# THE HALIFAX FIELD NATURALIST



No. 139 July to August, 2010



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Return address: HFN, c/o NS Museum of Natural History, 1747 Summer Street, Halifax, NS, B3H 3A6



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Agency. Tax-creditable receipts will be issued for individual and corporate gifts. HFN is an affiliate of Nature Canada and an organisational member of Nature NS (Federation of Nova Scotia Naturalists), the provincial umbrella association for naturalist groups in Nova Scotia. Objectives are to encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large, and to represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources. Meetings are held, except for July and August, on the first Thursday of every month at 7:30 p.m. in the auditorium of the Nova Scotia Museum of Natural History, 1747 Summer Street, Halifax; they are open to the public. Field Trips are held at least once a month; it is appreciated if those travelling in someone else's car share the cost of the gas. Participants in HFN activities are responsible for their own safety. Everyone, member or not, is welcome to take part in field trips. Memberships are open to anyone interested in the natural history of Nova Scotia. Forms are available at any meeting of the society, or by writing to: Membership Secretary, Halifax Field Naturalists, c/o N.S. Museum of Natural History. Members receive the guarterly HFN Newsletter and HFN Programme, and new memberships received from September 1st to December 31st of any year are valid until the end of the following membership year. The regular membership year is from January 1st to December 31st.



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Website: naturens.ca EXECUTIVE 2010/2011 President David Patriquin......423-5716 Vice-President Vacant ..... Treasurer Secretary Richard Beazley......429-6626 Past President Directors Grace Beazley, Lesley Jane Butters, Jim Medill, Bob McDonald, Burkhard Plache, Ingrid Plache, Lillian Risley, Stephanie Robertson COMMITTEES 2010/2011 Membership Programme Talks/Trips Burkhard & Ingrid Plache ...... 475-1129 Design Newsletter Editor Design Almanac Taxonomy Distribution Labels **Tea Break Regine Maass** Conservation Peter Webster ......453-9244 Bob McDonald......443-5051 NNS Rep. YNC Rep. **PSAs** Web Design FFFS 2010/2011

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Almanac
Organisational Events Blom. Nat. Society – Skies; Cornwallis River Burke Gaffney Observatory – 1st & 3rd Saturdays 14 Friends of McNab's – a picnic!
N.S. Bird Society – 11 great trips N.S. Mus. of Nat. Hist. – reptiles; meteorites N.S. Dept. Nat. Resources – parks programmes N.S. Wild Flora – a Yarmouth Co. four-day trip Royal Astronomical Society – 3rd Fri. each month
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Nature Notes

GRAPHICS

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# **HFN NEWS AND ANNOUNCEMENTS**

# FROM THE EDITOR



– Stephanie Robertson

At our last executive meeting, a major topic was our club expenditures which were continually increasing over our annual revenue. After much discussion, the idea of raising our yearly membership rates was vetoed, and we decided instead to no longer produce our expensive colour covers. Another cost-cutting tactic was to discontinue financially supporting the World Wildlife Federation, the Canadian Parks and Wilderness Society, the Nature Conservancy of Canada, the Nova Scotia Nature Trust, and Nature Canada. The charge for the butterfly and dragonfly checklists was raised from \$.50 to \$1.00 each.

The good news – we will be printing on Forestry Stewardship Council (FSC)-certified paper from now on, which is available from DalPrint for a tiny fraction more than we were paying for the 30% post-consumer paper we were using. Research has shown that their sources are reliable and that the paper is manufactured according to strict North American standards for certification (on my recent Moss Workshop course, facts about some countries' FSC paper not 'really' being so were brought to light).

# SABLE ISLAND UPDATE



"Sable Island: National Park or National Wildlife Area?" On May 18th, it was announced that Sable Island was to be designated a National Park, rather than a National Wildlife area. For some very informative public input about this, go to www.greenhorsesociety.com.

"Sable Island is a Canadian landmark", says Chris Miller, a senior conservation manager for CPAWS based in Halifax. "With its wild horses, immense dunes, and abundant wildlife, it is paramount that one of the highest forms of wilderness protection be afforded the island". It will be the first new N.S. national park since 1967.

A national park offers stronger conservation measures for the island than a national wildlife area, and would require the island to be managed for ecological integrity as a first priority. It would also ensure both an existing management framework is in place to conserve the island, and a dedicated Sable Island research programme.

For more information, contact Chris Miller, National Manager, Wilderness Conservation and Climate Change, Canadian Park and Wilderness Society, 446-4155; cmiller@cpaws.org.

"What is your vision for Sable Island?" Public require the island to be managed for ecological integrity as a first priority. It would also ensure both an existing management framework is in place to conserve the island, and a dedicated Sable Island research programme.

For more information, contact Chris Miller, National Manager, Wilderness Conservation and Climate Change, Canadian Park and Wilderness Society, 446-4155: cmiller@cpaws.org. your comments in by August 15th. For more info, go to http://www.pc.gc.ca/sable. Send remarks to sable@pc.gc.ca, or call 1-888-773-8888 before the deadline.





### FORESTS & CARBON STORAGE

The following information was sent by Jamie Simpson, (M.Sc.F., Forestry Program Coordinator, Ecology Action Centre, Halifax) about an interesting, recently released paper on the carbon storage of tree plantations versus that of natural forests.

The authors, comparing results of 86 studies from around the world, found that plantations have less carbon storage capacity relative to natural forests (total carbon stock in plantations is 28% lower than comparable natural forests). This result was similar across geographic regions and also between tropic and temperate forests.

This challenges the idea that planting non-native or native-improved growth species on historical forest land yields greater carbon accumulations rates. The authors argue that the replacement of natural forests with plantations will not help stave off climate change. To read the publication, go to http://www.sciencedaily.com/releases/2010/05/100528211152.htm.



# **BRIDGET STUTCHBERRY TALK** A GREAT SUCCESS

EAC's Mark Butler thanks everyone who helped organise and support this wonderful presentation at Dalhousie (see p. 4, ed.) which brought to light the need for improved communication between birders and conservationists in order to benefit our songbirds. A rapid decline in their numbers across North America is serving as a wake-up call about what we are doing to our environment.

For instance, the Wood Thrush, which should be a common forest bird, has declined by 40 per cent since the 1960's; others in decline include the beautiful Evening Grosbeak and the Eastern Kingbird. Stutchbury said the decline is the result of a loss of habitat due to clearcutting and urban sprawl, not climate change.

Canada's boreal forests serve as continental bird nurseries and must be protected for the birds.



# NEW AND RETURNING MEMBERS

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# SPECIAL REPORTS

# THE AMAZING SECRET LIVES OF SONGBIRDS 12 MAY

#### - Stephanie Robertson

Bridget Stutchberry obtained her Master of Science at Queen's, her PhD at Yale, and was a Research Associate at the Smithsonian Institution before she took up her postion at York University in Toronto. In 2001 she published a book on the behavioural ecology of tropical songbirds. In 2007 she published <u>Silence of the Songbirds</u>, and her newest book is <u>The Bird Detective</u>.

Bridget eschewed an extensive book tour, deciding to present her talk only in Halifax. She chose Halifax because it was conservation groups which had invited and sponsored her – HFN, Nature NS, JUDES (Just Us! Development and Education Society), EAC, the NS Bird Society, the NS Nature Trust, Bird Studies Canada, and Dalhousie University.

Bridget has had a successful and productive scientific career (three books and 40 journal articles since 2000), and she is an avid bird enthusiast, always watching and listening for birds, even when people are conversing with her. She has two channels, a 'bird channel' and a 'people channel'. Her bird channel is always on, even while she is driving. She has not only been 'doing' science about birds since 1983, she also has a great passion for birds and their conservation. That is why she writes books about birds for the general public – she wants to reach out to those who watch and enjoy birds in their own backyards. Following are some of the highlights from her presentation.

She conducts her research at York U. in Toronto, but her 'field' backyard is a Northwest Pennsylvanian farm with a 150-hectare forested woodlot. She follows the forest songbirds there, trying to find out what's really going on behind the scenes.

When Bridget started out her equipment was, more or less, only binoculars and mist nets. Thankfully, however, things have progressed; new technologies such as DNA testing (started in the 80s), and modern equipment and techniques, have led to greater and more accurate knowledge of bird behaviour, territories, nesting, genetics, health, and migration.

What are these new 'secrets'?

#### BREEDING

Bridget has been working with a Hooded Warbler community south of Lake Erie since the 1990's (they are very common there). Considered a southern deciduous forest bird, it barely gets into southern Ontario, and is listed in Canada as a species at risk.

Hooded Warbler parents work extremely hard, back and forth, back and forth, constantly feeding their nestlings who fledge eight to nine days from hatching. They can't fly at that point; they still have to be fed for another three weeks. This takes an enormous amount of committment and energy.

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How, and why, does this happen?

To find out, Bridget devised a technique of mounting tiny radio-transmitters on the birds' backs to monitor them electronically. They revealed that females were visiting male neighbours for the very short, 30-minute period of fertility (getting ready for their second or third clutch) before her eggs are laid, then returning to their own nests and territory. As well, males visited other females about once every two hours, because they are always fertile.

What is the point of this behaviour?

In the forest, females are constantly listening for the highest-quality males with which to mate – those that sing the most. Only those males in very top condition, with lots of energy reserves, can afford to sing a lot (they can't eat and sing at the same time), and only the radio-transmitters and the DNA testing have revealed all that is really occurring with the Hooded Warblers and their breeding and nesting behaviour.

DNA testing has proven that another bird, the Blueheaded Vireo, is monogamous; each male builds the nest and feeds his own biological young. But, close to fledging, the female makes trips away from their nest to visit other males, though she is still feeding her brood with their father. This is a kind of 'premeditated divorce', a reconnoitering for other, unmated males in order to produce a second clutch as soon as she's finished feeding her first. In this way she has more time to ensure a second clutch because her first spouse is responsible for feeding the first fledglings

Another fact that Bridget shared is that birds have the ability to see ultraviolet light. We see only three primary colours; birds see four, perceiving colour combinations we can't even imagine. The health of the male Indigo Bunting determines how much ultraviolet he will reflect from his feathers. The more UV reflected, the more attractive he will be; it's an honest indicator of that male's vigour and strength.

#### FLOCK MIGRATION

New facts about songbird migration have been brought to light. The breeding and wintering ranges of most species was known, i.e. the breeding range of the Wood Thrush is the entire eastern U.S. and southern Canada, they winter in South America, and they migrate up to 16,000 km. Bird banding tells us this, but doesn't tell us when and how the birds arrive at their destinations, or what routes they take. Dopler radar, which can detect water droplets, weather, and birds, has been instrumental in revealing that information.

Most migratory songbirds fly at night. Humans can't see it happening even when it occurs in the daytime (too high up), but, we *can* see them with Dopler radar. A very impressive series of Dopler images from around Buffalo, N.Y. in early May, starting before sunset and running through the night, revealed that after fattening up all day, enormous ale churd bidchestlot fact to hove factors after subset. in South America, and they migrate up to 16,000 km. Bird banding tells us this, but doesn't tell us when and how the birds arrive at their destinations, or what routes they take. Dopler radar, which can detect water droplets, weather, and birds, has been instrumental in revealing that information.

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#### occur all over the eastern seaboard, and even continentally.

#### INDIVIDUAL MIGRATION

For individual bird information, Bridget instigated a technique of attaching geolocator tracking devices (recording light data every ten minutes, weighing .7 grams). By knowing the sunrise and sunset times for any given date and place, a bird's location can be pinpointed because those times differ everywhere in the world. Moreover, geolocators have shown that migratory birds fly faster than we ever thought!

The first bird to be fitted was a female Purple Marten. Retreived data showed she left Pennsylvania on the 31st of August, arriving in Yucatan on the 5th of September (2,000 km in five days). She stayed there for one month. From the 1st to the 18th of October, she flew 4,000 km to the South American Amazon Brazilian rain forest, her wintering grounds for six months. On the 12th of April she flew to Yucatan again (in eight days), then took five more days to return to Pennsylvania, crossing the Gulf of Mexico in an 18-hour non-stop flight. All this speed and endurance for a small songbird that had been previously labelled as a 'leisurely migrant'! What's more, right after this gruelling journey, she starts fighting immediately over nesting boxes, building her nest, and laying eggs with abundant energy to spare. There are many questions that remain unanswered still, but Bridget surmises their amazing vigour must be enhanced by such things as taking advantage of the weather, tail winds, and incredible marathon-powered flights.

#### BIRDS/COFFEE/AGRICULTURE

Wood Thrushes have been declining very severely over the last decades, and Bridget wanted to find out why. From the geolocators, data showed that birds from one single breeding population in Pennsylvania were overwintering in very specific destinations - either Niaragua or Honduras. There is a very high degree of connectivity. Populations wintering in Costa Rica come only from upstate New York and Southern Quebec; this suggests a very tight correlation which has astonishing implications for bird conservation. Once it is known where birds are wintering, conservation efforts can be focused right there. There has been great breeding-ground reduction with massive logging and landscape changes (fragmentation). Their wintering grounds are being deforested as well and this is one of the biggest drivers of population declines of migratory songbirds. The scale of deforestation in tropical forests is happening at the highest rate in the history of mankind. Costa Rica is all right, it has beautiful rainforest, but Mexico is very problematic, where there has been a 50-80% loss of rainforest.

Other birds that are rapidly decling are Bobolinks, the Boreal birds, Olive-sided Flycatchers, Canada Warblers, Cerulean Warblers, Eastern Kingbirds, Rose-breasted Grosbeaks, Dicksissels, and Painted Buntings. Disappearing birds are the new 'canaries in the coal mine' - a warning about what is happening, not only for the birds, but for us as well. Out of all the forest and grassland birds, 30-40 species are very rapidly declining.

#### ACTION

How can we help bring back good-quality overwintering habitat? Natural forests are going, and what is left are coffee plantations, which, if they are shade-grown (really - forest-grown), can still be good wintering habitat for songbirds (the Arabica coffees). Forty different migratory songbirds have been recorded in shade-grown plantations. Sun-grown Robusta coffees (there was a massive shift from shade- to sun-grown coffee in the 80's) do not provide this, with their non-sustainable, heavy dependence on fertilisers, herbicides, pesticides, and clear-cutting which causes soil erosion as well.

Shade-coffee is bird-friendly coffee; we can help by buying coffee that is Bird-friendly Certified, USDA Organic, and Fair Trade.

South America also has cleared many forests to grow fruit and vegetables specifically for export, a shift from their traditional crops to things such as tomatoes, green beans, broccoli, and grapes. These, and coffee, banana, and pineapple plantations exact a very high price – deforestation and massive inputs of pesticides. The pesticide loading there is ten times higher than used here in North America. Since <u>Silent Spring</u> was published in 1962, which led to the DDT ban in 70's, the neurotoxins Terberfos, Methamidophos, Carbofuran, Monocroptophos have been the chemicals of choice. These cause massive bird mortalities. We were shown images of thousands upon thousands of dead Swainson's Hawks in Argentina in the mid-90's from eating sprayed grasshoppers from the sunflower fields. All these chemicals are highly toxic to birds, wildlife, and people.

In B.C., nestling Robins from orchards sprayed 25 years before were hand-raised in a lab. Their song-control centres were found to be 30% smaller than control birds from unsprayed orchards. This is a warning sign for human health; we have to be careful about what kind of produce we are buying.

What are the solutions? We must manage our boreal forests, setting some aside for protection. We have to watch what we are consuming, supporting organic and sustainable crops and produce.

We need the Canadian government to set stricter standards for maximum pesticide residue limits on imported and local food (zero-tolerance is best), and to revoke absolutely registration of the nastiest pesticides, as the European Union has done. We can help by buying only local produce, even in winter; buying only shade-grown coffees; buying only organic tropical goods; using only recycled or FSCcertified paper; and most importantly, supporting conservation groups.

At 6:00 a.m. on Thursday, May 13th, Bridget and Andy Horne conducted a bird walk in Point Pleasant Park. It was a wonderful morning. Here is what we heard and/or saw:

#### POINT PLEASANT PARK BIRD WALK SPECIES

Merlin Mourning Dove Northern Flicker Blue-headed Vireo Blue Jay American Crow Common Raven (and nest) Black-capped Chickadee American Robin Yellow Warbler Yellow-rumped Warbler Song Sparrow Dark-eyed Junco Northern Cardinal American Goldfinch

Falco columbarius Zenaida macroura Colaptes auratus Vireo solitarius Cyanocitta cristata Corvus brachyrynchos Corvus corax Poecile atricapillus Turdus migratorius Dendroica petrechia Dendroica coronata coronata Melospiza melodia Junco hyemalis Cardinalis cardinalis











# **HFN TALKS**

### PEST CONTROL







Professor Bjornson began by citing three ways in which insects are especially valuable to plants (including our crops) – as pollinators, seed dispersal agents, and pest control agents. When insects act to control pests, they are referred to as 'beneficial insects' or 'natural enemies'. Natural control of potential pests occurs all of the time, and pests really only become pests when natural controls are inadequate for human purposes. Frequently, organisms that were not pests become pests as a result of human interference in natural cycles in some way. As Professor Bjornson would show us, even our attempts to use biological controls to deal with pests, rather than pesticides, can be fraught with difficulty.

'Biological Control' refers to situations in which we manage pests by (i) introduction; (ii) augmentation; or (iii) conservation of natural enemies. The Chinese made use of predaceous ants to control foliage-eating insects in ancient times, introducing nests into citrus trees and providing bamboo bridges to enable them to move from tree to tree.





Professor Bjornson outlined the steps in and limitations to 'classical biological control' – that's when an exotic pest is controlled by importing its natural enemies from the its region of origin. This approach has had significant successes but, as we have had to learn the hard way, there have been many instances when such efforts have made the situation far worse. An example of this occurred after the introduction of the Cane Toad to Australia in order to control sugarcane pests. Thus, today, 'augmentation' and conservation are the more favoured approaches for biological control.

Augmentation is widely used in the greenhouse industry, but also outdoors. It involves augmenting populations of already occurring natural enemies by massproducing them under controlled conditions, or collecting them from regions where they are particularly abundant. However, even with such seemingly innocuous approaches, there can be complications. Convergent Lady Beetles (*Hippodamia convergens*) have been collected for over 100 years from their overwintering sites in California to control aphids on commercial fruit crops and in gardens. Dr. Bjørnson wondered whether collecting these beetles from the wild and distributing them far and wide might also be distributing some undesirable associates – 'natural enemies of natural enemies'.

Amongst the organisms she looked for were microsporidia, which are small fungal parasites of many insects. Indeed, she found these organisms in adult Hippodamia purchased from commercial insectaries. She also found that microsporidia are transmitted 'vertically' when adult, uninfected Hippodamia eat eggs of infected Hippodamia. Furthermore, they can be transmitted to other species of lady beetles feeding on infected Hippodamia eggs, including both native and introduced lady beetles found in Nova Scotia. So, there is a potential for the use of Hippodamia to reduce the effectiveness of natural control by other natural enemies. The story gets even more complicated because some parasitoids and gregarines (other type of natural enemies of natural enemies), are also being introduced in shipments of Hippodamia.



Finally, Dr. Bjørnson addressed an issue we hear a lot about - the honey bee decline associated with 'Colony Collapse Disorder', a phenomenon in which worker bees abruptly abandon beehives. So far this has been a problem in Europe and the U.S., but not in Canada. There has been no clear culprit. Dr. Bjørnson discussed some possible causes: (i) fatigue, stress, and poor nutrition resulting from the mass transportation of bees and their use in large monocultural systems; (ii) pesticides; and (iii) parasites and disease. The full implications of this issue, and whether it will begin to affect colonies in Canada, are far from clear. However, it has stimulated more emphasis on a third approach to biological control - conservation, which will allow more pollination of our crops by native pollinators. This involves making habitat and cultural changes to enhance populations of native pollinators. Such practices also help to conserve other native species.



Overall, the presentation reminded us that we share this earth with insects, and that we are highly dependent on them. Also, it showed us ways in which nature is far more complex than we appreciate at first glance and, perhaps, that the more we can integrate conservation of biodiversity into our agricultural systems, the better.





\*

#### GPS/GIS/CONSERVATION 6 MAY - Patricia Chaimers

"It is important that the precise location of all stops along the BBS routes are well documented." Thus directed the Canadian Wildlife Service, at the top of the Breeding Bird Survey (BBS) Stop Descriptions form which I was sent six years ago. I had just volunteered to take on a Breeding Bird Survey route, and I examined the maps and the stop descriptions for the North Kingston route with interest. The maps were blackand-white photocopies of old topographical maps. The 50 roadside stop descriptions (each stop was to be .5 mile apart) were apparently written around 1967, when the route was first laid out. The starting point on Highway 221 was described thus: "4th house on right past Grafton sign (kink in road)". In 1996 an earlier volunteer had added the helpful note. "dirt road on right in apple plantation". Well, highway signs can disappear or be relocated, and apple orchards cut down. And the third year I ran the route. I was surprised to note that a new house had been built between the third and fourth existing ones. That could have been misleading for any future surveyor, so I began to annotate the stop descriptions, adding the house numbers which had been assigned in the 1990's as the 911 service expanded. It all seemed a little informal, despite the strict injunction to be precise. So I have been intrigued by the promise of Global Positioning Systems (GPS) to provide very exact geographical information, and Raymond Jahncke's talk was most welcome.

Raymond Jahncke studied geography at Lakehead University, and is presently working on a Master's degree in Environmental Studies at Dalhousie. His research involves delineating wetlands in Nova Scotia using remote sensing. He is also employed at Dalhousie's Geographical Information Systems (GIS) Centre as an analyst. So he was very able both to give us a sense of the technical background of GPS systems, as well as examples of their practical applications in a wide variety of fields.

GPS is a precise worldwide radio-navigation system, consisting of a constellation of 24 satellites and their ground stations. The satellites are moving in six inclined orbits, in 12-hour revolutions around the Earth, at 20,000 km altitude. Signals are sent from satellites to receivers, with a very short time difference, which GPS converts to distance based on the speed of light. Trilateration with signals from three satellites will indicate a location, although four or more signals will pinpoint it more precisely. This system was originally developed for military purposes, during the Arms Race, as a way to target Intercontinental Ballistic Missiles. The satellites and their ground stations are operated by the United States Department of National Defense. The United States Air Force manages, monitors, and updates the system, and can also degrade it or make it selectively receivers, with a very short time difference, which GPS converts to distance based on the speed of light. Trilateration with signals from three satellites will indicate a location, although four or more signals will pinpoint it more precisely. This system was originally developed for military purposes, during the Arms Race, as a way to target Intercontinental Ballistic Missiles. The satellites and their ground stations are operated by the United States Department of National Defense. The United

signal is free to anyone who has a GPS unit.

A GPS unit tells us where we are relative to a map – either to a specific coordinate reference system or to relative data which the user may have created. Coordinate systems may be either geographic (e.g. latitude/ longitude) or projected (e.g. Universal Transverse Mercator). There are various qualities of GPS units; the usual ones are accurate to ten metres, while survey grade units may be accurate to one centimetre. More recent GPS units come with additional information, such as maps, and more maps can be added.

There are different models for specific uses: car GPS units, often with vocal instructions; trail GPS units, which are simpler but more rugged; and the iPhone/ touch screen type. Typically they will indicate where you are, where you have been, and in which direction to travel, but this may not necessarily be the best way to reach your destination. They are extremely useful tools, but can be relied upon too much, as recent court cases against manufacturers testify. It is important to understand that even if you 'know where you are', it is still possible to get lost. Good maps and planning remain necessary. Anyone using a trail GPS will want to add regional maps which indicate landforms, waterways, trails, and roads – all important information for finding your way.

.... Brines Millyard Little Lake Albert Bridge

Raymond demonstrated how he had laid out a route while walking around Halifax, recording various points along the way ('waypoints'). At the end he was able to generate a map of his trip, with the waypoints and their precise locations indicated, together with the distance he had walked. This kind of local mapmaking has many applications, and has become extremely popular.

Raymond showed us a BBC video reporting on the Baka pygmies of Cameroon from http://news.bbc. co.uk/2/hi/africa/7218078.stm. These non-literate people are battling to protect their traditional forest homeland against illegal logging operations. "The UKbased software company Helveta and Forest People's Programme, along with the Cameroonian group Centre for Environment and Development (CED), are working with Dr Jerome Lewis to pioneer the use of hand-held computers among the Baka Pygmies". With the aid of GPS the Baka "can record the exact location of their hunting grounds, sacred trees and important rivers". The Cameroon government will use this data to monitor the activities of the logging companies, and force them to comply with their legal agreements.

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### BUTTERFLIES

Peter Payzant presented the first part of this talk, "Butterflies in General" and "Nova Scotia Butterflies". Linda Payzant presented the second part, "The Migration of Monarch Butterflies".

#### BUTTERFLIES IN GENERAL AND NOVA SCOTIA BUTTERFLIES

What's so great about butterflies? Butterfly observing is as much fun as bird watching for the following reasons: the challenge of identification; keeping lists; sudden surprises; pleasure and travel; the wealth of knowledge; and, one can easily get closer to them than to birds.

Peter showed pictures to illustrate the above. They were: the Indian Butterfly; the obscure Brown Skipper; a Calico on Linda's hand; a Danaid egg-fly from Kenya; a Spring Azure on a sneaker (to show its size); and two pictures of a Buckeye close-up to show the scales on its wings. He mentioned that collecting does not have any effect at all on a healthy population of butterflies; to illustration this he showed a picture of a specimen tray of butterflies and a couple of very funny and classic 'Bizarro' cartoons about them.

Lepidoptera make up the second largest order of insects after the beetles. In order of population, Beetles comprise 300,000 species, Diptera 120,000, Lepidoptera 113,00, Hymenoptera 108,000 and all other insects about 120,000.

Butterflies are mainly day-flyers while moths are mainly night-flyers. Generally, butterflies have slimmer bodies and are not as furry as moths. They have clubbed or hooked antennae, while moths have filiform or plumose antennae.

Of course, there are exceptions. To illustrate these, the following examples were shown: a Red Admiral; a Skipper; a Drepanid Moth; a Luna Moth; a Virginia Ctenucha; and a Urania Moth.

The Families of butterflies that occur in Nova Scotia are: Papilionidae (three); Pieridae (five); Lycaenidae (17); Nymphalidae (29); Hesperiidae (14); and Megathymidae (zero). There are about 70 Nova Scotia butterflies, about 700 large moths, and there are even a greater number of small moths.

The butterfly life cycle is the typical egg, larva, pupa, and adult. Egg size can range from the very small to the size of a grape. Some hatch in a few days; some take months. Only two eggs out of the many thousands laid survive to mate and then lay eggs themselves. Some eggs over-winter in buds or under bark scales.

Butterfly larvae eat a wide range of plants and some have a very specific diet. For instance, the Canadian Tiger Swallowtail prefers to feed on Cottonwood, Willows, Aspen, Wild Cherry, and Ash.

Butterfly larvae regularly grow a new skin that will expand and then harden as it grows. The pupa is like the larva inside a different looking skin at the start. Over time it slowly metamorphosis into an adult inside this different protective shell. We were shown a Monarch pupa and then its emergence as a Monarch Butterfly. Butterfly adults have four wings that are controlled independently. Their wings have minute scales and they sport three pairs of legs and of course a pair of antennae. They find mates by chemical communication and by wafting pheromones, or by stroking one another's wings in order to test for the presence of special scales. The majority feed on nectar with their tongues, while some feed on strange items like dung, sap, aphids, cold ashes, and even the spittle of the spittlebug! Some eggs, larva, and pupa can over-winter, as the liquids inside produce glycerol and this prevents freezing.

The body temperature of a butterfly is controlled by the position they take in relationship to the sun. If cold, they open their wings toward the sun to bask and gain heat. If hot, they close their wings and point their edges toward the sun. Some even force air in the out of the abdomen, much like a dog 'panting'.

#### MONARCHS IN MEXICO

Many butterflies migrate and the Monarchs' migration is the most spectacular. Dr. Fred Urqhart of the University of Toronto devised a tagging system that provided us with the knowledge of the pathways to, and wintering locations of, the Monarchs in Mexico and also some in Florida. The Payzants visited one of these sites – Angangueo, Mexico.

We were shown millions of over-wintering Monarchs clinging to the Oyamel evergreens there, so many of them that they heavily weighed down the trees' branches. The temperature is just right for them in this area, and they do not feed but they do need water. It often takes four to five generations and sometimes several years of northward migration before Monarchs reach Nova Scotia once again after their winter in Mexico.

This presentation by Linda and Peter is an excellent one, and any who have not seen it shouldn't miss the next opportunity.

Following are only a few representatives of butterflies found here in Nova Scotia:

#### Papilionidae:

Tiger Swallowtail; Black Swallowtail; and Short-Tailed Swallowtail

#### Pieridae:

Clouded Sulphur; Mustard White

#### Lycaenidae:

American Copper; Bog Copper; Hairstreaks; Brown Elfin Spring Azure

#### Nymphalidae:

Pearl Crescent; Aphrodite Fritillary; American and Painted Ladies; Viceroy; White Admiral; Baltimore; Compton Tortoiseshell; Question Mark; Red Admiral

#### Hesperiidae:

Arctic Skipper; Dun Skipper,; the Duskywings; European Skipper



# FIELD TRIPS

### GLOBAL POSITIONING SYSTEM WORKSHOP

#### – Bob and Wendy Macdonald

Date: Saturday, March 27th

Place: Natural Resources Education Centre (NREC), Middle Musquodoboit

Weather: Sunny, cold and windy, -5°C Participants: 17



Leader: Amelia Cox, DNR education specialist

An overnight snowfall turned the rural countryside and woods into a fairyland as the sun shone through the spruce bows while chickadees called from the treetops. The last snowy day of the season brought an eager group to the McCurdy Woodlot, home of the Natural Resources Education Center (NREC) in Middle Musquodobit. The Centre, which offers a variety of programmes, mostly focusing on youth (school and youth groups), is situated in a 120-acre woodlot with 3-4 km of hiking trails.

Amelia began her presentation "Navigating Nature: GPS Use and Applications" with a brief history of GPS. The first GPS satellite was launched in 1986 and the technology was used primarily by the US military during Operation Desert Storm in the early 1990's. Shortly thereafter, the technology was offered for civilian use, but early GPS units were very expensive. In 1994, the final and 24th GPS satellite was launched and the system was complete. Over the past ten years, hand-held GPS units have gradually become more affordable and are currently used for recreational purposes (geocaching, laying down tracks, etc.), and for small-scale research.

The research applications of GPS include mapping, weather features (cloud cover, lightening, etc), land ownership, survey of watercourses, etc. Current accuracy of hand-held units is in the order of +/-1 m while research models can achieve an accuracy of a few cm. GPS satellites operate at an altitude of about 20,000 km and travel at speeds of 11,000 km/hr. They circle the Earth every 12 hours and are under US control. Although they operate under solar power, occasional course corrections are made using rocket boosters. GPS receivers give the unit's current longitude, latitude, and elevation by measuring the time required for a signal from several satellites to reach the receiver. The more satellite signals a unit receives, the more accurately its location can be pinpointed. And of course, GPS technology is becoming ubiquitous, for instance finding its way into cell phones and cars.

It is important to distinguish GPS from GIS (Global Information Systems). The latter is a more complex process of mapping, and combining a variety of map features, in order to better understand geography.

After this background information we were divided into small groups of two to three and were issued our own GPS unit (a Garmin Map76); then the outdoor component of the workshop began. We first had to proceed outside, turn our OPD with the standard find established single so that of course, GPS technology is becoming ubiquitous, for instance finding its way into cell phones and cars.

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the transmitter had to proport outside turn our

way back to where you began.

Our challenge then was similar to Geocaching in that each group had to find a series of six waypoints somewhere along the trails in the woodlot on the hill above the Centre. We were given the coordinates of the waypoints that we then had to input into our GPS units. The cool temperature, strong wind, and bright sunshine made this quite a challenge, so back inside we went and proceeded with the task at hand. Many of the group were new users but there were some more experienced folks to help and so most of us were able to succeed.

Once all the data was entered, we proceeded to the trails and helped each other find the 'geocaches' (colourful streamers hanging from tree branches). Along the way, we made note of the snow-covered Hemlock and spruce boughs, lichen-covered trees and branches, ponds and streams, and picnic tables. All these things reminded us that a return visit is necessary; and, no one got lost in the woods, as we had keyed in our 'Home'. While we ate our lunches back in the classroom, we reviewed our morning adventures.

The Centre is a marvelous spot for learning all about the natural assets of Nova Scotia and we hope to plan future adventure outings to Middle Musquodoboit. If you are interested in exploring this place on your own, go to their website to find their locator map (linked to the HFN site); their trails are open year round. School groups are visiting the Centre most weekdays and other groups are there on the weekends.

Thanks Amelia, for a fun and educational day! A bonus for some of us was a visit to a nearby pond where we identified five Wood Ducks swimming about in the open water (most of the other ponds were still frozen).



### HANTS CO. WATERFALLING

- Richard and Grace Bezley

Date: Saturday, April 17th Place: Eastern Hants County

Weather: Cool/cold; rainy; heavy rain at the point Participants: 17

Leaders: Richard and Grace Beazley

Participants met at the Bedford Place Mall at 8:30 a.m. With car pooling arranged, we drove to Rawdon Gold Mines to join up with Lewis, Donna, and Lennon Wilson. The Wilsons are long-time residents of Hants County, waterfall enthusiasts, and they are knowledgeable about local history and geography. We had invited them and they did a great job guiding us along a myriad of country roads, from one waterfall to the next, providing interesting anecdotes about each local area.

The area visited runs northeast to southwest between Rawdon Gold Mines and Ellershouse. It includes the

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The area visited runs northeast to southwest between

through impressively deep ravines. The area exhibits an abundance of small- to medium-sized waterfalls; we visited seven of them.

We first visited Meehan Falls, which is the only waterfall on Glen Brook. This one is named for the Meehan family who are the landowners. Glen Brook flows to the northwest for at least ten km and empties into the Kennetcook River, west of Clarksville. After a five-minute walk along a footpath, we reached the top of the falls and a set of wooden steps. Some of us descended the steps and a deteriorating suspension bridge to the bottom of the falls. This three m high, four m wide falls is situated in a slate-walled, 12 m deep ravine, which is surrounded by a beautiful mix of coniferous trees, mostly Hemlock. The circular plunge pool is both deep and big enough to be a popular local swimming hole on hot summer days. On this day, with the air temperature being 4°C, and wet snow flakes in the air, none of us felt the urge for a dip.

After a short drive, McInnis Brook Falls, near West Gore, was our next stop. To get to this waterfall we walked for ten minutes upstream, first along a footpath and then along the edge of the brook. This is a remarkably beautiful nine m high waterfall, which tumbles steeply down over several layers of slate bedrock. It is set at the upper end of a tranquil ravine, its sides covered mostly with hardwood trees and moss. The plunge pool is very modest, probably because the flow of water is usually light and gentle, and the brook continues on its way over the shale-rocked bottom of the quite wide ravine. Some of us seemed to relish climbing up, down, and all around this natural gem, while others chose to stand and quietly contemplate its beauty.

About four km southeast of Centre Rawdon we made our third stop – at the steel and wooden bridge over the Herbert River. This relatively large waterway flows for many km and eventually empties into the St. Croix River near Mantua. The Wilsons related tales of tubing from the bridge downstream for an hour or so during high water flow following heavy rain. The four m high, eight m wide Herbert River Falls is 30 m upstream from, and six m below the bridge, where a ridge of bedrock crosses the river. Some enjoyed looking down on the waterfall from the bridge, while others climbed down to the water's edge to view it from the bottom. Much of the surrounding forest in this area has been clear-cut, but along the river the trees, especially the Hemlock and White Pine, are large and majestic.

At noon time we reached the small but impressive Deal Brook a few km north of South Rawdon. This brook runs quite steeply downhill for about one km before emptying into the Herbert River, and in that distance contains five waterfalls! After walking for five minutes along a grassy woods road and for two minutes through the woods, we arrived at the uppermost of the brook's five falls, the only one we would visit. The others are downstream in a rather treacherous ravine. This three m high by four m wide waterfall, in an eight m deep ravine, is tranquil and picturesque, with water gently falling over a sheer slate rock face. Around its ample plunge pool is a shale, beach-like area which divides the brook for a short distance, and all of this is surrounded by large Hemlock trees. Spread out from top to bottom and all around the waterfall, we sat and quietly ate our lunches. What could be better?

A five-minute drive toward Ashdale, followed by a fiveminute walk, brought us within view of Bailey Falls at the edge of a 25 m deep ravine into which the falls plunge. The steep-sided ravine is bowl-shaped around the falls, and immediately below them the small unnamed brook veers sharply south on its way to the Meander River. The sides and top of the ravine exhibit a mixed-forest canopy and a moss-covered forest floor. There is no plunge pool because the falling water lands on slanted, rust-tinged slate bedrock. The 12 m high, three to four m wide falls consists of a sluice box top section and an almost vertical drop bottom section, all of which cannot be seen from any one viewpoint. Most of us observed parts of this waterfall from various spots around the top of this bowl-shaped section of the ravine. A few of us, with appropriate caution, climbed into the ravine for a look at the falls from the bottom. This is an awesome waterfall because of its size, treacherous location, large Hemlock trees, mosses, and Reindeer Lichen.

Two km east of McKay Section, we began a 30-minute, moderately difficult walk to Little Meander River Falls. The road along which we walked among large Hemlocks was hilly, wet, and muddy. This waterfall is five m high and eight m wide and has an impressively large plunge pool. Some of us viewed it from the top and bottom, while others were content to view it from the top, thus avoiding the tricky descent. Swimming in the plunge pool on a hot summer day would be refreshing because the water is always cold. This waterfall has a particularly beautiful location. The river's ravine has 40 m high walls that are mostly covered with a mixture of large Hemlocks, fir, and pines, and just below the falls is a 12 m high vertical slate wall. The clear water reflects all the greens, brown, and slate colors of its locale. The place is magical!

Dawson Brook Falls, two and one half km southeast of Ellershouse, was our seventh and final waterfall visited for the day. After a circuitous 20-minute walk through a coniferous forest being surveyed for insect infestation, we arrived at the top of the short, narrow, and deep ravine through which Dawson Brook flows. This site of sheersided cliffs, large trees, moss-covered forest floor, waterfalls, and flowing streams could have served as a set in the movie Avatar. The four m wide falls has three distinct layers, each with its own plunge pool; its total height is 15 m. Seeing it from a downstream viewpoint, which we all did, is akin to viewing a grand cathedral.

Finally, we walked upstream past the layers of the falls, through the woods on footpaths, and back to our waiting cars and our drive home. What a wonderful day and what magnificent waterfalls!

#### WATERFALLING SPECIES Birds

**Ring-necked Pheasant** Ruffed Grouse (heard) **Rock Pigeon** Mourning Dove Downy Woodpecker Northern Flicker Blue Jav American Crow Common Raven Black-capped Chickadee White-breasted Nuthatch American Robin **European Starling** Song Sparrow Dark-eyed Junco Red-winged Blackbird **Common Grackle** 

Phasianus colchicus Bonasa umbellus Columba livia Zenaida macroura Picoides pubescens Colaptes auratus Cvanocitta cristata Corvus brachyrynchos Corvus corax Poecile atricapillus Sitta carolinensis Turdus migratorius Stunus vulgaris Melospiza melodia Junco hyemalis Agelaius phoeniceus Quiscalus quiscula

Carpodacus purpureus Carduelis tristus

#### Other Bird Observations

We noted a considerable number of Pileated Woodpecker workings in the form of rectangular tree cavities. At least one hummingbird feeder was noted but no visitors observed!

#### Flora – only plants in bloom were noted

Red-berried (Scarlet) Elder	
American Fly-honeysuckle	
Bluets	
Mayflower	
Daphne	
Bloodroot	Sa
Witch Hazel	Ha

Sambucus racemosa Lonicera canadensis Houstonia caerulea Epigea repens Daphne mezereum anguinaria canadensis fammamelis virginiana

#### Other Observations

At several locations we visited, the dominant tree species was Eastern Hemlock. Considerable stands of Bigtoothed Aspen (Poplar) and both Red and Sugar Maple were also observed. Approximately a dozen lichen samples were collected and pictures taken of several others.

### CAPE SPLIT

Place: Cape Split

Date: Saturday, May 15th



Weather: Cool/cold; showers; heavy rain at the point Participants: 17

Leader: Lesley Butters & Jim Wolford

- Jim Wolford

This was a joint field trip for the Halifax Field Naturalists and the Blomidon Naturalists Society, led by Lesley Butters (HFN) and Jim Wolford (BNS), with ample help from Bernard Forsythe, Richard Stern, and Donna Crossland (all BNS). Others I knew in the group were Jim and Jenny Medill and Stephanie Robertson from Halifax and David Dermott from Wolfville Ridge. I think there were a couple of others too.

Our group was small probably partly because of the forecast of rain, but we lucked out a bit by not getting any until very late morning, when we were almost to the point. Then it rained right through our lunch under the heavy-branched spruces and when we started to walk back, but stopped for most of our return trip. And the usually muddy parts of the trail were drier than I have ever seen them and easily traversed.

Nancy Nickerson of the Blomidon Naturalists' Society had chosen to do a much earlier walk, and we met her coming back shortly after we had started. She had spotted a pair of Blue-headed or Solitary Vireos at a very unfinished new nest in a fir; she had left us a note on an adjacent treetrunk! We didn't see any vireos in that particular place, but did spot the nest after Nancy described where it was. It looked to me like a few early fern fronds had been laid as a possible foundation, but perhaps they had decided to actually build elsewhere? Nancy also saw two male Blackthroated Blue Warblers in the hardwood and flower areas.

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the second flatman energy

Woodpecker; Song Sparrow; Mourning Dove; Blue Jays; Black-capped Chickadees; Herring and Great Black-backed Gulls; Double-crested Cormorants; Common Eider (one male).

.....

We saw and heard lots of Red Squirrels, and their signs were everywhere, but there were no signs of any other wild mammals.

The flowers were extremely abundant, and we were happy to see oodles of Spring Beauties, many of which were thankfully open, plus lots of Red Trilliums (a.k.a. Wake Robins, Stinking Willies, or Wet Beagle Flowers (Bernard's suggestion) and perhaps a dozen or more individual trilliums that were whitish or in between red and whitish (Painted Trilliums? - ed.).

Other flowers were lots of Toothwort and Rosy Twistedstalk, plus Alder, Goldthread, Small-flowered Crowfoot or Wood Buttercup, Baneberry, American Fly Honeysuckle, Blue Violets (a couple of species), wild Strawberry, Redberried Elder, Bunchberry (just starting), and the common Dandelion. Flowers in bud: Wild or False Lily-of-the-Valley, False Solomon's-seal, Sarsaparilla (or Aralia). Flowers only in leaf: Clintonia or Blue-bead Lily, and Wood Sorrel.

As for ferns, many of these were quite advanced in this year of very early spring events. Identified fern species included Ostrich Fern, very tall Fiddleheads (hot news concerns their richness in antioxidants and Omega-3 fatty acids), Christmas Fern, Braun's Holly Fern, Cinnamon Fern, Interrupted Fern, Sensitive Fern, Wood (or Spinulose) Fern (now a complex of species), Beech Fern, Marginal Fern, and lots of Lady Ferns.

Donna Crosslands and Stephanie Robertson had recently completed Anne Mills' workshop on bryophytes and they forced a couple of genus names on us! There were magnificent examples of the necklace-like tree moss *Neckera pennata*; the 'bad-hair-day' moss *Dicranum polysetum*; *Hypnum imponens* (looks like miniature ferns); and of course lots of the beautiful cushion mosses, *Leucobryum* spp.

Finally, a single large living land snail, *Cepaea* sp., was found on the path, and someone mentioned having seen some bumble bees. Only a few fungi were noted, including a bright white, large, flat crust on the cut edge of a stump.





- Jenny and Jim Medill

Date: Saturday, June 5th Place: St. James United Church, Sambro & Crystal Cres-

cent Beach Weather: Clear; bright sunshine Participants: The general public Leaders: EAC and St. Mary's U. professors



Saturday morning was clear blue sky and bright sunshine, a promising start to the day. We arrived at base camp – St. James United Church, Sambro – a little after 10.00 a.m., and found that most of the 'stations' were in the

Date: Saturday, June 5th

Place: St. James United Church, Sambro & Crystal Crescent Beach

Weather: Clear; bright sunshine Participants: The general public Leaders: EAC and St. Mary's U. professors



Saturday morning was clear blue sky and bright sunshine, a promising start to the day. We arrived at base camp – St. James United Church, Sambro – a little after hike. Our group was small but enthusiastic, and Karen started by informing us that it is the UN's International Year of Biodiversity. To graphically illustrate this theme, she had prepared an activity for us for which we each had to select a card with a word on it. Some puzzled expressions occurred when Karen then pulled a ball of yarn out of her backpack! Next, each person had to find and choose another person's word that in some way linked to the word on their particlular card. Then we tossed the yarn to each other to make a connection - spider to woodpecker, woodpecker to tree, tree to leaf - you get the idea - until we were all holding some of the yarn, ending up with a 'web of life' all dependent upon one another. When one item was removed and the web started to collapse, each person who felt the change released their hold, poignantly illustrating the interdependency and need for diversity in any healthy ecosystem.

Our short hike started along the boardwalk over the sand dunes. Karen pointed out that the boardwalk keeps people from walking all over the dunes and destroying the fragile ecosystem there. We were surprised to find tadpoles in the pond which we assumed would be very brackish being so close to the sea. Along the way we spotted Beach Peas, Strawberries, and Blueberries in flower, and there was a tremendous variety of plants, shrubs, grasses, and trees along the coastal walk. Norway Spruce was introduced into the park and it seems to be the tree of choice for the porcupines, as they have stripped the bark from many of them.

In the past, this land was inhabited and used for grazing sheep, and Karen pointed out areas of grass and a large patch of Japanese Knotweed, an introduced, invasive plant. We noted that it had smothered all other forms of vegetation as nothing grew under it. From the beach it was really noticeable as a pale green mass among the other trees and shrubs. Several bird species were noted by their calls, but not identified (no keen birders in our group).

Our very interesting guided walk was cut short by lack of time, as Karen had to make it back to the parking lot in time for the next group.

SHUBENACADIE CANOEING
– Stephanie Robertson & Burkhard Plache

Date: Saturday, June 12th

Place: Shubenacadie River: Elmsdale to Milford Station Weather: Sunny, warm, slight winds Participants: 15

Leaders: Burkhard and Ingrid Plache

What a glorious, truly summer day! We met at 1:00 p.m. in brilliant sunshine at the bridge at Elmsdale, and those who were there took their canoes and/or kayaks from the cars to the riverside. Some of us ate our lunches at this juncture (there was a bit of a wait for some stragglers) and tried not to disturb the fly-fishermen on the shore, while some drove some of the cars to our pull-out at Milford station.

The area was lush with riverside greenery, and there **Participants:** 15

Leaders: Burkhard and Ingrid Plache

What a glorious, truly summer day! We met at 1:00 p.m. in brilliant sunshine at the bridge at Elmsdale, and those who were there took their canoes and/or kayaks from the cars to the riverside. Some of us ate our lunches at this juncture (there was a bit of a wait for some stragglers) and tried not to disturb the fly-fishermen on the shore, while some drove some of the cars to our pull-out at Milford stathe Shubenacadie River (we had done the first section, from Grand Lake, last year).

It wasn't long before we spotted our first wildlife of the trip, two Bald Eagles high in the sky (much later we saw another, closer up, flying from a riverside snag) . Along the first section of our trip, the current was with us and helped us along with our paddling. There were many Canadian Tiger Swallowtails all along the river, and the bank grasses, ferns, and trees showed the same health and lushness as last year. We saw many shell middens on the muddy banks, and later on, three or four Muskrats entering the water; also, someone spotted what they thought were some Beaver entering as well. The paddling was ideal, and we passed over many large schools of Shad, spotting them by their many fins showing at the surface (like small sharks) and also the churning they caused in the water. For the whole trip there were small brown birds flying in front of us, alighting on the muddy banks, then flying off again as we approached. Tall power pylons along the way sported Osprey nests, and with binoculars an adult could be seen on one of them.

We had an hour's pit stop about half-way along our route. The bank there was very steep and densely wooded behind us, and it afforded us some time for beautiful shots of the scenery and some small flowers. The woods there were scattered with sinkholes, a telltale sign of limestone and gypsum. Later on, we saw white cliff faces and while crossing under a bridge, the edge of the Milford Gypsum Mine.

Further on we saw a very large Painted Turtle sunning itself on a bank, and soon we were passing through farmlands with many curious Holsteins pondering our presence. The wind started to blow up against us, and the rest of the trip necessitated some much stronger paddling. We had passed under two bridges, pulling out at the third at Milford station. Everyone rested, stretched their arms and legs, and organised the boat gear awaiting the cars to be driven back from Elmsdale. Here we had a chance to observe closely a very young and unworried chipmunk, looking for a banana someone had thrown into the long grasses.

#### SUBENACADIE CANOEING SPECIES

Eastern Chipmunk	Tamius striatus
Muskrat	Ondatra zibethica
Beaver	Castor canadensis
Bald Eagle	Halaeetus leucocephalus
Osprey	Pandeon haliaetus
American Shad	Alossa sapidissima
Cinnamon Fern	Osmundastrum cinnamomeum
White Pine	Pinus strobus
White Spruce	Picea Glauca
Hemlock	Tsuga canadensis
Alder	Alnus rugosa
Red Maple	Acer rubrum
Red Oak	Quercus rubra
Yellow Wood Sorrel	Oxalis stricta
Blue-eyed Grass	Sisyrhinchium albidum
White Flower (with double	e petals) still to be identified
White Flower (one black	dot on petals) still to be identified

White Spruce	Picea Glauca
Hemlock	Tsuga canadensis
Alder	Alnus rugosa
Red Maple	Acer rubrum
Red Oak	Quercus rubra
Yellow Wood Sorrel	Oxalis stricta
Blue-eyed Grass	Sisyrhinchium albidum
White Flower (with double petals)	still to be identified
White Flower (one black dot on per	tals) still to be identified



This almanac is for the dates of events which are not found in our HFN programme: for field trips or lectures which members might like to attend, or natural happenings to watch for, such as eclipses, comets, average migration dates, expected blooming seasons, etc. Please suggest other suitable items.

> "They have about three months to make sure the species does not die and that's how they spend their time unbothered by any human opinion just digging in here and now sending their roots down down down ..."

- Al Purdy, excerpt from "Trees at the Arctic Circle (Salix Cordifolia - Ground Willow)" in North of Summer (1967)

#### NATURAL EVENTS

21 Jun. Summer Solstice at 08:29 ADT. Summer begins in the Northern hemisphere. The longest day of the year, with 15 hours and 34 minutes of daylight at Halifax.

- 22-30 Jun. The latest evenings of the year: Sun sets at 21:04 ADT.
  - 26 Jun. Full Moon. Moonrise at 21:24 ADT.
  - 17 Jul. Canada's "Parks Day": look for events at local parks.
  - 25 Jul. Full Moon. Moonrise at 20:31 ADT.
- 1-12 Aug. Venus, Mars, and Saturn are all visible with binoculars low in the western sky at twilight.
- 5-12 Aug. Average dates of the hottest days of summer (average daily maximum is 22.5°C).
- 11/12 Aug. Perseid Meteor showers peak.
- 13 Aug. Average date for temperatures to start decreasing.
- 8 Sept. Moon at close perigee: large tides follow for several days.
- 23 Sept. Autumnal Equinox at 00:10 ADT: Fall begins in the Northern Hemisphere.
- 23 Sept. Full Moon. Moonrise at 18:52 ADT.
- 28 Sept. Seventh anniversary of Hurricane Juan.
- **30 Sept.** Average date for first frost in Halifax (i.e. Environment Canada says there is only a 1:10 chance we will have frost before this date). Look forward to 210 days of frosty weather.
  - Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2010 Calendar; United States Naval Observatory Data Services.

#### SUNRISE AND SUNSET ON SPRING AND EARLY SUMMER SATURDAYS FOR HALIFAX: 44 39 N, 063 36 W

E 1..... E.00



	Jun.	5.30	20.30	J	Jui.	5.34	21.03
12	2 Jun.	5:28	21:01	10	Jul.	5:39	21:00
19	) Jun.	5:28	21:04	17	Jul.	5:45	20:56
26	Jun.	5:30	21:05	24	Jul.	5:52	20:49
				31	Jul.	6:00	20:41
7	' Aug.	6:07	20:32	4	Sept.	6:40	19:46
14	Aug.	6:16	20:22	11	Sept.	6:49	19:33
21	Aug.	6:24	20:10	18	Sept.	6:57	19:20
28	Aug.	6:32	19:58	25	Sept.	7:05	19:06

0 1.1

E.04

04.00

 Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2010 Calendar; United States Naval Observatory Data Services.

#### ORGANISATIONAL EVENTS

Planidan Naturalists Society: Indoor meetings are the 3rd Monday of the month, in the auditorium of The K.C. Irving

TAXA .	7	Aug.	6:07	20:32	4	Sept.	6:40	19:46
~ / Y Y	14	Aug.	6:16	20:22	11	Sept.	6:49	19:33
	21	Aug.	6:24	20:10	18	Sept.	6:57	19:20
	28	Aug.	6:32	19:58	25	Sept.	7:05	19:06

00.56

- Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2010 Calendar; United States Naval Observatory Data Services. **Burke-Gaffney Observatory:** Public shows at the Burke-Gaffney Observatory at Saint Mary's University are held on the 1st and 3rd Saturday of each month, except from June through September when they are held every Saturday. Tours begin at 7 p.m. between November 1 and March 30, and at either 9 p.m. or 10 p.m. (depending on when it gets dark) between April 1 and October 31. For more information, 496-8257); or http://www.smu.ca/academic/science/ap/.

Friends of McNab's Island: for more information, go to http://www.mcnabsisland.ca/.

17 Jul. Rain date - 11 Jul. "McNab's Island Picnic".

**Nova Scotia Bird Society:** Indoor meetings take place on the 4th Thursday of the month, September to April, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information phone Chris Pepper, 829-3478, **cpepper@ymail.com**. Or, email the trip leader, or go to **http://nsbs.chebucto.org/**.

- **19 Jun.** "Dawn Chorus at Jerry Lawrence Provincial Park, Halifax Co.", with leader Cindy Staicer, 494-3533 (wk), 478-3635 (cell); cindy.staicer@dal.ca.
- 25 Jun. "Sixth Annual Tern Festival, Yarmouth Co.", with leader Bernice d'Entremont, 762-3380; musee.acadien@ ns.sympatico.ca.
- 3 Jul. "New Birders' Walk in Point Pleasant Park", with leader Bonnie Carmichael; bonniecarmichael@hotmail.com.
- **10 Jul.** "Abraham's Lake Bird Walk, Halifax Co.", with leaders Jim Cameron, 885-2970; **jim.cameron@ns.sympatico.ca**, and Warren Parsons, 772-2207; **rosalieeast@ns.sympatico.ca**.
- 10 Jul. Rain date 11 Jul. "Birding on the Herbert River Trail", with leader Patrick Kelly, 472-2322; patrick.kelly@dal.ca.
- 11 Jul. "Wallace Bay, Cumberland Co.", with leader Paul MacDonald, 627-2568; paulrita2001@yahoo.com.
- 18 Jul. "Beginning Birders' Field Trip, Taylor Head, Halifax Co.", with leaders Jim Cameron, 885-2970; jim.cameron@ ns.sympatico.ca, and Warren Parsons, 772-2207; rosalleeast@ns.sympatico.ca.
- 31 Jul. "Mahone Bay", with leader James Hirtle, 764-2182; jrhbirder@hotmail.com.
- 7 Aug. "Beginning Birders' Trip, Windsor, Hants County", with leader Patrick Kelly, 494-3294(w), 472-2322(h); patrick. kelly@dal.ca. Limited registration. Pre-registration is required.
- 7 Aug. "New Birders' Walk in Point Pleasant Park", with leader Bonnie Carmichael; bonniecarmichael@hotmail.com.
- 7 Aug. "Taylor Head, Halifax Co.", with leaders Jim Cameron, 885-2970; jim.cameron@ns.sympatico.ca, and Warren Parsons, 772-2207; rosalieeast@ns.sympatico.ca.

Nova Scotia Museum of Natural History: For more information phone 424-6099, 424-7353; or go to http://museum.gov. ns.ca/mnh/.

- 4 Jun. -8 Aug. "Venom", with Little Ray's Reptile Zoo.
- 4 Jun. -6 Sept. "Riding with Meteorites", co-produced by the Musée minéralogique et minier de Thetford Mines, the Musée de la nature et des sciences, and the Musée du Fjord.

#### Nova Scotia Department of Natural Resources:

Many outings that will take place in Provincial Parks are listed in the 'Parks are for People' Programme, available at museums, parks, and tourist bureaus, and on the web at http://parks.gov.ns.ca.

Nova Scotia Wild Flora Society: Meets 4th Monday of the month, September to May, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information, phone Heather Drope, 423-7032, or go to http://www.nswildflora.ca/. Late Aug. TBA; "Coastal Plain Flora in Yarmouth County". A four-day trip; contact Charlie Cron, 477-8272.

**Royal Astronomical Society of Canada (Halifax Chapter):** Meets 3rd Friday of each month in Room L176 of the Loyola Academic Building at Saint Mary's University, 8:00 p.m. For more information, go to http://halifax.rasc.ca. 3-6 Sept. Nova East: Atlantic Canada's longest-running star party at Smiley's Provincial Park. More information can be

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- compiled by Patricia L. Chalmers

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# HALIFAX TIDE TABLE

		July-juillet					Man	August-août					September-septembre										
Day	Time	Feet	Metres	jour	heure	pieds	mètres	Day	Time	Feet	Metres	jour	heure	pieds	mètres	Day	Time	Feet	Metres	jour	heure	pieds r	nètres
1 TH JE	0502 1113 1737 2319	1.6 5.6 2.3 5.2	0.5 1.7 0.7 1.6	16 FR VE	0537 1125 1822 2339	0.3 6.2 1.0 5.6	0.1 1.9 0.3 1.7	1 SU DI	0528 1144 1823	1.6 5.6 2.0	0.5 1.7 0.6	16 MO LU	0010 0712 1231 1956	5.2 1.3 5.6 1.0	1.6 0.4 1.7 0.3	1 WE ME	0012 0641 1224 1938	4.9 2.3 5.2 1.6	1.5 0.7 1.6 0.5	16 TH JE	0141 0855 1400 2125	4.6 2.0 4.9 1.6	1.4 0.6 1.5 0.5
2 FR VE	0536 1151 1825 2359	1.6 5.6 2.3 5.2	0.5 1.7 0.7 1.6	17 SA SA	0634 1212 1922	0.7 5.9 1.0	0.2 1.8 0.3	2 MO LU	0002 0615 1221 1916	4.9 2.0 5.6 2.0	1.5 0.6 1.7 0.6	17 TU MA	0104 0814 1325 2055	4.9 1.6 5.2 1.3	1.5 0.5 1.6 0.4	2 TH JE	0103 0747 1317 2041	4.9 2.3 5.2 1.6	1.5 0.7 1.6 0.5	17 FR VE	0302 0954 1520 2221	4.6 2.0 4.9 1.6	1.4 0.6 1.5 0.5
3 SA SA	0616 1231 1915	2.0 5.6 2.3	0.6 1.7 0.7	18 SU DI	0032 0733 1301 2021	5.2 1.0 5.9 1.0	1.6 0.3 1.8 0.3	3 TU MA	0047 0711 1304 2013	4.9 2.3 5.2 2.0	1.5 0.7 1.6 0.6	18 WE ME	0207 0915 1429 2153	4.6 2.0 5.2 1.3	1.4 0.6 1.6 0.4	3 FR VE	0208 0852 1423 2142	4.6 2.3 5.6 1.3	1.4 0.7 1.7 0.4	<b>18</b> SA SA	0425 1051 1634 2314	4.9 2.0 4.9 1.6	1.5 0.6 1.5 0.5
4 SU DI	0043 0701 1313 2006	4.9 2.0 5.6 2.3	1.5 0.6 1.7 0.7	<b>19</b> мо LU	0130 0833 1356 2119	4.9 1.3 5.6 1.0	1.5 0.4 1.7 0.3	4 WE ME	0140 0812 1356 2111	4.6 2.3 5.2 1.6	1.4 0.7 1.6 0.5	19 TH JE	0329 1016 1545 2251	4.6 2.0 4.9 1.3	1.4 0.6 1.5 0.4	4 SA SA	0331 0955 1540 2242	4.9 2.0 5.6 1.0	1.5 0.6 1.7 0.3	19 SU DI	0522 1143 1728	5.2 2.0 5.2	1.6 0.6 1.6
5 MO LU	0133 0753 1359 2058	4.6 2.3 5.2 2.0	1.4 0.7 1.6 0.6	20 TU MA	0236 0934 1458 2217	4.6 1.6 5.2 1.0	1.4 0.5 1.6 0.3	5 TH JE	0248 0914 1459 2211	4.6 2.3 5.2 1.3	1.4 0.7 1.6 0.4	20 FR VE	0451 1115 1656 2345	4.6 2.0 5.2 1.3	1.4 0.6 1.6 0.4	5 SU DI	0448 1058 1653 2339	5.2 1.6 5.9 0.7	1.6 0.5 1.8 0.2	20 MO LU	0003 0605 1227 1812	1.3 5.2 2.0 5.6	0.4 1.6 0.6 1.7
6 TU MA	0234 0849 1451 2150	4.6 2.3 5.2 1.6	1.4 0.7 1.6 0.5	21 WE ME	0353 1034 1606 2313	4.6 1.6 5.2 1.0	1.4 0.5 1.6 0.3	6 FR VE	0406 1016 1609 2310	4.6 2.0 5.6 1.0	1.4 0.6 1.7 0.3	21 SA SA	0549 1208 1751	4.9 2.0 5.2	1.5 0.6 1.6	6 MO LU	0547 1200 1755	5.6 1.3 6.2	1.7 0.4 1.9	21 TU MA	0045 0642 1304 1852	1.3 5.6 1.6 5.6	0.4 1.7 0.5 1.7
7 WE ME	0344 0947 1547 2245	4.6 2.3 5.2 1.3	1.4 0.7 1.6 0.4	22 TH JE	0506 1133 1709	4.9 1.6 5.2	1.5 0.5 1.6	7 SA SA	0515 1117 1715	4.9 2.0 5.9	1.5 0.6 1.8	22 SU DI	0035 0635 1254 1836	1.0 5.2 2.0 5.6	0.3 1.6 0.6 1.7	7 TU MA	0032 0638 1259 1850	0.3 6.2 1.0 6.2	0.1 1.9 0.3 1.9	22 WE ME	0121 0716 1337 1930	1.3 5.6 1.3 5.6	0.4 1.7 0.4 1.7
8 TH JE	0449 1045 1644 2339	4.6 2.0 5.6 1.0	1.4 0.6 1.7 0.3	23 FR VE	0007 0605 1228 1804	1.0 4.9 1.6 5.6	0.3 1.5 0.5 1.7	8 SU DI	0007 0612 1216 1813	0.7 5.2 1.6 6.2	0.2 1.6 0.5 1.9	23 MO LU	0118 0714 1333 1917	1.0 5.6 1.6 5.9	0.3 1.7 0.5 1.8	8 WE ME	0124 0726 1356 1943	0.0 6.6 0.3 6.6	0.0 2.0 0.1 2.0	23 TH JE	0151 0748 1408 2006	1.3 5.6 1.3 5.6	0.4 1.7 0.4 1.7
9 FR VE	0545 1141 1739	4.9 2.0 5.9	1.5 0.6 1.8	24 SA SA	0057 0654 1316 1852	1.0 5.2 1.6 5.6	0.3 1.6 0.5 1.7	9 MO LU	0059 0703 1314 1908	0.3 5.9 1.0 6.6	0.1 1.8 0.3 2.0	24 TU MA	0156 0750 1407 1955	1.0 5.6 1.6 5.9	0.3 1.7 0.5 1.8	9 TH JE	0213 0813 1450 2034	0.0 6.9 0.3 6.2	0.0 2.1 0.1 1.9	24 FR VE	0218 0819 1439 2042	1.3 5.6 1.0 5.6	0.4 1.7 0.3 1.7
10 SA SA	0033 0636 1237 1832	0.7 5.2 1.6 6.2	0.2 1.6 0.5 1.9	25 SU DI	0142 0737 1358 1936	1.0 5.6 2.0 5.9	0.3 1.7 0.6 1.8	10 TU MA	0150 0752 1411 2000.	0.0 6.2 0.7 6.6	0.0 1.9 0.2 2.0	25 WE ME	0227 0824 1437 2032	1.0 5.6 1.6 5.9	0.3 1.7 0.5 1.8	10 FR VE	0303 0859 1544 2123	0.0 6.9 0.0 6.2	0.0 2.1 0.0 1.9	25 SA SA	0245 0850 1512 2117	1.3 5.6 1.0 5.6	0.4 1.7 0.3 1.7
11 SU DI	0124 0725 1331 1924	0.3 5.6 1.3 6.6	0.1 1.7 0.4 2.0	26 мо LU	0222 0817 1435 2018	1.0 5.6 2.0 5.9	0.3 1.7 0.6 1.8	11 WE ME	0239 0840 1507 2051	-0.3 6.6 0.7 6.6	-0.1 2.0 0.2 2.0	26 TH JE	0253 0856 1507 2108	1.0 5.6 1.6 5.6	0.3 1.7 0.5 1.7	11 SA SA	0355 0945 1638 2212	0.3 6.6 0.3 5.9	0.1 2.0 0.1 1.8	26 SU DI	0315 0922 1548 2152	1.6 5.6 1.0 5.2	0.5 1.7 0.3 1.6
12 MO LU	0214 0814 1426 2016	0.0 5.9 1.0 6.6	0.0 1.8 0.3 2.0	27 TU MA	0257 0855 1507 2057	1.0 5.6 2.0 5.9	0.3 1.7 0.6 1.8	12 TH JE	0328 0927 1604 2142	-0.3 6.6 0.3 6.2	-0.1 2.0 0.1 1.9	27 FR VE	0318 0927 1539 2143	1.3 5.6 1.3 5.6	0.4 1.7 0.4 1.7	12 SU DI	0449 1030 1733 2259	0.7 6.2 0.7 5.6	0.2 1.9 0.2 1.7	27 MO LU	0349 0956 1629 2228	1.6 5.6 1.3 5.2	0.5 1.7 0.4 1.6
13 TU MA	0303 0903 1523 2107	0.0 6.2 1.0 6.6	0.0 1.9 0.3 2.0	28 WE ME	0327 0930 1539 2135	1.0 5.6 2.0 5.9	0.3 1.7 0.6 1.8	13 FR VE	0419 1013 1701 2231	0.0 6.6 0.7 5.9	0.0 2.0 0.2 1.8	28 SA SA	0345 0958 1614 2218	1.3 5.6 1.3 5.6	0.4 1.7 0.4 1.7	13 MO LU	0548 1116 1830 2348	1.3 5.9 0.7 5.2	0.4 1.8 0.2 1.6	28 TU MA	0429 1032 1717 2307	2.0 5.6 1.3 5.2	0.6 1.7 0.4 1.6
14 WE ME	0352 0951 1621 2157	-0.3 6.2 1.0 6.2	-0.1 1.9 0.3 1.9	29 TH JE	0354 1003 1613 2211	1.3 5.9 2.0 5.6	0.4 1.8 0.6 1.7	14 SA SA	0513 1058 1759 2320	0.3 6.2 0.7 5.6	0.1 1.9 0.2 1.7	29 SU DI	0415 1030 1655 2253	1.6 5.6 1.6 5.2	0.5 1.7 0.5 1.6	14 TU MA	0650 1203 1929	1.6 5.6 1.0	0.5 1.7 0.3	29 WE ME	0521 1112 1814 2350	2.3 5.6 1.6 4.9	0.7 1.7 0.5 1.5
15 TH JE	0443 1038 1721 2248	0.0 6.2 1.0 5.9	0.0 1.9 0.3 1.8	30 FR VE	0421 1037 1651 2247	1.3 5.9 2.0 5.6	0.4 1.8 0.6 1.7	15 SU DI	0611 1144 1857	0.7 5.9 0.7	0.2 1.8 0.2	30 MO LU	0452 1104 1742 2330	2.0 5.6 1.6 5.2	0.6 1.7 0.5 1.6	15 WE ME	0040 0753 1256 2027	4.9 2.0 5.2 1.3	1.5 0.6 1.6 0.4	30 TH JE	0626 1157 1916	2.3 5.6 1.6	0.7 1.7 0.5
XX				31 SA SA	0451 1110 1734 2323	1.6 5.6 2.0 5.2	0.5 1.7 0.6 1.6		All a	A COM	K	31 TU MA	0540 1141 1837	2.0 5.6 1.6	0.6 1.7 0.5		AL	LT	IME	CS A	RE	AST	:

NATURE NOTES

#### APRIL

Karen McKendry saw a Mink being harassed by dogs at the Dingle. In the second week of April, she heard Barred Owls calling.

Regine Maass also saw a Mink. She observed last year there were many, many bees; this year there are about 10% of last year's observed populations around her home near the Dingle. Insects are much less as well.

Bob McDonald reported spotting his first Mayflower on May 6th in an exposed, gravelly area. Our Mayflower is one of the 'PlantWatch' species. April

Pat Chalmers spotted Coltsfoot on March 12th, and Pussywillows and a Chipmunk a few days later. On may 6th, she saw Mayflowers in bud. She also saw Harleguin Ducks in the Shad Bay area. A friend at Lake Egmont, on March 31st, heard Wood Frogs peeping.

Ian Mclaren reported seeing lots and lots of early birds returning.

Stephanie Robertson spotted a very fluffed up Robin which staved very still for a long time on a branch very near her suet feeder.

Pat Leader and Barry Sawyer (info by email) in Smiley's Park saw Bloodroot, many trilliums coming up, and a Yellow Violet. Barry saw a rare bush - Leatherwood, or Dirca, in flower which semed very similar to our wild Honeysuckle.

#### MAY

Stephanie Robertson watched a pair of Cardinals at a feeder in a Chain Rock Drive garden (backing onto Point Pleasant Park). The owners report seeing and hearing them over a period of two or three weeks or more.

Pat Chalmers, on May 5th, at the PockWock Watershed area, in perfect conditions (no wind; no rain) heard 17 owls (Barred, Saw-whet, and Great-horned) at ten stations. She and Suzanne Borkowski started off 1/2 hour after sunset and were home at 2:00 a.m. the next day. If, as a top predator, the owls are doing well; the rest of the animals in the area must be thriving too. Pat also reported that someone in the Liverpool area had seen some Hummingbirds.

Karen McKendry reported seeing in late April and early May 'tons' of jellyfish about the size of gooseberries (salps?-ed.) while canoeing across the Arm.

Lesley Jane Butters saw the little Blue Azure butterflies the first week of April at the Waegwoltic Club. She also saw two Merlins screeching at each other (either mates or just pals) at the foot of Coburg Road.

Gillian Webster saw a little brown Mink at White Point's Beach.

Janet Dalton reported that a friend, near the Rocking Stone in Spryfield, had found a dead Saw-whet Owl.

Pat Leader (info by email) on May 5th saw, close to the Cabin Lake area in Royale Hemlocks sub-division, flowering Leatherleaf, flowering Rhodora, and Blueberry plants almost in flower.

#### JUNE

Patricia Chalmers spotted the nests of the Eastern Phoebe while visiting Round Hill in the Annapolis County. She mentioned that these birds like to nest on man-made structures. Typically, she saw two nests on ledges under a bridge and another two nests on nearby porches.

Rachelle, who works at the Dalhousie Kilham Library, observed a murder of Crows cawing and making a fuss in an effort to protect a young crow on the ground. She was going to continue to observe this situation.

Dorothy Morris said that there were three Titmice in a tree in front of their house in Elmsdale. Some doubted this until Ann Minzloft mention that they had Titmice in trees at their home three years ago, when she lived in St Bruno, Quebec. Is it possible? Could they be Flycatchers?

Anne Minzloft watched House Finches flitting in and out of their nest in the parking garage at the Queen Elizabeth Il hospital. Even in a concrete jungle the birds survive!

Brian Bartlett visited Bon Portage Island on Victoria Day weekend and mentioned that the warbler count was down this year. He saw two Great-horned Owls and a dead Minke Whale on the shore.

Leslie Jane Butters saw 25 Swallowtail butterflies, two Mourning Cloaks, and many moths while at her cottage. What really surprised her was the many Pink Ladyslippers in the woods nearby. She counted 55 of these orchids!

Stephanie Robertson saw a Red-Bellied Woodpecker in Point Pleasant Park. Early in the spring before the leaves were out she was shown a Raven's nest there, but cannot locate it now; the leaves seem to be hiding the nest.

> NEXT DEADLINE 21st of August for the September Issue

David Patriquin spotted ladyslippers on May 10th, which seemed unusually early.

Send contributions to 'Newsletter', c/o NS Museum of Natural History, or email submissions to sdhaythorn@ns.sympatico.ca