

Blomidon Naturalists Society Newsletter



Winter 1994 Volume 21, No. 4

NOTES FROM THE EDITOR

by Mark Elderkin

Wolfville, N.S.

The Gaspereau River Watershed (Black River System) holds a wealth of beauty, recreational opportunities and unique natural resources. This issue of the BNS Newsletter (Winter 1994) provides fascinating insight into the history of hydroelectric development on this watershed. Five contributing authors have worked hard in order to bring together both graphic and printed information from disparate sources. Roy Bishop's article is especially poignant, as it was his grandfather, the late R.A. Jodrey, who reshaped the physical character of the watershed at the turn of this century from a primarily forest based industry into the series of lakes, canals and hydroelectric dams which we now know. Sherman Bleakney takes us on a journey back in time, as seen through the eyes of a young

naturalist wandering the shores of Black River Lake in the 1930's and 1940's in good company with Merritt Gibson. Articles in the next issue will focus more on describing biological features of the system and will discuss conservation measures underway to help ensure the long-term maintenance of these resources. Enjoy.

I am indebted to Winnie & John Horton for their assistance in retyping articles for this issue and to Dr. J. Sherman Bleakney's double duty as both a contributing author and typist. Thanks to Larry Bogan for his indefatigable patience with me.

The deadline for contributors to the spring issue of the newsletter is May 19, 1995. Neil Cloghesy has asked me to mention that those seeking advertising space in forthcoming newsletters can get more details regarding rates, placement etc. by contacting him at (902)542-1449.

1995 Winter Programme

Monday Evening Meetings

Meetings are on the third Monday of the month and start at 7:30 p.m., at Acadia University (see description for meeting room). All meetings are open to the public and BNS members are encouraged to bring friends and neighbours. Any changes in the place, time, or subject are announced on posters, Kings Kable notice board and The Kentville Advertiser and the The Hants Journal.

Feb 20 "Show and Tell": Members and Guests are invited to present their own interests, collections, and/or slides. Meet in Patterson Hall (Biology Building), Room 308

March 20 *Bird Nests*: Bernard Forsythe, the foremost authority in N.S. on birds' nests, will tell all about these interesting structures. He will illustrate his presentation with pictures and actual nests. Meet in Elliott Hall (Chemistry Building), Room 221

April 17 *Reflections on Natural History*: Harry Brennan and Ross Baker. We are especially fortunate to have two long-time amateur naturalists give us a joint presentation. Meet in Elliott Hall (Chemistry Building), Room 221

May 15 *The Tides of Fundy*: David DeWolfe

June 19 *Dragonflies*:

Field Trips

Unless otherwise noted, meet at the Robie Tufts Nature Centre on Front Street in Wolfville at the time indicated. Leaders' telephone numbers are included to allow participants to confirm trips in the case of uncertain conditions. Everyone, BNS members or not, is welcome on all field trips.

Feb 25 (Saturday) 9:00 am or 9:30 am at Central Kings High parking lot in Cambridge. Re-schedule of the **Winter Walk/Ski/Snowshoe**. The "walk" in January was rained out, hope for better winter conditions this time. We will look for winter birds, tracks, etc. A pleasant North Mountain Woodlot. Leader: Larry Bogan 678-0446

March 3 (Friday) Sky Observing Session - Meet at the Grand Pre Historical Park parking lot at 7:00 p.m. Mars will be visible and Orion will still be up so we can enjoy the Orion Nebula. There will be a crescent Moon with excellent Earthshine visible. Dress warmly for standing out under clear skies. Meet on the 4th (Saturday) if Friday is clouded out. Roy Bishop 542-3992.

April - Amphibians: Watch for a field trip lead by Jeff Frankin in cooperation with "Frog Watch '95".

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"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

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

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

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Federation of Nova Scotia Naturalists 1995 Annual Meeting

June 2, 3, 4

Host: Blomidon Naturalists
Society, Wolfville, N.S.

Theme: *Nature's Ark - Who's at
the Helm?*

Mark the first weekend in June on your calendar! Naturalists from across Nova Scotia will be in Wolfville for two days of talks, displays, field trips, and a country banquet. Speakers include Sherman Boates, Alex Colville, Graham Daborn, and Harry Thurston. The registration desk opens 3:00 pm Friday and the first event is a social hour at 6:30 pm. Events end at 1:30 pm Sunday, except for a field trip to Cape Split that afternoon.

The registration fee of \$45 (\$50 after May 10) covers use of facilities at Acadia University, Friday Art

Gallery social hour, Saturday field trips, bus & lunch, Saturday evening banquet, Sunday picnic lunch, plus coffee, juice & cookie breaks.

To register: Before May 10, send your name, address, and telephone number, plus \$45 per registrant (children under 10 years of age are free) to:

FNSN Meeting

Box 127

Wolfville, NS

BOP 1X0

Please note that this is not a regular Blomidon Naturalists Society event. In order to attend the FNSN conference, members of the BNS must register along with members of each of the eight other affiliated societies. The Program Committee needs to know how many people will be attending. After May 10, registration is \$50. George Alliston is Chairperson of the Program Committee (542-3651).



Request for Billets

As hosts of the 1995 Federation of Nova Scotia Naturalists Annual Conference, the BNS would like to offer participants from other clubs an option of staying with our members. If you are willing to share your accommodations for two evenings (June 2nd and 3rd) and your knowledge of our area with fellow naturalists from other parts of Nova Scotia, please contact George Alliston . Your hospitality will be most appreciated.

Society Business and News

1994 Robie Tufts Young Naturalist Award

Editor's Note: The following letter was submitted by Jonathan Ells, the recipient of the Robie Tufts Young Naturalists Award for 1994. Congratulations Jonathan!

January 7, 1995

Jonathan Ells

Young Naturalist '94

On November 21st I was presented with the Robie Tufts Young Naturalists Award. This award is given out annually by members of the Blomidon Naturalist Society.

I was honoured to have received this recognition and I would like to thank the Society for this honour. The Audobon Field Guide will be put to good use because I am quite interested in spiders and insects. Hopefully, my family and I will be able to attend some of the upcoming meetings and outings.

On the 21st, I set up a display of my rock and shell collections. The people who attended the meeting seemed to enjoy my samples and hopefully I answered their questions satisfactorily. My collections received recognition at the Regional Science Fair in the Spring of '93 and '94. I received a silver medal for my shell project and a gold for my rocks. I was quite surprised and quite excited

at the same time.

I have always enjoyed being outside and even as a younger child, I would enter the house with my pockets full of treasures. My room can get to be quite a mess. My closet would be full of buckets of rocks and shells. Every summer we spend a few weeks at Crescent Beach, on the South Shore. I spend hours roaming the shore, collecting rocks and shells.

I really enjoy scanning the shore after a storm. I can remember spending a few hours on Rissers beach after such a storm. Often my friends and I would challenge each other to finding the most sand dollars. (I now know these are not Mollusks but are Echinoderms and are related to the starfish and sea urchins.) That day I had very good luck because I found about 50 sand dollars. I spent a good hour wading in knee-deep water with my face glued to the surface. It was like a game. Who could find the most flawless sand dollars?

I also capture the odd insect and watch it for some time. Mom and Dad are often after me for coming home wet up to my knees. As you can tell, I enjoy spending time in the woods, roaming about the rivers and brooks.

I have always been a naturalist, from the time when I would sit watching the ants to the present time when I am busily developing my collections into complete science projects.

I also have a habit of collecting sport-related cards, board games (I make my own as well) and marbles. It seems I like variety and I seem to find shape, colour and texture very interesting. It has only been in the past two or three years that I have taken a more serious look at my rocks and shells. I learned a great deal from my studies.

When studying rocks, I took a closer look at the layers and plates of the earth and I studied about rock formation, in general. I discussed the three common groupings:

Igneous (extrusive + intrusive - resulting from hot magma), Sedimentary (rock formed through erosion), and Metamorphic (rock changed by heat + pressure).

The rocks I found most interesting are the very small Zeolite crystals which are sometimes called, "The Eyes of the Bay of Fundy". The ones in my collection are white + green in colour and seem to be rounded due to weathering. The Zeolites form cavities in the parent rock - Basalt (extrusive igneous). Chert is another sedimentary rock which is found as a deposit in Basalt. It is a very dense, hard rock which was used in making arrowheads. My specimen is brownish-red in colour.

In one of my kits I have a sample of Obsidian (Igneous), which is glossy and glass-like. I find it quite amazing. My Geodes are very special to me as well. They are round, hollowed stone formations which are rough on the outside and crystal-like on the inside. A pink, white and/or

purple crystal-like mineral called Dolomite can sometimes be seen inside. They are so fascinating. My rock kits and geodes were gifts from relatives, as well as from the Geology Dept. at Acadia. My Zeolites and Chert came from the shores of the Bay of Fundy.

I also had a Naturalite or a Zeolite Sheaf give to me. It is a whitish-chalky rock which consists of long crystals. This seems quite unusual. My Schist (Metamorphic - changed sandstone), has an interesting layered look.

A teacher from the area suggested I take a closer look at the Valley's land formation. I discovered that the North Mountain is mostly Basalt (extrusive volcanic); the valley itself, mostly Sedimentary (Shale and Sandstone); the Wolfville Ridge, folded Metamorphic rock (Quartzite, Schist); and the South Mountain, Granite (Intrusive Volcanic). After this discovery I could easily see where most of my rocks had come from. I also learned to record the location, colour and likely parent rock for each sample collected.

When studying shells I discovered that most of the shells in my collection are Univalves (one shell) or Bivalves (two-hinged shells). I had no samples of Cephalopods (Nautilus), Gastroverms or Chitons (with overlapping plates). I collected many clam shells, quahogs, mussels and periwinkles.

My most interesting specimens are a piece of what looks like lettuce coral and a huge clam shell which I

bought at a flea market. One of my scallop shells is totally covered with barnacles. This was also purchased at a yard sale.

The most unusual shells are ones which are uncommon to this area. Shells such as Turret, Horn, Turban, Dove and Cone Shells added variety to my collection and were also purchased in stores across Nova Scotia.

I am sure I will enjoy the Blomidon Naturalists Society. I must get busy and mark their upcoming meetings and special events on my new '95 calendar.

Thanks again for this opportunity!

Sincerely,

Jonathan Ellis

Treasurer's Annual Report

1993-1994

by Harold Forsyth
Greenwich, N.S.

Membership continues to grow with 205 paid up subscriptions. This past year saw the printing of the *Birds of Kings County - An Annotated Checklist* and a second printing of a thousand copies of *A Natural History of Kings County*. Grants included \$18,900 from Environment Canada for the Species Status Sheet project, \$750 from the James Baillie Memorial Fund for the Short-eared Owl project, \$900 from Environment Canada as a Volunteer Support Fund and \$2500 from Canada Trust for the Cornwallis River Project.

Blomidon Naturalists Society Statement of Operations and Surplus

Year Ended August 31	1994	1993
Revenue		
Advertising income	\$ 485	\$ 500
Books	2,288	10,113
Donations	3,780	218
GST rebate	369	263
Government of Canada		
SEED Grant		3,578
Environment Canada Grant	19,800	
Interest Income	24	86
Membership dues	2,627	2,176
Raffle		3,957
Other		126
	<u>29,373</u>	<u>21,017</u>

Year Ended August 31	1994	1993
Expenditures		
Administration	155	234
Awards and meetings	335	241
Books	1,981	6,928
Dues	410	1,755
Nature Centre	1,134	1,348
Newsletter	1,973	1,939
Other	361	218
Owl Project	455	326
Professional fees	200	
Raffle	240	213
Status Sheet Project	18,902	
Wages and benefits	<u>129</u>	<u>3,704</u>
	26,275	16,906
Revenue over expenditures	\$ 3,098	\$ 4,111
<hr/>		
Surplus, beginning of year	\$ 9,421	\$ 5,310
Revenue over expenses	3,098	4,111
Surplus, end of year	\$12,519	\$ 9,421

Balance Sheet

August 31	1994	1993
<hr/>		
Current		
Cash	<u>\$ 7,418</u>	<u>\$ 9,259</u>
Accounts receivable	<u>679</u>	<u>677</u>
Inventory of books at cost	<u>6,624</u>	<u>1,406</u>
	\$14,721	\$11,342
<hr/>		
Liabilities		
Current		
Payables and accruals	\$ 2,202	\$ 1,921
Equity		
Surplus	<u>12,519</u>	<u>9,421</u>
	\$14,721	\$11,342

Special thanks go out to all those who made financial donations to the Society during the year: George Escher, Roy Bishop, Margarete Zillig, Suzanne Lewis, Barbara Graham, Jack and Alice Hyslop, Robyn Edwards, Karen Grant, Stacy Harrison, Jill Helmkey, Suzanne Horner, Conrad MacNeil, Vanessa Ords, Tracey Peters, Eunice Velepini, Pam Wamback, Ross Baker, Mary Porter, Curtis Chipman, Owen and Janice Stephens, Celia Corcoran, George Greenough, Kari Hjelkrem, E. Marie Parkin, Marjorie Fountain, Irmgard Lipp, Mr. and Mrs. Curtis Wentzell, and to John Carruthers of Doane Raymond in Kentville who audited the books.

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WOLFVILLE CHRISTMAS BIRD COUNT

December 17, 1994

by Angus MacLean

Coldbrook, N. S.

This was the 95th Christmas Bird
Count in North America. Counts are

now held in every state and province
on the continent and many other
countries around the world. This year
close to 1700 counts were held across
North America and roughly 43,000
volunteers took part. The Wolfville
count has been held each year since
the mid-fifties, but Robie Tufts car-
ried out counts for a number of years
before, although not in consecutive

years. Thus, our count ranks as one of the oldest in Canada.

Mild temperatures in early December appeared to encourage some birds to linger (such as a Great Egret along the Habitant River), but by mid-month, temperatures had dropped low enough to freeze lakes and ponds. Temperatures ranged from -6°C to -3°C on count day and the morning was overcast with the sun appearing in the afternoon. With light winds, the day was, on the whole, quite pleasant.

Participants included 44 observers in 22 to 28 field parties, plus 80 observers at 53 feeders. The total party hours increased by 10 compared to 1993. Party kilometers by car and on foot increased by 71% and 108% respectively!! Certain areas are covered very thoroughly, but the large areas having only one or two observers, are inadequately covered, especially if much of the area is forested.

The total of 80 species recorded this year is the second highest tally ever and indeed the past three counts have been remarkably similar (i.e. 76 to 81). In addition, three species were observed in the count week (Dec. 14 to Dec. 20). The total of 90,462 individuals came close to equalling the record set in 1992. The species which recorded all-time highs were Black Duck, Bald Eagle, Northern Harrier (for the second consecutive year), Rough-legged Hawk, Great Black-backed Gull, Downy Woodpecker (slightly and close to the totals the past 3 years), Northern Flicker,

Red-breasted and White-breasted Nuthatches, Ruby-crowned Kinglet, Tree Sparrow and Swamp Sparrow. The high numbers of Northern Harriers and Rough-legged Hawks may be partially due to the absence of snow, but also indicate a high Meadow Vole population. Barring a "crash," this bodes well for Short-eared Owls that hopefully will return to breed on the dykelands this coming spring.



The numbers of Red-tailed Hawks were dramatically lower than the past two years and although fluctuations have been noted before, the reason is a bit obscure. Populations of some species such as Ring-necked Pheasant and Mourning Dove, are apparently declining so they will bear watching in future years. In general, the finch group was down in sharp contrast to last year, but overall numbers of sparrows were high, with the exception of Dark-eyed Junco.

There was one species new to the count, a Lincoln's Sparrow, which was found by Fulton Lavender and Jamie Gibson at Harris' Pond, Canning. Another interesting sighting by this duo was a Mallard x Black Duck

(hybrid). There were very few species regularly recorded on previous counts that were missing from this year's tally. Two notable exceptions however, were the absence of Barred and Great Horned Owl. I'll attempt to remedy that in future years, as even a short period of "owling" should locate both species.

The feeder-watchers contributed 33 species, slightly less than last year. As usual Eva Urban's feeder at Avonport had an extraordinary collection of Mourning Doves, 132. Jim Wolford noted a Pine Warbler at his feeder before he headed off to his field assignment. House Finches that had been coming to Nancy Nickerson's feeder for quite some time did not make an appearance for the count, however they did return the following day.

The post-count gathering at the Robie Tufts Ornithology Laboratory at Acadia was well attended. After a long day in the field, the seafood chowder, chili and desserts were greatly enjoyed. Thanks go to Bill and Brenda Thexton, Tom Herman and Judy Tufts for their organizing efforts and to the others who contributed in various ways. Special thanks to all the participants for their excellent work in the field and to those many who checked their feeders religiously. I would also like to thank Jim Wolford for coordinating the efforts of the feeder observers and my wife, Stella, for entering and cross-checking the data in the spreadsheet.

Red-throated Loon	1
Common Loon.....	2
Red-necked Grebe.....	1
Great Blue Heron	1
Canada Goose	231
Green-winged Teal.....	2
American Black Duck	2757
Mallard.....	51
Mallard x Black Duck.....	1
Oldsquaw	1
Black Scoter	1
Surf Scoter	2
White-winged Scoter	17
Common Goldeneye	3
Common Merganser.....	29
Bald Eagle	393
immature.....	185
adult.....	198
unknown.....	10
Northern Harrier	17
Sharp-shinned Hawk.....	9
Northern Goshawk	3
Red-tailed Hawk.....	119
Rough-legged hawk	22
Merlin.....	2
Ring-necked Pheasant	167
Ruffed Grouse	8
Killdeer.....	1
Ring-billed Gull	48
Herring Gull.....	20932
Iceland Gull.....	11
Glaucous Gull.....	1
Great Black-backed Gull.....	5736
Rock Dove.....	916
Mourning Dove	711
Short-eared Owl.....	1
Downy Woodpecker	78
Hairy Woodpecker	26
Northern Flicker.....	21
Pileated Woodpecker	10
Horned Lark.....	66
Gray Jay.....	3
Blue Jay.....	586
American Crow.....	26040
Common Raven	395
Black-capped Chickadee.....	994
Boreal Chickadee	7
Red-breasted Nuthatch.....	109
White-breasted Nuthatch.....	26
Brown Creeper	2
Golden-crowned Kinglet.....	97

Ruby-crowned Kinglet	3
American Robin	50
Northern Mockingbird	2
Bohemian Waxwing	7
Cedar Waxwing	6
Northern Shrike	2
European Starling	25827
Yellow-rumped Warbler	2
Pine Warbler	1
Palm Warbler	1
Common Yellowthroat	1
Yellow-breasted Chat	1
Northern Cardinal	3
Tree Sparrow	352
Savannah Sparrow	27
Song Sparrow	177
Lincoln's Sparrow	1
Swamp Sparrow	13
White-throated Sparrow	23
White-crowned Sparrow	1
Dark-eyed Junco	318
Red-winged Blackbird	5
Common Grackle	2
Brown-headed Cowbird	3
Northern Oriole	1
Purple Finch	18
Red Crossbill	7
White-winged Crossbill	16
Common Redpoll	11
Pine Siskin	38
American Goldfinch	1185
Evening Grosbeak	288
House Sparrow	1412

Total Species - 80

Total Individuals - 90462



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The Black River System:

Human and Natural History and Hydroelectric Development

THE BLACK RIVER

Past, People and Power

by Roy Bishop

Avonport, N.S.

For the past two-thirds of a century, the Black River has had the largest watershed in Kings County, and has been the dominant producer of electrical power in western Nova Scotia. However, for 100 centuries prior to 1929, the Black River was merely a tributary of the larger Gaspereau River. Thus, the title of this article should really be *The Gaspereau River*.

The Gaspereau area is a miniature version of Nova Scotia. Here within a small region are rocky highlands, forests, lakes and streams, hills, ravines, a valley, rich farm lands and a tidal estuary. The view of the Gaspereau Valley from the Stile Park above Wolfville is memorable — comparable in its idyllic charm to the view in the opposite direction, of Minas Basin and Blomidon.

The rocks underlying the Gaspereau watershed have played a dominant role in determining the present landscape. The basis of the Gaspereau Valley — the concave fold (syncline) lying between the Wolfville Ridge and the South Mountain — likely dates back to 380 million years ago when two plates of

Earth's crust were pushed together. This marked the closing of the Iapetus Ocean, the predecessor to the Atlantic Ocean. The collision produced a range of high mountains, the Acadian Mountains, in what is now southern Nova Scotia. Since that remote time, many secondary influences have molded the landscape, including faulting and warping, and extensive erosion by both water and ice. Also there has been volcanism, associated primarily with the opening of the present Atlantic Ocean 200 million years ago.

The Gaspereau valley itself is a relatively recent feature. Prior to its formation by river erosion, rivers draining the South Mountain area flowed northward into what is now the Cornwallis River Valley. Evidence of these ancient streams can still be seen as a few gaps occurring in the Wolfville Ridge from White Rock eastwards — gaps that align with streams that still tumble down South Mountain into the Gaspereau: Black River, Duncanson Brook, Harding Brook, and Curry Brook.

Several millions of years ago as the Gaspereau River eroded its upper reaches westward, one after another it intercepted and captured the northward flowing streams. The last to be captured, the Black River, became the main tributary of the Gaspereau (see the 1925 map accompanying this

article). Thus the Black River had longer to erode its lower valley — the ravine now followed by the Deep Hollow Road (indicated by the row of dots running north from White Rock on the two maps). Prior to its capture, what is now the portion of the Gaspereau River above White Rock met the Black River and flowed with it, northward out through Deep Hollow.

Following capture of the Black River, erosion continued, so that today one must descend a steep hill from the village of White Rock to reach the junction of the two rivers. All the southern tributaries of the Gaspereau have now eroded deep gorges into the side of South Mountain. During the ice ages of the past million years, the Black and Gaspereau rivers often ceased to exist, but as the last ice caps were melting some 12 000 years ago, the rivers began to flow again, albeit with dramatically altered courses until the ice had vanished.

The headwaters of the Gaspereau system occur on ice-sheet-scoured granite bedrock at an elevation near 200 metres — an area of poor drainage with numerous lakes and quiet streams. This granite formed deep beneath the long-vanished Acadian Mountains, but now lies exposed in the relatively level highlands of southern Nova Scotia. The Gaspereau River leaves the granite some 10 km west of White Rock and has cut a deep ravine down through softer slates and siltstones as it continues its eastward course. The northward flow-

ing Black River has cut a similar but shorter deep valley before it joins the Gaspereau at White Rock. A few kilometres below the village of White Rock, the bedrock is composed of even softer shales and sandstones. Hence, from here to the mouth of the Gaspereau at Avonport, erosion by the meandering river has produced a relatively wide, flat-bottomed valley.

In age, the bedrocks under the Gaspereau River range from 200 million years below the double bridge of Highway 101 at Avonport, to 550 million years near the north end of Black River Lake, with the granite underlying the headwaters being about 370 million years of age — all incomprehensibly ancient in human terms, but young in terms of the age of the planet (4600 million years). If the age of Earth were compressed into one year, then the rocks which now underlie the Gaspereau area formed between mid-November and mid-December, and the last immense ice sheet which shaped many of the smaller features of today's landscape melted about 11:59 pm on New Year's eve (12 000 years ago).

The impact of humans upon the Gaspereau area was minimal until the 17th century — two seconds before midnight at year's end on the compressed time scale. At this point settlement by Europeans resulted in clearing of some forested areas and dyking of tidal marshes. These changes accelerated during the 18th and 19th centuries, but the river system itself was relatively unaffected until the 20th century.

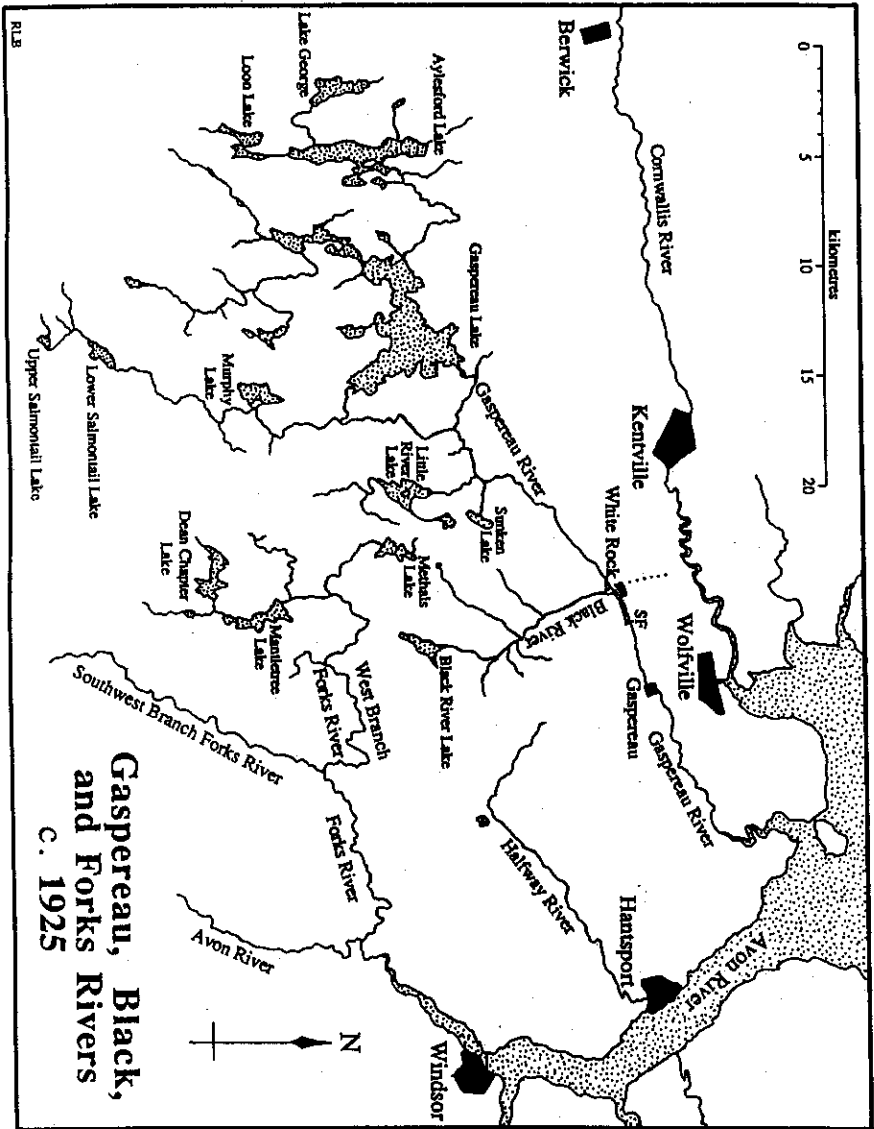
In 1911, the *Report of the Commission of Conservation on the Water-Powers of Canada* stated in its chapter on Nova Scotia: "The Liverpool River, commercially the most important river in the province, has exceptional storage facilities in its head-water lakes. While some falls have been developed, there is still a large total fall in the river which has not yet been utilized. Somewhat corresponding remarks will also apply to the Gaspereau River."

Although saw mills operated on the Gaspereau and Black Rivers in the 19th century, the first substantial human-induced change to the Gaspereau River occurred in the years 1918-1920 when a concrete dam, hydroelectric generators and pulp mill were built at Stivers Falls, about one kilometre downstream from the village of White Rock (see "SF" on the 1925 map). Prior to this time, larger communities such as Wolfville and Kentville had intermittent electrical power supplied by small, local, oil or coal-fired, steam-engine-driven generators, but rural areas still used kerosene lamps. The province's first thermal-electric plant had been built in Halifax in 1883, and the first hydroelectric plant was built at the head of the Northwest Arm four years later. Electric lights first appeared at a few locations in Wolfville in 1892.

The Stivers Falls project was undertaken by Roy Jodrey, an entrepreneur who had read the 1911 report *Water-Powers of Canada*, and Charles Wright, a contractor. Both

Jodrey and Wright lived in Wolfville (Jodrey's home is now *Landmark East School*, and Wright's home is still occupied by his daughter, Rhoda Colville, and her husband Alex). Wright had already built many structures, including the Wolfville Baptist Church, the Wolfville United Church, the Kentville Sanatorium, and several private homes. While building the dam and pulp mill at Stivers Falls, Wright erected what is now the old Gymnasium at Acadia University, and a new home for his family.

In March 1920, Jodrey and Wright incorporated their venture as the Gaspereau River Light, Heat and Power Company, Limited. Advertisements by the company encouraged people to "Cook, Light and Heat by Electricity". Power lines from this first hydro-electric plant to be built on the Gaspereau soon extended both down the Gaspereau Valley and across the Ridge to Wolfville, Kentville, Port Williams, Canning, and beyond. In 1922 a second generator was added at Stivers Falls, bringing its output to 0.4 megawatt (MW) — tiny by today's standards and insufficient for even Wolfville in 1995, yet the Gaspereau River Light, Heat and Power Company brought 20th century technology to most residents of Kings County. While electrical energy from Stivers Falls flashed along the new power lines at the speed of light, teams of oxen hauled the bales of wood pulp produced at the mill over the Wolfville Ridge to sailing ships at the Port Williams wharf.



In 1921, W.H. Chase of Wolfville (whose home is now *Victoria's Historic Inn*) joined Jodrey and Wright to form the Avon River Power Company in order to develop hydroelectric power on the Avon River south of Windsor. In 1927 Jodrey, Wright, and T.B. Akin of Falmouth incorporated the Minas Basin Pulp and Power Company at Hantsport. Tragically, Wright's productive life — and the lives of his son, daughter, sister-in-law, and father-in-law — were ended by a steam locomotive at Akin's railway crossing in Falmouth on July 16, 1929.

Jodrey took on the projects his friend had left unfinished, including a hospital in Windsor and a high school in Kentville, and continued contributing to the economic prosperity of his native province for another forty years. By 1938 he had been the first to develop hydroelectric power on each of three rivers: the Gaspereau (Stivers Falls), the Avon (Avon 1 and Avon 2), and the St. Croix River (St. Croix and Salmon Hole). His birthplace and boyhood home is barely a kilometre down the road toward Gaspereau from Stivers Falls, the site of his first venture into hydroelectric power and wood pulp.

In 1926, Gaspereau River Light, Heat and Power Company was absorbed by Avon River Power Company. In 1929, Jodrey sold Avon River Power to I.W. Killam's Nova Scotia Light and Power Company of Halifax, although Avon River Power remained as a distinct company until 1951. The pulp mill at Stivers Falls

closed before Hantsport's Minas Basin Pulp and Power started production in 1929; however, the generators continued to supply electricity to the Valley until about 1950 when the old dam was modified to divert the waters of the Gaspereau into a canal running to a new hydroelectric plant a mile downstream. In 1994, Nova Scotia Power Inc. (which was the government-owned Nova Scotia Power Corporation prior to 1992, and which had expropriated Nova Scotia Light and Power in 1971) replaced the deteriorating 75-year-old dam at Stivers Falls with a new dam, one which can be controlled remotely from the province-wide electric power control centre at Ragged Lake near Halifax.

In the 1930's and 40's more and greater changes were made to the Gaspereau River system. In this period Avon River Power Company constructed five hydroelectric plants — one a mile below Stivers Falls, and four on the Black River. These plants are indicated on the 1952 map — moving upriver: White Rock ("WR" on the map, commissioned in 1952, 3.2 megawatts), Hell's Gate (HG, 1930 and a second unit in 1949, 6.9 MW), Lumsden (L, 1941, 2.8 MW), Hollow Bridge (HB, 1940, 5.3 MW), Methals (M, 1949, 3.4 MW). The striking name "Hell's Gate" was originally applied to the narrow, rocky ravine and rapids at the site of the dam holding the pond above the Hell's Gate power plant. Prior to the construction of the power plant, this spot was a major obstacle when driving logs down the river —

hence its name. Lumsden was named after an official of the Avon River Power Company.

Only the Methals and Lumsden plants are located at the base of their respective dams. The other three generating stations each employ a canal and a penstock (pipeline) in order to increase the head (vertical fall of water) so more energy can be extracted from the water. Because of the lengths of their penstocks, Hollow Bridge and Hell's Gate also have surge tanks towering above the generating plants. By giving the water a place to go when the gates are closed at the water turbine, a surge tank prevents the penstock from bursting. (If gates were closed at the entrance to the penstocks, atmospheric pressure would collapse the penstocks.)

The changes made in the Gaspereau River system can be appreciated by comparing the 1925 and 1952 maps. By a system of dams and canals, most of the headwaters of the Gaspereau River and the headwaters of the West Branch of the Forks River have been diverted to flow into the Black River. Thus what had been merely a tributary of the Gaspereau now carries more water than did the original Gaspereau. Only Sunken Lake still follows its original course into the Gaspereau River.

The most obvious new feature is the present Black River Lake which contains its earlier namesake plus Mantletree Lake, and has flooded nearly two kilometres of the former divide between the Gaspereau and

Avon watersheds (see the maps). Also, Lower Salmontail Lake was dammed and raised to form one lake with Upper Salmontail Lake. Lumsden Pond, the pond below it, and Trout River Pond (the latter is at the southeast end of Gaspereau Lake) are new, and Methals Lake, Little River Lake, and Gaspereau Lake are all larger than before. Aylesford Lake and Dean Chapter Lake have dams controlling their outflow.

It is a tribute to the engineers who designed the five hydroelectric plants that the 155-metre combined head is nearly equal to the 170 metre drop between Gaspereau Lake and the tailrace of the White Rock power plant — nearly all of the gravitational potential energy available in the river is being used. At 10¢ per kilowatt-hour, the annual electrical output of the Gaspereau-Black River system is worth about ten million dollars to the economy of Nova Scotia. The total peak power output of the Gaspereau-Black River System, 22 MW, is 50 times that of Jodrey and Wright's creation at Stivers Falls, and equals the peak electric power requirement of a modern community of 10 000 people. Nevertheless, this is only 1% of the present electric generating capacity of Nova Scotia, most of which is based on coal-fired steam turbines.

The area of the watershed supplying the five generating stations is 390 square kilometres. Given this drainage area, annual precipitation of 1.1 metres in Kings County, the 155-metre combined head, an

average electrical power output of 10 MW, and assuming a penstock-turbine-generator combined efficiency of 70%, it is easy to calculate that two out of three raindrops landing in the drainage basin must go through the turbines and out under the twin bridges of Highway 101 at Avonport. One in three evaporates back into the sky. Another calculation shows that each cubic metre (tonne) of water flowing through the several turbines produces about 3¢ worth of electrical energy.

Nova Scotia Power Inc. is well-aware that it is only one of several users of the Gaspereau River. The company maintains fish ladders at the White Rock plant, at Lane's Mill Dam at the northeast corner of Gaspereau Lake, and at Aylesford Lake. The water flow is maintained at a steady rate during April and May for smelt. In the spring, Gaspereau Lake is held at a steady level until mid-July to aid the spawning of fish. At Trout River Pond, beyond the southeast corner of Gaspereau Lake, screens are maintained (despite recurring vandalism) to direct downstream-moving young fish into the Gaspereau River rather than toward the turbines on the Black River. And, when needed, a minimum water flow is maintained in the upper Gaspereau River for the fish.

For various reasons, some fish *do* pass downstream via the Black River. The design of the Methals turbine is such that most fish apparently can pass through it unharmed, but the dams further downriver each have a

special pipe with an intake near the water's surface to give young fish a preferred route past the power plants. As a result of all these efforts, there are productive runs of salmon, gaspereau and smelt on the Gaspereau.

In addition to accomodating fish, Nova Scotia Power accomodates people. Each year the river is stopped for short periods so fishermen can install or remove nets. The water flow is maintained at a steady rate during summer days for people tubing on the river. Aylesford Lake is held at a high level during the cottage season. Also, portages, boat ramps, beach areas and picnic parks are maintained in the area. Recently, Nova Scotia Power assisted the Blomidon Naturalists Society and the Youth Conservation Corps in the construction of a nature trail in the Gaspereau River gorge above White Rock.

Hydroelectric development has considerably altered the Gaspereau River and its watershed. Rivers have been diverted, lakes raised, and forests flooded — without even first cutting the trees. Also, gravel from the beach at Scott's Bay was trucked to Black River to make concrete for the buildings and dams. These changes took place in an era when environmental concerns were less prominent than now. What would be the outcome if such a major alteration of the landscape were to be proposed today? However, it must be noted that in the 1930's and 40's people had other concerns, such as the Great Depression and the Second World

War.

Some may lament the passing of the Gaspereau River and Black River of a century ago. However, people have chosen to have countless streetlights and yardlights, electric motors and stoves, television sets and word processors — and the electricity has to come from somewhere. For many decades the generators of the Gaspereau system have been producing electrical energy without spewing carbon and sulfur dioxides into the air, without waste heat or fly ash, without depleting fossil fuel reserves, without risking oil spills or coal mine explosions, without trains or trucks to deliver fuel, without dumping uranium tailings on the landscape or stockpiling radioactive spent-fuel bundles, without cluttering the countryside with windmills or solar panels. Upstream, flora and fauna have adapted to the altered watershed; downstream, people and fish swim in the exhaust of the turbines.

The Gaspereau River is a region of remarkable history, beauty, and productivity (both biological and electrical). It merits understanding, appreciation, and protection.

Acknowledgements

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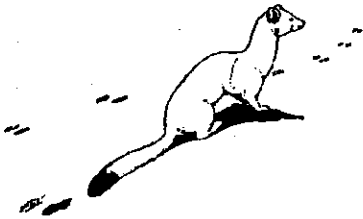
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BLACK RIVER HYDRO

PRESENT SYSTEM AND HISTORY OF DEVELOP- MENT

**Prepared by M. B. Benedict,
NSPI Biologist**

"Nova Scotia Power operates and maintains hydro generating facilities in a manner directed toward a sustainable balance between the production of electricity and other competing uses and values of the resource, including the protection of the

environment." (NSPI Environment Statement for Hydro Facilities, 1994)

The Black River Hydro System, operated by Nova Scotia Power, is an excellent example of this environmental statement in action. While producing more than 95 gigawatt hours per year from its five hydro stations, this system is also integrally involved with many other resource uses including fish passage, fish habitat enhancement, recreational fishing derbies, commercial fishing for gaspereau, water use by cottage owners, white water tubing, nature trails, and boating, to name a few.

In almost 50 years of operation on the Black River, Nova Scotia Power has developed a cooperative partnership with local community and resource users. This partnership is an integral part of an environmental management approach whereby watershed stakeholders work together for a common goal of providing sound natural resources stewardship and opportunities for public enjoyment of resources. As such, the Black River hydro system is designed and operated in a manner which strives to balance the production of electricity and the protection of the environment.

Design of hydro facilities allows for fish passage to be maintained through the use of more than six fish ladders and fishways. Hydro operation controls water levels to facilitate migration and spawning of fish species. This water management also provides flood control on the rivers and allows Nova Scotia Power to

provide riparian release of water at crucial times of the year. As a result there are productive runs of salmon, gaspereau and smelt.

The White Rock site was the first to be developed on the Black River system. In 1919, Gaspereau Light, Heat and Power installed a power plant, pulp mill and fishway at White Rock. Subsequent development included a hydro station at Hell's Gate in 1930 (unit #1) and storage structures on Gaspereau Lake in 1935. The early 1940's saw the addition of storage reservoirs at Aylesford Lake, Black River Lake, Salmontail Lake and Dean Chapter Lake; and the addition of hydro stations at Lumsden and Hollow Bridge. As well, large screens were installed at Trout Brook pond at that time to direct downstream moving fish from the Black River into the Gaspereau River. Methals hydro station and Hell's Gate unit #2 were added in 1949, and a new White Rock hydro station (complete with fish ladder) was added in 1952.

Nova Scotia Power maintains a close working relationship with the federal Departmental of Fisheries and Oceans. Throughout the 1970's and 1980's, Nova Scotia Power and DFO worked together to identify ways of improving gaspereau fish resources in the Black River. Some of the initiatives included:

- restricting gaspereau fishermen's rock weir walls in the river to allow 33% clear river flow on the opposite side of the river as the nets.

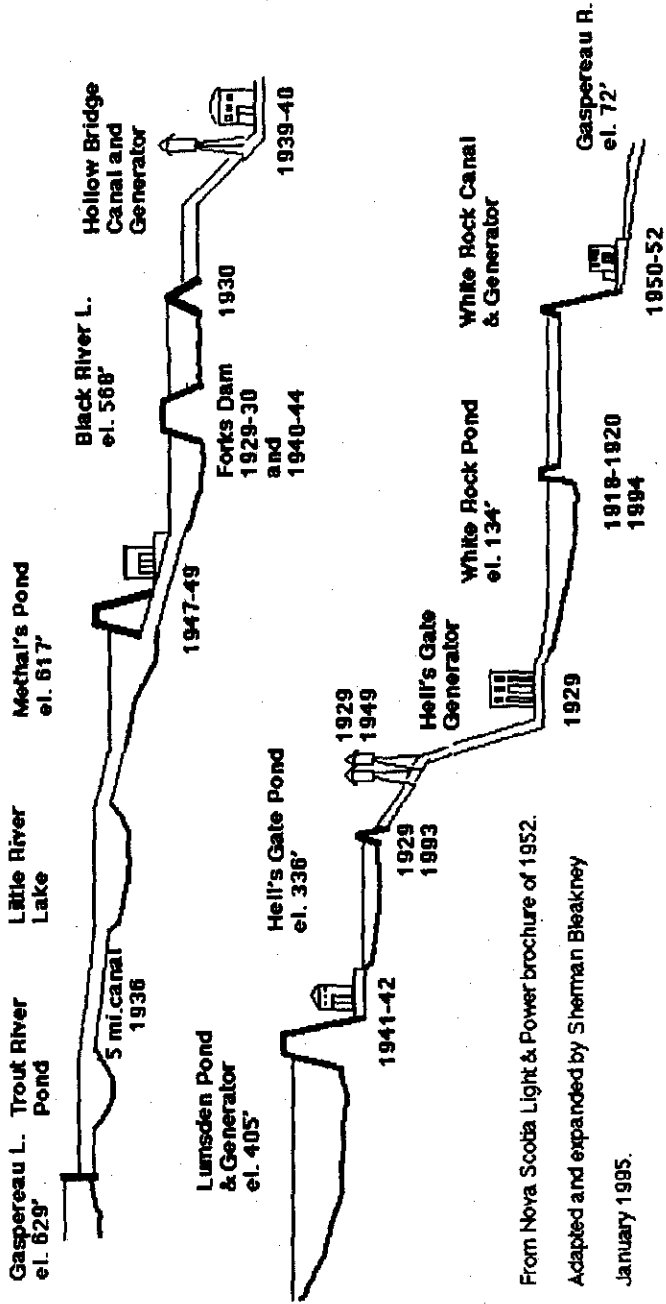
- modifying NSPI facilities and operations by: 1) closing Forest Home gate from June 1 to July 25, if possible, to prevent losing fish larvae; 2) installing revised fish passage at White Rock; 3) providing minimum flows at the Trout Brook outlet weir, and through the turbine at White Rock during downstream migration; and 4) opening up Aylesford Lake to provide additional reading area.

In recent years, smallmouth bass fishing in Black River Lake, Methals Lake, and Little River Lake has become a popular pastime. To support this resource use, the Kings County Wildlife Association, the provincial Department of Fisheries, and Nova Scotia Power all work together to host the annual bass tournament which draws over 200 competitors. The captured fish are kept in live wells, measured for routine scientific data and released. Associated with the bass, Nova Scotia Power carefully controls water levels of those lakes and ponds at the crucial time of year to enhance spawning success.

To facilitate recreation, Nova Scotia Power maintains water levels for cottage owners and tubers, provides canoe portages, boat ramps, beach areas, and picnic parks. The company has worked with the Blomidon Naturalists Society and the Nova Scotia Youth Conservation Corps to establish a nature trail along the Gaspereau River. In addition, Nova Scotia Power has recently given a

Black River Power Development: 1918-1994

Total Head of Water - 557'



From Nova Scotia Light & Power brochure of 1952.

Adapted and expanded by Sherman Bleakney

January 1995.

piece of land to the White Rock community and has provided a bulldozer so that a ball field could be built.

The partnership with the local community and the care taken regarding the environment are important ways in which Nova Scotia Power strives to achieve future sustainability.

Black River Lake - Recollections and Reflections

**Sherman Bleakney
Wolfville, N.S.**

There was only one occupied dwelling on Black River Lake when my father first took me there in the early 1930's, when I was about 4 or 5 years old. Those summer boating excursions up the lake were my first introduction to the real outdoors. For a five-year old it was a real wilderness with real wild animals, for at that time I lived in the city of Cambridge near Boston, Mass. Across the street from our Baptist parsonage were a police station, jail and fire station, and around the corner was bustling Massachusetts Avenue. As to local wildlife, well, in early morning there actually were dozens of ungulates plodding about the streets - harnessed to milk delivery vans. Blessedly, the long sunny summers of childhood were always spent at Wolfville, and that early exposure to Kings County's sea shores and lake shores undoubtedly

changed the course of my life.

In the 1930's, the road to Black River Lake meandered mile after mile up the old river valley, crisscrossing that marvellous trout stream on little wooden bridges. My father enjoyed hunting and fishing and boating on lakes so we often went exploring. Today that road and the stone abutments of its bridges, are beneath the waters of Hell's Gate Pond and Lumsden Pond. However, in 1993 when Hell's Gate Pond was drained, the original road bed and bridge stone work of 65 years ago was exposed and quite evident when viewed from the top of Lumsden Pond. I recall our family stopping at one of these bridges to watch a summer baptismal ceremony in one of the deeper pools.

Occasionally we had clan picnics at Black River Dam with aunts, uncles and cousins, but most exciting were the boat trips to that lone cabin at Forks Dam. There lived Leon and Annie Schofield, wardens of the dam and its spillway. Electronic automation and monitoring was far in the future. Even in 1949 when the Methals Dam was completed there was a house provided for a warden and his family. I remember this because I applied for the job and was turned down. Automation was completed by 1961, the warden house was vacated and I arranged to have two of my students, Dick Cain and Bill Woodworth, live there for the summer collecting bird and mammal specimens for our fledgling teaching and research museum at Acadia.

Their efforts formed the core of the now Robie Tufts Ornithological Laboratory.

Leon was a local Schofield and his wife was Micmac, and as I recall they were childless. To this city boy, they seemed true frontiers persons, living in a forest without roads or electricity, and one of them was a real "Indian". They grew vegetables, had a few fruit trees, gathered wild berries, drew water from a near by spring, hunted and fished for meat, and trapped fur bearers for their valuable pelts -bear, otter, mink, muskrat and wildcat. Leon trapped 48 bears during his time at Forks Dam. Sometimes Leon would take us up the lake to the Mantletree area to check on his bear trap sets, or show us fresh otter slides, or the nesting colony of Great Blue Herons. Looking up at the huge nests with their gigantic and fiercely glowering birds was rather intimidating for a kid familiar only with pigeons. There was a cabin there on Tony Island with bunks and a stove, owned by the power company but vacated about 1932. They had moved it there from the Black River Lake work site in 1931 and it housed the workmen assigned to construction of the Dean Chapter Lake Dam. (In 1958 Everett Lynton and Rex Porter leased it and now Everett own's it.) Leon also worked as a hunting guide, and I vividly remember his demonstrating how to cut and curl birch bark into a cone-shaped horn, and then his spine-tingling evocation of the braying-bellow call of a bull moose in rut.. In those days there were moose aplenty

in the Black River Lake area.

Often on these Forks Dam excursions, I was let loose with cousins or friends or even by myself, while the adults stayed near the cabin. There were trees to climb, shore lines to explore, beaches to swim from and rowboats to fish from. There must have been a rich fish population then, for there was that Great Blue Heron colony, and lots of ducks, mergansers and loons and a few osprey. We caught mostly yellow perch and eels. When walking the shore line we were always fascinated by the adult catfish (bullheads) in the warm shallows guarding their schools of tiny jet-black young juveniles that resembled a swarm of toad tadpoles.

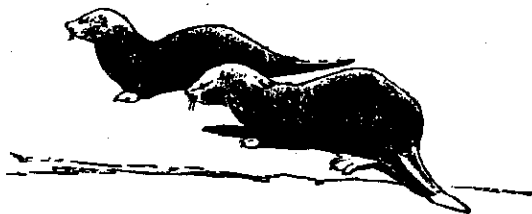
By 1944, the original timbered Forks Dam had been replaced by the present earthfill embankment, wardens Leon and Annie had become redundant and had moved to a farmhouse north of Black River Dam, their cabin became a ruin, but we still haunted the area canoeing, exploring, fishing and hunting. We decided that having our own dry hunting lodge would be an improvement over tenting or returning home each evening, especially during the hunting seasons of ducks, grouse and deer. So in 1946 Cecil Pulsifer, Merritt Gibson and myself built a "secret" log cabin in the woods near the old Leon and Annie clearing (quite illegally on company land). During its clandestine construction we tried to simplify logistics by living off the land: squirrel stew, parboiled porcupine, grilled grouse, Leon and Annie apple

sauce, but best of all were the delicious white perch. They were everywhere in the lake, some measuring 12 inches or more, and seemed to have superceded the yellow perch. At that time, gulls were nesting on many of the small islands in Black River Lake, and mergansers, loons and ducks were common. In the autumn of 1947 I shot several goldeneye ducks near Forks Dam and next day in the Biology Department while intently dissecting their stomachs (full of benthic dragonfly nymphs) an inquisitive freshette approached and asked what was I doing? She has been my field assistant ever since - 48 years, and counting.

In the mid 1940's, the deer in Nova Scotia were abundant. We did not realize that they were experiencing a classic population explosion and that within a few years they would in winter be starving to death. You could still find moose, and deep-rutted moose trails across bogs around Black River Lake, but a nematode parasite of the ubiquitous deer had spread to and lethally infected moose throughout the province. In 1948 I was field assistant to Austin Cameron, Nova Scotia Department of Lands and Forests, and we spent the summer finding and tallying winter kill carcasses of deer

and moose. The demise of both deer and moose had begun, and soon after the insidious effects of acid rain would ensure a similar demise of aquatic invertebrates, fish, amphibians and their avian predators. Fortunately for us, the Black River Lake system seems somewhat buffered and has not been devastated as have many other drainages in Nova Scotia, particularly those in the eastern half of the province. To add injury to environmental insult, in 1967 and 1968 smallmouth bass were introduced to this system of interconnected lakes and have thrived beyond local sportsmens' expectations and even attained international recognition. Their impact on other populations of fish and on amphibians is unknown but is probably significant for they are voracious opportunists.

Obviously, and so sadly, the Black River Lake region of my youth will never, can never, be the same again. On several occasions in recent years, the late Cyril Coldwell and I had sessions in his lab-office ruminating upon the good old days, and it truly saddened us to realize that our generation is the last to have witnessed nature in abundance in Kings County. When we were young every stream was a trout stream and swarms of elvers from the Sargasso Sea dispersed up every Kings County rivulet



for in those days streams flowed all summer long. Fifty years ago the now erratic stream ("storm drain" would be more appropriate) that "flows" from the college woods, past the E.K.M. Hospital and Clinic and under the gymnasium parking lot had a permanent flow, with populations of eels, frogs, muskrats and red winged blackbirds along its route. The college woods was home to deer, ruffed grouse, varying hare, fox, porcupine and woodchuck. Warblers were abundant everywhere from backyards to back woods. Barn swallows fought over potential nest sites in everyone's garages and sheds. Robins occupied every veranda and back porch. Catbirds meowed from every coppice. In the evenings nighthawks buzz-bombed over town and countryside, fireflies punctuated the night over field and meadow and in Wolfville snipe winnowed me to sleep. At night insects in their hundreds beat against windows, clung to screen doors and careened about street lamps, easy prey for the numerous bats. Frogs peeped, croaked and trilled from every puddle, pond and lakeshore. Fifty years ago, the moment you stepped out doors, there was vibrant animal activity about you, beside you and under foot. Cyril and I lamented that our children, and less so our grandchildren, will never know how stimulating can be that degree of being constantly embraced by natural phenomena. What a tragic loss. Today we search for solace within national and provincial parks, where the choice can be either stand in line or reserve in advance. No

doubt, my generation's tales of former times have been and will continue to be attributed to, and dismissed as, the ever-expanding recollections of old men.

Cyril and I shared another historic attribute that further certified our anachronistic status in the mind of today's youth - we were the last of the card-carrying, museum gunslingers. Our card was an unusual licence from the Canadian Wildlife Service head office in Ottawa, that permitted us to carry any kind of firearm, shoot any number of protected migratory or resident birds, in any season. However, all collected specimens had to be properly prepared, thoroughly documented and ultimately deposited with a recognized museum. (My study skins ended up at Cornell University, National Museum of Canada, Redpath Museum, Nova Scotia Museum and Acadia University Museum.) Also required was an annual report and annual renewal application, something I did for nearly 35 years. To obtain such a responsible licence was difficult, for two respected sponsors were required. Mine were Robie Tufts and Horace G. Perry, all this arranged by Robie at his insistence when he discovered me as a high school self-taught taxidermist. It was a time, historically, when museums were still at the geographic level of information acquisition, trying to determine what species of vertebrates occurred where. Ecological questions had yet to be articulated, let alone pursued. Museum study skins were, and are, the invaluable hands-on objects essential for art work,

research and instruction.

To bring the above ramblings of this ancient babe-in-the-Black-River-Woods full circle, be aware that when I started graduate work at McGill University, I donated some of my 1940's bird skin collection to the on-campus Redpath Museum. Fifty years later, when Jean Timpa's son, Sean, attended McGill as an undergraduate in the early 1990's, one of the first bird skins he was required to study was labelled "Wolfville, N. S., collector Sherman Bleakney". A half century of providing students with an opportunity for hands-on examination of that particular warbler species is quite a contribution for an animal with an average life span of only 3 years. Now you know from whence came the motto "A bird in the hand is worth two in the bush".

Native People's Settlements in the Gaspereau River System

**by Larry Bogan and
Ellis Gertridge**

Much of what we know about the archaeological history of native people and their settlements in the Gaspereau River watershed, is detailed in a Curatorial Report published by the Nova Scotia Museum in 1990 (CR67).

The report reviews findings from an excavation of a Mi'kmaq site

undertaken in 1986, located on the north side of the Gaspereau River and west of the Melanson Bridge. Also included, are synopses of research from the earlier investigations of John Erskine. Erskine was among the first in Nova Scotia to conduct systematic studies of native people's settlements in the Gaspereau watershed, and elsewhere in the province. His writings also provide the primary source material for the chapter on native peoples in the Blomidon Naturalists Society book, "A Natural History of Kings County (NHKC)."

The following is assembled from excerpts from CR67 except where noted from NHKC.

Studies of the Native People's Sites.

In the mid-nineteenth century, a Baptist missionary, Silas T. Rand (1810-1899), began anthropological studies among the Mi'kmaq at Hantsport and in neighbouring camps and communities. Rand's publications on language, geography, mythology and culture are of particular value for anthropologists working in Kings County or Hants County today. Another century was to pass before the archaeology of this region began to receive systematic examination.

"Some fifty years ago [sic 1910] attention was first called to this [Melanson] camp site, of course called 'a battle field', and many collections were made, the first man having to borrow a bucket to carry all that he had found. A fairly large collection went to the Carillon Museum near Montreal, a smaller one



Pottery and point from Ceramic Period



to the Provincial (now Nova Scotia) Museum in Halifax, and there have been many private collections, mostly now scattered." (John Erskine 1958)

John Erskine, too, did some collecting, mapping and minor excavations in 1957, but while recognizing that Melanson was of comparable importance with the Indian Garden's site in Queen's County, he concluded that bulldozing and cultivation had destroyed much of its original integrity. Despite Erskine's conclusion, George MacDonald of the National Museum of Canada came to Melanson in 1965, in hopes of finding evidence of a buried Paleo-Indian occupation, such as had been recovered from Debert, Nova Scotia. No Paleo-Indian occupation was found however; the substantial pottery sample collected only reaffirmed that the Melanson site was a more recent Woodland or Ceramic Period settlement.

Gaspereau River

The Gaspereau River is tidal to just above the Melanson Bridge. It was probably not always so. With

rising sea level it has moved up since c.3000 B.P. [Before Present] from a point a little down river from Wallbrook.

The main resources of the river are fish. Many of the fish common to shore and estuary are the same fish to be found in the river. They include the Gaspereau (alewife), Rainbow Smelt, Eel, American Shad, American Atlantic Sturgeon, White Perch, Yellow Perch (mostly lakes), Striped Bass, Salmon, Brook Trout, Atlantic Tomcod and White Sucker.

The abundance of fish and the water itself, attracted a great variety of mammals -- black bear, deer, moose, and semi-aquatic mammals such as beaver, otter, mink, muskrat, raccoons and the occasional marten and fisher plus numerous fish-eating birds.

Given the concentration of fish and the presence of a large Indian village in protohistoric times, it is surprising that the early French sources have little to say concerning the Gaspereau River. In the Mi'kmaq political district system, this region belonged to the SEGEPENEGATIG, or ground nut place. The Minas district was also important in a supernatural sense, for Cape Blomidon was home to the culture-hero, Glooscap.

At the time of contact with Europeans [mid-17th century], the Mi'kmaq had a mosaic of different economies incorporating a mix of land animals, sea mammals, fish and birds. They were not fishing societies in the general sense, and their diet

varied by season and area. The Melanson site was devoted largely, but not exclusively, to Gaspereau fishing in the spring.

With the expansion of hunting activities, under the increasing pressure of the fur trade and with competition over river fishing a probability, we can suggest that any model of early symbiosis or reciprocity [with the French] is likely to be inaccurate. The Mi'kmaq might have been displaced upriver to interior lakes, such as Gaspereau Lake, in any struggle over the Gaspereau fishery.

Gaspereau Lake

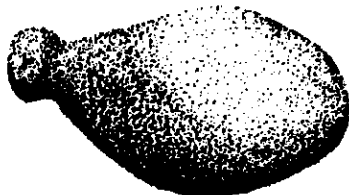
Upriver, at the periphery of the catchment area, is Gaspereau Lake, now somewhat larger than it was prior to dam construction in 1929. Many of the resources of the river are the same resources found in the lake. In some cases, only the season is different; for instance, Gaspereau may be caught during their annual spring runs from the Bay of Fundy into the river, or later during the summer in the lake. Animals attracted to the lake would have included moose, deer, caribou, bear (a predator of moose), large number of birds, including waterfowl (especially loons and ducks), cormorants, herons, kingfishers and raptors.

[In all likelihood, the natives

made Gaspereau Lake a winter home where they fished and hunted game away from the more exposed coastal sites.]

Only a few Archaic points have been collected at Melanson. Sites from the Archaic Period are unknown further down river. But 17 km upriver from Minas Basin, at 186 m above sea level, there is substantial Archaic material on Gaspereau Lake at the outlet for the river. This small multi-component site has yielded some evidence of Ceramic Period occupation, but most artifacts are predominantly of late Archaic age (3000 to 2500 BP).

Located 50 m upstream from the fish ladder at Gaspereau Lake, this site was used by many native cultures. The site can be seen only in late summer when the lake is low. Erskine interpreted the remains he found to be those of wigwams, once covered by skins and birch bark, running in a north-south direction. He identified fire circles on both east and west sides of where the wigwams had once stood and suggested that their position was chosen to deter inclement weather and wind. Erskine located another site further up the lake which he believed was most likely a winter site because plummets



Archaic Point and Plummet

used for ice fishing were found there.
(--from NHKC)

John Erskine was confident about the reasons for the site's existence: "The outlet of the lake formed a natural weir for the netting of Gaspereau and salmon from May to July or for catching eels in October. The lake would have given canoe access to many miles of hunting country and up tributary rivers to yet other lakes."

Before contact with the Europeans, seasonal movements of the Mi'kmaq were determined by the abundance of food. The lower river systems provided the best sites for habitation. The Mi'kmaqs fished, gathered shellfish and hunted waterfowl during the summer. They lived in the shelter of the forests in winter where they hunted Moose, deer, beaver and other mammals.

An important Mi'kmaq site is located at Gaspereau Lake at Lower North Bay and is referred to as the Burnt Bone Beach site. Lithic flakes, burnt bone fragments, a small blue glass bead, and pieces of a trade copper kettle have been found there. The bead and kettle remains indicate occupation of the site after the first

contact with Europeans, but before substantial settlement of Nova Scotia.
(--from NHKC)

1. Curatorial Report #67 Melanson: A Large Micmac Village in Kings County, Nova Scotia Ronald J. Nash and Frances L. Stewart Nova Scotia Museum 1990

2. A Natural History of King's County "Native Peoples" Blomidon Naturalist's Society 1992

FRESHWATER FISH OF THE GASPHEREAU - BLACK RIVER SYSTEM

by Bob Bancroft
Pomquet, Antigonish Co.

Originally, fish prompted Indians to occupy sites like Melanson, on the Gaspereau River. Rainbow smelt, gaspereau (alewife and blueback herring), Atlantic salmon, speckled trout, American eels, striped bass and possibly American shad and Atlantic sturgeon were abundant and seasonally available.

Fred Veith in 1881 noted that mill waste was a serious pollution pro-



blem in the Gaspereau River. "...Immense quantities of sawdust, shavings, sweepings ..." had been discharged from a sawmill upriver. In those times mill dams commonly blocked upstream passage, preventing populations of anadromous (sea run) fish from reaching freshwater spawning grounds.

Hydro dam and canal construction first began in 1907 and was more or less completed when the (last) White Rock Generating Plant opened in September, 1952. A fish ladder from the river to the canal at the White Rock Plant offered anadromous species like trout, salmon, and gaspereau access to river habitats of the Gaspereau branch, and a chance to complete their life cycle. Upstream access to the Black River system was blocked. There has, however, been a history of downstream migration of young gaspereau from Gaspereau Lake (which drains two ways) descending the Black River system in autumn. Most of these fish die running the tube and turbine gauntlet downstream. They attract notable numbers of fish-eating predators as they move through.

Fishing the Black River reservoirs is one of my cherished childhood memories. Kids don't care about what kind they catch, like older folks. White perch were abundant, fun to catch and good eating. The colour of the water was dark; the result of tannins and other substances leaching from the trees submerged when reservoirs were flooded. In recent years, the water clarity of the water has

improved, which might lead to an increase in aquatic productivity.

The "visible" original fish species of the lake systems included Speckled trout, Atlantic salmon, White perch, Yellow perch, White sucker, Brown bullhead, and American eel. Smaller species noted were Lake chub, Common shiner, Golden shiner, Ninespine stickleback, and Banded killifish. I recall seeing, but not catching, a school of Northern redbelly dace in the Gaspereau part of the system. A friend reported a recent "close encounter" with a school of landlocked salmon in the Black River system. And there is at least one introduced species.

Smallmouth bass have focussed a great deal of angling attention at the Black River system. Speckled trout spawning habitat and populations suffered with the building of the reservoirs; while white and yellow perch populations soared. The potential of the bass to play "pacman" with small perch, along with some other factors, resulted in a stocking interest shared by the Nova Scotia Light and Power Company, the King's County Wildlife Association, and the Wildlife Conservation Division of the Department of Lands and Forests. In 1967, armed with federal Department of Fisheries assessments and approval, John Bain, the provincial fisheries biologist and project leader, began transferring smallmouth from four other lakes around the province. 743 bass were stocked into the Black River system during 1967 and 1968. The rest, as they say, is

history. Black River Lake and associated reservoirs have developed a solid reputation with bass anglers. This aura will diminish as the perch bonanza is consumed, and the bass population levels off. Bass populations in other lakes with more recent illegal introductions of bass will eventually "bloom", taking on the "hot spot" reputation.

Although smallmouth bass put the Black River System on angling maps, there is a cost from an ecological perspective. Amphibians are a favourite bass food, and their populations must have diminished with the arrival of this new predator. Crayfish will probably be introduced by angling enthusiasts who fail to realize

that you cannot extract more productivity from an ecosystem by introducing another species. The smallmouth introduction succeeded in converting edible but unsought perch. Adding crayfish would alter the existing food chain that not only sustains smallmouths, but supports loons, eagles and others.

Most bass fishermen release their catch. Those who keep smallmouth from the Black River system should know that mercury levels in bass muscle tissue exceed Health Canada guidelines of 0.5 part per million. Limiting consumption to one half pound every two weeks will not create any health problems from mercury.

Natural History Articles and Notes

THE NATURE CONSERVANCY of CANADA by John Harwood Canning, N.S.

Those who attended the BNS November 1994 meeting will remember that our guest speaker, Branimir Gnetvaj, dedicated his presentation to the Nature Conservancy of Canada (NCC). Instead of paying Branimir an honorarium, BNS donated \$50 on his behalf to the Conservancy. NCC is a vital and very active organization, but it maintains a rather low profile. Their story deserves to be told, so here is an outline of the

organization which has accepted as its mission, the preservation of biological diversity through the purchase and protection of ecologically significant natural areas and places of special beauty and educational interest.

Through partnerships with communities, corporations, governments, foundations, and individuals, NCC has protected freshwater wetlands, internationally significant prairie habitats, woodlands and coastal wetlands. Many of the Conservancy's nature preserves also provide critical habitat for endangered, rare and threatened species. Since 1962, NCC has worked with partners in helping to protect more than 120,000 acres

across Canada and has established 550 nature preserves. The NCC and its members have helped to acquire well over a million acres of National Park lands.

To identify wild spaces worthy of protection and preservation, NCC relies on the advice of 82 volunteer scientific advisors, regional directors, and trustees and user information from a network of Conservation Data Centres which NCC is helping to set up. Lands acquired by NCC are important wildlife sanctuaries, that too frequently are the last remaining wilderness areas within developed areas. Others are acquired on the basis of their sheer beauty, or for their distinctive features representing unique parts of Canada.

Protection of habitat and biodiversity through direct action is the principal focus of NCC. It assembles capital from a variety of sources to secure private lands or public lands deemed as high priorities by NCC's Scientific Advisory Committee and government agencies. NCC has built its reputation by being flexible in approach and by building positive, effective relationships with private land-owners. NCC establishes nature preserves and conserves natural land through purchase, donation and other creative protection and stewardship strategies.

NCC began seeking membership contributions five years ago. Growth has been rapid. More than 20,000 individual members have enrolled. Much of NCC's recent success is as a result of individual donations. These

are significant when they are matched by funds committed by foundations, governments, and corporations. Since 1990, NCC has raised more than \$30 million for conservation.

NCC is currently involved in more than 60 projects across Canada. In N. S., NCC dedicated the Abraham's Lake Forest Reserve last fall. This reserve, 45 km south of New Glasgow, is 339 acres of cathedral red spruce forest surrounded by a buffer zone to help protect it from natural disturbance. The buffer zone provided additional habitat for loons, hawks, owls, black bear, moose, lynx and beaver. Other projects are at Round Bay, Shelburne Co., Pugwash Basin, Pomquet Island and Cheticumchec Island.

Should you wish more information about the Conservancy or on any of the projects in particular, please contact:

Sheri-Lynn Armstrong
Director of Communications
The Nature Conservancy of
Canada
110 Eglinton Ave. W., 4th
Floor
Toronto, ON M4R 2G5
Tel. (416) 932-3202
FAX (416) 932-3208.

Should you wish to support the Conservancy, call 1-800-465-0029



A SAGE SPARROW FOR NOVA SCOTIA

First Eastern Canadian
Record

by Bernard Forsythe
Wolfville, N.S.

To reach Brier Island, N. S., one must travel the length of Digby Neck between the Bay of Fundy and St. Mary's Bay, take a ferry to Long Island and then a second ferry to finally arrive at one's destination at the most westerly point of the province. The possibility of finding a rare stray, especially during the fall migration period has made Brier Island a magnet for birdwatchers. I usually make May and September trips to Brier, but in recent years my wife, Sandra and I have also been making a November visit. Most of the migrants have long gone but there are always a few good birds around.

November 13, 1994 dawned sunny with no wind, making this a perfect day for this time of year for a sightseeing and birdwatching outing to Brier Island. As Sandra has only a casual interest in birds, I would be doing the birdwatching. The three hour, early morning drive from our home in Wolfville was enjoyable. Upon arrival, several interesting birds were soon spotted. Northern Gannets were passing by offshore and a Turkey Vulture floated overhead. Later in the morning, we were slowly driving past an open area bordering the dirt road which heads toward the Western end of the island. A small



bird flushed beside us, but returned to the ditch and began feeding before I was able to park our van. At the first look, I knew we had something special. It was a sparrow, but unlike any that I was familiar with. My first impulse was to grab a field guide, but reason prevailed and I began taking notes:

Behavior: Vegetation was sparse in the ditch, so viewing conditions were excellent as the sparrow continued to feed. The occasional passing vehicle caused it to flush, but it would return within seconds to the ditch. The sparrow paid little attention to me standing on the road unless I got too close, at which point its tail would cock up almost wren like, followed by a run over a short distance. While feeding, the tail was in almost constant motion, moving back and forth, up and down.

Description: The outstanding feature of the bird was its colorful head. By comparison, its body was rather pale; head and hindneck were light grey. Its white eye ring and broad white mustache stood out even without optical aid, but the white spot above and ahead of the eye was not

as bright. A dark line separated the mustache from the white throat. Underparts were white with streaking on the sides. There was a dark central breast spot that looked like a bar or a smudge, depending upon the viewing angle. The back and wings were light greyish brown with fine streaking on the back; the tail being much darker. The bird did not make any sounds.

Recorded on film: Luckily I had my camera with me. It is a Pentax program plus with a 60-300 mm Tamron lens. The sparrow was difficult to photograph because it was so active. Just when I would try for a profile shot, down its head would go. I took a total of nine shots, two of which were good, using Kodachrome 64 film at about 6-7 m distance. Confident that I now had material to back up my sighting, I then consulted my "*National Geographic Field Guide*." Unbelievably, I had found a Sage Sparrow, *Amphispiza belli*. Over an hour had passed and it was past lunch time, so we had our sandwiches in the van with a Sage Sparrow feeding in the ditch beside us. We drove around the island in an unsuccessful attempt to find other birdwatchers. Our very lost sparrow was still in the ditch when we left for home late in the afternoon.

At home that evening, a quick check in "*The Birds of Nova Scotia*" made no mention of Sage Sparrows. Earl Godfrey's, "*The Birds of Canada*" cited only a few British Columbia records. Similarly, the "*I.O.U. Check-List*" had no Sage Sparrows listed for Eastern North

America. Now I really got excited and called Richard Stern, a birding friend. After listening to my description, Richard agreed to contact Ian McLaren, who then spread the word of my sighting via the Rare Bird Alert. Soon I was receiving telephone calls from as far away as Ontario. Some inquiries had an understandable "could he be mistaken" tone. Richard was not able to travel to Brier Island until November 17th, four days after my sighting. He failed to locate the Sage Sparrow, but did manage to find a Field Sparrow in the same area, which is an uncommon visitor to Nova Scotia. I am not aware of any other birders that tried to find the Sage Sparrow.

Status and Distribution: Sage Sparrows breed from Washington to Wyoming south to California and New Mexico in areas of sagebrush, salt-bush and chaparral. Winters are spent from California to New Mexico south to Sonora, Chihuahua and Western Texas. The only previous Canadian records are as a casual visitor to Southwestern British Columbia; a specimen from Lulu Island, 2 October 1930.

Sights Records: Richter Pass summit, near Osoyoos, 3 May 1970 (K. Gruener) and Pitt Meadows, 27 April 1982 (D. Wilson, K. Summers). Birds of the Okanagan Valley lists a couple of unconfirmed records as well as two more recent sight records at White Lake: 11 June 1980 (R. & J. Satterfield) and 14 September 1981 (A. & J. Grass). Apparently, the Sage Sparrow has not been known to

wander east of Kansas (A.O.U. Check-List) making my Nova Scotia record especially exciting. The enjoyment that I received from finding this bird brings two thoughts to mind: first, anything is possible in the birding game and second, it pays to have a camera handy.

Acknowledgments: I would like to thank Richard Stern and Ian McLaren for getting news of this find out to the birding world. Thanks also to Dick Cannings of the Royal British Columbia Museum for supplying me with the B.C. Sage Sparrow records.

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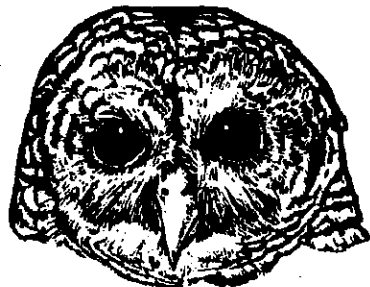
THOSE PREDACIOUS RED SQUIRRELS

by Peter Whelan

Reprinted from The Globe and Mail

In the shrinking forests of Saskatchewan, Paul James studies barred owls and Keith Hobson studies predation on nesting songbirds. To their surprise, their findings met at the red squirrel.

The squirrel emerges as the main food of the owl and the main predator on nesting songbirds. "We didn't know our barred owls ate red squirrels," said Dr. James, curator of ornithology at the Saskatchewan Museum of Natural History. Dr. Hobson, a research scientist with the Canadian Wildlife Service, planted artificial nests of farm-quail eggs. In unbroken woodlands, squirrels found and ate 30 per cent of the eggs. In woodlots they destroyed 70 to 80 per cent. "Nobody had made this squirrel connection, and it may only be true in boreal mixed forests," Dr. Hobson said. however, the pattern echoes findings in the eastern U.S. that



predators destroy far more birds' nests in woodlots than in uncut forests.

With some urgency, the two scientists are merging their studies near Prince Albert National Forest. Cutting is accelerating rapidly in the mixed aspen-alder-spruce forests of central Saskatchewan. Federal and provincial grants encourage clearing for agriculture, whether or not the land is suited to farming. Marginal farmland is being cleared on the edges of the boreal forest, Dr. Hobson said. More pressing is the fact that cutting of aspen for wood pulp is booming.

"These forests have the greatest diversity of breeding birds in North America, higher than Florida. These are our equivalent of the tropical rain forests," Dr. Hobson said. "Now they are being targeted for cutting, big time." North Americans of late have lamented destruction of South American rain forests, the winter home of many birds breeding in Saskatchewan.

Woodlands have few friends on the Canadian Prairies, Saskatchewan residents do not often think of their province as half-forested but as prairie farmland, which the south is.

Dr. James started his barred-owl study with an eye to locating a biological indicator of forest health. He found the owls active in 80-year-old forests and nesting in stands 100 years old. They eat "anything they can subdue," but their cough-up pellets of fur and bones surprised him by revealing a major diet of red

squirrel. The dark-eyed, streaked-brown owl--sometimes called eight hooter for its call--often hunts by day. It is almost the same size as a great horned owl, but a big category down in fighting powers.

Recently, a radio-banded barred owl from the study was found dead in the woods. (Another 10 radio-carrying barred owls survive.) Scuffling in the snow showed a big fight. Among scattered feathers of the barred owl were feathers of a great horned owl. The great horned owl is known for eating small owls, but would appear to risk injury in tackling barred owls.

The researchers' studies suggest a pattern. Barred owls seem most at home in heavy forests and wooded swamps. Do great horned owls discourage them from following squirrels into fragmented forests, and also fail to replace them in preying on squirrels? Martens and fishers also eat squirrels, but they are uncommon.

The red squirrel is often overlooked as the major predator on woodland songbirds. It is an effective finder of eggs and nestlings of such victims as ovenbird nesting on the ground, chestnut-sided warblers and American redstarts in low bushes and Swainson's thrushes in bushes and trees, Dr. Hobson said.



FASTER THAN A SPEEDING TWITCHER?

**Not When They are Flying After a
Grey-Tailed Tattler**

**Reprinted from the Scottish
Banner**

"Twitcher" is the common nickname in Britain for a birdwatcher-and like over here, they will flock after a rare bird with a velocity barely exceeded by a speeding bullet.

Ten thousand miles away, in Siberia, there's a species of bird called a grey-tailed tattler. Normally your average tattler minds his own business in Russia, until the Siberian winter comes, when he has the good sense to fly off to Australia or the Eastern Pacific for the winter.

About once every ten years, one of these little fellows will get horribly lost and end up in the strangest places--like a remote beach in North-East Scotland.

As the grey, wet days of November gave way to the equally grey, wet days of December, no less than 1,000 twitchers were camping out on the east beach of Burghead on the Moray Firth.

The speed with which they got there was remarkable--police on Scotland's main artery to the north, the A9, stopped no less than 90 carloads of twitchers for exceeding the limit.

Marcus Lawson, who lives in Kent, drove 640 miles in nine-

and-a-half hours (!) and said: "Any twitcher worth his salt would say a sighting of a grey-tailed tattler is well worth a speeding fine."

Lee Evans, from Little Chalfont in Buckinghamshire, drives 70,000 miles a year to pursue his hobby; he was pulled over three times on the way to Burghead. Fortunately for him, he was let off with a warning

BNS BIRD NEWS

Fall - Early Winter 1994

**by Richard Stern
Kentville, N.S.**

I have not included any sightings from Christmas bird counts, as these will be reported elsewhere. This season has been a good one for the rare and unusual, with several examples of the "Patagonia picnic table effect," where large numbers of birders searching an area for a particular rarity unexpectedly turn up other rarities. There were 3 new records for King's Co. during this period.

GREAT EGRET - One was at Canard Pond Nov.27 (HF), and subsequently seen by several people in the vicinity of the Canning Aboiteau. This rare visitor from points farther south is only a second King's Co. record - the first being in the same area in August 1992.

CANADA GOOSE - 35+ W.Grand Pre Oct. 5 (BBT), 100+ Gr.Pre Oct 20 (BBT, JT), and a small

flock that spent most of the Fall on WW's lawn at Hillaton. There were up to 800 at Kingsport by Dec. 13 (DPT), and about half that flock were seen to take off and head south.

SNOW GOOSE - These days a few seem to turn up briefly in our area most winters. This time MAG saw 2 at Kingsport Nov. 20.

AMERICAN WIGEON - 23 were still at Harris's Pond, Canning, their local "hotspot" on Nov.20 (JWW).

WOOD DUCK - 2M, 1F, Henni-gar's Marsh Sept. 29 (JT, BBT), and one M. still there Dec. 6 (JWW).

BARROW'S GOLDENEYE - A full-plumaged M. was present on the Cornwallis R., Kentville during the 1st week Jan (GF), but there was no sign of it by the 5th. This attractive duck is a rare visitor, probably from the West, although there is a small Greenland and Iceland breeding population. Small numbers regularly winter on the Annapolis River by the tidal power station, and also in the Bedford Basin.

HOODED MERGANSER - 6 in Saxon St. Pond Nov.20 (JWW) and 4 imm./f. at Canning Aboiteau Dec.5 (RBS).

RED-SHOULDERED HAWK - 1 on the Wolfville ridge 27 Dec. (BLF) remained for just a few days. This was close to the site of last year's bird. Prior to this there were only a handful of sightings for our area.

RED - TAILED HAWK - The (presumably) usual albino bird was

once again back at Sheffield Mills Oct. 29 (MH).

NORTHERN HARRIER - An adult male, always a beautiful sight, was at Greenwich Dec. 22 (JWW).



DOVEKIE - One was found dying, on the Deep Hollow Road, White Rock, Nov.19 (RRN). I can't remember if there had been a wind-storm just prior to that, but this species is relatively frequently blown inland by storms, land on wet roads mistaking them for the ocean, and then can't take off again as they are not on water.

MEW GULL - An adult was at Canard Pond 21 Nov. (AAM). This is a rare vagrant from Europe, is an annual rarity in the Halifax area, and this bird is a first for King's Co. It looks like a Ring-billed gull with a darker mantle and a smaller, "un-ringed" bill.

LESSER BLACK-BACKED GULL - An adult was found at Canard Pond Nov.26 (BLF), and subsequently stayed around in a field along Saxon St. for the next 2 weeks. This is yet another rarity, probably from Europe, but the number of sightings in North America continues to increase. This is probably another "first" for our area. The bird is slightly smaller than a Herring gull, has a less black back than a Great

Black-backed, has a "dirty" head like a winter Herring gull, and has yellow legs.

GLAUCOUS GULL - A 1st winter bird was at New Minas Sewage Pond Jan.8 (RBS). This is one of our rarer, but regular, winter visiting gulls.

ICELAND GULL - Seem to be getting more common in our area, and several have been present all winter at Kentville, New Minas and Port Williams sewage plants. They are almost the most common gull now in winter around the sewage outlets in Halifax harbour.

AMERICAN COOT - 1 was on the Habitant River in Canning Dec.4 (JWW).

GRAY PARTRIDGE - 15 Oct. 4, 7 on 7th on road near Starr's Pt (JDD). Numbers continue to just about hold their own.

NORTHERN SAW-WHET OWL - One was seen by DR on the last weekend of Nov. sitting in a conifer near the river in New Minas. This is a rarely seen and most attractive bird, and usually located in small numbers in the dead of night, by their "toot - toot" call as they migrate back north through our area in March.

BLACK-BACKED WOOD-PECKER - A female of this, one of our rarest breeding and least often seen woodpecker, was in mature spruce in KLC's backyard, Cheverie for several days in late Oct.

GREAT-CRESTED FLYCATCHER - 1 was present in the area

around and behind GF(s)'s house in Greenwich mid- Nov. This was a rather pale individual, late for the species, and after a period of strong and persistent westerlies gave rise to a lot of argument about its ID. The general consensus at the time was more likely this species than, say, an Ash-throated, and subsequent perusal of slides seem to confirm that.

AMERICAN CROW - Apart from the nightly spectacle of 10 - 15,000+ in Kentville, an apparent all white albino was seen by MW in Wolfville Dec. 24 (? pulling a sled).

HOUSE WREN - 1 of these more southerly rarities was seen by the railway tracks in Greenwich (RBS) while searching for the Chat (see below), on 5 Nov.

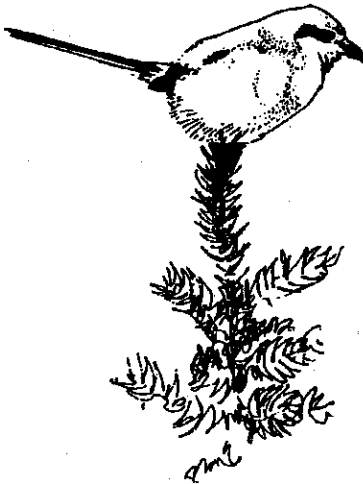
MARSH WREN - BLF found one calling, and half- hiding, in reeds along the railway tracks at Grand Pre Jan.1. This may be yet another first for King's County! Unfortunately it could not be re-located later.

NORTHERN WHEATEAR - A nice basic plumaged M. bird was found by SA and MC, 2 visiting



British birders, while walking on the Wolfville Dyke in early Oct. The bird was very obliging, and stayed around for approx. a week, despite the activities of tractors and people. It was seen and photographed by numerous birders, including one well-known expert from the Metro area, who, despite being widely regarded as being one of Nova Scotia (and Canada's) most experienced birders, had never managed to see a Wheatear.

NORTHERN SHRIKE - 1 on Wolfville Ridge road just before Christmas (JGT), and 1 in a tree top at Starr's Pt. 27 Dec. (VL)



PINE WARBLER - A brightly coloured individual, together with a duller one at times, visited JWW's feeder as in previous years, in late Dec.

ORANGE-CROWNED WARBLER - Once again the area behind

HF's house proved a winner, with one of these rare, but regular winter visitors in early December.

YELLOW-BREASTED CHATS - Several people saw 1- 2 birds at GF(s)'s while trying to sort out the Great-crested flycatcher in Nov. HF also saw one about a week earlier along the railway tracks in Greenwich, not too far away as the Chat flies?? Another one was seen by PCS below Westwood Ave., Wolfville Dec.11.

NORTHERN CARDINAL - 1 F. appeared at GT's in Wolfville, Nov.16, and PCS hears the distinctive call note of one in Wolfville on Dec.1, and saw a male Dec.13. Numbers this year don't seem to match last year's highs.

WHITE-CROWNED SPARROW - An imm. was at a feeder in Wolfville Dec.11 (PCS), and an adult was at MAG's feeder in Canning on Jan.1.

EVENING GROSBEAK - 50+ Greenwich Dec.4 (AAM, RBS).

NORTHERN ORIOLE - A dull bird, probably imm., was seen in Wolfville Dec. 20- 21 (PE).

YELLOW-HEADED BLACK-BIRD - The same British couple who discovered the Wheatear found one at Meek's Farm, Canning in mid - Oct., with all the starlings.

HOUSE FINCH - Port Williams remains the provincial stronghold for this species, whose imminent invasion has long been predicted but so far has not materialised. 2 F./imms. were at NN's feeder Dec. 18.

Contributors to Bird News:

SA Simon Allday
KLC Karen Casselman
MC Mary Coales
JDD J. and D. Daigle
PE Paul Elderkin
BLF Bernard Forsythe
GF George Forsythe (jr.)
GF(s) George Forsythe (sr.)
HF Harold Forsythe
MAG Merritt Gibson
MH Matthew Harvie
VL Virginia Lee
AAM Angus MacLean
RRN Reg and Ruth Newell
NN Nancy Nickerson
DR Dick Rogers
PCS Peter Smith
RBS Richard Stern
BBT Brenda and Bill Thexton
JT Jean Timpa
DPT Dan Toews
GT Gerry Trueman
JGT Judy Tufts
WW Bill Wade
MW Muhammed Waseem
JWW Jim Wolford

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Dr. Richard Stern
40 MacDonald Park Road
Kentville, N.S.
B4N 5C7



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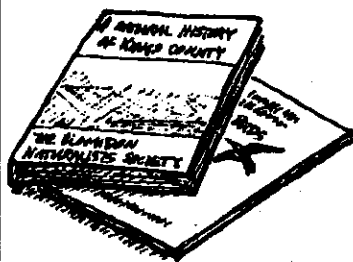
Harold Forsythe, Treasurer
R.R.#2 Wolfville, N.S.
BOP 1G0
542-5983

A NATURAL HISTORY OF KINGS COUNTY

*BIRDS OF KINGS
COUNTY*

(An Annotated
Checklist)

Supplement No. 1



Weather - October, November, December 1994

by Larry Bogan Cambridge Station

The weather statistics for the last three months of 1994 are tabulated below. In summary we had:

--- A very dry October with only 1/5 the normal rainfall for the month - This added to the dry conditions of the summer which had 30% (100 mm) of the normal rainfall.

--- A very warm, sunny November with the mean temperature 1.4 degrees above normal and 20% more bright sunshine hours than usual.

--- A wet December with 60% more rain than is normal for that month and an average snowfall. Increased precipitation usually implies cloudiness, yet, the bright sunshine hours were 30% above the 30 year average. The reason for this is that 70% of the rain fell on the 5th, 24th and 28th of the month.

Overall for the October-thru-December period:

--- The bright sunshine hours were 20% above average

--- The rainfall was 80% of the expected amount and adding to a dry summer.

--- The average temperature was 0.5 degrees above normal

My conclusion is that the last quarter of 1994 was a bit dry, nicely sunny, and pleasantly warmer than usual.

Summary of Monthly Weather Statistics					
Oct, Nov, Dec 1994					
For Kentville, NS (Agriculture Research Centre)					
(30 year averages for the month in parentheses)					
Month	Mean Temp(C)	Heating Deg Days	Rain (mm)	Snow (cm)	Bright Sun hours
OCT	9.2 (9.2)	275 (275)	20 (104)		148 (138)
NOV	5.3 (3.9)	381 (424)	93 (108)	10 (13)	102 (84)
DEC	-2.1 (-2.4)	622 (635)	120 (75)	55 (57)	88 (60)
Average or total for the period	4.1 (3.6)	1278 (1334)	233 (287)	65 (70)	338 (282)

BLOMIDON NATURALISTS SOCIETY

1995 Membership Fees

Each member receives four issues yearly of the *BNS Newsletter*. The Blomidon Naturalists Society is a registered charity. Receipts for income tax purposes will be issued for all donations. The membership fee itself is not tax-deductible. Members may also join the Federation of Nova Scotia Naturalists through the BNS and will receive their quarterly newsletter; the membership is not tax-deductible.

Please enclose a cheque or money order payable to "Blomidon Naturalists Society" and forward to:

Harold Forsyth
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Sources for Local Natural History Information

(compiled by Blomidon Naturalists Society)

<i>Information</i>	<i>Source</i>	<i>Office</i>	<i>Home</i>
Rocks & Fossils	Geol. Dept., Acadia Univ.	542-2201	
Fish	N.S. Dept. of Natural Resources	679-6091	
Flora - General	Ruth Newell	542-2201	542-2095
Flora - Fungi	Darryl Grund	542-2201	542-9214
	Nancy Nickerson	679-5333	542-9332
Flora - Lichens	Karen Casselman	424-7370	633-2837
Flora - Seaweeds	Darryl Grund	542-2201	542-9214
Flora - 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	542-2201	542-7650
	Jean Timpa		542-5678
Birds - Hawks & Owls	Bernard Forsythe		542-2427
Birds - Falcons & Eagles	Peter Austin-Smith		542-2109
Mammals	Tom Herman	542-2201	678-0383
Amphibians & Reptiles	Sherman Bleakney	542-2201	542-3604
	Jim Wolford	542-2201	542-7650
Seashore & Marine Life	Sherman Bleakney	542-2201	542-3604
	Jim Wolford	542-2201	542-7650
	Graham Daborn	542-2201	542-5373
	Michael Brylinsky	542-2201	582-7954
Indian Prehistory	Ellis Gertridge		542-2816
& Archaeological Sites	James Legge		542-3530
Astronomy	Roy Bishop		542-3992
	Sherman Williams	542-3598	542-5104
	Larry Bogan		678-0446



Electric Power and Pulp
on Gaspereau River
at White Rock

Electric Power and Pulp Work on the Gaspereau River at White Rock - 1921