HALIFAX FIELD NATURALISTS' NEWSLETTER

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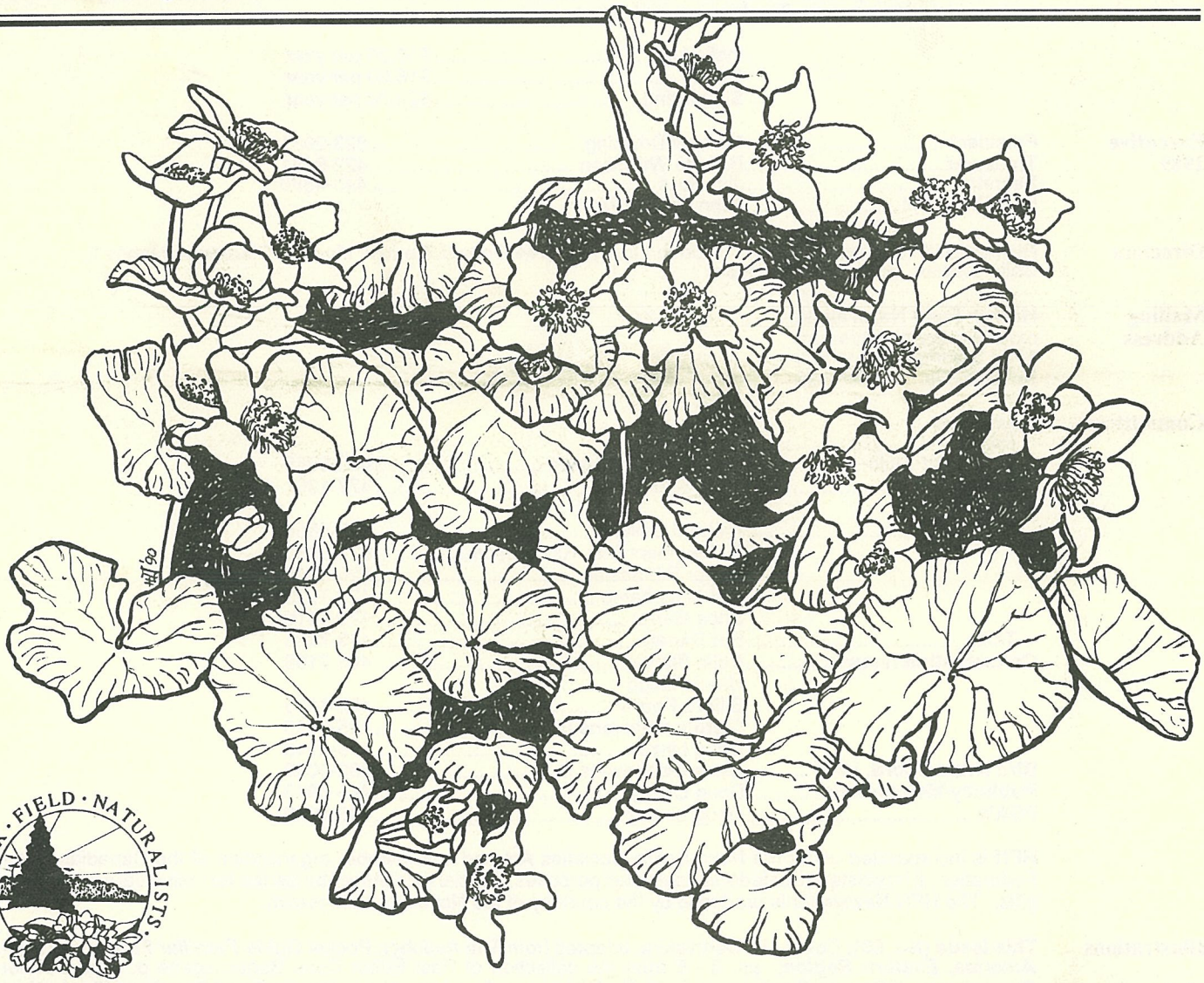

Marsh Marigold
Caltha palustris

Return address:
Halifax Field Naturalists
c/o Nova Scotia Museum
1747 Summer Street
Halifax, NS B3H 3A6

HALIFAX • FIELD • NATURALISTS

Objectives To encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large. To represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources.

Meetings On the first Thursday of every month at 8:00 pm in the auditorium of the Nova Scotia Museum, 1747 Summer Street, Halifax.

Field Trips Are held at least once a month, **and it is appreciated if those travelling in someone else's car share the cost of the gas.**

Membership Is open to anyone interested in the natural history of Nova Scotia. Memberships are available at any meeting of the society, or by writing to: Membership Chairman, Halifax Field Naturalists, c/o NS Museum. **New memberships**, starting from September 1, will be valid until the end of the following membership year. The **regular membership** year is from January 1 to December 31. Members receive the HFN Newsletter and notices of all meetings, field trips, and special programmes. The fees are as follows:

Individual	$10.00 per year
Family	$15.00 per year
Supporting	$20.00 per year

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Illustrations **This Issue (No. 59):** Cover - H. Derbyshire, adapted from The Audobon Pocket Guide ***Familiar Flowers of North America, Eastern Region***; pp. 3 - 5 from the collection of Past Editor Doris Butter, scene p. 5 from Nature Conservancy of Canada Brochure; p. 7 - H. Derbyshire; p. 8 - adapted from ***Nautical and Seashore Illustrations***, Dover Clip-Art Series; p. 9 - seagull by John Sill from ***The Bird Identification Calendar, 1989***, scene from ***Nautical and Seashore Illustrations***; p. 10 - Rock Polpody from Environment Canada's Kejimkujik Park brochure ***Ferns***, smooth Rock Tripe from Peterson's ***A Field Guide to Edible Wild Plants***, Reindeer Moss from the collection of Doris Butters; p. 11 - canoe, H. Derbyshire, scene adapted from Nature Conservancy of Canada brochure; p. 12, H. Derbyshire; p. 13 - the Practical Puffin ***Exploring, Getting to Know Your World***; p. 14 - birds from Peterson' s ***A Field Guide to the Birds East of the Rockies*** , Marsh Marigold by Paul E. Kennedy from the Dover Coluring Book Series, ***American Wildflowers***; p. 16 - by J. Foord from the Dover Pictoral Archive Series ***Decorative Plant and Flower Studies.***

HFN NEWS AND ANNOUNCEMENTS

HFN NEWS

Here is the summer newsletter! HFN has once again had a busy quarter. President Michael Downing summarised last year's events in his address to the AGM on March 1. There were several very enjoyable field excursions. An HFN panel appeared on Maritime Noon to discuss Signs of Spring.

There are three items in which the HFN Directors hope members will take part. The first one is the federal government's Green Plan. Read about it on page 5. Then there are two field studies; one collecting beetles from traps in Point Pleasant Park, see page 7, and one making area studies on McNabs Island, see page 9.

MARITIME NOON AND THE SIGNS OF SPRING

On Monday, April 16, HFN was represented on CBC's Maritime Noon call-in show by Stephanie Robertson and Betty Hodgeson, fielding questions and comments on 'the signs of spring'. After having agreed to do, a frantic panic of realisation of responsibilities set in. This was of the galvanic rather than the paralytic variety, and initiated a frenzied attempt at memorising *all* field guides and nature notes researched for the HFN Newsletter and Programme; and desperately consulting friends who had 'been in the field' to garner any of their meagre sightings of Nova Scotia's most elusive and abstract of seasons. I dutifully made lists out of all this compilation, and divided them under two headings — 'Signs at Home' and 'Signs Abroad'. 'Signs at Home' included such things as my dog's copious shedding in response to the lengthening days, and the yearly nesting of starlings in our eaves. 'Signs Abroad' included Doris Butter's notes from her weekend stay in Kejimekujik, sightings from the April 8 HFN Canoe Trip in Musquodoboit , and more sightings from Sandy Bessonette who lives near Albro Lake in Dartmouth.

Spring is aptly named here in NS — it springs out, and then again back in, before one can detect even a change of temperature or swelling of bud. (Didn't we have some warm days somewhere in March?) Grey is the colour I would use most to define the appearance and feel of the thing; dreary is another word that 'springs' to mind. Having been fed on the English Romantic poets, and having been actually in Britain during a few springs, in Nova Scotia it is always a disappointment — a long, dull, cold, neverending wait until summer.

Across the Atlantic, where the Gulf Stream has a tangible effect, roses can be seen in late January, daffodils and fragrant wallflowers are blooming in March, rock alyssum and lilacs by mid-April, and *palm trees* grow in Scotland! Even British Columbia has the season, for heaven's sake! So, on we go, constantly believing against all reason and observation that the season exists here, because greeting cards, Easter decorations, calendars, and weathermen (also blinded by tradition) continually talk about it.

Besides the backing of Betty's expert field knowledge, the most helpful aspect of the whole affair was the relaxed calm and efficiency of Costas Halavrezos, Ron Sherrard, and his technician Phyllis Burke. They put us completely at our ease. So many people called in that my well-organised notes and field guides, spread out for ready access in front of me, weren't needed. I even recognised a nighthawk by the avian activity described by one caller. I discovered that there *were* signs of spring out there, from Pictou to New Brunswick, and all over Nova Scotia. You will find some more on the back page of this issue, and will be experiencing many more by the time you receive this, I hope.

-Stephanie Robertson
April 12, 1990

NEW AND RETURNING MEMBERS

Sam & Carol Anne Ando
Ruth Borrows
Michael Charles
June Coull
Leila & Andrew Dean
Cathy Doucet
Donna Hammond
Mike Whitlock & Barbara Hodkin
Susan M. Hunter
Joanne Irwin
Martin & Linda Langille
the McCann family
Patricia McKnight
Ronald David Murphy
Lynda Noble & family
Belinda Wilkinson

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SPECIAL REPORTS

THE PRESIDENT'S ADDRESS TO THE ANNUAL GENERAL MEETING MARCH 1ST, 1990

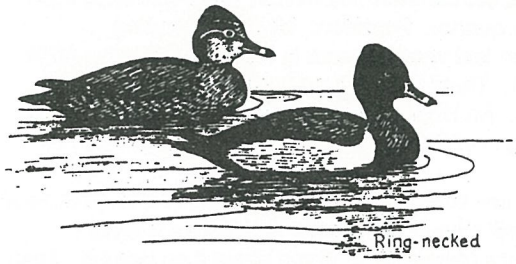
During the several years that I have been president of the Halifax Field Naturalists there has been a strong emphasis on tightening our efficiency as an organization. There has also been a shift in focus from the enjoyment of nature to the fight, in the political arena, for its protection. Our large accomplishments have been in the area of advocacy. To name a few, we played a very active role in the fight to save South Moresby, presented a major paper on provincial parks to the Department of Lands and Forests, carried the Nova Scotia effort for the Word Wildlife Fund's Canadian Wilderness Charter campaign, and engineered the formation of the Nova Scotia Trails Federation and the Federation of Nova Scotia Naturalists. An increasing proportion of our minor projects have also been directed more towards organizational tactics and political ways-and-means than towards natural history. We have now even formed a standing Conservation Issues Committee, to ensure that no area where natural values are threatened by human activity escapes our attention. No one can deny that for a small club, over a few years, we've done a lot.

As president, I have generally encouraged this move towards a more public role. I have supported all our initiatives to affect government policy, and have participated directly and wholeheartedly in many of them. And I have personally fought tooth and nail for better organization among naturalists. I believed that there was a need for this, not so much for the Halifax area as for the province as a whole. Issues with wide potential to interfere with the natural state of the environment in our remaining relatively wild areas were coming up. No clearly identified naturalist spokespeople were coming forward in the public deliberations. Something needed to be done.

However, with the formation of the Federation of Nova Scotia Naturalists I hope the time has come when we can level off our activities as organizers and advocates, and shift our focus back to being field naturalists rather than assembly house naturalists. Instead of taking the initiative in provincial issues, it should now be sufficient for us to send representation and lend our support to our provincial federation. We now have a special committee which should be able to handle local issues on a day to day basis. When a local site is threatened by a proposal displaying an unusual degree of rapacity or stupidity, the natural flow of outrage among the membership should provide the energy for a swift and powerful response. Over the coming few years, I would like to see the Halifax Field Naturalists shift its focus back to the study and enjoyment of nature...

I went on to raise some questions and challenge some assumptions about the ethics and long term consequences of lobbying and media selling for the naturalist cause, and about the nature of the movement itself. My address was too long for publication in the newsletter, so copies have been made, and will be available at the next few meetings.

- Michael Downing,
President



CONSERVATION ISSUES COMMITTEE

HALIFAX HARBOUR TASK FORCE AND FRIENDS OF MCNABS

In late February the Halifax Harbour Task Force (HHTF) held a series of public meetings to gather opinions on some of the options they were considering. One option (which originated in an earlier study) was to locate a single large sewage treatment plant on McNabs Island. This was barely commented on in the first four meetings, leading Dr Fournier to remark to the media that he was underwhelmed by the response. The fifth meeting brought out the 'not McNabs' forces (including HFN). As Lou Collins put it, the Task Force should at least be 'whelmed'.

HFN confirmed its opposition at the March 1 Annual General Meeting through a general resolution supporting McNabs and Lawlors as a natural environment park and opposing any industrial use of the islands. We followed up with a submission to HHTF outlining our reasons for opposing any McNabs Island site, sending copies to government and several national conservation bodies. (The NDP agreed with us, and Alexa McDonough had already put forth a resolution to that effect; the Liberals said they would consider our position in formulating theirs; the Premier's office acknowledged receipt; neither of the Ministers of Environment or Lands and Forests has replied yet nor has the federal Minister of the Environment replied.)

Our principle objection is that the land is too valuable as parkland. About 95% of it is now either national or provincial park land (up from none about 1960). Although the plant itself would take up little space it would require roads and a bridge, and possible expansions later to accommodate local growth, and to improve the plant. There would also be the effects of having construction crews and the operation crew working there. Additions might include the 'petro-poop' facility, a sludge disposal site, then perhaps a toxic waste incinerator or hazardous waste disposal site. In short, we fear a creeping loss of the islands similar to that experienced by both the Halifax and Dartmouth commons.

We are not alone in our concerns. After a public meeting in March a working group formed the Friends of McNabs. Their purpose is to preserve all of McNabs, Lawlors and Devils Islands for historical, cultural, educational, environmental and recreational purposes through a combination of National Historic and Provincial Parks, and to oppose all industrial and commercial uses inconsistent with the first part. They are incorporated, and are accepting memberships ($10.00).

Kim Smith and Halifax Cable are producing a half hour documentary on McNabs Island's park potential, and HFN is planning several field trips to McNabs this summer as part of a special Area Study; see our note on page 9.

THE GREEN PLAN

The federal Environment Minister, Lucien Bouchard, has spent almost a year preparing an Environmental Agenda which will be called the Green Plan. In March he released a document called "A Framework for Discussion on the Environment" as a guide for public consultation, leading to the submission of the plan for Cabinet approval in September. The goal of the government (as stated in the "Framework") is "to make Canada, by the year 2000, the industrialized world's most environmentally friendly country".

Unfortunately, the time table for discussion is very tight. By the time you receive this there will have been an information session on April 27, with representatives of about 10 federal departments present to clarify anything that's unclear in the document. We will also have had our chance to present our opinions in a workshop session on May 28 and 29. These meetings are unlikely to allow us freedom to say what we think, so we will make a written submission.

We shall take a great deal of care in formulating our position, as it is our best chance of influencing the government's environmental effort for the next decade. Individual comments will also be welcome. Copies of the "Framework" should still be available from Environment Canada (15th floor, 45 Alderney Drive, Dartmouth; 426-7231). As the consultation process continues until June 30 (in other cities) we assume that written submissions will be accepted at least until then.

ENDANGERED SPACES

As part of the effort to ensure that every federal and provincial legislator in Canada is aware of the campaign to preserve representative portions of each natural region in Canada by the year 2000 (the Endangered Spaces campaign), a copy of the book "Endangered Spaces: the Future of Canada's Wilderness" is being sent to each of them. HFN delivered these books to the members in mid April, along with cover letters from both the World Wildlife Fund (WWF) and HFN.

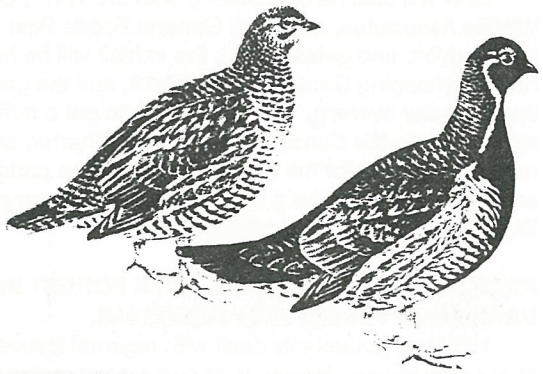
HFN will also be cooperating with the WWF, Canadian Wildlife Associates, and Kraft General Foods Post Cereals in an exhibit, and gala/auction; the exhibit will be held at the Halifax Shopping Center August 16-18, and the gala event the Saturday evening. The purpose is to get a million signatures on the Canadian Wilderness Charter, and to raise $1,000,000 for the support of parks and protected areas. The gala will be a formal affair, at $50 per person. Watch for promotional material.

PRESERVATION OF OLD GROWTH FOREST IN THE CARMANAH VALLEY AND TEMAGAMI

HFN has not usually dealt with regional issues outside of our own region. However, at some point regional issues become national issues. Certainly this happened on South Moresby, B.C. The following two forests are unique and have reached national prominence. If either of these areas is logged then we lose a significant piece of our national natural heritage.

The Carmanah Valley is on the west coast of Vancouver Island and empties through Pacific Rim National Park. The world's tallest Sitka Spruce (and Canada's tallest tree) were discovered just outside the park. (How tall? 97 m (318 ft) - about as tall as Halifax's tallest building.) MacMillan Bloedel moved its scheduled cut of the 6700 acre valley from 2003 to 1989, but were halted by environmentalists (led by the Western Canada Wilderness Committee (WCWC)) who wanted the whole valley protected, preferably by adding it to Pacific Rim National Park. The BC government recently announced a compromise: the lower half would become a provincial park, and MacBlo could clearcut the upper half. On a BC scale, 7000 acres (30 sq mi) is small. We have written the BC government asking that they take a watershed approach to conservation and preserve the entire valley, preferably as national park. For more information you can write WCWC, 20 Water St, Vancouver, BC, V6B 1A4. You can make your thoughts known to Premier Vander Zalm or the BC Parks Minister, Forest Minister, or the Environment Minister, all at the Parliament Buildings, Victoria, BC, V8V 1X4. (Copies to WCWC and HFN would be useful.)

Temagami is a mature white pine forest a few hundred miles northwest of Ottawa. It is the last large block of this habitat in Ontario and probably anywhere else. Efforts to preserve it have included both court challenges and road blocks; Ontario NDP leader Bob Rae was among those arrested last year. Recently logging has once again been authorized. Again, we have written to encourage preservation of this forest. The contact for information is the Temagami Wilderness Society, 19 Mercer St Suite 307, Toronto, Ont, M5V 1H2. Opinions should be made known to Premier Peterson, and the Resource and Parks Ministers, all at Queens Park, Toronto.



LAW AMENDMENTS

Among the laws being amended by the Nova Scotia legislature this session are the Wildlife Act and the Special Places Act. We have prepared submissions to the Law Amendment Committee on each.

The only revision to the Wildlife Act that we object to is the one removing the Spruce Grouse and Ptarmigan from the section which imposes heavy fines for shooting them. The stated reason for removing them is that they are often confused with the common Partridge. Our main concern is with the Spruce Grouse, a bird that protects itself by flying out of reach into a nearby tree, not usually out of sight. The potential heavy fine keeps many hunters cautious, thus sparing many Spruce Grouse, and probably many Partridge. If the fines are removed we expect it will be necessary to put the species back on the list in a relatively few years because it will have reached endangered status.

We have an objection to one of the revisions to the Special Places Act. The Act as it is written does not allow for the designation of a Special Place to be terminated. The Act has been in place for 10 years now, and we only have 2 of 96 candidate sites protected under this legislation, and 2 in the wings. This is partly because of manpower shortages, and partly because of the effort required to document each site. The stated reason for wanting a clause to terminate designation is that some sites may be designated erroneously, or designation may no longer be appropriate. Our major concern is that this weakens the protection offered and might discourage use of the Act as a means of preservation. Now instead of protecting a site forever, it protects the site forever, or until someone convinces cabinet that it doesn't merit protection anymore.

BLUE MOUNTAIN RESOURCES

There is a proposal to create a quarry near the upper end of Kearney Lake Road; this affects several natural sites and an important recreational area. One of the groups opposing this development is Blue Mountain Conservation Society which can be contacted through June Coull, 1 Sybil Court #21, Halifax, B3M 1G7 (455 3169). There are also some early initiatives to preserve much of the land around Suzie and Quarry Lakes as parkland. Bob MacDonald is representing HFN's interests at the Blue Mountain Conservation Society. This committee is watching the proposals and the Environmental Impact Assessment procedure carefully.

- Colin Stewart

DISAPPEARING WILDERNESS

By now, most people have heard something about the disappearing wilderness in Nova Scotia. We have been inundated with facts about human abuse of land and sea, but lately, dire warnings are starting to concern more people than just committed naturalists.

The wilderness is dwindling. It is clear that the legal protection of wilderness is the only way to ensure its survival. But, our federal government doesn't think so. In early February, 1990 Jim Fulton, M.P. from Skeena, moved that the house approve completion of the National Parks system by the year 2000, and that at least 12% of land and marine areas be protected. The motion was defeated, 122 against, 77 in favor.

On a provincial level, there is no plan for a parks system. That is, the government has not made a complete commitment to the ecological types, locations and amounts of wilderness worth preserving. Yet such a plan is essential, otherwise most wild areas will be eaten up by resource industries. Industry and jobs are important to us, but wilderness protection is vital to us and every other creature with whom we share this planet.

Too often we think in extremes; we can either exhaust our resources, or we can all leave the province and let the resources be managed by the piping plovers. The solution (proposed years ago) is to preserve a set of wilderness areas, representative of the Acadian region. Roughly 2.5 % of the Nova Scotian land is protected from resource extraction - not nearly enough to protect all the natural variety in this region. There is no marine protection at all. There are both federal (National Parks Act) and provincial (Provincial Parks Act, Special Places Act) laws which aim to protect wilderness areas. So, the legislation exists, and there are competent civil servants who are keen to work on wilderness protection.

However, wilderness receives no political attention from elected representatives. It is perceived as an undramatic issue. Since 1980, only two out of 96 identified ecological reserves have been legally protected. Regarding the sea, four areas in the Nova Scotia region have been identified by Parks Canada as potential marine parks, but so far none have been declared. Jurisdiction of marine areas is divided among government departments and a lack of communication between them deters any preservation efforts.

Industry has the strongest influence on government decisions concerning resource use. National opinion polls show that the public supports wilderness protection but the heavily financed lobby efforts of industries outweigh the voice of the general public. We should be telling our government that voters want a say in the division of the wilderness pie. We want wilderness areas that will not be permanently destroyed by resource extraction.

The World Wildlife fund has initiated an "Endangered Spaces" campaign. The aim is to convince provincial and federal governments to protect a representative 12% of the

Canadian wilderness by the year 2000. Everyone who supports this cause should write to World Wildlife Fund, 60 St. Clair Ave., E. Suite 201, Toronto, Ontario, M4T 1N5. A tally of supporters will be sent to elected representatives.

Nobody (in their right mind) has the conscious intention of destroying wilderness areas. The slow degradation of our wilderness is largely due to a lack of a coordinated land-use plan and poor resource management. We desperately need a wilderness protection plan; one that is developed with the aid of dedicated naturalists from the public sector.

So the situation is that the provincial government has not publicly stated the amount, types, or the locations of potential protected wilderness areas. Write and ask for a plan; for a land plan, write to C.W. MacNeil, Dept. of Lands and Forests, P.O. Box 698, Halifax, N.S. B3J 2T9; for information on inland waters and the sea, write to Lucien Bouchard, Minister of Environment, House of Commons, Ottawa, Ontario, K1A OA6), and maybe the remaining wilderness will become as important to the government as it is to concerned citizens.

- Nancy Shackell and Martin Willison

POINT PLEASANT PARK REPORT

Every two weeks since the beginning of February, 15 members of a Technical Advisory Committee have been meeting to set up terms of reference for the implementation of a long-term management plan for Point Pleasant Park. This was initiated by the Point Pleasant Park Commission's concern over various deleterious processes perceived in the Park such as Spruce Bark Beetle infestations, soil compaction, and general 'low vigour' of the trees; and their presentation of a forestry-based solution and its budget to Halifax City Council on Nov. 22, 1989. This proposal was based on the traditional principles of economic forestry, rather than upon the more ecological principles of modern park management, and it was met with successful resistance at that presentation.

The Technical Advisory Committee was then formed, and after three months of careful deliberation and shared expertise, it came to the unanimous conclusion that, except for a short experimental programme to deal with the Spruce Bark Beetle infestation this summer, no more emergency measures which could prove deleterious in the long run should be taken in the Park before a long-term management plan is in place.

The Park Plan will be structured in three distinct phases: **1)** Resource Description — attained through ecolgical, historical, and user surveys; **2)** Policy & Prediction — a recommended a course of management by the TAC based on the results of the Resource Description; **3)** Prescription — projects specifically outlined by the TAC that are required to carry out recommendations identified in 2).

The Terms of Reference for the Ecological Survey and the User Survey were drawn up, and presented at a joint meeting of the Point Pleasant Park Commission and the Technical Advisory Committee on May 4, 1990. The results of these studies will provide a broad, detailed base of technical data on which to design the long-term management plan.

- **The Ecological Survey** Terms of Reference outlines specifically what data the proponents should collect and what methods should be used. The survey will be based on a system of habitats like that used in the ***Natural History of Nova Scotia***, by Simmons et al, 1984, with attention being paid to terrestrial, freshwater, shoreline, and near-shore marine habitats. All trees, forest species associations, vegetation, habitats, wildlife, ponds, bogs, paths, trails, soil and rock types, man-made features, water courses and culverts, present land uses and their impact upon the park, and park productivity will be studied and inventoried in detail.

- **The User Study** Terms of Reference has the broad objective of assessing all types of human activity within the park. The study will be directed towards a) integration with the ecological survey in determining the extent of human impact upon the health of the Park's vegetation and b) the possible future establishment of a Point Pleasant Park Education/Interpretation Programme. It is to be conducted over a period of one year, in order to obtain a full seasonal overview of different activities and a good estimate of the number of park users. All areas of the park are to be covered.

- **The Spruce Bark Beetle** will be dealt with concurrently in three ways: standing trap trees; using logs from blown down trees; and stove-pipe traps. Several badly infested areas will be dealt with, covering in total about 10 hectares. In each hectare there will be 9 traps, three of each type. Standing trap trees are trees that will be stressed by girdling, and thus give out a special scent attracting the nearby bark beetles, who will flock to that tree to lay their eggs. The logs will also give off the same scent and fulfill the same function. The stove-pipe traps are simple traps with turpentine as scent, and will trap the beetles by either a sticky substance on the insides of the trap, or by a jar of alcohol or turpentine into which they will fall. The Halifax Field Naturalists will be monitoring these traps, collecting the beetles, and taking them to the Nova Scotia Museum for proper identification, and preservation. This will be a very interesting and fun project. **Anyone who wishes to take part in this interesting study, please contact Stephanie Robertson, 422-6366. This is the type of work that HFN wants to do more of .**

The PPP Commission has taken our recommendations for consideration, and we hope that they will act quickly in order to produce a sound management plan for one of Halifax's most treasured and valuable places.

-Stephanie Robertson

SPECIAL ARTICLES

CANADA IN THE TIDAL WAVE ALERT SYSTEM

Canada is part of an international network which predicts the formation of tidal waves in the Pacific Ocean, which could cause serious harm on British Columbia's coast.

Port Alberni, B.C., suffered serious property damage on Good Friday in 1964, when an earthquake off the coast of Alaska, measuring 8.5 on the Richter scale, created a tsunami - a tidal wave or dramatic increase in water level - that swept the west coast of North America.

In the late 1960s, Canada became part of the Pacific Tsunami Warning Network, which has headquarters in Hawaii and a warning centre at Palmer Observatory near Anchorage, Alaska. When an earthquake of more than 7.5 on the Richter scale is recorded at one of the centres, a tsunami watch is announced. For larger quakes, a more serious warning is sounded. Tidal gauges at 17 locations on Canada's west coast monitor the speed and height of tsunamis. The network also activates sirens in coastal towns, to warn residents in a tsunami's path to leave their homes.

In Canada, tsunami watches are announced, on average, two or three times a year, but in most cases, no tsunami forms. Since Canada became part of the network, only two official tsunami warnings have been issued; in both cases none materialised.

Although tsunamis can occur in the Atlantic, most occur in the Pacific, a more earthquake-prone area. All around its edges, movements of the plates making up the earth's crust have created the 'Pacific ring of fire', where most of the world's large earthquakes occur. Earthquakes under an ocean do not always cause tsunamis. "In order to have a tsunami, you need a slip-dip movement, where the displacement along the fault is vertical rather than horizontal," said Willie Rapatz, regional tidal superintendent for the Department of Fisheries and Oceans in Sydney, B.C.

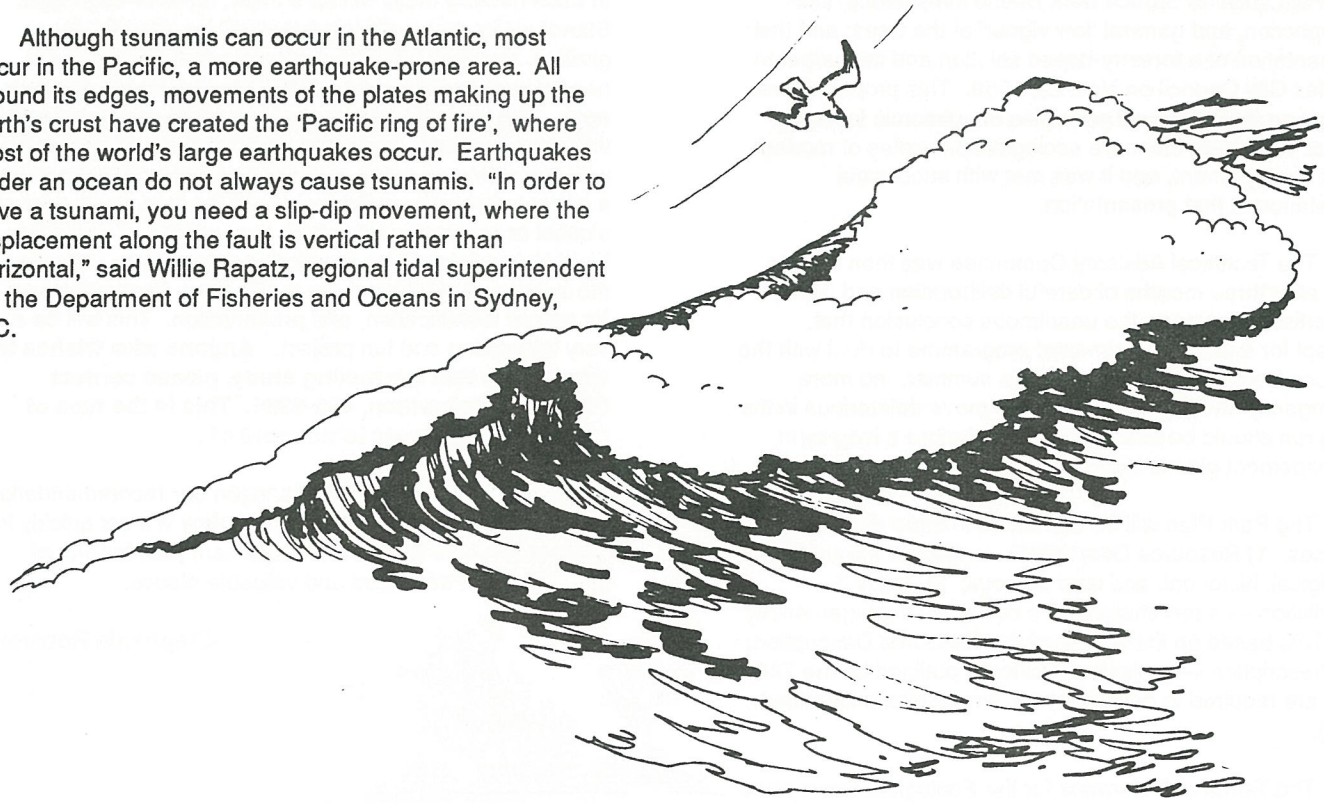
Rapatz says Canada has had significant tsunamis from only two locations: Alaska and South America. In both areas, the crustal movements are downward. Movements along California's San Andreas fault are horizontal, so earthquakes along the underwater section of the fault do not cause tsunamis.

Tsunamis are born at the epicentre of an underwater earthquake. Waves move out in all directions at speeds up to 900 kilometres an hour and can be 90 metres high. Some form in such a way that the trough of the wave hits the shore before the crest, resulting in a sudden withdrawal of water before the tsunami arrives. This happened in Port Alberni; a few hours after the water receded, a wave nearly four metres higher than normal flooded the town.

Tsunamis sometimes form huge tidal waves, especially on very shallow, shelving coasts. They more often appear as a rapid rise in water level, especially on the B.C. coast, where the water is quite deep. They are most likely to do damage as they rapidly retreat, carrying boats, cars, people, even houses, out to sea.

(Despite the potential danger, many people ignore the warning sirens. Some even go down to the shore to watch the waves come in, but in Port Alberni the citizens know better. They pay attention to the province-wide exercise drill, and take the emergency practice plan seriously; many of them still remember Good Friday, 1964.)

-from an article by Lorraine Brown (Canadian Science News)



REDUCE THE GULL POPULATION?

A group of Agriculture Canada researchers has recently developed a way to turn scraps from the fish Processing Industry into high quality compost. Their work could lead a new industry for Eastern Canada.

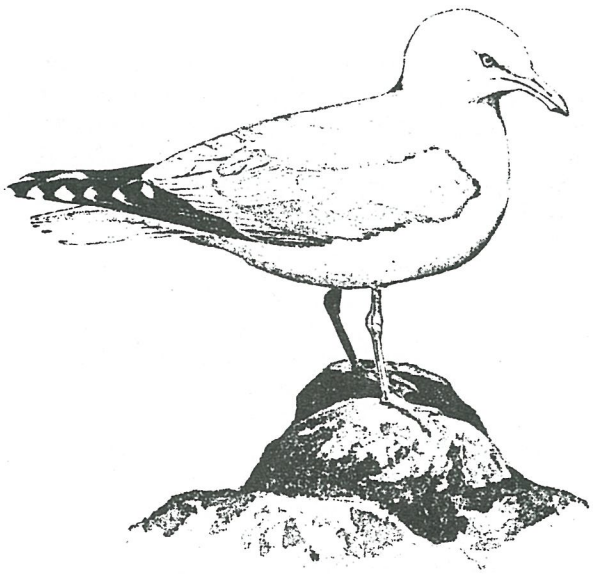
In the Maritimes, up to 200,000 tonnes of fish scraps are disposed of as waste, on or offshore, each year. Disposal costs anywhere from $10.00 to $50.00 per tonne. High-quality nutrients in the fish scraps are lost, and the disposal has created a local source of pollution, not to mention a drastic increase in the gull population which is very detrimental to other birds.

Attempts have been made to use the scraps, but the smell of decomposing fish has been a problem. Farmers tried spreading the wastes on their fields, but local residents complained that the smell was unbearable. Letting the scraps decompose naturally would take months, and no one would want the task of turning the piles over regularly in order to expose it to the air.

To get around the odour problem, Drs. S. P. Mathur and M. Levesque of Agriculture Canada's Land Research Resource Centre divided the scraps into small piles layered with, and covered with, peat to prevent the smell from escaping. Plentiful, eastern sphagnum peat moss has the deodorising and purifying effects of charcoal and its acidity neutralises the alkaline ammonia of protein decomposition.

To speed up the composting process, the scientists limited the size of the piles to one metre high and three metres long. They installed a system of pierced plastic pipes in each pile. These pipes allowed hot air created during the composting to escape and, in the process, pulled cool air from the bottom to provide a good supply of oxygen. The hotter the heap gets, the more rapidly does decomposition takes place.

-adapted from Canadian Science News



MCNABS ISLAND AREA STUDY

In the early '80's HFN carried out a number of Area Studies, documenting places that were interesting to naturalists. Their purpose was both to collect basic information on the areas and to improve our abilities as naturalists. These places were visited as often as necessary, usually over several seasons or years; species lists were compiled for all habitats, and any natural changes in progress were described. The first study completed was of Peggy's Cove, followed by one on the South End Railway Cutting, and a mini-version for the trees of the Public Gardens; the results were published in this newsletter. A Conrad's Island study is nearly finished and there are some data for Hemlock Ravine. There were others that I've forgotten.

The concept is being revived for McNabs Island, partly at the suggestion of some of the members on last year's field trip, and partly because of opposition to the suggestion of the island as a Sewage Treatment Plant site. Fortunately we already have a good base-line because the Nova Scotia Museum did a background report in 1966 when the island was first considered for a park and the provincial Parks Department commissioned a biophysical survey after becoming responsible for the park in 1984.

HFN is planning at least five visits to McNabs Island (every second weekend), and possibly one to Lawlors. These are work trips, that will concentrate on listing plants and animals, and noting their relative abundances, from each of several locations. This will involve making notes, bagging samples, and the like. You will probably learn a lot, but it won't exactly be relaxing! Each of the trips will concentrate on one habitat; the first will be to the shoreline and adjacent wet areas. On subsequent days we'll look at the 'old field' community, wet areas (including the lagoon), and have at least two days for the forests.

The working parties will take the first ferry of the day to MacNabs Island, but people are welcome to join them later (if they can be found), or to leave early. Lawlor's will probably be reached by canoe from the Eastern Passage side. Each party will be accompanied by an experienced leader who will ensure that the survey covers the habitat thoroughly, but who won't necessarily have previous knowledge of the islands.

Look for more information on the programme sheet.

- Colin Stewart

FIELD TRIPS

A WINTER AFTERNOON IN THE WOODS

DATE: Saturday, 17 January, 1990
PLACE: Long Lake Provincial Park
WEATHER: 3 degrees C, sunny and windy
PARTICIPANTS: 12, including a child
LEADER: Eleanor Simonyi

We walked into the park on an old logging road behind Harrietsfield. The area had been heavily logged over. We walked along stands of young Black Spruce, Balsam Fir, Birches, Poplars and Tamaracks, growing among large erratics deposited by glaciers.

A strange object hanging on a tree was identified as the entrails of a rabbit. We met two hunters who expressed their concern that we were not wearing bright orange clothing. They were surprised to hear that we were in a provincial park and that they should not have been hunting there.

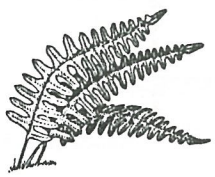
It had rained the previous day, so the ground was damp and very lush. Eleanor showed us leafy foliage lichens and crustose lichens on the rocks; the latter encrust the stone so that it is hard to remove them. Old Man's Beard (*Usnea*) was hanging down from the trees. We saw all three species of reindeer lichens (*Cladonia*), as well as British Soldier lichens, with their red apothecia, which contain the fungus spores. Another lichen on the ground was called Pixie Cups.

The short evergreen Polypody Fern was growing on some rocks, reminding us of a small Christmas Fern. We found leaves of Gold Thread, which is supposed to be a cure for cold sores. Sphagnum moss was abundant in wet places; this moss is very absorbent and was probably the first disposable diaper used in this country! Red berries of the False Lily of the Valley and of Partridge Berry livened up the green of the mosses on the ground.

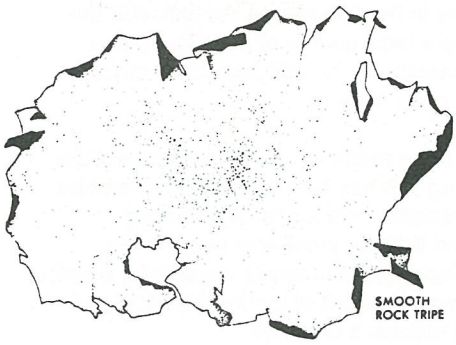
We saw the droppings of Snowshoe Hares, and learned that this animal recycles its own waste. A narrow path led us past Snowshoe Lake to Bayer's Lake; we paused for a short while but found it too chilly to linger. On the way back we passed a Red Squirrel restaurant; they leave their food parings behind in a neat pile. By that time I was longing for a hot cup of tea for myself!

Shortly after that, we were back at our cars. It is amazing how much one can discover in the wintry woods; thank you, Eleanor!

- Regina Maass



Rock Polypody *Polypodium virginianum*



PHOTOGRAPHY IN THE FIELD

DATE: March 4, 1990
PLACE: Polly Cove
WEATHER: Very cold! -6°c
PARTICIPANTS: 6
LEADER: Mary Primrose

Now, gentle readers — the reason for the above 'cold' after 'WEATHER', when it was only a measly 6°c, was because that was how it felt, and as the Atmospheric Environment Services informed me when I phoned to inquire the temperature (I was sure that they were going to say -22°c), it was being on that raw Atlantic coast that did it. This particular participant took a relatively new camera, with which she had not become entirely familiar, and spent most of the time freezing her fingers while juggling the instruction book to see how to set it.

We arrived at Polly Cove, and a grey day it was; just a little *too* overcast for good colour saturation. However, into the field we traipsed, setting up tripods, and photographing Teaberry (Wintergreen) against Reindeer Moss, black lichen against grey granite, Pitcher Plant amongst dead grasses and bog mosses, microscopic compositions of white snow patches and bog plants with granite, etc. Mary instructed us on what to look for in composing a picture for a photograph, so that the photo itself projects the beauty you see in the field. I have always had trouble with this business of 'composing', since everything in the field seems attractive to me, even while freezing cold. After practising on close-ups of plants, and far away shots of trees in granite against sky, we followed the road closer to the wild Atlantic shore, where some of the hardier types photographed the ocean and the crashing waves.

Cold as we were, our next stop was for hot tea at the Peggy's Cove Restaurant. After having been revived

somewhat, we went outside to the great, undulating slabs of granite where we tried some more photography. Mary told us that because of the extremely overcast conditions, we would have to over-expose if we wanted good shots of snow, and under-expose if we wanted good shots of something dark like asphalt or dark rocks. Two of my pictures did turn out well enough to be painted — one was of Teaberries among moss and Cranberry, and the other of a beautiful, brilliant yellow lichen on the Peggy's Cove granite. On the way back, past French Village and Indian Harbour, Mary stopped for a few more shots, and then we made our way home. Mary was a great help in showing us amateurs how to begin improving our techniques, and setting us thinking how to really use our cameras to interact with the landscape.

- Stephanie Robertson

CANOE TRIP AND CAMPFIRE LUNCH ON THE MUSQUODOBOIT RIVER

DATE: Sunday, April 8, 1990
PLACE: Near Meagher's Grant, Highway 357
WEATHER: Sunny, -2° to +3°C
PARTICIPANTS: 12 people, 2 dogs, 5 canoes, 2 kayaks
LEADER: David Bessonette

After quite a lot of planning; postponing the trip from the terrible Saturday to the sunny Sunday; borrowing canoes, paddles, and lifejackets; herding people together; arranging passengers; finding maps; and securely fastening recalcitrant canoes and kayaks — excitement and anticipation were the main ingredients on this cool sunny day as our cavalcade left from Mic Mac Mall for the Musquodoboit River.

We managed to keep together throughout most of the drive out, which was a good thing because David had decided to approach our destination via Highway 102 and then exit 6 along Highway 357. I had never been this way and would have become completely lost. Highway 357 was covered in sticky, slippery snow for most of its length, and slowed us down a lot. We finally arrived and unloaded all the canoes and gear. We waited for David who had gone to our destination at Meagher's Grant after all the unloading had been accomplished; by leaving a car there he solved the problem of reuniting us with our own vehicles later on.

Having donned our lifejackets and stowed the gear, we set off down the river in five canoes and two kayaks. One of the canoes, owned by Martin Müller, had been built using a traditional MicMac crooked knife. It was an exquisite 10-footer, of Birch bark built in the MicMac way, sewn together with Spruce root, caulked with Spruce gum, and decorated with MicMac designs by incising. The ribs were made of Spruce. Martin has built handmade canoes ever since he was fourteen, and has researched the type of birch tree to use and the handling and gathering of the bark. He had painstakingly chosen the trees himself, and taken the bark at the right time of year and in the correct manner, so as to not harm the trees. Ben Pearre's hand-made kayak was captained by Stephen Robertson; Nat Pearre navigated his own — a streamlined plastic affair.

The first sighting was a Beaver lodge nearby on one of the many small tributaries that fed into the river; we saw and heard flocks and pairs of Canadian Geese flying up and away from our fleet. A beautiful pair of Wood Ducks left the huge stump of an old Maple. Hemlock, Balsam Fir, Maple, and Spruce were the main riverbank trees, with Alder bushes below; it was a beautiful paddle with the sun coming in and out and the occasional snow flurry. Further down the river, as we approached our lunch/campfire site, a busy Muskrat was spotted making occasional forays out onto the mud, swimming to and fro along the river's edge, and then disappearing into its den in the bank.

We docked for lunch and set up our hearth on a well-used site, using nice dry kindling that David thoughtfully provided, and some "mash" from a rotting log. The two dogs explored the area as we ate our lunches, then we were off to another stopping place, after ascertaining that the fire was truly out. Here we disembarked and travelled on foot, while the kayaks braved it up a rapids to white water. The two kayakers then joined us, and we all explored an old mill on Dollar's Lake Brook. The mossy remains of an old stone wall, and two huge millstones half buried in moss and vegetation were to be seen beside a very rough and steep stretch of the brook. We wondered how these were ever transported to this site. The photographic possibilities here were wonderful, with the sun shining and snowflakes falling on the white waters of the falls.

We traipsed back to the canoes, leaving the kayakers to follow on the water. We saw Willow catkins, and a very interesting array of homemade Maple sap buckets. These were fashioned from plastic, 2-litre ice cream containers nailed into the tree, with slightly bent tin can tops pushed into the bark for spouts. They were full, but we resisted the temptation to taste. Continuing our paddle, we passed increasingly into inhabited territory, and it was here that we realised how high the river was. It was great fun to paddle past and through half-submerged fences and flooded meadows.

A wind came up near the last leg of the trip, and the sky turned a dark grey. Just before our final destination, we stopped to look at a fat Porcupine high in an old Maple, and then were off again, paddling against the gusty wind, to our destination.

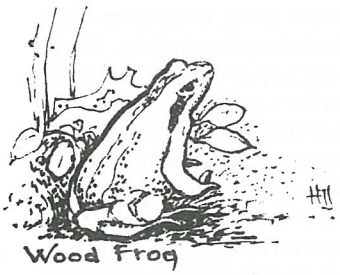
Thank you, David, for a marvellously organised and well-thought out trip!

- Stephanie Robertson

AMPHIBIANS IN SPRING

DATE: April 18, 1990
PLACE: Julie's Heart-shaped Pond, Hemlock ravine
WEATHER: DAMP, HOVERING ABOUT 2° - 4°C
PARTICIPANTS: 40+
LEADER: John Gilhen

This trip was to have taken place in and around the Wentworth area, but John had the foresight to reconnoitre, and discovered that all the ponds in that area were still frozen! Once again, then, this favourite annual trip was held at Julie's Heart-shaped Pond. We had been instructed to arrive there at sunset, or around 7 pm, and for a long while we shivered around wondering whether we had the right night. Then we saw other participants arriving and knew we had the date correct. John brought three Salamanders from the Nova Scotia Museum so that the children and novice participants on this yearly foray could get a good idea of what they were looking for. The children had a chance to handle these, and it whetted their appetites for the finding of their own Salamanders. Soon it became dark enough for the turning on of the flashlights, and I am proud to say that I saw the first Salamander peeking out from the underwater walled ledge around the pond, at about 9 pm, and a big fat sleek one he was. (Within our family, one dollar was offered to the one who made the first sighting.) A dead Wood Frog was found on the edge of the pond; it was surmised that he had frozen as the



temperature slowly fell the night before. If he had stayed in the water, he would have survived, since it is warmer there. Soon, lots of sightings of Salamanders were being made, and the children became very excited and happy with their dip nets and catches. By the way, the Salamanders that were caught were observed carefully, handled gently, and then returned to the pond.

John sighted some females, but most of the many Salamanders were males, there to deposit their spermatophores on underwater debris, for females to pick up later. There seemed to be very many of them, more than I had seen a few years before, prior to the building of the wall which now surrounds the pond. This was interesting because it had been surmised that the construction of the wall might interfere with the Salamanders' access. The culverts seem to have been successful. It was conjectured that run-off from the cement prevented the water from being too acidic. Amphibians are extremely sensitive to a too acid environment. Julie's Pond been tested very recently at a pH of 6.9.

This Yellow-spotted Salamander, *Ambystoma maculatum*, for which we were so ardently searching, is 8 to 9 inches long, and is found in the vicinity of woodlands and slow streams in Nova Scotia. It is shiny black or bluish-black above, and paler beneath, having an uneven row of bright yellow spots along each side of its head, body, and tail, and a few similar spots on its limbs. It belongs to the family of *Ambystomidae* - or Mole Salamanders, which for the most part live underground. It hides under leaves, natural litter, or in burrows, and is chiefly nocturnal. It eats a great variety of insects, and also worms, slugs, and snails.

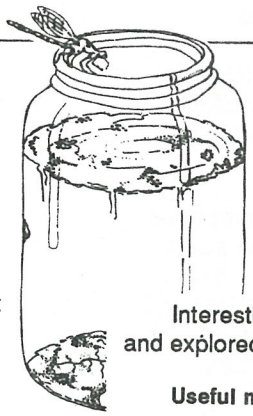
During the breeding season, the females, after fertilising their eggs by picking up the male's deposited spermatophores, lay them in clusters of firm jelly which measure about three inches in diameter and are attached to submerged twigs or plants. The number of eggs varies from only a few to perhaps 250. They hatch as tiny, gilled tadpoles in three to six weeks, depending on the prevailing temperature of the water. By fall, the greenish-yellow aquatic young have lost their gills and developed legs. They leave the water to take up terrestrial life, developing their characteristic yellow spots within a few weeks after metamorphosis. In the second spring after birth, they are ready to repeat the cycle, and may live as long as 20 years!

Thank you John, for this always popular and exciting annual trip.

- Stephanie Robertson

NATURAL HISTORY

WATCHING THE SEASONS



This is the time of year when everything happens so fast out of doors that it is hard to know what to look at first. Here are a few suggestions for simply enjoying the season.

The place to start is at one's own windows; to see what is there and what it is doing. Summer clouds turning into thunderheads and beginning to hurry; different constellations appearing in the bedroom window as the seasons pass; the tree outside, changing and growing; all these form a personal data base for comparison with any other place or time.

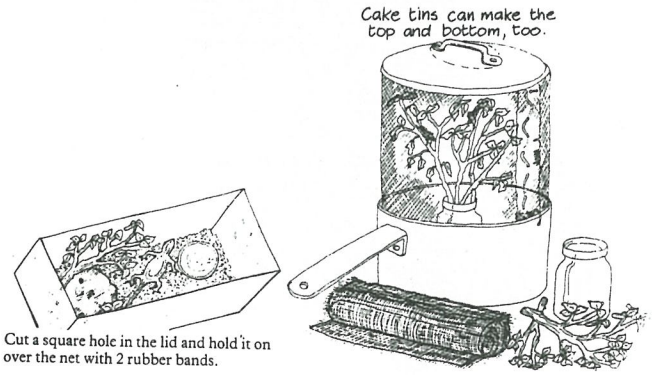
Ornamental Lime trees here are full of night-flying moths in June while the Catalpas two streets up are deserted; I have not seen a bat since about 1975, but a friend living in Shaunslieve on the Bedford Highway watched them all last summer.

The view from the window of a high rise apartment is wider than that from a house; hawks come hurtling round the corner of the top floor. The view of trees from above shows that their boughs arise spirally from the trunk; the leaves are deployed, not like tiles on a dome, but swirling to catch the sunlight. The patterns of birds in tree crowns are also not what one would expect from ground observation.

Keeping notes is part of the enjoyment and provides comparisons for future years; first flowering and bird arrival dates emerge. Page-a-day diaries are useful for this because they keep the dates straight and leave room for sketches or planning, but any notebook will do.

Naming everything does not matter at first; after a while, the memories of sundry sightings merge, and the animal or plant becomes unmistakable.

Using a city or local map, one can find parks, ponds and waste ground within half a kilometre of home. Drawing a line round a suitable area provides a home territory; the special places can then be visited often, and all the roads in between can be explored. Neglected gardens should be noted; they may be a civic blight, but they support a wealth of plants and animals.



Cut a square hole in the lid and hold it on over the net with 2 rubber bands.

Interesting sites further from home can be picked out and explored in the same way, using provincial maps.

Useful maps:

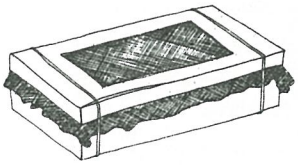
Local city or town map
Tourist road map
Nova Scotia Atlas, from government bookstore
Geological road map
Natural History road map, from Nova Scotia Museum

Curiosity about what is seen comes next, and that is the time for identification and reading. Peterson, Audubon, and Golden Field Guides are available, and so are Museum Curators, to identify the unknowns. It is useful to have some specimens collected, but this means killing, and some of the unknowns may be rare and protected. Living things should be examined alive and released where they were found; methods of preservation should be used mostly for a few leaves picked from trees or for things found dead.

Unless they are very juicy, leaves and flowers can be pressed between the pages of a notebook, or in newspaper under a carpet or mattress, with an accompanying label. When they are dry they are transferred to a scrap book or file folder. Invertebrates can be preserved in rubbing alcohol, though butterflies and moths are usually kept dry, in envelopes, to protect their delicate scales. Vertebrates are usually frozen. Notes should be made on the spot, and labels with place and date must accompany all specimens.

For examination alive, small land animals such as mice, snakes, and frogs can be kept for a short time in glass or plastic jars laid on their sides; the covers for these should be metal screening, secured by a screw cap with the middle cut out. Land animals are good escapers. Invertebrates that live buried are sensitive to light and need soil or leaves to hide under. Insects and spiders tend to dry out and need a damp cotton ball with them.

Fresh water animals do well in aquaria, goldfish bowls or jars, especially gallon pickle jars; keep these covered too - fish jump. For the person who *really* wants to keep some tadpoles, the number should be limited to two or three, and a twig from the pond should be put with them, to ensure a supply of food immediately; their jar should not be kept too clean, as they like to browse off the sides. When tadpoles grow big, commercial amphibian food and a bit of fresh lettuce floating on the water will keep them healthy.



Living marine organisms should not be taken home at all, but should be looked at where they are found.

For examining small things in the field, the best inventions are ziplock bags and transparent sandwich boxes; of course you may have to eat your lunch early to make use of them...

A magnifying glass is invaluable; cheap plastic ones (x1.5, x2) are found at stationers and department stores and are good to start with, especially for children. Better ones, from x5 to x15 (for detailed study of insect legs and flower parts), cost a lot. A naturalist who has reached the stage of needing one of these is no longer a novice!

Temporary prisons for living animals:

Aquaria
Goldfish bowls
Gallon pickle jars with centre of lid replaced with screening
Mason jars with screening discs.
Candy or biscuit tins with a rolled-up sleeve of screening inserted between bottom and top - for insects and spiders, snails
Plastic bags suspended from a nail and containing water - for small aquatics or water plants
Disposable old-fashioned glasses, placed mouth to mouth and taped - for snails, earthworms, small insects; good for domestic seedlings too

- Ursula Grigg

...AND MORE SIGNS OF SPRING !

Mr. Andy Dean, of 55 Sugar Maple Drive, Armdale, N.S., kindly sent in this list of his spring observations.

March 10 — Kingfisher at Port Joli, Queens County
March 18 — female Purple Martin (sight & sound), at a bird house in Port Joli
March 20 — 20+ Grackles, Timberlea
March 24 — 3 Robins, Port Joli
March 24 — Song Sparrow (sight & sound), Port Joli
March 24 — 2 Juncos, Port Joli
March 25 — 3 Red-winged Blackbirds, Liverpool
April 12 — Coltsfoot in bloom, Timberlea
April 14 — Flicker, Bridgewater
April 14 — a flying brown/orange butterfly (?), Port Joli

MARSH MARIGOLDS

The Marsh Marigold, *Caltha palustris*, belongs to the family *Ranunculaceæ* ('crowfoot')and resembles a giant buttercup. Its generic name is taken from the Greek 'calathos' (a goblet); its specific name from the Latin 'palus' (a marsh). 'Marigold' refers to its traditional mediæval use in churches, as one of the flowers devoted to Mary (hence 'Mary's gold'). They have been more eccentrically called: Kingcups; Water Blobs; Horse Blobs; Bull's Eyes; Leopard's Foot; Meadow Routs; Verrucaria (wart-curer); and Sposa Solis (opens and closes with the rising and the setting of the sun).

The flowers, which are formed one at the end of each stalk, have 5 - 9 brilliant yellow, petal-like sepals which form a cup shape 2.5 - 5 cm in diameter. There is no true corolla. Their deep green leaves are round, roughly heart-shaped, and very glossy; they grow mostly from the stem's base. The leaves on the stem have very short stalks, and are smaller and more pointed. The stem is hollow, strong, and succulent and 20 - 60 cm long. The stems sometimes creep and take root.

This herbaceous perennial blooms from April to June, depending upon the prevailing temperature of its location, forming large hummocks along marshes, wet meadows, and stream and river sides. Its range extends from all across Canada south to South Carolina. All raw parts of the plant contain the toxin helleborin. The leaves can be used for food but only when boiled for 20 - 30 minutes in two or three changes of water. The cooking liquid must be discarded. The flowerbuds can be pickled like capers. They are boiled for ten minutes in two changes of water and preserved in hot vinegar; the juice in which the buds have ben pickled must be discarded also.

- Stephanie Robertson
from Grieve's Modern Herbal,
and A Field Guide to Edible Wild Plants

HALIFAX (AST Z+4)

TIDE TABLES

1990

JULY-JUILLET

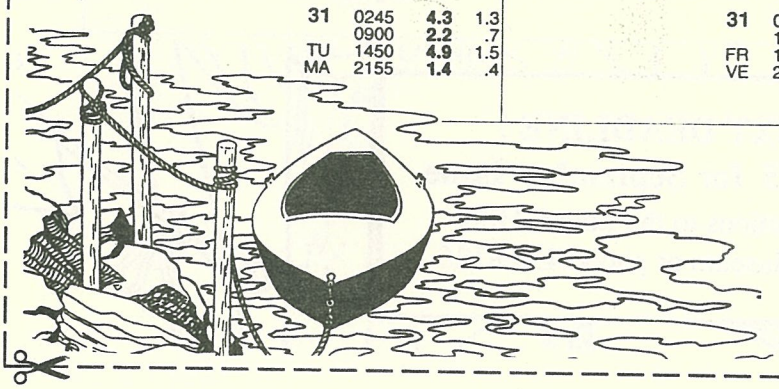
Day	Time	Ht./ft.	Ht./m	Jour	Heure	H./pi.	H./m
1	0230	4.6	1.4	16	0125	4.8	1.5
	0900	1.7	.5		0810	1.4	.4
SU	1445	5.1	1.6	MO	1400	5.5	1.7
DI	2150	1.3	.4	LU	2115	1.2	.4
2	0330	4.5	1.4	17	0235	4.7	1.4
	0950	2.0	.6		0915	1.6	.5
MO	1540	5.1	1.6	TU	1505	5.5	1.7
LU	2240	1.2	.4	MA	2220	1.0	.3
3	0435	4.5	1.4	18	0355	4.7	1.4
	1040	2.1	.6		1025	1.6	.5
TU	1635	5.1	1.6	WE	1615	5.6	1.7
MA	2330	1.1	.3	ME	2325	.7	.2
4	0530	4.6	1.4	19	0510	4.9	1.5
	1135	2.0	.6		1140	1.5	.5
WE	1725	5.2	1.6	TH	1720	5.7	1.7
ME				JE			
5	0015	1.0	.3	20	0025	.4	.1
	0615	4.7	1.4		0615	5.2	1.6
TH	1220	1.9	.6	FR	1240	1.3	.4
JE	1810	5.3	1.6	VE	1825	5.9	1.8
6	0100	.8	.2	21	0120	.1	.0
	0700	4.9	1.5		0715	5.5	1.7
FR	1305	1.8	.5	SA	1335	1.1	.3
VE	1900	5.4	1.6	SA	1920	6.1	1.9
7	0135	.7	.2	22	0210	−.1	.0
	0745	5.0	1.5		0810	5.7	1.7
SA	1340	1.6	.5	SU	1425	1.0	.3
SA	1940	5.5	1.7	DI	2015	6.2	1.9
8	0210	.6	.2	23	0255	−.2	−.1
	0825	5.1	1.6		0855	5.9	1.8
SU	1415	1.5	.5	MO	1520	1.0	.3
DI	2020	5.5	1.7	LU	2105	6.1	1.9
9	0250	.6	.2	24	0345	.0	.0
	0900	5.3	1.6		0940	6.0	1.8
MO	1455	1.5	.5	TU	1610	1.0	.3
LU	2100	5.6	1.7	MA	2150	6.0	1.8
10	0325	.6	.2	25	0430	.2	.1
	0940	5.4	1.6		1025	6.0	1.8
TU	1535	1.5	.5	WE	1700	1.1	.3
MA	2140	5.5	1.7	ME	2235	5.7	1.7
11	0405	.6	.2	26	0515	.6	.2
	1015	5.6	1.7		1105	5.9	1.8
WE	1620	1.6	.5	TH	1755	1.2	.4
ME	2215	5.5	1.7	JE	2320	5.5	1.7
12	0445	.7	.2	27	0600	1.0	.3
	1055	5.7	1.7		1140	5.7	1.7
TH	1715	1.6	.5	FR	1840	1.3	.4
JE	2255	5.4	1.6	VE			
13	0530	.8	.2	28	0005	5.1	1.6
	1130	5.7	1.7		0645	1.3	.4
FR	1810	1.6	.5	SA	1220	5.5	1.7
VE	2340	5.2	1.6	SA	1930	1.3	.4
14	0620	1.0	.3	29	0050	4.8	1.5
	1215	5.7	1.7		0725	1.7	.5
SA	1910	1.5	.5	SU	1305	5.2	1.6
SA				DI	2015	1.4	.4
15	0030	5.0	1.5	30	0140	4.5	1.4
	0710	1.2	.4		0810	2.0	.6
SU	1305	5.6	1.7	MO	1350	5.0	1.5
DI	2010	1.4	.4	LU	2100	1.4	.4
				31	0245	4.3	1.3
					0900	2.2	.7
				TU	1450	4.9	1.5
				MA	2155	1.4	.4

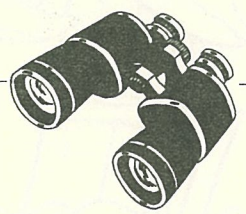
AUGUST-AOUT

Day	Time	Ht./ft.	Ht./m	Jour	Heure	H./pi.	H./m
1	0350	4.3	1.3	16	0350	4.6	1.4
	1000	2.2	.7		1025	1.8	.5
WE	1550	4.9	1.5	TH	1605	5.3	1.6
ME	2250	1.3	.4	JE	2315	.7	.2
2	0455	4.4	1.3	17	0515	4.8	1.5
	1055	2.1	.6		1130	1.6	.5
TH	1655	5.0	1.5	FR	1715	5.5	1.7
JE	2340	1.2	.4	VE			
3	0550	4.6	1.4	18	0010	.4	.1
	1145	2.0	.6		0615	5.2	1.6
FR	1745	5.2	1.6	SA	1230	1.4	.4
VE				SA	1815	5.8	1.8
4	0025	1.0	.3	19	0105	.2	.1
	0635	4.8	1.5		0705	5.6	1.7
SA	1230	1.8	.5	SU	1325	1.2	.4
SA	1835	5.4	1.6	DI	1910	6.0	1.8
5	0105	.8	.2	20	0150	.0	.0
	0715	5.0	1.5		0750	5.9	1.8
SU	1310	1.6	.5	MO	1415	1.0	.3
DI	1915	5.5	1.7	LU	1955	6.1	1.9
6	0145	.6	.2	21	0235	.1	.0
	0755	5.3	1.6		0835	6.1	1.9
MO	1350	1.4	.4	TU	1500	.9	.3
LU	1955	5.7	1.7	MA	2040	6.0	1.8
7	0220	.5	.2	22	0315	.2	.1
	0835	5.6	1.7		0910	6.2	1.9
TU	1430	1.3	.4	WE	1545	.9	.3
MA	2035	5.7	1.7	ME	2125	5.9	1.8
8	0255	.4	.1	23	0355	.5	.2
	0910	5.8	1.8		0950	6.1	1.9
WE	1515	1.2	.4	TH	1625	1.0	.3
ME	2115	5.7	1.7	JE	2205	5.7	1.7
9	0335	.5	.2	24	0435	.9	.3
	0945	5.9	1.8		1025	5.9	1.8
TH	1600	1.2	.4	FR	1710	1.1	.3
JE	2155	5.6	1.7	VE	2250	5.4	1.6
10	0415	.6	.2	25	0510	1.3	.4
	1025	6.0	1.8		1100	5.7	1.7
FR	1655	1.2	.4	SA	1750	1.2	.4
VE	2235	5.5	1.7	SA	2330	5.1	1.6
11	0505	.8	.2	26	0550	1.6	.5
	1105	6.0	1.8		1140	5.4	1.6
SA	1750	1.3	.4	SU	1835	1.3	.4
SA	2320	5.3	1.6	DI			
12	0555	1.1	.3	27	0010	4.8	1.5
	1150	5.8	1.8		0630	2.0	.6
SU	1855	1.3	.4	MO	1220	5.2	1.6
DI				LU	1920	1.4	.4
13	0015	5.0	1.5	28	0100	4.5	1.4
	0655	1.4	.4		0725	2.2	.7
MO	1240	5.6	1.7	TU	1305	4.9	1.5
LU	2000	1.2	.4	MA	2015	1.5	.5
14	0110	4.7	1.4	29	0155	4.3	1.3
	0805	1.7	.5		0820	2.3	.7
TU	1335	5.4	1.6	WE	1400	4.8	1.5
MA	2105	1.1	.3	ME	2110	1.5	.5
15	0225	4.5	1.4	30	0305	4.2	1.3
	0915	1.8	.5		0920	2.3	.7
WE	1445	5.3	1.6	TH	1510	4.7	1.4
ME	2210	.9	.3	JE	2205	1.5	.5
				31	0420	4.3	1.3
					1015	2.2	.7
				FR	1620	4.9	1.5
				VE	2300	1.3	.4

SEPTEMBER-SEPTEMBRE

Day	Time	Ht./ft.	Ht./m	Jour	Heure	H./pi.	H./m
1	0520	4.6	1.4	16	0605	5.5	1.7
	1110	2.0	.6		1220	1.4	.4
SA	1715	5.1	1.6	SU	1805	5.7	1.7
SA	2345	1.1	.3	DI			
2	0605	4.9	1.5	17	0045	.4	.1
	1155	1.8	.5		0650	5.8	1.8
SU	1805	5.4	1.6	MO	1310	1.1	.3
DI				LU	1855	5.9	1.8
3	0030	.9	.3	18	0130	.4	.1
	0645	5.3	1.6		0725	6.1	1.9
MO	1240	1.5	.5	TU	1355	.9	.3
LU	1845	5.6	1.7	MA	1940	5.9	1.8
4	0110	.7	.2	19	0210	.5	.2
	0725	5.7	1.7		0800	6.2	1.9
TU	1325	1.3	.4	WE	1435	.8	.2
MA	1925	5.7	1.7	ME	2020	5.9	1.8
5	0150	.5	.2	20	0245	.7	.2
	0800	6.0	1.8		0840	6.2	1.9
WE	1410	1.1	.3	TH	1515	.8	.2
ME	2010	5.8	1.8	JE	2100	5.8	1.8
6	0230	.4	.1	21	0320	1.0	.3
	0840	6.2	1.9		0915	6.1	1.9
TH	1455	.9	.3	FR	1550	.8	.2
JE	2050	5.8	1.8	VE	2140	5.6	1.7
7	0310	.5	.2	22	0350	1.3	.4
	0915	6.3	1.9		0950	5.9	1.8
FR	1545	.9	.3	SA	1620	.9	.3
VE	2135	5.8	1.8	SA	2220	5.4	1.6
8	0355	.7	.2	23	0420	1.6	.5
	1000	6.3	1.9		1025	5.7	1.7
SA	1635	.9	.3	SU	1655	1.1	.3
SA	2220	5.6	1.7	DI	2255	5.2	1.6
9	0445	1.0	.3	24	0455	1.9	.6
	1040	6.1	1.9		1100	5.4	1.6
SU	1735	1.0	.3	MO	1740	1.3	.4
DI	2310	5.3	1.6	LU	2340	4.9	1.5
10	0540	1.3	.4	25	0540	2.1	.6
	1130	5.9	1.8		1140	5.2	1.6
MO	1840	1.0	.3	TU	1830	1.5	.5
LU				MA			
11	0000	5.1	1.6	26	0025	4.6	1.4
	0650	1.7	.5		0635	2.3	.7
TU	1220	5.6	1.7	WE	1225	4.9	1.5
MA	1950	1.1	.3	ME	1930	1.6	.5
12	0100	4.8	1.5	27	0115	4.5	1.4
	0805	1.9	.6		0745	2.4	.7
WE	1320	5.3	1.6	TH	1320	4.8	1.5
ME	2055	1.0	.3	JE	2030	1.7	.5
13	0220	4.6	1.4	28	0220	4.4	1.3
	0915	1.9	.6		0845	2.4	.7
TH	1435	5.2	1.6	FR	1425	4.7	1.4
JE	2200	.9	.3	VE	2120	1.6	.5
14	0400	4.7	1.4	29	0335	4.5	1.4
	1025	1.9	.6		0940	2.3	.7
FR	1600	5.2	1.6	SA	1535	4.8	1.5
VE	2255	.7	.2	SA	2210	1.5	.5
15	0515	5.1	1.6	30	0435	4.8	1.5
	1125	1.7	.5		1035	2.1	.6
SA	1710	5.4	1.6	SU	1640	5.1	1.6
SA	2355	.6	.2	DI	2300	1.3	.4

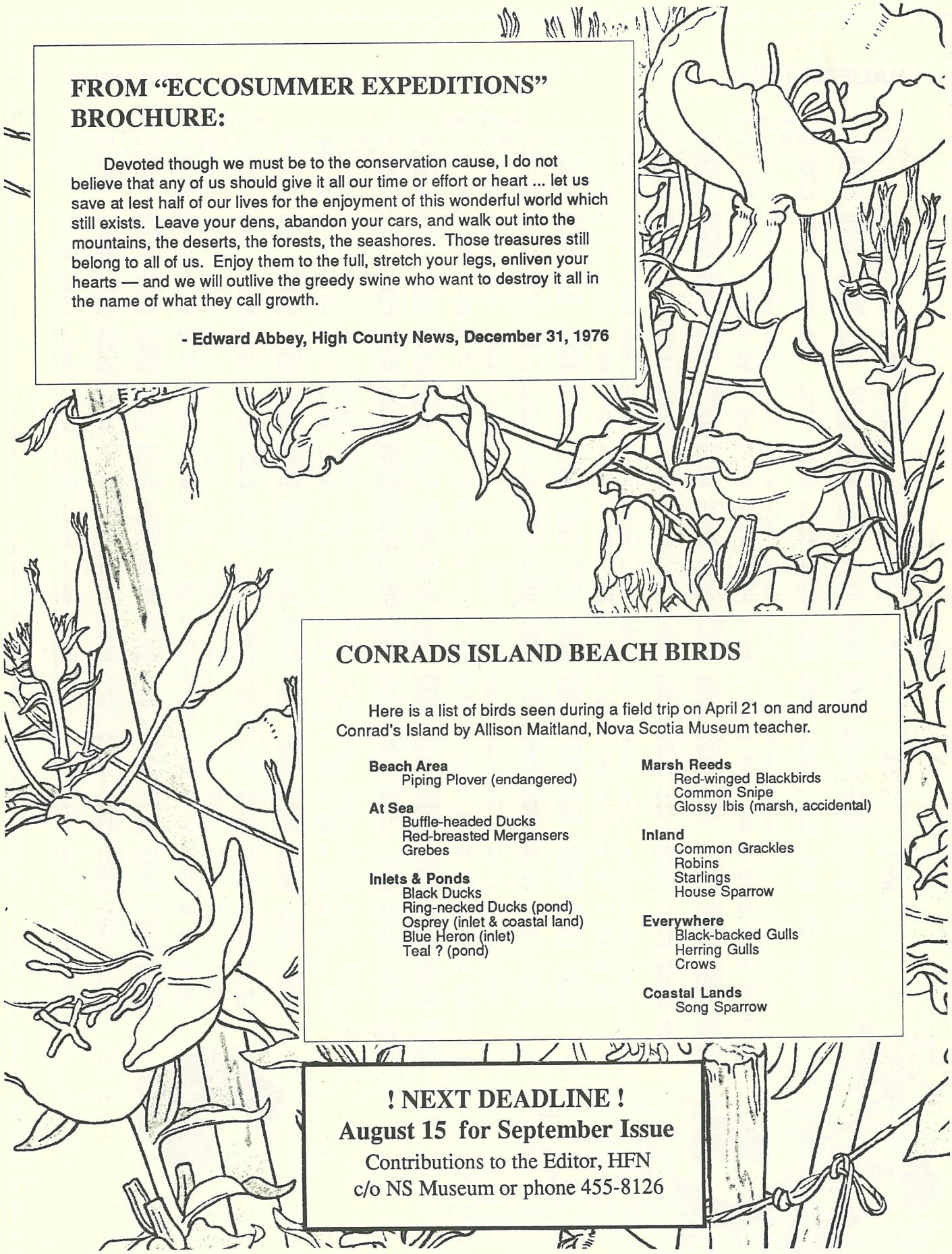




FROM "ECCOSUMMER EXPEDITIONS" BROCHURE:

Devoted though we must be to the conservation cause, I do not believe that any of us should give it all our time or effort or heart ... let us save at lest half of our lives for the enjoyment of this wonderful world which still exists. Leave your dens, abandon your cars, and walk out into the mountains, the deserts, the forests, the seashores. Those treasures still belong to all of us. Enjoy them to the full, stretch your legs, enliven your hearts — and we will outlive the greedy swine who want to destroy it all in the name of what they call growth.

- Edward Abbey, High County News, December 31, 1976



CONRADS ISLAND BEACH BIRDS

Here is a list of birds seen during a field trip on April 21 on and around Conrad's Island by Allison Maitland, Nova Scotia Museum teacher.

Beach Area
- Piping Plover (endangered)

At Sea
- Buffle-headed Ducks
- Red-breasted Mergansers
- Grebes

Inlets & Ponds
- Black Ducks
- Ring-necked Ducks (pond)
- Osprey (inlet & coastal land)
- Blue Heron (inlet)
- Teal ? (pond)

Marsh Reeds
- Red-winged Blackbirds
- Common Snipe
- Glossy Ibis (marsh, accidental)

Inland
- Common Grackles
- Robins
- Starlings
- House Sparrow

Everywhere
- Black-backed Gulls
- Herring Gulls
- Crows

Coastal Lands
- Song Sparrow

! NEXT DEADLINE !
August 15 for September Issue
Contributions to the Editor, HFN
c/o NS Museum or phone 455-8126