

Blomidon Naturalists Society
Spring 2002 – Volume 29 Number 1

Blomidon Naturalists Society

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

(from the BNS constitution)

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The Blomidon Naturalists Society is a member of the Federation of Nova Scotia Naturalists, the Nova Scotia Trails Federation, and the Brier Island Ocean Study (BIOS). The society is an affiliated member of the Canadian Nature Federation.

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

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Contributions to the BNS newsletter are always welcome. Members are encouraged to share unusual or pleasurable nature stories through the pages of the BNS newsletter. If you have a particular area of interest, relevant articles and stories are always welcome. Send them to Mike McCall by mail, RR 3, Centreville, NS B0P 1J0; by e-mail, <mikemccall@ns.sympatico.ca>; or by fax, 902 678-1812.

Upcoming newsletter deadlines

Spring, March 24; Summer, June 23

Fall, September 29; Winter, January 5, 2003

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Editor's Notes

True spring seemed to be within our grasp until March 21, the first full day of spring, when a cruel joke was played in the form of 10 to 15 cm of snow followed by high winds and a lot of flurry activity that continues until today, March 23, making it seem like a long, long winter. On the one hand this might be termed bad news; on the other, migrants such as Tree Swallows, Red-winged Blackbirds, and Grackles were wise enough to slow their migration, sparing us the sight of these early harbingers flailing about trying desperately to remain alive. However, six Common Redpolls were at my feeder today after an absence of some weeks, and I like to think that the continuing cold weather and snow encouraged these dainty and attractive fellows to grace this part of Kings County a bit longer. Lest we carry away an impression of a long, hard winter, our ace observer of these matters, Larry Bogan, puts things in perspective, showing us that we had warmer temperatures and less snowfall than the 40-year average.

We continue our series on non-native species, specifically the unintended and frequently adverse effects of the introduction, by well-meaning people, of birds such as the European Starling and the House Sparrow. This is particularly timely given current initiatives to introduce wild turkeys to Nova Scotia. We do have a small population, but these birds live in a very restricted area. The effect of the introduction of more of these birds is not known, and if experience is any teacher [it is] our heirs might well curse us if this introduction is allowed.

Fame (slight) and fortune (small) still await a volunteer for the Valley Birds column. Perhaps the highly amateur compilation in this issue of the BNS Newsletter by your editor will encourage one of you to offer to seize on the opportunity to make your own mark on this publication. Contributions of interest to naturalists are always welcome, as are suggestions for articles.

Illustrations in this issue are by Twila Robar-DeCoste (cover, pages 9, 21) and Mary Pratt (pages 8, 13, 14, 15, 24, 27).

Mike McCall

Looking for Charlie Patriquin's Birds

I am looking for any information on what birds Charlie Patriquin recorded from the Bay of Fundy, specifically any reference to his trip to Isle Haute in the mid-1920s. This information will help update the site file information for the island. Merritt Gibson mentioned that the data exist somewhere (many thanks, Merritt), but we have not been able to track them down.

Does anyone know where the records might be? If you do, please contact me at the Nova Scotia Museum of Natural History by phone (902 424-7370), fax (902 424-0560), or e-mail <hebdaaj@gov.ns.ca>.

Andrew Hebda
Curator of Zoology, NSMNH

Chuckle

Two vultures board a commercial airplane, each carrying two dead raccoons.

“Sorry, gentlemen,” says the flight attendant, “the rules specify only one carrion per passenger.”

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Blomidon Naturalists Society

Spring 2002

Meetings

Unless otherwise noted, all meetings are held at 7:30 p.m. in the Beveridge Arts Centre, Room 244, Acadia University. The arts centre is across Main Street from the Atlantic Theatre Festival parking lot, just west of downtown Wolfville.

March 18, 2002 – Phil Taylor: **Conservation Challenges in West Africa's Mt. Peko National Park, Ivory Coast.**

April 15, 2002 – Graham Daborn: **Tides of Change in Fundy Research.** Graham is the director of Acadia University's Estuarine Research Centre.

May 20, 2002 – Martine Dufresne and Anne Mills: **Wolverines, Woolly Louseworts, and Caribou – A Trip to Bathurst Inlet, Nunavut.** Martine and Anne will present a slide show on their two-week July trip to Bathurst Inlet in the central Arctic. Enjoy the beautiful rugged scenery, stunning flora, fauna, native history, and geology of an arctic oasis.

June 17, 2002 – Sabrina Taylor: **Humboldt Penguins: Diving Behaviour and Male Nest Intruders.** Sabrina is coordinator of the Nova Scotia Herpetological Atlas Project.

Field Trips

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

Sunday, April 28, 2002 – Pond Hopping for Ducks and Early Migrants. Leader: Jim Wolford (542-7650). Meet at RTNC at 10 a.m. This will be a joint field trip with the Nova Scotia Bird Society. Bring a lunch, optical devices, books, boots, etc.

Saturday, May 25, 2002 – Parks Are For People walk in Blomidon Provincial Park. Leader: Jim Wolford (542-7650). Meet at RTNC at 9:15 a.m. or at the lower park gate at 10 a.m. We will walk from the campground area 2 km to the temporary pond that has the very rare and beautiful Fairy Shrimps, etc., and to the lookoff toward Five Islands Park.

Other Activities For Naturalists

May 31 to June 2, 2002 – Federation of Nova Scotia Naturalists Annual General Meeting and Conference will feature talks on natural history, opportunities to meet members of various clubs, access to FNSN board members, etc. Hosted by the Nova Scotia Bird Society at Mount Saint Vincent University in Halifax. Watch for details in club newsletters or various websites. See, for example, the federation website: <www.chebucto.ns.ca/Environment/FNSN>.

The Cup Is Full: Invasive Birds

by Merritt Gibson

On September 18, 1941, I was waiting at the railway station in Wolfville for the afternoon Yarmouth to Halifax train, which carried both passengers and mail. My father needed a copy of the *Telegraph Journal* from Saint John, and I was sent to get one. The timetable claimed the train would arrive at 3:22 p.m. Sometimes it did.

While waiting I saw a flock of six small, dark birds with pointed wings fly past. I had not seen these birds before and could not identify them. Dr. Gordon Warren was also waiting for the train. He was a recognized authority on birds and, when not birding, he doubled as Dean of Theology at Acadia. He was aware of my interest in birds and, recognizing my problem, suggested they might be European Starlings. He told me they were now spreading through the Maritime Provinces.

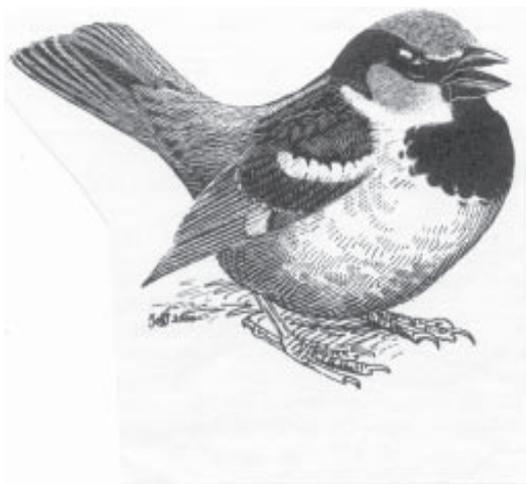
In 1890 and 1891, 100 starlings were imported from Europe and released in New York's Central Park. They were imported by Eugene Schieffelin, a New York drug manufacturer, and the American Acclimatization Society. They planned to bring to North America all birds mentioned in Shakespeare's writings; they imported skylarks, chaffinches, nightingales, starlings, etc. Starlings are mentioned by Shakespeare in Henry IV.



All these imports perished except starlings, which flourished “like the weeds of the air.” Today, from those 100 birds, there are well in excess of 200,000,000 starlings across North America.

The first starling in Nova Scotia was recorded at Dartmouth in 1915, the first in Kings County on the dykes at Wolfville in 1925. The Christmas Bird Counts (CBCs) for the Wolfville area tell the local story – a story that belongs in the believe-it-or-not category. They were not recorded on the CBCs during the 1930s, but were during the 1940s and 1950s when small flocks of 8 to 10 birds were seen. Imagine, having to hunt for starlings!

The CBC recorded 438 in 1965, 1,242 in 1975, 5,058 in 1985, and then the explosion occurred: 20,080 starlings were counted in 1989. During the past decade the counts have been in the 20,000 to 30,000 range.



The House Sparrow is another introduced species now present in large numbers, although not as numerous as the starling. It was introduced into Brooklyn, N.Y., about 1850 and proved to be “a vigorous colonizer.” Within 50 years it had spread across North America. A.D.R. Eaton, a Canard farmer, brought the House Sparrow to Kings County in 1878. He obtained these birds in Cambridge, Mass., and introduced them here in the hope they would proliferate and help control the insects that were damaging crops. They did proliferate and soon became “abundant,” but

they deserted the croplands and took up residence about towns and farm buildings.

Again, the CBCs tell the story, although it's not as dramatic as that of the starling: 100 (1945), 433 (1955), 729 (1965), 1,658 (1975), and 2,082 (1985). The population declined in the early 1990s, but is now recovering.

Many bird populations have expanded into Nova Scotia during the past few decades. While Evening Grosbeaks occasionally visited during the early 1900s, they did not become regular visitors in numbers until the 1940s. Cowbirds arrived in numbers in the 1950s. More recently, mockingbirds, cardinals, and House Finches have arrived and apparently are nesting. However, these arrivals in small numbers are the result of a gradual expansion of their natural range that is subject to natural controls.

Bird introductions by humans are different; the species arrive outside the natural mechanisms for control. Most do not survive, but the few that do survive create havoc among resident populations. Starlings feed on field insects and would be of great value to the farmer, except that there are too many of them and their numbers are still increasing. The mess, noise, and their habit of feasting on livestock food quickly replace any appreciation the farmer might otherwise have for them. In winter, 10,000 starlings descending on a field of multiflora rose completely eliminates the winter's food supply for robins, waxwings, and other fruit-eating birds. Starlings claim large tree cavities and holes in buildings for nest sites, and thus exclude woodpeckers, nuthatches, chickadees, and other native species that nest in cavities. The starling invasion has caused declines in numbers of native birds.

The story of the House Sparrow is the same. Apart from the nuisance factor when present in numbers about farms and towns, these sparrows are destructive to native birds. Fifty years ago a bird list prepared during a walk along the Wolfville Ridge or the Southern Upland included high counts of Cliff Swallows. It was then not uncommon to see eight to ten Cliff Swallow nests under the eaves of barns and other farm buildings. As House Sparrows increased in numbers they attacked these nests. Perhaps they wanted the nests for their own use. More likely, since they

pecked large holes through the sides of these mud structures, they wanted to destroy the young swallows, and they eliminated whole populations of Cliff Swallows. Today, seeing the once-common Cliff Swallow in the eastern Valley would be most unusual.

House Sparrows treat Tree Swallows in the same way. They sit at a Tree Swallow nest box and, when a young swallow looks out the hole, the sparrow grabs it and flings it to the ground. One sparrow can destroy an entire swallow clutch in a few minutes. Fortunately, about 80 percent of our Tree Swallows nest in swampy woodland areas where there are no sparrows, only 20 percent in nest boxes. Thus, the overall population can survive sparrow destruction, but those nesting in your garden may not be so lucky.

Human-assisted bird introductions, fortunately, are not often successful. When they are, it is at the expense of resident species. In the Annapolis Valley we enjoy a large diversity of bird habitats that are *already* occupied by native birds. When we introduce a foreign species, it must compete with native species for food and nesting sites. One wins, one loses, both do not survive. Mark Elderkin, a noted BNS birder, describes the situation more succinctly: “The cup is full.”



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—BNS FIELD TRIP REPORT—

**Winter Waterbirds of Annapolis, Digby,
and Port George/Margaretsville**
by Jim Wolford

March 3, 2002 – Yesterday’s weather would have been perfect, but today’s was grossly imperfect: gale-force southeast winds and steady to light rain all day. Visibility, however, was fair, and temperatures were in the +5°C range.

I may rethink my principles of “go in any weather” and “no storm-date.” I would have had to go in any case, since a couple from Bridgetown intended to join us en route. Also, one foolhardy participant was waiting for me at the Nature Centre when I arrived: Liz Bonnar, who is visiting here from Calgary, is a seasoned birdwatcher with no shortage of gumption!

First, I showed the new nest-location on Chipman House for the Acadia University Red-tailed Hawks, and near the Bald Eagle nest at Greenwich we saw an adult eagle in flight. Along Highway 101 we saw two interacting adult Bald Eagles, and later a single perched Red-tailed Hawk.

Nobody joined us at Bridgetown or at Annapolis (no surprise). There were almost no interesting birds at the Annapolis causeway, just two separate female Red-breasted Mergansers. And I forgot to check the Annapolis wharf area.

Similarly, Digby town harbour and wharf had very few visible birds in the water, although several gulls and pigeons were flying about apparently revelling in the strong winds. We saw a couple of Red-breasted Mergansers, two Common Loons, two Red-necked Grebes, a single probable female Long-tailed Duck (Oldsquaw), and a seal being harassed by several hovering gulls.

It was a bit better near the ferry terminal but still very poor compared with what should, or could, have been visible. (Where were they?) Several Red-breasted Mergansers and Red-necked Grebes, three Common Goldeneyes (two males were courting and competing for the female), a lone male

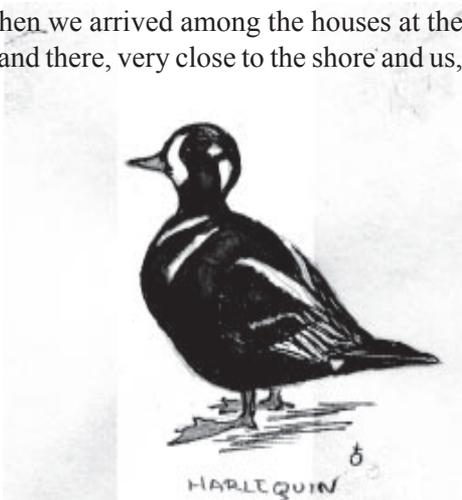
Common Eider (weird), and an adult probable Bonaparte's Gull (not quite seen well enough to eliminate Black-headed Gull as a possibility).

We were very happy to take refuge in Digby's Irving Little Stop (not a Big Stop, I'm told) for some seafood chowder and a chance to dry out in the warmth.

I mentioned to Liz that I wanted to see the curling final on TV, but added (lied) that I was kidding, and we jointly decided to finish the trip's battle plan on our way home. So we headed through Mt. Hanley to Port George, and, hoping for Harlequin Ducks (which had been sighted several times there in the past few weeks), we spent quite a while scanning and 'scoping from several good vantage points at high tide.

Despite still-strong winds (at our backs) and very choppy seas and occasional, rather than steady, rain, we immediately noticed quite a few birds that were difficult to see well and identify. Our persistence paid off, and the majority of the birds were scoters of all three species: about 20+ White-winged, 10 Surf, and 2+ Black. There were also five Common Loons, ten Red-necked Grebes, five Horned Grebes (seen well and close to shore), 10+ Long-tailed Ducks (Oldsquaws – sorry, I still like the former name), no guillemots or other alcids, no Eiders, no Goldeneyes, and no Purple Sandpipers – but earlier today Brenda and Bill Thexton and Jean Timpa saw 30 Purple Sandpipers flying along the same coast.

We were just about to give up when we arrived among the houses at the west end of Port George village, and there, very close to the shore and us, was a lovely pair of Harlequin Ducks (lord and lady). We watched them for perhaps 20 minutes alternately diving together and then preening and showing their colours. We could also see a group of eight more Harlequins a bit further away; they drifted toward us and eventually joined our pair. The ten Harlequins consisted of four adult males, two



immature males (nearly yearlings?), and four females. We did see some interactions (charges) among them, from both females and males.

This eminently satisfactory conclusion was well worth the discomfort of getting there.

We didn't do any viewing at Margaretsville, and our final sighting was of a single deer in a back yard south of Margaretsville. Later, I heard that Jean Timpa and the Thextons saw the same deer earlier in the day; it turned out to be a wooden cut-out!





**22nd Annual Cyril K. Coldwell
Eagles/Raptors Count
by Jim Wolford**

February 9, 2002 – Today was less than ideal, since a strong northwest wind probably had many raptors assuming a very low profile; perhaps some even remained in their night-time roosts. Visibility, on the other hand, was near perfect, with bright sunshine and clear skies. The temperature without wind-chill was about -10°C .

Our modus operandi was as always: 16 field parties of observers (biologists, naturalists, students) fanned out to designated areas for only one hour, 10 to 11 a.m., to minimize double counting. The area covered is from Scots Bay to Kingsport to Avonport to Black River/White Rock to Kentville to Centreville/Sheffield Mills/Woodside – basically a similar area to our Wolfville Christmas Bird Count circle, which centres on Greenwich.

Here are the totals reported by the 16 groups:

Bald Eagles: 333 total: 221 adults, 109 immatures, 3 not aged (of 330 age-categorized eagles, 67% were adults, 33% immatures); Red-tailed Hawks: 57; Rough-legged Hawk: 1 (light phase); Sharp-shinned Hawk: 1; Peregrine Falcon: 1 adult seen just *before* the count began; Other items reported: 1 unidentified hawk (Red-tail?), 2+6 Common Mergansers, 20+10 Horned Larks, 100 Bohemian Waxwings.

No other highlights were related by the observers, except that several thought the strong northwest wind prevented sighting of many birds. We know that there are many more Red-tailed Hawks around, at least four Rough-legged Hawks, at least two adult Peregrine Falcons, plus more Sharp-shinned Hawks and Merlins, too. The largest numbers of eagles today were seen northwest of Port Williams (62), Grand Pre to Avonport (72), east & northeast of Canning (60), and in the Sheffield Mills area (90).

The numbers of Bald Eagles counted in the past 5 counts were 525 (1997), 395, 483, 580, and 387 (2001). I don't have the numbers for Red-tailed Hawks with me at the moment; last year's (2001) count was 94, and this was felt to be low because of the gray-day weather (poor visibility); I believe our highest counts for Red-tails are about 140 or even higher, but I'll have to research that; suffice it to say that this year's 57 is a ridiculously low estimate of how many are around. Eastern King's County is a concentration area in winter for the Red-tails, just as for the eagles.

Finally, at our post-count gathering, Bernard Forsythe related the following. He is used to seeing at least a few Common Mergansers at Lumsden reservoir, but on this occasion he saw a Bald Eagle make what he thought was a hunting pass at the ducks, but the bird apparently missed by a metre or so and ended up in the water! After a while it became obvious that the eagle had not missed at all, but had something sizable and struggling in its talons. Eagles in such situations are known to use their wings as oars to row their way laboriously to shore. When it got there, it was apparent that it had caught a nice big American Eel, one of the eagles' favourite winter snacks. When we watch eagles taking carrion and handouts of carrion, we tend to forget that they are very capable fishers year-round.

Geology, Wells, and Water Supplies

by Terry W. Hennigar

Climatic conditions in the Annapolis-Cornwallis Valley over the past five years have featured unusually dry, warm summers. Two of the consequences of this water shortage have been crop stresses during the growing seasons and failures of water supplies that were not constructed, or located, with adequate consideration of the hydrogeological site conditions.

Table 1 shows the precipitation during the growing season of 2001 as recorded at the Agricultural Research Centre in Kentville. These data show above-average water available at the beginning of the growing season and significant shortfalls of moisture during the later period, when plants are in need of sustained water supplies. The moisture stored in the soil profile (the upper 1–2 m of the subsurface) available to plants is depleted to the permanent wilting point. During this time other shallow sources of water also go into sharp declines – small headwater streams cease to flow, water levels in most ponds drop, and ephemeral spring discharges decrease.

Table 1: Summary of Precipitation Data from Kentville Agriculture Research Centre (2001)

Month	Precipitation	Long-term average	Variation	
	(mm)	(mm)	(mm)	(%)
May	137.7	77.4	+60.3	+78
June	80.4	67.2	+13.2	+20
July	27.0	70.1	-43.1	-62
August	11.5	90.8	-79.3	-87
September	77.4	93.4	-16.0	-17

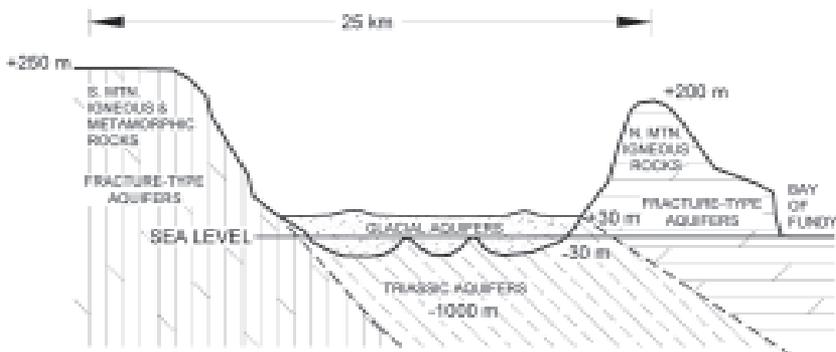
Water supplies in the Valley are almost entirely drawn from groundwater sources. The reservoir of groundwater under the Valley floor is large and extensive. Although the individual aquifers have not been mapped, hydrogeologists know that aquifer systems extend from the Minas Basin all the way to the Annapolis Basin, and probably beyond.

There are two basic hydrogeological features underlying the Valley floor that host extensive and very productive aquifers. The younger host is referred to as Quaternary deposits left from the glacial activities of 2 million to 10,000 years ago. The older host includes Triassic sediments that are approximately 200 million years old. Aquifers underlying the South and North Mountains are much less productive, but still very important as water supplies for domestic, small farm, and commercial purposes.

A conceptual cross section is presented in figure 1 to portray in very general terms the configuration and distribution of the major aquifer systems in the Valley area. A general description of the main geologic characteristics is also included in the notes of figure 1. Very little statistical information is currently available on sustainable aquifer yields because the sizes and recharge rates of these subsurface sources of water are not known.

Figure 1:

**CONCEPTUAL HYDROGEOLOGICAL
CROSS SECTION OF VALLEY AQUIFERS**



NOTES:

1. SOUTH MOUNTAIN AQUIFERS ARE FRACTURE SYSTEMS IN A HOST OF DIFFERENT IGNEOUS AND METAMORPHIC ROCKS INCLUDING SLATES, QUARTZITES, SCHISTS, AND GRANITES.
2. NORTH MOUNTAIN AQUIFERS ARE FRACTURE SYSTEMS IN IGNEOUS (BASALT) ROCKS, THE YOUNGEST IGNEOUS ROCKS IN NOVA SCOTIA.
3. TRIASSIC AQUIFERS ARE MOSTLY SANDSTONE UNITS IN THE WOLFVILLE AND BLOMINGTON FORMATIONS.
4. GLACIAL AQUIFERS INCLUDE SAND AND GRAVEL DEPOSITS AT VARIOUS DEPTHS UNDER THE VALLEY FLOOR.
5. ELEVATIONS SHOWN IN METRES WITH RESPECT TO SEA LEVEL.
6. WIDTH OF VALLEY WATERSHED VARIES FROM APPROX. 20 TO 30 KM.

We do know, however, that the aquifer system under the Valley floor offers

some protection to water supplies from short-term, and maybe longer, droughts. Groundwater studies carried out in the 1960s through 1980s show that water levels in monitoring wells varied annually as much as 3 m from natural seasonal effects. This fluctuation in water level is a small percentage of the saturated thickness of the aquifers, which may be as much as several hundreds of metres.

By far the most productive wells in the Valley are constructed in the Quaternary sand and gravel deposits, which are over 70 m deep in places. Properly located and constructed wells in the Quaternary deposits can be expected to yield up to 5,000 litres per minute (L/min) or more. Wells constructed in Triassic sediments may yield up to 1,000 L/min or more. Wells constructed in bedrock aquifers on the North and South Mountains can be expected to yield approximately 10 L/min.

One very interesting aspect of valley aquifers, from a hydrogeological and sustainable water supply perspective, is that nearly all drilled wells are pumping fresh water from below sea level. This fact underscores the need to manage our water resources in a wise and prudent manner to prevent salt water intrusion. In addition, we also have to protect the aquifers from surface sources of contamination. We are indeed between the devil and the deep blue sea, and should be taking our stewardship responsibilities for these valuable water resources very seriously.



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Backyard Barred Owls

by Bernard Forsythe

December 31, 2001, 7:00 p.m. – My flashlight beam illuminated the Barred Owl standing on a platform 20 feet up in a maple tree in our backyard on Wolfville Ridge. It had taken possession of a road-killed crow I had placed on the platform at dusk. An owl to end my birding year.

January 1, 2002, 6:30 a.m. – Having finished off its free meal overnight, the owl was resting on the platform giving me a Barred Owl for my first bird of the new year. My association with this owl and its mate began more than 20 years ago. Both parties benefit: the owls have a supplementary food source during the winter plus a nearby nestbox to safely raise their young, and I get to follow the life cycle of a family of owls in our backyard. Let's go back to when it all began.

November 13, 1977 – Using a rope, I pulled a nestbox up into a tree in a mature stand of hemlock and spruce on Wolfville Ridge. A pair of Barred Owls had been living in these woods, but nesting cavities were scarce. Several years passed before they accepted my nestbox.

May 1981 – The male was captured, banded, and released. The owls continued to use the nestbox until 1991. Now I wondered if it would be possible to move this pair 1 km to our yard. I asked Cyril Coldwell if owls would feed on carrion. Placing several frozen small mammals in my hand, he said, "There is one way to find out, Forsythe – go for it."

Fall 1991 – The nestbox was removed and put up behind my house and a feeding platform was constructed in a nearby tree.

January 17, 1992 – A Barred Owl hooted in our backyard.

January 22, 1992 – Owl feather fluff was spotted on the nestbox entrance, plus a dead mammal I had placed inside was missing.

January 23, 1992, overnight – Two mammals were taken from the platform.

March 24, 1992 – The first Barred Owl egg was laid in my back-yard nestbox. The nest has been used each year since. Soon after the young owls fledge, feeding is stopped. It is necessary for the young to learn to hunt for themselves. When I stop feeding them, the adults take their family back to the woodlot where I first put up the nestbox. The young are chased from the territory in the fall, and in November the adults are back at the feeder.

March 11, 2001 – The male's leg bands were seen: standard aluminum band on the right leg; yellow plastic band on the right. Banded as a breeding adult, he is now at least 17 years old, but probably older.

The foregoing is a brief summary of the many notes recorded on this pair of owls. Several interesting incidents have occurred with my yard owls over the years – such as the time a raccoon spent three days half way up a spruce tree beside our doghouse. The dog would not allow it to climb down. When the raccoon tried to climb higher the owls would attack from above.



These owls have become tolerant of people up to a point. Some of our many visitors have had their first real views of Barred Owls and learned a bit about how they live. People near the adults are usually ignored, the exception being when I climb up to check the nestbox. A helmet and thick coat are required, as I will instantly be attacked by both parents.

In exchange for a little food and a nestbox they have given me a great deal of pleasure over the years. Lying in bed on a winter or spring night listening to their courting songs is a perfect thank-you for a little effort on my part.

A Martock Ski

by Roy Bishop

A popular winter sport in our area is downhill skiing at Martock. I expect that non-skiers do not realize that the Martock chairlift provides seven minutes of quiet aerial contemplation as it carries one to the top of the hill. It is a moment to just observe and think. While being carried to the top of the hill I've seen the planet Venus glinting in the azure daytime sky, Red-tailed Hawks gliding above the treetops, an occasional skier wiping out in a puff of snow and flying skis, and groundhogs ambling through the forest below. While being carried skyward one day a few weeks ago I reflected on the physics of the experience.



In essence, some of the energy released from burning coal in Nova Scotia Power's electrical power plants is used to lift me to the top of the hill. Energy stored in the coal is transformed into the gravitational potential energy associated with me standing on top of the hill. During the next minute or two as I ski down the hill the gravitational energy is transformed into heat – heat in my skis, in the snow that I slide across, and in the air that I stir up as I zip down the hill.

The energy in the coal was stored there perhaps 300 million years ago as sunlight shone on the fronds of fern-like trees in some carboniferous forest. Humans, and even dinosaurs, were then in the remote future. Now, 300 million years later on a sunny winter morning at Martock, the energy of that ancient sunlight was finally being released back into the environment as I heated the snow and air during my run down the hill.

A nice qualitative insight, but can I quantify it? As the chairlift carried me up the hill I watched the returning empty chairs pass by me. My wristwatch indicated that a returning empty chair passed by my chair about every five seconds. Thus, a chair arrives at the top of the hill about every ten seconds. Since each chair carries four people (when full), the

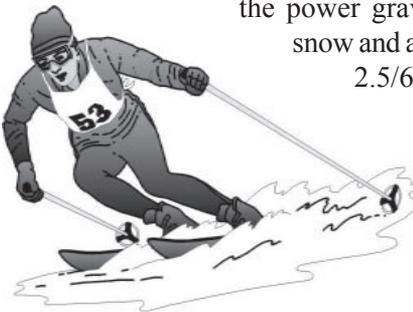
chairlift delivers people at the top of the hill at an average rate of one person every 2.5 seconds.

To calculate the energy involved I needed to know the height of the hill. On my next visit to Martock I had an aircraft altimeter (World War II vintage) hanging from my wrist. It showed that the chairlift rises 177 m (580 ft.).

The energy required to lift a person up the hill is the product of three terms, mgh , where m is mass, g is the acceleration of gravity (9.8 metres per second per second), and h is the height of the hill. Using my mass (75 kg) as a typical mass for an adult person, the power output (energy per second) of the motor driving the chairlift is $mgh/t = 75 \times 9.8 \times 177/2.5 = 52$ kilowatts (kW), or about 70 horsepower. Frictional losses in the cable and wheels of the lift mean that the power needed is probably closer to 80 horsepower. Also, what if a group of football players or wrestlers decides to go skiing at Martock? Individually they could have twice my mass. So the motor should be rated for at least 160 horsepower.

My curiosity aroused, I asked the man in charge of the chairlift: “What is the power rating of the electric motor driving the lift?” He gave me an odd look, so I explained that I would be writing an article about Martock for the BNS Newsletter. He climbed the stairs up to the roaring motor and read its spec plate: 200 horsepower. I thanked him for his trouble, and boarded the chairlift. As it carried me up the hill I relished the feeling that comes whenever I know that I understand an aspect of this world. So much for the power output of the chairlift motor. What about me? At what rate do I heat the snow and air as I ski? I timed my next run down the hill: 60 seconds. Since the chairlift deposits one person on top of the hill every

2.5 seconds and it took me 60 seconds to ski back down, the power gravitation dumps through me into the snow and air during my descent must be $52 \text{ kW} \times 2.5/60 = 2.2 \text{ kW}$, a bit more than an electric toaster. Thus I obtained a quantitative insight into my role of releasing the energy of that 300-million-year-old sunlight back into the outdoor environment.



Winter Birds

by Mike McCall

Three Common Loons were reported at Port George Feb 26. The Fundy coast seems to be covered intermittently at this time of year, but Angus MacLean had a good outing Jan 28. He reports Red-necked Grebes, Common Eider, White-winged Scoter, a Bonaparte's Gull acting more like a tern than a gull, and an unusual (for this time of year) Ring-billed Gull tending a flock of eiders. At Port George were several Harlequin Ducks, Horned Grebes, Common Loons, White-winged and Surf Scoters. At Parker's Cove, mixed White-winged and Surf Scoters, with a few Black Scoters, were seen in the hundreds, stretching out along the coast as far as the scope allowed.

Judy Tufts reported about 40 Mallards on Mar 15 at Port Williams sewage ponds (where Song Sparrows were singing), more Mallards on open water and at the Habitant River near Canning, and Mallards and Black Ducks at Saxon Pond, where three Northern Pintails were about.

A Belted Kingfisher rattled away for Judy but could not be seen. Brenda Thexton reported 35+ Purple Sandpipers at Port George Mar 3 and 10 Common Goldeneyes at Canning aboiteau Mar 6. On St. Patrick's day, 90+ Canada Geese dropped by Canning to mark the event.



There were second-hand reports of two gray Gyrfalcons near Grand Pre. Jim Wolford opines that since there have been so many Peregrine Falcons about, the report has to be checked to be confirmed (*not done by press time – ed.*).

Bernard Forsythe reported a Peregrine perched on a tree near Canard Feb 4. This may have been the same bird seen by Jim Wolford Jan 28. On the same outing Jim spotted a Rough-legged Hawk along Middle Dyke Road. A Sharp-shinned Hawk eyed the Thexton feeder from a short distance on Mar 14.

Two Red-tailed Hawks began nest-building at Chipman House on the Acadia campus in mid-January and were making good progress until early March, when planned roof repairs dictated that the nest be removed. Not daunted, the pair simply moved down the street to their old neighbourhood and began building their nest on the Convocation Hall ledge. As of March 10 it looked more like the makings of a bonfire than a hawk's nest, but presumably the Red-tails knew what they were doing. The saga didn't end there. High winds appeared to blow the nest material off the ledge, but Jean Timpa reported that the pair were busy rebuilding a few days later.

A red tail was about the only normal colour feature noted by Jim Wolford on a nearly white Red-tail near Highway 101 at Hortonville Feb 26. Body and head were nearly "Tide white" (a Jim-ism?) except for the back of the head, which was dark as was the leading edge of the folded left wing.

Watchers enjoyed perfect weather on the first Eagle Weekend, Jan 26, as Bald Eagles occupied trees (looking from a distance like a bunch of plastic garbage bags caught in the branches), flew overhead, and scabbled with crowds of crows and ravens for chicken carcasses. In spite of filthy weather on the second Saturday, which was not fit for man, beast, or bird, the eagles' appetites drove them to their favourite snacking areas. Many baldies, along with an immature Red-tailed Hawk, Great Black-backed Gulls, ravens, and crows were seen at Swetman's corner late in the morning and at mid-afternoon.

On Mar 14 Jim Wolford could see just the top of the head of an adult on the nest in Greenwich, leading him to think that incubation was in

progress. Jim observes that the adults at this nest have been the first of our local nesters each spring to begin sitting on the nest.

Near the Sheffield Mills community hall on Jan 29 Jim Wolford reported 2 Pileated Woodpeckers; one or both were making what sounded like alarm calls (loud single notes). Perched nearby was a Red-tailed Hawk being mobbed by crows. A flicker was frequently seen at a Grand Pre feeder in early February. Sheila Hulford had one drumming not far from her house in February, and I've noted them (perhaps the same one) on my property near Halls Harbour. Quite a few trees in my woodlot testify to Pileated activity. Both Downy Woodpeckers and Northern Flickers were regular visitors to the Thexton's feeder in Wolfville.

Needing a Northern Mockingbird for his winter list, Angus MacLean managed to find five along Church St. and in Kentville Jan 24. Bill and Brenda Thexton had one at their Wolfville feeder Mar 16.

A mixed flock of Cedar and Bohemian Waxwings fed on hawthorn berries in Wolfville Feb 4. 225 Bohemians were at Grand Pre Feb 7, 80 more were reported feeding on crabapples near Bridgetown, and a flock of 50-70 were seen near Halls Harbour on Mar 6, 11, and 15.

A Yellow-breasted Chat was near Lorna Hart's place on Hillcrest Ave. in Wolfville Feb 5.

Bernard Forsythe added a Western Tanager to his life list in early February. It was seen at the LeBlanc's in Lower Sackville.

A Clay-colored Sparrow frequented the De Graaf feeder near Canning in early February (Judy Tufts and Bernard Forsythe) as well as White-crowned Sparrows. The Thexton's feeder hosted White-throated Sparrows all winter. Jim Wolford saw a flock of 11 Pine Grosbeaks foraging on something in a White Ash at Greenwich Jan 28. A day earlier, six were feeding on maple buds at Sheffield Mills; Sheila Hulford sighted ten of them at roadside near Dempsey Corner Feb 21.

And on Jan 20 Richard Stern confirmed the presence of Field and Vesper Sparrows near Grand Pre.

On Jan 28 Angus MacLean saw small (2–5 birds) and large (32–40) flocks of Snow Buntings; this was about the same time that Sheila Hulford reported buntings mixed in with a flock of 50+ American Goldfinches and Common Redpolls. Snow Buntings have not been widely reported this year, although between storms when bare earth was showing along the roadside. I saw a small (15–20) flock of mixed buntings, Lapland Longspurs, and Horned Larks near Halls Harbour, and Brenda Thexton reported a flock of 150 at the Grand Pre harbour dykelands. Sheila also enjoyed the always-welcome Eastern Grosbeaks at her feeder in January and February.

Lana Churchill's back yard in Port Williams gave Bernard Forsythe a life bird – a Hoary Redpoll; for Richard Stern it was his first in Nova Scotia. Meanwhile, Common Redpolls, regular visitors from the north, were in good supply – large flocks in December, as many as 150 in a group – but smaller flocks only were seen late in January.

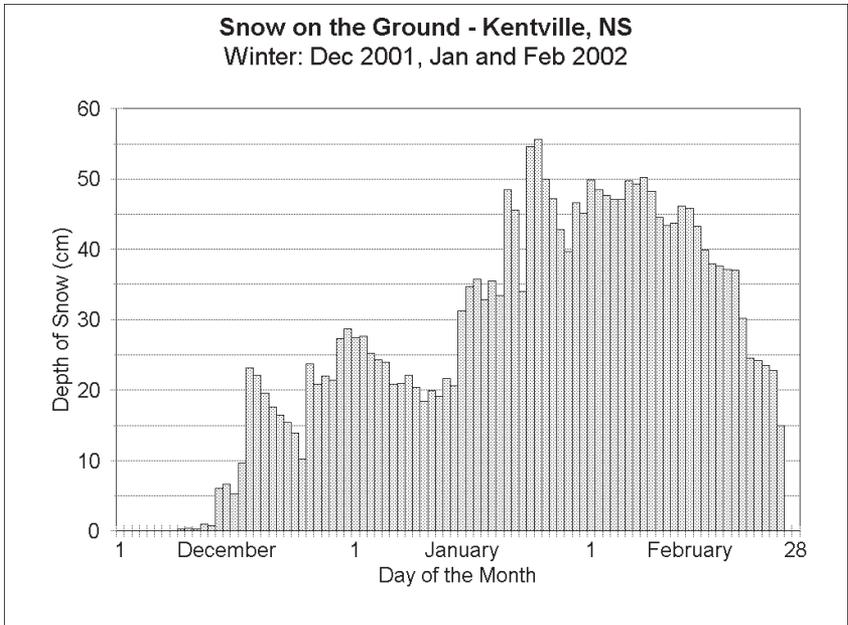
On a less happy note, Jim Wolford has received reports of dead redpolls at New Minas feeders. (A dead Mourning Dove and dead starlings were also found nearby.) Dead Pine Siskins were found near a Port Williams feeder. The prolonged severe cold of this winter would seem to rule out a recurrence of the salmonellosis of two years ago, but it is always possible.



Eastern Annapolis Valley Weather – Winter 2001/02

by Larry Bogan, Cambridge Station, NS

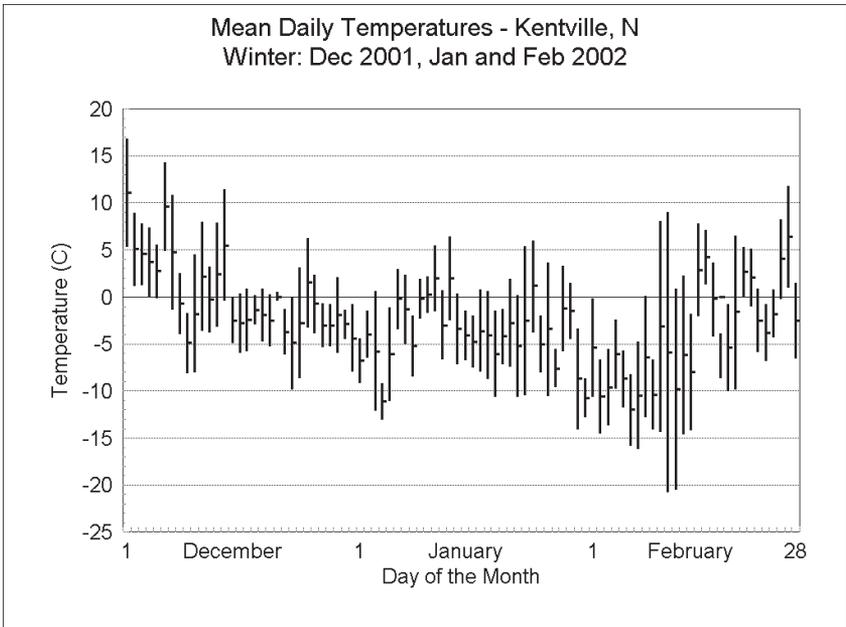
This winter the interplay of temperatures and snow cover were the most interesting aspects of the season. We had a respectable snow cover but it did not stay as long as last winter's because we have had a much warmer season this year.



The statistics in the table on page 30 are for Kentville, Nova Scotia, and if one traveled the province, it was quite obvious that the snowfall varied dramatically in just a few tens of kilometres. Annapolis Royal and Brooklyn, Hants Co., had smaller snowfalls than the eastern Valley. The above chart is a plot of the snow depth over the three months, and it shows the slow buildup of snow cover during late December and all of January. The snow stayed during the cold spell in early February but then disappeared from fields by the end of the month.

The other chart shown here is the daily temperatures (mean, maximum,

minimum). In early December the days were quite warm, but the rest of the month the mean temperature stayed around -3°C , with a few minimum temperatures below -5°C . Actually, this trend continued through to the end of January, with only slightly colder temperatures touching -10°C a half-dozen times. The jet stream was over or near Nova Scotia the whole time, with low pressure systems repeatedly passing through the area. In late January and the first half of February the temperatures dropped to an average closer to -8°C , with a few days getting minimums of -15 to -20°C due to colder, drier air moving over us. The precipitation nearly stopped, but we lost no snow cover. On February 15 the temperature jumped up and averaged around zero after that. Almost all the precipitation in this period was in the form of rain, and the snow quickly melted away in the associated warm winds.

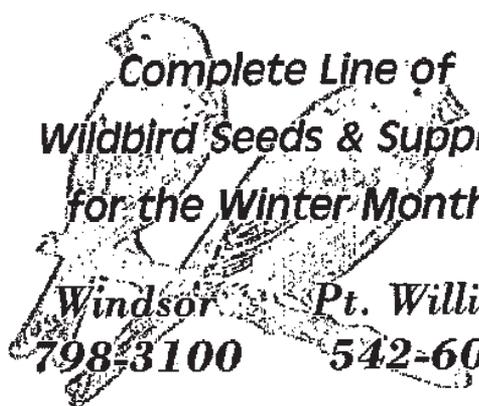


There was no frost in the ground when the snows melted in February because in December when the snow blanket was first laid down on the ground, the temperatures had not yet dropped to the freezing point. The snow blanket got continually thicker and insulated the warm ground from the cold of the later parts of the winter. The snow melt did not flood the land this year because it could penetrate directly into the ground.

	Mean temperature (deg.C)	Snowfall (cm)	Precipitation (mm)	Bright sunshine (h)
December	0.2	58	69	87
(40 yr. average)	(-2.3)	(56)	(129)	(58)
(5 yr. average)	(-1.7)	(39)	(105)	(52)
January	-3.8	85	123	46
(40 yr. average)	(-5.4)	(70)	(121)	(78)
(5 yr. average)	(-5.0)	(63)	(123)	(77)
February	-4.1	25	67	89
(40 yr. average)	(-5.3)	(61)	(100)	(101)
(5 yr. average)	(-4.2)	(40)	(68)	(96)
Season	-2.5	168	259	222
(40 yr. average)	(-4.3)	(187)	(350)	(237)
(5 yr. average)	(-3.6)	(142)	(296)	(225)

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

The overall averages are shown in the table above. I have included the averages for the last five years in addition to the usual 40-year averages. This shows how this year is certainly more like the last few years than the longer period. In general the winters are warmer, drier, and a bit more cloudy now than they were in the past. This winter we had three-quarters



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of the average precipitation over 40 years and enjoyed temperatures that were 1.8°C warmer. Our snowfall this winter was above the five-year average but less than the 40-year average for a winter.

After a marvelous December with lots of sunshine (150% of the average), January was dimly dark, with only 60% of the bright sunshine hours we usually expect. Even February was a bit cloudier than average, but in the end the whole season was about average with respect to sunshine.

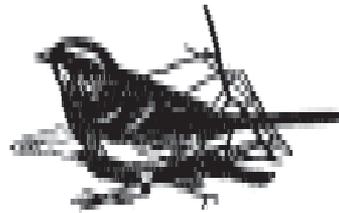
Summary for this winter

- December started very warm, sunny, and pleasant (2.5°C above average for the month), then became snowy with more than an average snowfall but still only half the expected precipitation.
- January was cloudy, with moderate temperatures and above-average snowfall that included little rain.
- February was the coldest and driest month of the winter with mostly rain, which in the last half melted all the accumulated snow of the winter.

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What's In The Sky?

by Roy Bishop

New Moon: April 12, May 12, June 10, July 10

Full Moon: April 27, May 26, June 24, July 24

Summer begins on Friday, June 21 at 10:24 (AST)

A Spring Comet

On February 1, two amateur astronomers, Kaoru Ikeya in Japan and Daqing Zhang in China, discovered a new comet. Comet Ikeya-Zhang became visible to the unaided eye in mid-March and will continue to decorate the night through April, May, and June. Although it is the brightest comet since Comet Hale-Bopp of 1997, Ikeya-Zhang is much smaller and dimmer than Hale-Bopp. It is best seen in binoculars or a telescope. Although it was only faintly visible to the unaided eye in mid-March it was a striking sight in binoculars, having a bright head and a long luminous tail.

During late March and early April the comet is located in the evening sky as darkness falls. It is low in the northwest and moves gradually further northward as the days pass.

By mid-April the comet is in the sky all night. That is, it is a circumpolar object and does not set. From mid-April through May, it is in the northeast and is best seen in the morning sky before the dawn twilight begins. Moonlight will not interfere with viewing during mid-April and mid-May. By the middle of June the comet is again in the evening sky but fading rapidly as it leaves the inner Solar System.

Ikeya-Zhang was closest to the Sun on March 18 and will be closest to Earth (at 40% of the Earth-Sun distance) on April 29. Was the best view of the comet on March 17 (before moonlight began to hide it)? Or will the best view be in mid-April in the morning sky when the comet is nearer to Earth but farther from the Sun? Time will tell.

Comet Ikeya-Zhang may not be new. Its path is similar to that of a comet that passed near the Sun in 1661. If this is the return of the comet of 1661,

it is moving in an elongated elliptical orbit with a period of 341 years.

A Rare Display of Planets

From mid-April to early May a rare grouping of all five naked-eye planets occurs in the western evening sky. Not since 1940 have the bright planets been so closely grouped in the sky.

From the 14th of April to the 18th, the crescent Moon serves as a marker for identifying the planets. The Moon is near bright Venus on the 14th, reddish Mars on the 15th, yellowish Saturn on the 16th, half-way between Saturn and Jupiter on the 17th, and near Jupiter on the 18th. Mercury lies below and to the right of Venus and must be seen in the evening twilight before it sets.

The evening of April 17 is notable because the five planets and the Moon provide a connect-the-dots outline of the ecliptic, our edge-on view of the plane of the solar system. On successive evenings during the last ten days of April, Mercury, Venus, Mars, and Saturn draw ever closer together. During the first 12 days of May, Venus, Mars, and Saturn lie within a binocular field of view, and will be particularly closely grouped on May 5–7. Venus is the brightest of the three, Mars the dimmest.

This waltz of the five planets reaches a climax on May 14, with the planets most closely grouped and the crescent Moon positioned near Venus.

The best time to look at the display of planets on all these evenings is from one hour to an hour and a half after sunset. Mercury will be the most difficult planet to spot, as it is lowest in the sky and sets first. Mercury will be easiest to see from April 22 to May 5. Before April 22, Mercury is very low in the sky, and during early May it fades considerably in brightness.

In the evening twilight on June 1–4, the two bright planets Venus and Jupiter lie near each another. Look low in the west-northwest between 10:00 p.m. and 10:30 p.m.

Blomidon Naturalists Society

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