



Blomidon Naturalists Society

Winter 2000 – Volume 27 Number 4

Blomidon Naturalists Society

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

(from the BNS constitution)

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The Blomidon Naturalists Society

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Illustrations by Mary Pratt (cover, pp. 3, 5, 7, 11, 12, 18, 22)



Blomidon Naturalists Society

Winter/Spring 2001

Meetings

Except for February, all meetings begin at 7:30 PM in room 224 at the Beveridge Arts Centre, Acadia University, Wolfville (across Main Street from the Atlantic Theatre Festival parking lot). ALL ARE WELCOME AT BNS EVENTS!

January 15, 2001 – Roger & Pat Pocklington: **Island Natural History and Ecology, as Exemplified by Bermuda and Elsewhere.** Roger and Pat have just finished four years of residence in Bermuda studying birds, marine worms, etc.

February 19, 2001 – **Show & Tell** (aka Members' Night). The Show and Tell meeting will be held as usual in Patterson Hall 308 and 325. Patterson Hall is the fourth building up University Avenue on the right, from the Acadia arena/gym parking lot. All are invited to bring up to 20 slides or anything that can be shared: collections, books, pictures, "unknowns" for possible identification, anything! This is a very popular annual meeting.

March 19, 2001 – Harry Thurston: **Shorebirds of Fundy: Nomads of the Wetlands.** Harry is a very well-known writer and poet, author of many works, notably on the Bay of Fundy, shorebirds, and hummingbirds. In January he starts a term as Writer-In-Residence at Acadia University.

April 16, 2001 – Becky Whittam: **The Canadian Lakes Loon Survey: an Atlantic Canada Perspective.** Becky is Atlantic Canada Program Manager for Bird Studies Canada and works out of Sackville, NB.

May 21, 2001 – Deborah Tobin (Eastcoast Ecosystems, Freeport, NS) on **Conservation of North Atlantic Right Whales.**

June 18 – speaker and topic to be announced later.



Field Trips

Unless otherwise indicated, all field trips begin at the Robie Tufts Nature Centre on Wolfville's Front Street (look for the tall brick chimney just west of the NS Liquor Commission store).

January 27 & 28, 2001 – Eagle-Watch weekend at Sheffield Mills. Watch for advertisements in newspapers, etc. (Possibly another Eagle-Watch will take place the following weekend.) Come out, especially in the morning, to support the Sheffield Mills Community at the Community Centre. Breakfast will be served, maps showing eagle viewing hotspots will be available, appropriate merchandise will be for sale, and naturalists will be on hand with Acadia's mounted birds of prey.

Saturday, February 3, 2001 – Bus trip for eagles and other birds, for the Halifax Field Naturalists and BNS. Co-leaders are Merritt Gibson (902 582-7569) and Jim Wolford (902 542-7650). Meet at 9:30 AM at the Robie Tufts Nature Centre. Bring lunch, warm clothes, scrapers for bus windows, bird guides, good spirits, spotting scopes, and binoculars. Lunch will likely be eaten in Acadia's Biology department, with stuffed eagles, etc., and videos provided.

Sunday, April 29, 2001 – King's County birds, for both the Nova Scotia Bird Society and BNS, 10 AM, leader Jim Wolford (902 542-7650). Bring lunch, field guides, binoculars, and scopes.

Irruptions

by Mike McCall

A recent issue of *Birdscope*, a publication of the Cornell Lab of Ornithology, summarizes some findings derived from the lab's Feeder Watch project for the winter of 1999-2000. It is always reassuring to me to have my own experience corroborated by a HIGHER AUTHORITY, but more than that, it is instructive to be made aware of the broader picture of which my observations were but a small piece. With the thought that some of you may enjoy saying, "Oh, right, that's exactly what happened here!" I pass on some of last year's Feeder Watch findings.

A marked increase in sightings of irruptive species was evident, in particular Common Redpolls, Red-breasted Nuthatches, and Pine Siskins. This was confirmed at my own feeder, as these visitors had me making frequent runs to the Port Williams Shur Gain for suet and niger seed.

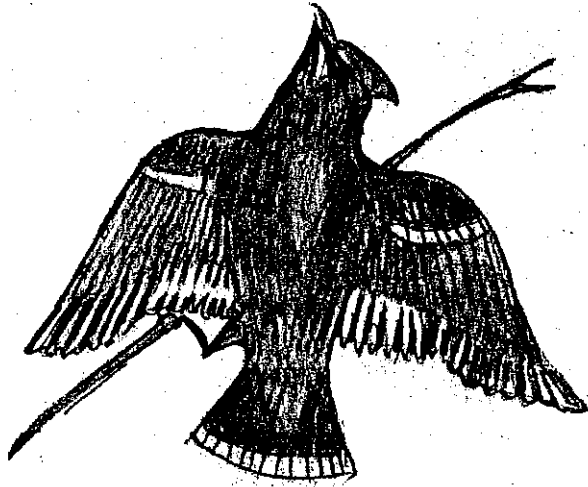
Especially enjoyable was going eye-to-eye with the cheeky, fearless, and voracious Red-breasted Nuthatches who would perch two feet away voicing their "crank, crank" complaints at the slowness of the service as I topped up the suet dispenser. Redpolls in particular seemed to be everywhere. Cornell reports that we enjoyed the largest irruption since 1994; in the North Atlantic region 40 times more of these birds were counted than in the previous winter.

In contrast to this, ground feeders such as juncos and American Tree Sparrows were much less frequently seen at and around feeders, testifying, presumably, to the abundance of the natural foods they favour over commercial seed.

Bohemian Waxwings, a long-distance irruptive from the west, were much in evidence on my property and in the Valley last winter and, sure enough, this was reflected in Feeder Watch numbers; they were 150 per cent more abundant than in 1998-99.

The ground around my feeder wasn't exactly littered with siskin and redpoll corpses, but I became worried after finding several of each,

presumably victims of the bacterial disease salmonellosis. This disease is much more common in irruptive years, behooving us to keep our feeders clean in years when bird densities are very high.



BOHEMIAN WAXWING

And finally, though I wasn't aware of it, Northern Shrikes were much more abundant than normal, particularly at feeders. With mammal populations low, this winged omnivore was seen taking redpolls, cardinals, Downy Woodpeckers, chickadees – and even harassing Blue Jays.

I note at this writing (early December) that chickadees, siskins, goldfinches, and Red-breasted Nuthatches are staying away from my North Mountain feeder in droves and I haven't seen a Purple Finch for months. At the same time, coniferous trees bear an abundance of cones, so perhaps conditions are right for a poor feeder-watching year.

A nature walk through history, IV

Birding Baxter's Harbour, 1810

by Merritt Gibson

March 8, 1810, was a sunny day. The snow was deep, but the intense cold of previous months was past and the midday sun was almost warm. A friend took me by horse and sleigh from my home in Canning to Sheffield Mills. Dr William Baxter had invited me to join him on a trip to the Fundy shore and we planned to meet at the grist mill in Sheffield Mills.

Dr Bill practised medicine at his Canard home from 1786 until he died in 1832. A caring doctor, he travelled on snowshoes in winter to visit his patients. In 1803 he had bought land on the Fundy shore and his son, John, settled there. Dr Bill, who owned several sawmills, wanted to cruise his woods for saw logs, but I suspect he was more interested in finding tall pine trees for his shipbuilding industry.

We met as planned and continued by sleigh up the mountain trail. I was amazed to see a dozen White Partridge (Willow Ptarmigan) feeding among the alder bushes along the stream beside the trail. The second highlight was seeing four Hawk Owls near the top of the mountain. The Hawk Owl was not unusual in Nova Scotia, but I had never seen four together.

We stabled the horses at a farm on the mountain and proceeded to the shore on snowshoes. There were beautiful stands of pine and hemlock and giant Yellow Birch and beech. Dr. Bill would have no trouble finding masts for his ships. We saw Brown Partridge (Ruffed Grouse) among the birches and many Black Partridge (Spruce Grouse), the most numerous of the three partridges, in wet areas of Red and Black Spruces. Finally we arrived at John's house. I stayed for a short time to get warm and then left to bird along the shore. I birded for the rest of that afternoon and all the next day.

Dr Bill was not a birdwatcher, but he knew of my interest and had invited me to see two strange ducks that his son had reported. He described the

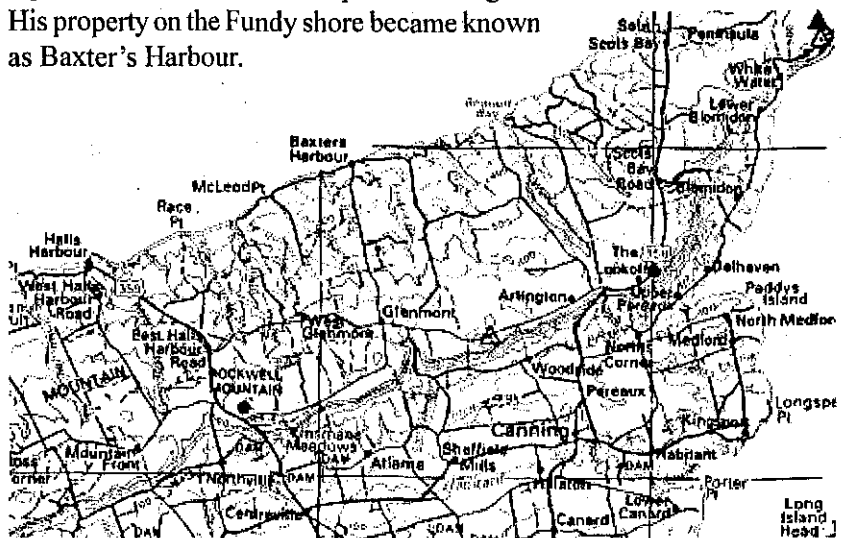
ducks as being small, black with white heads and wings, and very fast flyers. I immediately thought of Labrador Ducks, but I had never seen one. I had heard of them in 1766 while I explored the Newfoundland coast with Joseph Banks aboard the 3-masted *Niger*, but it was not until 1789 that the species was adequately described.

There were huge rafts of Bottle-nosed Coot (Scoter) and a number of Greater and Spring Shelldrake (Common and Red-breasted Mergansers) on the water, and the occasional Sea Dove (Dovekie) streaked past. There were also large rafts of Long-tailed Duck (Oldsquaw – by the late 1990s their name would be changed back to Long-tailed Duck).

The next day, as I returned to the cove, I saw the birds I had come to find. There were 12 Harlequin Ducks riding the waves on the outer shoals, and inside the cove were two Labrador Ducks! At one time Labrador ducks were fairly common along the rocky Fundy shores, but now were becoming scarce. Beautiful sea ducks, they dabbled at the surface and dove to take molluscs off the bottom. It was exciting to see them! (Their numbers continued to decline and they became extinct in 1875.)

Dr Bill built seven ships and possibly started the shipbuilding industry in the Canning and Kingsport areas, an industry that produced some of the largest wooden sailing ships ever constructed in Canada. He also represented Cornwallis in the provincial legislature.

His property on the Fundy shore became known as Baxter's Harbour.



BNS Summer Naturalist Report

by Angela Thibodeau

My summer job with the Blomidon Naturalists Society included aspects of tourism, scientific research, and creative writing. I greatly appreciated the encouragement given by Lorna Hart, Tom Herman, Harold Forsythe, and Jim Wolford.

The chimney

Almost every evening, before the swifts were due to arrive, I'd arrive at the chimney and begin to greet visitors and to count birds. The swifts were present in numbers from the beginning of my term in June until the beginning of August. Visitors consisted of local people as well as those from other parts of the world and numbered around two to three dozen on any given evening. One woman vacationing from Michigan took part in the first Chimney Swift banding efforts in the 1930s.

My job also consisted of the less-glamorous tasks of picking up litter, restocking the centre with pamphlets, and updating the bulletin board at the tourist bureau. As well, I compiled a graph showing the average weekly swift numbers.

Dyke walks

In June, July, and August I held two one-hour evening walks each week along the dyke to Port Williams as far as the first aboideau. Attendance was low in June but picked up in July; I estimate that over the season I was joined by about 35 walkers of all ages. One couple even came back a second time.

The walk highlighted the human history, geology, and plants and birds of the dykelands. I had no script and usually began with geology (the beginning of history). From there I could judge what people were interested in, and so tailored my talk. The evening proved to be the best time for these walks; temperatures were lower than during the day and we ended in time to see the swifts arrive at the chimney. Unfortunately, biting insects also came out at this time of day.

People's interest was usually piqued by

- the names of common weeds like pineapple weed and any plant with a strong scent.
- trendy herbal medicines like St. John's wort or Scentless chamomile.
- the "hssss" of the Sharp-tailed Sparrow – some people thought it sounded like something they'd expect to hear in a jungle.

My thanks to Jean Timpa who took me out one evening to help me identify most of the plants and lepidoptera along the dykes.



PINEAPPLEWEED



HEMP-NETTLE

Nature Notes index

I also did some data-entry work. Merritt Gibson has been writing a weekly column for the Advertiser for 12 years and asked me to help index these articles. It was my job to create a computer file that included the original index and to add the more recent articles to it.

Kentville Ravine brochure

Certainly the most challenging project was the development of an interpretive brochure – a description and points of interest – for the trail that runs along the ravine behind the agricultural research station in Kentville. I made several trips to the site to get a feel for the ravine, and, after talking to people about the human and natural history of the place, I felt I had enough information to produce an interesting brochure. Three other sites in the area were targeted to become subjects of brochures: Reservoir Park (closed for the summer because of water problems),

Gaspereau River-White Rock Trail, and the Cleveland property. My sincere thanks to Fred Scott for the loan of the laptop, the Biology department secretaries who helped me with the printing, and those who edited draft versions of the brochure: Harold Forsythe, Merritt Gibson, Lorna Hart, Tom Herman, Blake Maybank, and Jim Wolford.



SCENTLESS
CHAMOMILE

Cleveland property

The Cleveland property, recently acquired by the Nova Scotia Nature Trust, includes two parcels of land on the White Rock Road and Ridge Road. The Ridge Road section has a small trail that runs through it and is characterized by mixed forest as well as an overgrown field.

A more clearly marked trail through the property would allow a useful brochure to be produced. The site provides an interesting walk as it is, but would be much enhanced if it were connected to Ridge Stiles Park. In July and August I made half a dozen trips to the park to collect plants for identification. The following list includes the plants I was able to identify, but by no means does it include all the plants in the area; its focus is flowering plants, trees and shrubs, and one species of woodrush.

Because all my identifications were made with the help of Roland's Flora of Nova Scotia (revised edition), the Roland numerical system is included for reference.

Cleveland property flora

<u>Common Name</u>	<u>Latin Name</u>	<u>Roland #</u>
White Spruce	<i>Picea glauca</i>	16.2.2
Common Juniper	<i>Juniperis communis</i>	17.2.1
Bayberry	<i>Myrica pensylvanica</i>	29.2.2
English Oak	<i>Quercus robur</i>	30.2.1
Gray Birch	<i>Betula populifolia</i>	31.3.2
Down Alder	<i>Alnus viridis</i>	31.4.1
Grass-leaved Stichwort	<i>Stellaria graminea</i>	36.3.3
Deptford Pink	<i>Dianthus armeria</i>	36.9.2
Sheep-sorrel	<i>Rumex acetosells</i>	37.2.10
Common St. John's Wort	<i>Hypericum perforatum</i>	40.1.1
Trembling Aspen	<i>Populus tremuloides</i>	48.2.2
Lowbush Blueberry	<i>Vaccinium angustifolium</i>	53.11.4
One-sided Wintergreen	<i>Pyrola secunda</i>	544.3.1
Black Cherry	<i>Prunus serotina</i>	61.4.1
English Hawthorn	<i>Crataegus monogyna</i>	61.6.1
Apple	<i>Pyrus malus</i>	61.7.2
Wild Strawberry sp.	<i>Fragaria sp.</i>	61.12
Wild Rose sp.	<i>Rosa sp.</i>	61.18
Tufted Vetch	<i>Cicia cracca</i>	62.5.6
Red Clover	<i>Trifolium paratense</i>	62.15.1
Clover sp.	<i>Trifolium dubium</i>	62.15.7
Hemp-nettle	<i>Galeopsis tetrahit</i>	97.6.1
Hedge-nettle	<i>Stacys palustris</i>	97.16.1
Yellow Rattle	<i>Rhinanthus crista-galli</i>	102.14.1
Ox-eye Daisy	<i>Chrysanthemum leucanthemu</i>	110.5.2
Narrow-leaved Goldenrod	<i>Euthamia graminifolia</i>	110.11.2
Canada Goldenrod	<i>Solidago canadensis</i>	110.12.8
Yarrow	<i>Achillea millefolium</i>	110.15.2
Daisy Fleabane	<i>Eirgeron strigosus</i>	110.20.4
Devil's Paintbrush	<i>Heiracium surantiascum</i>	110.41.4
Common Woodrush	<i>Luzula multiflora</i>	126.2.5

Found a flyer?

by Stephen Petersen

The flying squirrel is possibly the cutest mammal in Nova Scotia, if not Canada, yet we rarely get to admire it. In Nova Scotia there are two species of flying squirrel: the larger northern flying squirrel (*Glaucomys sabrinus*) and the smaller southern flying squirrel (*G. volans*). The two species can be distinguished in hand by looking at the hairs on the belly: southern flying squirrels are white to the base while the northern flying squirrel's ventral hair is gray at the base and white toward the end.

Northern flying squirrels inhabit conifer stands throughout the province, while southern flying squirrels seem to be found in mixed wood stands with oak trees. The two species are mutually exclusive over most of their range; however, there are records of the two species being sympatric in some areas, including Nova Scotia (Stabb 1988).

The southern flying squirrel is found in eastern North America from Florida to southern Ontario and Quebec, with disjunct populations in the mountains of Mexico and in southwestern Nova Scotia (Wilson & Reeder 1993). Southern flying squirrels are considered to be a species at risk in Canada (COSEWIC 2000) because of their dependence on mature hardwoods and because of a lack of knowledge on the part of resource managers. In the centre of their range southern flying squirrels store mast and form aggregations to survive the winter months. Older forests provide enough large cavities for the flying squirrels to aggregate, sharing heat and conserving energy during the winter. Hardwood mast, primarily acorns and beech nuts, provide storable energy to last the winter. Sadly, the amount of forest that remains as old-growth hardwood stands is decreasing as forestry practices favour softwood regeneration.

The first Nova Scotia specimen of a southern flying squirrel was collected by Cain, Woodworth, and Fanny in 1967. It was collected from Pebbleloggitch Lake in southern Kejimikujik National Park (KNP), an area that produced another specimen in 1971. Also in 1971 Wood collected a specimen further north near Grafton Lake. These three specimens are the first records of the southern flying squirrel in Nova Scotia (Wood & Tessier 1974). Since then 14 more individuals have been recorded from areas around the park (Davis 1998, Hope 2000).

Outside the park the first record was from Hibernia, Queens County, in the mid 1970s (Hope 2000). In 1985 Mark Elderkin (1987) captured seven southern flying squirrels during a study of barred owls in Gaspereau, Kings County. A trapper collected one southern flying squirrel from the Kentville ravine in 1997 (Boates), bringing the total number of records from Nova Scotia up to 26. All the specimens so far have been collected in older mixed forests containing large Red Oak, and Eastern Hemlock, as well as maple, beech, and many snags (Hope 2000).

Our lack of knowledge about the southern flying squirrel here in Nova Scotia will be addressed as more agencies start to collect data. Kejimikujik National Park has been keeping records of southern flying squirrels collected or observed in the park and has introduced this species to visitors through their interpretation program. The Nova Scotia Department of Natural Resources runs a voluntary program collecting flying squirrels that have been accidentally trapped. Acadia University now has two

masters students (Amanda Lavers

and the author) studying

the genetics and

ecology, and you

can help too! If your

cat has "collected" a

flying squirrel, please save

the remains (frozen is good) and

contact us. These bodies and tails

will be used for genetic material as

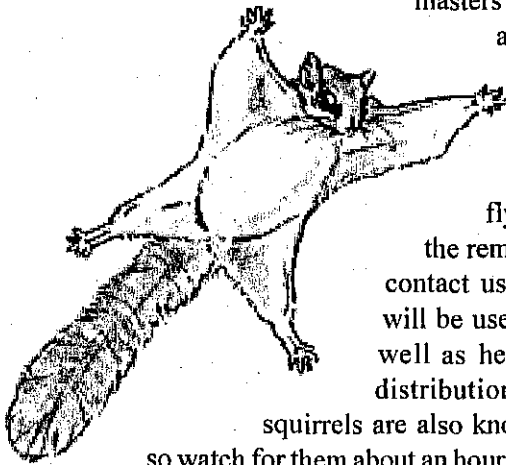
well as helping to understand the

distribution of the species. Flying

squirrels are also known to visit bird feeders,

so watch for them about an hour after sundown, especially

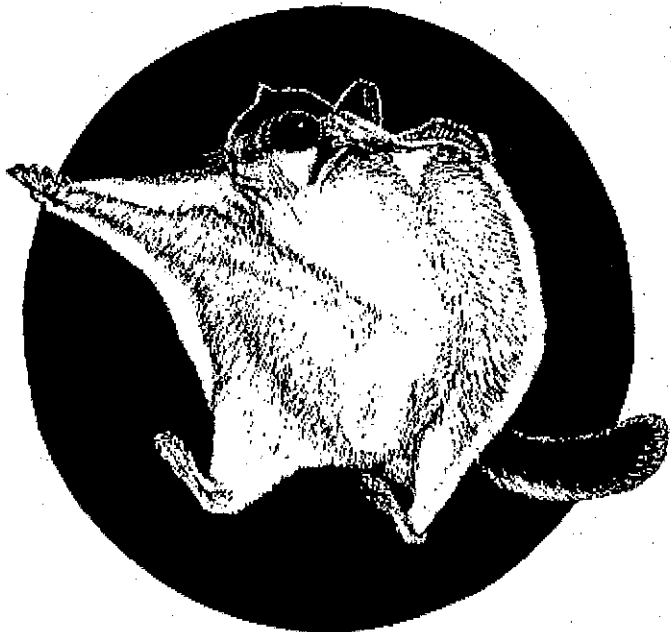
if you notice birdseed disappearing during the night.



To date Amanda and I have live-trapped at several places within KNP and in Gaspereau. Twenty southern flying squirrels have been captured (in 2,000 trap-nights); these animals have donated a small amount of blood for genetic analysis and five of the animals captured in Gaspereau so far have been radio-collared. Interestingly, at the Gaspereau site we have captured both species of flying squirrels as well as observing red squirrels and chipmunks.

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The North Mountain Old Forest Restoration and Conservation Project

by DeLancey Bishop

Despite recent moves by government and industry to promote forest sustainability, there is a feeling that our management agendas do not adequately address the value of certain forest elements – in particular, the protection of those characteristics of forests that develop in the absence of human influence. Forest historians estimate that about 88 per cent of pre-European forests in our region existed in a dynamic state of “old growth climax,” in which species adapted to structures and processes largely driven by the wind. The last 500 years have seen this landscape change dramatically along with the biodiversity within it. Recently, a handful of people in our area – landowners, scientists, and concerned citizens – have opted to learn how our forests have changed, with a view to reversing the impact of human influence on old-growth forest characteristics on their own properties.

The North Mountain Old Forest Restoration and Conservation Group is made up of members whose properties are typical of the white spruce and balsam fir forests of the North Mountain. Members of the group came together through contact with a selective-tree-harvesting business that uses old-fashioned, low impact (horse logging) techniques. This harvesting method supported their wish to maintain the integrity of forests and gave effect to a sense of stewardship that went beyond simply increasing the fibre production of their woodlots. With assistance from Environment Canada’s Eco-Action 2000 program, the group will soon begin a project to restore old forest characteristics in parts of second-growth forests on privately owned woodlots on the North Mountain.

The project has targeted nine privately owned North Mountain properties located between Halls Harbour and Scots Bay. Stage one of the two-year initiative will involve an evaluation of each property to identify present structural and biotic characteristics to determine the degree to which they resemble those of old forests. Depending on each site’s similarity to old-forest deadwood levels, the group will attempt to alter deadwood levels through harvesting some living trees. The degree to which old-

forest tree species (e.g., sugar maple and red spruce) are represented will govern the extent of removal of some existing second growth trees (e.g., white spruce and white birch) to create the gaps and associated microclimates necessary to support a spring planting of old-forest seedlings. Draft horses are the technology of choice for the low-impact removal of these trees. Depending on the present availability of habitat for cavity-nesting birds and small mammals (old-forest dependents), nesting boxes will be set out in each forest to act as surrogate habitats until the systems can create these features without help. The group will be seeking volunteer support for the labour-intensive plantings and nest box establishment.

The North Mountain Old Forest Restoration and Conservation Group is open to anyone with a genuine interest in old-growth forests, and will hold regular monthly meetings beginning in January 2001. The group will exist as a forum for members to advance their understanding and appreciation of old-forest natural history, and will attempt to develop the specific principles and techniques for restoring and conserving old-growth forests in the Acadian Forest region.

For more information, or to become a member of the group, contact the project manager, Keiko Lui, or me, DeLancey Bishop, at 902 582-3717. I can be reached e-mail <djbishop@glinx.com> or by regular mail:

The North Mountain Old Forest Restoration and Conservation Group
c/o DeLancey Bishop
RR 5
Canning, NS B0P 1H0



Sunrise, Solar Noon, and Sunset

by Roy Bishop

A few weeks ago the shortest day of the year occurred, December 21. Yet the BNS calendar states that the latest sunrise occurred on January 2. I recently received a telephone call from a gentleman who wondered if the calendar was correct. He asked, "Should not the latest sunrise occur on the shortest day?" The answer to his question is "no," but an explanation cannot be given in a few words over the telephone. The rest of this article addresses the topic. If you wish to read further, find a quiet room, a comfortable chair, and contemplate the motions of our planet as described in the following paragraphs.

The varying times of sunrise (also of solar noon and sunset) are determined by Earth's daily rotation on its axis, by the tilt of its equator relative to the plane of its orbit, and by its orbital motion around the Sun. The daily rotation is nearly constant, but the tilt is appreciable, and the orbital speed varies during the year. The best way to understand the resulting effects upon times of sunrise, solar noon, and sunset is to introduce the contributing factors one at a time. I shall do this in three steps of increasing complexity:

1. Untilted Earth, circular orbit

A circular orbit would involve a uniform orbital speed. Thus, as seen from Earth, the Sun would move eastward at a steady rate around the sky once a year against the background stars. With no tilt, the Sun would always lie above Earth's equator; hence the Sun's eastward annual path against the stars would be along the celestial equator, the projection of Earth's equator on the starry background.

With this simple geometry and steady motion, the times of sunrise, solar noon, and sunset would be constant throughout the year. For places not near the north or south pole and located on one of the longitude meridians for standard time (e.g., at 60° west longitude for Atlantic Standard Time), sunrise would always occur at 06:00 standard time, solar noon at 12:00, and sunset at 18:00 (ignoring a small shift in the times of sunrise and sunset due to atmospheric refraction). Sundial time would always agree

with standard time. Also, all sunrises and sunsets would occur at the east and west points on the horizon, respectively, and the Sun's daily westward track across the sky (caused by Earth's daily rotation eastward) would trace out an arc of 180 degrees. Also, there would be no seasons.

2. Tilted Earth, circular orbit

Because of Earth's 23° tilt, the annual path of the Sun against the stars (the ecliptic) lies along a circle that is inclined 23° to the celestial equator. For approximately half of the year the Sun lies north of the equator; during the other half it lies south. For an observer at a latitude away from the equator, the horizon will generally cut off more than, or less than, a 180° arc of the Sun's daily westward track across the sky. This is why, at latitudes away from the equator, the times of sunrise and sunset vary dramatically as the Sun shifts first northward and then southward during the year. At mid-northern latitudes, June days are long and the Sun rides high in the sky; December days are short and the Sun is low in the sky. In brief, the tilt causes the seasons.

Also, because of the tilt, the constant apparent speed of the Sun against the background stars (assuming a circular orbit) is no longer always directed due east. For instance, when the Sun crosses the equator (on the spring or autumn equinox) its motion is inclined 23° away from due east, and its effective eastward motion will be at a minimum. On the solstices (about June 21 or December 21), the ecliptic is parallel to the celestial equator; the Sun's motion is all directed eastward and thus is at a maximum. Moreover, because the Sun then lies well north or south of the celestial equator, its effective eastward motion is even larger than it is in the case of an untilted Earth.

Why this concern with the *eastward* motion of the Sun? Earth rotates in this direction, hence the eastward location of the Sun determines the times of sunrise, solar noon, and sunset. With a constant eastward rotation of Earth and a non-constant eastward drift of the Sun, the time of solar noon varies during the year. Even for localities on one of the longitude meridians for standard time, sundial noon and standard-time noon seldom coincide; they can differ by up to 16 minutes.

The times of sunrise and sunset are affected too, although at latitudes away from the equator and for those portions of the year not near the

solstices, the horizon effect is the main influence on variations in sunrise and sunset times. Near the solstices (June or December), the maximum eastward motion of the Sun delays the times of sunrise, solar noon, and sunset. Thus, at mid-northern latitudes the latest sunrise occurs several days after the shortest day, and the latest sunset occurs several days after the longest day. Also, the earliest sunrise occurs several days before the longest day, and the earliest sunset occurs several days before the shortest day.

Similarly, during June and December the time of solar noon occurs later from one day to the next. Near the equinoxes (March and September), when the Sun's eastward motion is a minimum, the time of solar noon occurs earlier from one day to the next.

3. Tilted Earth, elliptical orbit

As Johannes Kepler discovered in 1609, Earth's orbit is not a circle; it is an ellipse. Furthermore, Earth's motion around its elliptical orbit is not uniform. As Kepler was the first to discover, our speed around the Sun varies such that an imaginary straight line between Earth and Sun sweeps out equal areas in equal time intervals. That is, in less precise terms, Earth moves faster when it is closer to the Sun.

Earth is at its closest point to the Sun about January 4. Thus, during the weeks near the December solstice Earth's orbital speed is greater than at any other time of the year. This adds to the Sun's already larger-than-average apparent motion eastward against the background stars caused by the tilt, and amplifies the delays affecting the times of sunrise, solar noon, and sunset.

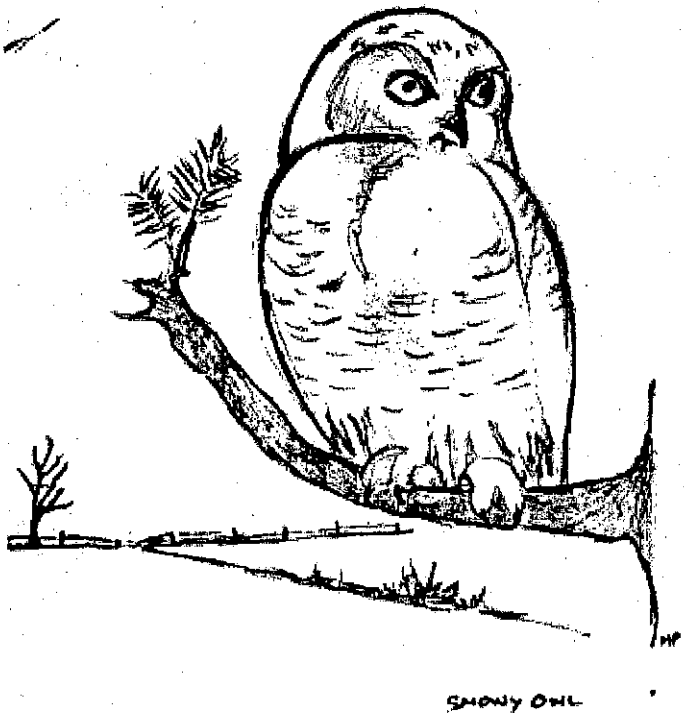
Earth is at its furthest point from the Sun about July 4. Thus, during the weeks near the June solstice its orbital speed is smaller than at any other time of the year. This decreases the Sun's larger-than-average apparent motion eastward against the background stars caused by the tilt (although its eastward motion remains still larger than average) and thus reduces the delays affecting the times of sunrise, solar noon, and sunset.

As a consequence, at Wolfville's latitude of 45° N (to take a specific example), the interval between the earliest sunrise and latest sunset (in June) is 10 days, while the interval between the earliest sunset and the

latest sunrise (in December) is 23 days. Similarly, in late June the time of solar noon occurs 13 seconds later each successive day, whereas in late December the delay is 30 seconds per day.

Thus, the influence of our non-circular, elliptical orbit is to make the tilt-induced solstitial time effects asymmetric (larger in December than in June).

In the 2001 BNS Calendar, the notes for January 2, June 15, June 21, June 25, December 10, and December 21 are correct (despite the doubts expressed by the gentleman who called me), and sundial time varies in a peculiar but preordained pattern relative to standard time. Such is the waltz of the tilted, spinning, orbiting planet upon which we live.



Valley Birds

by Angus MacLean

Single Red-throated Loons were observed off Kingsport/Grand Pre Oct 12 & 17, and two off Evangeline Beach/East Point Oct 7 & 16 (BLF, JCT). The maximum was five off East Point (Grand Pre) on Oct 21 (BLF). Only one report of Common Loons, two at Port George on Nov 26 (BBT). Certainly they are the more expected winter loon along the Fundy coast (but not the Minas Basin).

An adult Pied-billed Grebe was at Canard Pond Aug 24–Oct 5 and an immature was at Harris Pond Oct 17–18 (JCT, JET). Just one Great Blue Heron lasted into December, staying for the WCBC on the 17th.

BLF found an immature Snow Goose at Grand Pre Oct 4. It stayed at least to the 12th (JCT). About Nov 11 Jake MacDonald noted an adult Snow Goose at the Windsor Causeway. (Reports of the latter were ambiguous since there was also a white domestic goose there this fall.)

A single Wood Duck was seen at Margaretsville on Nov 17 (PBG). A male Eurasian Wigeon was noted on Canard Pond on Oct 18 (JCT, JET). It is becoming a regular fall event to have this rare visitor in our midst, albeit very briefly. Five Blue-winged Teal were still present at Saxon St Pond Sep 22 (JCT, JET). Among several ponds JCT found 16 Blue-winged Teal on Oct 5 and 18 on Oct 18 (also JCT), a high total for this species that normally makes an early exit. The latest was of three on Saxon St Pond, Nov 3 (JCT). A transitional-plumaged male Northern Shoveller was at Canard Pond Oct 5 (JCT), and apparently another male was at Canard Pond Oct 12 (JET, BBT). Six (2m) were noted at Belleisle Marsh Nov 29 (Peter Hope, Al Mutch).

JCT & JET saw one Northern Pintail Oct 18 at Harris Pond, but RBS noted 11 Northern Pintails at the New Minas Sewage Lagoons on Oct 23. (These lagoons have not been as productive since major work was carried out in the past year.)

BLF found a large aggregation (35) of Ring-necked Ducks at Sunken Lake on Oct 12. Harlequin Ducks were present at Port George with six (4m, 2f) on Nov. 17 (PBG) and four (3m, 1f) on Nov. 26 (BBT). Scoters

were seldom reported, but all three species were on the Minas Basin Dec 17 (AAM)

A surprising three Golden Eagles were observed over east Wolfville Oct 20 (Soren Bondrup-Neilsen, JCT). Peregrine Falcons continued to pursue the dwindling shorebird flocks at Grand Pre – two adults were noted by JCT on Oct 12 and there was one on the WCBC.

Thirty to thirty-five Killdeer roosted in fields in the Sunken Lake area for about three weeks in early October (BLF). (A Peregrine Falcon also discovered them and harassed them but no kills were observed.) JCT found 16 Greater Yellowlegs at Wolfville Ridge Road Pond on Oct 16. Good numbers of Black-bellied Plover were noted roosting at Grand Pre: 70 were seen on Sep 30 (RBS, JCT), 75 on Oct 14 (JCT). On Sep 23, two American Golden Plovers were found at the Gully, Grand Pre (JCT, JT). One was in the same area on Sep 30 (RBS, JCT, BLF). A Hudsonian Godwit was noted at Grand Pre Sep 30 (RBS, JCT), and 20 Dunlins were at Grand Pre Sep 30 (RBS, JCT, BLF), but on Oct 12 JCT saw an impressive 100 near the Gully, Grand Pre, along with good numbers of Semi-palmated Plovers and Sanderlings. Twelve Dunlins were at Kingsport Oct 17 (JCT), with one report of 25+ Purple Sandpipers at Port George on Nov 26 (BBT).

Two (1 ad., 1 imm.) Iceland Gulls were at the New Minas Sewage Ponds Nov 27 (JWW) and, I believe, one or two were seen Dec 17 on the WCBC. An adult Lesser Black-backed Gull was observed at Grand Pre Oct 8; three adults were there Oct 14 (BLF) and four (ages not noted) on Oct 17 (BBT). Two Glaucous Gulls were noted on the WCBC, Dec 17, somewhat early for the Valley. Two Common Terns were noted Sep 9 off Evangeline Beach (JCT, JET).

JCT first reported Horned Larks (50) Oct 12 at Grand Pre.

The only report of a Short-eared Owl was an immature flushed from the Canard dykelands Nov 18 (PH, AM)

A Yellow-bellied Sapsucker was at Tremont Sep 30 (Sheila Hulford). Northern Flickers are fewer this winter (better for them, I expect) and

Pileated Woodpeckers appear to be at normal levels. (BLF watched an odd encounter between a Pileated and a Sharp-shinned Hawk. The small hawk chased the woodpecker around a tree trunk briefly before coming to its senses. The Pileated returned to the tree and resumed feeding. Sharp-shins sometimes chase ravens and crows).

Two separate Marsh Wrens were found at Grand Pre, one at the Wolfville Sewage Lagoons (BLF, RBS) on Nov 19, the other along the RR tracks on Dec 16 (BLF). They were both found on Dec 17 but no report since then.

One American Pipit was found at Grand Pre Sep 30 (BLF). From that point on they were found in low numbers to at least mid-December. MAF reports a large mixed flock of waxwings at Hantsport in late November. After an early flurry of sightings, Northern Shrikes have been little reported. Two were seen on Dec 19 (WCBC) and four were seen in western Annapolis County in late December (GIP). A Northern Mockingbird was seen consistently in east Wolfville Oct 9 to Jan 1 (BBT), and one was noted Oct 10 at Port Williams (GWT).

A Pine was the only warbler located on the Wolfville CBC Dec 18 (MAG). A Palm Warbler was noted on Wolfville Ridge Oct 18 (GWT)

Cardinals are either declining or so common that they are not being reported. One was noted on Wickwire Ave, Wolfville, in October, and a pair in November. There still remains a family (or two) in the vicinity of Aalders Avenue, New Minas. Marian Fulton reported a female at Hantsport on Nov 29. A rarity in winter, a male Rose-breasted Grosbeak appeared at a New Minas feeder Dec 8 and lasted to Dec 18 (Sandy Stevens).

An Eastern Towhee was reported in Wolfville through the fall (BLF), but the only sighting I received was by Gerry Trueman on Dec 8-9. A Chipping Sparrow was in Habitant on Dec 17 (AAM), and three were at feeders at Coldbrook Dec 28-Jan 2 (SMM, AAM). However, the latter were not present during or after the heavy snowstorm Jan 6-7. BLF found a Vesper Sparrow with a flock of Song Sparrows on Saxon St on Dec 24 and it was still there (but alone) Jan 1. White-throated Sparrows were

common at a few select feeders in Wolfville and New Minas. Only two Red-winged Blackbirds were found on the WCBC, but in Virginia, Annapolis County, 15 were noted mixed with Brown-headed Cowbirds. A single Rusty Blackbird was also located on Dec 17 (WCBC).

Pine Grosbeaks were noted at Virginia and at Waldec, near Bear River (GIP). Purple Finches and Pine Siskins returned to many feeders around the end of December (e.g., Coldbrook (AAM), Tremont (Sheila Hulford)), and this was also noted in other parts of the mainland. The only House Finch reported was at Hantsport on Jan 5 (MAF). (Are they really that scarce?)

A small flock of White-winged Crossbills was at Coldbrook Jan 1, and a group was reported at Canaan around the same time (MAG, Ian Paterson). No Red Crossbills or redpolls were reported. Evening Grosbeaks were noted near Lawrencetown Dec 31 (David Colville, John Rubin) and Hantsport in late December (MAF), but Matt Holder reports a flock has been around his North Alton feeders since early November. Other small flocks were in the Bear River area in late December (GIP).

Observers:

AAM	Angus MacLean
BBT	Bill & Brenda Thexton
BLF	Bernard Forsythe
GIP	Ginny Proulx
GWT	Gordon Tufts
JCT	Judy Tufts
JET	Jean Timpa
JWW	Jim Wolford
MAG	Merritt Gibson
MAF	Marian Fulton
PBG	Pat & Barb Giffin
RBS	Richard Stern
SMM	Stella MacLean
WCBC	Wolfville Christmas Bird Count



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Autumn Weather – Annapolis Valley – 2000

by Larry Bogan

	Mean temperature (deg.C)	Rainfall (mm)	Bright sunshine (h)
September (39 yr. average)	14.2 (14.5)	69 (94)	198 (162)
October (39 yr. average)	9.6 (9.1)	201 (103)	153 (138)
November (39 yr. average)	4.3 (3.9)	99 (117)	38 (83)
Season (39 yr. average)	9.4 (9.1)	369 (314)	389 (383)

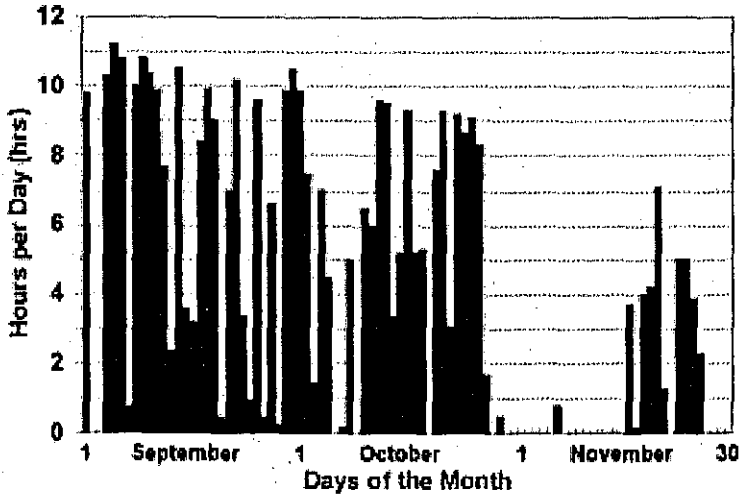
Kentville, NS. Agriculture Centre

The autumn of 2000 started very pleasantly with a dry and sunny September. Both of those climatic variables differed from the 39-year averages by about 25 per cent. The weather changed in October, when the rains come down heavily and provided twice the usual rainfall for this month. At the end of October the rains were accompanied by an unusually cloudy period that lasted for 19 days into the middle of November. For more than 35 days (Oct 9–Nov 15), the mean daily temperature remained nearly constant at about 8° C. Although the first frost of the season occurred on September 29, and there were four more frosts in mid-October, no heavy freeze occurred until after November 19. The temperature quickly dropped for a week and 13 cm of snow fell in that period.

I have provided graphs of daily temperatures and bright sunshine hours to show the dramatic nature of this period in October and November.

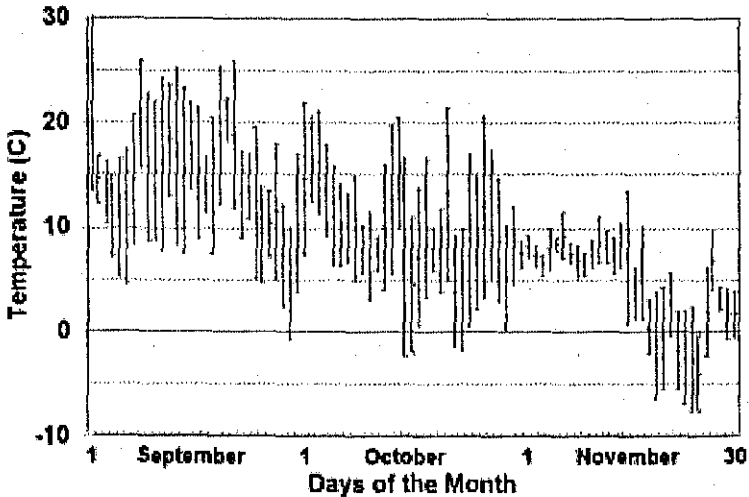
Overall the mean temperature of the period was only slightly warmer

Bright Sunshine - Sept, Oct, Nov, 2000
Kentville, Nova Scotia



Kentville, NS. Agriculture Centre

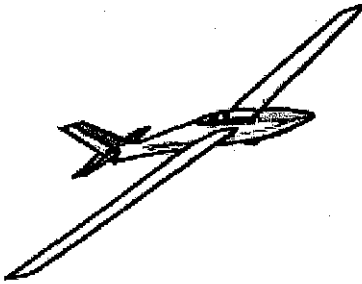
Temperature - Sept, Oct, Nov, 2000
Kentville, Nova Scotia



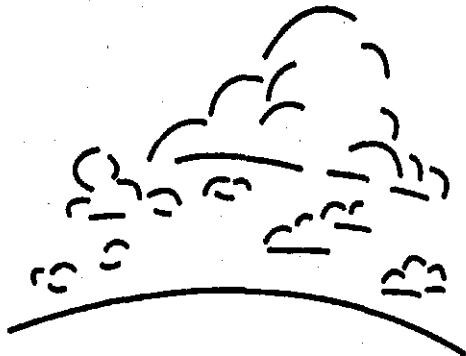
Kentville, NS. Agriculture Centre

than average. The result of October's high precipitation was a 15 per cent increase in rainfall for the reporting period. Despite the long cloudy period at the end of the period, the overall bright-sunshine hours were average. The sunny months of September and October compensate for the fact that "dark" November had only 38 bright-sunshine hours.

Mean daily wind speeds are recorded at Kentville. We had two days of excessive winds, the first on October 11, the second on November 15. The first I remember distinctly because the same winds over the Green Mountains in Vermont were lifting me in my sailplane to heights that I had never been before. The second caused damage in the area and both occurred when low pressure areas entered the Maritimes carrying heavy rains with them.



If anyone likes to look into the weather records, I have put most of the monthly records on the BNS web page. Look for the nature reports page, then select Weather Records at the bottom of that page.



What's in the Sky?

by Roy Bishop

New Moon: January 24, February 23, March 24, April 23

Full Moon: January 9, February 8, March 9, April 8

The brightest planet

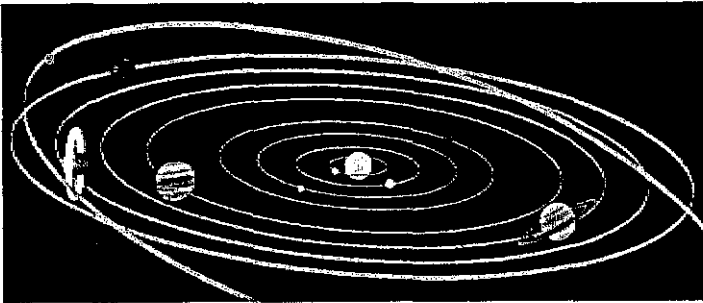
Venus is a brilliant beacon high in the southwestern evening twilight throughout the winter. The orbital periods of Earth and Venus are such that every eight years Venus is similarly well-placed in the winter sky: 1993, 2001, 2009, etc. Venus is now approaching Earth and will pass between us and the Sun on March 30. Venus will be close enough to Earth by early March to appear as a tiny crescent when viewed in a pair of binoculars. Try this. It is a delightful sight!

On each successive night in March, Venus drops lower in the western twilight and disappears into the solar glare during the first week of spring. After passing between us and the Sun, it reappears in the morning sky in April; however, Venus will then be low in the morning twilight and not as easy to see. The giant planets Jupiter and Saturn are high in the winter evening sky, not far from the two naked-eye star clusters, the Pleiades and the Hyades. Jupiter, further to the east, is considerably brighter than Saturn. Both are showpieces in a telescope. Binoculars will show the four Galilean satellites of Jupiter (although all four may not be visible on a particular night). If your binoculars have excellent optics, Saturn may appear egg-shaped; however, a telescope is needed for a good view of Saturn's rings. Although Jupiter and Saturn are high in the January evening sky, as spring approaches they move progressively lower in the west and are swallowed up by the evening twilight glow in late April. This changing geometry is caused both by Earth's faster motion around the Sun, and by the rapid shift in the time of sunset during March and April.

Vernal equinox

Yes, spring is coming! The days began to lengthen on December 22 and spring officially arrives Tuesday, March 20, at 9:31 AM (AST). At that moment, Earth's equatorial plane passes south of the centre of the Sun

and the Sun stands above the equator. The half of Earth illuminated by sunlight then extends from pole to pole, and all localities on Earth (except the poles) experience nights of the same duration (hence equal nights or "equinox"). The same geometry occurs in September at the autumn equinox, and the daily input of sunlight to Nova Scotia is the same as in March. Yet the third week of March is a colder time of year than the third week of September. In September the air, water, and land are still warm from the previous summer, whereas in March everything is still cold from the previous winter, hence the difference. Similarly, the coldest part of the winter (late January) and the warmest part of the summer (late July) occur about a month after the respective solstices.



High tides

Extra high tides occur on February 9 and 10, and March 10 and 11 (see the BNS Calendar). In both instances the tides occur near full Moon, causing the smaller solar tide to be in step with the lunar tide. That is, the tides will be "spring" tides. Also, the Moon will be near perigee, the closest point in its elliptical orbit to Earth. When perigee occurs near full or new Moon, the perigee distance is particularly small. Thus the lunar tide on these dates will be particularly large. Such tides are known as "perigean" spring tides. A similar tide occurred on January 11, and flooded the deck of the wharf at the foot of William Street in Hantsport. Fortunately, there was no wind on that day, and the barometric pressure was moderate. If strong south winds and low barometric pressure accompany the perigean spring tides of February or March, considerable flooding may occur along the Minas Basin shoreline.

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Sources of local natural history

(compiled by Blomidon Naturalists Society)

<u>Information</u>	<u>Source</u>	<u>Office</u>	<u>Home</u>
Rocks & Fossils	Geology Dept., Acadia University	542-2201	
Fish	NS Dept. of Natural Resources	679-6091	
Flora: General	Ruth Newell	585-1355	542-2095
Fungi	Darryl Grund	585-1252	542-9214
	Nancy Nickerson	679-5333	542-9332
Lichens	Karen Casselman	424-7370	633-2837
Seaweeds	Darryl Grund	585-1252	542-9214
Mosses & Ferns	John Pickwell		681-8281
Birds: General	Bernard Forsythe		542-2427
	Richard Stern	678-4742	678-1975
	Gordon & Judy Tufts		542-7800
	Jim Wolford	585-1684	542-7650
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