

THE HALIFAX FIELD NATURALIST



(108)

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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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HFN NEWS AND ANNOUNCEMENTS

EDITORIAL

— S. ROBERTSON

What a wonderful summer for plants and animals! Lots of rain for roots, waterfowl, fruits, trees, and leaves. Our back-garden Spy apple tree was so laden with fruit that one of the largest and most productive branches broke with the weight; the apples have ripened nicely on the back deck in a bucket; they are delicious and full of juice.

Point Pleasant Park was especially verdant with all the precipitation. The Comprehensive Plan for the Park, carried out jointly by Ekistics Planning of Dartmouth and NIP Paysages of Montreal, was shared with HFN on June 5th (followed by an HFN field trip there June 16th), and with the general public on June 25th. It is a plan that is truly ecological in scope, aiming towards a balance of recreational activities and historical features in a restored, nurtured, and protected Acadian forest setting. This will be implemented over time by an 'adaptive management' approach (see the report, p. 7, by David Patriquin).

With this issue we are launching explanatory articles about taxonomy – the naming of species and the ordering of them in relation to evolution and to each other; this bears upon our field trip species lists, and why they are arranged as they are.



FOR OUR BIRDS; 15/16 NOVEMBER

A groundbreaking conference entitled "For Our Birds" will focus on: increasing communication about the science and conservation of birds; engaging new people in bird conservation; and increasing public awareness and action for birds.

The keynote speaker will be Dr. Janis Dickinson, Director of Citizen Science at the Cornell Laboratory of Ornithology, Cornell University. It will be presented at the Rowe Management Building, Dalhousie University, University Avenue, Halifax, Nova Scotia, from 9:00 a.m., Saturday, November 15th to 1:00 p.m., Sunday, November 16th.

Be sure to register early: The first fifty registrants will be entered into a draw for two gift certificates from the For Our Birds store in Mahone Bay! To register and for more information, contact Mark Butler, Ecology Action Centre, 429-5287; birds@ecologyaction.ca; or www.ecologyaction.ca/coastal/birds.

This event is sponsored by the Nova Scotia Bird Society, the Ecology Action Centre, Dalhousie University, and Bird Studies Canada.

THANK YOU

Late last year HFN member Akhtar Abbasi alerted our Board to Pesticide Free Nova Scotia's campaign against cosmetic and non-agricultural pesticide use throughout Nova Scotia. Subsequently, Bob McDonald wrote a letter to support their proposed province-wide ban. Following is Helen Jones' reply:

"August 6, 2008

Dear Bob,

I am sorry it has taken me so long to write to tell you and everyone in the Halifax Field Naturalists how much your support is appreciated for a province-wide ban on the use of cosmetic pesticides in Nova Scotia. Thanks to all of you! It means a great deal to our growing coalition to have an endorsement from an organization such as yours.

HFN has a long and impressive history of documenting and cherishing Nova Scotia habitats and all the diverse flora and fauna they support. Reducing and eliminating pesticide damage to sensitive community environments, urban and rural, is a goal we all are committed to. When Akhtar shared the news with all of us in Pesticide Free Nova Scotia, we were delighted and elated to hear it.

Welcome aboard!

Sincerely,

Helen Jones, MSc., Hon. Zool (UBC), Ed.D. (Col. Univ.), for Pesticide Free Nova Scotia; past member Pesticide Bylaw Advisory Committee for HRM; board member, Real Alternatives to Toxins in the Environ-



GREAT BACKYARD BIRD COUNT

Planning is now underway for the Cornell 2009 Great Backyard Bird Count, sponsored by the Cornell Lab of Ornithology and the National Audubon Society. Because a goodly amount of lead-time is needed for various nature publications, they're sending out this news release now, so that people can start thinking about and planning their participation.

They are also sharing more than 4,000 digital photos submitted for their annual photo contest! You can view some of these at their online photo gallery: <http://www.birdcount.org/gallery>. Additional background information is available on the GBBC web site: <http://www.birdcount.org> (check out the FAQ section).

For more information, contact Patricia Leonard, pel27@cornell.edu.



NEW AND RETURNING

Judy Keating
Helen Smith

SPECIAL REPORTS

A NATURAL RESOURCES VISION

Following is David Patriquin's July 31st, 2008 submission to Voluntary Planning (VP), the Citizen's Policy Forum on Nova Scotia's Natural Resources, volplan@gov.ns.ca, regarding the stewardship and sustainability of our provincial natural resources, on HFN's behalf:

WHAT IS YOUR VISION FOR BIODIVERSITY, FORESTS, MINERALS AND PARKS IN NOVA SCOTIA?

The government achieves its goals of protecting 12% of the total land area by 2015. It sets new goals, recognizing that the target of 12% of protected land must be applied to all landscape types, and that 12% is not an end but a waypoint; that much larger areas must be protected to avoid precipitous losses in biodiversity.*

A network of core protected areas, large patches of forest land on long rotations, and corridors encompassing 30% of the land area is developed that spans the province and continues through Chignecto Isthmus into New Brunswick. This is achieved on private lands through a combination of land purchases, easements, land use zoning, tax credits, and other incentives.

Forests occupy almost 80% of the land area, thus their management is key to biodiversity conservation. In the 21st century, selection cutting becomes the norm, making use of much smaller, more fuel efficient machinery (than used in 2008), as well there is some revival of horse logging. Clearcutting is restricted to 10 hectare lots, and requires an environmental assessment. Whole-tree harvesting is not permitted. There is no clearcutting on crown land. Strategies and regulations are developed to achieve at least 15% old growth forest (with natural gaps in earlier successional stages) in all currently forested landscape types by 2100 (compared to ~0.3% in 2008, 8-9% in the 1950s and perhaps 50% in pre-European times); also for reintroduction of forested land on 15% of deforested landscapes. In addition to conserving biodiversity, these measures rescue the forest resource from irreversible declines in productivity due to undermining of the soil base by industrial forestry, increase the value of forest products per unit harvested, employ more people, and improve the capture and storage of water.

A minimum requirement for one hundred-metre wide riparian buffer zones along 80% of watercourses is implemented. These serve as wildlife corridors and habitat, in addition to their stream protection function (which might be satisfied by narrower zones).

Road needs are re-evaluated and a long term plan to reduce road intensity is introduced. Detailed specifications for wildlife passageways across roads are developed. One hundred-metre or wider natural habitat buffer zones are required adjacent to major highways.

Wetland protection is enhanced. Amongst the new provisions: wetland regulations are extended to treed bogs, a major wetland type in Nova Scotia that is not covered by current wetland regulations; a minimum 5:1 compensation ratio is set for any wetlands that are significantly impacted by development.

Peat excavation operations and draining of peatlands are not permitted in Nova Scotia.

A coastal zone management/conservation act is introduced. It includes strong restrictions on development within 100 metres of shorelines and steps in order to allow half of dyked land to return to natural salt marsh. At the federal level, several Marine Protected Areas are established.

The mining act is changed to forbid all mining exploration in environmentally sensitive areas. The moratorium on uranium mining is made permanent. Open pit/quarry type operations are restricted to areas of 20 hectares and less in environmentally least-sensitive areas. Environmental impact assessments for mining require assessment of the net economic benefits (or losses) to local communities and the province over a period of 150 years, using GPI (Genuine Progress Index) type accounting.

In the energy sector, exploitation of geothermal energy replaces the focus on wind power, because it (geothermal energy) offers more opportunity for reducing demand on traditional energy sources, and is more environmentally and human friendly. Small scale sustainable cutting of wood for energy is permitted by individual property owners for their own purposes, but large scale harvesting of wood for energy is not permitted; rather biomass fibre crops such as switch grass, fertilized with municipal wastes, are grown on recently reclaimed land as an initial stage in their reclamation.

The landscaping and horticulture industry turns native, introducing more native species to older neighborhoods and developing techniques for maintaining the local native landscape character in new developments.

Biodiversity conservation is introduced into the school curriculum. Students go on field trips to learn about the natural history of their area and work on native landscape reconstruction projects on school grounds and in their communities.

*NOTE: How much is enough?

We have a reasonably good record in Nova Scotia for setting up protected areas and the government should be commended for committing to 12% protected area by 2015 (up from approximately 8.2% currently). However, fragmentation of natural habitats at large continues pretty well unabated. Habitat fragmentation is responsible for more than 80% of biodiversity losses. Hence, at best, protecting 12% of habitat while larger areas continue to degrade will help only to stem the tide, not to stop it or reverse it.

We are only just at the beginning of large scale species losses associated with fragmentation of habitat. The alarm bells about species loss were raised in the 1980s because of losses that had occurred until then and, more so, because a better theoretical understanding of species biodiversity predicted huge losses to come with continuing destruction and fragmentation of habitats. E.O. Wilson's rule of thumb predicts that a tenfold reduction in habitat results in approximately 50% reduction in the number of species an area can support. Many or most species may hang on in a remnant habitat for a while, but are lost as they become locally extinct



and cannot be replaced by immigration from other, still extant populations in other suitable habitats. So, in addition to conserving as much intact habitat as possible, we need to reconstruct a network of habitats and wildlife corridors across the whole province in order to maintain the natural immigration and gene flow between populations in different regions.

Ideally, under the provincial scheme for protecting land an equivalent proportion of land would be protected in each of the 80 natural landscapes. Currently, nineteen of the 80 natural landscapes of Nova Scotia are not represented at all in Protected Areas, and 62 have less than 12% of their area protected.[1] Thus as we move towards the 12% target for 2015, priority should be given to the most poorly represented landscapes.

The 12% figure, however, should be seen as a way-point, not an endpoint.

This figure has its origin in The World Commission on Environment and Development Report: Our Common Future (1987).[2,3] The report called for at least tripling the expanse of protected areas which then stood at about 4% globally. Tripling seemed politically feasible, but this target was cited as a minimum and was not based on formal considerations of the area required to sustain species and ecosystems. A recent study by Karen Beazley and associates in the School for Resources and Environmental Studies at Dalhousie used a GIS and modeling based approach to estimate conservation needs in Nova Scotia[1]. They concluded that "60% of Nova Scotia, including 32% in core areas, should be managed for conservation objectives to maintain genes, species, and ecosystems over time." Similar estimates have been forthcoming from other studies. In practice this means that much larger areas than 12% of the province need to be managed for biodiversity conservation, regardless of whether they are in private or public hands.

1. Beazley, K. et al. 2005. Biodiversity considerations in conservation system planning: a map-based approach for Nova Scotia, Canada. Ecological Applications 15(6): 2192-2208

2. Report of the World Commission on Environment and Development: Our Common Future. (1987). Transmitted to the General Assembly as an Annex to document A/42/427 – Development and International Co-operation: Environment. Retrieved from <http://www.un-documents.net/ocf-06.htm>.

3. Wiersma, Y. F., & Nudds, T. D. (2005). On the fraction of land needed for protected areas. Chapter 7 in N. Munro et al. (eds). Making ecosystem based management work: proceedings of the fifth annual conference of the Science and Management of Protected Areas Association, 2003. Science and Management of Protected Areas Association. Retrieved from http://www.mun.ca/biology/ywiersma/wiersmanudds_sampaa.pdf.

WHAT ARE THE STRENGTHS OF THESE FOUR AREAS OF NATURAL RESOURCES?

- Biodiversity: our 80 diverse landscape types in a small province, and their associated biodiversity. Protecting and enhancing biodiversity at all levels (genetic, species, population) is our best preparation for climatic change, whatever turn that takes.

- Mining: some valuable resources for small scale, environmentally-sensitive mining for many centuries.
- Parks: truly exceptional.
- Forests: the Acadian forest, potentially.

WHAT BARRIERS OR ISSUES AFFECT THESE RESOURCES?

- Currently, there seems to be a general lack of recognition that the 12% protected area target was conceived (by conservationists, at least) as a starting point, not an end-point in protecting land for biodiversity conservation.

- We have some very good human resources and good scientific and economic bases for pursuing the vision described above (examples: 3 detailed land classification systems for N.S.; GPI accounting; universities, community colleges)

- Climatic changes may not materialize as we anticipate (it could get colder for a period, warmer faster than we anticipate, or change more slowly); hence our best strategy is conservation of biodiversity at all levels (genetic, species and ecosystem).

- Only 30% of land in Nova Scotia is crown land, a low proportion compared to the rest of Canada.

- The crisis in the forest industry is an opportunity to change our way of thinking about the use of forests. Amongst the factors leading to change: high costs and shortages of fuel; increased value of higher value wood products because of shortages of wood globally; decline in the demand for newsprint; new demand for certified wood; evidence that clear-cutting has contributed to erratic stream flows, decline of fish populations and declining water quality in the province; increased value of carbon credits; and increased importance of eco-tourism.

- Increased fuel costs should reduce vehicle use and need for new roads in the province.

- Changes in the economy at large will lead to changes in economic thinking and money markets to favour smaller scale, sustainable operations.

- On the whole, Nova Scotians share a deep appreciation of our natural resources.

WHAT DO YOU SEE AS YOUR COMMUNITY'S PRIORITIES FOR THE FUTURE IN THESE FOUR AREAS?

- Biodiversity: the need to think beyond 12%, and to apply the concepts to all landscape types.

- Forests: reduce the annual allowable cut to 1/3 of the current value; reduce clear cutting drastically; protect existing older growth forest; implement longer rotations.

- Mining: permanent moratorium on uranium mining; strong restrictions on open pit/quarry type operations.

- Parks: public education to value the role of parks in biodiversity conservation and to appreciate the sensitivity of biodiversity to human actions.

WHAT VALUES ARE ESSENTIAL TO GUIDE THE HEALTH AND SUSTAINABILITY OF THESE FOUR AREAS?

- Respect for our land and respect for each other.
- Transparency of public processes.
- Application of Precautionary Principle.

– David Patriquin



SPECIAL ARTICLES

TAXONOMY

— URSULA GRIGG

A wee while back, when I asked past editor Ursula Grigg whether she had received the summer /08 issue, her reply was, "Yes, and the ordering of the Arnell Lands Species list was awful!". Ruefully, I remembered I had neglected to send it off to her for editing before including it in the newsletter, as taxonomically speaking, species must be arranged in a certain sequence when making up a list for publication (correct taxonomic order has long been one of Ursula's interests and obsessions). Further conversation resulted in the realisation that we should write an explanatory article about this important topic (next issue). Here is a brief review of our basic reference work, and the reorganised list of those latest-identified Arnell species from the May /08 biota survey there (*ed.*).

The basic taxonomic arrangement we use is set out in the book *The Five Kingdoms of Life: an Illustrated Guide to the Phyla of Life on Earth*, third Edition, 1998, New York, Freeman and Co., L. Margulis and A.V.Schwartz. It lays out a clear scheme by which any organism, living or fossil, can be placed in a logical taxonomic position in relation to any other. It also lays out the reasons why they are so ordered. This scheme is founded on the research of many countries, over many generations, and that research includes the descriptions of anatomy, physiology, and molecular systematics of many organisms, plus details of geographical distribution and occurrence through time. Even habitat and behaviour patterns are noted, for allied species often show similar habits – bird-watchers and pet-owners can appreciate this!

The Five Kingdoms scheme is built upon the Swedish naturalist Linnaeus's introduction of the binomial system (by which every organism has two Latinised names), plus the English naturalist Darwin's Theory of Evolution (which suggests a means by which they can be related).

These developments gave organisms universal names which could be used in discussions by people wherever they lived, or whatever language they spoke, and led to the scientific studies of genetics, biochemistry, and molecular systematics.

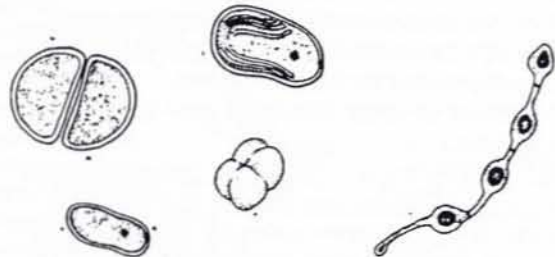
There are two Superkingdoms. The first is **Prokarya**, for those organisms whose cells have no organised nuclei and are without reproduction involving sex. Prokarya contains a single Kingdom, Bacteria. The second is **Eukarya**, for those organisms having both nuclei and sexual reproduction. Eukarya contains the Kingdoms Protocista, Fungi, Animalia, and Plantae.

Protocista contains apparently simple one-celled organisms, often with ancient fossil histories, and also includes those 'exceptional' organisms which cannot be classified satisfactorily in any other scheme (these are the delight of exam-setters, but the plague of Biology students, who have to learn them individually by rote).

The Kingdom Fungi contains the lichens as well as the true fungi. Lichens are composed of a body (thallus) of

a fungus plus green or blue-green algal cells, and the reproductive parts of lichens are also fungal, with a few cells of the alga included.

The Five Kingdoms of Life is well illustrated, and includes details on important fossil sites (including our cliffs at Joggins, Nova Scotia). It also supplies website addresses where more information and illustrations may be found.



(SUPERKINGDOM EUKARYA)

(KINGDOM FUNGI)

Fungi

Bracket Fungus (on White Birch)

Lichens

Concentric Ring Lichen	<i>Arctoparmelia centrifuga</i>
Horsehair lichen	<i>Bryoria trichodes</i>
Fishnet Cladonia	<i>Cladonia boryi</i>
Ball (Olive) Lichen	<i>Cladonia strepsilis</i>
Tube Lichen	<i>Hypogymnia</i> sp.
Bottlebrush Shield Lichen	<i>Parmelia squarrosa</i>
Varied Rag Lichen	<i>Platismatia glauca</i>
Crumpled Rag lichen	<i>P. tuckermanii</i>
Map Lichen	<i>Rhizocarpon</i> sp.
Rock Foam Lichen	<i>Stereocaulon saxatilis</i>
Beard Lichens	<i>Usnea</i> sp.

(2 types – long/hanging, and short/bushy)

(KINGDOM ANIMALIA)

Insects

Spring Azure	<i>Celastrina argiolus</i>
Water Strider	Order Hemiptera
Lady Beetle (species unknown)	
Daytime Firefly	
Bumblebee	
Ants – red and black	

Amphibians

Spring Peeper *Hyla crucifer*

Birds

Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Herring Gull	<i>Larus argentatus</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Song Sparrow	<i>Melospiza melodia</i>
Purple Finch	<i>Carpodacus purpureus</i>
Pine Siskin	<i>Carduelis pinus</i>

(KINGDOM PLANTAE)

Moss

Sphagnum Order Cataraena

Liverworts

Ferns

Rock Polypody *Polypodium virginianum* L.



POINT PLEASANT TALK & WALK

— DAVID PATRIQUIN

In an evening presentation to HFN on June 5th, Peter Bigelow, HRM's manager of Real Property Planning, provided an outline of the Comprehensive Plan for Point Pleasant Park. The plan was to be released for public review on June 25th.

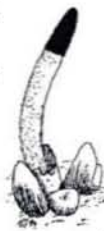
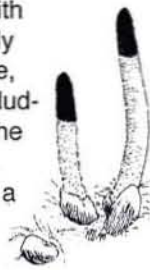
This talk was followed on June 16th by an evening walk in the Park with Peter and Parkland Planner for HRM, Stewart MacMillan.

Peter acknowledged the important contributions made by HFN over the years. He paid special tribute to Colin Stewart who had come forth with pivotal ideas on how to approach the complex issue of managing recovery of the Park after Hurricane Juan in 2003, and who had shepherded the initial consultations prior to his untimely passing. Colin stressed the need for a multifaceted team approach and for the ensured preservation and enhancement of the Park's natural and cultural assets.

Hurricane Juan was the final and longest straw in a history of challenges to the ecological integrity of the Park. Prior to its establishment in 1866, it had been cut over several times to facilitate settlement and military activities by Europeans. Management since the 1930s had emphasised clearing the understory, and had allowed an overmature forest dominated by red spruce (90%) to develop. Twenty-five hundred trees were destroyed in 2001 in efforts to eradicate the Brown Spruce Longhorn Beetle, and a further 10,000 trees were downed by an ice storm in early 2003. In late September 2003, Hurricane Juan delivered the knockout punch, downing 75% of the Parks approximately 100,000 trees. To deal with the attendant fire hazard, a large fraction of the woody debris had to be removed by spring. On the plus side, with the involvement of Colin Stewart and others (including HFN president Allan Robertson as a member of the Point Pleasant Park Advisory Committee and now its chair), dealing with this issue marked the first step in a new, comprehensive, and ecologically sensitive approach to managing the Park.

In 2005, an international design competition was held to stimulate proposals for managing the longer term recovery of the Park. One stipulation was that proposals should respond to citizens' pleas that its natural qualities be maintained. The competition was won by Ekistics Planning and Design of Dartmouth and NIP Paysages of Montreal, who were charged with preparing the Comprehensive Plan. The first full draft that Peter outlined for us on June 5th was released on June 25th for public comment, prior to preparing the final version for presentation to HRM Regional Council in September, 2008.

This plan is available in PDF at pointpleasantpark.ca/en/home/planning/default.aspx. The 312-page document, with numerous photos, summary tables, and maps, is a treasure trove of information about the natural and human history of the Park, and it lays out very clearly the principles and details of the proposed management for the next 50 years. The contents are well outlined in a 13-page executive summary. I was, like many others, skeptical about the outcome of this



process. However, I am completely swayed by the plan and share the enthusiasm and excitement expressed by Peter and others about it. The plan breaks new ground in many regards, amongst them the consultative process, the involvement of volunteers in recovery activities, a special role – past, present and future – of First Nations peoples and, key, from the HFN perspective, recognition of the complexities and subtleties of its ecological processes.

The goal of the Comprehensive Plan for Point Pleasant Park is to achieve a balance – a distinctive landscape with clearly presented historic features in an Acadian forest setting; a landscape where cultural heritage and natural resources enhance each other and are balanced with recreational uses that respect the Park's sustainability principles.

To deal with those subtleties, an 'adaptive management' approach is being implemented. In this approach, management of natural resources is treated like an experiment rather than a definitive plan. All available information is used to formulate a scheme, but the limits to predicting outcomes in ecological systems are recognised. Thus, the management process is treated as a set of experiments (large and small) – a trial is conducted, observations are made, the plan modified accordingly, and then the process repeated.

A few of the highlights in this context:

SOILS, SEEDBANKS, & NATURAL REGENERATION

There had been concern that poor soils would limit recovery, also that regeneration in this isolated area could be severely limited by lack of regenerative propagules. However, analyses of 400 soil samples suggest no major limitations and, as we have witnessed, there has been vigorous regeneration and an abundance of new plants over large areas that were bared by the hurricane. For instance, Stewart pointed to a White Pine that had put on a remarkable one metre of growth in one year! Decomposition of the immense amounts of retained old vegetation provides nutrients for regeneration. Leaving snags standing as long as possible helps to spread out the soil inputs over time. Some fallen wood is placed in direct contact with soil, other of it not so in order to slow decomposition. However, Peter commented that there seemed to be no difference in decomposition rate according to contact; rather it appears to depend on the condition of the wood when it fell. Fallen wood is placed strategically to help in erosion control. Near paths it is left in longer pieces, which are visually more attractive than shorter 'bucked-up' pieces. Only on south-facing, drought-susceptible slopes has natural regeneration been very slow or essentially nonexistent. Hence it is being augmented in these areas by tree planting.

DIRECTING & ACCELERATING SUCCESSION

The pre-hurricane forest was 90% Red Spruce-dominated softwood which was a factor in its susceptibility to hurricane damage. Hardwoods are, in general, more resistant to strong winds. Seven areas – the 'witness groves' – largely escaped hurricane damage, mostly in the back of the park beyond south-facing slopes. These

will be maintained, but with some protection, by encouraging hardwoods around them and in gaps. One stand just inland from the Shore Road is falling down naturally, and quite rapidly, in a wave-like pattern. It is an even-aged stand of White Pine, Red Spruce, and some Douglas Fir planted in the 1950s and not managed, so its trees are tall and spindly, thus highly vulnerable.

The goal of management for the park as a whole is the development of an uneven-aged, mixed Acadian forest. It is seen as both resistant and adapted to severe weather damage, and also more adaptable to climatic change than the softwood dominated forest of old. Because of the Park's small area and isolation, it will always require some management to maintain; however by working with natural processes, those efforts are minimised.

Managers will attempt to direct and accelerate the succession process through planting of selected native species, culling, and de-suckering. For example, some suckered Red Maples are being reduced to one dominant leader in order to speed growth and produce longer-living trees. No Red Spruce is being planted partially as a concession to CFIA concerns about its susceptibility to the brown spruce longhorn beetle, but there are lots of young plants of Red Spruce in any case. Stewart explained that poplars are being put in on the exposed, south-facing slopes to effect quick cover; these will be culled after 10-12 years when maple, birch, and oaks have a good start and can take over.

In 2007 and 2008 a total of 70,300 tree seedlings were planted. These included 8,600 Black Ash and 4,750 Ironwood trees which will contribute to the conservation of these once abundant species. (A full list of species and numbers of seedling planted is given in the Comprehensive Plan, Table 4.6).

INVASIVE SPECIES & CULTURAL TREES

Then there are the unwanted, invasive species – most notably Norway Maple and Japanese Knotweed. Peter showed us an area on the east side of Cambridge Road near the entrance where small, 1-2 m high Norway Maples were culled to allow Mountain Ash, Striped Maple, and other native species to come up. There are also some very large shrubs of Black Locust in this area that will be removed. Experiments are ongoing near the Shore Road to find the best way to deal with Japanese Knotweed. For the most part, the weedy type exotics that occur close to roads, such as Coltsfoot, will be tolerated because they don't generally stray far from disturbed ground, and they do perform a stabilising function there.

Some exotic species that were introduced as ornamentals to the Park will be retained where they are considered to have specific cultural or historical significance – e.g., a corridor of European Copper Beech, and clumps of Heather by the Sailor's Memorial – but will be removed from other areas. Mature specimens of other exotic trees such as European Horse Chestnut and Sycamore Maple will not be removed, but neither will they be replaced as they die off.

The management of Copper Beech is an interesting case. It is an ornamental selection of the European

Beech whose seedlings include both Copper and Green variants. The green-leaved American Beech is native to the Acadian forest, but suffers from Nectria Canker which was introduced to North America via the port of Halifax circa 1900. Hence, the green seedlings from Copper Beech are being retained. They will be used as substitutes for our native beech, at least until canker-resistant types of the native species become available.

MANAGING VEGETATION LANDSCAPE EXPERIENCE

The 'landscape experience' is another aspect of the Park's vegetation management. For example, at the Prince of Wales Tower, Peter talked about the view corridor towards Chebucto Head. They will attempt to limit the height of the vegetation in this corridor by maintaining a younger forest and/or selecting smaller species.

DRAINAGE AND WETLANDS

The British were very good drainage engineers. However, now it is desired to keep more of the water in the Park for longer periods, and to augment the wetlands. Hence there is a shift in emphasis from rapid drainage to more diffuse, natural drainage.

I have summarised only a few of the highlights related to the ecology of Point Pleasant Park. There are many other aspects that Peter talked about and that he and Stewart then illustrated on the walk. A few highlights of these: the removal of vegetation by the hurricane which exposed numerous historic sites; a stone axe approximately 3,500 years old found under one of the tree troves; a cart road that was slated for removal which turned out to be the oldest road in the Park; a master stone mason from West Dover hired to rebuild a large retaining wall built originally built by Irish immigrants; and the return of the Mi'kmaq for their spring feast and their plans for a healing garden. The Park's Comprehensive Plan provides many more details and, for Park-lovers, it's great reading!

Thanks to Peter and Stewart for these previews. As if to assure us that we are on the right path, at dusk a Pileated Woodpecker was sighted on Cambridge Drive just as we were exiting the park and allowed us several minutes viewing. Photos were difficult though, because of the darkening sky and back-lighting. Nature always retains a few treasures to herself!



FIELD TRIPS

LIMESTONE FLORA/CHIMNEY SWIFTS

– DAVID PATRIQUIN

Date: Saturday, June 14th

Place: Near Brooklym, Hants Co., and Wolfville

Weather: Overcast

Interpreter: Ruth Newell

Participants: Approximately 20



Patrick Stewart hosted our visit to the 20-acre gypsum lands near Brooklyn, Hants County. He has protected this land under an easement agreement with the Nova Scotia Nature Trust. Ruth Newell, curator of the E. C. Smith Herbarium at Acadia, was our botanical guide.

This protected area is part of a larger block that was parcelled out to settlers in the 1750s. Twenty years ago, a botanist neighbour discovered Ram's Head Lady's Slipper there and Patrick invited a group from the Halifax Field Naturalists (including Mary Primrose and Colin Stewart) to look at the property and provide some assessment of its biodiversity value. Patrick inked the easement agreement with Nova Scotia Nature Trust in January 2007 and on this field trip day, HFN joined Patrick and NSNT personnel to celebrate and participate in the annual monitoring of the property.

Old logging, mine, and/or farm roads provide access to the mostly forested property. We observed a flowering Horse-gentian plant close to the entrance. A variety of gracious ferns, graminoids, and herbs covered a couple of roads that are still kept clear of trees. Ruth discussed the identification of at least eight species of ferns. It is a karst landscape, parts of which have a highly undulating surface with small to large sinkholes, and there are some small, old gypsum mines which today are wetlands.

In former times, these mines were small scale operations providing supplemental income to farmers. We were delighted to see wild Calla Lily in bloom on one of the wetlands.

Patrick monitors (and had carefully marked) the sites of the Ram's Head Orchid – a sloping, Balsam Fir dominated woods. It was just past its peak bloom and we saw many fine specimens. Ram's Head, restricted to a few gypsum sites, was listed by the province as a legally protected species in 2007. There were many Yellow Lady's Slipper in full bloom in a nearby area of sinkholes, also some bushes of Daphne; this latter was introduced as an ornamental shrub by the Acadians.

We marvelled at the rich growth of the vegetation and, for Haligonians, the 'exotic' species on the gypsum lands. Many thanks to Patrick for his continuing care of this land and its inhabitants, to NSNT for facilitating its protection, and to Ruth Newell for her continuing involvement and our lessons in botany!

Some of the group went on to meet Jim Wolford to watch the chimney swifts return at dusk to their fabled chimney homes in Wolfville. Jim regularly documents their numbers and provided the following notes from his journal:

"At Robie Tufts Nature Centre in Wolfville at dusk, I met about eight members of HFN at the chimney. They and I watched for the Chimney Swifts from 8:30 to 9:10 p.m. (sunset was at 9:02 p.m.). Twelve ± Chimney Swifts were counted as they entered the chimney from 8:52 to 9:05, and at least two more swifts were not seen to enter while we watched. The sky was mostly overcast, the winds were light, and it was cool at 14°C."

Jim commented further that "Wolfville's numbers of swifts have been very low (maximum 80 at one time), and Hurricane Wilma back in the late fall of 2005 has been blamed. See the newsletter of the N.S. Bird Society for a write-up of how Wilma struck the Gulf of Mexico in late October 2005 and swept up oodles of migrant swifts on their way to South America. The swifts were swept out to sea and some made it to Britain and Europe, and many hundreds were pushed north back to Nova Scotia along the South and East Shores and in Cape Breton in late October and early November. The numbers of these that ultimately survived is, of course, unknown, but probably very low.

In subsequent summers both New Glasgow and Middleton have had good counts of hundreds of Chimney Swifts. Thus perhaps many Nova Scotia swifts managed to avoid that hurricane."

Thanks Jim!



GYPSUM SPECIES

Cinnamon Fern
 Interrupted Fern
 Bracken
 New York Fern
 Marsh Fern
 Northern Beech Fern
 Sensitive Fern
 Christmas Fern
 Lady Fern
 Evergreen Wood Fern
 Balsam Fir
 Black Spruce
 Eastern Hemlock
 Eastern White Pine
 American Beech
 Green Alder
 Large-toothed Aspen
 Hawthorne
 Woodland Agrimony
 Daphne
 Broad-leaved Enchanter's Nightshade
 Bunchberry
 Common Winterberry
 Sugar Maple
 Red Maple
 Mountain Maple
 Wild Sarsaparilla
 Water Parsnip
 Horse-Gentian
 Wild Calla Lily
 Wild Lily-of-the-Valley
 Larger Blue Flag
 Ram's Head Lady's Slipper
 Yellow Lady's Slipper

Osmunda cinnamomea
O. claytoniana
Pteridium aquilinum
Thelypteris noveboracensis
Thelypteris palustris
Phegopteris connectilis
Onoclea sensibilis
Polystichum acrostichoides
Athyrium felix-femina
Dryopteris intermedia
Abies balsamea
Picea mariana
Tsuga canadensis
Pinus strobus
Fagus grandifolia
Alnus viridis
Populus grandidentata
Crataegus sp.
Agrimonia striata
Daphne mezereum
Circaea lutetiana
Cornus canadensis
Ilex verticillata
Acer saccharum
A. rubrum
A. spicatum
Aralia nudicaulis
Sium suave
Triosteum aurantiacum
Calla palustris
Maianthemum canadense
Iris versicolor
Cypripedium arietinum
C. parviflorum



BUTTERFLIES

— PETER PAYZANT

Date: Saturday, July 5 2008

Place: Uniacke Estate Museum Park & Pockwock Road

Weather: Mostly sunny, high of 26

Interpreters: Peter and Linda Payzant

Participants: 10, plus the interpreters

We had delightful weather this year for our only butterfly walk of the season. We started at Uniacke Museum Estate Park and walked around the grassy fields. Our first butterflies were a Wood Nymph and an Eyed Brown, seen flying over the wet area behind the caretaker's house. Expecting that Wood Nymphs would be abundant later in the walk (hah!) we didn't try to get closer to this one, but it turned out to be the only one we saw.

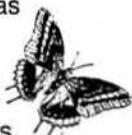
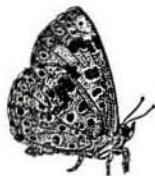
The 'whale' field had been mowed this year, and perhaps that had something to do with a general scarcity of butterflies there. We saw the usual Skippers, one or two Summer Azures and good numbers of Ringlets. One participant saw a Northern Pearly-eye before the trip started, and another saw one in the parking lot just before we left the park. The common fritillary this year seemed to be Aphrodite; we saw no Great Spangled or Atlantis, and only one or two Silver-bordered.

There were very few butterflies on the drumlin hill. We especially missed the Common Branded Skippers which we often see here.

Moving on to the Pockwock road, we had more skippers around the entrance, and also got our first good looks at Northern Pearl Crescent. A leisurely stroll up the road finally yielded some of the specialties we always look for here: there were several Pink-edged Sulphurs patrolling up and down; the little bogs had Bog Coppers, and on the way out one sharp-eyed participant found a Harris' Checkerspot. We also saw one very late Dreamy Dusky Wing, one of the open-winged skippers usually seen earlier in the year. Knapweed blossoms were scarce and so we didn't see as many fritillaries as we would have liked. The little bridge over the river was a pleasant place to rest and watch the Ebony Jewellings before we turned back.

Apart from the two fritillary species and the Common Branded Skipper mentioned above, other species we missed this year included Clouded Sulphur and Hobomok Skipper.

We were disturbed by a couple of ATV riders on unlicensed machines. This activity is prohibited on the Pockwock road; they were duly reported to the ATV hotline.



BUTTERFLIES SPECIES

Canadian Tiger Swallowtail
Pink-edged Sulphur
Bog Copper
Silvery Blue
Summer Azure
Aphrodite Fritillary
Silver-bordered Fritillary
Harris Checkerspot
Northern Crescent
White Admiral
Northern Pearly-eye
Eyed Brown
Ringlet
Common Wood Nymph
Dreamy Dusky Wing
European Skipper
Peck's Skipper
Tawny-edged Skipper
Long Dash
Dun Skipper
Virgin Tiger Moth
Virginia Ctenucha Moth

Papilio canadensis
Colias interior
Lycaena epixanthe
Glaucopsyche lygdamus
Celastrina neglecta
Speyeria aphrodite
Boloria selene
Chlosyne harrisii
Phyciodes selenis
Limenitis arthemis
Enodia anthedon
Satyroides eurydice
Coenonympha tullia
Cercyonis pegala
Erynnis icelus
Thymelicus lineola
Polites peckius
P. themistocles
P. mystic
Euphyes vestris
Grammia virgo
Ctenucha virginica

BELCHER'S MARSH PARK

— Bob and Wendy McDonald

Date: Thursday, August 7th

Place: Belcher's Marsh, Glenbourne subdivision

Weather: Grey, cool evening

Interpreters: Bob McDonald and all participants!

Participants: 14 adults and two children

Our group — which included local residents, HFN members, and visitors — set out to take a closer look at this wonderful marsh which was set aside as the parkland component of the Glenbourne subdivision by the two local developers who built it. Since the mid-90's it has been completely surrounded by residential development and is located on Parkland Dr. between Langbrae Dr. and Farnham Gate Rd. (in Clayton Park West).

The water (mostly storm water) flows into the marsh at Parkland/Langbrae, and then flows out across Parkland Drive to Little Belcher's Pond near Heathside Crescent, where a stream flows under Highway 102.

The developers also built a trail, including bridges and a look-off over the marsh. The Halifax North West Trails Association, the local trails group, have become stewards of the marsh and pond, have carried out an inventory of the flora present, and have worked with HRM in the research and design of two interpretative panels, one dealing with the area's human and cultural history, and the other with its natural history.

As soon as we set off at the trailhead for our walk-about, we discovered that the heavy rain over the previous weekend had caused a washout of the trail-bed near the first bridge. Although the trail had suffered considerable damage, it didn't prevent us from venturing along

the path.

The shaded woodlands are used by many bird species, especially during migration, and chickadees, nuthatches, and woodpeckers reside here year-round. The floor of the woodlands is covered with ferns – Cinnamon, Bracken, and Interrupted Ferns being the largest and most abundant.

We emerged from the woods to overlook the marsh, and here we began to see our first wetland species. Bob pointed out Sweet Gale, Labrador Tea, Sheep Laurel, Leatherleaf, and Canada Holly. We were also able to compare the two Spirea species – Meadowsweet (*S. alba*) and Steeplebush (*S. tomentosa*). Along the edge of the marsh, several nesting boxes for tree swallows had been erected; they were a joint project involving the trails group, the local Boy Scouts, and the Nova Scotia Bird Society. Sadly, none were being used in this first year. We hope for better results next season.

Bob explained that the trails group have been monitoring the quality of the water in the marsh, using equipment borrowed from the community-based Environmental Monitoring Network based at St. Mary's University. Three years of monitoring have revealed that the parameters measured (pH; dissolved solids; dissolved oxygen) all point towards a fairly healthy environment. Evidence for the fact that fish and amphibians still thrive here is that, in season, Osprey are seen fishing daily and both Great Blue Heron and Belted Kingfisher are regular visitors. The group saw both Heron and Osprey. Red-winged Blackbirds and Common Grackles are known to nest in the cattails or nearby woodlands, but we saw neither during our walk.

We took a quick look at the interpretive panels, including aerial photos showing pre/post development, and then headed off down beside the stream which flows under Farnham Gate Road and Parkland Drive.

Another set of indicator species for good water quality is the Odonates (dragonflies and damselflies). Although few dragonflies were seen, several smaller damselflies were spotted, including the dramatic Ebony Jewelwing (large, with a shiny green iridescent thorax and abdomen, and black wings), Spreadwings, and Bluets. More Canada Holly, Royal Fern, Red Chokeberry, and Giant Burr Reed were seen along the stream as we proceeded towards Little Belcher's Pond. We had to cross Farnham Gate Road, and then Parkland Drive, to get there. Around the pond, we noted Water Plantain, but the small pink orchids Grass Pink and Dragon's Mouth, found earlier in the season, had finished blooming.

Although the flora listing for Belcher's Marsh and Pond is a work in progress from previous field trips involving the members of the trails group, the Halifax Field Naturalists, and the Wild Flora Society, over 100 species of flowering plants and trees have been observed in the Park. This listing, along with a brochure including a map of our trail route, can be downloaded from www.halifax-northwesttrails.ca.

Belcher's Marsh Park is used daily by local walkers, joggers, and dog walkers, and regularly by educators. The local P-9 school students visit to observe 'a wetland at work', and Mount St. Vincent University has been

using this setting to train future science teachers as well as ecologists. It is marvellous that this outdoor classroom is near at hand for now and always. It is a perfect example of how nature and development can co-exist.

P.S. The trail bed has been brought back to its former smooth surface, until the next torrential rains!



SHOREBIRDS

– BRIAN FERGUSON

Date: Sunday, August 17th

Place: Eastern shore; Hartlen Pt. to Three Fathom Hbr.

Weather: Sunny, breezy

Interpreters: Fulton Lavender

Participants: 9

Early on Sunday morning of August 17th, a small group of intrepid birders met at the Museum of Natural History parking lot for car pooling. After a short wait, nine of us headed out towards Hartlen Point for some bird spotting. The weather gradually cleared into a beautiful late summer day, with just enough wind to keep the flies at bay.

Our first stop was Hartlen Point itself. Fulton Lavender, the leader of our expedition, is an expert, long-time birder. My own knowledge of birds runs along the lines of an old saying (slightly altered) by the great Welsh poet Dylan Thomas, "All birds are robins except crows."!

Fulton pointed out American Golden Plovers wading and pecking for food in the tidal pools. He and another enthusiast had brought telescopes with stands so that we could get a closer look at these marvelous creatures at a higher magnification than our lower-powered binoculars could provide. As well as plovers and the usual gulls, there were a couple of Cormorants wheeling low overhead.

Fulton, who has been observing birds seriously since childhood, could make out, even at a distance, the different species of shorebirds, including dowitchers and plovers. There were sandpipers as well, which are similar but smaller in appearance than the plovers.

Sadly, Pipping Plovers were not to be seen, as they are an endangered species due to their careless habit of nesting on open beach sand. This results in many of their nesting sites being trod on or run over by us humans, destroying their eggs, which look like pebbles, in the process.

Being careful where we stepped so as to not disturb any nesting areas, we headed back to our vehicles and proceeded on to Rainbow Haven.

We parked alongside the road which follows along the edge of the estuary leading to the beach within sight of a skeet shooting range. As the tide slowly receded, more shorebirds congregated onto the gradually exposed mudflats in order to feed.

The birds seemed oblivious to the distant clap of gunfire from the skeet shooters. They were also at first unaware of two Peregrine Falcons wheeling high

overhead, presumably looking for lunch. We could see the Falcons diving towards the flock on the mudflats, disappearing for a few seconds, and then climbing up for another run.

High in the sky another Peregrine was attacking a much smaller bird, possibly a crow. The scene was reminiscent of a World War I dogfight, with the Red Baron diving on a hapless Sopwith Camel. In this case, the smaller bird managed to get away and the Falcon flew off to seek easier prey.

From our vantage point we couldn't see whether the Peregrines succeeded in getting a meal or not; every time they dove, the flock would rise en masse and settle on another section of mudflats.

After a short but much-needed lunch break, we drove on to Three Fathom Harbour. Stopping short of the fishermen's shacks we hiked along a private road (with permission from the owners), coming out at a salt marsh across from the harbour.

Here Fulton with his keen eye got a glimpse of what he thought was a large shorebird called a Clapper Rail, as it dove and sought cover in the marsh vegetation. These birds are expert in camouflage and hiding out in salt marshes. Fulton and a friend proceeded to try and flush it out of its hiding place so that we could get a view of it, but it was nowhere to be found. The mosquitoes, though, were very successful in flushing us out, despite the strong but intermittent breeze.

As it was getting on to late afternoon we headed back to Cole Harbour and observed more shorebirds on the salt marsh off Sonia Drive. Here, Fulton discovered, on a distant mud flat, a large shore bird called a Hudsonian Godwit. We had a brief look through the telescope before it moved off.

It was getting on towards evening so some of us with previous engagements decided to call it a day. On the way back I saw a Great Blue Heron wading near the shore. Fulton and a few others opted to stay a bit longer.

A special thanks to Fulton for his informative commentary and keen eye. He estimated that 60 species of birds were visible that day. Despite this there is evidence that the bird population worldwide is dramatically decreasing. This is due to such environmental factors such as global warming and the encroachment of human activity into avian habitats. Allowing this to happen diminishes us all.

On a lighter note, two birders, man and wife, decided to finish up for the day and had set up camp in a nearby clearing. In the middle of the night the husband woke up. Bedazzled by the brilliant starry sky, he awakened his wife. "Look dear, look, see how beautiful the stars are! There's the Milky Way right overhead. Over there is the Big Dipper, and if you follow the handle...". At this point his wife interrupted, "That's all very well dear, but may I ask you a question?" "Sure", he replied. "What happened to our tent?!?"



SHOREBIRDS SPECIES

Gadwall
 American Black Duck
 Double-crested Cormorant
 Osprey
 Bald Eagle
 Northern Harrier
 Peregrine Falcon
 Black-bellied Plover
 American Golden Plover
 Semipalmated Plover
 Killdeer
 Greater Yellowlegs
 Willet
 Lesser Yellowlegs
 Hudsonian Godwit
 Sanderling
 Semipalmated Sandpiper
 Least Sandpiper
 Short-billed Dowitcher
 Bonaparte's Gull
 Ring-billed Gull
 Herring Gull
 Great Black-backed Gull
 Common Tern
 Rock Pigeon
 Belted Kingfisher
 Alder Flycatcher
 American Crow
 Common Raven
 Black-capped Chickadee
 American Robin
 European Starling
 Yellow-rumped Warbler
 Black-throated Green Warbler
 Nelson's Sharp-tailed Sparrow
 Song Sparrow
 Red-winged Blackbird
 Common Grackle
 American Goldfinch



– SUZANNE BORKOWSKI

Anas streptera
A. rubripes
Phalacrocorax auritus
Pandion haliaetus
Halaeetus leucocephalus
Circus cyaneus
Falco peregrinus
Pluvialis squatarola
P. dominica
Charadrius hiaticula
C. vociferus
Tringa melanoleuca
Catoptrophorus semipalmatus
Tringa flavipes
Limosa haemastica
Calidris albus
C. pusilla
C. miutilla
Limnodromus scolopaceus
Larus philadelphia
L. delawarensis
L. argentatis
L. marinus
Sterna hirundo
Columba livia
Ceryle alcyon
Empidonax alnorum
Corvus brachyrhynchos
C. corax
Poecile atricapillus
Turdus migratorius
Sturnus vulgaris
Dendroica coronata
D. virens
Ammodramus nelsoni
Melospiza melodia
Agelaius phoeniceus
Quiscalus quiscula
Carduelis tristis

(A large rail was seen briefly by Fulton Lavender and Rich Peckham at Shorebird Cove, Three Fathom Harbour. Fulton identified it as a possible Clapper Rail. The bird was not seen again, so its identity remains as a 'possible' only.)



ALMANAC



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.

"I found no ptarmigan but saw and envied countless flocks of waterfowl streaming southward. There could be no doubt that summer was at an end. Autumn in the arctic is not much more than a brief interlude. Winter would soon be seizing the land – and sea."

– Farley Mowat, in "Tavanni Not" in *No Man's River* (2004)

NATURAL EVENTS

- 14 Oct. Full Moon rises at 18:04 ADT.
- 15-31 Oct. Mercury is visible low in the east in the pre-dawn sky.
- 20-25 Oct. Saturn is visible above and to the right of Mercury in the pre-dawn sky.
- 1 Nov. The Moon and Venus will appear together at twilight.
- 2 Nov. Daylight Saving Time ends (clocks set back one hour, from Atlantic Daylight time to Atlantic Standard Time) at 2:00 a.m.
- 13 Nov. Full Moon rises at 16:42 AST.
- 14 Nov. The Moon is at Perigee; large tides will follow for the next two days.
- 22 Nov. Daily minimum temperature goes below 0°C.
- 30 Nov. -1 Dec. The conjunction of Venus and Jupiter, low in the southwestern early evening sky.
- 1 Dec. The waxing crescent Moon will form a trio with two bright planets between 17:30 and 19:30 AST.
- 7 Dec. Daily average temperature goes below 0°C.
- 8-10 Dec. Earliest sunset of the year at 16:34 AST.
- 12 Dec. Full Moon rises at 16:18 AST.
- 12 Dec. The Moon is at Perigee; large tides will follow for the next two days.
- 13/14 Dec. Geminid Meteor Shower.
- 14 Dec. -5 Jan. Audubon Christmas Bird Count Period.
- 21 Dec. Winter Solstice at 8:01 AST; Winter begins in the Northern Hemisphere. Though the temperature drops, the days begin to lengthen.
- 26-31 Dec. Latest sunrise of the year at 7:51 AST.

– Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2008 Calendar; Burke-Gaffney Observatory, Saint Mary's University.

SUNRISE AND SUNSET ON AUTUMN AND EARLY WINTER SATURDAYS



6 Sept.	6:43	19:41	4 Oct.	7:17	18:49
13 Sept.	6:52	19:28	11 Oct.	7:25	18:36
20 Sept.	7:00	19:15	18 Oct.	7:34	18:24
27 Sept.	7:08	19:02	25 Oct.	7:43	18:13
1 Nov.	7:53	18:03	6 Dec.	7:37	16:35
8 Nov.	7:02	16:54	13 Dec.	7:43	16:35
15 Nov.	7:12	16:46	20 Dec.	7:48	16:37
22 Nov.	7:21	16:41	27 Dec.	7:51	16:41
29 Nov.	7:29	16:37			

– courtesy of David Lane, Burke-Gaffney Observatory, Saint Mary's University

ORGANISATIONAL EVENTS

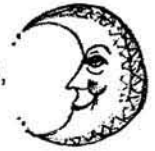
Blomidon Naturalists Society: Indoor meetings take place on the 3rd Mon. of the month, in the auditorium of Beveridge Arts Centre, Room BAC241, on Highland Avenue, Wolfville, at 7:30 p.m. Field trips usually depart from the Wolfville Waterfront, Front Street, Wolfville. For more information, go to <http://www.blomidonnaturalists.ca/>.

- 18 Oct. "Kingsport Mudflat Critters", (snails, clams, worms, crabs, shrimps, etc.) with leader Jim Wolford, 542-9204.
- 20 Oct. "North of Norway, North of 80: ...Svalbard and Greenland", with speaker Blake Maybank, writer and guide.
- 9 Nov. "Hennigar's Nature Trail", with leader George Forsyth, 542-7116.
- 17 Nov. "Pelagic Odyssey: Ushuaia to Cape Town", with speaker Roy Bishop, Royal Astronomical Soc. of Canada.
- 8 Dec. "Between Forest and Sky", with speaker Sharon Stratton, Alberta Sustainable Resources.
- 14 Dec. "Wolfville Christmas Bird Count", contact Alison Bogan, compiler, 678-0446, alison@bogan.ca.
- 21 Dec. "Winter Solstice Family Frolic", contact Charlane Bishop, 542-2217, Harold Forsyth, 542-5983.
- 28 Dec. "West Hants Christmas Bird Count", contact Patrick Kelly, compiler, 798-3329, patrick.kelly@dal.ca.
- 19 Jan. "Ticks in Nova Scotia", with Jeff Ogden, field entomologist, Department of Natural Resources.

Burke-Gaffney Observatory: Public shows at the Burke-Gaffney Observatory at Saint Mary's University are held on the 1st and 3rd Sat. of each month, except from Jun. through Sept. when they are held every Sat. Tours begin at 7:00 p.m. between Nov. 1st and Mar. 30th, and at either 9:00 p.m. or 10:00 p.m. (depending on when it gets dark) between Apr. 1st and Oct. 31st. For more information, 496-8257, or go to <http://apwww.stmarys.ca/bgo/>.

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

- 20 Sept. Rain date 27 Sept. "McNab's Island Paddle and Clean-up", contact Katalin Ohlsson, 464-1236, Katalin.Ohlsson@ns.sympatico.ca.
19 Oct. Rain date 26 Oct. "Fall Foliage Tours of McNab's Island".



Nova Scotia Bird Society: Indoor meetings take place on the 4th Thurs. of the month, Sept. to May, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information, Suzanne Borkowski, 445-2922; or <http://nsbs.chebucto.org/>.

- 26 Sept. -28 Sept. "Brier Island Weekend", with leaders James Hirtle, 766-4642, jrhbirder@hotmail.com; and Wayne Neily, 765-2455, neilyornis@hotmail.com.
18 Oct. "Meeting and Field Trip in Cheticamp", with leader Gordon Delaney, 224-2490; gordon.delaney@pc.gc.ca.
23 Oct. "NSBS Annual General Meeting", followed by a wine and cheese reception.
1 Nov. "Port Hawkesbury Meeting & Field Trip", with leaders David Johnston, 625-1534, dwj.jem@ns.sympatico.ca; and Dave McCorquodale, 563-1260, david_mccorquodale@capebretonu.ca.
15-16 Nov. "For Our Birds: A Conference on the science and conservation of birds". For more information contact Mark Butler, Ecology Action Centre, 429-5287; Birds@ecologyaction.ca; www.ecologyaction.ca/coastal/birds. Sponsored by the N.S. Bird Society, Ecology Action Centre, Dalhousie University, and Bird Studies Canada.
27 Nov. "Auction of Birding Books, etc., the Bequest of Eric Cooke".
29 Nov. "Canso and Area", with leaders Tom Kavanaugh, 366-3476, terri.crane@ns.sympatico.ca; and Steve Bushell, 366-2527.
30 Nov. "Antigonish Coastal Waters", with leader Randy Lauff, 867-2471, rlauff@stfx.ca.
6 Dec. Storm date 7 Dec. "Metro Hot Spot Birding", with leader Mike King, 434-6099, mikenjenn1@hotmail.com.
14 Dec. -5 Jan. "Christmas Bird Counts". More info at <http://nsbs.chebucto.org>.
11 Jan. "Sewer Stroll I; Halifax/Dartmouth Area", with leader Bob McDonald, 443-5051, bobathome@hfx.eastlink.ca.

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 free from the Department, 424-4321, at many museums, parks, and tourist bureaus, and on the web at <http://parks.gov.ns.ca/programs.asp>.

Nova Scotia Museum of Natural History: For more information, 424-6099, 424-7353, <http://museum.gov.ns.ca/mnh/>.

- 3 Jun. -28 Sept. "Green Legacy: Canada's Native Plants and Plantscapes", produced by the Canadian Museum of Nature and the Royal Botanical Gardens.
3 Jun. -28 Sept. "Monarchs", produced by the Canadian Museum of Nature.
28 Sept. "Natural History Family Hike, Mount Uniacke Estate Museum Park", with leader Heather McKinnon.
1 Oct. "In Search of the Wild Banana", with speaker Marian Munro, Curator of Botany.
7 Oct. - 18 Jan. "SMILE! The Whole Tooth & Nothing But the Tooth", Musée de la nature et des sciences, Montreal.
12 Nov. "Oil and Gas", with speaker Dr. Mark Deptuk, St. Mary's University; co-sponsor – Atlantic Geoscience Society.
26 Nov. "Arctic Paleobiology Adventures", with speaker Dr. Natalia Rybczynski, Canadian Museum of Nature.

Nova Scotia Nature Trust: 425-5263, <http://www.nsnt.ca/>.

- 30 Oct. "Silent Auction and Dinner", World Trade and Convention Centre, with guest speaker Stephen Lewis.

Nova Scotia Wild Flora Society: Meets 4th Mon. of the month, Sept. 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/>.

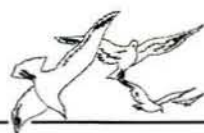
Nova Scotian Institute of Science: Meets 1st Mon. of the month, Sept. to Apr., usually at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information, <http://www.chebucto.ns.ca/Science/NSIS/index.html>.

- 3 Nov. "Bats in the Belfry, Bats in the Woods/Life History and Social Ecology of Nova Scotian Bats", with speaker Hugh Broders, Saint Mary's University.
1 Dec. "Hot Spots of Life in the Deep Sea", with speaker Anna Metaxas, Dalhousie University.
5 Jan. "Uranium and Gold Extraction; can it be done safely in Nova Scotia?", a panel discussion to take place in Alumni Hall, University of King's College.

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/>.

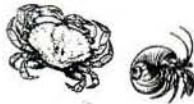
– compiled by Patricia L. Chalmers

HALIFAX TIDE TABLE



October-octobre				November-novembre				December-décembre								
Day	Time	Feet	Metres	jour	heure	pieds	mètres	Day	Time	Feet	Metres	jour	heure	pieds	mètres	
1	0306	1.3	0.4	16	0225	0.7	0.2	1	0343	2.3	0.7	16	0406	1.3	0.4	
	0852	5.9	1.8		0824	6.6	2.0		0936	5.6	1.7		0945	6.2	1.9	
WE	1535	1.0	0.3	TH	1510	0.0	0.0	SA	1614	1.3	0.4	SU	1648	0.0	0.0	
ME	2122	5.6	1.7	JE	2101	5.6	1.7	SA	2219	5.2	1.6	DI	2233	5.6	1.7	
2	0338	1.6	0.5	17	0314	1.0	0.3	2	0418	2.3	0.7	17	0513	1.6	0.5	
	0929	5.9	1.8		0910	6.2	1.9		1015	5.6	1.7		1038	5.9	1.8	
TH	1610	1.0	0.3	FR	1601	0.0	0.0	SU	1652	1.6	0.5	MO	1747	0.3	0.1	
JE	2202	5.6	1.7	VE	2149	5.6	1.7	DI	2258	5.2	1.6	LU	2328	5.6	1.7	
3	0409	2.0	0.6	18	0411	1.3	0.4	3	0504	2.6	0.8	18	0622	1.6	0.5	
	1006	5.9	1.8		0958	6.2	1.9		1056	5.2	1.6		1133	5.9	1.8	
FR	1648	1.3	0.4	SA	1659	0.3	0.1	MO	1737	1.6	0.5	TU	1848	0.7	0.2	
VE	2242	5.2	1.6	SA	2239	5.6	1.7	LU	2339	5.2	1.6	MA				
4	0444	2.3	0.7	19	0517	1.3	0.4	4	0601	2.6	0.8	19	0025	5.6	1.7	
	1044	5.6	1.7		1047	5.9	1.8		1138	5.2	1.6		0728	1.6	0.5	
SA	1729	1.6	0.5	SU	1801	0.7	0.2	TU	1826	2.0	0.6	WE	1231	5.2	1.6	
SA	2322	5.2	1.6	DI	2332	5.2	1.6	MA			ME	1947	1.0	0.3		
5	0532	2.6	0.8	20	0628	1.6	0.5	5	0025	5.2	1.6	20	0126	5.2	1.6	
	1125	5.2	1.6		1141	5.6	1.7		0701	3.0	0.9		0830	1.6	0.5	
SU	1816	2.0	0.6	MO	1905	0.7	0.2	WE	1223	4.9	1.5	TH	1336	5.2	1.6	
DI				LU				ME	1918	2.0	0.6	JE	2044	1.0	0.3	
6	0004	4.9	1.5	21	0031	5.2	1.6	6	0119	4.9	1.5	21	0232	5.2	1.6	
	0634	2.6	0.8		0738	2.0	0.6		0758	2.6	0.8		0929	1.6	0.5	
MO	1209	5.2	1.6	TU	1240	5.6	1.7	TH	1316	4.9	1.5	FR	1449	4.9	1.5	
LU	1909	2.0	0.6	MA	2008	1.0	0.3	JE	2010	2.0	0.6	VE	2139	1.3	0.4	
7	0054	4.9	1.5	22	0140	4.9	1.5	7	0222	4.9	1.5	22	0334	5.6	1.7	
	0738	3.0	0.9		0843	2.0	0.6		0853	2.6	0.8		1025	1.3	0.4	
TU	1301	4.9	1.5	WE	1350	5.2	1.6	FR	1421	4.9	1.5	SA	1600	4.9	1.5	
MA	2004	2.0	0.6	ME	2108	1.0	0.3	VE	2101	1.6	0.5	SA	2234	1.3	0.4	
8	0159	4.6	1.4	23	0304	4.9	1.5	8	0324	5.2	1.6	23	0427	5.6	1.7	
	0837	3.0	0.9		0946	1.6	0.5		0946	2.3	0.7		1117	1.3	0.4	
WE	1404	4.9	1.5	TH	1513	5.2	1.6	SA	1531	4.9	1.5	SU	1659	4.9	1.5	
ME	2058	2.0	0.6	JE	2206	1.0	0.3	SA	2151	1.6	0.5	DI	2327	1.6	0.5	
9	0320	4.9	1.5	24	0415	5.2	1.6	9	0414	5.6	1.7	24	0513	5.6	1.7	
	0931	2.6	0.8		1045	1.6	0.5		1039	1.6	0.5		1206	1.0	0.3	
TH	1518	4.9	1.5	FR	1628	5.2	1.6	SU	1633	4.9	1.5	MO	1750	5.2	1.6	
JE	2151	1.6	0.5	VE	2302	1.3	0.4	DI	2240	1.3	0.4	LU				
10	0426	4.9	1.5	25	0507	5.6	1.7	10	0457	5.9	1.8	25	0018	1.6	0.5	
	1023	2.3	0.7		1140	1.3	0.4		1130	1.3	0.4		0555	5.6	1.7	
FR	1623	4.9	1.5	SA	1725	5.2	1.6	MO	1727	5.2	1.6	TU	1250	1.0	0.3	
VE	2242	1.6	0.5	SA	2355	1.3	0.4	LU	2330	1.3	0.4	MA	1836	5.2	1.6	
11	0511	5.2	1.6	26	0549	5.9	1.8	11	0540	6.2	1.9	26	0104	1.6	0.5	
	1113	2.0	0.6		1230	1.0	0.3		1221	0.7	0.2		0635	5.6	1.7	
SA	1715	5.2	1.6	SU	1813	5.6	1.7	TU	1817	5.2	1.6	WE	1330	0.7	0.2	
SA	2329	1.3	0.4	DI				MA			ME	1921	5.2	1.6		
12	0549	5.6	1.7	27	0043	1.3	0.4	12	0021	1.3	0.4	27	0145	2.0	0.6	
	1201	1.3	0.4		0628	5.9	1.8		0624	6.2	1.9		0715	5.6	1.7	
SU	1801	5.6	1.7	MO	1314	1.0	0.3	WE	1312	0.3	0.1	TH	1407	0.7	0.2	
DI				LU	1857	5.6	1.7	ME	1906	5.6	1.7	JE	2003	5.2	1.6	
13	0013	1.0	0.3	28	0127	1.3	0.4	13	0113	1.0	0.3	28	0221	2.0	0.6	
	0625	5.9	1.8		0706	5.9	1.8		0711	6.6	2.0		0754	5.6	1.7	
MO	1249	1.0	0.3	TU	1354	0.7	0.2	TH	1403	0.0	0.0	FR	1441	1.0	0.3	
LU	1846	5.6	1.7	MA	1939	5.6	1.7	JE	1956	5.6	1.7	VE	2044	5.2	1.6	
14	0056	1.0	0.3	29	0206	1.6	0.5	14	0207	1.0	0.3	29	0253	2.3	0.7	
	0702	6.2	1.9		0743	5.9	1.8		0801	6.6	2.0		0834	5.6	1.7	
TU	1335	0.3	0.1	WE	1431	0.7	0.2	FR	1455	0.0	0.0	SA	1515	1.0	0.3	
MA	1930	5.6	1.7	ME	2021	5.6	1.7	VE	2047	5.6	1.7	SA	2122	5.2	1.6	
15	0139	0.7	0.2	30	0241	1.6	0.5	15	0304	1.0	0.3	30	0323	2.3	0.7	
	0742	6.2	1.9		0820	5.9	1.8		0852	6.6	2.0		0914	5.6	1.7	
WE	1421	0.0	0.0	TH	1505	1.0	0.3	SA	1550	0.0	0.0	SU	1550	1.3	0.4	
ME	2015	5.6	1.7	JE	2101	5.6	1.7	SA	2140	5.9	1.8	DI	2159	5.2	1.6	
				31	0313	2.0	0.6					15	0359	1.3	0.4	
					0857	5.9	1.8						0935	6.6	2.0	
				FR	1539	1.0	0.3					MO	1631	0.0	0.0	
				VE	2141	5.6	1.7					LU	2224	5.9	1.8	
												MA	2214	5.6	1.7	
												31	0413	2.3	0.7	
													1010	5.6	1.7	
													WE	1638	1.3	0.4
													ME	2249	5.6	1.7

ALL TIMES ARE AST





NATURE NOTES

SEPTEMBER

Jim Wolford saw a **Monarch butterfly** hatching out of its chrysalis in the valley.

Allan Robertson reported a very large **seal** close to shore eyeing our small, swimming dog Tommy, for a possible snack, at Melmerby Beach, Pictou County.

Arthur Morris spotted a **Bald Eagle** in Elmsdale.

Shirley McIntyre saw a **Monarch butterfly** mid-August at Prospect. She reported seeing **deer** and a **salamander** with eggs at Keji.

An audience member witnessed a battle between an **Osprey** and a **Bald Eagle**.

Pat Chalmers commented that there was three times the normal precipitation in August this summer. She found there to be many, many more **mosquitoes** this year in the city!

Grace and Richard Beazley reported seeing two **Black Bears** at the South Nahammie River when they were there this summer.

Bob McDonald was at Bon Portage Island the weekend of August 30th and saw **shorebirds** migrating, but not a lot of **warblers**, which are secretive. He also spotted one **Peregrine Falcon**, three **Merlins**, three or four **Sharp-shinned Hawks**, a **Little Blue Heron**, a **Snow Goose**, **Lark Sparrows**, and a **Prairie Warbler**. He managed to sight 75 bird species in three days.

HUNTING SEASON

Black Bear	Sept. 8th to Dec. 6th, excl. Sundays
White-tailed Deer (Bowhunting)	Sept. 27th to Oct. 30th, & Dec. 8th to Dec.13th, excl. Sundays
White-tailed Deer(General Open Season)	Oct. 31st to Dec. 6th, excl. Sundays
White-tailed Deer (Youth Hunters)	Oct. 17th-25th , excl. Sundays
Moose	Sept. 29th-Oct.4th, Oct. 6th-11th, & Dec. 9-11
Ring-necked Pheasant	Nov. 1st to Dec. 15th, excl. Sundays in Annapolis, Kings & Hants; Oct. 1st to Dec. 15th, excl. Sundays in all other counties
Ruffed Grouse	Oct. 1st to Dec. 31st, excluding Sundays
Rabbit (Snowshoe Hare)	Nov. 1st to the last day of Feb., excluding Sundays

! REMEMBER, IT'S HUNTING SEASON, SO DRESS TO BE SEEN IN THE WOODS !

NEXT DEADLINE

21st of November for the December Issue
Send contributions to 'Newsletter', c/o NS Museum of Natural History, or
email submissions to sdhaythorn@ns.sympatico.ca