

# BLOMIDON NATURALISTS SOCIETY NEWSLETTER

VOLUME 15  
NUMBER 2  
JUNE 1988



## BNS Summer Programme

**MONDAY EVENING MEETINGS:** All meetings will start at 7:30 p.m. and, unless otherwise indicated, will be held in Room 244 of the Beveridge Arts Centre at Acadia University. All lectures and field trips are open to the public and BNS members are encouraged to bring friends and neighbours. Any changes in the date, time or subject of meetings are announced on posters, the Kings Kable notice board and in The Kentville Advertiser and The Hants Journal.

1. June 20 -- Peter Hicklin of the Canadian Wildlife Service, Sackville, N.B., will discuss our local shorebirds, their migrations, and the international attention they are currently receiving. (Room 10, Huggins Science Hall)
2. September 19 -- Zoe Lucas will discuss her ocean pollution studies on Sable Island.

## Field Trips

Unless otherwise noted, all times are given for meeting at the Acadia Gym parking lot. Morning trips sometimes extend into the afternoon so you may wish to bring lunch. Where available, leaders' telephone numbers are included to allow those without access to local news to confirm trips.

1. Saturday, July 9 -- Maritime Breeding Bird Atlas Weekend. Frog Lake square (20TLE56). Larry Bogan (678-0446) will coordinate two parties, one in canoes, one on land. Meet at the intersection of Highway #1 and the Berwick town road at 8:00 a.m. Canoeers bring your own canoes. All day. For further information contact Larry before the trip. Rain date: Sunday, July 10.

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The BNS Newsletter is published on equinoxes and solstices.

Editors: George and Margaret Alliston  
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 Distribution: Lana Churchill and Brenda Thexton

"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 an Affiliated Member of the Canadian Nature Federation.

Address correspondence to:  
 Blomidon Naturalists Society  
 P.O. Box 127  
 Wolfville, Nova Scotia  
 B0P 1X0

2. Saturday, July 9 -- Maritime Breeding Bird Atlas Weekend. Annapolis Field Naturalists will complete Delaps Cove square (20TKE96). Contact Sharon Hawboldt (638-3387) or Gini Proulx (467-3235). Meet at T and M Diner at Hillsburn at 8:00 a.m. (same diner the group finished at last year but the name has changed). All day. Rain date: Sunday, July 10.

3. Sunday, July 17, 7:00 a.m. -- Canoe trip to bog at Methal's Lake to view orchids, etc. Led by Bernard Forsythe (542-2427). Bring your own canoe and, if you don't like having wet feet, your hip waders!

4. Saturday, July 23, 9:00 a.m. -- Akin Marsh. Reg Melanson (678-8921, days), of the N.S. Department of Lands and Forests, will lead us on our first trip to this marsh. All day. For a description of the marsh, see N.S. Conservation, Vol. 11, No. 3, Fall 1987, pp. 3-4.

5. Tuesday, August 2, 8:00 p.m. -- Chimney Swifts and Bats in Wolfville. Leader Sherman Bleakney (542-3604).

6. Saturday, August 13, 1:45 p.m. or 2:00 p.m. at Grand Pre Park parking lot -- Early Shorebirds. Jim Wolford (542-7650).

7. Saturday, September 17, 1:30 p.m. -- Murphy Lake and Fal-mouth for late orchids. Bernard Forsythe (542-2427).

8. Thursday, September 29, 8:30 p.m. at Grand Pre Park parking lot - Stars, Planets and Harvest Moon rise with, Sherman Williams (542-5104), and Larry Bogan (678-0446). No rain date.

### Speakers

#### BNS Summer Programme

#### Peter W. Hicklin

Peter Hicklin began his shorebird studies at Acadia, completing his M.Sc. degree in 1981 with a study of the relationship of substrate, invertebrates and migrant shorebirds. Since then he has been employed by the Canadian Wildlife Service, concentrating on shorebirds and waterfowl of the Bay of Fundy. His Ph.D. thesis on eider ducks will soon be completed.

#### Zoe Lucas

Although Zoe has a Masters degree in Fine Arts from the Nova Scotia College of Art and Design and taught there for several years, most of us know her by her work as a biologist on Sable Island. She has participated in and conducted numerous zoological and botanical studies on that island and now spends six to nine months of the year there. Current research programs in which she is involved are concerned with the island's feral horses, vegetation, terrain restoration and plastic litter pollution.

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SOCIETY NEWS  
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### Acknowledgements

Thanks this time to:

everyone who participated in "Show and Tell" Night;

Scott Cunningham for showing us a different view of Nova Scotia coastlines;

Bernard Forsythe for showing us his growing collection of slides of Nova Scotia orchids;

all our field trip leaders: Sherman Bleakney, Bernard Forsythe, Sherman Williams, and Jim Wolford;

and everyone who contributed to the Newsletter.

### BNS Newsletter Submissions Deadline - September 1, 1988

Please send or give all contributions to the Newsletter to:

George Alliston (542-3651)  
R.R 3

Wolfville, N.S. BOP 1X0

or to other members of the BNS executive.

For "Trivial Tidbits" only, send your written observations (in chronological order) to Jim Wolford at:

Biology Department  
Acadia University  
Wolfville, N.S. BOP 1X0

Last-minute observations can be phoned in to 542-2201, ext. 334 (leave a message).

The editors would greatly appreciate all submissions, even those typed or word-processed, being at least double-spaced to facilitate both editing and word processing. Sketches or diagrams should be submitted in final form, preferably on a separate page.

### The Robie Tufts Young Naturalists Award

The Robie Tufts Young Naturalists Award was established by the Blomidon Naturalists Society in 1983, in memory of Dr. Robie Tufts, to encourage an interest in natural history. Winners have been:

1984	Tammy Ashley of Newtonville
1985	Paul Fairclough of Coldbrook
1986	Kasia Muldner of Wolfville Sean Timpa of Wolfville
1987	Michael Jodrey of Hantsport

Any resident, of Kings or Hants Counties, fifteen years of age or younger, may enter the competition. Projects entered may cover any subject concerning natural history:

for example, a wildflower collection, descriptions of local bird observations, an essay on a natural history subject, a project describing the life cycle of insects, a geological collection, etc. The candidate should display an ongoing interest in the subject.

Questions concerning the competition should be addressed to:

Mr. Sherman Williams  
President  
Blomidon Naturalists Society  
P.O. Box 127  
Wolfville, N.S. BOP 1X0  
Telephone: 542-5104

Nominations should be submitted to Sherman Williams by August 31, 1988.

Entries will be judged by the Executive Committee of the Society and the award(s) presented at the annual meeting in October. The prize will be one year's membership in the Society and a field guide of the recipient's choice.

Members of the Society are urged to nominate suitable candidates and/or encourage young people to enter the competition.

#### **Submission on Off-Site Signs**

by Sherman Williams  
Avonport, N.S.

On March 31, a public hearing was held in the Kings County municipal council chamber regarding a proposal to abolish the County's off-site sign bylaw. A written submission was entered by our executive on behalf of the Society. It expressed the concern that would be felt by a strong majority of our membership should the regulatory guidelines of the signage bylaw be removed. The meeting was quite well attended and a number of citizens made submissions. I am happy to report that all submissions heard expressed a desire that the County should not abandon its control over the erection of off-site signs. The matter was brought before Council the following week but due to some technicality the vote could not be taken and the item was held over to a later date. As this article goes to print, I have not heard what further action has taken place, however, it is hoped that the bylaw is intact, doing its part in maintaining the pleasant quality of the Kings County landscape.

#### **BNS Marks Environment Week**

by Sherman Williams  
Avonport, N.S.

May 30 through June 5 was Environment Week. To mark the occasion our Society contributed \$300 to the World Wildlife Fund to be used to "purchase" and set aside forever 12 acres of unique rain forest to be added to the Monteverde Cloud Forest Reserve in Costa Rica. The money was raised through "passing the hat" (literally) at our May meeting, along with donations that came in during the week that followed. The cheque was sent June 1.

Although the tropical rain forests of Central America may seem to be a very distant target for our philanthropy, the connections are closer than one might initially think. The tropical rain forests are important wintering areas for bird species that summer in Canada. Anthony Diamond of the Canadian Wildlife Service has recently studied the effects of tropical habitat loss on more than 100 species of Canadian birds that winter in the tropics. He estimates that by the year 2000 some species of orioles and warblers will have lost half their original wintering grounds.

Each year an estimated five billion birds migrate out of the temperate regions of North America to the tropical regions of Central or South America. The packing of winter migrants with resident tropical species further magnifies the effects of habitat loss in the tropics. John Terborgh, a tropical ecologist at Princeton University, has estimated that the clearing of an acre of tropical forest is ecologically equivalent to clearing six to eight acres of habitat in North America. To be able to preserve this valuable tropical habitat for \$25 per acre is certainly one of the best bargains we can get for our conservation dollars! I would like to extend my thanks to those who contributed to the support of our project.

In conjunction with our Environment Week project this Newsletter features two articles concerning Costa Rica and the Monteverde Cloud Forest Reserve and some reviews of recent books on tropical rain forests.

#### In Memory of Don and Susan Hancock

Members of the Blomidon Naturalists have been deeply saddened by the tragic and untimely deaths of two of its longstanding members: a husband and wife team in the prime of life.

Don Hancock was born in western Canada and attended primary school in the small northern communities where his father was in charge of the Hudson's Bay Company outposts and his mother taught and served as librarian in the native schools. Don attended high school in Edmonton, obtained his bachelor's degree at the University of Alberta and his degree in Veterinary Medicine from the University of Guelph. After graduation he joined Cornwallis Veterinarians in Kentville, N.S. Don's specialty was equine medicine and his seventeen years of unflinching service to horse owners in the Annapolis Valley earned him their respect and admiration. Don was an ardent naturalist and a keen participant in BNS activities.

In 1972, Don married a local girl, Susan MacGowan, one of Atlantic Canada's outstanding equestrians, who once was considered an Olympic hopeful. Amongst her more recent successes were the DuMaurier Cup jumping stake in 1984 and a gold medal at the 1986 Atlantic Winter Fair.

In November of 1985 Don was diagnosed as having cancer and in August 1987 he lost his battle with that disease. Susan became ill in April 1987 and was also diagnosed as having cancer. Susan died in February 1988.

Their two children, Ian, 11, and Janice, 9, now live in Edmonton with Don's sister's family.

Our Society and the community are the poorer for their untimely loss.

## A Newsletter Paper Weight Change

In order to publish a larger edition of the Newsletter without triggering a rise in postage (from 57¢ to 74¢) we are, as an experiment, using 16 lb paper rather than the normal 20 lb paper in this edition of the Newsletter. We hope that you will bear with us if the results of this experiment are less than we had expected.

### ----- NATURE NEWS -----



## The Annapolis Field Naturalists

by Stephen Hawboldt  
Clementsport, N.S.

What has a name, is blessed with enthusiasm, was spawned with the midwifery support of the Blomidon Naturalists Society, but doesn't officially exist yet? The Annapolis Field Naturalists, of course!

Inspired by the success of the BNS, about eight people met in an Annapolis Royal living room to discuss the idea of forming a naturalists group. These few felt that a few more might be interested. To field test this hypothesis, it was decided to stage a public event on March 30, suggest possible activities for the summer, and see what happened.

As this required organization, the ever enthusiastic and energetic Gini Proulx was the natural interim-chairperson. It was agreed that if anyone came to the first event, we would continue.

John Brownlee, Park Naturalist, Kejimikujik National Park, was invited to be the "lure" with a program "The Sights and Sounds of Spring". Two dozen chairs were arranged at the front of the otherwise empty church hall on the evening of March 30. As well, displays were set up, questionnaires made ready, coffee started and cookies put out. By the time our "lure" was introduced, all 80 chairs in the hall were occupied. For the statistician, that is about one percent of the region's population! John's informative and entertaining explanation of the spring antics of woodcocks, frogs, toads and salamanders sealed the enthusiasm.

A field trip to Keji on April 23 gave 50 supporters an opportunity to see the first stirrings of spring - peepers, salamanders, wood frogs, plants and birds. Several of the group took their picnic supper to John Brownlee's home, so that the evening could be spent watching the woodcock display, hunting for "boy salamanders meeting girl salamanders" and hooting for owls.

A second field trip to Keji to witness the migration of salamanders, scheduled for the first warm spring evening in April, was cancelled because all the wet nights were snowy.

About 40 supporters gathered in Yarmouth on May 1 to have a guided tour of the Chebogue Meadows Interpretive Nature Trail. The outing was led by wildlife biologist Paul Tufts, of the Nova Scotia Department of Lands and Forests. Several participants also attended the official designation of the Wilson Lake Ecological Reserve held later that day in Tusket.

On May 15, a few supporters travelled to Scots Bay to join the BNS hike to Cape Split.

Special displays are planned for the Annapolis Royal Farmers Market on June 4 to mark Environment Week. These include the results of a poster contest with area schools, a recycling display and general material.

Birding members will put a drive on this year to complete the Maritime Breeding Bird Atlas priority square at Delaps Cove. Planning is centered around Atlas Weekend, July 9 and 10.

It is anticipated that several members will participate in the various events of the Spring Festival at Kejimukjik National Park on June 11 and 12.

Bernard Forsythe will lead a group on July 23 to see the orchids of Mud Lake Bog.

We hope that early in the fall the enthusiasm generated over the summer will lead to the formal creation of the Annapolis Field Naturalists. The group will likely be modelled after the Blomidon Naturalists Society, ideally with a newsletter which we can exchange.

The early successes of AFN are in no small measure due to the support of the members of the BNS. BNS members have helped with planning events, offered advice, and supported our field trips. We hope that a simple thank you and the growth of AFN is a fitting expression of our gratitude.

### **The Upper Bay of Fundy Peregrine Release Program**

by George Alliston  
West Brooklyn, N.S.

During the past 20 years the plight of the peregrine falcon has come to symbolize the effects of pollution on the environment. During the 1950's and 1960's the anatum subspecies of peregrine was exterminated from its breeding range east of the Rocky Mountains. By the late 1960's only a small and generally unhealthy remnant population of this subspecies remained in areas west and north of the Rockies. By this time scientists were close to proving conclusively that the crash of the peregrine falcon population was being caused by the accumulation of pesticides (chlorinated hydrocarbons, specifically DDT and its breakdown product DDE) within these top predators. (The concentration of the pesticide increases with each ascending link in the food chain.) The chlorinated hydrocarbons caused either the death of adult birds or caused female peregrines to lay thin-shelled eggs which broke during incubation, thus preventing repro-



duction. In the late 1960's and early 1970's, after almost 30 years of unrestricted use, the use of DDT was severely restricted in the United States and Canada.

Since by the late 1960's it was very apparent that the anatum subspecies of peregrine falcon was rapidly approaching extinction, an intense research program directed at breeding peregrine falcons in captivity was begun. While this program had its tense moments, the investigators persevered and soon had found viable methods of producing young peregrines from captive birds.

By the mid-1970's the captive breeding stock of peregrine falcons had been increased to the point where the first experimental releases of captive-bred birds could be conducted. During the late 1970's, and 1980's, the captive breeding and release program has been greatly expanded. Although the final chapter concerning the ultimate success of this restocking program has yet to be written, the evidence to date strongly suggests that it will be successful. Certainly the research done in conjunction with this program has been an illustration of applied science at its best.

Peregrines introduced into the eastern regions of Canada have been found to winter in the southern United States where harmful pesticide levels are low enough to ensure their survival. However, birds introduced into western Canada winter in Central and South America where the use of chlorinated hydrocarbons has increased immensely in recent years. These western birds collect sufficient pesticide residues on their wintering grounds to impair their reproductive capability. It would thus appear that the eastern Canadian releases could be particularly important in the success of the restocking program.

The head of the Bay of Fundy has been proposed as the number one site in Canada for a large-scale introduction of peregrine falcons. Potential nesting habitat along the coast is excellent having many high cliffs and a well protected area within Fundy National Park. In summer, the Bay of Fundy also has the largest concentration of migrating shorebirds in North America, thus providing a potential source of food for young peregrines.

The Upper Bay of Fundy Peregrine Release Program began in 1982 and its current objective is to establish at least ten successfully breeding pairs of peregrine falcons in the Atlantic region of Canada. By the end of 1987, 90 young peregrines had been released: 46 in Fundy National Park, N.B. and the remaining 44 in Nova Scotia. The main release site in Nova Scotia has been Cape d'Or, near Advocate, Cumberland County, where 34 birds have been released since 1982. In 1987 the first peregrine releases were made at Blomidon Provincial Park and Five Islands Provincial Park; five birds were released at each of these sites. The only documented historical peregrine nesting sites in Nova Scotia are at Cape d'Or and on Diamond Island in Five Islands Provincial Park.

On July 16, 1987 a marked male peregrine falcon that had been released at Cape d'Or in July, 1983, was identified at Cape d'Or. This was the first identified returning bird from the Upper Bay of Fundy releases. Unfortunately the bird was very aggressive and was believed to have caused the loss of

three of the five young peregrines released at Cape d'Or in 1987. In fact the decision to release the five birds at Five Islands Provincial Park in 1987 was a direct result of this aggressive male's behaviour (they were slated to be released later at Cape d'Or).

In 1986 and 1987 a pair of captive-released adult peregrine falcons (from another release area) occupied a territory near the Point Wolfe hack site in Fundy National Park. In 1985 a subadult bird that had been released in the U.S. was also observed at this site and, in the early summer of 1986, an adult male (perhaps the same bird) was observed in this territory.

The Upper Bay of Fundy Peregrine Release Program, which is currently funded by the World Wildlife Fund, will continue, if necessary, for another four years. In 1988 there will be two release sites in New Brunswick: one in Fundy National Park (two releases of four or five birds) and one in the St. Martins area (one release of four birds). In Nova Scotia the 1988 releases will be at Blomidon and Five Islands. Two separate releases (five then four birds) are planned at each of these sites for a total of 18 birds to be released. Because of the problems experienced at Cape d'Or in 1987 this site will not be used for releases in 1988. Birds for the first release should arrive in Nova Scotia from the Canadian Wildlife Service's peregrine breeding facility in Wainwright, Alberta, on June 20 or 21.

When the young peregrines are received they are generally between three and one-half and five weeks old. These birds, which will not be ready to fly until they are between six and seven weeks old are immediately installed in a large "hack box" adjacent to a cliff where peregrines might normally nest. The hack box is closed on the top, bottom and on two or three sides. The "open" side(s) is equipped with bars and screening to prevent the young peregrines from prematurely fledging and to prevent potential predators, such as raccoons and great horned owls, from gaining access to the birds. An attendant at the site feeds, observes and protects the young birds while being concealed from the birds. Concealment is necessary so that the young birds will not be unduly alarmed and will not become imprinted to humans.

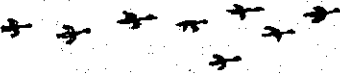
When the birds are between six and seven weeks old the bars are removed from the front of the cage and the birds are given their freedom. At this stage the birds are extremely vulnerable to predation and accidents. Over a period of several weeks the young peregrines develop their flying skills and learn to hunt for themselves, gradually becoming less and less dependent upon the food that continues to be provided at the hack site. It is believed that during this learning period the young birds also become imprinted to the hack area and tend to home to this area to nest if they should survive the two to three years it normally takes for the birds to reach sexual maturity. Within about a month of fledging the birds normally have become independent and have left the hack area. From here nature takes its course. We can only wait, watch and hope that, in time, the peregrine falcon will again become a breeding bird of the Atlantic region in general and the upper Bay of Fundy in particular.

We will report further news of the Upper Bay of Fundy Peregrine Release Program as it becomes available.

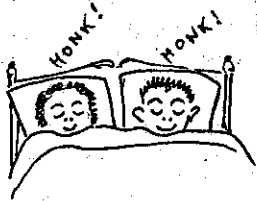
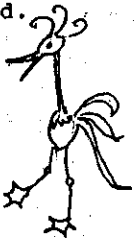
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FIELD TRIP REPORTS  
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Canada Goose Flypast  
April 4, 1988

by Sherman Bleakney  
Wolfville, N.S.



'Twas the night before Tuesday, when all through the county  
Not a creature was stirring, not even a mounatie.  
The binocs were hung about necks with great care,  
In hopes that some geese would surely be there.  
The birders were nestled, all snug in their coats  
While visions of partial albinos danced up their hopes.  
So Jim with his scope, and I with one more,  
Stopped off at Port Williams, and saw geese there galore.  
Albinos were absent, but there was a strange sound;  
Off went Williams and friend, snow buntings they found.  
At Wellington dyke, there arose such a clatter,  
'Twas Richard and Bernie, re some avian matter.  
Away to the west, a killdeer was heard,  
Then a snipe, and a duck, and some other queer bird.  
When out of the sunset, what did nature release,  
But a miniature wedge, of eight tiny geese.  
In the lead was a gander, so strong and so steadfast,  
That I knew in a moment, this must be the flypast.  
With wingbeats majestic, in skeins as they came,  
As they honked and wings whispered, I called persons by name.  
Now Merritt, now Harold, now Laura and Brenda,  
Be quiet, be quiet, or to cars I will send ya.  
Cup hands to your ears, as they pass overhead,  
'Tis a sound to remember, when back in your bed.  
Then they honked rather loudly, as they flew out of sight,  
"Happy birding to all, hope you had a nice night".



Evening of Owls  
April 26, 1988

by Bernard Forsythe  
Wolfville, N.S.

On many field trips, for various reasons, the results are not always as successful as the leader might wish. Then once in a while everything clicks into place perfectly. Such was the case for this outing. The evening was clear with no wind resulting in an overwhelming number of people turning out. After grouping up, the caravan of about 20 packed cars drove along the side roads of the Grand Pre Dyke. A snowy owl that had been using a piece of farm machinery for a

roost flew only a short distance as we approached, giving several in our group their first look at this owl of the far north. At least three short-eared owls were seen hunting over nearby fields.

The next stop was at Cyril Coldwell's in Gaspereau where we were able to see downy chicks beside the great horned owl nesting in the maple tree on his lawn. Then the caravan wound its way to Greenfield to a very wet woodland swamp. Before long a male woodcock was heard giving its ground note and soon most of us could hear the wing and chirping notes of the aerial part of its courtship display. In the background the winnowing sound from the vibrating tailfeathers of a courting snipe could be heard.

Over the years that I have been pursuing owls I have not been able to find the nest of a saw-whet owl. In some years I have heard them calling at several sites including this Greenfield swamp. In the past, one had not given our owl evening field trip a satisfactory demonstration of its monotonous tooting call. Much to my delight, just at dusk from across the swamp came the rapid whistled notes of a saw-whet that could still be heard as we left for the next stop to try for a barred owl. After a short walk through a mature woodlot, I tried my barred owl imitation near one of my nest boxes. Before long we heard bill snapping and then several single call notes from a very annoyed barred owl.

Finally most of us stopped at a roadside ditch near Gaspereau where Jim Wolford showed us spring peepers and spotted salamanders. Counting Cyril's great horned owl we observed and/or heard five species of owls, something one does not often do on a single outing. As for Cyril's owl, although it was raised in captivity, it has been free for several years and is mated with a wild male, so I would say that it could be counted.

### Cape Split May 7, 1988



by Jim Wolford  
Wolfville, N.S.

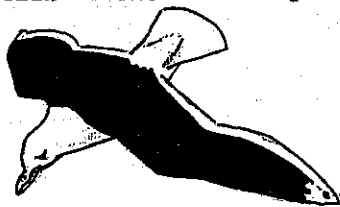
A very windy day, cloudy and chilly, didn't discourage the approximately 60 people that joined Sherman Williams and me for our hike to Cape Split. From the parking lot Paul Yates spotted an all-white gull (Iceland?). At the beginning of the trail there were two false morels along the fence. Near the end was a fallen birch trunk; its recently cut surface was covered with a slimy fungus or mold. In many areas the ground was littered with spruce twig-tips, probably broken off in winter by ice-storms and winds.

The wildflowers were not quite up to my expectations (from past dim memory of my first walk there), but there were "zillions" of spring beauties (on May 15 they were really in carpets). Sherman showed us that at the very tip of the root is an edible, tasty, nut-like tuber. Also in bloom were hazelnut bushes and, in wet spots, tiny golden saxifrage. Dutchman's breeches, one of my favourites, was just starting to bloom. Red trilliums were only in bud. Shiny club moss was abundant, with sporangia at the leaf-bases, and fiddleheads of some ferns were noticeable (not the ostrich ferns yet).

Birding was extremely poor along the way - no winter wrens, about 20 yellow-rumped warblers, 2 ruby-crowned kinglets, a ruffed grouse, a northern flicker, a few eiders and black guillemots and a European starling. As usual, great black-backed gulls and double-crested cormorants were nesting on top of the large "rock island" off the end of the Cape. However, one pair of misguided great black-backed gulls nested on the tip of the mainland where their nest could be readily approached and seen. Signs of porcupines (tree trunks de-barked) and snowshoe hares (scats and browsed shrubs) were very abundant near the Cape. Signs of white-tailed deer were noted, and a harbour seal, a toad, and a large vole or shrew were seen. In a tree-trunk, feeding holes of a pileated woodpecker showed not only galleries of carpenter ants but also a few carcasses of the ants, including a very large winged one.

On our way back, the wind whined through the leafless hardwoods and I found this to be oppressive or somehow foreboding.

On the following weekend, some BNS members and prospective members of the new Annapolis Field Naturalists (see separate article) had an absolutely perfect, sunny, warm and calm day with carpets of flowers and a lot more birds to see. Don't let me talk us into an early May hike next year!



BLACK BACKED GULL

Paradise - Bridgetown Area  
May 21, 1988

by Jim Wolford  
Wolfville, N.S.

At least six BNS members joined a large group, led by Bill and Jean Morse, from the Nova Scotia Bird Society. In the muggy overcast morning, which we spent walking south from the Morses' property, the birding was very frustrating because, although singing birds were present, the birds were very inactive and therefore very difficult to see. And there we were, all trying to re-learn the bird songs as we do every spring! Plentiful and hungry blackflies made things worse.

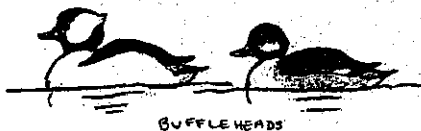
But some compensation came from the walk itself and the flowers: blue violets, white violets, cuckooflower, painted trillium, goldthread, rhodora, creeping raspberry (dew-berry), hobblebush, starflower, blueberry, shadbush, pin-cherry, apple, mayflower, and (later in the day) buttercup and mouse-ear chickweed.

During lunch we found several wood ticks (dog ticks) on us - I had three on my sweatshirt. (Two days later Miriam and I found two more ticks on ourselves, presumably from this trip.)

In the afternoon we drove to Bridgetown, where we visited the sewage ponds and a couple of marshy areas; five species of ducks, including a brood of American black ducks, were observed in the ponds.

Bird highlights included a drumming ruffed grouse, a mourning dove, a singing winter wren, two gray jays, several least flycatchers, no vireos at all, and about 11 species of warblers including a Canada warbler. The group listed 63 species seen or heard.

After the group had disbanded, four of us went on to Annapolis where we saw five more species including a buff-breasted sandpiper, a bufflehead and cliff swallows.



Delaps Cove Trail  
May 22, 1988

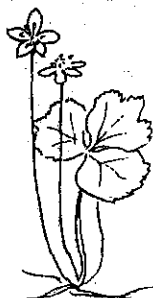
by Bernard Forsythe  
Wolfville, N.S.

An enthusiastic group of 14, including Nellie Snyder's well-behaved dog, Hamish, joined me for a leisurely stroll along this 12 km trail. As is usual, because of leaf-out at this time of year, more birds were heard than seen. There were good numbers of warblers present and we all got a good look at the striking Blackburnian, among others. Probably the most interesting bird of the day was a savannah sparrow observed along the woodland trail miles from its usual open field habitat.

Goldthread, wild strawberries, and violets were in bloom; however, many plant species were a bit behind schedule. We all tried reversing our binoculars for a close-up view of golden-saxifrage with its tiny flower arranged in a square. It is interesting to compare the leaf pattern of starflower with the leaf whorl of Indian-cucumber root, neither of which was in bloom. Some of the shrubs were inspected including hobblebush with its showy flower cluster.



SAXIFRAGE



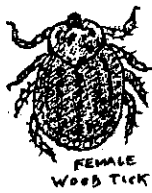
GOLDTHREAD

At the shore on the Charlies Trail it was so foggy that we were not able to see out over the water. Peering through the mist we found a pair of common loons that were not in breeding plumage. The only other water birds were gulls and a spotted sandpiper. At the shore on the Bohaker Trail the fog had lifted somewhat giving us a beautiful view of a short stretch of misty shoreline. An unsuccessful attempt was made to locate bird's-eye primrose that was found here on last year's outing.

Hamish was the first to notice a porcupine climbing a tree. A co-operative snowshoe hare sat long enough for all of us to see the large rabbit ticks attached to its ears. On the hike back to the parking lot we encountered a large garter snake that succeeded in defending itself when we tried to pick it up for a closer look. Thus ended an enjoyable outing with an interesting group of naturalists.



RABBIT TICK



FEMALE  
WOOD TICK

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NATURE REPORTS  
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**Weather Lowlights -- The Winter of 1987-1988**

by Larry Bogan  
Cambridge Station, N.S.

Now that the summer of 1988 has officially begun, most of us wish to forget winter; however, we did have some unusual weather this past winter. I include November through April as the winter season because there is a chance of snowfall in all those months.

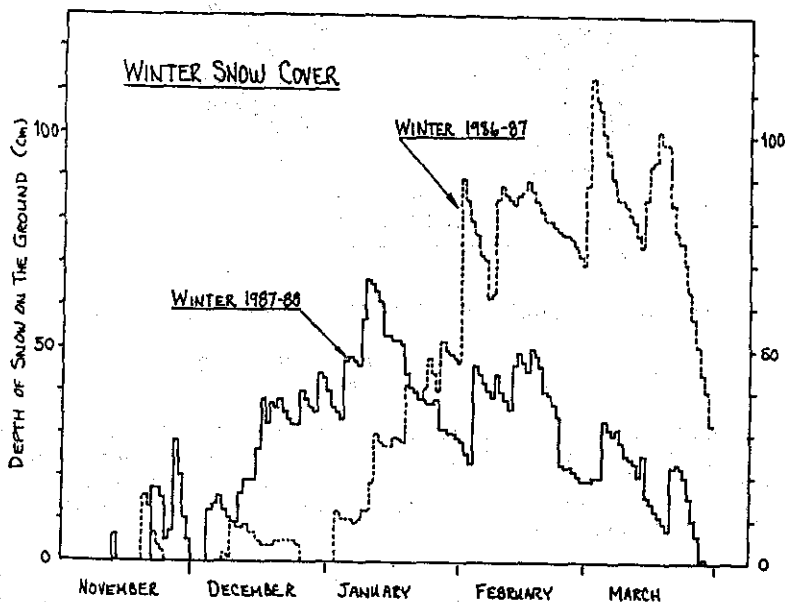
	Winter 1986-87	Winter 1987-88	30-year average
Snow	320 cm	318 cm	270 cm
Rain	238 mm	395 mm	397 mm
Total Precipitation	558 mm	713 mm	667 mm

The winter of 1987-88 was only slightly warmer than the 30-year average but snowfall was above average and almost identical with snowfall in the winter of 1986-87. Depths of snow during the winters of 1986-87 and 1987-88 are presented in the graph below. It is evident from this graph that, while total snowfalls in the two winters were practically identical, snow cover was very different. In 1987-88 snow buildup began earlier (in early December) but did not accumulate to the depths attained in February and March of 1986-87. Rainfall in 1986-87 was 40 percent below the 30-year average (contrasted to 1987-88 when rainfall was average) thus permitting a buildup of snow.

This past winter's above average snowfall and average amounts of rainfall created a lot of ice and made shovelling snow difficult. Actually in November, February and April there were above average rainfalls; in December, January and March rainfall was much below average.

April of 1988 was unusual because there was 81 percent more rainfall than the 30-year average and only 69 percent of the bright sunshine hours expected. This caused April to be (as we remember too clearly) dreary and depressing. When the snows left there was little frost in the ground because of the insulating cover of snow all winter; hence spring was a bit less muddy.

If you walk through the woods this summer you will see the consequence of the early and heavy, wet snowfalls of this past winter. Across the paths in many places will be bent-over small trees that were weighed down by those snows. Since the snow cover stayed until the end of March those trees remained that way all winter and have not recovered.



What are those little brown boxes?

by Christine Garron  
and Pam Matthews  
Wolfville, N.S.

Over the past few months many of you have, no doubt, noticed little brown boxes dotting several roadside orchards and wondered what they were. They are one aspect of a project being conducted by Acadia alumnus Terry Quinney, now an ornithologist and professor at the University of Guelph, who has undertaken a three-year study of Annapolis Valley apple orchards with the help of Acadia biologist Sherman Boates and student employees.



There has been a growing concern in recent years over the effects of pesticide use on the environment. Birds are often viewed as ecological barometers that indicate the state of health of the environment in which they live. There is evidence to show that the abundance of birds and diversity of bird communities in orchards has declined over the past three decades; their decline is commonly thought to be related to the use of various pesticides. Quinney's study is designed to determine if there is a significant difference in the bird populations in sprayed and unsprayed orchards and, if a difference is found, what has caused it. Specifically, it is to be a test of the following three hypotheses:

1. Pesticide hypothesis

- a) Direct: Pesticides have toxic effects on adult birds, their eggs, their nestlings, or a combination of these.
- b) Indirect: Pesticides eliminate the food supply available to the birds (i.e. insects and invertebrates).

2. Disturbance hypothesis

Breeding activities can be disrupted by the frequency or method of pesticide application.

3. Habitat structure and age hypothesis

The more complex structure of non-orchard habitats allows for greater diversity and density of bird populations than does a highly managed monoculture (e.g. apple orchards). The monoculture habitat could, however, increase in complexity with age.

This three-year study, conducted on behalf of the Canadian Wildlife Service of Environment Canada, is expected to indicate which (if any) of these hypotheses best explains the decreasing density and species diversity of bird communities in orchard environments.

So back to the "little brown boxes". These are nest boxes designed to entice tree swallows to nest in orchards. Since tree swallows are cavity nesters, and readily accept these man-made structures as nest sites, it is easy to control the distribution of potential nesting sites for this species within an orchard. Since tree swallows feed on flying insects, it is relatively easy to obtain indices of their potential food source (hence test hypothesis 1.b) using insect net traps.

The project does not, however, focus only on tree swallows; we attempt to monitor all breeding bird species using the orchards with special emphasis on the common species i.e. American robins and song sparrows.

Regular bird censuses are conducted and nest searches are made. When nests are found, their development and success are monitored and measurements such as clutch size, egg weight and nestling weight are taken. Insect net traps are in operation from dawn to dusk providing indications of the nature of a major food supply. Weather parameters (e.g. temperature and wind velocity) are also measured to provide information concerning their possible influence on breeding success.

Tree swallows construct their nests mainly of dried grasses, with a topping of feathers stuck in shaft-first. An average of six white eggs are laid. In early June of this year egg laying was well under way. The first tree swallow egg found during this study was on May 19th.

Readers of the Newsletter will be kept informed of the progress and results of this project.

## 1988 Summer Skies

by Larry Bogan  
Cambridge Station, N.S.

This summer we will be able to observe the same fascinating objects in the Milky Way that were described in the June 1987 Newsletter; however, there will be some unique opportunities for observing the planets.

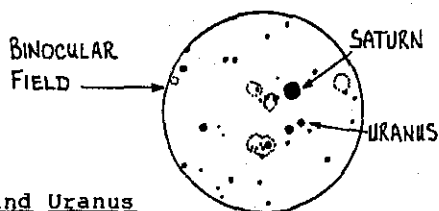
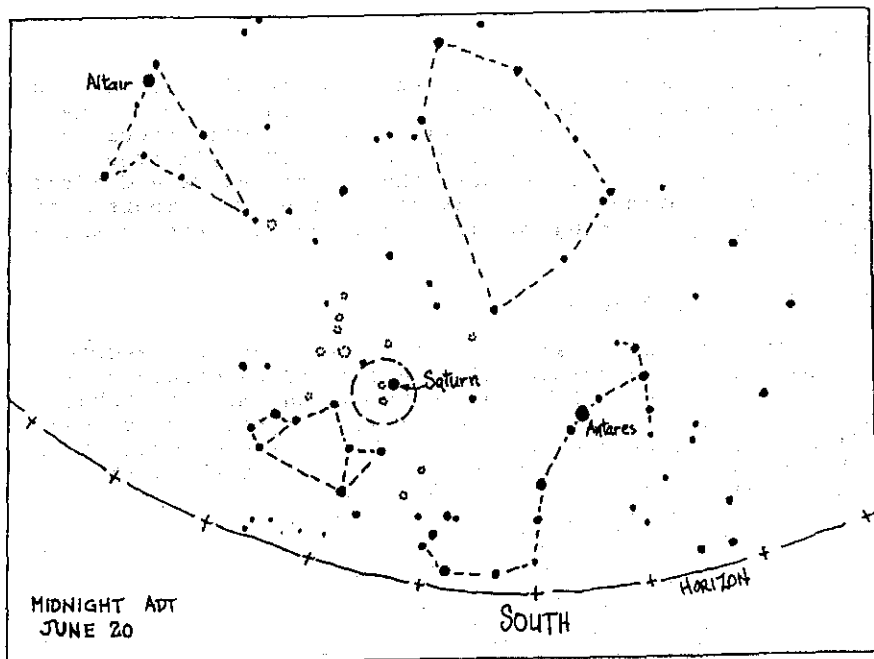
### Mars

The planet of the summer (and autumn) is Mars. As the summer progresses Mars will slowly move into the evening sky until, at midnight on September 28, it will be due south; this phenomenon is called opposition. At this time it will be closer to the Earth (59 million kilometres) than any time since 1971 and Canadian observers will have their best look at the planet since 1956. The next such opportunity will be in the year 2020.

If you use a telescope to view Mars, over a period of time you will be able to see its white South Polar Cap gradually shrink as its southern hemisphere gets warmer (summer begins there on September 11). At the same time you can observe dark areas on the surface of Mars. If you have a map (e.g. the "Observer's Handbook 1988", page 121) you can identify them. The rotation period of Mars is only 2.6 percent longer than that of the Earth so if you observe Mars at the same time every night you will see approximately the same portion of the planet's surface each time. On September 29 there will be a BNS observation session to view Mars and other planets (see Field Trips).

### Venus

By the time you receive this Newsletter, Venus will have disappeared from its prominent position in the evening sky. It was directly between the Earth and the Sun and closest to the Earth (inferior conjunction) on June 13. During the weeks prior to conjunction, the planet was a delightful telescope object; it was at its largest and appeared as a beautiful thin crescent. However, if you missed that, you can see it in the morning sky as it moves to the west of the Sun. It will become the prominent bright "star" of the morning for the rest of the year. Greatest elongation (west) occurs on August 22.



### Saturn and Uranus

These two planets are not in a particularly good position for observing this year but on June 27 they will be only 1.3 degrees apart and this will provide a means of finding Uranus easily. Saturn will be at zeroth magnitude and the brightest "star" in Sagittarius (see diagram). Uranus will be much dimmer at fifth magnitude and best observed with binoculars. The insert with the sky diagram shows the relative positions of Saturn and Uranus when viewed using binoculars. Note that the Trifid and Lagoon Nebulae will be in the same field of view.

If you miss the conjunction on June 27, you will not miss the opportunity to use Saturn to find Uranus. Both move slowly among the stars and will be near each other throughout the summer. In fact Saturn and Uranus will move closer together again and, on October 18, will be only 1.1 degrees apart.

### Jupiter

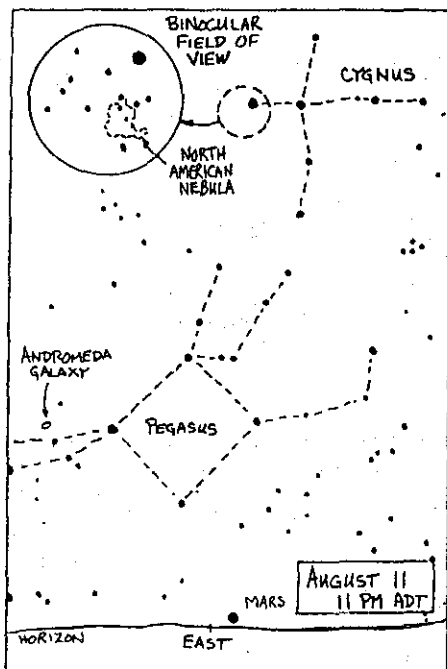
Jupiter is in the morning sky for most of the summer and only in September will it be rising before midnight.

## Perseid Meteor Shower

This year the best of the meteor showers will occur with the New Moon and, if the weather cooperates, we should have good dark skies for our observations. The showers occur over a four-day period centered about August 12. Although the 12th will have the most meteors, the nights before and after have often provided some very nice displays. There are better displays during morning hours than in the evening hours.

## The North American Nebula

In the June 1987 issue of this Newsletter I described many objects in the summer skies that could be observed with binoculars. I would like to add the North American Nebula. Its position is shown in the second sky diagram and is easy to find near the bright star Deneb. You will need dark skies and binoculars to get the best view. Look for the dark part of the Nebula at "Gulf of Mexico"; this is the easiest part to see.



## Shell Camp Stream Stillwater

by Larry Bogan  
Cambridge Station, N.S.

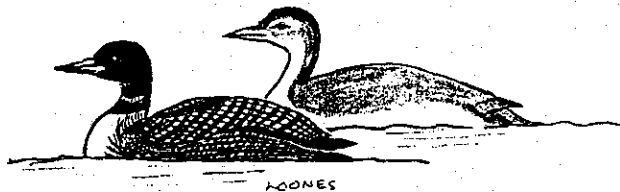
In my article in the March 1988 Blomidon Naturalists Society Newsletter I described the enjoyable canoeing available in the western part of Kings County. Stillwaters connecting some of the lakes provide some excellent places to see wildlife. The following is an addendum to the description of stillwaters in that region.

At the north end of Mistake Lake, Shell Camp Stream drains Shell Camp and Mistake Lakes and flows slowly west and south. This stillwater is one of the best that I have explored. It is long enough to make the trip worthwhile and provides beautiful scenery as well as quiet, easy canoeing. At the bridge across the stream there is easy access from the road through the Crown Land. In the spring when the water is reasonably high, one can canoe downstream for about 2.5 km before being stopped by some rocks.

I explored this waterway for the first time on May 14 this year. The leaves were just beginning to show and the upper canopy of the woods was open enough to enable one to view birds near the bank. Some that I heard or saw along the way were Gray Jay, ducks (species?), flycatchers, swallows, blackbirds (Red-winged and Rusty), Yellow-bellied Sapsuckers, Pileated Woodpecker, Northern Flickers, Yellow-rumped and Black-and-white Warblers, etc. Every floating log seemed to have turtles sunbathing on it and after they escaped into the water, it was delightful to watch them watch us with their tiny snouts poking just above the water. Leatherleaf and Rhodora lined the banks much of the way. This would be a fabulous trip in the fall when all the old red maples along the bank are in their autumn reds.

If you enjoy exploring and don't mind portaging a little, it looks as if there is another stillwater downstream from the portage that will provide a couple of more kilometres of delightful canoeing. I would like to hear from anyone who has canoed that area.

Before you reach the portage you will discover a surprising fact; the 1:50000 Gaspereau Lake map (21A/15) is wrong in showing an unnamed lake along Shell Camp Stream. Actually there are two branches of the stream. (Some cartographer must have assumed the area between the branches was water and coloured it blue rather than green.) The eastern branch comes to a dead end at a dam caused by a log jam while the western branch carries most of the water of the stream. The eastern branch is navigable right to the end and provides a nice side trip.



#### Walking to Shell Camp Lake

There is an old woods road that leads from the access road to the shore of Shell Camp Lake. The road is marked on the Gaspereau Lake map by a dashed line just south of Peter Lake. The road goes across the wetlands to the south of Peter Lake then leads up into the drier woodlands between the two lakes. The change in habitat provides variety that makes the easy, one-km, walk to the lake more enjoyable. There are plenty of woodland birds singing along the way to add to your excursion. At the lake you may be rewarded by the sight of a pair of Common Loons; I know there is at least one pair on Shell Camp Lake this year.

## A Costa Rican Adventure

by Judy Tufts  
Wolfville, N.S.

Listening to the American Robin singing when I awaken these mornings evokes recent memories of another species of robin, singing before dawn many miles from here, on our hotel balcony in San José, Costa Rica. We were delighted to identify our early morning visitor as the Clay-coloured Robin.

At the end of March, 1988, Gordon and I were part of a group of 20 North American birdwatchers (including two leaders), who would spend the next 16 days criss-crossing Costa Rica in search of some of the most beautiful and exotic species of birds in Central America - a veritable "feast" for winter-weary eyes.

Imagine yourself in a country where flowers like Impatiens and Verbena grow wild like weeds, orchids bloom everywhere in a myriad of colours and designs, and exquisite, jewel-like birds of every conceivable hue flit among the lush tropical vegetation; where mountain ranges, dominated by four volcanoes (two still active - we heard them), spread over a third of that country's terrain, and such diverse habitats as arid regions, dry tropical, rain, and lush cloud forests may be found.

In our search for birds we visited several National Parks; Biological Reserves; Volcan Poás; Dr. Alexander Skutch, an ornithologist noted for his work on Costa Rican birds and their nesting habitats, at his "Finca" (farm); "Los Cucingos", near San Isidro; and other areas with endemic species, like La Montura. La Montura is a look-off in the mountains around San José and is the only place in Costa Rica where the Sharpbill can be found. The Sharpbill is the only known species in the Oxyruncidae family.

In the northwest region, Santa Rosa National Park of the Pacific zone, with its dry tropical forest and disturbed savannah, offers 75 species of mammals, 260 species of birds and enormous numbers of insects for observation, including 2,000 species of moths! Amidst the excitement of finding a Puffbird, Red-legged Honeycreeper and parrots, we paused to watch and enjoy quite an array of mammals. A family of 14 Coati-mundi (of the Raccoon family but with long snouts) crossed the road ahead of us, adults and young carefully picking their way across the opening before journeying on. We disturbed a white-tailed deer feeding along the edge of the road. An Agouti (large rodent related to the Guinea-pig) and opossum scurried away in the undergrowth. Up in the trees, periodically we would catch glimpses of the handsome Variegated Squirrel, with his very thick bushy tail, searching for food. White-faced, and Spider, Monkeys made themselves known to us but remained shy, keeping their distance...how we envied their free-wheeling agility.



Another National Park, Braulio Carrillo, with its annual rainfall of 4,500 mm, consists of unusually dense evergreen forest, tall and complex. Tree ferns, heliconias, palm trees, oaks, bromeliads and lauraceous plants are common. It reminded us of typical "jungle". Here we found beautiful Trogons, Tyrant-Flycatchers, wrens, and many species of tanagers; from the exotic Spangle-cheeked to the elegant Crimson-collared Tanager. (We saw 29 different tanager species on this trip.) In the same region, as we crossed through an immense banana plantation, someone spotted a Two-toed Sloth feeding in a small tree. The bus was stopped and out we all trooped, to find to our delight that it was a Mama Sloth carrying a nursing infant around her neck; she was quick to shield it from prying eyes. What was not so delightful was that, within 50 feet, a large Boa Constrictor was lying along a branch in the sun. Seeing this enormous snake in the wild was intriguing but one could not but wonder whether this creature was also there looking for a potential meal. Such are the vagaries of nature...

The crater-mouth of Volcan Poas is 2,708 metres above sea-level. This volcano is completely basaltic, and active, with the crater-mouth measuring 1.5 km in diameter and 300 m deep. While taking photos of the crater, Poas obligingly "hic-cupped" with a small geyser-like eruption of steam, much to the delight of everyone. Beyond the barren desolation around the top of this volcano and the former pathway of lava flow, lush green vegetation had re-established itself making a striking contrast of colours. Among the birds at this level we found the dainty Cerise-throated Hummingbird, endemic to the volcano habitat (one of 30 species of "hummers" we were to see in Costa Rica), Sooty Robins, Scrub Euphonias, and Black-and-yellow Phainoptilas.

Aren't these bird names wonderful? Our minds "reeled" at the list of names of birds to be seen on this trip... some plain, descriptive names such as Large-footed Finch, Plain Wren, Thick-knees and Paltry Flycatcher. Others conjured up more imaginative pictures: Scale-crested Pygmy-Tyrant (what a mouthful), Treerunners, Plain Xenops (yes, there is such a bird), Blue-crowned Chlorophonia (a beautiful little bird), and the Slaty Flower-piercer.

The top bird name on everyone's mind who visits Costa Rica is the truly Resplendant Quetzal. It is seen only in the western highlands and must be seen to be believed. It's mostly iridescent golden-green with a "punk-looking" crest and shoulder feathers delicately curved downward to accentuate a brilliant scarlet breast and belly. What appears to be its crowning glory of a tail is, in fact, an extraordinary train of lengthened upper tail covert feathers - some of these feathers have been measured up to a metre in length... imagine! The underside of the tail is white.

We were very impressed with Monteverde Cloud Forest Reserve. The fight for its survival and preservation as one of the last remaining rain forests in Central America is becoming well known, thanks in great part to the endeavours of many far-sighted and thoughtful Canadians and conservationists worldwide (see separate article). This Reserve, traversed by the Continental Divide (where one can literally look northward, to North America, and southward, to South America, from a narrow ridge of windswept land), lies in the "rain shadow" of the Caribbean Slope and is beautifully lush as a result. It is also home of a rare toad species, *Bufo periglones*, the Golden Toad, the species that sparked the creation of the Reserve in 1970.

From the mountain chalet-hotel each morning we heard the "gonging" song of the Three-wattled Bellbirds, sounds not unlike the distant toll of monastic bells across a valley. Quite delightful. We saw more Quetzals, Toucanets and many hummingbirds. Sinuous Strangler-fig trees were enveloping some of the forest trees; their dangling aerial roots grown and grafted around the host tree. The boisterous sounds of the Howler Monkeys announced their presence very plainly. One of our party kept us in stitches with his excellent mimicry of the monkey's howl; it was so good we were afraid he might get more than he, or we, bargained for!

This was all a wonderful experience, with 450 species of birds being seen by our group, and one we would highly recommend to anyone - a truly fascinating country to visit.

### Conservation in Costa Rica's Monteverde Cloud Forest

by George Alliston  
West Brooklyn, N.S.

Tropical rain forests cover only about six percent of the land surface but contain the most diverse biological communities on earth. Between 40 and 50 percent of all living species reside in tropical rain forests. For example, about 155,000 of the 250,000 known species of plants are found there; approximately 80 percent of the world's known insects live there as do 90 percent of the world's primate species. Many plant and animal species of the tropical rain forests have yet to be described by science let alone be examined in their own right or for their medical or nutritive benefits to humanity. Yet the rain forests are being felled at an alarming rate. In the past 30 years about 40 percent of the rain forests have disappeared under a thrust of human development. Currently rain forests are being destroyed at a rate of about 50 acres per minute or, in a year, an area about twice the size of Nova Scotia.

Most of the world's tropical rain forests are in the so-called "third-world" countries. In these countries funding for conservation-related projects is simply not available. Poverty and population pressures often lead to a desperate utilization of resources, including the rain forest resource, that all too often proves both economically and ecologically disastrous.

Despite these rather depressing facts some recent developments have cast a modest ray of hope for some tropical rain forests. One project that has been most successful and has captured the imagination of North Americans, particularly Canadians, has been the Monteverde Cloud Forest Reserve in Costa Rica.

The Monteverde cloud forest is situated in the north-western part of Costa Rica. It is a particularly diverse rain forest with a steep topography adding an altitudinal component to its habitat diversity. Adrian Forsyth (no relation to Bernard) has suggested that on a ten km walk in this rain forest he encountered as much habitat and species diversity as he would in a hike from Nova Scotia to British



Columbia! The Monteverde is known to contain more than 2,000 species of plants, including 600 species of trees, 300 species of orchids and 200 fern species; 320 species of birds and 100 species of mammals. Indeed many species of the Monteverde live nowhere else on earth. During the past two years 50 new plant species, one entirely new tree family and a previously unknown genera of orchid have been discovered there.

As Judy Tufts has mentioned in her article, the Monteverde Cloud Forest Reserve was initiated in the early 1970's to create a small sanctuary to protect the breeding ponds of a rare amphibian species, the golden toad. This was done at the instigation of local conservationists, North American scientists and the National Audubon Society. By the mid-1980's it had become very apparent that unless action was taken the surrounding Monteverde cloud forest would meet the same fate as adjacent rain forests. In 1986 a small group of local landowners and farmers and some biologists (mainly from Canada and the U.S.) formed the Monteverde Conservation League to raise funds to purchase land adjacent to the existing reserve to increase its size to encompass 30,000 acres of cloud forest. This group approached and received support from the World Wildlife Fund (WWF). The approach ultimately taken to raise funds was to "sell" one-acre blocks of cloud forest to interested individuals and groups in "first-world" countries (primarily in North America and particularly -- as it turns out -- in Canada). For a \$25 (Canadian) contribution (tax deductible) the contributor receives an honorary deed to an acre of land in the cloud forest. The \$25 covers the actual cost of purchasing the land from the current landowner; administrative costs are covered by WWF.

This plan has been spectacularly successful. Canadians have been particularly forthcoming with donations, often buying one-acre tracts for gifts to conservation-minded relatives and friends. By March of 1988, 22,000 acres of the 30,000-acre objective had already been acquired. The WWF estimates that if contributions continue at current rates the 30,000-acre objective may have been achieved by the time you read this Newsletter!

What is perhaps the most remarkable aspect of this project is that it has been carried out without active participation by governments or by funding from large institutions. Instead a grassroots effort of Monteverde residents and visiting biologists has been heeded by conservation-minded North Americans with the result that a unique area of rain forest will be preserved for future generations of its indigenous species and our own. And this has all been done for a cost of about a half a million dollars!

In "The Lessons of the Monteverde", on page 57 of the March/April 1988 edition of Equinox, Adrian Forsyth emphasizes that "conservation and human development can be mutually reinforcing rather than antagonistic. Most of the half-dozen families formerly living in the ... area have been able to sell their land for a good price and relocate on better farmland ... Some local residents have remained to work for the reserve and are making significant contributions to conservation and science."

It is anticipated that the reserve will ultimately attain the status of a National Park.

## Book Reviews

The following book reviews were written by Mary Granskou, a Master's student in York University's Environmental Studies program and President of Canadians for Conservation of Tropical Nature. They are reprinted from Working for Wildlife, Fall 1987, published by World Wildlife Fund Canada.

*Tropical Nature: Life and Death in the Rain Forests of Central and South America*, Adrian Forsyth and Ken Miyata with illustrations by Sarah Landry. Charles Scribner's Sons: New York, N.Y. (1984).

*Tropical Nature* is the perfect introduction to the fascinating world of a tropical rain forest. A delightful combination of science and storytelling invokes curiosity about those mysterious places so foreign to our temperate experience - tropical rain forests.

Rain forests are extreme and complex environments. The authors, Forsyth and the late Miyata, successfully convey an appreciation for this complexity by giving detailed accounts of a few species of plants and animals as illustrations of specific biological characteristics - such as diversity and insect defense mechanisms. The result is a series of intricately woven chapters which, in the end, leaves one wanting to book a flight to Central or South America to search out rain forest life.

And, indeed, should you choose to visit a rain forest, a beginner's guide to tropical travel is included at the end of the book. The guide provides many apt suggestions about what to expect during, and how to prepare for, a tropical visit.

Written with intelligence, wit and warmth, *Tropical Nature* is a wonderful account of a fascinating and rare ecosystem.

*In the Rainforest*, Catherine Caulfield. Alfred A. Knopf, Inc.: New York (1984).

Catherine Caulfield takes us on a journalist's journey through the world's rain forests. With a keen eye for the rich diversity of life harboured in and below the tropical forest canopy, Caulfield discusses the threats facing these unique ecosystems.

Some of the most compelling parts of the book deal with the human consequences of forest destruction. For the indigenous peoples of the tropics, logging and agricultural clearance have often spelled the end to cultures and communities that have been in place for thousands of years.

The book provides an excellent and fascinating start for those interested in learning more about the "vanishing riches" of our tropical forests.

*Nature Hide and Seek: Jungles*, John Norris Wood with illustrations by Kevin Dean and John Norris Wood. Random House: Toronto (1987).

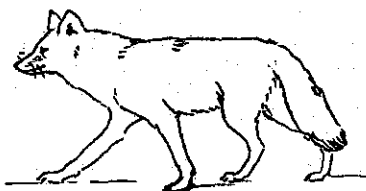
This book, although designed for children, is a fantastic adventure for adults and children alike. Pages fold out to reveal wonderfully detailed panoramas of rain forest life. The brilliance of this book rests on its realistic portrayal of rain forest environments, from the shadowed forest floor to the lush canopy above.

Scenes from African, Australian, Indian, South American and Southeast Asian jungles have been represented - not as places teeming with easily spotted wildlife, but as places where one has to spend time looking for the animals. It is a refreshing change from many other rain forest panoramas that almost have the animals jumping out at the unsuspecting viewer - a tendency which may reinforce some people's negative and fearful attitudes towards rain forests.

Each beautifully illustrated forest scene is followed by two pages of information about the number of animals in the picture, and tells some interesting tales about the animals themselves. Many hours can be spent admiring this little, commendable book.

**TRIVIAL TIDBITS**  
of Local Natural History  
February 29 to May 31, 1988

selected and compiled  
by Jim Wolford  
Wolfville, N.S.



Date  
(1988)

Obs

Feb 29	-a northern harrier at Grand Pre and a merlin at Canard	BBT
Mar 1	-90 pine siskins at my Wolfville feeder	JW
Mar 2	-25 redpolls at Canning	MG
	-a pileated woodpecker at Kennetcook	BBT
Mar 3	-25 purple sandpipers at Boot Island	JGT
	-a northern saw-whet owl tooting at Lumsden	BLF, JGT
	-the red-bellied woodpecker still at Noel Shore	SN
Mar 5	-2 red knots at Crescent Beach and a killdeer at Broad Cove	GF, HF, BS
Mar 6	-23 white-tailed deer browsing in orchards below The Lookoff	BPR
	-a sandhill crane, 4 rough-legged hawks soaring together (migration) and a peregrine falcon in Yarmouth area	JGT
	-a common black-headed gull and a Bonaparte's gull at Brier Island	RS
Mar 9	-a coyote on Scots Bay Road	GC
	-2 lesser scaup at Annapolis Causeway	JGT
	-300 common redpolls near Delaps Cove	JGT
Mar 10	-320 Canada geese at Canard River aboiteau	MG
Mar 13	-a rusty blackbird at Gaspereau	CKC
	-275 snow buntings at Grand Pre	JGT
Mar 14	-800 Canada geese at Canard River aboiteau	MG

Mar 15 -30 common redpolls at Lakeville JW  
 -40 blue jays together at a Wolfville feeder BBT  
 mid-  
 March -4 skunks together (a family?) at Starr's Point AC



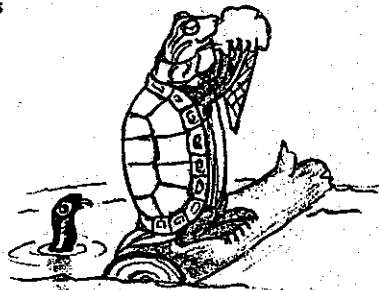
Mar 16 -45 mourning doves at a Wolfville feeder BBT  
 Mar 19 -3 male northern pintails at Grand Pre GF  
 -2 Iceland gulls at Wolfville sewage ponds EM  
 Mar 20 -12 to 15 red crossbills in Wolfville EM  
 -1 + 2 common grackles in Wolfville BBT, JT  
 -1300 Canada geese from Grand Pre to Canard JW  
 -a short-eared owl at Grand Pre JW  
 Mar 21 -18 common grackles, 16 red-winged blackbirds  
 and 7 brown-headed cowbirds on Wolfville Ridge JGT  
 Mar 22 -7 song sparrows at a Wolfville feeder PCS  
 Mar 23 -1800 Canada geese from Canning to Canard JGT  
 -a killdeer on the Blandford Peninsula JGT  
 -barred owls hooting in Kentville Ravine RS  
 Mar 24 -a great blue heron in lower Canard Valley MP, JGT  
 Mar 25 -10 blue jays at my Wolfville feeder. (This winter has been strange because blue jays were mostly absent or irregular at feeders but were common enough around the countryside.) JW  
 -an American woodcock near Sunken Lake and a "singing" rusty blackbird near Black River Lake BLF  
 Mar 26 -coltsfoot in bloom near Gaspereau and hazelnut catkins just opening at Acadia University JW  
 -at least one yellow-spotted salamander in ditch near Gaspereau at night JW  
 Mar 27 -a snow goose seen with Canada geese near Port Williams TC  
 -2 partial-albino Canada geese (one with white body) with normal geese near Starr's Point (were present from about March 17? to at least April 12) BBT et al  
 -killdeers at Hantsport and Lumsden Reservoir JW1, TP  
 -180 pine siskins at one feeder on Wolfville Ridge JGT  
 Mar 28 -a hoary redpoll in Wolfville JSB  
 -an adult black swallowtail in garden-room of house at Starr's Point (brought in last fall on celery?) PBM  
 Mar 30 -9 immature bald eagles at Sheffield Mills BBT  
 Mar 31 -7 + 1 fox sparrows in Wolfville DT, JSB  
 -an osprey near Annapolis DA, PC  
 Apr 1 -2 rough-legged hawks at Grand Pre JSB, RM  
 -spring peepers calling at Hortonville ST, MT, JW  
 -wood frogs calling on Wolfville Ridge BLF  
 Apr 2 -a mourning cloak butterfly at Port Williams;  
 a painted turtle basking in Wolfville; 8 brant,  
 10 great blue herons and 5 cormorants at Boot Island MT, JW  
 -3 ring-necked ducks at Canard Poultry Pond GF  
 -a pied-billed grebe and a hooded merganser at Lumsden Reservoir ME, BLF  
 -2 northern mockingbirds in Yarmouth PC

Apr 3	-2 wood ducks at Sheffield Mills	MB
	-a red-spotted newt at Lakeville	TH
	-a singing yellow-rumped warbler on Wolfville Ridge (possibly overwintered there?)	BLF
	-a loggerhead shrike at Greenwich	ME,BLF
	-an Iceland gull at Wolfville sewage pond	BBT
	-2 Blanding's turtles basking at edge of ice-free lake in Keji Park; 1 turtle had about 20 leeches on it	JB,TP
Apr 4	-American robins in Wolfville suddenly more abundant?	JW
	-at least 5 barred owl nests now have eggs	ME,BLF
	-at night, 4 American toads on highway in Rawdon Hills	CC
Apr 8	-a snowy owl at Port Williams	GC
	-a common grackle with white tail feathers west of Wolfville	BBT
	-a northern lapwing and a summer tanager in Yarmouth area (the tanager stayed until at least May 1)	JT
	-2 Iceland gulls at Wolfville sewage ponds and 2 snow buntings at Starr's Point	JSBo,RE
Apr 12	-25 brown-headed cowbirds at Kentville feeder	RS
Apr 13	-an adult Iceland gull and a subadult glaucous gull at Grand Pre	RS
Apr 14	-a willet on Wolfville dykelands	PCS
	-a cabbage white butterfly slowly flying in Wolfville	JT
	-an American kestrel at Bramber (Hants Co.)	BBT
Apr 15	-a yellow-bellied sapsucker at Advocate	ME
	-2 mourning doves calling in Wolfville	JT
	-a tree swallow in Wolfville	JT
	-a white-crowned sparrow in Canning	MG
Apr 16	-first big flock of migrant American robins, at least 100, at Gaspereau	EG
Apr 17	-2 water pipits at Grand Pre	BBT
	-single northern shrikes still present at Scots Bay and Advocate. (I have 9 reports of northern shrikes for March and 6 for April.)	ME,MTH
	-a male rufous-sided towhee (overwintered) and a male northern cardinal on Brier Island	RS
Apr 18	-a blue-spotted salamander at South Alton	JL
	-a common snipe heard winnowing over Canning	MG
Apr 19	-a northern flicker on Wolfville Ridge	JGT
	-an Iceland gull at Wolfville sewage ponds	BBT
	-first smelts seen in Gaspereau River	JW
Apr 22	-70+ brant, 2 northern pintails, 1 American wigeon, 2 blue-winged teal, and 3 ring-necked ducks in our general area	JGT
Apr 23	-a greater yellowlegs at Canning	JW
	-a white-throated sparrow on Wolfville Ridge	JGT
	-a woodchuck at Sheffield Mills (no early records of these or chipmunks?)	MT,JW
	-2 large predaceous diving beetles at Centreville bog	MT,JW
	-6 snow geese (including one blue-phase) at Amherst Point	CDM
	-7 red-breasted mergansers in pond at New Minas	RS

Apr 24	-a freshly dead Bohemian waxwing at Hortonville	DL
	-a yearling glaucous gull at Canard Poultry Pond	BLF, MT, JW
	-an eastern phoebe at White Rock	RRN
	-a ruby-crowned kinglet in Wolfville	ME
Apr 25	-a house finch in Halifax	SC
	-an adult male merlin in Wolfville	ME
	-fox sparrows still in Wolfville	DT
	-an American black duck foraging on edge of highway 101 at Lower Sackville during rush hour	KLC
Apr 26	-a great cormorant and 2 red-throated loons at Grand Pre and a tooting northern saw-whet owl at Greenfield	BNS
	-barn swallows, black-and-white warblers and a winter wren near Annapolis Royal	EM
Apr 26 & 27	-2 wood duck nests and 2 hooded merganser nests all in nest boxes in Tobatic Wildlife Management area; also 10-12 American goldeneyes seen there	RMe
Apr 27	-a barn swallow at Canard Poultry Pond	JGT
	-a yellow-rumped warbler in Wolfville	JSB
	-a palm warbler near Black River	ME, BLF
Apr 28	-a pair of greater scaup at Port Williams sewage ponds	JGT
	-24 surf scoters off Kingsport	JGT
	-a chipping sparrow on Wolfville Ridge and a mink swimming near Pereau	JGT
	-7 rose-breasted grosbeaks at Middleton	LL
	-a purple martin east of Canard Poultry Pond	MZ
	-2 willets at Wolfville harbour	JGT, JW
Apr 29	-a belted kingfisher at White Rock	RRN, JW
Apr 30	-a sora rail calling at Canard Poultry Pond and a short-eared owl at Wellington Dyke	JGT
	-10 cliff swallows with 100 tree and 8 barn swallows at Maitland (Hants Co.)	KLC
May 1	-a northern goshawk on a nest in Kentville	RS
	-American kestrels mating near Bridgetown	JGT
	-2 buffleheads & 7 harbour seals at Annapolis Causeway	JW
	-Tusket River Nature Reserve, Nova Scotia's first ecological reserve, announced in ceremony at Tusket	
	-skunk cabbage in bloom and a summer tanager seen near Yarmouth (see Apr 8)	MR et al
	-2 mourning doves near Digby	JW
throughout	Apriland early May	
	-spectacular pink display, the best in years, of pink earth lichen ( <i>Baeomyces roseus</i> ), especially noticeable on overcast or rainy days, along highways	KLC
May 3	-300 tree swallows sitting out a sleet-storm at a pond north of Kentville	JGT
May 4	-a common raven with a white patch on its upper breast, in Canard Valley	MZ
May 5	-a great cormorant at Windsor	PY
	-snowy owl last reported at Grand Pre (had been there since about April 12)	BLF
May 6	-toads trilling at Avonport	SW
	-a solitary vireo on Wolfville Ridge	JGT

May 7	-an American oystercatcher at Three Fathom Harbour	HH
	-2 false morels at Cape Split	SW,BNS
	-an all-white gull (Iceland?) at Cape Split	PY,BNS
	-gaspereau seen in Gaspereau R. at Gaspereau(!)	CKC
May 8	-a snow goose at Three Fathom Harbour	JGT,MT,JW
	-2 piping plovers at Conrad's Beach	MT,JW
	-a short-eared owl repeatedly chasing and attacking a northern harrier at Grand Pre (same on May 13 - JGT)	BLF,JW
	-a young great horned owl fledged (out of nest) at Cheverie	KLC
	-a pair of American kestrels very vocal near an old flicker nest at Cheverie	KLC
May 9	-23 chimney swifts in Wolfville	JW
	-planet Mercury visible in evening, low in west	JW
	-2 Ipswich sparrows (subspecies of savannah sparrow) at Windsor	PY
May 11	-a bobolink at Port Williams	LC
	-a northern goshawk nest has at least two eggs	BLF
May 12	-2 northern shovelers at Canard Poultry Pond	JGT
	-a sandhill crane at Grand Pre	PCS,MT,JW
May 13	-a northern oriole singing in Wolfville	JW
	-a Cape May warbler at Windsor	PY
	-a yellow warbler in Wolfville	GN
May 14	-2 eastern phoebes at Coldbrook	JGT
	-an eastern kingbird and a gray catbird at Greenwich	HF
	-in Blomidon Park, fairy shrimp abundant in a woodland pond; many bright green masses of hatching wood frog eggs; a few blackflies	HFN
	-a merlin and a broad-winged hawk in Blomidon Park	JW
	-black-throated green warblers in Blomidon Park	TP
	-10 bank swallows near Canning	JW
	-a blackpoll warbler	JGT
May 15	-105 surf scoters, mostly yearling males; 30 black guillemots; a bright yellow "mystery" warbler (unidentified); 3 solitary vireos; a palm warbler; 2 pine siskins chasing each other; carpets of spring beauty flowers - all at Cape Split	BNS
	-a ruby-throated hummingbird at Wolfville	MH
	-2 spotted sandpipers at Canard Poultry Pond	MT,JW
	-a least flycatcher, northern waterthrushes, ovenbirds, chestnut-sided warblers, northern parula warblers and American redstarts in White Rock/Black River areas	GF
	-a brood of American black ducks at New Minas; a red-tailed hawk swooped down, grabbed a duckling, then dropped it	BS
May 16	-one young great horned owl left nest (fledged) at Gaspereau	CKC
	-a broad-winged hawk at New Minas; a black-throated blue and a Wilson's warbler near The Lookoff	JGT
May 17	-a cattle egret at Port Williams	PBM
	-small orange cup fungi, probably "blue-staining cups", in Blomidon Park	JW

- May 18 -white-breasted nuthatches going in and out of  
 a nest cavity at Acadia University EM, JW  
 -a veery singing at Avonport SW  
 -4 wood turtles found recently along Hattie  
 Brook, near Lower Caledonia, Guysborough Co. ME, RM
- May 20 -4 arctic terns at Cape Sable Island and a  
 black-legged kittiwake at Shag Harbour JGT  
 -killdeer sitting on 1 egg (shading it?) on roof  
 of Acadia U. gym (clutch then grew to 4 eggs) JW  
 -a "Junebug" (Junebeetle) in Wolfville JT  
 -at Hennigar's Market pond in Wolfville, a paint-  
 ed turtle eating ice cream and a cone! Then  
 an eel showed up, scared the turtle away and  
 proceeded to eat the ice cream! BBT  
 -a barred owl very vocal at 5:00 to 5:30 a.m.  
 for five days KLC



- May 21 -a black-crowned night heron, a snowy egret and  
 50,000 nesting pairs of Leach's storm-petrels on  
 Bon Portage Island (3 more black-crowned night  
 herons at Cape Sable) JGT  
 -wood ticks (dog ticks) encountered several  
 bird watchers in Paradise area NSBS, BNS  
 -2 common yellowthroats, 1 Canada warbler  
 at Paradise NSBS, BNS  
 -lots of pollen from trees? on ponds  
 at Bridgetown NSBS, BNS  
 -a buff-breasted sandpiper, a bufflehead and 2  
 cliff swallows at Annapolis Royal BBT, MT, JW  
 -fair numbers of skimmer dragonflies and  
 damselflies near Bridgetown MT, JW  
 -220 chimney swifts going into Front Street  
 chimney in Wolfville at dusk JW
- May 22 -a ring-necked snake at Lake George, Yarmouth C. PVK  
 -12 brant, an orchard oriole, an indigo bunting &  
 a northern mockingbird on Brier Island RS, JGT et al  
 -a northern saw-whet owl in a barred owl box has  
 very young nestlings; huge numbers (black car-  
 pets) of "snow fleas" (springtails) on forest  
 floor; a few "tents" of young tent caterpillars;  
 great horned owl nest with nearly fledged young on  
 a witch's-broom; a pied-billed grebe, an eastern  
 kingbird, 2 winter wrens, Tennessee warblers,  
 blackburnian warblers, bay-breasted warbler,  
 black-throated blue warbler, pine grosbeaks, red-  
 eyed vireos - all near Hopewell (Pictou Co.)  
 HB, NSBS  
 -short-eared owl courtship flight, and a nest  
 with 3 eggs, at Grand Pre (clutch grew later  
 to 6 eggs) BBT, BLF



- a ruffed grouse on a road near Falmouth chased a passing car and tried to land on its roof! BBT
- a white-breasted nuthatch joined 5 regular red-breasted nuthatches at a Cheverie feeder KLC
- May 23 -a rough-legged hawk at Grand Pre FL, BM, CDM, PM
- a scarlet tanager in Kentville Wildlife Sanctuary and another one on the South Mountain JGT et al
- a barred owl nest in an old crow nest in Kentville RS
- a broad-winged hawk, possibly nesting?, on South Mountain JGT
- a vesper sparrow near Middleton JGT
- May 24 -a scarlet tanager in Kentville RS
- May 25 -5 red crossbills eating apple flowers at Port Williams LC
- different scarlet tanager in Kentville RS
- May 26 -a subadult glaucous gull in Gaspereau Valley (was aggressive toward herring gulls May 24 - RS) JGT
- oodles of painted trilliums; 2 small bullhead catfish and a leech, with eggs in its belly, in a pond at Sherbrooke Lake Camp JW
- May 27 -an American black duck brood of 13 ducklings near Lower Sackville MT, JW
- a sharp-tailed sparrow singing at Port Williams GF
- a summer tanager at Seaforth (Eastern Shore) JP
- black vulture (from Baddeck in October) released at Gaspereau CKC
- May 28 -lots of nodding trilliums and yellow violets in bloom, also blue cohosh, in Smiley's Park, near Brooklyn MT, JW
- 2 Canada geese, a black-backed woodpecker, alder flycatchers, eastern wood-pewees, a Swainson's thrush; a rose-breasted grosbeak eating apple flower buds?; a red squirrel eating centers of open apple blossoms? - all in Hants C. NSBS
- May 28 (cont) -a few yellow lady's-slippers open, ram's-head orchids in bloom but past their prime, near Windsor BLF, MT, JW
- a sora rail calling in gypsum pond near Windsor BLF
- May 29 -an American black duck(?) with white wings, part of belly white and a white ring around neck, at Avonport TM
- lots of active tiger beetles on sand at Conrad's Beach (near Three Fathom Harbour) MT, JW
- May 30 -a coloured ring all around the sun (sundog? corona? halo?) and a rainbow, all in the sky in early afternoon JSB
- a yellow-throated warbler near Scots Bay MZ
- a little blue heron at Lower Lahave EC, HFN
- May 31 -a Virginia rail calling at Bishop Pond (near Sunken Lake) (has been there a week or so) BLF
- a very early gray catbird nest with eggs on Wolfville Ridge JGT
- a red-breasted merganser in canal below Black River Lake BBT
- a scarlet tanager still singing in Kentville RS

## Flowering Dates - 1988

JW

Mar 26-coltsfoot, hazelnut	May 21-cuckooflower, gold-
Apr 4-aspen poplar	thread, rhodora, dew-
Apr 17-Daphne bush	berry, hobblebush,
Apr 29-red maple	starflower, blueberry,
May 1-broom crowberry, sweet	pincherry, painted tril-
gale, mayflower, skunk	lium, apple, creeping
cabbage	buttercup, mouse-ear
May 7-spring beauty, Dutch-	chickweed
man's breeches (few),	May 22-bloodroot(1)
golden saxifrage	May 23-yellow violet, fly-
May 10-Norway maple	honeysuckle, red
May 13-sugar maple	elderberry
May 14-trout lily ("dogtooth	May 26-bunchberry, bluet
violet"), strawberry,	May 28-chokeberry, yellow
blue violet, purple	pond lily, nodding
trillium	trillium, blue cohosh,
May 15-white violet, Dutch-	yellow rocket, yellow
man's breeches (lots)	lady's-slipper, ram's
May 18-shadbush	head lady's slipper
May 20-ground-ivy & corn	May 30-horse-chestnut
speedwell (on lawns)	

Contributors

DA Diane Amirault	PM Peter MacLeod
HB Harry Brennan	RM Randy Milton
JB John Brownlee	TM Terry Murphy
MB Mike Brylinsky	RMé Reg Melanson
JSB Sherman Bleakney	CDM Carol & Don MacNeill
JSBo Sherman Boates	PBM Pat & Bill Martell
AC Anne Coombs	GN Gary Ness
CC Carol Carpenter	SN Seward Neil
EC Eric Cooke	HFN Halifax Field Naturalists
GC Gordon Callon	RRN Ruth & Reg Newell
LC Lana Churchill	JP John Prentiss
PC Peter Comeau	MP Mary Pratt
SC Shirley Cohrs	TP Terry Power
TC Tim Curnew	MR Mike Rymer
CKC Cyril Coldwell	BPR Betty & Paul Rockwell
KLC Karen Casselman	BS Brad Sweet
ME Mark Elderkin	RS Richard Stern
RE Richard Elliot	BNS Blomidon Naturalists Soc.
GF George Forsyth	PCS Peter Smith
HF Harold Forsyth	NSBS Nova Scotia Bird Society
BLF Bernard Forsythe	DT Dianne Thorpe
EG Ellis Gertridge	JT Jean Timpa
MG Merritt Gibson	MT Miriam Tams
HH Herbert Hall	ST Sean Timpa
MH Marjorie Hill	JTa Jim Taylor
TH Tom Herman	MTh Merrill Thorpe
PVK Peter Vander Kloet	BBT Brenda & Bill Thexton
DL Danny Levy	JGT Judy & Gordon Tufts
FL Fulton Lavender	JW Jim Wolford
JL Joey LeBlanc	SW Sherman Williams
LL Len LeGard	JWi Jelmer Wiersma
BM Bob McDonald	PY Paul Yates
EM Erich Muntz	MZ Marion Zinck

BLOMIDON NATURALISTS SOCIETY  
1988 - 1989 Membership Fees  
(due September 1, 1988)

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Each member receives four issues yearly of this Newsletter.  
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Please enclose a cheque or money order payable to  
"Blomidon Naturalists Society" and forward to:

Mrs. Judy Tufts  
P.O. Box 1313  
Wolfville, N.S. BOP 1X0  
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<u>Number</u>	<u>Membership Classification</u>	<u>Price</u>	<u>Total</u>
_____	Individual Adult	\$7.00	\$ _____
_____	Family	\$10.00	\$ _____
_____	Individual Junior (less than 16 years old)	\$1.00	\$ _____
		TOTAL	\$ _____

My name \_\_\_\_\_

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Postal Code \_\_\_\_\_

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Membership Type (please check one):

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Phone Number(s): Home \_\_\_\_\_ Office: \_\_\_\_\_

Membership Type (please check one):

Ind. Adult\_\_ / Ind. Jr.\_\_ / Family\_\_ (# of family members\_\_)

**Sources for Local Natural History Information**  
(Compiled by Blomidon Naturalists Society)

<u>Topic</u>	<u>Source</u>	<u>Office</u>	<u>Home</u>
Rocks & Fossils	Geol. Dept., Acadia Univ.	542-2201	
Fish	N.S. Dept. of Lands & Forests	542-8921	
Flora - General	Ruth Newell	542-2201	542-2095
Flora - Trees	Merritt Gibson	542-2201	582-7569
Flora - Fungi	Darryl Grund	542-2201	542-9214
	Kenneth Harrison	542-2201	678-4890
Flora - Seaweeds	Darryl Grund	542-2201	542-9214
Flora - Mosses & Ferns	John Pickwell	542-2201	678-8281
Birds - General	Bernard Forsythe	542-2246	542-2427
	Richard Stern	678-4742	678-1975
	Peter C. Smith	542-2201	542-5998
	Gordon & Judy Tufts	542-7800	542-7800
	Jim Wolford	542-2201	542-7650
	Jean Timpa		542-5678
Birds - Hawks & Owls	Bernard Forsythe	542-2201	542-2427
	Cyril Coldwell	542-2201	542-2854
	Mark Elderkin	542-2201	542-3731
Birds - Falcons & Eagles	Peter Austin-Smith	678-8921	542-2109
	Tom Herman	542-2201	542-7607
	Francis Schwab	542-2201	542-3473
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 Bryllinsky	542-2201	582-7954
	Ellis Gertridige	542-2201	542-2816
Indian Prehistory & Archaeological Sites	James Legge	542-2201	542-3530
Astronomy	Roy Bishop	542-2201	542-3992
	Larry Bogan	542-2201	678-0446
	Sherman Williams	542-5137	542-5104