

HALIFAX FIELD NATURALISTS NEWSLETTER

27

c/o Nova Scotia Museum
1747 Summer Street
Halifax, Nova Scotia
B3H 3A6

JANUARY - APRIL 1982

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JANUARY-APRIL, 1982.

Number 27.

Meetings are held on the first Thursday of every month at 8.00 P.M. in the Auditorium on the ground level of the Nova Scotia Museum, 1747 Summer St, Halifax.

Field Excursions are held at least once a month.

Membership is open to anyone interested in the natural history of Nova Scotia. Membership is available at any meeting or by writing to -- Membership, Halifax Field Naturalists, c/o N.S. Museum. Individual membership is \$5.00 yearly; family membership is \$7.00. Members receive the newsletter and notices of all excursions and special programs.

Directors for 1982-83 -

President (Interim)	. . . . .	Anne Greene
Vice-President	. . . . .	Bill Freedman
Past President	. . . . .	Joe Harvey
Membership Secretary	. . . . .	Colin Stewart
Treasurer	. . . . .	Colin Stewart
Directors	. . . . .	John vanderMeer Colin Stewart Doris Butters Edna Staples Pierre Taschereau

Newsletter - Anne Greene
Edna Staples
Colin Stewart
Doris Butters

Mailing Address - Halifax Field Naturalists
c/o N.S. Museum
1747 Summer St., Halifax N.S., B3H 3A6.

HFN is a member organization of the Canadian Nature Federation.
HFN is incorporated under the Nova Scotia Societies Act.

hfn news



CANADIAN NATURE FEDERATION CONFERENCE

The Canadian Nature Federation's Annual Conference will be held this year in Calgary, Alberta, from 2-10 July. The title of the Conference is Resources and Reserves and will deal with the natural history of Alberta and the conflict between competing uses of local resources. Eighteen well-qualified speakers are invited and 17 field trips have been organized to take you from the prairies to the slopes of the Rocky Mountains.

Registration forms can be found in the last issue (January-March 1982) of Nature Canada magazine.

ARCTIC PILOT PROJECT

The northern component of the Arctic Pilot Project, a Petro-Canada-led proposal to ship about \$4 million of liquefied natural gas from the Arctic Islands to Eastern Canada year-round, received a qualified go-ahead from the Environmental Assessment and Review Process panel (EARP) in early November. Public hearings are now underway to aid the panel in making recommendations to the minister of the environment. The minister, along with the minister from the department or departments initiating the assessment, then decides what action should be taken.

(from the PEI Natural History Society Newsletter - Feb. 82)

SOCIETY OF CANADIAN ORNITHOLOGISTS -

A Society of Ornithologists is at present being organized. At a preliminary meeting in Edmonton in August 1981 a Constitution Committee and an Editorial Committee were appointed. The first newsletter is now in circulation and the fledgling society is seeking new members. Anyone interested in joining should write to Henri Ouellet at the National Museums of Canada in Ottawa. A major impetus in the formation of the new society and what is expected to be its first major undertaking is the hosting of the International Ornithological Congress in 1986.

NEW FROM THE NOVA SCOTIA MUSEUM

"Provisional Notes on the Rare and Endangered Plants and Animals of Nova Scotia" - by Wendy Isnor. Curatorial Report No. 46

(from the Abstract of the Report):

During the summer of 1981 a program was supported by the Environmental Protection Service, Environment Canada, to research data on the occurrence and distribution of rare and endangered plant and animal species in Nova Scotia. The research was carried out at the Nova Scotia Museum, by using its files and records to obtain most of the data which have been com-

piled in this report. Species of plants, insects, crustaceans, molluscs, fishes, amphibians, reptiles, mammals and birds were selected upon the advice of specialists. The distribution and habitat of each species is briefly described along with comments on its vulnerability and maps indicating sites at which it is known to occur. For birds, only a species list has been produced because the time available to produce this report was insuffi-

cient to deal with the vast amount of available information. The main purpose of this report is to provide guidance to those involved in writing or reviewing impact assessments of various environmental activities in Nova Scotia and to those concerned with protecting the natural environment of Nova Scotia.

A copy of this Report has been deposited in the HFN library at the Nova Scotia Museum (behind the Information Desk).

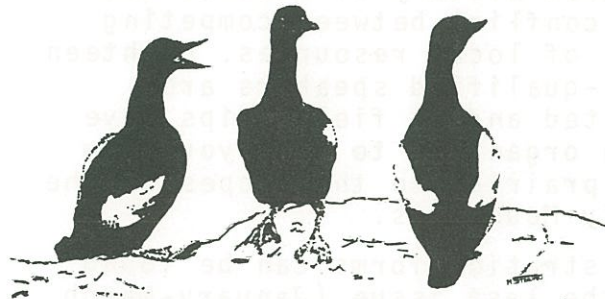
reports

THE WORKING GROUP ON ATLANTIC SEABIRDS -

A group of seabird workers and enthusiasts are in the process of forming an organization which will not only fill the need for greater information exchange between those interested in seabirds in our region, but also deal with conservation issues related to seabirds in the northwest Atlantic. This group: The Working Group on Atlantic Seabirds is currently seeking inclusion in a larger organization - The Pacific Seabird Group. Following is a short report (reprinted here in full) on one of the major concerns of the Atlantic Group: the capelin fishery on Newfoundland's Grand Banks and the effect this has on other species of fish, marine mammals and seabirds which depend on capelin for food.

Capelin and the Marine Environment of Atlantic Canada.

As in all marine ecosystems, marine life in the western North Atlantic is supported through a "food-web",



Black Guillemots (*Cephus grylle*)

with plant plankton providing the basic growth material for all animal life. Marine animals, in a complex web of feeding interrelationships, depend on plankton and each other for nourishment. Within this web, some species of fish and plankton are of fundamental importance and form the critical "cornerstones" of highly structured feeding hierarchies. In Newfoundland waters, capelin is the basis of the food-web, a small sardine-sized fish that normally occurs in immense numbers on the Grand Banks, northeast coast and Labrador banks. At certain times of the year (especially summer) this small fish is the single most important food for cod, salmon, halibut, plaice and many other fish species, as well as for Harp Seals, Humpback, Fin and Minke Whales and for most of the resident

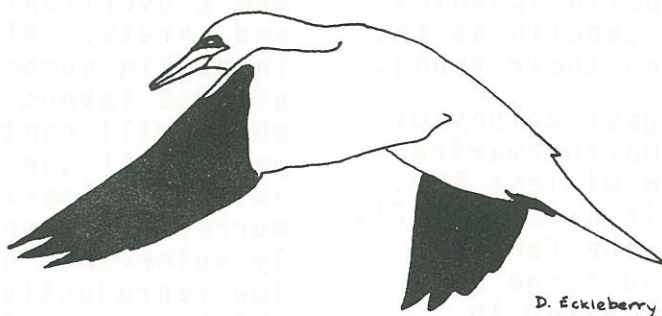
eastern Canadian population of seabirds, including murre, puffins, kittiwakes and gannets.

The capelin is not unique in its role as a basic food resource for larger fish and other marine animals. Similarly sized fish, with equivalent importance in the food web, occur in most productive marine areas of the world (for example, anchovies off the west coast of North and South America, pilchards off South Africa, and sand-lance and sprats in the North Sea). In these and other areas, overfishing of "cornerstone" fish species has resulted in adverse, and sometimes disastrous consequences to dependent marine animal populations. Mounting evidence indicates that a combination of intensive fishing pressure since 1972, both offshore and inshore, and several years of reproductive failure have decimated eastern Canadian stocks of capelin and have seriously altered the feeding regime and behaviour of many dependent marine animals.

Up until the 1970's, capelin in the northwest Atlantic were virtually ignored as a commercial fish. Some tens of thousands of tons of capelin were harvested annually around Newfoundland for use as fertilizer, bait and food. This localized and relatively small fishing effort apparently had little effect on the

total capelin population. Then in the early 1970's a large foreign offshore fishery was initiated and permitted to operate throughout the year on both the spawning and wintering grounds of capelin. Phenomenal catch rates (up to 50 tons per hour) were achieved during this fishery and huge "factory ships" processed billions of capelin for fish meal. Although a quota was established, the monitoring of fishing vessels by inspectors was limited, and certainly below the level necessary to assess the catch or determine the accuracy of catch reports submitted by the fishing captains. The failure of some foreign vessels to report their capelin catch accurately led to a closure of Canadian ports to certain vessels in 1975. The capelin fishery peaked in 1975 when 326,000 metric tonnes were "reported" caught in offshore areas. After 1976 catch rates dropped drastically and by 1979 only 11,000 tonnes were caught by offshore fleets. This unprecedented decline in northwest Atlantic capelin stocks was attributed to several years of "poor recruitment" of young capelin into the breeding population and the offshore fishery was finally closed in 1980.

Capelin are pelagic fish and spend most of their lives offshore. But in June and July of each year, untold millions of them move into the in-



Gannet (Morus bassanus)

shore zones of Newfoundland and Labrador to spawn in incredibly dense schools. This migration is the lifeblood of the inshore cod fishery since cod follow capelin inshore and feed almost exclusively on capelin at this time. Similarly, many other species of fish, marine mammals and seabirds also feed on capelin at this time since the dense schools in relatively shallow waters are particularly easy to exploit. In recent years, man has also been exploiting these inshore spawning schools with capelin traps and purse seiners.

The current inshore capelin fishery is notoriously wasteful. Capelin are harvested for their roe, which is sold to the Japanese. All males and small females are discarded and only prime female capelin make it to market. Available evidence suggests that as little as 10-15% of capelin caught in this fishery actually gets sold. Thus the inshore capelin quota, set at about 10% of the estimated total capelin population, may be exceeded annually by a factor of seven since the quota is maintained on the basis of fish sales and not fish catch. With capelin stocks at an all-time low and, presumably, with stiff competition between marine predators for the remaining stocks, we are dismayed at the current policy of allowing an intensive inshore capelin fishery to continue. The situation may already be critical for seabirds like murre and puffins which have adapted their breeding cycles to the capelin spawning period and depend on capelin as the major food for rearing their young.

For example, the largest colony of Atlantic Puffins in North America is at Great Island in Witless Bay, Newfoundland. At this site in 1981, Dr. D.N. Nettleship of the Canadian Wildlife Service found large numbers of young puffins dying in their nests from starvation because adults couldn't bring them the amount of capelin they required for development. Even those chicks

which were able to leave the colony departed very much underweight, a condition which makes their chance of surviving the winter quite low. Altogether a disastrous year for puffins at Great Island. Most important, however, is the fact that what was observed and measured in 1981 on Great Island seems likely to have occurred each year since 1978 when capelin numbers first appeared to be declining.

If the breeding success of puffins (and other capelin-dependent species such as murre and Razorbills) is reduced and remains at a low level for several years, fewer young are available to enter the breeding population and maintain its size. Over time, the population will decrease sharply as old birds die off with too few young birds to take their place. Just such a situation for seabird colonies in Norway has recently been highlighted in a prominent scientific journal (New Scientist, Volume 91, 2 July 1981). To quote: "The (puffin) breeding colony of Røst, off the north coast of Norway, is one of the most important in the world and the scale of such catastrophe must undermine the entire species.... Since 1969 the Røst colony has enjoyed only one normal year, in 1974. From 1977 to 1979 fewer than one chick in 1000 survived, and in 1980 failure was total." This paper further concludes that the major cause of this failure is the loss of suitable food for the birds by man's overfishing of herring, lance and sprats. Already major declines in puffin numbers have been detected at Røst (about 15-30%), declines which will continue by about 5% per year until the population becomes extinct. Species such as puffins, murre and Razorbills are especially vulnerable as they have a very low reproductive rate (only one chick per year) and reach sexual maturity slowly (breed for the first time when 4-5 years old) making each breeding season and chick important.

As has been the case in the past (for example: widespread pesticide toxicity, oil pollution, etc.) birds are providing us with information which serves as an excellent indicator of what is happening to our marine environment. They are our "early-warning system", one which we would be fools to ignore. The situation in Norway continued in relative obscurity for 10 years. We hope that by bringing the situation here to the attention of public and government organizations, we can avert a similar problem in Canadian waters.

On the basis of past and current trends of the capelin fishery in Newfoundland and the potential adverse effects of a continuing inshore capelin fishery on seabird populations in Newfoundland and Labrador, we, as a concerned group of seabird biologists, make the following recommendations:

- 1) A moratorium on all commercial capelin fishing should be immediately applied and maintained until sufficient information on predator dynamics and capelin abundance is available to manage this vital fish species properly.
- 2) A great deal more support should be directed towards capelin research in Newfoundland, regardless of its importance (or lack of importance) as a commercial fish species. The future of many major commercial fish species depends on the vitality of the capelin stocks.
- 3) Research on the feeding habits of marine animals dependent on capelin (e.g. cod, seals, whales, and seabirds) should be accelerated so that the detrimental effects of the recent capelin decline may be fully understood, and its impact assessed.

The Working Group on Atlantic Seabirds.

REPORT ON HFN ACTIVITIES IN 1981

ANNUAL GENERAL MEETING

THURSDAY 4 FEBRUARY 1982

Time again to look back over the past year and sum up what we have (and haven't) done. Our series of monthly walks and seminars continued uninterrupted through 1981, with 14 seminars and 16 organised field trips. We had some exciting new additions to the roster of field trips last year, including our first extensive geology field trip (written up in this issue), our first small mammal trip and a visit to an apiary. Attendance at seminars has increased, with several of our latest meetings having 35-40 people present.

We undertook a major weeding-out-process with our membership list issuing final renewal notices to many people who still received our publications but who had not paid dues in at least a year. As a result, our present list of active members (157) and our mailing list (207) is up to date.

We were busy on the conservation front last year. We made written

submissions to two public hearings, one Federal, on the subject of Acid Rain, and the other local, on planning with respect to Hemlock Ravine. We sent letters in support of northern ecological sites (particularly Polar Bear Pass, Bathurst Island, N.W.T.) and expressed concern about proposed uranium mining in Nova Scotia. We have written at length on the proposed extension of the 107 highway over Chezzetcook Marsh and held a special meeting on the subject in November. We once again participated in the judging of the annual Halifax-Dartmouth Regional Science Fair, awarding the natural history prize to a budding young geologist, Andrew MacRae. Early last year, we set up our library



J. Bianchi

at the Nova Scotia Museum, where much of the material of interest to naturalists is deposited. HFN participated in the N.S. Museum's annual Society Show by developing a program for the Saturday morning project room called 'The Flowers of Trees'. Two HFN members conducted a day course in natural history during the summer for counsellors attending a teaching camp run by the Department of Social Services, in Paradise, Annapolis County.

I'm afraid we failed to live up to our promise of four newsletters in 1981, made in the last annual report. Two was again the best we could do, but one of these included our Area Study Report of the South End Railway Cutting. It was well done and received with much interest. The third area study (on the Public Gardens) will be described in the next newsletter.

HFN will be going through some reorganization this summer. I will be stepping down as president and editor and will be leaving with husband Erick south of the border, to Princeton, N.J. Magi Nams (formerly Magi Nietfeld) who has been a major contributor to HFN, will also be leaving, as will Udo Prager. (Incidentally, this major turnover in the HFN executive occurs approximately every three or four years, due to a high incidence of Dalhousie grad students on our executive committees). Ready to fill the gaps are Edna Staples and John vanderMeer as well as the executive members who have agreed to stay on. To Magi and Udo - many thanks for your enthusiasm and support, and to those staying on - good luck. Thanks are also due to the N.S. Museum for the use of their auditorium and their support in the printing of our newsletter.

Halifax Field Naturalists
Statement of Receipts and Disbursements
For the Year Ended December 31, 1981.

Receipts

Membership dues	\$ 741.00
Total Receipts	\$ 741.00

Disbursements

Meeting expenses	\$ 39.14
Publications and stationery	108.06
Postage	333.40
Dues Canadian Nature Federation	50.00
Projects - H.F.N. Library	12.93
- Purchase of Hand Lenses	95.00

Total disbursements \$ 638.53

Excess of receipts over disbursements	\$ 102.47
Add - Opening balance - January 1 1981	877.43

Closing balance - December 31, 1981 \$ 979.90

Consisting of:

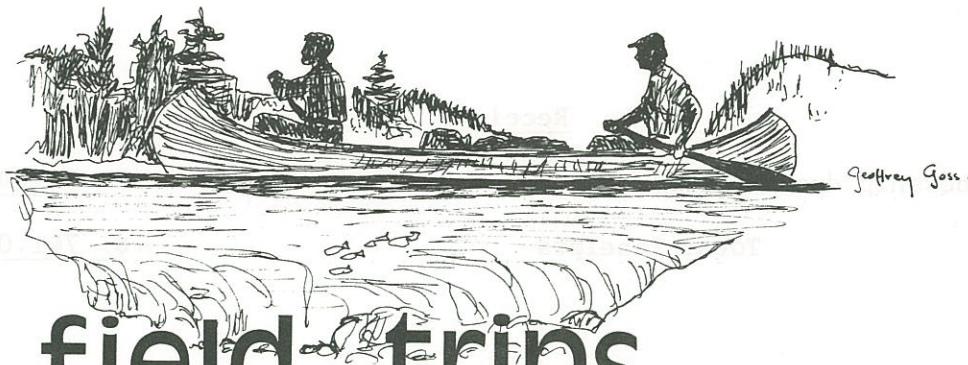
Cash in bank - December 31, 1981	\$ 979.90
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Accountant's Comments

I have prepared the above Statement of Receipts and Disbursements of Halifax Field Naturalists for the year ended December 31, 1981 from the records of the society and other information supplied to me by its officers.

Halifax, Nova Scotia
January 29, 1982

A. W. Linton
A. W. Linton, F.C.A.



field trips

WALK TO CRYSTAL CRESCENT BEACH and PENNANT POINT -

The coastal walk to Crystal Crescent Beach and Pennant Point on November 22, 1981, was a most invigorating one. The weather was cool and blustery, with an on-shore wind bringing huge rollers in to shore. There were no experts amidst the seven members participating, but much enthusiasm and speculation were evident as to the identity of various specimens of flora and fauna. A number of us were somewhat flustered by the lack of leaves on much of the local shrubbery, but collected samples to do our homework on. The ghostly gray shrubs with flaming reddish berries were Canada holly (*Ilex verticillata*). Two other shrubs well known in summer, but more mysterious in fall, were sweet gale (*Myrica Gale*) and rhodora (*Rhododendron canadense*). Herbaceous land plants keyed out were Scotch lovage (*Ligusticum scoticum*), wood fern (*Dryopteris spinulosa*) and ragwort (*Senecio Jacobaea*).

It is always fascinating to walk along a coast. The juxtaposition of sea and land, and the creatures that inhabit each, tease the mind and enliven the spirit. We went from considering cranberries and winter-

green to viewing kelp and sponges washed ashore by the rough seas in the days prior to the fieldtrip. Particularly interesting were the orange-red, stalked sea squirts (*Boltenia ovifera*) stranded on the sandy beaches. These sessile ascidians had a variety of marine algae growing on them and were also prized as tasty morsels by the local avifauna.

We had our lunch sitting in the shelter of the rocks, watching the surf crashing on the shore. Plumes of spray were sent scores of feet into the air, providing a dramatic subject for the photographers in the group.

The field trip continued after lunch, despite intermittent rain showers. While Mary Primrose devoted herself to photographic tasks, other members of the group searched out stands of white spruce trees, in order to collect cones. We were after the seeds to grow seedlings, in order to determine the salt tolerance of spruce. Gathering cones from the smaller trees was simply a matter of reaching up and plucking them off or bending over the springy tops of the trees. The taller trees we had to climb in order to reach the cones clustered at their tops. Since all the trees

were relatively thin, this meant that our perch shook and swayed rather dramatically when we got fifteen or twenty feet off the ground. We did quite well until the last stand we sampled. Here, two of us overstepped our limits. In both cases, a splintering and snapping of overloaded wood was followed by an inevitable and

swift plummet to the forest floor. "Pride goeth before a fall" it is said. Certainly our pride suffered the most from these incidents.

The outing ended in late afternoon, and was deemed a tremendous success. At least some of us intended to top off the day with a good soaking in a tub of hot water, upon our return to Halifax.

Magi Nams and
Jim Stewart.

Marine organisms washed ashore included:

Algae: - on beach - Horsetail kelp (*Laminaria digitata*)
Common southern kelp (*L. agardhi*)
Hollow-stemmed kelp (*L. longicruris*)
Irish moss (*Chondrus crispus*)
Spiny sourweed (*Desmarestia aculeata*)

- on sea squirt - Sea oak (*Phycodrys rubens*)
Red fern (*Ptilota plumosa*)
Hollow-stemmed kelp (*L. longicruris*)

Sponges: Sulphur or common boring sponge
(*Cliona celata*)
Palmate sponge (*Isodictya deichmannae*)

Tunicates: Stalked sea squirt (*Boltenia ovifera*)
Sea peach (*Halocynthia pyriformis*)

We also saw numerous bits of mussels, crabs, sea urchins and tracks showing where peeps had nibbled at the stranded sea squirts.

EDITOR'S NOTE

Repeat.

This kind of short write-up of an HFN field trip is very valuable. By noting the common flora and fauna of Nova Scotia as it is today, we are providing a record which could be used for comparison in the future. With the rapid changes that are taking place in our environment, it is not hard to appreciate the importance of this kind of record-keeping. Among our readers, is there a small group of people who regularly attend the field trips and would agree to produce short write-ups for the newsletter in the coming year? Please contact the editor (~~422-2977~~). 423 8607

ROCKS, MINERALS & FOSSILS - HALIFAX TO
SCOTS BAY 25 APRIL 1981 -

The Nova Scotia Museum van and two car-loads of enthusiasts left Halifax at 8:30 and headed towards Sackville via #1, making one or two stops along the way at points where highway blasting had exposed faces of primeval bedrock showing clearly the strata on which Halifax/ Dartmouth is built; a crust of slate and sandstone. An incomprehensible six hundred million years ago, the older Goldenville Foundation of sandstone and some slate overlain by muds of the Halifax Formation heaved and buckled as the earth's plates moved by stupendous forces forming into a five mile high mountain range. Eons of time weathered and wore down the peaks. The thin glacial till eventually covered most of the undulations and eventually became a base which could support life. Erosion by water, blasting and in some places quarrying have exposed rock faces which clearly show not only the inclined angle of tilt, but also the layers of various beds and the types of minerals deposited. Magmatic activity deep in the crust forced molten minerals into fissures and breaks in the upper crust, cooling and hardening into rock containing quartz, mica and feldspar - the granite which now covers so much of Nova Scotia. All there for us to see if we care to read "the Record of the Rocks" (one splendid aid is the Geological Highway Map published last year by the Atlantic Geoscience Society.

Next a brief stop at the old gypsum exposure by the St. Croix River where selenite (crystallised gypsum) can easily be chipped out of the soft surface. Here the white chalky cliffs are pitted with 'sink holes' where water seeping through the porous gypsum washed out pockets, leaving holes which have become the retreat of porcupines and small mammals and nesting sites for birds. Some of the vertical holes are deep enough to have collected water and formed small ponds. Perhaps we can have another trip to explore the large 'Frenchman's Cave', where, reputedly, refugee Acadians hid some of their belongings.

Along this road we passed a perfect drumlin sheered off for the highway to go through showing its gravelly, soft red interior.

The highlight of the trip was, I think, the reptile footprints near Hantsport at Blue Beach, part of the base of the Horton Formation. After squelching over a soggy field and scrambling down a muddy defile to the grey siltstone beach we followed the still-distinct trail where

once some huge primeval creature had plodded across an old lake bed, its wave-marked surface now solidified into stone. We could see quite clearly the impress of the 12"- long three-toed feet, the ooze squelched up around the toes. Quite an eerie feeling to see and touch those remnants frozen in time. Not too many

fossils found at this point now, but the group did find a few pieces - mainly fishbits, jawbones and scales and branchlets or roots and small tree trunk sections. We did not cover the entire area as it was necessary to press on to our next stop, so a quick lunch in the transport and we were off again - to Blomodin. We did however, pause long enough to take note of bluets growing in the grass of the field.

Another scramble down to a beach to see the red beds of the Triassic Blomodin Formation, showing old soil horizons, each of which took 10,000 years to develop - that particular phase representing 100,000 years!

By this time we were running a little late and the tide was on the turn so we did not make our Scots Bay objective. Instead we stopped off at Ross Creek, a small rocky creek mouth from which can be seen the distinct 'broken tooth' of Cape Split. Quite a number of interesting finds were made there - red jasper, agate and amethyst

A very young member of the group, eight years of age, found the best piece of amethyst of the day and another young

fellow - a really keen and knowledgeable 14 year old - picked up a beautiful banded agate. By this time the Fundy tide was coming in fast and we had to scuttle back to the main beach; at one point a little finger of water was already touching the cliff face, but we did not get across without wet feet.

Our final stop was to search through crushed rock and stone in a gravel quarry just off the Ross Creek road. A bleak, dull-looking spot but one which netted many rewarding finds.

On the way home we spent a few minutes at the Lookoff. I do not remember ever before seeing that particular view with the sea high and still enough to mirror the rocks, trees and even buildings. It was beautiful. At Canning the car containing the two little six and

eight year olds and their friendly Alsatian went directly to Halifax, the rest of us, hungry, thirsty and maybe even a little reluctant to call it a day, stopped at the Apple Tree Landing in Canning for a meal before the long drive home. We were enlivened by the effervescence of Robert Brooks who kept those at the back of the bus in a ferment of hilarity. Nova Scotia Museum geologist, Bob Grantham led the trip, discoursing with smooth expertise along the way, but ever-patient and willing to break down the scientific into easier layman's language. Apart from the fossilised scraps, our findings included amethyst, agate and jasper at Ross Creek and zeolite minerals - stilbite, heulandite, apophyllite, mesolite, natrolite, analcite and celadonite.

Altogether a very nice day.

Doris Butters

The salamanders are on the move!
The first males were seen at Julie's Pond (Hemlock Ravine) on the 19th of April. They like to come out during the first warm, rainy nights of Spring and begin to migrate to the closest pond, where breeding begins —



Spotted Salamander (Ambystoma maculatum)



THE IDENTIFICATION OF NOVA SCOTIA FLOWERING PLANTS:
A COURSE OF INTEREST TO NATURALISTS

Biology 2603, a course on plant identification will be offered as a half credit by Dalhousie University this summer. The course will run for three weeks, all day, five days a week from July 27 to August 17.

It is meant for professional biologists, students, teachers and serious amateurs who want to be able to identify the flowering plants of this region. A knowledge of plants is essential for any serious student of the out-of-doors. This is true whether it is the foodplants of birds, mammals or insects that interests him, or the structure of plant communities.

There is renewed public interest in our native wild plants and the natural habitats in which they occur. There is a wealth of popular and technical literature now available on plant uses. Books abound on edible wild plants, poisonous plants, medicinal plants, herbal uses of plants, use of plants by the Indians, wildflower gardens and plants of interest to campers. Without the ability to identify the plants being discussed, such books are of little more than arm-chair interest.

Nova Scotia has one of the finest floras (local manuals for plant identification) of any region in North America. The late M. L. Fernald of Harvard University, author of Gray's Manual of Botany Eighth Edition, called The Flora of Nova Scotia, "a model Flora." Yet sometimes the professional, and often the amateur, naturalist are deterred from using this excellent plant identification manual because of its numerous unfamiliar technical terms. The Flora of Nova Scotia will be one of the two main texts used in this course. Anyone completing the course will find that he can follow this book (or any botany manual for that matter) with

relative ease and use it to identify plants.

The course will consist of lectures, field and laboratory work. Some of the topics to be covered in lectures are: classification; the species concept; common and scientific names; morphological terms relative to the flower, inflorescence, underground parts, stems, leaves and surfaces; the use of keys; herbarium techniques and the use of manuals, floras and guides. The characteristics of a number of plant families will be discussed.

In the field, emphasis will be on the habitats in which plants occur and the relationships of plants to their environment. Laboratory work will concentrate on floral dissections, general observations and keying exercises based on plants collected by the students themselves. Each student will prepare his own herbarium and keep a field record of localities visited.

If it sounds like a lot of work, it is. But it is also a lot of fun, and for anyone who enjoys learning about plants, I cannot think of a more pleasant way to spend three weeks of summer.

A prerequisite for this course is introductory biology or equivalent studies, but a keen interest in the subject can compensate for a lack of this prerequisite. In a similar but much more comprehensive course given last summer, a nurse, a retired chemist and a student of outdoor education, none of whom had previously studied biology, were amongst the best students. If you are interested in the course, do not hesitate to phone me (424-3632). The Office of Part-time Studies and Extension at Dalhousie University may consider offering the course in the evenings with field trips on Saturdays during the fall (September to November) if there is sufficient interest. If you are interested in this let me know.

Pierre Taschereau
Institute for Resource and Environmental
Studies, Dalhousie University