18,069.00	20,000.00	1,899.00
Interest / Dividends (Direct to Endow. & G.I.)		In Cash \$1200.	In Cash \$296
Other			
HST Rebate	690.00	800.00	698.00
	33,162.00	46,700.00	19,373.00
EXPENDITURES			
Administration	299.00	500.00	418.00
Awards and Meetings	564.00	800.00	471.00
Calendars	7,262.00	7,100.00	7,100.00
Nature Nova Scotia Dues	235.00	250.00	165.00
Memberships	40.00	250.00	10.00
Nature Displays	1,235.00	1,000.00	0.00
Newsletter	2,604.00	3,000.00	1,664.00
Within the View of Blomidon		10,500.00	11,286.00
Investments			
BNS Hats		1,232.00	1,232.00
Transfers to Endowment or G.I.			
Young Naturalists	15,284.00	22,000.00	8,002.00
	27,523.00	46,632.00	30,348.00
Excess; (or -) Income over Expenditures	5,639.00	68.00	-\$10,975.00
Net Worth as of 23 Feb. 2007			
Bank Account			\$4,457.00
Endowment Fund	Cash: 8,270.00	Securities: 20,521.00	\$28,791.00
General Investment	Cash: 117.00	Securities: 9,140.00	\$9,257.00
Within the View of Blomidon	Sold: 180	Inventory 820 @ 11.30	\$9,266.00
Hats	Sold: 8	Inventory 136 @ 8.55	\$1,183.00
			\$52,934.00
Notes:			
1. Please read BLOMIDON NATURALISTS SOCIETY: OUR ACCOUNTS for details of financial structure.			
2. Memberships are: paid for 2007--119, paid to 2006--79, Honorary 13, courtsey 41.			
3. Prior year (2005) Investment values re-stated from book to market.			

Eastern Annapolis Valley Weather

Winter 2007-08

by Larry Bogan, Cambridge Station, NS

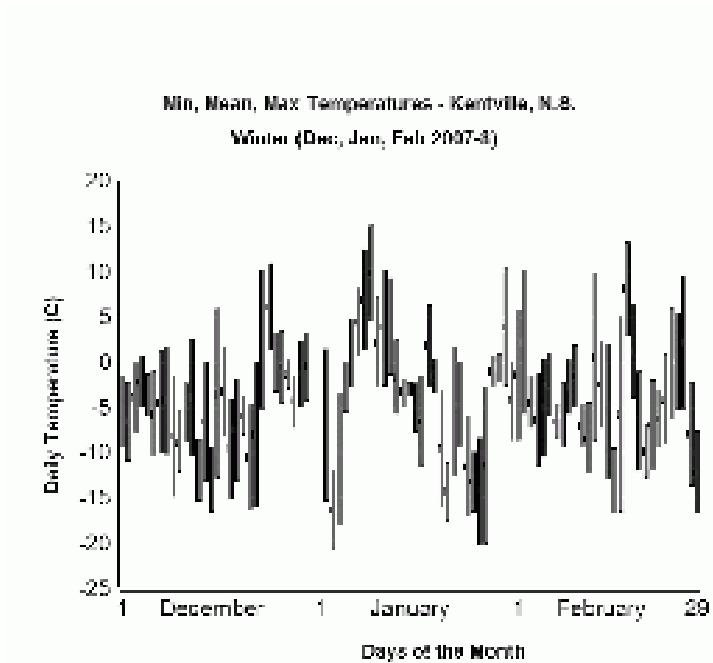
	Mean daily max. temp (°C)	Mean daily min. temp. (°C)	Mean daily temp. (°C)	Snow fall (cm)	Total precip. (mm)	Bright sunshine (h)
December (47 yr. average)	0.0 (1.7)	-9.3 (-6.1)	-4.7 (-2.2)	51 (55)	74 (126)	61 (60)
January (47 yr. average)	1.1 (-1.2)	-9.5 (-9.7)	-4.2 (-5.5)	22 (68)	96 (116)	86 (77)
February (47 yr. average)	1.0 (-0.9)	-9.1 (-9.8)	-4.0 (-5.3)	52 (57)	144 (95)	108 (101)
Season (47 yr. average)	0.7 (-0.1)	-9.3 (-8.5)	-4.3 (-4.3)	125 (180)	314 (337)	255 (238)

Source: Food & Horticultural Research Centre, Kentville, NS

Wow, what an unchanging winter season! The mean temperatures for December, January, and February, respectively, were -4.7, -4.2, and -4.0 °C. The mean depth of snow on the ground for each month was 19.2, 14.2, and 19.7 cm, respectively. There is very little difference between the months in this data. Of course, the days were getting longer during the season and there were more bright sunshine hours in February than January and in January than December.

Temperature

This winter, December was the coldest month of the season, similar in temperature to the other two months. The coldest part of the winter usually is at the end of January, so January and February have about the same mean temperature. This year December was 2.5 °C below the long-term average, while both January and February were 1.3 °C warmer than average. The overall winter season ended up having a normal mean temperature. Look at the graph of daily temperatures for the season and note the lack of any trend, either warming or cooling, during the season.

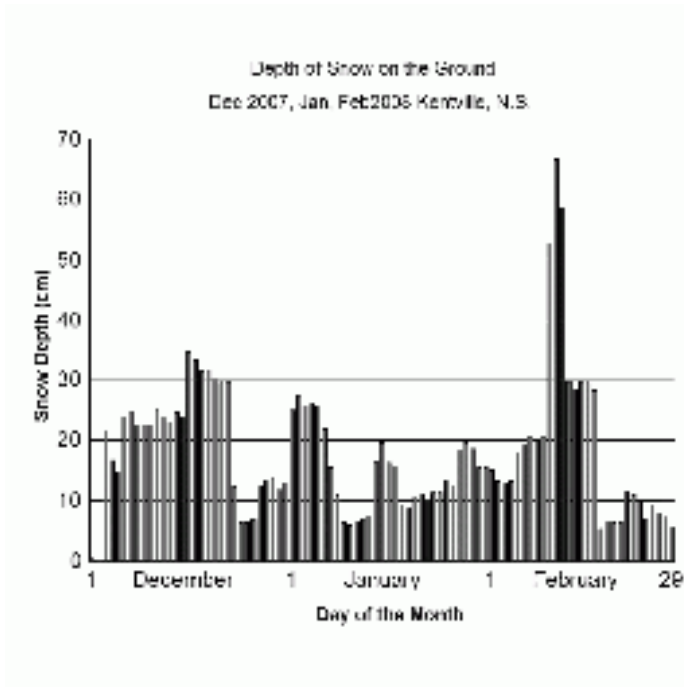


Snow

Because of the low temperatures, a larger fraction (about two-thirds) of December precipitation fell as snow than usual see (about two-fifths). The total precipitation that month was actually 50 mm below average, but the snowfall was about normal.* In fact, the whole winter season was shy on snow (50 cm) and rain (23 mm). You would never know it from the number of days it snowed or rained! The three months had 12, 15, and 19 days of precipitation, respectively. That adds up to half of the days of the season having some precipitation. Of course many were light snows probably associated with flurries off the Bay of Fundy.

This year the snow never completely disappeared off the ground despite the few thawing periods. The longest warm period was at the traditional January thaw time: we had a whole week above freezing (Jan 6–Jan 12).

*For combined precipitation given in millimetres, the conversion is 1 mm rain = 1 cm snow



The only other warm period was two days in February (18th & 19th) when again we lost a lot of the snow. See the accompanying chart for the depth of snow on the ground variations throughout the season.

With all the precipitation, it is surprising that the sunshine hours were above average for all three months.

A Pattern to the Weather

All winter, there was a pattern, which I hope is now gone. A large mass of arctic air would swing down from the Canadian northwest, and as it moved east the counterclockwise circulation brought warm air and moisture up from the Caribbean. The air mass would then move over the Maritimes, cool down, and precipitate snow. The only variable seemed to be where the centre of the air mass would be when it went by. If it was north, Nova Scotia would be warmer and have less snow. In my experience, patterns like this last about six weeks, but this winter the pattern persisted and gave us the thaw-freeze cycle time and time again.

What's in the Sky?

by Roy Bishop

The Planets

Mercury has its best evening apparition of the year during the first half of May for observers at our latitude. Look for it low in the west-northwestern evening twilight. On May 1, between 9:25 and 9:45 p.m., Mercury lies below the Pleiades star cluster, but you will need a low western horizon and binoculars. On May 6, between 9 and 10 p.m., Mercury lies 2 degrees below the crescent Moon, a striking sight in binoculars.

Venus has been the “morning star,” low in the southeastern dawn sky during the past winter. Venus vanishes into the morning twilight during May. On June 9, Venus passes directly behind the Sun (superior conjunction). This is a rare but unobservable event, for usually Venus passes north or south of the Sun. June 9 happens to be the mid-point between the two transits of Venus across the face of the Sun in this century, on June 8, 2004, and June 5, 2012. Four years to go! 2012 is our last chance to see a transit of Venus; the next transit after that occurs in 2117.

Mars is well past its bright opposition of last December, now fading and slowly sinking into the evening western twilight as Earth leaves it behind. On the night of May 22/23, Mars moves through the Beehive star cluster, a nice sight in binoculars or a small telescope. The evening of June 7, the waxing crescent Moon is near Mars. On the evening of June 30, Mars forms a pretty naked-eye pair with the bright star Regulus. Saturn will be nearby, to the upper left, in the same binocular field of view. Look between 10 and 11 p.m. low in the western sky. On the evening of July 10, Mars and Saturn are close together in the evening twilight. Mars vanishes from the night sky by September and passes behind the Sun on December 5.

Jupiter has been in the morning sky for the past few months. As leaves begin to appear on the trees, Jupiter moves into the evening sky and is at opposition on July 9. By then the giant planet rises in the southeast near sunset and is in the southern part of the sky all night long. However, Jupiter lies well south of the celestial equator this year, keeping it low in our sky and making good telescopic views difficult.

Saturn is well placed for observation, high in the evening sky this spring. As summer advances, Saturn drops into the evening twilight, vanishing from sight in August and passing behind the Sun on September 4.

April 20: Full Moon

May 1 to 15: (See Mercury note above)

May 5: New Moon and a close perigee, resulting in large tides May 4–7

May 6: (See Mercury note above)

May 19: Full Moon, the smallest of 2008 because the Moon is at apogee that day

May 22: (See Mars note above)

June 3: New Moon and a close perigee, resulting in large tides June 3–5

June 7: (See Mars note above)

June 9: (See Venus note above)

June 20: At 21:00 ADT, summer begins, and the amount of daylight in each day begins to get shorter as next winter approaches

June 18: Full Moon

June 30: (See Mars note above)

July 2: New Moon and a fairly close perigee, resulting in large tides July 4 and 5

July 4: Aphelion: Earth furthest from Sun during 2008

July 9: (See Jupiter note above)

July 10: (See Mars note above)

Blomidon Naturalists Society

2008 Membership Fees and Order Form

Members of the Blomidon Naturalists Society receive four issues of the BNS newsletter annually. As a registered charity, BNS issues receipts for all donations. Members may also join Nature Nova Scotia through BNS and will receive *FNSN News*, the federation newsletter. (Neither BNS nor NNS membership is tax deductible.)

Please send cheques or money orders made out to **Blomidon Naturalists Society** in payment of membership fees and other purchases to

Ed Sulis
107 Canaan Avenue, Kentville, NS B4N 2A7

No.	Membership classification	Price	Total
___	Individual adult	\$20.00	\$ ___
___	Family (number of family members ___)	20.00	\$ ___
___	Junior (under 16 years)	1.00	\$ ___
___	Nature Nova Scotia membership	5.00	\$ ___

Items for Purchase

___	2008 BNS calendar	15.00	\$ ___
___	<i>Natural History of Kings County</i>	14.00	\$ ___
___	<i>Nature Walks: Within the View of Blomidon</i>	20.00	\$ ___
___	Annotated checklist of Kings County birds	5.00	\$ ___
___	Blomidon Naturalist crest	5.00	\$ ___
___	Blomidon Naturalist hat	15.00	\$ ___
___	Screensaver: 10 years of BNS calendar photos	10.00	\$ ___

Postage and handling

(orders \$15 or less = \$3, \$16 to \$50 = \$6, over \$50 free)

Tax-deductible donation

\$ ___

Total \$ ___

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Telephone: _____ E-mail: _____

Name of donor for gift subscription: _____

Membership fees are due January 1 of the current year

Sources of Local Natural History (compiled by Blomidon Naturalists Society)

Information	Source	Office	Home
Amphibians & Reptiles	Sherman Bleakney		542-3604
	Jim Wolford	585-1684	542-9204
Astronomy	Roy Bishop		542-3992
	Sherman Williams	542-3598	542-5104
	Larry Bogan		678-0446
Birds – General	Bernard Forsythe		542-2427
	Richard Stern	678-4742	678-1975
	Gordon & Judy Tufts		542-7800
	Jim Wolford	585-1684	542-9204
	Jean Timpa		542-5678
Butterflies & Moths	Jean Timpa		542-5678
Fish	NS Dept of Natural Resources	679-6091	
Flora – General Fungi	Ruth Newell	585-1355	542-2095
	Nancy Nickerson	679-5333	542-9332
Hawks & Owls	Bernard Forsythe		542-2427
Indian Prehistory & Archeology	James Legge		542-3530
Mosses & Ferns			
Mammals	Tom Herman	585-1469	678-0383
Rocks & Fossils	Geology Dept Acadia U.	542-2201	
Seashore & Marine Life	Sherman Bleakney		542-3604
	Jim Wolford	585-1684	542-9204
	Michael Brylinsky	585-1509	582-7954
