Blomidon Naturalists Society

Spring 2004 – Volume 31 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	George Forsyth	542-7116
President	Liz Vermeulen	681-0061
Vice-president	Mike McCall	678-6273
Treasurer	Harold Forsyth	542-5983
Secretary	Neil Cloghesy	542-4525
Directors	Glenys Gibson	582-1273
	Jean Gibson	678-4725
	John Harwood	582-3320
	Jim Laceby	542-2291
	Stephen Petersen	542-4861

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

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

Visit us on the web
<www.go.ednet.ns.ca/~bns/home.htm>

Contents – Vol. 31, No. 1

Illustrations by Mary Pratt (cover, pp. 15, 16, 18, 20, 21, 28)

The *Blomidon Naturalists Society Newsletter* is published quarterly – in March, June, October, and December – by the Blomidon Naturalists Society, PO Box 2350, Wolfville, NS B4P 2N5.

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 (25 Gaspereau Ave., #1, Wolfville, NS B4P 2C5) or by e-mail <jtimpa@ns.sympatico.ca>.

Upcoming newsletter deadline
Summer, June 15, 2004

Printed in Canada. For subscription information, see the membership fees form at the back of this newsletter. Please notify us at the above address if you change your address.

Editorial

As the snow and cold go on and on like the proverbial pink bunny in the flashlight battery ad, we all begin to wonder about the changes in our weather. In the space of a year or less, we had a major flood on April 1 of 2003, a class 2 hurricane in September, and a record-smashing blizzard on February 19, 2004. Millions of dollars of damage was incurred in each of these storms, and the total for all three occurrences must be staggering. More such dramatic, devastating storms are promised for this part of the world. Why? What can we do about them? How can we prepare ourselves to survive them relatively unscathed? Ron Buckley of Port Williams gave us some insight into the problems associated with global warming in a lecture about a year ago. He hopes to update this material soon and present it as an article in our next newsletter.

In the meantime I want to thank each and every one of you who have made another great newsletter possible, from the writing and gathering of ideas for future programs to the art work, production, and mailing duties. The variety of material you come up with never ceases to amaze me, and the positive response to our BNS newsletters attests to the pleasure with which it is received by the membership and other readers.

Please take careful note of ALL the field trips that have been carefully scheduled for us for some time to come. It is always rewarding to have a good show of interest for the leaders who come out to share their knowledge and enthusiasm for a particular subject or part of our landscape. It is a wonderful way to learn about the diversity of our ecology in this part of Nova Scotia. The lessons are all free, and we encourage you to bring family and friends as an introduction to us. I hope you will all sign up for that picnic, too, as it sounds like one of the best parties in town!

Jean Timpa, editor

Notice

North American Migration Count (NAMC)
May 8, 2004

Spring is when our neo-tropical visitors are heading northward, heralding the annual migration of birds returning to our shores or passing through. Picture robins running around on lawns, waterfowl flocking to ponds, swallows swooping overhead, large waders and small shorebirds scattered along beaches, and thrushes, warblers, and flycatchers teasing us with glimpses here and there while avian songs echo through the woodlands. How about a tiny hummingbird daring to arrive early to claim its territory? Or maybe even a rarity or two?

The 13th annual Spring North American Migration Count falls on Saturday, May 8. Please mark it on your calendar. The Spring count is one way to monitor the movement and distribution of the neo-tropical migrants. Are they in trouble? Are their numbers declining? If you have not participated before, please consider helping out this year in this very worthwhile project. There is NO fee involved, just your enthusiasm!

It is important that all participants contact local coordinators or "area reps" to prevent overlaps and to help make coverage as widespread and thorough as possible. If you are interested in "counting" locally in Hants or Kings counties, please contact the coordinator closest to you:

Hants (east):	Rosalyn McPhee (Shubenacadie)	902 758-2617
Hants (west):	Bev Shanks (Ellershouse)	902 798-2617
	Jane McConnell (Falmouth)	902 798-3267
Kings:	Sheila L. Hulford (Kingston)	902 765-4023
	Judy Tufts (Wolfville)	902 542-7800

If you do not know who your local coordinators are or if you wish to count in other counties than the one in which you live, please contact me. I will be happy to help with any queries. Anyone wishing to volunteer to help out in Annapolis County would be greatly appreciated.

Judy Tufts (NAMC Provincial Coordinator)
Tel: 902 542-7800
PO Box 1313, Wolfville, NS B0P 1X0
e-mail: tandove@ns.sympatico.ca

Blomidon Naturalists Society
Fall 2003

Meetings

Unless otherwise noted, all meeting are held on the third Monday of each month at 7:30 p.m. in the Beveridge Arts Centre, Room 244, Acadia University. Meetings will not be held in July and August. The arts centre is across Main Street from the Atlantic Theatre Festival parking lot, just west of downtown Wolfville. Everyone is welcome.

Monday, April 19, 2004 – The Value of National Parks, with Peter Hope, recently retired chief park interpreter from Kejimkujik National Park. National Parks are more than just nice places to camp. The natural resources they protect and the research that is carried out permit us to understand and enjoy unique places and special species. In getting to know our parks better, we have made many interesting discoveries.

AND . . . **Nature Watch.** Andy Sharpe, of the Clean Annapolis River Project, will introduce us to the Nature Watch suite of community-based "citizen science" monitoring programs – FrogWatch, WormWatch, IceWatch, and PlantWatch – sponsored by the Canadian Nature Federation and Environment Canada. These programs, and others soon to be added, provide members of the public with the opportunity to participate in ecological monitoring, which can lead to a better understanding of ecosystem changes.

Monday, May 17, 2004 – Astrobiology – Probiotic Origin of DNA. Katayoun Najafian will present an overview of the creation of life – the modern hypothesis of chemical evolution and formation of DNA – in our universe. Her own research background is with the formation of nucleic acids such as Uracil and Adenine.

Monday, June 21, 2004 – Diversity Beneath a Cold Ocean: Photographs of Marine Life of the North Atlantic. Everything from jellyfish and lobsters to sea ravens and seals will be covered by noted underwater marine photographer Scott Leslie. Scott will present slides and

anecdotes about the spectacular but sometimes difficult and frustrating world of underwater photography. Lots of colour and surprising images.

Monday, September 20, 2004 – The Nature Conservancy of Canada will give us an update on its work in the Maritime provinces.

Monday, October 18, 2004 – TBA

Monday, November 15 – Walk the Long Walk. Put on your backpack. We are going to hike the 2,658-mile Pacific Crest Trail with Janet Roberts. We'll cross southern California's searing deserts, rise to glorious heights in the Sierra Nevada, and follow the volcanoes of the Cascades all the way to Canada. Learn about Janet's six-month journey and view some of the spectacular vistas she enjoyed along the way. Janet is a member of the Cobequid Naturalists Club.

Field Trips

Unless otherwise indicated, all field trips begin at the Robie Tufts Nature Centre (RTNC) on Wolfville's Front Street (look for the weird chimney in the NS Liquor Commission parking lot). Additional field trips may be announced at BNS meetings.

Friday, March 26, 2004 – Five-Planet Lineup. The five naked-eye planets and the Moon will be strung across the evening sky during the first few days of spring. Roy Bishop (902 542-3992) and/or Sherman Williams (902 542-5104) will be on hand at the old parking lot in Grand Pre Park to point out the planets and other celestial objects. Meet at the RTNC at 7 p.m. or at the Grand Pre site at 7:15 p.m. Rain date will be Saturday, March 27.

April 4–10, 2004 – National Wildlife Week. Visit the Canadian Wildlife Federation's website <www.cwf-fcf.org> or the Canadian Nature Federation <www.cnf.ca> to learn about the importance of wild species and spaces and how you can help in back yards, communities, and school yards.

Sunday, April 18, 2004 – Wildlife Museum Tour (rescheduled). Curator Fred Scott (902 585-1720) will give us a tour of the Wildlife Museum on the top floor of Patterson Hall on University Avenue in Wolfville. The tour will include the hall displays of mounted birds (and some of their history) and a presentation in the main museum lab on what it contains and how it is used. Natural history museums are at the forefront of taxonomic and evolutionary research because they are the only sources of DNA from populations that no longer exist in the wild and have documented genetic changes in wild species. Some current taxonomic research in the Biology Department is using museum specimens from our own and other museums to answer questions about rare Nova Scotian shrews. Fred will also talk about some of the other significant uses of museum collections, such as the crucial link between DDT and eggshell thinning in birds of prey, which was established only by looking at museum collections. There will be "browse and ask" time, and Fred will have a few AV aids, such as a tape recording of a Silver-haired Bat feeding buzz. The preliminary species maps from the Herp Atlas project will also be on view. Since space is limited in the museum we ask interested people to sign up for the tour. The first 20 people will be signed up for Sunday afternoon from 1 to 3 p.m. If there is more interest Fred will do a second tour in the morning from 10 to 12 a.m. To sign up, write to <simon.forsyth@ns.sympatico.ca>, phone 902 542-5983, or sign up at one of the regular BNS meetings before the tour. Meet at the museum.

Sunday, April 25, 2004 – Early Spring Birds of Kings County, with the Nova Scotia Bird Society and BNS. Leader: Jim Wolford (902 542-9204). Meet at 10 a.m. at the RTNC. Bring lunch, warm clothes and dispositions, binoculars, scopes, field guides, and field footwear.

Saturday, May 8, 2004 – Spring North American Bird Migration Count. Everyone interested in counting birds is invited to participate in the thirteenth annual Migration Count. See page 5 for details.

Wednesday, May 12, 2004 – Unheralded Benthic Biodiversity of Atlantic Canada. The Canadian Society of Zoologists will be holding its annual meeting at Acadia University this year. The society invites members of BNS and anyone interested to a public lecture at the Festival Theatre in Wolfville at 7:30 p.m. The focus will be on deep-sea corals, sponges, and polychaetes, with a display of deep-sea corals.

Saturday, May 15, 2004 – Fish Watching on the Gaspereau River. This field trip to the White Rock fish ladder, led by DFO biologist Jamie Gibson (902 542-1213), is an opportunity to watch fish and learn about alewives (or gaspereau). Each spring millions of alewives return to rivers in Nova Scotia to spawn. In 2003 more than 400,000 ascended the fish ladder in White Rock on their annual migration up the Gaspereau River. Bring binoculars (for birds), appropriate footwear (light hiking boots), and insect repellent. Meet at the RTNC at 1 pm and return by 4 p.m.

Saturday, May 15, 2004 – Card Lake Park. The Card Lake Park Conservation Committee is sponsoring a day of festivities to enjoy this scenic 300-acre park of diverse Acadian forest. Throughout the day, James Hirtle will be on hand for bird tours, Francis Anderson will show us some of the lichens, and Brad Armstrong will be on hand to show us some of the area and highlights of the Acadian forest. The park is on highway 14 between Windsor and Chester on the Lunenburg side of the county line, just south of the entrance to Kaiser Meadow landfill – look for the park signage. Kayaking, canoeing, and fishing are popular on the lake. Festivities start at 9 a.m. Rain date will be May 16.

Saturday, May 22, 2004 – Walk in Blomidon Provincial Park. Jim Wolford (902 542-9204) will lead this **Parks are for People** event. We will walk from the campground area 2 km to the temporary pond to see the very rare and beautiful fairy shrimp as well as early spring plants and birds. Meet at the RTNC at 9:15 a.m. or the lower park gate at 10 a.m. See the whole Parks are for People schedule: <http://parks.gov.ns.ca>.

Wednesday, May 26, 2004 – Spring Birds and Plants. Bernard Forsythe (902 542-2427) will lead an evening nature walk up the Gaspereau River from White Rock. Meet at the RTNC at 6:30 p.m.

Saturday, June 5, 2004 – Intertidal Life in the Minas Basin. Sherman Bleakney (902 542-3604) will show us some of the weird and wonderful diversity of life in the mud and tidal pools on the floor of the Minas Basin during low tide. See the Winter 2003 newsletter (vol. 30, no. 4) for a good description of what might be seen (Jim Wolford's report of last fall's field trip and Sherman Bleakney's report on the devastation to the sea floor caused by Hurricane Juan). Meet at the RTNC at 7 a.m. or Kingsport wharf at 7:30 a.m. Wear rubber boots.

Saturday, June 12, 2004 – Herp Walk, with Fred Scott and Michelle McPherson from the Nova Scotia Herpetofaunal Atlas. It will be a great opportunity to learn about local amphibians and reptiles in a variety of habitats. Hopefully, we'll find lots of salamanders, snakes, frogs, and toads (and dragonflies). We will depart from the RTNC at 1 pm and return about 4 pm. Our field destination will be determined by weather and other factors, but we hope to give you this information one week in advance of the trip. Bring appropriate footwear (light hiking boots), binoculars, hat, and bug jacket or repellent.

Saturday and Sunday, June 19–20, 2004 – The Federation of Nova Scotia Naturalists will hold its 2004 Annual General Meeting at the Wandlyn Inn in Amherst, Nova Scotia. For early morning birding on Saturday, join Fulton Lavender at Wentworth Park at 7 a.m. or bird the local area. Bring your own lunch to the Amherst Point Bird Sanctuary at noon. Afternoon trips include Bugs with DNR entomologist Jeff Ogden, the Maccan tidal bore, and more birding to see Black Terns, rails, and other water birds. Butterfly, botany, and geology field trips are also being planned. An evening buffet banquet will be held at the Wandlyn, followed by a social hour. The AGM will be Sunday morning, leaving plenty of time for more naturalizing. Cost per person (based on double occupancy) for Saturday accommodation, events, banquet, and Sunday breakfast will be $89 before May 20. FNSN rate is available at the inn Friday night for those who want to arrive then. Call the Wandlyn directly at 866-823-9330 to book your weekend (ask for Debbie). Register for field trips by contacting <mariemoverley@yahoo.ca> or <joancz@ns.sympatico.ca>, or leave a message (902 422-6858).

Saturday, June 26, 2004 – Volcanic Pipes and Vents. Did you know that Nova Scotia once had volcanoes? You can learn about them and other geologic events on a field trip with geologist Ron Buckley (902 542-1815) to the Scots Bay Area. Meet at Dee Dee's Canteen parking lot in Scots Bay at 1 p.m. The trip involves clambering over rocks, so wear suitable clothing and footwear.

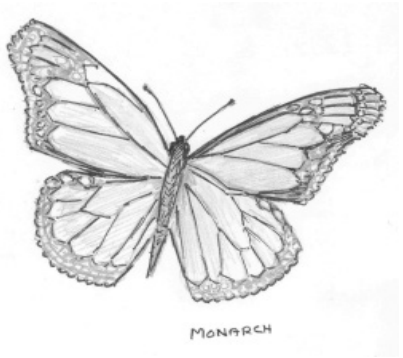
Saturday, July 10, 2004 – Early Summer Butterflies. Jean Timpa (902 542-5678) will lead us on a search for early summer butterflies. Meet at the RTNC at 1 p.m.

Sunday, July 11, 2004 – BNS 30th Anniversary Celebration. Members and guests, past and present, are invited to a pork barbecue at the picnic grounds of the Kentville Research Station to celebrate 30 successful years of the Blomidon Naturalists Society. (Menu: whole pig roast, potato salad, salads, veggie burger alternative, dessert, tea, coffee, and juice. Cost: $8 adult, $5 under 14, free under 5, payable at the park). Ruth Newell (902 542-2095) will lead a nature walk up the ravine through the majestic mature pine/hemlock forest, starting from the picnic park at 4 p.m. If you are not up to the hike down and up a steep hill, come anyway to the barbecue at 5:30 p.m. For the caterers we must know how many people will be attending. Please register by e-mailing Simon Forsyth <simon.forsyth@ns.sympatico.ca> or phoning Harold at 902 542-5983 to let us know how many will be coming. To get to the picnic park, go to the Agricultural Research Centre at the east end of Kentville, proceed up the hill, go left around the main building and on up the hill.

Sunday, July 18, 2004 – Rare Plants. In the 1940s, David Erskine found two very rare plants up the Gaspereau River: the Broad-lipped Twayblade and Pointed-leaved Tick Trefoil. They can still be found in the same place, and Bernard Forsythe (902 542-2427) will lead us on a rigorous hike up the river from White Rock to find these rare plants as well as the notable rattlesnake fern and much more. This is a long hike – about an hour up the river we have to ford the stream (bring old sneakers to change into) and then another quarter hour from there (not counting stops). Meet at the RTNC at 9:30 a.m. and bring a lunch.

Saturday, July 24, 2004 – Dragonflies. Dragonhunter Tom Herman (902 678-0383) will show us some of the darners, cruisers, skimmers, gliders, meadowhawks, and other winged creatures found at local streams and ponds. Meet at the RTNC at 1 p.m.

Saturday, August 14, 2004 – Late Summer Butterflies. Butterflies change with the seasons, so Jean Timpa (902 542-5678) will lead a second walk looking for later summer species. Meet at the RTNC at 1 p.m.



Blomidon Naturalists Society
30 Years Old This Year

Thirty Years of BNS

The first BNS public meeting was held March 26, 1974, in the Wolfville High School. Between 70 and 80 people attended. The speaker was Dr. Sherman Bleakney, who gave an introduction to "the Diverse Habitats of Kings County."

The first slate of officers elected, following the talk, were Sherman Williams (president), Jean Timpa (vice-president), and Larry Bogan (secretary/treasurer).

The first outing, on March 29, 1974, was to the home of Dr. and Mrs. Roy Bishop to view the Quarter Moon, the planet Saturn, and other celestial objects through Roy's Newtonian reflector telescope.

The first membership list contains the names of 58 members. Thirty years later the membership has increased to approximately 300 members.

During these 30 years, 273 meetings have been held, with a total attendance of more than 18,500. Thirty-six of these meetings had an attendance exceeding 100 people.

Four times a year more than 250 copies of the Newsletter are sent out to members, schools, etc.

Nature Notes are printed in the *Advertiser* each week throughout the year. [We understand this feature may be in immediate jeopardy, possibly owing to changes in ownership and management practices of the weekly newspaper – ed.]

—compiled by Bill Thexton, who was secretary of BNS for many years

The First Meeting

Sherman Bleakney found the following announcement, probably from the *Acadian* (predecessor to the *Advertiser*), dated 1974 (most likely early to mid-March). We present it here with permission.

Sherman told Jim Wolford that shortly before this meeting he had been

Lecture on Kings County Habitat

The Valley's new naturalists' organization, now known tentatively as the Blomidon Naturalist Society, will hold its second meeting* Tuesday, March 26, at 8 p.m. in the Wolfville High School.

Dr. Sherman Bleakney, of the Department of Biology, Acadia University, will give an illustrated talk entitled "An Introduction to the Diverse Habitats of Kings County." He will emphasize the richness and variety of the region, and the many discrete types of habitat which lie around us, from salt-marsh to upland woods, and from rocky shore to agricultural land.

Following the talk, there will be a business meeting, which will include the presentation of the proposed constitution for approval by the meeting, as well as the report of the Nominations Committee responsible for proposing a slate for the Society's first executive.

The meeting is open to the public. All those interested in natural history are urged to attend.

up in an airplane and took aerial photos of the various habitats of Kings County. He shared many of those photos during the meeting.

*This was actually the first *public* meeting. Any previous meetings would have been for organizational purposes.

BNS Field Trip Report

Pond Life through a Microscope

by Todd Smith

This report is in two parts. The first part is a brief introduction to what observers will likely find in local ponds. The second part documents observations of what we found on our indoor "field trip."

Introduction

Ponds, marshes, bogs, lakes, and other bodies of water contain many animals and plants that are familiar to us and visible to the unaided eye. Birds fly over these bodies of water and snap up flying insects near the surface or grab unsuspecting fish from the water. In the water or crawling on the bottom, we find fish, frogs, diving beetles, and crayfish. On the surface or rooted into the bottom mud are a myriad of plants such as water lilies, duckweed, and cattails.

But you might not be so familiar with the very small animals, animal-like organisms, and plant-like organisms visible only with a microscope. If we take samples of water and bottom mud from ponds and bogs of various sizes and place a drop from each on a glass microscope slide, we can observe the wide variety of microscopic life that forms an absolutely essential part of the food chain in these bodies of water.

The organisms that you might find in these samples of water can be divided into a number of broad categories. Within each is a large number of species, nearly all of which are known only by scientific names.

Plant-like Organisms

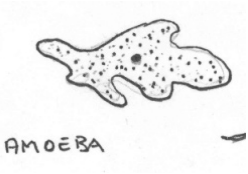
The two major groups of plant-like organisms you are likely to encounter comprise species characterized by a cell wall, which gives them some rigidity, and chlorophyll, a green pigment that helps them convert the sun's energy by photosynthesis into food for growth and chemical energy. These characteristics are shared by the true plants, such as grasses, wildflowers, and trees.

Algae
Many species of algae are microscopic and consist of just one cell. But many species, including the seaweeds, are much larger and are composed of many cells. An algal cell has a nucleus, which contains the organism's DNA, and chloroplasts, which are structures containing green chlorophyll.

Cyanobacteria
As the name suggests, cyanobacteria are related to bacteria; they may exist as single organisms or they may be attached together to form long filaments. Cyanobacteria cells are very simple and do not have nuclei or chloroplasts; instead, their DNA and chlorophyll are distributed more randomly throughout the cell.

Animal-like Organisms – the Protozoa
Protozoa are one-celled organisms that used to be called animals because they move around by various means in order to hunt for, and eat, food items. However, we now know that they are not that closely related to animals. They are fascinating, and with any luck a number of species will be in our pond samples. Protozoa can be divided into several groups.

Amoebae
Each of these one-celled organisms moves by extending a "foot" (actually part of the cell) and pushing its cell contents into the foot to move in a certain direction. Amoebae also eat in the same way, only in this case the "foot" completely surrounds a food item and then brings it into the cell for digestion.



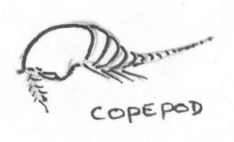
Ciliates
Ciliates are the most beautiful of the protozoa, and they move by beating many small hairs (cilia) in unison to propel themselves through the water. Specialized cilia create tiny currents of water that bring small food particles (algae, bacteria) into a special "mouth" located on the cell surface.

Flagellates
Flagellates move by means of a whip-like "tail" called a flagellum.

Depending on the species, a flagellate may have one, two, or more flagellae. Most flagellates take food into their bodies, but some species absorb food through their membranes, and others make their own food, as algae do, using chlorophyll.

Animals

Animals have thousands to trillions of cells and range in size from microscopic to gigantic (think of a Blue Whale). Animals are characterized by the fact that they move around in search of food, which they eat (they cannot produce their own food) for growth and energy.



Groups of microscopic animals you might see in pond water include rotifers (with rows of hairs near the head that rotate like wheels), nematodes (tiny worms that writhe around pond water in search of food), crustaceans (the common water fleas and copepods are common crustaceans), and insects.

The Field Trip Report – March 14, 2004

A bright sunny day brought ten members of BNS over to Patterson Hall, home of Acadia University's Biology Department, to examine the microscopic life that might be found in a typical pond. Four members of the Biology Department – instructors Eric Alcorn and Hélène d'Entremont and professors Glenys Gibson and Todd Smith – were on hand to help participants identify a wide diversity of organisms.

Before the field trip, we took samples of water from four different freshwater locations in Kings County: an artificial pond on Merritt Gibson's property in Canning, a natural pond near the village of Canard, Wanda Langley's artificial fish pond in Kentville, and an aquarium of water that has been maintained in a "natural" state by Eric Alcorn for almost two years.

We attached a specialized microscope to a television set and treated participants to video microscopy of many of the unusual animals found in the samples. Everyone appeared to enjoy this exploration of the normally unseen life that makes up a pond. Following are some of the highlights.

Plant-like Organisms (cyanobacteria and algae)
Cyanobacteria (Kingdom Bacteria) grow in long dark-green strands visible to the unaided eye, but we used the microscope to identify a few down to the genus level, including the very common *Oscillatoria*.

We identified several species of microscopic green algae (phylum Chlorophyta), including tiny *Chlamydomonas* (which can actually swim rather well – not what you would expect from a plant-like organism), delicate strands of *Mougeotia, Draparnaldia,* and *Cladophora,* and small stacks of *Scenedesmus*.

We also identified species of a few genera of another group of algae, the diatoms (phylum Bacillario-phyta): *Fragilaria* and *Navicula*; these photosynthetic one-celled organisms are encased in two shells of silica and move slowly through the water.

Animal-like organisms (protozoa)
We observed many species of ciliates, which move (rather quickly) by means of thousands of cilia. Noteworthy species included the slipper-shaped *Paramecium,* which zoomed across our field of view as we watched them in the microscope; the bizarre *Vorticella,* characterized by a tulip-shaped body atop a springy stalk attached to algae; and the truly fantastic *Euplotes,* which, although composed of only one cell, uses specialized cilia to move like a small beetle among strands of algae.

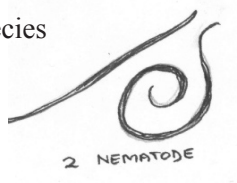
There was no shortage of flagellates, which moved rapidly through the water using one or two long tails that project from their single cells.

Several distinct species of *Euglena,* which move like tiny animals but have their own chloroplasts to produce their own food, were abundant, as were a couple of species of dinoflagellates, which have two flagellae and protective plates to protect their fragile cell membrane.

Animals
Many groups of tiny animals were abundant in our samples, though we unfortunately did not see common pond life such as hydras (related to jellyfish) and crustaceans.

One highlight was a microscopic flatworm (phylum Platyhelminthes), found by Eric, that moved in a pulsating motion along a glass slide; these worms are unusual in that they eat and defecate from the same opening.

Another highlight was several specimens of a tiny species of translucent roundworm, or nematode (phylum Nematoda), that were thrashing through mats of algae and feeding by means of their relatively large mouths.



We observed several species of rotifers (phylum Rotifera) in different samples; many participants were intrigued by the rapid wheel-like action of rings of small hairs near the mouths of these invertebrates.

Jim Wolford found one very small oligochaete, a type of segmented worm related to the earthworm; this species had very long hairs, or chaetae, projecting from each segment of its body.

BNS Field Trip Report

Port George – Bay of Fundy Birds

by Jim Wolford

March 7, 2004 – I knew we were in trouble while tending my feeders in Wolfville. A stiff wind was blowing, and I suspected it would be worse on the Fundy shore. Boy, was I right! Here is the appropriate word from Murray Newell: Brrrrrrrrrrrrrrrrrrrrrrrrrr!!!

When I got to Port George, 12 to 15 brave and very cold people (including John Belbin, David Hughes of Sackville, and Laurel Banks of Eastern Passage) were waiting for me at the Cottage Cove Provincial Picnic Park, which is normally a good spot to sit in your car and watch for both Harbour and Gray Seals, water birds, and Purple Sandpipers.

The onshore wind meant not only large waves, which made our eyes water and spotting the birds very difficult, but also quite a wind-chill factor despite an actual temperature near the freezing point.

We didn't find many birds at any of the five or six stops, but here is my list: several Common Loons, one probable Horned Grebe (never gotten on the scopes), several Red-necked Grebes, several White-winged Scoters, several Oldsquaws/Long-tailed Ducks, about 10 Common Eiders, and both Herring and Great Black-backed Gulls. The gulls seemed to be having no difficulty with the strong north wind. I didn't see any alcids (but David Hughes may have seen some distantly).

I also stopped by myself at Margaretsville, where a group of eight Red-breasted Mergansers were just east of the wharf. I heard later that some others also saw these mergansers.

Someone mentioned having seen a Rough-legged Hawk somewhere along Highway 101 before the field trip, but I saw nothing there from Greenwich to Middleton.

On my way back to Wolfville, a bit east of Margaretsville was a flock of 60 Bohemian waxwings along Highway 221, and about 10 robins were along Brooklyn Street west of Kentville.

As a final note concerning birding the Cottage Cove/Port George/ Margaretsville area in winter, it is probably best to wait for a nice calm day with good visibility and to try to get there when the tide is still rising (to see Purple Sandpipers as well as both basking and swimming Gray and Harbour Seals). And it makes sense to go with someone who has a spotting scope and tripod. (When I'm alone I use my rifle-stock-mounted scope from inside my car, which minimizes the kind of disturbance that can occur when we humans get out of the car to fiddle with tripods, etc.)

Wolfville Christmas Bird Count 2003

reported by Ian Paterson

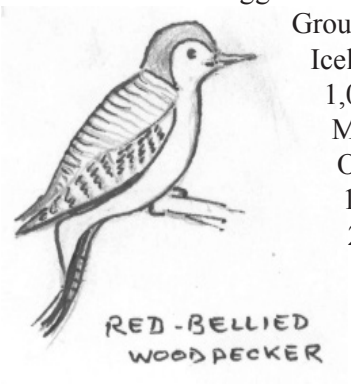
The 2003 Wolfville Christmas Bird Count was held on December 20. It was a great success, with fine weather (a nice change from last year) and lots of sightings.

A total of 81 species were counted, plus an additional four count-week species (indicated by CW in the list below). Count-week birds are those sighted in the three days preceding and the three days following the actual count day. The total number of birds seen on count day was 45,637.

The bush-beater groups spent a total of 134 hours in the field (79 hours on foot, 55 hours in cars). Bush beaters covered 164 km of territory on foot and 617 km by car, for a total of 781 km. Feeder watchers added significant counts to the total, including two count-day species (mockingbird and Baltimore Oriole) and two CW species.

Species Count

Red-throated Loon 1, Common Loon 3, Red-necked Grebe 2, Pied-billed Grebe 1, Great Blue Heron 5, Canada Goose 944, Green-winged Teal 7, American Black Duck 3,820, Mallard 409, Northern Pintail 4, American Wigeon 2, Common Eider 12, White-winged Scoter 5, Common Goldeneye 15, Bufflehead 1, Common Merganser 6, Bald Eagle (adult) 185, (immature) 149, (unknown) 21, Northern Harrier 6, Sharp-shinned Hawk 4, Red-tailed Hawk 204, Merlin 5, Peregrine Falcon 2, Rough-legged Hawk 16, Ring-necked Pheasant 176, Ruffed Grouse 3, Ring-billed Gull 240, Herring Gull 5,045, Iceland Gull 5, Snipe 1, Great Black-backed Gull 1,066, Dovekie 1, Murre (sp.) 1, Rock Dove 463, Mourning Dove 985, Great Horned Owl 1, Barred Owl 3, Short-eared Owl 3, Downy Woodpecker 102, Hairy Woodpecker 53, Common Flicker 29, Pileated Woodpecker 5, Woodpecker (sp.) 1, Red-bellied Woodpecker CW, Horned Lark 185, Blue Jay 1,078, American Crow 11,245, Common Raven 283, Black-capped



Chickadee 1217, Boreal Chickadee CW, Red-breasted Nuthatch 29, White-breasted Nuthatch 50, Brown Creeper 1, Golden-crowned Kinglet 8, American Robin 6, Northern Mockingbird 1, Cedar Waxwing 54, Northern Shrike 1, European Starling 13,480, Ruby-crowned Kinglet 1, Yellow-rumped Warbler 3, Yellow-breasted Chat 1, American Tree Sparrow 145, Clay-colored Sparrow CW, Savannah Sparrow 38, Chipping Sparrow 9, Song Sparrow 143, Swamp Sparrow 1, White-throated Sparrow 61, White-crowned Sparrow 3, Dark-eyed Junco 649, Lapland Longspur 2, Snow Bunting 250, Red-winged Blackbird 16, Brown-headed Cowbird CW, Baltimore Oriole 1, Pine Grosbeak 6, Purple Finch 43, Red Crossbill 2, White-winged Crossbill 11, Common Redpoll 635, Pine Siskin 161, American Goldfinch 1,331, Evening Grosbeak 87, House Sparrow 388

Feeder Watchers

Agar Adamson, Diana Bishop, Dick Cain, Lana Churchill, Sandy Connelly, Ed Connolly, Chris Cox, Sue Cox, Pat Davis, Pat Dix, Betty Eaton, Joan Eaton, Paul Elderkin, Wendy Elliott, Mary Ellis, Bob & Rob & Morgan & Ryleah Flecknell, George E. Forsyth, Hilma Frank, Mary Sue Goulding, Eileen Harris, Sharon Harris, Lorna Hart, Avril & John Harwood, Heather Hennigar, Gail Herbin, Janet & John Herbin, Maxine Hill, Marg & Bob Horne, Isobel Horton, Winnie Horton, Shirley Jackson, Jean Leung, Del and Mac MacInnes, Ron Margeson, Don Marston, Pat Martell, Jessie Martin, Eleanor Mason, Sheila McCurdy, Terry Murphy, Edna Mutch, Gary Ness, Andy Nette, Nancy Nickerson, Pam Nickerson, Terry Pearson, Dorothy Perkin, Meg & Roger Pocklington, Mary Pratt (2 yards), Ladny Richmond, Gordon Robart, Marg Russell, Linda Sacouman, Gladys & John Saltzman, Don Sam, Ruth Scott, David Silverberg, Peter Smith, Sandy Stevens, Merriam Sullivan, Phil Taylor, Dianne Thorpe, Dave Tracy, Eva & Deanna Urban, Jackie White, Jim Wolford, Jean & Ken Wood, Irene & Don Wright, Betty Yoell

Bush Beaters
Margaret Alliston, George Alliston, Peter Austin-Smith Jr., Amy Baur, Larry Bogan, Soren Bondrup-Nielsen, Mike Boudreau, Dennis Brannen, Peggy Crawford, Gail Davis, Harold Forsyth, George Forsyth, Bernard Forsythe, Glenys Gibson, Jamie Gibson, Merritt Gibson, Pat Hawes, Patrick Kelly, Angus MacLean, Stella MacLean, Doug Marule, Randy Milton, Terry Milton, Adele Mullie, Leigh Murdoch, Reg Newell, Ruth Newell, Mike O'Brien, Mick O'Neill, Ian Paterson, Mike Peckford, Barry Sabean, Sarah Sabean, Dave Shutler, Peter Smith, Brian Starzomski, Richard Stern, Bill Thexton, Brenda Thexton, Jean Timpa, Sean Timpa, Judy Tufts, Rick Whitman, Sherman Williams, Jim Wolford, Barry Yoell

Thanks to everyone who participated in the 2003 Wolfville CBC, and to Brenda Thexton, Sue Bissex ,and Lorna Hart for organizing the after-count gathering.

NOTICE

Native Plant Giveaway in Celebration of Earth Day

Saturday, April 24, 10 a.m. to noon
K.C. Irving Environmental Science Centre, Acadia University

All plants have been grown by the Green Team Gardeners Volunteer Group from seed collected at the Harriet Irving Botanical Gardens.

For more information or details call 902 585-5242.

Jane Harrington, Gardener
K.C. Irving Centre and Harriet Irving Botanical Gardens

Forever Protected

The Nova Scotia Nature Trust in the Valley

by George Alliston

On December 31, 2003, the Nova Scotia Nature Trust (NSNT) signed a conservation easement on a 591-acre property that entirely surrounds the 215-acre Gold River Lake. This lake is on the Kings-Lunenburg county line and is the headwaters of the Gold River, a river that supports a run of the endangered Atlantic Salmon. The property contains two small wetlands, three inflowing brooks, more than 500 acres of mid-aged to mature forest, and about 40 acres of near old-growth forest. This easement insures that the conservation values of this property will be protected in perpetuity.

This easement is the 17th property that NSNT has formally protected (by conservation easement or acquisition). Of the 2,600 acres of land that NSNT has formally protected to date, seven properties totalling 1,700 acres (65% of the total) are in the eastern Annapolis Valley region. NSNT currently protects more private conservation lands in Kings County (1,200 acres) than any other non-government organization (NGO).

NSNT currently holds one other conservation easement in the eastern Valley region: a 20-acre parcel of floodplain along the Meander River, Hants County, adjacent to Smiley's Provincial Park. This easement protects a floodplain hardwood forest that supports many plant species uncommon in the province, such as Bloodroot, Blue Cohosh, and Yellow Violet. Five kilometres away, another easement currently being completed will protect a 21-acre property that contains rough karst topography, with sink holes caused by the erosion of the underlying gypsum. The main reason for protection of this area is the Ram's-head Lady's-slippers that occur here. Yellow Lady's-slippers are common on this property.

Conservation easements are legal agreements for the protection of private lands having conservation value. This conservation tool first became available in Nova Scotia with the passing of the Conservation Easements Act in 1992. To implement a conservation easement a landowner must sign an agreement subordinating some rights of use to all or a portion of the property to certain conservation values that are defined in the

easement. The owner retains ownership of the eased lands and is free to sell the property, but the easement remains with the property in perpetuity. Since restrictions have been placed on the use of the property, and these restrictions result in lowering its market value, the landowner originally signing the easement receives income-tax credits. Easements on properties deemed to be "ecologically sensitive" are eligible for additional tax credits.

While the landowner retains title to the eased land, the easement holder, a provincially designated conservation organization, assumes the responsibility of monitoring the property and ensuring that the terms of the easement are met. There are currently eight designated conservation organizations in Nova Scotia. NSNT and The Blomidon Naturalists Society (BNS) are both designated organizations, but BNS currently holds no conservation easements.

Most of the properties formally protected by NSNT are owned by the Trust and have been acquired through the generosity of landowners donating their properties to NSNT. Like owners of conservation easements, these donors receive income-tax credits in recognition of their public spiritedness. These benefits currently fall far short of what would be received should the property be sold on the open market.

The largest and second-largest properties currently owned by NSNT are in the Valley region. The largest is a 400-acre property on Aylesford Mountain, which, in addition to protecting representative forest of the North Mountain Basalt Ridge Natural Landscape, is the site of a notorious bit of Kings County history. A murder was committed here in 1904, and the convicted murderer was the last man to be hanged in Kings County.

The second-largest property owned by NSNT (338 acres) protects the eastern shoreline (3.25 km) of Hardwood Lake, Kings County. The only development on this large lake is a Girl Guide camp at the south end.

Through the generosity of a local supporter, NSNT was able to purchase a 180-acre parcel within the Cloud Lake Wilderness Area. This was the first acquisition for conservation purposes of a private inholding in the 31 Crown land wilderness areas that achieved protected status in 1997 as a result of the Nova Scotia Parks and Protected Areas Systems Plan.

NSNT owns two additional properties in the Wolfville area: a 115-acre property that extends from the top of Wolfville Ridge to the Gaspereau River and, about 2 km away, a 20-acre property on the brow of Gaspereau Mountain. These two properties are the only protected areas within the South Mountain Slopes Natural Landscape as defined in The Natural History of Nova Scotia.

In addition to formal protection by conservation easement or procurement, NSNT also enters into "stewardship agreements" with private landowners. These handshake agreements are not legally binding, but a landowner agrees to protect some feature or attribute of a property that has conservation value. In the Valley region, several such agreements have been signed with owners of coastal properties that abut important shorebird staging areas in the southern bight of the Minas Basin. These agreements were part of a larger project in which NSNT partnered with both government and other non-government conservation groups.

NSNT was incorporated under the Societies Act in 1994. It is a registered charity. It has offices in Halifax and employs a staff of five. The work of the Trust requires significant volunteer input. As a charitable NGO, NSNT depends for its operational funding on memberships, donations, grants for special projects, foundation grants, and fundraising events.

It the eastern Valley, NSNT has a volunteer regional working group (Kings Working Group) currently focusing on the stewardship of secured properties. Its activities include monitoring properties for impacts (e.g., dumping, cutting of trees, use by motorized vehicles), maintaining boundary lines, and assessing the presence of invasive exotic plant species. Current restoration work includes the restoration of a floodplain pond in cooperation with Ducks Unlimited, the control or containment of invasive exotic plants, and, in one situation where normal successional processes are being thwarted by a dominance of invasive exotic plants and a lack of climax forest plant species, removing the invasive species and planting tree seedlings of species characteristic of climax forests of the area.

The working group's efforts have been assisted by contributions from the Horticultural school at the Kingstec campus of the Nova Scotia Community College and by the Biology Department at Acadia University. Kingstec students are currently "growing on" 1,600 tree seedlings so

that we will have larger plants with a more sturdy root system that will have a better chance of survival when transplanted (any volunteers for a planting bee?). A total of 53 students from Acadia have been involved in ten research projects on the Wolfville Ridge property, including the establishment, to international standards, of a one-hectare biodiversity monitoring plot.

While progress has been made in conservation on private lands in the Valley region, much remains to be done. NSNT is interested in protecting "special areas" (old forests, lands that support species at risk, rare ecosystems, areas that exhibit a high degree of biodiversity, etc.). In addition to special areas, NSNT is interested in protecting larger properties representative of natural landscapes (as defined by the Nova Scotia Department of Environment and Labour and The Natural History of Nova Scotia) that are currently underrepresented by existing protected areas. For example, in the Annapolis Valley Natural Landscape (essentially the lowland area extending from the Avon River to St. Marys Bay), the only formally protected area is the rapidly eroding Boot Island. Representation in protected areas of the natural ecosystems that characterized this highly impacted Natural Landscape is entirely inadequate.

To find out more about NSNT and its work in the province, call 902 425-5263 (or visit the website <http://www.nsnt.ca/>). For further information on the Kings Working Group, call 902 542-3651.

Web site?

Notice
Wanted: Young Naturalists

For some reason, the house I am renting crawls with ladybugs every March. They are everywhere, on the windows and on the ceiling, even in my bed. Why do they turn up now? Where do they come from? Such "wh" questions led me to my career in biology. Before I got here, I spent a lot of time wandering the woods, getting dirty, collecting feathers, and watching ants attack my shoelace. During that time, I was lucky to have people around me who encouraged this behaviour. My mom's only rule – invoked after an unfortunate late night incident that involved her unsuspecting toes and a frog trying to find the exit – was that frogs stayed outside. To encourage the people that we all once were, and probably still are, BNS gives the Robie Tufts Award to a deserving young naturalist who lives in Kings or Hants County and is 15 years old or younger.

This award is in honour of the late Dr. Robie Tufts, and the prize is a one-year membership to the society and a field guide of the winner's choice. This year, I would like your help in finding and choosing a suitable candidate, so please be on the lookout for young naturalists who deserve this award. Nominations are due in September, so you have all summer to identify the elusive young naturalist near you.

I also need to form a small committee, first to review the current terms of reference and then in September to review the nominations and recommend a candidate. If you are interested in serving on the committee, please contact me (see below). If you have ideas about what criteria make a young naturalist or if you know of a young naturalist you would like to recommend, please call, write, or see me at the next BNS meeting.

Stephen Petersen
tel: 902 542-0374 (until June)
e-mail: <stephen.petersen@acadiau.ca>

Cornucopia of Corn for Crows

by Roy Bishop

On the wintry morning of January 22, 2004, the Windsor & Hantsport Railway delivered a carload of corn kernels to the ACA Co-op in New Minas. But the bottom door on the car was damaged and had begun leaking when the train was near Upper Sackville. By the time the train reached New Minas three or four tonnes of corn had been spread along 70 km of track.

I first noticed the carpet of corn while out for a walk that afternoon near Horton Bluff. Sherman Williams said that it extended through Hantsport, and a call to the ACA Co-op confirmed the extent of the trail. Fortunately, it was feed corn, not treated seed corn.

When I first noticed the corn there were already a few crow tracks in the snow. Two days later when I went on another walk, sections of the railway were black with hundreds of crows feasting on the corn. A thick layer of snow had buried the corn the night after the spill, but the crows knew it was there and dug through the snow, trampling it down to get at the corn. Four days after the spill, I watched from my home as a black cloud of crows rose from the railway in front of another train rolling past Horton Bluff.

BNS Field Trip Report

Geology: The Scots Bay Formation

by Ron Buckley

19 July 2003 – The geology field trip began as usual at the Roby Tufts Centre in Wolfville at 1 p.m. However, the farm market was still in session and the parking lot was full of people and not all of them were scheduled for a field trip. A few had on hiking boots and were wearing Tilley hats and looked like field trip candidates. So with some enquiring we gathered a likely group and drove to the North Mountain and to Bennett Bay/Ross Creek Harbour.

The purpose of the field trip was to look at the Scots Bay Formation on the Bay of Fundy shore. A short walk along the seashore and we were at one of the two outcroppings of the formation in this area.

On the last field trip I had taken a group to look at the Horton Shale at Blue Beach. These rocks were deposited in a shallow sea approximately 160 million years before the Scots Bay Formation. I mention this because the climate following the deposition of the shales became hot and dry, resulting in a thick deposition of salt, barite, and gypsum in a slowly drying-up ocean. Today the gypsum deposit is being mined near Windsor and is a major export of this area, with weekly (or more often) gypsum boats passing through Minas Basin from Hantsport.

During the next 160 million years, erosion of the uplands continued, with the deposition of red sandstones, at times blown around by winds, and shales that make up the rocks we see today on the lower portion of Cape Blomidon. The sandstones and red shales will perhaps be the subject of another field trip in the future.

After the deposition of these red beds (shales and sandstones), the earth underwent perhaps one of the most dramatic events in the formation of Nova Scotia. The supercontinent Pangea, which had been resident about 15 degrees south of the equator, began to break up. North America started to drift away from Africa, and the widening body of water so formed became the Atlantic Ocean.

Continents move around the globe much the same way that water boils in a pot on your stove. Bubbles rise (hot water) to the surface of the pot, splitting the cooler surface water. This is perhaps best demonstrated when one makes porridge. In the same way, heat rises from the centre of the earth through the thinner ocean crust rather than through the thicker, more stable continents. As the heat rises to the surface, molten rock is carried with it, forcing the more solid continents apart while inserting new rock on the sea floor. This process is known as sea floor spreading and is well documented in the Atlantic Ocean, with Iceland lying on that ridge and being volcanically active. We have seen pictures of lava running out from under glaciers, providing hot springs and steam baths.

This same heat, however, does heat the continental crust, expanding it and causing the more brittle continental rock, usually at the boundaries of the continent, to fracture into long rifts or fracture systems. Rock between two such parallel rifts often drops down during periods of tension and reactivation of old thrust-fault surfaces, forming what geologists call a graben (or half graben, if there is one fracture). This process of continental rifting occurred from the Gulf of Mexico, through the Bay of Fundy and Chignecto Bay, crossing the Scotian Shelf, and then beyond Newfoundland. During this period of sustained tension magma welled up through these rift fractures and flowed out over the land surface, forming what today we call the North Mountain basalts. The lava ranges in thickness from 400 to 1,000 meters, in 12 or more individual surges or flows. The thickest succession determined by seismic mapping is in the region of Grand Manan Island. Some workers postulate that these volcanic rocks might at one time have been much thicker and might have blanketed most of southwestern Nova Scotia.

Minas Basin is one such graben (actually it is a half graben), filled with lava and with sediments subaerially eroded from rocks exposed to weathering processes. The focus of the field trip was to look at the youngest of these sediments, known by geologists as the Scots Bay Formation. While only two outcroppings of these rocks occur in the immediate Scots Bay area, seismic mapping and several drill holes off shore and around the Bay of Fundy indicate that these rocks could be up to 2,500 metres thick. Based on depositional rates, thickness estimates are as much as 4,500 metres.

The Scots Bay rocks were deposited during a period when the climate was wet, on a broad basaltic lava plain stretching from Nova Scotia across the Bay of Fundy to New Brunswick. The formation was deposited initially as limestone in small lakes and bays as part of a larger sea. Seismic mapping indicates that the formation changes to a mud environment as the distance from the shore increases and the water becomes deeper.

The near-shore rocks we see in outcroppings consist of silty and cherty limestone having been deposited in a shallow ocean, but close enough to the shore to contain leaves and small tree branches and sticks probably carried into the ocean by streams and rivers. The McCoy Brook Formation, on the other side of the Bay near Five Islands and containing reptile, dinosaur, and fish bones, is probably the stratigraphic equivalent of the Scots Bay Formations. Fish remains have been described as occurring in the Scots Bay Formation at Ross Creek but were not found on this field trip.

We did find chertified logs of wood (wood replaced by chert, a silicate). Chert has replaced most of the wood fragments found in the Scots Bay Formation and make a collectable item, especially since in many cases the centre of the chert log contains amethyst. Occasionally, cycads are found. These were ferns of this period in the geological history of Nova Scotia, which have been replaced with silica. These fern stems are particularly fascinating, as the stem usually preserves a perfect star and is quite a collectable item when cut with a diamond saw and polished. No samples of cycads were found on this field trip.

We did find siliceous concretions consisting of flint with banded agate and chalcedony. The flint is sufficiently hard to produce a spark when struck with steel. Our pioneers used flint and steel to start fires as well as to ignite gunpowder in their firearms. Other nodules contain red jasper. This area and the other Scots Bay outcropping closer to the village of Scots Bay are thought to be the source of flint and jasper used and traded by the natives in the manufacture of arrow heads and skinning knives.

The field trip was terminated after several hours by the incoming tide.

Eastern Annapolis Valley Weather
Winter 2003-2004
by Larry Bogan, Cambridge Station, NS

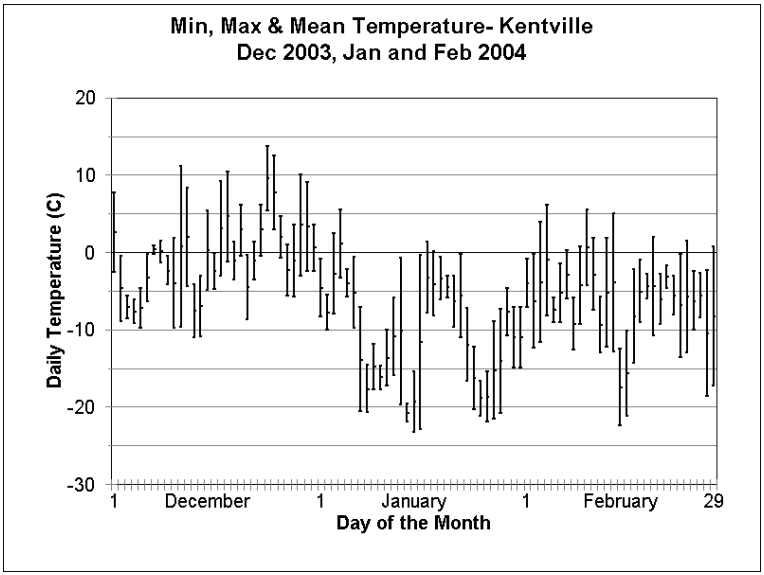
Cold and snowy might be the words for the winter of December 2003 and January and February 2004.

	Mean temperature (deg.C)	Snowfall (cm)	Total precip. (mm)	Bright sunshine (h)
December	-0.6	33	110	74
(42 yr. average)	(-2.3)	(56)	(127)	(60)
January	-10.5	23	24	81
(42 yr. average)	(-5.4)	(70)	(120)	(76)
February	-6.1	86	97	126
(42 yr. average)	(-5.3)	(60)	(99)	(101)
Season	-5.7	142	231	281
(42 yr. average)	(-4.3)	(186)	(346)	(237)

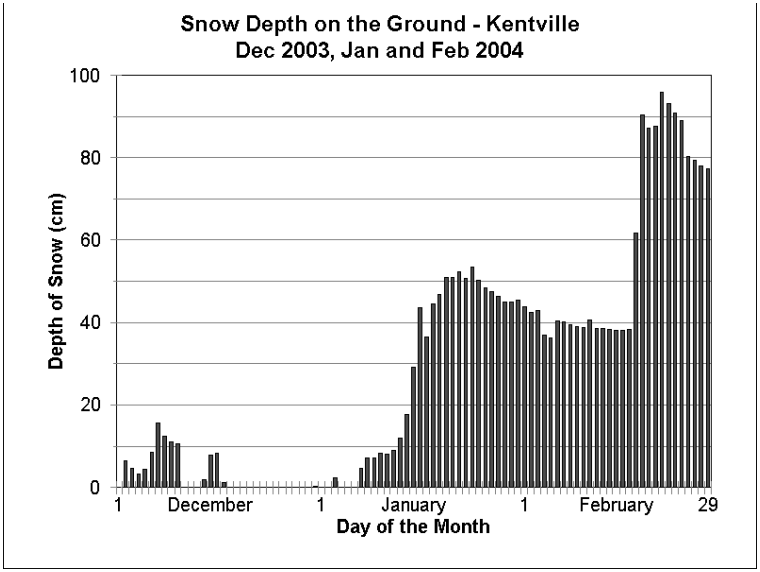
Source: Food & Horticultural Research Centre, Kentville, NS.

In preparing this commentary, I plot all the weather factors in graphs of daily values but can only present a couple here. If you would like others, let me know (tel: 902 678-0446 or e-mail: <bogan@glinx.com>). Here you see the snow on the ground and temperature graphs because I find them the most interesting ones for this season.

The temperatures in January were extreme, resulting in a mean temperature fully 5°C below the long-term average. A warm December, which was 1.7°C above average, was not enough to compensate, and the season was 2.4°C below average. The graph of temperature shows the variations month to month very nicely. In December we had a warm period near Christmas before the low temperature extremes of early January. Only a



short warmer period (the "January thaw"?) occurred in the middle of the month. February was rather uniform in its temperature (around –5°C), except for a very brief cold spell in the middle of the month.



Most of the precipitation for the winter was in form of snow, and much of that was from the huge fall on February 18-19. The graph of snow depth on the ground nicely illustrates the variations. We did not have much snow in December, and then in January the cold spell was accompanied by winds and snow flurries that slowly built up the snow depth. After mid-January the snow depth slowly decreased due to a month-long dry period before the big fall in February.

Overall, precipitation for the winter was only two-thirds the long-term average. Both January and February were dry. Almost all of February's precipitation was in the form of the one large snowfall in the middle of the month. If nature compensates for a dry period with a wet one, we may be in for a snowy March or wet spring. We shall see.

We had a bright winter with good periods of sunshine so that all three months had above-average hours of bright sunshine. Despite the cold February, my usage of wood for heat was down because of the plentiful solar heating.

What's In The Sky?
A Transit of Venus, That's What!
by Roy Bishop

New Moon: March 20, April 19, May 19, June 17
Full Moon: April 5, May 4, June 3, July 2
Spring begins on Saturday, March 20, at 02:49 (AST)
Summer begins on Sunday, June 20, at 21:57 (ADT)

Venus: The Astronomical Highlight of 2004
Venus is the very bright star-like object in the western evening sky this spring. On the evening of March 24 the waxing crescent Moon passes only two degrees from Venus (look around 7:30 or 8:00 p.m., and use binoculars for a nice view). If it is clear on the evenings of the 2nd and 3rd of April, be sure to look at Venus in binoculars. On those evenings Venus is near the pretty-open star cluster known as the Pleiades (see the Venus note on the April page of your BNS calendar).

This is a particularly favourable apparition of Venus for observers at our latitude because Venus is high above the horizon as darkness falls. This favorable geometry occurs every eight years, so we have a repeat of the spring of 1996. However, 2004 is extra special because when Venus finally catches up to Earth (on June 8) and moves ahead of us in its orbit, it will pass directly in front of the Sun, an event known as a "transit." Usually, Venus passes north or south of the Sun and misses the solar disk. No living person has seen a transit of Venus. The last one was in 1882!

Transits of Venus occur in pairs eight years apart, but the pairs, which alternate between June and December, are separated by more than a century. After June 8, the next transit will occur eight years later, on June 5, 2012, but after that the next pair will not occur until December 11, 2117, and December 8, 2125.

Transits of Venus are famous both for their rarity and because at the time of the last two pairs of transits, in 1761/1769 and 1874/1882, astronomers went to the ends of the Earth to observe them in order to determine more accurately the distance of Earth from the Sun. This distance was the key to determining the size of the Solar System and, ultimately, the scale of the universe. At the time of the last June transit, James Cook undertook

the first of his three epic voyages. He sailed on the bark *Endeavour* to Tahiti specifically to observe the June 3, 1769, transit of Venus. His sponsors included the British Admiralty, the Royal Society of London, and King George III.

When the Sun rises at 5:32 a.m. on the morning of June 8 this year, Venus will appear as a black silhouette against the solar disk. Observers in Europe and the Middle East will see the entire transit, but in Nova Scotia the event will be half over before Earth rolls Nova Scotia around to face the Sun. Moreover, if you get up at your usual time, have breakfast, and then think about looking at the transit, you will have missed it, for it ends at 8:25 a.m.

One good method to observe the transit is with an astronomical telescope that has a securely-mounted, proper solar filter in front of its objective lens or mirror. Few people have access to such equipment. However, there are two easier ways to view the transit.

One way to view the transit is to let sunlight pass through a pair of binoculars (**but do not look through the binoculars at the sun**). To avoid the wobble of hand-holding, secure the binoculars to an adjustable mount, such as a camera tripod. Place a white sheet of cardboard or other suitable viewing screen half a metre or so behind the binoculars so that the sunlight exiting from the binoculars strikes the viewing screen. Focus the binoculars while watching the image of the Sun on the viewing screen. It helps to have a cardboard baffle surrounding the binoculars to shield the screen from direct sunlight. Also, one side of the binoculars can be covered to eliminate one of the two images.

NOTE: Set up this equipment on a sunny morning a few days before June 8 and practice the procedure. Don't start from scratch on the morning of June 8! Also, especially if there are children nearby, **do not** let anyone try to look through the binoculars, even for an instant. They could be partially but permanently blinded by the concentrated sunlight.

A simpler way to see the transit is to obtain a shade #14 (no other shade) welder's filter and look through it at the Sun. Venus will appear as a tiny black dot against the Sun, and you will need good eyesight to see it. The binocular and viewing screen arrangement gives a far better view.

Two Spring Comets:
One Well-Placed . . . One Not
by Roy Bishop

Several comets are discovered each year as they approach the inner Solar System. Most never reach naked-eye visibility, but every two or three years one does, and once in every decade or two a comet arrives that is bright enough to rate newspaper coverage, or even television news. You may recall the publicity surrounding Comet Hale-Bopp in the spring of 1997.

This spring two comets are predicted to be visible without optical aid. Both were discovered during automated searches for Earth-approaching asteroids. "C/2001 Q4 NEAT," or Comet NEAT for short, was discovered in 2001 by the Near-Earth Asteroid Tracking (NEAT) survey program. The other, "C/2002 T7 LINEAR," or Comet LINEAR, was discovered in 2002 by the Lincoln Laboratory Near Earth Asteroid Research (LINEAR) program.

Comet NEAT is deep in the southern sky during March and April, and therefore is not visible from Nova Scotia during that period. However, during the last three weeks of May it will be visible in our western sky when evening twilight ends. It will be drifting through the constellations Cancer and Lynx. Comet NEAT is predicted to be about 3rd or 4th magnitude, not visible near bright lights, but it will be apparent from dark country skies during the middle part of May. It should be a nice sight in binoculars. For more information on its brightness and location, call Roy Bishop (902 542-3992) after May 10, but before May 23, when moonlight begins to brighten the evening sky.

Comet LINEAR will be dimly visible low in the eastern sky as dawn begins in mid-April. In May it moves into the evening sky; however, from our latitude the comet is poorly positioned relative to the Sun during May and we are unlikely to see it. For observers in the Southern Hemisphere (e.g., Australia) the viewing geometry is much more favourable.

Blomidon Naturalists Society

2004 Membership Fees and Publications Prices

Each member of the Blomidon Naturalists Society receives four issues of the BNS newsletter annually. Because BNS is a registered charity, the society issues receipts for all donations. The membership fee itself is not tax deductible. Members may also join the Federation of Nova Scotia Naturalists through BNS and will receive FNSN News, the federation's newsletter. FNSN membership is not tax deductible.

Please send cheques or money orders in payment of membership fees and for publication purchases to

Harold Forsyth
10120 Highway 1, RR 2, Wolfville, NS B4P 2R2

No.	Membership classification	Price	Total
____	Individual adult	$15.00	$_____
____	Family (number of family members ___)	18.00	$_____
____	Junior (under 16 years)	1.00	$_____
____	Federation of NS Naturalists membership	5.00	$_____
	Tax-deductible donation		$_____
____	2002 BNS calendar ($12 + post.)	13.50	$_____
____	*Natural History of Kings County* ($15 + post.)	17.00	$_____
____	Annotated checklist of Kings County birds	6.00	$_____
____	Blomidon Naturalist crest	5.00	$_____
		Total	$_____

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If this is gift subscription, please state from whom:

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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	Ruth Newell	585-1355	542-2095
Fungi	Darryl Grund		542-9214
	Nancy Nickerson	679-5333	542-9332
Hawks & Owls	Bernard Forsythe		542-2427
Indian Prehistory & Archeology	Ellis Gertridge		542-2816
	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