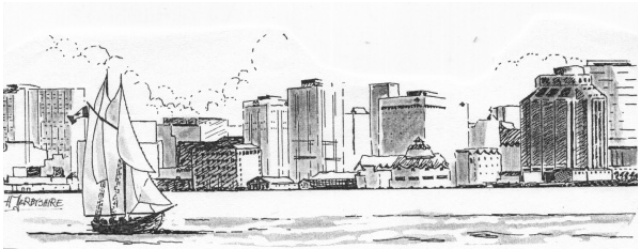
THE HALIFAX FIELD NATURALIST

No. 135
June to August, 2009

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

HFN is incorporated under the Nova Scotia Societies Act and holds Registered Charity status with Canada Revenue 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 quarterly **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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FEES 2008/2009

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GRAPHICS All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Cover** - Yellow Lady's Slipper, *Cypripedium calceolus*, Ingrid Plache; **Back Cover**, - Tamarack, *Larix laricina*, Ingid Plache; **Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.

HFN NEWS AND ANNOUNCEMENTS

EDITORIAL – *Stephanie Robertson*

It is the 2nd of July, it's still raining, and the plants and trees love it; not some of the farmer's crops, (especially strawberries), but the wild trees, shrubs, and flowers. Recently I was shown some very numerous groupings of Ladyslippers in an area of the railway cut where I had never been before. They were just past their glory, so pictures will have to wait for next year, but I had never before seen Ladyslippers with such tall stalks, or as large leaves (there were many at the base). The surrounding flowering bushes and trees were tall and thick with leaves, almost covering the rocks of the cut. How much better for our natural history excursions than a long dry spell.

Plans for an 'Urban Greenway' (replacement of the beautiful, truly green area on the west side of Beaufort Ave. with a 10-metre wide asphalt path for wheeled things such as skates and skateboards) have been mercifully silent. For right within metro, for easy urban access to a rich area of plants, birds, rocks, insects, and micro-habitats, this place can't be bettered. The well-trodden narrow paths haven't been defiled with gravel (which would spread and change the beautiful environment there). There are fungi, lichens, mosses, trees, and shrubs; flowers, birds, and in late June and July, an abundance of Indian Pears or Serviceberry, *Amelanchier* sp. The latter are so numerous that one summer, their freshly cut and constantly replenished branches were able to successfully support a summer's growth of almost 100 Cecropia Moth caterpillars to cocoon stage, without any noticeable dent in in the canopy.

On Page 4, read how new initiatives are successfully increasing Blanding's Turtles' populations in Keji.

NATURE CANADA

Nature Canada will have a new Executive Director on July 8th – Ian Davidson.

Ian is a graduate of the University of Guelph. He specialised in wildlife management, spending some years working for the Canadian Wildlife Service – in James Bay on migratory shorebird issues, and in the northern Boreal forest studying the impacts of forestry on small mammal populations.

In the late eighties and onward, Ian worked on environmental projects central to Nature Canada's conservation mission – in Africa and Latin America, then with CIDA as advisor for projects and policy issues in the Americas. For Wildlife Habitat Canada, he coordinated initiatives for Wetlands for the Americas, focusing on Canadian migratory species and habitat conservation.

Since 2000 he's been Regional Director for BirdLife International, where he worked closely with NGOs in almost all countries of the Americas, including BirdLife's Partners in Canada, Nature Canada, and Bird Studies Canada. And, for over nine years. he has helped support and develop BirdLife Partners' capacity to implement effective conservation programmes.

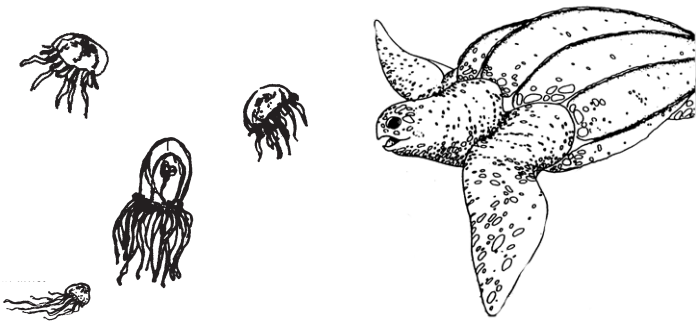
2009 JELLYFISH PROGRAMME

This summer, once again, we (the Canadian Sea Turtle Network – CSTN) will be conducting our third volunteer jellyfish project. We initiated this field work in 2007, to investigate variances in jellyfish distribution throughout the summer months. Our real focus is the study of Leatherback Turtles, a species which migrates to Canada to feed on jellyfish. From these programmes, we're learning a lot about Leatherbacks and their foraging behaviour. To gain a further sense of the species' primary prey, we're once again enlisting volunteers to survey jellyfish around the province.

The Programme: Volunteers are to select a beach in Nova Scotia to monitor during the summer months. Every seven to ten days surveys are to be done at low tide by walking along both the high and low tide line marks – counting jellyfish seen, identifying them, measuring them, and recording them. Surveys are to start immediately, and are to be conducted until the end of September.

How to get involved: Contact me (see below) and CSTN will send you the materials required. Volunteers that have participated in this programme for the last two years have provided us with valuable information about jellyfish in Nova Scotia. We thank all of you for your help, and look forward to a summer of new jellyfish discoveries.

Laura Bennett, Coordinator of Conservation and Community Outreach, CST, Suite 110, 2070 Oxford Street, Halifax, N.S., B3L 2T2. Phone 423-6224; email lbennett@seaturtle.ca.



ERRATA

The photo on last issue's cover, Spring 2009, #134, was mistakenly labelled Goldthread, *Coptis trifolia* (p. 2, bottom). It is instead, of course, Bloodroot, *Sanguinaria canadensis* L. Apologies to David Patriquin, who had submitted his photograph with the correct identification.

NEW AND RETURNING

Diane and David Birch

SPECIAL ARTICLES

SPECIES LISTS – LOVE 'EM OR HATE 'EM

– Ursula Grigg

I have lived with species lists all my life. I remember reading Rev. J. G. Woods' book Life in Ponds and Streams, and trying to find in the neighbourhood everything he talked about (this book was written for boys, and I borrowed it from the Boy Scouts' library). The illustrations were good, large, and accurate, but rather few. I learned that every species had a scientific name as well as a common one, and that the scientific name was used worldwide. The scientific name was also Latinised, therefore I nonchalantly ignored it!

In high school biology. we learned about the rather boring Swede Carl von Linné (1707-1778), who had proposed this Latinised naming system. He was an academic, rather a social misfit, and was henpecked for refusing to use all opportunities to make extra money or advance his social standing, preferring instead his hobby of natural history.

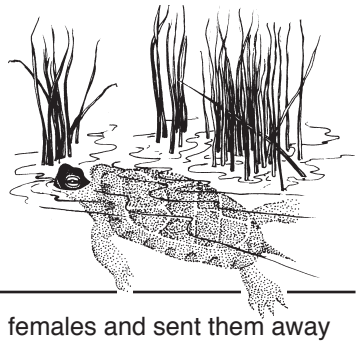
He himself Latinised his own name to Carolus Linnaeus, because Latin was the language most widely used by professional and educated people. He was an excellent field biologist who undertook long trips in Scandinavia looking at plants and animals, and he built up a wide range of correspondents at a time when the world was opening up to exploration and exploitation. Many countries in Europe had lists of their local animals and plants, each in its own language. There were efforts to compare and combine the lists, incidentally finding out what species were shared, and if they differed over their range – for instance, whether Eastern specimens were browner, or greener, or something altogether different from Western specimens.

Into this scene, Linné's suggestions were acceptable, as they were widely understandable, and also, simple. He proposed that each species have a two-word Latinised name; the first word should indicate the clan or family a species belonged to, while the second should indicate a characteristic of that species. This copied the way people were named – with a family name and a name for the individual. The species name was to be derived from something either verifiable or important to the species, such as its colour, or the place where it was first found to flourish.

After Linée's death, his family put his papers up for sale; they were finally bought by Britain, and there is still a Linnean Society concerned with taxonomy, with an office in London.

I learned to understand the importance of taxonomy when I was assigned to a group hosting some Asian visitors; they were in England to learn about Western science and to practise their English, which was strictly classroom stuff. After our first field trip together, there was a stilted and embarrassing conversation; we knew it was about a bird, but we did not know which one. Finally, one of the visitors murmured "Sula bassana", and then we knew it was a Gannet!

After that the visit was a success, but our shared language turned out to be dog-Latin. We had both studied Latin; they came from a Mission School with services in that language. Since then I have never complained about scientific names; their value is too great!



HFN TALKS

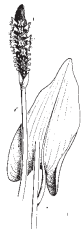
BLANDING'S TURTLES 2 APRIL

– Lillian Risley

Norman Green and his wife, Sue, have long been active participants in efforts to maintain and enhance the survival prospects of rare and endangered species in and around Kejimkujik Park. Norman is the Chairperson of the Friends of Keji organisation and is a volunteer with the Blanding's Turtle Project there. He joined us for our April meeting to bring us information about one of the rarest of Nova Scotia turtles.

In North America, Blanding's Turtles, *Emydoidea blandingi,*are found in Canada west of the Great Lakes, where they are quite plentiful, and in the U.S. they are present in the Central States and south of the Great Lakes. There are also small populations in the Appalachians, all of which are endangered, with some in areas surrounded by suburbs and others in wetlands that are continually being reduced.

In 1953 the Blanding's Turtle was first found near the entrance to Grafton Lake in Kejimkujik Park. The first discoverers captured females and sent them away (dead) to be identified. This had an understandably negative impact on the turtle population. Also, before the life history of this turtle was thoroughly understood, errors were made during efforts to support the turtles. For example, when the young emerged from the nests, they would be placed on the shore of the lake, when what the hatchlings needed to do was to move inland. Currently there are approximately 300 Blanding's turtles in the Keji area with populations at Pleasant River, McGowan Lake, and in Keji Park. The locations are on different watersheds and the populations are generally distinct from each other. There is a very small population of four in the Tobeatic area.



Nesting The female Blanding's turtle reaches sexual maturity after 20-25 years, at which time she is about the size of a dinner plate. Nesting typically takes place from mid-June to early July. It occurs at night because Nova Scotia is at the northern edge of the Blanding's turtle zone and the females need the daylight hours to soak

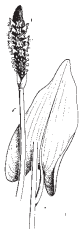
up sunlight to engergise them for the nesting activity. (Painted and snapping turtles nest anytime during the day.) The female generally does not breed where she has been living, but selects a breeding area and often returns to the same area each year to lay her eggs. While she is in her selected breeding area, the female comes out of the water to seek a suitable site, which may be on a lake shore, on a roadside, or in woods. She stretches her neck out 5-6 inches to examine the area, doing a thermal scan. When an acceptable site is found, she digs a nest several inches deep. Her digging may be stopped by rocks and she will have to retry in a new spot. The turtle releases water as she digs and may have to return to the water to rehydrate. It typically takes 3-5 hours for the nest-digging process. All the digging is done with the hind legs; she digs, lays her eggs (around 15), covers them, and never sees the hole or the young. The laying process takes about 20 minutes, and after the eggs are buried, the female disguises the hole with earth and twigs to prevent detection by predators. This concealing process takes about one and one half hours, and it is done in a sort of trance, during which she is unaffected by lights, etc. The nests are so well-disguised, and concealment so effective, that researchers/volunteers will mark the nest area with a stone and flagging tape once laying has begun, in order to be able to find the nest when they return. There are currently 31 nesting females in Keji and 20 – 25 in the other two areas.

As for protecting the nests, raccoons and other predators can have more success at finding them than humans, so, after the mother leaves, volunteers protect the nests with a screened, weighted frame which may be surrounded by rocks to discourage any burrowing under it. Systematic protection of the nests has been going on in Keji since 1988. The McGowan Lake area was donated by Bowater to provide for protection, and although Pleasant Lake is not formally protected, protection activities have been carried out there for the past four or five years. Over the last four years, protected nesting sites have increased from 50 to 90, with the hatchlings climbing from 175 to 450.

A Population Viability Analysis (a process to determine the probability that a population will become extinct within a given number of years—examining age groups, reproductive rates, and mortality rates) was carried out with participation from Acadia University. The conclusion was that, without further interventions, the population would continue to decline to extinction. Young turtles were being seen but not the somewhat older ones. It was thus decided that while work would continue on habitat, etc., two interim activities would be undertaken – incubation, and 'head-starting'.

Under the incubation initiative, workers go to the site where a female turtle is laying her eggs. When she has finished, the nest is excavated and the eggs are put in vermiculite. The eggs are marked when they are taken from the nest because the original orientation of the yolk must not be changed—if it is, the young will not hatch successfully. Initially, all of the eggs used to be removed, but now just three eggs are taken (to the zoo in Aylesford) and placed in an incubator. Hatchlings, about the size of a toonie, get help with 'head-starting'. At first, they were kept and raised for one year, but now they are kept for two. At the end of that time, the two-year olds are about the size of a four-year old growing in the wild, and are pretty well predator-proof.

Emerging Incubated eggs hatch in July and August, wild ones from mid-September to early November. The enclosures for the non-incubated eggs must be checked daily to let the hatchlings out as they hatch. It is not possible to determine the sex of these turtles before they reach maturity. It is believed that nest temperature determines sex. Each hatchling has its shell marked with a unique notch code—the same for all in a particular nest for that year. They are also weighed and measured (length and width, top, and bottom). When ready they are released, and the hatchlings go off into the woods to find little wet spots in which to live. If one is recaptured after, say, five years, it is given a unique code.

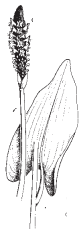


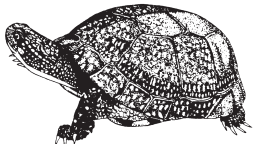
Overwintering The turtles winter in specific sites, at very high concentrations, that is to say a large number in a very small, wet hole.

Critical Habitat This is defined as the type of habitat necessary for the survival or recovery of a species. It is this area of habitat that needs to be protected. In order to determine the critical habitat required, a project has been undertaken, with Acadia student participation, to glue GPS locators to turtles and to follow their activity by radio-tracking. Because the radios need to be changed in keeping with the battery life, Velcro is glued to the turtle and the radio, enabling the change to be done quickly. One of the best means of trapping the turtles has been found to be a can of sardines and a net trap!

Roadside Protection The staff of Keji have taken several steps to increase the protection of nesting sites. Because the shoulders of the roads and nearby lands provide easy digging, the females often choose these as nesting sites. So, general warning signs are placed along park roads. During nesting and hatching periods, speed bumps are placed on roads near nesting areas and small picture signs are placed on the shoulder near the nesting sites. The Province also has signs near Caledonia.

Volunteers Efforts to protect Blanding's Turtles' nesting sites have been greatly assisted by the work of volunteers. These volunteers include graduate students, the general public, the Herpetological Society, Friends of Keji, wardens, and scientists. The work is done in June and July and people can participate for periods from three days to three weeks. Information regarding training required (and provided), and appropriate gear, is available from the Park or the Friends of Keji internet site – **www.friendsofkeji.ns.ca**. This site also has information on other volunteer efforts – those relating to Eastern Ribbon Snakes, Piping Plovers, trout, the Loon Watch, Atlantic Coastal Plain flora, campground hosts, and Stewardship Outreach.





SWITZERLAND 7 MAY

– Stephanie Robertson

Long-time HFN member Shirley McIntyre gave us a wonderful show of Swiss alpine glory, with dizzying and breathtaking shots from various heights and places.

Shirley is an avid hiker, and besides HFN, belongs to the 'Wednesday Wacky Women Walkers'. She had made plans for another trip which fell through, so she went instead on a tour, "From Sole to Soul", with Kathy Didowsky of the Nova Scotian Spirit Adventure Co. Kathy gave us a presentation a few years ago about hiking the entire Trans Canada Trail with some of her family. Her book, Hiking the Dream, tells of that adventure.

There were ten altogether in Shirley's tour group, and she showed us maps and posters displaying the area in Switzerland, near the border of Italy, where the tour took place. They first flew with Lufthansa from Halifax to Frankfurt, Germany; then went by train to Bern, Switzerland; then on to the Alpine village of Kandersteg which was their base for two weeks. Accomodation was in a local home there, the Chalet Onyx; there were shots of the owners' goats and the ubiquitous eidleweiss.

Bern, founded in 1191, is a Unesco Heritage Site. The Aare river flows around it, and its streets were beautiful with heritage buildings. It has the largest covered promenade in Europe at 6 km, and we saw a 12th century clocktower, in which the clock itself was a 16th century horological clock. After touring Bern, they went by train to Kandersteg – 1,600 to 1,800 metres high. All of them had to acclimatise to the elevations, so they hiked various places, about 25 to 30 km, in and around this area over the next four days. On the first day they went to the Oeschenensee – 1,600 metres, with an impressive waterfall and a glacial lake. On the second, they took a cable car up to the 1,725 metre Almenalp, where they toured a cheese-making factory; we saw pictures of the ripening cheeses and their very large milk kettle. Outdoors, Shirley had taken slides of llamas(!), a *Rhodo alpenrose*, and some beautiful wildflowers. There was also a *Centaurea*, or Knapweed, and Bearded Bellflowers, *Campanula* sp. There were also hang gliders there, taking advantage of the great heights to sail bravely off down into the valleys.

On the third day they joined other climbers at Hoh Woods (1,400 M), and on the fourth they went to the Gasterntal Valley, 1,600 M up. They hiked an impressive mountain road with tunnels and overhangs which had been hewn from the limestone; vehicular traffic was two-way – 'up' on the hour, and 'down' on the half-hour! Shirley had taken a lovely shot of a wild orchid here, and polliwogs in a river. That evening they had a wonderful 'farmer's dinner' in a hotel.

On the fifth day, they hiked 14.5 km to Sudrampe in the Valais valley, where it was extremely hot despite the elevation, and Shirley snapped a lovely little lizard here. The next day was 'free', and they spent it walking Kandersteg and visiting the international Scout Centre flying flags of many countries.

Day seven was an early start with a 6:00 a.m. cable car to the Schwarenbach Hotel, "in the middle of nowhere", along the Gemmi Pass in the Sunnbuel area – 2,314 M and above the tree line. The Gemmi Pass is a very ancient mountain route, having been been used by Roman armies. A 12.5 km hike from here took them to to the Sheep Festival in Daubinsee. This event included an outdoor church service with the locals in their colourful local canton costumes, some with their large Alpenhorns, as the sheep were let down to get salt which had been strewn everywhere over the fields. Shirley had beautiful shots of Thorny thistle, *Spinosiseum cirsium*, a lovely little blue gentian, a very tiny Rock Jasmine, *Androsace alpina*, a white *Cerastia* sp., more gentians, and an *Aster alpinus*. They descended by cable car to Leukerbad village, then bus and train back to Kandersteg.

The next day, the group took a train from Kandersteg to Stressa, Italy, for a boat trip on Lake Maggiore, visiting a formal garden on the island of Isola Bella. Day nine found them in Frutigen, at a lower elevation of 780 M. A 16 km hike, their longest, took them through mixed forests which opened into a wide area of scattered mountain chalets. All these homes were extremely contained and tidy, with their animals, plants, woodpiles, and hay stores orderly and close the them. Here the group shopped for groceries to backpack to the train station, the only time it rained on their trip! The trains were also carrying transport trucks, as trucks are not allowed on the roads.

They walked around Kandersteg village the next day – day ten. The cemetery there allowed a gravestone emplacement of only 25 years; after that, they had to be removed by the families. For instance, the Chalet Onyx's owner had her mother's grave marker in her back garden.

On day eleven they took a train to Brig, then another to Betten. A cable car holding 117 people took them half-way up to Bettmeralp where they walked viewing the beautiful chalets there. Another cable car took them to the 2,800 M Bettmerhorn looking down on the Aleisch Glacier in the Valais district, also a UNESCO World Heritage Site and the largest glacier in the Alps at 23.6 km long and 900 M thick! Hiking part way down to the glacier, one of them became ill with altitude sickness which put a halt to their activities. Shirley's pictures here included a light blue Alpine Bellflower, *Campanula alpestris*, a yellow bloom (*Doronica* sp.?), an alpine forget-me-not, *Myosotis alpina*, a tiny purple and mauve lousewort, and a type of Hens-and-chickens. They went back again by cable car to Bettmeralp where Shirley found some lupins. The next day, August 1st, was Swiss National Day, and in the evening there was a Scout's Parade with music and fireworks. It was here that Shirley had taken the last shot she showed – a magnificent sunset at Castle Rock, and that evening, all over the surrounding area, individual celebratory chalet bonfires dotted the mountainsides.

Thank you so much, Shirley, for sharing such a wonderful trip.

FIELD TRIPS

LONG LAKE LICHENS

– Stephanie Robertson

Date: Sunday, March 15th
Place: Long Lake Provincial Park
Weather: Brilliantly sunny and mild; no clouds
Interpreter: Frances Anderson
Participants: 25

After a bit of mix-up regarding the designated parking area on St. Margaret's Bay Road, everyone assembled on the south side of what was to be our entrance point into Long Lake Park, on an ideal, badly needed, brilliantly sunny day. Frances recommended two books as references about our focus for the day; MacroLichens of New England, and Lichens of North America.

"To oversimplify what they are – lichens are comprised of a fungus which encloses an alga, rather like a sandwich", Frances explained. Most lichens get their names from their fungal partner – the fungus gives the lichen its shape and its protective exterior suface, while the alga lives inside and provides minerals from fog and rain, and photosynthesising sunlight into food for the lichen. However, unlike leaves, lichens have no protective cuticle; they are very porous and thus readily absorb water with the slightest rise in humidity. This absorption of water activates the alga within the fungus.

However, lichens *can* go without H_2O for a very long time. They even inhabit successful niches in deserts by shutting down their growing and feeding processes until conditions are more favourable (cryptobiosis).

There are three main lichen growth forms: **crustose**, which display as rather flat patches of colour on rocks and other surfaces; **foliose**, which, like a leaf, have upper and lower surfaces; and **fruticose**, like little 3-D trees when viewed with a magnifier. In the latter form, the alga of the partnership goes all the way around the lichen, unlike the 'sandwich' type. There are at least a million different lichens!

After the interesting explanatory preliminaries, we set off into the forest path which was very slippery with ice and melting snow. While this caused some would-be participants to leave at the outset, the woods themselves were almost snow-free! Our first stop was in a sunny glade sporting Rock Polypody on its large boulders. Here, sharing various small magnifiers, we saw a grey lichen sporting black specks of fruiting bodies. Frances told us that sometimes lichens will let their algae 'go free', while also they will sometimes 'steal' algae from another! There wasn't a great abundance of lichens here; the trees were too young (lichens are very slow-growing), and the area was too close to the city with its pollution, acid-rain, winds, and heavy metals in the air.

However, there are a few lichens that do not mind pollutants, and these usually grow on trees. We examined one of these, Bottlebrush Shield Lichen, *Parmelia squarrosa***.** With our magnifiers we saw its fruiting bodies – the isidia – tiny upright cones of which the outside is the fungal layer and the inner is the alga. The isidia break off easily for convenient spreading and reproduction elsewhere. We also saw its rhizenes, the little black hairs that fasten *Parmelia* to its substrate. Examining a bird's nest, we found three different lichens within it that the birds had used in its construction.

Lichens on trees offer micro-habitats and camouflage for insects; they also trap moisture against the tree which provides water for the inhabitants. Apparantly, lichens don't harm trees in any way.

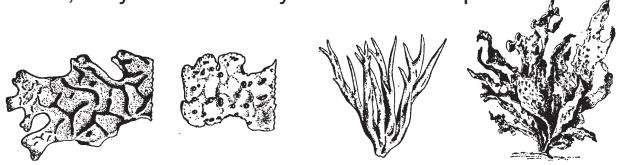
At our next stop we found the foliose Hooded Tube Lichen, *Hypogymnia physodes*, which grows on both trees and rocks. This is one of our most common lichens, and it sported no fungal rhizene hairs. Unlike the *Parmelia,* they were slightly inflated in shape. There was also a black Rock Lichen, *Placynthiella uliginosa*. This particular one helps to hold soil together and also grows on soil. It had fruiting bodies like tiny buttons and reproduces all year-round. We also saw some Pixie Cups, *Cladonia* sp., growing through some moss.

At another rock along the way there were two common umbilicate lichens which give a nice purple colour when used for natural dyes. Further along again there were the crustose *Rhizocarpon* sp., and *Lecidea* sp, the foliose *Melanelia panniformis*, and a very large (therefore long-lived and very successful), pale grey, crustose *Ochrolechia androgyna*.

There were many beautiful mosses on the rocks along our trail, with much grey Reindeer Lichen, *Cladonia rangiferina,* around. In Europe Reindeer Lichens are commonly grazed by reindeer and elk, and in Germany the yellow-green Reindeer Lichen, *Cladonia stellaris*, is used for funeral wreaths. Here in Nova Scotia they are very common, both on our trees and on our thin soils.

We briefly discussed the chemical identification tests used on some of the more difficult lichens, and two more guides were recommended – Lichens of the North Woods and Lichens Above Treeline.

This was a fascinating trip into the minute, mostly microscopic world of lichens and their habitats. Thank you, Frances, for your time and your valuable expertise.



SACKVILLE RIVER TRAIL

– David Patriquin

Date: Saturday, April 4th
Place: Sackville River Trail
Weather: Overcast, some drizzle
Interpreter: Walter N. Regan, Sebastien Marquis, Steve Caines
Participants: approximately 12

Our walk along a section of the Sackville River Trail, also known as Bedford-Sackville Connector Greenway, was hosted by Walter N. Regan, President of the Sackville River Association (SRA), naturalist Sebastien Marquis, and SRA Coordinator Steve Caines.

The SRA's raison d'être is preservation, restoration, and enhancement of the Sackville River Watershed. From its headwaters in the Mt. Uniacke area, the Sackville River runs 44 km to the Bedford Basin. The watershed drains 147 km^2 of land and includes 17 lakes, many wetlands, ponds, streams, and feeder brooks. The Little Sackville River, 11 km long, is its largest tributary. Both are 'urban rivers', passing through highly developed areas which presents serious challenges to their integrity.

The SRA is involved in a wide range of projects including stocking the river with fish (Atlantic Salmon, Speckled Trout, and Sea Run Speckled Trout); a variety of restoration projects, river clean-ups, and public and school education programs such as 'Fish Friends' and 'River Rangers'. They have an informative website, **www.sackvillerivers.ns.ca**, and publish a regular newsletter which includes articles highlighting the local flora and fauna. Recent issues are available on their website.

The Bedford-Sackville Connector Greenway is the first section of the trail, which is envisaged to eventually follow the entire watercourse. From the entrance near Fultz House, in Sackville (where this trip started), the connector trail covers the lower 5.2 km of the Sackville River. The first half traverses the eastern edge of the DND Bedford Rifle Range, then it goes by Range Park and the Bedford Mall, down to Union Street, and then on to the head of the basin by the Fish Hatchery, ending at Scott Manor House. The trail has a crushed gravel surface and was designed to be an active transportation route. It had been a traditional travel venue a century ago, but before its opening in 2006, it was difficult if not dangerous to attempt to walk from Sackville to Bedford.

Walter told us that the trail is enjoyed by 1,400 or more people each week during good weather. He gave special tribute to Richard Peckham for envisioning and nurturing the trail project to this state, as well as for many other SRA initiatives.

Our morning session occurred on a day when the river was running fast and high following heavy rain and snow melt. We met initially by the soccer field at Range Park and intended to walk upstream to the entrance (about 2.5 km). However, Range Park is in the flood plain and was covered by a foot or more of water. So, we began at the top entrance near Lynn Court and walked down about one kilometre to where high water on the floodplain again forced us to stop. But, there was lots to see and learn, even on that short route.

The lower part of the river course has been greatly altered from its natural state. As have many or most rivers in settled areas of the globe, it has been strongly 'channelised' (meaning straightened – often with elevated banks and dredging to deepen it in order that it can carry more water during floods). That all began in the 1800s when most of the adjacent forest was cut down. A meandering river was hard on horses travelling the river trail, so the river was straightened; this also facilitated log drives. In more recent times, the Bedford Mall replaced a large part of the floodplain, and further straightening and relocation of the mouth of the Little Sackville River was carried out to facilitate new highways. With the straightening, and the reduction in the amount of natural floodplain, wetlands, and forest, there are now greater seasonal surges in the water flow. This leads to more bank erosion and deposition of sediment; the river widens and loses its vegetated margins, pools, gravel stream beds, and backwaters that make good habitat for cold water fish such as salmon and trout.

Walter told us that the river we were looking at is now 60 to 80 feet wide while the natural river was likely less than 50 feet wide (and meandering). During summer there is not enough depth for cold water fish which need cooler, deeper water escapes to avoid excessively high temperatures. Another deleterious impact of human activity and settlement was dramatically illustrated on this day when we crossed the mouth of the Little Sackville River (LSR): its rapidly moving water was dark brown from suspended sediment, contrasting sharply with the fast-moving but relatively clear water of the main river (above the mouth of LSR). A 1996 floodplain study indicated that 46% of the LSR watershed is hard surface (roofs, roads etc). This, in combination with ongoing development, overflowing storm sewers, and fertilised landscapes, results in huge storm surges, bank erosion, heavy siltation, excess nutrients, and very low water levels in summer. One result of the Sackville River Association's efforts to change perspectives of the watershed was a change in the by-laws in order to prohibit infilling and building within 20 metres of the shoreline. However, the major impacts of these mostly new communities on the LSR and the lower part of the Sackville River go on largely unabated.

The SRA uses the Atlantic salmon as a biological indicator of how successful they are in improving the river quality. Their salmon-stocking programme is conducted with the involvement of schools. Under the 'Fish Friends' programme, eggs are hatched in school aquaria, and students then release the fry into the river in late spring, each one with a name! Recovery of grilse and larger salmon, after return from the sea, is evidence of success. Students are also acquainted with the other 12 species in the river.

Walking by the riverside, Walter pointed out the first double rock sill that the SRA constructed to improve salmon habitat. A rock sill is a line of rocks placed across the river to force the water to cascade. This creates a natural digging action that forms a well-oxygenated pool, ideal for salmon. On smaller tributaries, 'digger logs' are placed across streams to achieve the same effect. Single large boulders are also placed in the river to create a partial digging effect. Acidification of water by acid rain is an ongoing, major challenge, and one

reason the salmon hatching programme is required is that the eggs and small larvae are especially sensitive to acidity. The acid problem is not helped when acid slate rocks are used to stabilise river banks (a practice the SRA highlights and discourages). In 2002, over 4,000 fish were killed when a water-main broke and washed over pyritic slate releasing sulfuric acid; the death of the fish may have been caused by the extreme acidity or by flocculated metals (aluminum, copper, and iron) clogging their gills.

Sebastien Marquis pointed out areas where they have stabilised river banks and trail margins with tree plantings and some areas are still in need of the same. They make extensive use of the Speckled Alders, *Alnus incana*, by gathering seeds in the fall from natural stands and young plants from areas about to be cleared; these are planted in the spring after flooding has stopped.

Meadowsweet, *Spirea alba*, is another favourite. Weeping Willows have been used in some spots, apparently not without some controversy because it is not a native species. However, they grow quickly and are very effective in 'grabbing' silt, thereby stabilising the river banks.

There was much more discussed and pointed out on this short walk about the SRA's many activities and their vision for the river. It is really a wonderful effort, and the benefits will extend well beyond the Sackville River itself

BAY OF FUNDY MINERALS

– David Patriquin

Date: Sunday, April 19th
Place: Cheverie
Weather: Cool, sunny
Interpreter: Ronnie Van Dommelen
Participants: Approximately 35

We met at the parking area by the Cheverie Creek culvert and it was a perfect early spring day for a beach hike on the Hants shore. The tide was well out and Cape Blomidon was clearly visible across the Minas Basin. Our guide, Ronnie Van Dommelen, gave a brief introduction to the geology and mineralogy of gypsum and anhydrite, which would be the focus of our walk.

The gypsum deposits in Nova Scotia are evaporates which formed in a tropical sea, the Windsor Sea, during the Carboniferous era, when the continents were converging to form the supercontinent Pangaea. Sea level repeatedly rose and fell during the 15 million years of the sea's existence, alternately flooding it and isolating it. When the sea became isolated, evaporates were formed by the precipitation of salts as the sea dried up. The least soluble precipitated first, and the most soluble, last. In order of precipitation, they were calcium carbonate ($CaCO_3$, limestone), anhydrite ($CaSO_4$), and gypsum ($CaSO_4.2H_2O$) which precipitate when the volume is down to about 25% of the original; salt (NaCl) precipitating at 10%; and finally potash (a mix of K_2CO_3, KCl, K_2SO_4), precipitating at about 1% of the original. Also formed, by the deposition of sediment during periods of flooding or stable sea-level, were sandstones and shales; biogenic limestones, too, were formed in this shallow sea by organisms such as corals and mollusks.

We saw the shales, gypsum, anhydrite, and limestone more or less in that order as we walked west along the beach. Ronnie passed some specimens around to illustrate the types of minerals we could expect, and a few that came from other gypsum areas. One striking item was a large, glassy crystal of gypsum called selenite which came from the Windsor area; I think a few of us (at least amongst the novices) suspected it was gypsum. Other gypsum minerals or forms covered the gambit from white, to orange, to black. Of particular interest were rarer minerals that occur as inclusions in gypsum and anhydrite, such as galena (PbS), and howlite ($Ca_2B_5SiO_9[OH]_5$). The latter is named after Nova Scotian geologist Henry How, who discovered this mineral in the 1800s.

Walking west along the shore close to the bluffs (perhaps two kilometres all together), and stopping at several sites for more detailed exploration, we saw most of the minerals or mineral types that Ronnie had shown us. Here is a partial list of what we saw:

- **Manganite** nodules, which we broke apart (with some effort as they are very hard), looking for fine black crystals (manganite was mined at one time);

- **Ulexite** – small, white, cottony nodules, a borate mineral;

- **Gypsum** – in a range of colors, from glassy and almost translucent to white, orange, brown, and black; apparently the different colors are due to different impurities. My favorite gypsum type was large bright orange pieces found on the beach and fine seams of it within beds of dark, angular gypsum; and 'satin spar' gypsum – composed of whitish to translucent, glassy, fiber-like structures.

- **Flourite** – in small patches with distinctive, purplish crystals;

- **Anhydrite** – in large, whitewash-white seams; anhydrite is somewhat harder than gypsum and usually more jagged;

- **Calcite crystals** – large ones, pockets of them found in limestone caves;

- **Howlite** – in small, finger-tip size patches or nodules, first discovered in Nova Scotia. Apparently, the big ones (50 kg) are found in California. It has a 'coloured history', taking up dyes readily and sometimes being used to make fake turquoise.

We didn't see any invertebrate fossils, but at one site there were very impressive stromatolites, which were formed by algal mats in the shallow Windsor Sea. Distinct layers of dark friable material of algal origin smelled strongly of petroleum and reminded us of the origin of the stuff in our gas tanks!

Ronnie told us that all of these rocks are soluble and disappear relatively rapidly once they are exposed. And indeed, the corner of a large shed over the edge of a bluff provided some graphic evidence of rapid shore erosion in this area. Across the road we could see the Cheverie salt marsh which Don Aldous of the Cheverie Crossway Salt Marsh Society talked about enthusiastically. There's definitely a lot more on this shore to go back and explore. Many thanks to Ronnie for opening up some new perspectives on it.

GREENWING LEGACY CENTRE

– Wendy & Bob McDonald

Date: Sunday, May 17th
Place: Greenwing Legacy Wetlands, Shubenacadie
Weather: Overcast, 13˚C
Interpreter: Stephanie Patriquin
Participants: 9

Wetlands – wet, wild and essential! Although Halifax was shrouded in fog and mist, we were fortunate to leave all that behind as we approached the Shubenacadie Provincial Wildlife Park and the Greenwing Legacy Interpretive Centre. Opened in 2006 as a partnership of Ducks Unlimited and the Province of Nova Scotia, the Centre is busy every school day from March to October with school groups from Primary to High School. There are two classrooms available for groups. It is one of over 1,600 Ducks Unlimited projects in Atlantic Canada.

We were ably led by Stephanie around the new wheelchair accessible paths that wind through the wetlands for approximately one km. Canada Geese flying over, as well other bird species collecting nesting material and food, kept us alert. One family of Canada Geese, with five young, kept their distance. At our feet we observed spring flowers in bloom as well as several shrubs along the trails. The frogs and peepers serenaded us in the background. Stephanie explained that the first pond or wetland is managed as to water levels while the other areas are seasonally flooded, this year being drier than seasons past. The riparian cover of both mature and young trees and shrubs helps to buffer the edge of the wetlands and create habitat for some of the creatures, large and small, that make this their home. Generally, the riparian zone extends as far back from the edge to where plants characteristic of the river edge are no longer present, so it can vary with slope and other features from one river to another; and, the spring floods in many parts of the province would have created artificial riparian zones in this particular year.

As we completed the loop trail and approached the Interpretive Centre, we were handed dip nets and encouraged to find some critters from the floating platform, added just recently. Water temperature was about the same as the air that morning, 13˚C. Our collection of 'wigglers' was taken to the Centre where we were able to examine them more closely with the help of the video microscope, a popular part of the display area.

We also had a chance to visit the displays which described the many positive features of a wetland, including natural flood control and nature's water filter, but it also reminded us that wetlands are rapidly disappearing because of new roads and continuing development.

There are many kinds of wetlands and these were carefully explained. A visit to the centre would help you recognise salt marshes, freshwater fen and bog, as well as swamps and shallow water wetlands.

As an adjunct to the wetlands, the St. Andrew's Marsh wooded trail has been developed off the extensive picnic area. Some of us added this adventure following a picnic lunch. This will continue to attract visitors as an opportunity to observe nature and look out over the larger body of water from an observation deck. A small hide may be useful when ducks are migrating through in the fall. Although not observed, evidence of both Pileated Woodpecker and Yellow-bellied Sapsucker was seen.

The following species were observed. Only flowering shrubs and flowers are included.

GREENWING LEGACY SPECIES

Greenwing Wetlands Flowers and Shrubs

Cuckoo flower	*Cardamine pratensis*
Purple violet	*Viola* sp.
White violet	*Viola* sp.
Dandelion	*Taraxacum* sp.
Serviceberry (Indian Pear)	*Amelanchier* sp.
Strawberry	*Fragaria* sp.
Pin Cherry	*Prunus pensylvanica*

Loop Trail Birds

Canada Goose	*Branta canadensis*
Mallard	*Anas platyrhynchos*
Rock Pigeon	*Columba livia*
Mourning Dove	*Zenaida macroura*
Belted Kingfisher	*Megaceryle alcyon*
Northern Flicker	*Colaptes auratus*
American Crow	*Corvus brachyrynchos*
Common Raven	*Corvus corax*
Tree Swallow	*Tachycineta bicolor*
Barn Swallow	*Hirundo rustica*
American Robin	*Turdus migratorius*
European Starling	*Sturnus vulgaris*
Yellow-rumped Warbler	*Dendroica coronata*
Song Sparrow	*Melospiza melodia*
Red-winged Blackbird	*Agalaius phoeniceus*
Common Grackle	*Quiscalus quiscula*

St. Andrew's Marsh Trail Birds

Bald Eagle	*Halæetus leucocephalus*
Hairy Woodpecker (pair)	*Picoides villosus*
Least Flycatcher	*Empidonax minimus*
Blue-headed Vireo	*Vireo solitarius*
Blue Jay	*Cyanocitta cristata*
Black-capped Chickadee	*Poecile atricapillus*
Northern Parula	*Parula americana*
Black-and-white Warbler	*Miniotilta varia*

St. Andrew's Marsh Trail Flowers

Bunchberry (in bloom!)	*Cornus canadensis*
Starflower (in bud)	*Trientalis borealis*
Bellwort (in bloom)	*Uvularia sessilifolia*

St. Andrew's Marsh Insects

Dragonfly nymph (nayad)	Antisoptera
Water Scorpion	Hemiptera
Damselfly nymph	Zygoptera
Caddis Fly larva	Trichoptera
Mayfly nymph	Ephemeroptera
Water flea	Cladocera
Copepods	Copepoda
Water Mite	Arachnida
Side Swimmer (fresh-water shrimp)	Crustacea

Although we did not have any children on this field trip, it would have been even more fun to see the delight and discovery experienced by a group of younger visitors. Maybe next time! The Wildlife Park is open from 9:00 a.m. to 7:00 p.m., from May 15th to October 15th, so plan to visit sometime soon.

CANOEING SHUBENACADIE

– Peter Webster

Date: Saturday, June 6th
Place: Oakfield Provincial Park
Weather: Cold, grey, and rainy
Leaders: Burkhard and Ingrid Plache
Participants: 11

June 6th dawned cold, grey and rainy. But the weather forecast had assured us that it would indeed clear, and so eleven intrepid HFN adventurers showed up at Oakfield Provincial Park for a paddle on the Shubenacadie river. The rain was heavy as we prepared the three canoes and five kayaks, then shuttled some of the cars to the takeout point down-river. A solitary Loon, *Gavia immer*, watched as the eight boats set out across Grand Lake to the start of the river. The rain had become light by the time we launched, and thankfully it receded to nothing in the first hour of paddling. The first stretch was fairly narrow and tree-lined – with Tamarack, pine, and spruce interspersed with maple and a few other hardwoods.

The ferns were just coming out on the riverbank, along with many greening shrubs. We identified Royal Fern, *Osmunda regalis*, and Cinammon Fern, *O. cinnamomea*, as well as extensive areas of beautiful Purple Violets, *Viola papilionacea*. Homes and cottages were spaced out along the shore, and the mouth of the river on Grand Lake being near the flight path out of Stanfield airport, we were treated to several low flying jets.

The first of our creature sightings was the aforementioned solitary Loon, seemingly anchored in one place offshore near our launch site, then several Black Ducks, *Anas rubripes*, including a mum with seven ducklings. Shortly thereafter a hawk flew over, and Carol Klar identified this as a female Northern Harrier, *Circus cyaneus*, which are rarer to see than the male. Next we disturbed an Osprey, *Pandion haliaetus*, from its fishing, and later we came upon the first of several Bald Eagles, *Haliæetus leucocephalus*, sighting at least one and possibly two immatures – dark with mottled white patches. Then an adult took flight from its high perch on a riverside pine, and flew above us down the narrow river corridor.

At the first river's widening a beaver lodge was on one bank. We passed through several fast, shallow stretches of the river, with more riffles which briefly trapped some of our watercraft. Some of us made the first of several White-tailed Deer sightings for the day, *Odocoieus virginianus*.

After about one and a half hours we reached Horne's Lock (Lock #6) on the Shubenacadie canal at Horne Settlement. This was a pleasant spot to pull up our boats, stop for lunch, and take a short stroll on the signed walking trail. The ground was heavily covered with wild Lily-of-the-Valley, *Maianthemum canadense*, and also wild Strawberry, *Fragaria* sp., (only just in flower). Although we had no problems with mosquitos while paddling, they made their presence known as soon as we landed.

The river widened between Horne Settlement and the town of Enfield, passing through a low marshy area. Right after re-launching, at the first river's bend, we encountered seven young golden goslings, guarded by their Canada Geese parents. The goslings were well camouflaged, but as Stephanie Robertson hit the aluminum edge of her canoe with her paddle by mistake, the noise startled them into raising their heads, allowing them to be identified as young geese rather than small, pale-golden bushes! A lone Muskrat, *Ondatra zybethica*, swam close to the shore, and quickly disappeared as the boats came close. Along this section we saw many small muskrat and beaver mud ramps along the riverbanks. We passed another large beaver lodge, clearly active, with lots of freshly cut wood. We also began to see numerous shell middens of fresh water mussel shells, likely created by feeding Muskrats. Two more Deer were sighted bounding along the woods at the right hand side of the river.

We had seen a number of fish jumping, but they were particularly active after leaving Lock #6. There were some particularly large ones showing their fins on the surface, splashing about, and jumping clear of the water. Fishermen on the banks along the way told us they were shad, most likely either American Shad or Atlantic Shad, *Alosa sapidissima*; Skipjack Shad, *A. chrysochloris*; Gaspereau, (or alewife), *A. pseudoharengus* (like shad but smaller); and even smaller Striped Bass which this year are being fished only for catch-and-release. One fisherman told of a shad weighing 42 pounds, and this was confirmed by another at our very last canoe pull-out! This abundance of fish probably explained the many Osprey, Bald Eagles, and hawks seen on the paddle.

Another hour and a half after lunch we passed under the Hwy #2 bridge, with a dock and a small rapid. This was where we had driven some of our cars, and several participants finished their trip here, with three canoes and six paddlers carrying on for another good stretch of the river.

It had warmed up considerably, and the sun almost made it out fully as the canoes again pulled out from the bank. Here, the river had less slope; most of the elevation drop had occurred in the first quarter of the trip. The small rapids and riffles at the beginning here gave way to a deeper, slower-flowing channel, and the river was absolutely beautiful with all the spring greenery and many stretches without human habitation.

Magnificent, lush trees along the banks reached for the sky or hung over close to the water; there were some rocky ledges and a few shallow, gravelly spots. The banks had lots of Royal Fern, and in this stretch, the riverside shrubs had changed to very large hummocks of tall grasses – some forming small islets, some grouping into various widths growing along the shore to the firmer ground behind. There were the most magnificent White Pines along this section, *Pinus strobus* – huge, with many branches even at their bases, and thick with green needles. There were also extremely large, mature oaks.

After a fast stretch, the river slowed down once again, with some large bends and muddy banks. There were still islands in the river, partially muddy/gravelly, with their dense growths of grasses. Here we saw saw and heard at least two Killdeer, *Charadrius vociferus*. Other birds were sandpipers, not identified, and many Common Grackles, *Quiscalus quiscula*, feeding and pecking along the muddy riverbanks. The group was also dive-bombed from the riverbank on the right by a male American Robin, *Turdus migratorius*, likely protecting its nest. More Tree Swallows with their distinctive flight, *Tachycineta bicolor*, were also seen, as well as two additional pairs of Bald Eagles, and one more Osprey.

Once again we saw another sizeable beaver lodge, and many muskrat holes in the muddy banks, while the shell middens became more and more numerous, the shoreline absolutely littered with heaps of freshwater mussel shells.

This was a perfect canoeing trip! A sincere thank you to Burkhard and Ingrid for their expert planning and capable leadership.

NATURE NOTES

April

Brad Thomas reported seeing **40 Bohemian Waxwings** feeding on berries on bushes in an area north of Peggy's Cove. Pat Chalmers was attracted by the sound of a **Song Sparrow** chirping and looked out to see it attacking its own reflection in the rear-view mirror of a car. She had also seen **a half dozen Grackles** and later a larger flock. And **Brant Geese** were seen off Hartlen's Point—an area which these geese do not usually frequent. Wendy McDonald reported that **pussy willows** were to be seen in many places. Bob McDonald had seen **Coltsfoot** at Belcher's Marsh, had **Robins** taking suet from his feeder, and had seen **Common Mergansers** around Keji. Regina Maass reported seeing a **Cormorant** on a rock in her garden. Also there were small **bees** on some yellow **Aconite** (a buttercup-like flower). Karen McKendry had seen **11 Red-breasted Mergansers**. Pat Leader had taken pictures of some tracks which were dog-like, about five inches in size, and accompanied by tail marks. Jean Salisbury saw a **Bobcat** in Kingswood.

– Lillian Risley

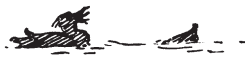
May

Fulton Lavender reported seeing an **American Lady butterfly** along the Upper Clyde River - a very early specimen. Burkhard Plache had an observation of **Northern Gannets**; he had seen 10 off of Chebucto Head recently, and he wondered if this wasn't uncommon. Several people commented that while one doesn't usually get to see these big seabirds from land, peninsulas and headlands such as Chebucto Head offer good vantage points for seeing them as they pass the coast in migration. Judy Hayes reported that a pair of **Canada Geese** had set up housekeeping on Kearney Lake; a **Beaver** is at work on some nearby property. Shirley McIntyre saw a **Spring Azure butterfly** in Waverley two days ago.

Stephanie Robertson passed on a sighting of **Mayflowers in bloom**, found by Pat Leader in Bedford in the last week of April. Janet Dalton told us about a **Raccoon** which has been digging in her garden for grubs. When her son went to chase it away, the Raccoon herded its **four kits** up a tree; one went up nearly 60 feet, and was left behind by the others! From her usual haunts along the Northwest Arm, Lesley Butters has observed that a **Merlin** has taken up residence on the grounds of the Waegwoltic Club. Last week, with "such a penetrating, squawking sound", it faced off with a trespassing **Raven**.

Lesley Butters also reported seeing two **Woolly Bear caterpillars** recently. A lovely, **male Rose-breasted Grosbeak** delighted Carol Klar and Jean Hartley at the Frog Pond in Fleming Park last Monday. Karen McKendry heard a **Barred Owl** call near her home in Jollimore last Saturday night. Dave Patriquin went for a walk in the Purcell's Cove area earlier in the week. The forest fire near York Redoubt had spread through the woods behind there. A local resident told him that there had been a forest fire in the same area in 1964. He was interested to see that, characteristically, all the **cones on the Jack Pines** were open after the fire. **Broom Crowberry** was scorched to the ground. It will be interesting to see how the area regenerates in the coming years. Karen McKendry confirmed that the back half of the Captain Arnell lands, around Flat Lake, had been burned over in the forest fire.

– Patricial L. Chalmers



June

Patricia Chalmers saw **Baltimore Orioles nest-building** in Spa Springs, Annapolis County; she first heard them, then saw the female with a straw in its beak. Dennis Hippern saw **two Piping Plovers** at Cow Bay Beach late on the night of June 3rd. Hugh Kindred spotted **two White Trilliums** in blossom, facing upwards (just coming out). Pat McKay saw a **Beaver** in Sullivan's Pond in Dartmouth. She has seen only one other there in the last 30 years!

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.

"Summer is short. You've said it yourself. You must not take it personally."
– Captain Henry Bayfield speaking to John James Audubon, in Catherine Govier's Creation: A Novel (2002)

NATURAL EVENTS

7 Jun. Full Moon.
14 Jun. -16 Jun. The earliest mornings of the year: Sun rises at 5:28 ADT.
21 Jun. Summer Solstice at 02:45 ADT. Summer begins in the Northern hemisphere. The longest day of the year, with 15 hours and 34 minutes of daylight at Halifax.
23 Jun. Moon at close perigee; large tides follow for several days.
23 Jun. -1 Jul. The latest evenings of the year: Sun sets at 21:04 ADT.
7 Jul. Full Moon.
18 Jul. Canada's 'Parks Day'; look for events at local parks.
21 Jul. Moon at close perigee; large tides follow for several days.
5 Aug. -12 Aug. Average dates of the hottest days of summer (average daily maximum is 22.5C˚.).
6 Aug. Full Moon.
11Aug. & 12 Aug. Perseid Meteor showers peak.
13 Aug. Average date for temperatures to start decreasing.
4 Sept. Full Moon.
22 Sept. Autumnal Equinox at 18:18 ADT: Fall begins in the Northern Hemisphere.
28 Sept. Sixth anniversary of Hurricane Juan.
30 Sept. Average date for first frost in Halifax (i.e. Environment Canada says that there is only a one in ten chance that we will have frost before this date). Look forward to 210 days of frosty weather.

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

6 Jun.	5:30	20:57	**4 July**	5:35	21:03
13 Jun.	5:29	21:00	**11 July**	5:40	21:00
20 Jun.	5:29	21:03	**18 July**	5:46	20:55
27 Jun.	5:31	21:04	**25 July**	5:53	20:48
1 Aug.	6:01	20:40	**5 Sept.**	6:42	19:43
8 Aug.	6:09	20:30	**12 Sept.**	6:50	19:30
15 Aug.	6:17	20:20	**19 Sept.**	6:58	19:17
22 Aug.	6:25	20:08	**26 Sept.**	7:06	19:04
29 Aug.	6:34	19:56			

– Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2009 Calendar; United States Naval Observatory Data Services.

ORGANISATIONAL EVENTS

Blomidon Naturalists Society: Indoor meetings are the 3rd Monday of the month, in the auditorium of The K.C. Irving Environmental Science Centre, University Avenue, Wolfville, 7:30 p.m. Field trips usually depart from the Wolfville Waterfront, Front Street, Wolfville. **http://www.blomidonnaturalists.ca/**.

Each Tues. In the evening, "Acadia University Woodland Trail Biodiversity List", with leader Melanie, 585-1916.
26 Jul. "Better Know a Backyard I", with leader Patrick Kelly, 472-2322.
1 Aug. Rain Date, 2 Aug. "Better Know a Backyard II", with leader Patrick Kelly, 472-2322.
5 Aug. "Moon Over the Water", with leader Patrick Kelly, 472-2322.
30 Aug. "Cloud Lake Wilderness Area Canoe Trip", with leader Patrick Kelly, 472-2322.
21 Sept. TBA
19 Oct. "Cultural and Natural History of Brier Island", with speaker June Swift.
16 Nov. "Sharing Our Environment with Bears", with speaker Tony Nette of DNR in Kentville.
14 Dec. "Galileo, the IYA, and Our Place in the Universe", with speaker Roy Bishop.

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 7:00 p.m. between November 1st and March 30th, and at either 9:00 p.m. or 10:00 p.m. (depending on when it gets dark) between April 1st and October 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/**.

12 Sept. Rain date 19 Sept. McNab's and Lawlor Islands Paddle and Clean-up.

Nova Scotia Bird Society: Indoor meetings take place on the fourth Thursday of the month, September to April, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information phone Suzanne Borkowski, 445-2922; or go to **http://nsbs.chebucto.org/**.

27 Jun. "Beginning Birders' Workshop/Field Trip – Parrsboro", with leader Joan Czapalay; **joancz@ns.sympatico.ca** or call 1-866-856-DINO. **Pre-registration is necessary!**

28 Jun. "Beginning Birders' Workshop/Field Trip – Port Greville", with leader Joan Czapalay; **joancz@ns.sympatico.ca** or call 1-902-348-2030. **Pre-registration is necessary!**

4 Jul. "Square Bash! Region 20: Walton River", with leader Suzanne Borkowski, 445-2922; **suzanneborkowski@yahoo.ca**.

18 Jul. "Beginning Birders' Trip; Martinique Beach Birds", with leader Sue Abbott, 222-2880; **sabbott@bsc-eoc.org**. **Pre-registration required!**

18 Jul. "Wallace Bay, Cumberland Co.", with leader Paul MacDonald, 627-2568; **paulrita2001@yahoo.com**.

1 Aug. "Mahone Bay", with leader James Hirtle, 766-4642; **jrhbirder@hotmail.com**.

9 Aug. "Taylor Head Provincial Park", with leader Jim Cameron, 885-2970; **jim.cameron@ns.sympatico.ca** and Warren Parsons, 772-2207; **rosalieeast@ns.sympatico.ca**.

15 Aug. Rain date 16 Aug. "Cape Sable Boat Trip", Contact Parnell Walker,745-0226; **charbourrec@eastlink.ca**.

22 Aug. "Cherry Hill Beach", with leader Eric Mills, 766-4606; **e.mills@dal.ca**.

4-7 Sept. "Bon Portage Island", with leader Claire Diggins, 825-6152; **claire_diggins@hotmail.com**. **Pre-registration necessary!**

5 Sept. "New Birders' Walk in Point Pleasant Park".

18 Sept. -20 Sept. "Brier Island Weekend", with leaders James Hirtle, 766-4642; **jrhbirder@hotmail.com**; and Wayne Neily, 765-2455; **neilyornis@hotmail.com**.

24 Sept. "Piping Plovers in Nova Scotia...", with speaker Sue Abbott, Co-ordinator Piping Plover Programme and the IBA Programme in Nova Scotia.

26 Sept. "Editor's Field Trip, Peggy's Cove Loop", with leader Blake Maybank, 852-2077; **maybank@ns.sympatico.ca**.

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

1 Jul. **-11 Oct**. "Salt Essentials", – all you need to know! A visiting exhibition.

1 Jul. "Canada Day Pollinator Party Activities at the Butterfly House"; free admission today!

1 Jul. **-mid Sept**. The Butterfly House is open; enjoy nature's winged wonders.

8 Jul. **Rain date, TBA.** "Life on the Rocks at Peggy's Cove", with leader Martha Grantham, DNR. **Pre-registration required, 424-3563; space is limited!**

5 Aug. "Marvelous Monarch Migration", Museum Coffee House; learn how to conserve habitat in your own backyard.

14 Aug. **Rain date 15 Aug.** "Bat Walk", with leader Andrew Hebda. **Pre-registration required, 758-7094; space is limited!**

16 Aug. Happy Hatch-day to Gus! 2:30 to 4:30 p.m. Celebrate Gus's 87th 'Hatch-day'. Learn all about hatching time for turtles and tortoises. Meet some eco-heroes who are helping with the conservation of turtles in Nova Scotia and how you too can participate.

Nova Scotia Wild Flora Society: Meets fourth Monday of the month, September to May, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information, Heather Drope, 423-7032, or go to **http://www.nswildflora.ca/**.

21 Jul. "Shubie Park Orchids", with leader Heather Drope, 423-7032.

31 Jul. -3 Aug. "Yarmouth Coastal Plain Flora", with leader Charlie Cron, 477-8272. **Registration required before June 30!**

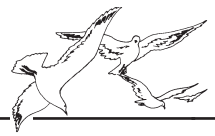
23 Aug. "Bluff Trail Wilderness Hiking Trail", with leader David Patriquin, 423-5716. Co-hosted by the Woodens River Watershed Environmental Organisation.

Royal Astronomical Society of Canada (Halifax Chapter): Meets third 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/**.

21 Aug. -23 Aug. "Nova East - Atlantic Canada's Longest-running Star Party" at Smiley's Provincial Park. More information can be found at **http://halifax.rasc.ca/ne**.

– compiled by Patricia L. Chalmers

HALIFAX TIDE TABLE



July-juillet

Day	Time	Feet	Metres	jour	heure	pieds	mètres
1	0243	**4.6**	1.4	**16**	0130	**4.9**	1.5
	0935	**1.6**	0.5		0801	**2.0**	0.6
WE	1508	**5.2**	1.6	TH	1351	**5.6**	1.7
ME	2221	**1.3**	0.4	JE	2104	**1.6**	0.5
2	0354	**4.6**	1.4	**17**	0234	**4.6**	1.4
	1032	**1.6**	0.5		0901	**2.0**	0.6
TH	1607	**5.2**	1.6	FR	1450	**5.6**	1.7
JE	2313	**1.0**	0.3	VE	2204	**1.3**	0.4
3	0500	**4.9**	1.5	**18**	0348	**4.6**	1.4
	1129	**2.0**	0.6		1004	**2.0**	0.6
FR	1703	**5.2**	1.6	SA	1557	**5.9**	1.8
VE				SA	2305	**1.0**	0.3
4	0003	**1.0**	0.3	**19**	0459	**4.9**	1.5
	0557	**4.9**	1.5		1109	**1.6**	0.5
SA	1221	**2.0**	0.6	SU	1704	**6.2**	1.9
SA	1753	**5.2**	1.6	DI			
5	0049	**1.0**	0.3	**20**	0005	**0.7**	0.2
	0646	**5.2**	1.6		0604	**5.2**	1.6
SU	1308	**2.0**	0.6	MO	1213	**1.3**	0.4
DI	1840	**5.6**	1.7	LU	1807	**6.2**	1.9
6	0132	**1.0**	0.3	**21**	0103	**0.3**	0.1
	0731	**5.2**	1.6		0702	**5.6**	1.7
MO	1348	**2.0**	0.6	TU	1315	**1.3**	0.4
LU	1923	**5.6**	1.7	MA	1906	**6.6**	2.0
7	0210	**1.0**	0.3	**22**	0157	**0.0**	0.0
	0811	**5.2**	1.6		0757	**5.9**	1.8
TU	1421	**2.0**	0.6	WE	1415	**1.0**	0.3
MA	2005	**5.9**	1.8	ME	2002	**6.6**	2.0
8	0245	**1.0**	0.3	**23**	0249	**–0.3**	–0.1
	0849	**5.6**	1.7		0849	**6.2**	1.9
WE	1452	**2.0**	0.6	TH	1514	**1.0**	0.3
ME	2044	**5.9**	1.8	JE	2056	**6.6**	2.0
9	0317	**1.0**	0.3	**24**	0339	**–0.3**	–0.1
	0925	**5.6**	1.7		0938	**6.6**	2.0
TH	1523	**2.0**	0.6	FR	1612	**1.0**	0.3
JE	2122	**5.9**	1.8	VE	2147	**6.2**	1.9
10	0348	**1.0**	0.3	**25**	0430	**0.0**	0.0
	0959	**5.6**	1.7		1024	**6.6**	2.0
FR	1558	**2.0**	0.6	SA	1710	**1.0**	0.3
VE	2158	**5.9**	1.8	SA	2236	**5.9**	1.8
11	0420	**1.3**	0.4	**26**	0522	**0.3**	0.1
	1034	**5.6**	1.7		1109	**6.2**	1.9
SA	1639	**2.0**	0.6	SU	1807	**1.0**	0.3
SA	2234	**5.6**	1.7	DI	2324	**5.6**	1.7
12	0454	**1.3**	0.4	**27**	0615	**1.0**	0.3
	1108	**5.6**	1.7		1153	**5.9**	1.8
SU	1726	**2.0**	0.6	MO	1903	**1.0**	0.3
DI	2311	**5.2**	1.6	LU			
13	0532	**1.6**	0.5	**28**	0013	**5.2**	1.6
	1143	**5.6**	1.7		0710	**1.3**	0.4
MO	1817	**2.0**	0.6	TU	1238	**5.9**	1.8
LU	2351	**5.2**	1.6	MA	1959	**1.3**	0.4
14	0615	**1.6**	0.5	**29**	0104	**4.9**	1.5
	1220	**5.6**	1.7		0807	**1.6**	0.5
TU	1910	**2.0**	0.6	WE	1327	**5.6**	1.7
MA				ME	2054	**1.3**	0.4
15	0036	**4.9**	1.5	**30**	0203	**4.6**	1.4
	0705	**2.0**	0.6		0905	**2.0**	0.6
WE	1301	**5.6**	1.7	TH	1424	**5.2**	1.6
ME	2006	**1.6**	0.5	JE	2149	**1.3**	0.4
				31	0315	**4.6**	1.4
					1004	**2.0**	0.6
				FR	1531	**4.9**	1.5
				VE	2243	**1.3**	0.4

August-août

Day	Time	Feet	Metres	jour	heure	pieds	mètres
1	0434	**4.6**	1.4	**16**	0319	**4.6**	1.4
	1102	**2.0**	0.6		0951	**2.0**	0.6
SA	1638	**4.9**	1.5	SU	1533	**5.6**	1.7
SA	2335	**1.3**	0.4	DI	2246	**1.0**	0.3
2	0538	**4.9**	1.5	**17**	0442	**4.9**	1.5
	1156	**2.0**	0.6		1058	**1.6**	0.5
SU	1736	**5.2**	1.6	MO	1650	**5.9**	1.8
DI				LU	2347	**0.7**	0.2
3	0024	**1.3**	0.4	**18**	0550	**5.2**	1.6
	0628	**4.9**	1.5		1203	**1.3**	0.4
MO	1241	**2.0**	0.6	TU	1756	**6.2**	1.9
LU	1823	**5.6**	1.7	MA			
4	0107	**1.0**	0.3	**19**	0044	**0.3**	0.1
	0710	**5.2**	1.6		0647	**5.9**	1.8
TU	1319	**2.0**	0.6	WE	1304	**1.0**	0.3
MA	1906	**5.6**	1.7	ME	1855	**6.6**	2.0
5	0145	**1.0**	0.3	**20**	0137	**0.0**	0.0
	0748	**5.2**	1.6		0738	**6.2**	1.9
WE	1351	**2.0**	0.6	TH	1402	**0.7**	0.2
ME	1944	**5.9**	1.8	JE	1948	**6.6**	2.0
6	0218	**1.0**	0.3	**21**	0227	**0.0**	0.0
	0823	**5.6**	1.7		0826	**6.6**	2.0
TH	1422	**2.0**	0.6	FR	1457	**0.7**	0.2
JE	2021	**5.9**	1.8	VE	2039	**6.6**	2.0
7	0248	**1.0**	0.3	**22**	0315	**0.0**	0.0
	0856	**5.6**	1.7		0911	**6.6**	2.0
FR	1455	**1.6**	0.5	SA	1550	**0.7**	0.2
VE	2057	**5.9**	1.8	SA	2127	**6.2**	1.9
8	0317	**1.0**	0.3	**23**	0402	**0.3**	0.1
	0928	**5.6**	1.7		0954	**6.6**	2.0
SA	1531	**1.6**	0.5	SU	1642	**0.7**	0.2
SA	2132	**5.9**	1.8	DI	2213	**5.9**	1.8
9	0347	**1.0**	0.3	**24**	0450	**0.7**	0.2
	0959	**5.6**	1.7		1036	**6.2**	1.9
SU	1610	**1.6**	0.5	MO	1734	**1.0**	0.3
DI	2208	**5.6**	1.7	LU	2259	**5.6**	1.7
10	0420	**1.3**	0.4	**25**	0541	**1.3**	0.4
	1031	**5.9**	1.8		1118	**5.9**	1.8
MO	1652	**1.6**	0.5	TU	1827	**1.0**	0.3
LU	2244	**5.6**	1.7	MA	2344	**5.2**	1.6
11	0456	**1.3**	0.4	**26**	0635	**1.6**	0.5
	1105	**5.6**	1.7		1201	**5.6**	1.7
TU	1740	**1.6**	0.5	WE	1922	**1.3**	0.4
MA	2323	**5.2**	1.6	ME			
12	0539	**1.6**	0.5	**27**	0031	**4.9**	1.5
	1141	**5.6**	1.7		0733	**2.0**	0.6
WE	1835	**1.6**	0.5	TH	1248	**5.2**	1.6
ME				JE	2017	**1.6**	0.5
13	0007	**5.2**	1.6	**28**	0126	**4.6**	1.4
	0634	**2.0**	0.6		0834	**2.3**	0.7
TH	1224	**5.6**	1.7	FR	1345	**4.9**	1.5
JE	1935	**1.6**	0.5	VE	2112	**1.6**	0.5
14	0058	**4.9**	1.5	**29**	0236	**4.6**	1.4
	0737	**2.0**	0.6		0934	**2.3**	0.7
FR	1315	**5.6**	1.7	SA	1455	**4.9**	1.5
VE	2038	**1.3**	0.4	SA	2207	**1.6**	0.5
15	0159	**4.6**	1.4	**30**	0403	**4.6**	1.4
	0844	**2.0**	0.6		1032	**2.3**	0.7
SA	1418	**5.6**	1.7	SU	1612	**4.9**	1.5
SA	2142	**1.3**	0.4	DI	2259	**1.6**	0.5
				31	0512	**4.9**	1.5
					1124	**2.3**	0.7
				MO	1713	**5.2**	1.6
				LU	2349	**1.6**	0.5

September-septembre

Day	Time	Feet	Metres	jour	heure	pieds	mètres
1	0601	**4.9**	1.5	**16**	0535	**5.6**	1.7
	1208	**2.3**	0.7		1155	**1.3**	0.4
TU	1759	**5.2**	1.6	WE	1745	**5.9**	1.8
MA				ME			
2	0032	**1.3**	0.4	**17**	0023	**0.7**	0.2
	0641	**5.2**	1.6		0626	**6.2**	1.9
WE	1246	**2.0**	0.6	TH	1253	**1.0**	0.3
ME	1840	**5.6**	1.7	JE	1841	**6.2**	1.9
3	0110	**1.0**	0.3	**18**	0115	**0.3**	0.1
	0716	**5.2**	1.6		0713	**6.6**	2.0
TH	1320	**1.6**	0.5	FR	1348	**0.7**	0.2
JE	1918	**5.6**	1.7	VE	1931	**6.2**	1.9
4	0143	**1.0**	0.3	**19**	0203	**0.3**	0.1
	0748	**5.6**	1.7		0757	**6.6**	2.0
FR	1354	**1.6**	0.5	SA	1438	**0.3**	0.1
VE	1955	**5.9**	1.8	SA	2019	**6.2**	1.9
5	0213	**1.0**	0.3	**20**	0250	**0.3**	0.1
	0819	**5.6**	1.7		0840	**6.6**	2.0
SA	1429	**1.3**	0.4	SU	1526	**0.3**	0.1
SA	2031	**5.6**	1.7	DI	2105	**5.9**	1.8
6	0244	**1.0**	0.3	**21**	0335	**0.7**	0.2
	0851	**5.9**	1.8		0922	**6.6**	2.0
SU	1506	**1.0**	0.3	MO	1612	**0.7**	0.2
DI	2107	**5.6**	1.7	LU	2150	**5.9**	1.8
7	0316	**1.0**	0.3	**22**	0420	**1.3**	0.4
	0923	**5.9**	1.8		1003	**6.2**	1.9
MO	1545	**1.0**	0.3	TU	1659	**1.0**	0.3
LU	2144	**5.6**	1.7	MA	2234	**5.6**	1.7
8	0350	**1.3**	0.4	**23**	0507	**1.6**	0.5
	0956	**5.9**	1.8		1044	**5.9**	1.8
TU	1627	**1.0**	0.3	WE	1748	**1.0**	0.3
MA	2221	**5.6**	1.7	ME	2317	**5.2**	1.6
9	0429	**1.3**	0.4	**24**	0600	**2.0**	0.6
	1032	**5.9**	1.8		1127	**5.6**	1.7
WE	1716	**1.3**	0.4	TH	1840	**1.3**	0.4
ME	2302	**5.2**	1.6	JE			
10	0517	**1.6**	0.5	**25**	0003	**4.9**	1.5
	1112	**5.6**	1.7		0659	**2.3**	0.7
TH	1813	**1.3**	0.4	FR	1214	**5.2**	1.6
JE	2346	**5.2**	1.6	VE	1933	**1.6**	0.5
11	0620	**2.0**	0.6	**26**	0055	**4.9**	1.5
	1158	**5.6**	1.7		0801	**2.6**	0.8
FR	1917	**1.3**	0.4	SA	1309	**4.9**	1.5
VE				SA	2027	**2.0**	0.6
12	0038	**4.9**	1.5	**27**	0159	**4.6**	1.4
	0730	**2.3**	0.7		0859	**2.6**	0.8
SA	1252	**5.6**	1.7	SU	1416	**4.9**	1.5
SA	2023	**1.3**	0.4	DI	2120	**2.0**	0.6
13	0142	**4.9**	1.5	**28**	0323	**4.6**	1.4
	0839	**2.3**	0.7		0955	**2.6**	0.8
SU	1359	**5.6**	1.7	MO	1534	**4.9**	1.5
DI	2127	**1.3**	0.4	LU	2212	**2.0**	0.6
14	0306	**4.9**	1.5	**29**	0434	**4.9**	1.5
	0946	**2.0**	0.6		1045	**2.3**	0.7
MO	1520	**5.6**	1.7	TU	1638	**4.9**	1.5
LU	2229	**1.0**	0.3	MA	2301	**1.6**	0.5
15	0432	**5.2**	1.6	**30**	0523	**5.2**	1.6
	1052	**1.6**	0.5		1130	**2.3**	0.7
TU	1640	**5.9**	1.8	WE	1727	**5.2**	1.6
MA	2328	**0.7**	0.2	ME	2345	**1.6**	0.5

ALL TIMES ARE AST

NEXT DEADLINE

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