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N. B. Naturalist

Le Naturaliste du N.-B.

New Brunswick Federation of Naturalists
277 Douglas Avenue, Saint John, N.B. E2K 1E5 Canada

La Fédération des naturalistes du Nouveau-Brunswick
277, avenue Douglas, Saint John, N.-B. E2K 1E5 Canada

The federation is a non-profit organization formed in 1972 to facilitate communication among naturalists and nature-oriented clubs, to encourage an understanding of nature and the environment, and to focus concern for the natural heritage of New Brunswick.

La fédération est une organisation sans buts lucratifs formée en 1972 pour faciliter la communication entre les naturalistes et entre les divers clubs axés sur l'étude de la nature, pour encourager une meilleure compréhension de l'environnement naturel, et pour éveiller le souci pour le patrimoine naturel du Nouveau-Brunswick.

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Sunbury Shores Arts and Nature Centre, Inc., Box 100, St. Andrews, N.B. E0G 2X0; 529-3386; workshops, exhibits, semi-annual *Sunbury Notes*.

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On peut lire dans *Le Naturaliste du N.-B.* des rapports touchant l'histoire naturelle du Nouveau-Brunswick. Les articles seront acceptés dans français ou anglais pour être reproduites dans la langue d'origine seulement. Les opinions exprimées sont celles de leurs auteurs. Prière d'envoyer vos articles aux directeurs (voir «Comité de rédaction» au-dessus). Tarifs publicitaires disponibles sur demande.

From the President

This is written soon after a successful annual general meeting weekend was held at Sackville early in September. Field trips were made to Cape Jourimain and to favourite spots on both the Nova Scotia and New Brunswick sides of the bay. Much was learned about the ecology and human history of the the fascinating border region by birder, botanist and fossil fancier alike. Our friends of the Chignecto Naturalists' Club hosted the meeting and organized various activities. We are much indebted to them for laying on such an instructional and enjoyable program. Truly a happy nodding of naturalists! At the business meeting, Elizabeth McIntosh was elected as the new NBFN secretary and Cecil Johnston as treasurer. We wish them well in their endeavours on behalf of the federation and sincerely thank retirees Ruth Rogers and Harriet Folkins for their many contributions over the last four years.

After years of indecision, we now have a formal federation logo. It depicts a stylized chickadee (black on white) surmounting a straight green bar (the land) and a wavy blue bar (the sea). The logo has been hailed (by some, at least!) for its simplicity, attractiveness, and ability to express the nature of the organization it represents. It has already been translated into letterhead and consideration is being given to using it on T-shirts [a trial run of 50 has been produced] and lapel pins. I hope you will promote the use of this logo—there are some indications that NBFN could stand a lot more profile.

A board of directors meeting was held at the home of Elizabeth McIntosh and Ron Fournier at Kenneth, in the wilds of Carleton County, on 2 June. There were reports from six of the eleven federated clubs and a variety of business was conducted. It is apparent that whereas some of the clubs are flourishing a few are for several reasons languishing. Since our federation is only as strong as its individual members, restoration of the vitality of the few clubs in the doldrums has to be a top priority. Representative directors play, or should play, a critical role in providing the bridge between the board and the clubs. Their contributions to the realization of the objectives of the federation are invaluable.

In late September I attended a public meeting at which comments were invited on a proposed master plan for New Brunswick parks and heritage sites. Unfortunately, NBFN did not receive notice of that event, although several hundred other groups and organizations did—another indication of our lack of profile—so that there was not time to prepare a brief. But we can still submit one by mail. The future development and management of our parks should be of concern to many naturalists. Let us have your comments on what kinds of things Parks New Brunswick should, and should not, be doing.

A final couple of points. Firstly, maintenance of current federation membership has emerged as a bit of a problem. We hope to work out a mechanism soon whereby you will be kept thoroughly up to date on the status of your membership. Secondly, the editors and producers of the *N. B. Naturalist* are striving valiantly to restore a regular publishing schedule. We ask that you be patient—and in the meantime keep that material rolling in!

Happy days afield.

Peter Pearce

From the Editors

We should have explained the altered format and layout of the last issue of the magazine. It's really a matter of dollars and cents. To continue the magazine as it was previously, would have required a substantial increase in membership fees (necessary soon enough in these days of inflationary pressures). An easy way to cut publishing costs is to cut the size of the magazine—and the slim issue you hold is a result.

We didn't want to significantly reduce the amount of information we send you, so we made some other changes. Reducing the type size and narrowing the margins means more information per page, while the shorter lines of a two-column format make the smaller type easy to read. Longer paper, "saddle-stitched" through the centre, facilitates the use of narrower margins because the magazine easily opens flat. Even so we have maintained, for the time being at least, an ample central margin to allow libraries (and members too) to bind issues together. There will no doubt be further minor changes in the next few issues as we become accustomed to working with this new format.

Although these issues are not as "meaty" as Volume 16, Numbers 2 and 3 were, they are very comparable in content to other issues over the past four years. The big numbers that we published included extra material because we were behind schedule.

We also have a new printer who will produce our magazine in days, not weeks—a change everyone should appreciate—and have transfered our second-class mailing permit from Saint John to Albert, which lets us save money by using volunteer time for mail preparation. And we hope that out-the-next-day service in our small post office may cut overall delivery time. (That remains to be seen since from here it all ends up in a busy Moncton office, and a considerable amount then still has to go through the Saint John and Fredericton sorting facilities.)

As for your busy co-editors, we are still hoping to catch up. Take the fact that this is our second issue in four months as a good sign, and keep your fingers crossed.

David and Mary

Cover Illustration / Illustration de la Couverture

Peregrine Falcon by Halton Dalzell / Faucon pèlerin par Halton Dalzell.

Peregrine Falcons Nest Along the Bay of Fundy

This year has been an exciting one for naturalists. We have been fortunate to witness the re-establishment of Peregrine Falcons breeding in New Brunswick—the first documented nestings as a result of the falcon release program that has been carried out since 1982. One pair nested on the Saint John Harbour Bridge, and for the first time since 1948 a pair of Peregrine Falcons successfully nested in the Fundy National Park area.

The Saint John pair of Peregrines apparently spent the winter around the harbour. In early April New Brunswick Museum staff, assisted by the Harbour Bridge Authority, placed a nest box on one of the bridge piers, and on April 9 the pair was observed copulating. On June 6 Harbour Bridge personnel contacted the museum with the exciting news that a falcon chick had been seen on a pier near the nest box, from which it apparently had wandered. Don McAlpine succeeded in placing the chick, estimated to be about 20 days old, back in the box. A second young was heard but could not be seen. On June 23 one began to fly and on the 27th the two young were seen together. Unfortunately, the next day one of them was killed by traffic on the bridge. For several weeks after, the remaining young could be seen flying and learning to hunt, or simply perching, often near the adult male, on a pier overlooking the bay.

Meanwhile at Fundy National Park, a male, released there as a fledgling in 1984, returned March 30 for the fifth consecutive year and paired with a female of unknown origin. On June 20 Park Warden George Sinclair used rock-climbing equipment to descend 20 metres to the site on a 60-metre cliff where the pair were concentrating their activities. Four young falcons, aged 3 to 8 days, were observed in a sheltered niche on a grassy ledge. Three of them were flying by July 23; the fourth died in the nest at the age of about one week.

Discovering these two falcon families has increased hope for the success of the 10-year Bay of Fundy peregrine re-introduction program managed by the Canadian Wildlife Service through their Atlantic Region office[1]. The program began in 1982 and through 1988 had resulted in the release of 118 juvenile falcons at five locations, 55 of them at Fundy National Park.

The Bay of Fundy is excellent Peregrine Falcon habitat with abundant food and ideal nesting cliffs. Despite this, all nesting Peregrines had disappeared from the bay by 1960. They were eliminated here and from most of their breeding area in North America by the use of persistent pesticides. The result was female falcons laying thin-shelled eggs, sometimes becoming completely sterile, and often having their maternal instincts affected in such a way that they indulged in abnormal behaviour such as eating their own eggs.

Use of DDT was banned in the early 1970s and since that time the amount of this persistent pesticide has declined in the Maritime Provinces, allowing the re-introduction program to get under way in 1982. This program has been sponsored since 1987 by the World Wildlife Fund (Canada), with major financial contributions from Dennison Mines and The Techoiote Foundation.

"This year young peregrines were not released in Fundy National Park," explains Chief Park Warden, Larry Harbidge. "We wanted to ensure that our new parent falcons were not disturbed by additional young in the area. With young of their own, they could be extremely aggressive towards any intruding individuals."

"The female falcon was an excellent mother," observes George Sinclair. "She brooded the young almost constantly. I've seen her leaving the nest site occasionally to get food she has cached earlier in nooks and crannies of the cliff. Sometimes the male brought her lunch." Peregrine Falcon food consists almost entirely of birds from sparrow to pigeon size.

Visitors to the park could see the falcon family patrolling the coastline and indulging in training activities such as "mock combat." After about six weeks of flight, the young falcons became independent, left the nest area and presumably followed the coast southward to wintering grounds around the Gulf of Mexico, Caribbean Sea and northern South America.

As part of its interpretive program, Fundy National Park held a "name the falcon" contest. The chosen names were: Albert for the faithful returning male, Alma for the productive mother, Blue for the young male, Bright and Beauty for the young females, and Baby Snowball for the one that died. Next year's hoped-for young will be given names beginning with the letter "C."

(Compiled by David Christie from Canadian Parks Service news releases and Saint John Naturalists' Club *Bulletins*. Thanks to Barbara Clayden, Larry Harbidge, Kim Saunders and Rob Walker. Illustration by Odette Barr, courtesy of Fundy National Park.

[1] To the west of us 3 pairs are known to have fledged a total of 6 young in the State of Maine (*Guillemot*).

Oh, Christmas Tree!

Jim Wilson[1]

Traditions of Christmas vary from family to family. At our house, the yuletide season always begins the same.

On a Sunday afternoon in mid-December, a throng of friends, neighbours and relatives gather at our house, dressed for the weather, and bearing an odd assortment of edible goodies. There is excitement in the voices of the little ones, and a happy expectation on the faces of the rest. But the treats they bring are not for us—they're for a Christmas tree for the animals!

We began the tradition back in 1975, shortly after we built our house here in Hammond River. With a three-acre woodlot, we decided it was a perfect opportunity to invite a few friends to bring their small children, and along with our own, to decorate a tree for the animals and birds. The decorations would all be home-made, and appeal to a variety of woodland creatures. The only limit would be one's imagination.

WE were really surprised at the enthusiasm. The kids had a wonderful time, fashioning strings of popcorn, cranberries, and cheerios into "garlands," and creating a:ll sorts of appetizing ornaments to hang on the branches. One little girl even appeared carrying an "angel" created from a carrot top, and assorted vegetable pieces, with cloves for eyes, nose and mouth! When we arrived at the clearing, all the children rushed forward, each eager to find the perfect branch on which to put his or her precious offering.

After the trimming ceremony, we gathered admiringly round the little spruce, and sang a few b

ars of "Oh Christmas Tree." Then we all trooped happily back to our house for hot chocolate and pizza in front of the fireplace.

That was in 1975. Tonight we've just finished the invitations for this year. The list totals over 50, including most of the original people. Over the years, the excited little children have grown into more subdued teenagers. The little spruce in the clearing now stands proudly in the background as we turn in recent times to a smaller one with branches easier for today's children to reach. But almost without exception all will come, and we will gather round, sing our little song, then march triumphantly home to hot chocolate and pizza by the warmth of the hearth.

So begins the Christmas season at Hammond River. Traditions are important!

[1] Jim Wilson is past president of the Saint John Naturalists' Club, from whose December 1988 *Bulletin* this article came.

Perseverance

Peter Pearce

The tide was on the flood, rushing in a torrent through the narrow channel into the marsh. Seaward, a hen eider skillfully shepherded her brood of six away from the powerful draw of the current. But one chick allowed itself to become too separated. Trapped, then swept along unceremoniously, despite furious paddling and flapping of stubby wings, it fetched up within a few brief moments deep within the marsh where the energy of the flow had spent itself. Alone, inexperienced, it seemed perilously vulnerable. Bill movements betrayed its constant cheeping, occasionally heard but for the most part lost in the sound of the rushing water or carried away on gusts of onshore wind. Meanwhile, its family, out of visual contact because of an intervening raised pebble beach—a shorebird roost—maintained a vigil offshore, seemingly awaiting the return of the lost one. Then began a notable display of perseverance as the flightless bird repeatedly tried to rejoin its kin. By negotiating the calmer water away from the stream it was able to regain the channel, only to be once more caught up in the tidal flow and transported, protesting, back into the marsh. Three more attempts were made, with the same result, but each coming closer to success. Finally, mustering remaining energy reserves and favoured by a gradually slackening current, the bird freed itself from the channel and made its way directly to its parent and siblings. The family re-united, a round of involuntary applause rose from the knot of human observers, on higher ground nearby, who had been captivated by the unfolding drama. At the marsh outlet, the water became glassy still for a short while then, slowly at first, but inexorably, gathered seaward momentum, the bay's great tide on the ebb.

Bird Photos Needed

Now that four of the five years of fieldwork have been completed, work is beginning in earnest towards preparation of the book *The Breeding Bird Atlas of the Maritimes*, scheduled to be released in fall 1992. The Atlas Publication Committee is seeking good quality pictures of Maritime birds in breeding habitat, at their nests, or caring for young. If you have either black and white or colour photographs you would be willing to submit for consideration, please write to to Brian Dalzell, c/o Nova Scotia Museum, 1747 Summer Street, Halifax, N.S. B3H 3A6.

Life in the Jaws of Death—or How to Survive in a Carnivorous Plant

D. C. Eidt[1]

It is common knowledge that the pitcher plant holds fluid in its vase-like leaves, and that these leaves are traps for hapless insects that enter them. This is how these plants get nutrients, particularly nitrogen, that are very scarce in the bogs where they live.

It is little known that these same death traps for insects and spiders are the homes of other creatures that live nowhere else! In New Brunswick there are three species of flies, several mites, copepods, rotifers, nematodes, and a number of microorganisms. All of these have one thing in common. They have evolved means to resist the digestive enzymes in the pitcher plant fluid.

The dynamics of this community are closely tied to the development of the plant. A close look at the plant reveals that the leaves (or pitchers) are arranged in a whorl. The leaf at the top is the youngest, and old deteriorating leaves are found at the bottom. The nature of the fluid in the pitchers changes as they get older and trapped insects accumulate. The pH drops from about 6 to less than 4 after 40 days under summer conditions. The insect capture rate of the pitcher increases rapidly to peak at about 15 days, then drops off rapidly at first, then more slowly, till the end of the effective leaf life.

The youngest leaves harbour bacteria, then, progressively, rotifers and mites that feed on the bacteria, copepods that probably prey on the mites and rotifers, then mites and nematodes that feed on the remains of insects trapped in the leaf. Finally appear the flies that take longer to develop and which feed on other animals, microorganisms, and debris that mainly consists of dead insects.

Most interesting are a mosquito, a midge and a flesh fly, which belong to very different families. But all are flies—no beetles, no bugs, and none of the major groups like stoneflies and mayflies that we normally associate with aquatic habitats. They have to get in and out of a leaf cavity designed to trap insects and live in a fluid designed to kill and digest insects!

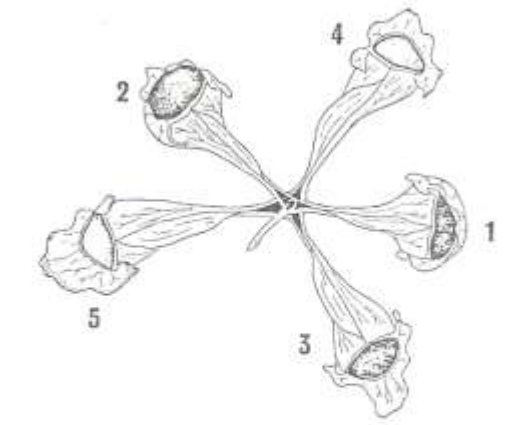
The mosquito is called, aptly, the pitcher-plant mosquito. It occurs widely in North America, probably wherever pitcher plants grow. The adults fly in and out of the plants, without danger of entrapment, to lay their eggs. This first occurs in early July. There may be several generations, but the insect always overwinters as larvae frozen in the ice in the pitchers. As soon as the water thaws they become active again and feed on suspended particles and organisms in the fluid. Like most mosquitos, they breath through a snorkel-like tube that penetrates the surface film. Mercifully, this mosquito is not known to take blood.

The midge doesn't have a common name because it is not well known, but it is confined to pitcher plants. Why this species, alone among the perhaps two thousand species of midges in Canada, developed this capability is another mystery. The larvae feed on the debris at the bottom of the pitcher, which is mostly remains of the insects trapped by the plant. In doing so the debris is broken up into smaller particles and becomes more readily digestible. They absorb oxygen from that dissolved in the fluid. Like the mosquito, the midge larva overwinters frozen in the ice in the pitchers. Both the midge and the mosquito are symbionts, a word that means their relationship with the plant is advantageous to both.

The third fly is one of four species of one flesh-fly genus that have adapted to life in pitcher plants. Most of us know the large family of flesh flies only by the familiar greenbottle and bluebottle flies. The pitcher plant-inhabiting species hatch their eggs internally, then deposit the larvae on the inside walls of the pitchers. The larvae enter the fluid where they breath at the surface and feed voraciously on insects trapped by the plant. Thus they rob the plant of some of its prey. They are so voracious that more than one per pitcher is rarely found. When two larvae encounter they engage in a struggle to drown one another. The loser is eaten and the winner goes on to finish growing, after which it leaves the pitcher and pupates in the sphagnum moss. How larvae exist past a formidable barrier of backward leaning hairs, designed to entrap, is unknown.

The fate of a pitcher is a gradual deterioration and perhaps consumption by larvae of moths. One species of moth eats a hole in the bottom of the pitcher, allowing the fluid to drain. It then enters the cavity and feeds on the inner wall.

The next time you look at a pitcher plant, think of each leaf as containing a small, simplified community of its own. It is this quality that has made the pitcher plant community a favorite for study of development, survival, overwintering strategy, nutrition, toxicology, and other basic aspects of ecology.



Arrangement of leaves on a pitcher plant. The leaves are numbered from the oldest to the youngest. Note the developing leaf at 7 o'clock.

[1] Forestry Canada—Maritimes, Fredericton.

Salmon fishing on the Nepisiguit

Chris Gauthier

It was almost dark. "Two more casts before I go," I said to myself. It was raining very hard and the wind was high.

My first cast was a beauty. It soared out over the fast rippling water. The best part of the pool is right at the top of the falls just before you pick up your line. As my fly glided around, a tiny ripple, then the head and back of a salmon appeared. It must have weighed at least 15 or 20 lbs. It just missed my fly.

I figured I had at least five more minutes before it got black. I changed my fly and put on my killer, a white bug with orange hackle.

I started up above where I figured that big baby would be lying. By then I could only see the silhouette of my fly. I could almost feel that something was going to grab my line. Just at that moment I heard a loud splash and felt him hit. I knew it was the one I had missed earlier. Right away I thought it would rush over the falls but instead it went up river right into my backing. The salmon swam from one side to the other. I could feel the hook pierce through the top of its mouth. I knew the fish was on for good. I had him on for at least fifteen minutes.

My reel felt hot on my hand. I could imagine my mother waiting impatiently back at the truck. It was nearly dark and the fish was as strong as ever. I felt like I could taste the fresh river water rushing through the salmon's gills. I could smell my wet mouldy canvas fishing vest that was clinging to me like a second skin.

Finally the tension in my line eased up. It was time to bring him in. After 25 or 30 minutes of fighting the pull of the fish, my arms were almost dead. I brought him in as close as I could and having seen my father release an adult salmon, I knew just what to do. I pulled in as much of my line as I could and cut the monofilament. It was over!

As I sat there thinking about the fight I said to myself, "I'll get you when angling laws permit us to keep adult salmon!"

La Nichée d'Arthur-William

Le Bruant des neiges

Arthur-William Landry[1]

Comme le font la plupart des oiseaux, les Bruants des neiges émigrent vers le sud en automne, mais puisqu'ils nichent dans la toundra des régions arctiques, c'est nous qui sommes leur Floride. Ils nous arrivent vers le début de novembre, au temps des premières rafales de neige pour passer l'hiver avec nous. Je les associe tout naturellement au confort des mitaines et des foulards, au crissement des patins sur la glace, à la musique des grelots du cheval dans les congères et au ronronnement accrû du vieux Star qui répandait lumière et chaleur blafarde de par les larges échancrures des ses deux portes de devant, que le temps et les bûches d'érable avaient en partie consommées.

On les retrouve près des côtes (à la dune de Maisonnette, par exemple), dans les champs où croissent des mauvaises herbes, en bordure des routes... et presque invariablement aux toutes dernières pages des guides d'oiseaux! Au sein de leur volées, la plupart du temps très nombreuses, on reconnaît assez souvent des Bruants lapons et des Alouettes cornues.

Lorsqu'ils se nourrissent dans les herbes qui dépassent la neige, les derniers, à intervalles réguliers, survolent l'avant-garde de leur vol onduleux et ces manoeuvres se répètent jusqu'à ce que le champ soit nettoyé d'un bout à l'autre. Dans le paysage blanc de neige, ils donnent l'impression de disparaître et de réapparaître au rythme du déploiement de leurs ailes à prédominance noire qui contrastent avec le blanc du reste de leur corps.

Au printemps, quand ils se regroupent pour s'en aller égayer les régions arctiques de leur charmant gazouillis musical, ils présentent l'aspect d'un oiseau tout blanc aux ailes noires et se rassemblent par centaines dans les champs près de la baie des Chaleurs avant de la traverser.

Dans certaines régions on les connaît sous le nom d'*ortolans* tandis que pour mon grand-père Adolphe ils étaient des *bénéris*, et il les aimait beaucoup... frits dans le beurre! Lorsque ces gentils petits oiseaux venaient manger dans la basse-cour, au sud de la grange, dans les restes de foin et de paille que le soleil avait débarrassé d'une fraîche «bordée» de neige, il leur tendait des pièges faits de crins de cheval et réussait ainsi à s'en capturer quelques-uns.

Il va sans dire que malgré son atavisme inné et toute sa piété filiale, son petit-fils n'a pas continué cette tradition ancestrale qui pour lui s'approche du cannibalisme.

Bruant des neiges / Snow Bunting
Plectrophenax nivalis (Linnaeus); Longueur: 15,2 cm
Chant: «Gazouillis musical particulièrement bref, en montant légèrement de ton, qui se termine souvent par un *tcheurt* sonore», selon W. E. Godfrey.

[1] We are grateful to Arthur-William Landry, for permission to reprint articles from his column on birds in the Acadian magazine *Le Ven'd'est*. This article is from the issue of décembre 87/janvier 88.

Book Reviews

Atlantic Diver Guide, Volume 4: New Brunswick. Including Atlantic Shipwreck List, 1955-85. By David N. Barron, 1988. Atlantic Diver, P.O. Box 8216, St. John's, Nfld. A1B 3N4. 208 pp.

Reviewed by Martin L. H. Thomas[1]

The "Atlantic Diver Guides" offer a comprehensive guide to diving in marine and a few freshwater locations in Atlantic Canada. While divers may get along quite well with the volume for their province, the guides have been cleverly designed (from the point of view of sales) so that no one is complete. Details of shipwrecks are divided into four sections in chronological order, divided among the four volumes. Details of early New Brunswick wrecks appear in Vol. 1 (Newfoundland and Saint Pierre). The books are well laid out, each province being divided into regions and within each region, each dive site allocated a two page entry. Each region has a map with the general location of each dive site shown. This is backed up for each dive site by a detailed map, with the site arrowed. These detailed maps are sections of marine charts or topographic maps as appropriate; a very good idea since users will no doubt have the full chart or map available and can thus set the site in the total local context. A minor problem is the rather poor printing quality which has cut off some dive sites in general maps and made some details unreadable in detailed ones. Each dive site entry is subdivided into Level: Access: What to See: Directions: Bottom and Depth: Hazards: Chart and Sounding: Photo: and Thanks to:, each of these is concise and informative giving good essential information backed up by an interesting photograph. For the naturalist, the biological information is scant but can be backed up by a good field guide. Paralytic shellfish poisoning is ignored for the lower Bay of Fundy, a dangerous oversight. All things considered, these guides are a valuable addition to the literature on our environment. Every diving naturalist will want at least the local volume.

Recommended Mushroom Field Guides

K. J. Harrison[2]

The choice of a good field guide can mean the difference between success and frustration or, in extreme cases, life and death for the novice mushroom hunter. There is a bewildering array of books available in our bookstores. Some are excellent, but some are downright dangerous. As a general rule, **AVOID European books** which are shipped to North America and sold without editorial changes.

One way to check if a European book is useful here is to check the amount of space given to the Death Angels, Destroying Angels and deadly white Amanitas (*Amanita verna, A. virosa* and others) versus the European Death Cap (*A. phalloides*). If it concentrates on the European Death Cap, AVOID THE BOOK! The Death Cap is not found in the Maritimes while its deadly white cousins can be very common some years.

My personal favorite is *The Mushroom Hunter's Field Guide* by Alexander H. Smith and Nancy Smith Weber, published by the University of Michigan Press in 1980 and handled by John Wiley & Sons Canada Ltd. It is the much revised edition of the original field guide first published in 1958. It set the standard for all later works. This guide covers 282 species and doesn't bury beginners in rare species they are unlikely to find. The authors have also produced regional field guides for both the western mountains and southern U.S. mushroom floras so this guide can concentrate on the northeastern and central North American species. Its price is about $25. (ISBN 0-472-85610-3.)

Mushrooms of North America by Orson K. Miller, Jr. has been produced in large hardcover and small plastic-bound editions by E. P. Dutton. It covers 422 species in detail and does a fairly good job. As a first effort, it is admirable, but it attempts to cover eastern and western mushrooms in one book. The paperback price is about $20. (ISBN 0-525-47482-X.)

The Audubon Society Field Guide to North American Mushrooms by Gary H. Lincoff, is published by Random House in Canada in 1981. It describes 703 species in a very compact format. The scope is very broad, so many species which don't occur in the Maritimes are included. It is very good, but may overwhelm the novice collector. Unfortunately the author was forced to use common names by his publisher and had to invent many since few existed. This is a very serious flaw since there are no standardized mushroom common names. The common names used in the guide may apply to different mushrooms in other books. The price about $20. (ISBN 0-394-51992-2.)

Simon & Schuster's Guide to Mushrooms by Giovanni Pacioni is European in origin but has been thoroughly edited for North America by Gary H. Lincoff. It was published in 1981, uses visual keys and short descriptions opposite good color photos. The guide includes 420 species and contains the best information on mushroom poisoning, in summary form. The writing is a bit technical for some at first, but it is a very useful guide. Its price is about $20. (ISBN 0-671-42849-7.)

Lastly, a word of caution directed to all mushroom hunters. Read and study your books carefully. Learn to make spore prints. The method is described in each of the guides. **SPORE PRINTS CAN SAVE LIVES.** If you are in any doubt, throw them out!

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From The Pages of the Journals

Sex and the Single Salamander

Christopher Majka

In the forests of deepest, darkest Guiana on the border between Brazil and Venezuela lives a lizard. It's about 11-12 cm long, dark brown with a light lateral stripe. It lives in small patches of savanna where, during the heat of the day, it forages in leaf litter for the insects and small arthropods which constitute its diet. The females lay an average clutch of two eggs which hatch after approximately two months. "What's so unusual about this," you might be wondering, "there are lots of lizards in South America." Right, but this lizard has never been sighted!

"Wait a minute. That's a pretty specific description of an animal that no one has ever seen!" you might be prompted to say. Indeed it is, for this lizard, called *Gymnophthalmus sp.*, may just be the first instance where biologists have been able to predict the existence of a heretofore unknown animal. "This strains my credibility," you reply, "deducing the location of black-holes in the farther parts of the galaxy is one thing, but unseen lizards...?" Well sit back, relax and listen to a tale of molecular biology, genetics, evolution and sex. Part one comes from an article called *A Lizard Foretold* by Charles Cole, Carol Townsend, Herbert Dessauer and Laurence Hardy in the May, 1989 issue of *Natural History*.

From a study on another lizard which lives in northern South America, *G. underwoodi*, herpetologist Richard Thomas determined that it is an all-female species which reproduces by parthenogenesis (from the Greek meaning 'virgin birth')— no males required. This biological curiosity is possible because the females are all 'triploid' individuals, that is to say they have three complete sets of chromosomes rather than the normal two. Via some complicated genetic processes their eggs are 'fertilized' by so-called 'polar bodies' and develop all by themselves. The result: a brood of genetic clones of the parent female.

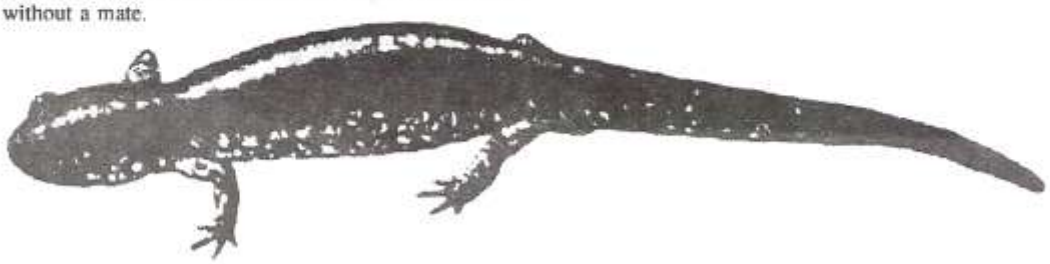
It is now well known that such rarities in the vertebrate world result when two closely related species mate. If the parents are too dissimilar, no offspring or sterile offspring (the mule is a perfect example) will result. Too similar and they are the same species. But sometimes, just on the cusp of this continuum of distinction, some unusual genetic processes occur, and presto! A triploid female capable of reproduction by parthenogenesis, producing exact copies of herself without a mate.

Knowing this, scientists were naturally curious. What were the two 'parent' species which gave rise to *G. underwoodi*? There were two possible candidates: *G. speciosus* in northern Venezuela and *G. pleei* in Martinique. One set of chromosomes of *G. underwoodi* matched those of *G. speciosus* in number and size—an obvious ancestor, but *G. pleei* was soon ruled out—it didn't even have the right number of chromosomes. Biologists had no option other than to postulate the existence of the mystery *Gymnophthalmus sp.* Since various biological traits can be predicted from knowledge of the chromosomes, they have been able to make extrapolations about this unknown lizard's behaviour and appearance. A piece of cake! Now all they have to do is find the beast in question.

Now, lest readers feel that this essay on Latin American herpetology is too remote from the fields and forests of New Brunswick, let me hasten to add that we have our very own examples of the same phenomenon.

Spring is an excellent opportunity to wander out at night with rubber boots and a flashlight and peer into wet ditches. You won't see any lizards here but you may well see a blue-spotted salamander, or rather I should add, one of two such possible salamanders. The common species is the Blue-spotted Salamander (*Ambystoma laterale*), to all intents and purposes a perfectly normal amphibian. But here and there (and in the Maritimes they have been found at five localities in Cumberland County, Nova Scotia, and at Fredericton, Lake Maguadavic, and Oak Pt. in New Brunswick) one can find a few individuals of the Tremblay's Salamander (*A. tremblayi*) which is—you guessed it—a species consisting solely of triploid females!

In this case the ancestral parents are no mystery. One is the Blue-spotted and the other is the closely related Jefferson's Salamander (*A. jeffersonianum*). It is thought that there was once only one species and that during the last glaciation some 100,000 years ago, this single stock was separated into two groups which then evolved separately. Some time subsequently, individuals of these stocks came into contact and voilà!; a triploid species was born. Or rather two were born because for some reason in addition to the Tremblay's Salamander which is associated with the Blue-spotted there is also another triploid species, the Silvery Salamander (*A. plantineum*) which is associated with the Jefferson's. For



furtherinformation on this topic consult Gilhen (1984)[1] or Cook & Gorham (1979)[2].

Now all these sexual shenanigans raise another question. If there are species which reproduce without benefit of males, why bother with sex at all? "Hold on a moment," I can hear you asking, "now we're really going too far." The conventional answer to this question (for this has kept many a quizzical biologist up until the late hours of the night) is that sex is necessary for genetic recombination—in turn a necessary step for evolution according to our neo-Darwinian understanding of the world. Without the mixing of genes there is little possibility of new character traits to arise, and hence little chance of evolution. Mating with yourself (which is what these parthenogenic females are actually doing) is also a dangerous gambit for reasons of inbreeding. The consequences can lead to a dominance of otherwise recessive characters, something which breeders of exotic dogs, and observers of the Hapsburg and Romanoff dynasties, can easily attest to.

Nevertheless this is a serious question since there exist a number of unusual strategies for reproduction. Not only are there organisms which reproduce by parthenogenesis but there are animals, such as many worms and snails, which are hermaphrodites; each individual produces both eggs and sperm and they can fertilize themselves. Many plants can reproduce vegetatively and animals such as corals are able to reproduce by budding off new individuals—no sex at all involved! Botanist Ledyard Stebbins in an article called *The Flowering of Sex* in the May/June 1984 issue of *The Sciences* argues that when the surrounding habitat is uniform there is an advantage to reproducing asexually—the successful plant can pass along its set of genes to its progeny with no genetic crap shoot. When, however, the environment is varied there is a distinct advantage for plants to produce progeny with a variety of characters because some (and most plants produce many seeds) will presumably be better adapted to the different conditions. Plants, such as our Pussy-toes Everlasting (*Antennaria* spp.) have populations in some areas which are all female and reproduce through parthenogenesis. Other populations have both male and female flowers and reproduce sexually.

There is, however, a new explanation for the phenomenon of sex which is gaining credence. It's summarized in an article entitled "What's Love Got to Do With It?" by Richard Michod in the May/June 1989 issue of *The Sciences*. To understand this we have to take a quick excursion into the world of molecular genetics. Deoxyribonucleic acid, DNA by any other name, is the repository of genetic information within a cell. Organized into genes and coiled into chromosomes it is the 'data bank' which is consulted by all molecules to determine the structures and processes of the body. Over time, like any other molecule, DNA suffers damage. Chemical processes of the cell, environmental toxins and the continuing process of growth and division can all combine to 'garble' parts of the information. This can create real problems (such as cancer) and is of particular concern to the cells which are used for reproduction. If a key section of the message is damaged it is likely to have catastrophic consequences: nonviable germ cells or dangerous mutations.

Fortunately there are enzymes which can recognize and repair such damage. When they find a damaged segment of DNA they check the corresponding segment of the matching chromosome, duplicate it and install it in place of the damaged section. If both chromosomes are damaged at the same point we've got problems. However, in the germ-line cells which divide to produce eggs and sperm there are *twice* the normal number of chromosomes; three possible places to find repair sites. Not only that, but during the process of meiosis which produces eggs and sperm, this process of gene maintenance and repair is greatly increased so that the DNA which is passed to the progeny is a 'clean copy.' In Michod's view sex exists not only to recombine genes in new patterns, but most importantly to repair the germ line of a species. Without this periodic 'cleaning' a species would soon be swamped by a host of harmful and random mutations.

So, despite the costly elaborateness of sex—consider the brilliant plumage of many male birds, the time spent displaying and courting, the antlers of moose and deer, the extravagant blossoms of orchids, etc.—there is obviously an evolutionary advantage to all this courtship and dalliance. The Tremblay's Salamander notwithstanding, parthenogenesis, and other non-sexual strategies of reproduction are destined to remain offshoots from the main sexual tree. And you thought it was just the birds and the bees!

[1] Gilhen, J. (1984) Amphibians and Reptiles of Nova Scotia. N.S. Museum. Halifax, N.S. pp. 45 -51.

[2] Cook, F.R. & S.W. Gorham (1979) The occurrence of the triploid form in populations of the blue-spotted salamander, *Ambystoma laterale*, in New Brunswick. J. N. B. Mus. 1979: 154-161.

Nature News

Spring – Summer 1989

David Christie

This instalment of "Nature News" covers the period from March through August. March and April had variable temperatures and a number of moderate storms, including a rather late one in central New Brunswick April 22-23, prompting a comment in the Fredericton Nature Club's *Newsletter* that the Tree Swallows which returned in mid-April were "hard to identify because of their long underwear." After that, however, the weather was unusually mild—many May migrants returned early and bird nesting got under way and concluded earlier than usual.

Birds

Spring snowstorms often force returning migrants close to houses in search of food. Those occasions are often the busiest days of the year at bird feeders. At Mary's Point on Mar. 31 we hosted 473 birds of 19 species, dominated by 150 each of junco and Song

Sparrow and including the first **Northern Harrier** (Marsh Hawk) we've ever had after birds at the feeder. Several people in the Fredericton area had similar experiences April 22-23 (*fide* PAP). David Myles reported 24 species at his Prince William feeder then and Ed Kettela had about 175 birds of 21 species on the 23rd, a mixture of overwintering species and new arrivals such as **White-throated Sparrow** and **Hermit Thrush**.

A probable summering **Red-throated Loon** was at Herring Cove, Fundy Nat'l Park, Aug. 10-11 (Charlie Doyle *et al.*). A pair of **Common Loons** nested in the park for the first time, at least since the park was established in 1948 (Larry Harbidge *et al.*). A single adult spent the whole summer on Jones Lake in Moncton (v.o.). A **Red-necked Grebe**, in faded breeding plumage, was early at Doaktown Aug. 8 (Gordon Pringle). Three Oct. 22 at Miscou Island were somewhat unusual there (GB).

The **Manx**, least common of our three regular shearwaters, is reported most years but only occasionally are substantial numbers seen, such as the 50 estimated off Machias Seal Island July 29, when there were also 500 **Sooty** and 400 **Greater Shearwaters** there (Will Russell). A Manx was also seen there June 30 (Ruth Curran *et al.*).

An **Am. White Pelican** reported at Kouchibouguac National Park for a few days about the beginning of August (*fide* Oscar LeBlanc) probably moved northwards to Inkerman, where it was discovered by Jean-Guy Robichaud Aug. 20 and seen by many observers into September.

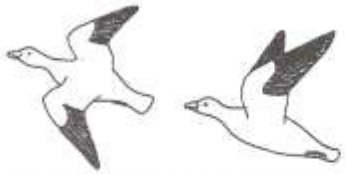
Alan Madden's observation of 1230 **Double-crested Cormorants** flying east near Belledune in just one hour on the early morning of Aug. 7 is indicative of the size of the successful nesting colony on Heron Island.

Brian Dalzell found the **Least Bittern**, a very rare and secretive species, on territory at Piries Lake, near Grand Falls and it was also seen at Red Head Marsh, where it has been found quite often (*fide* David Smith). **Green-backed Herons** were noted at Grand Manan (HD), Fredericton (PAP *et al.*), Edmundston (Allan Gregoire *et al.*) and Ste-Anne-de-Madawaska (weakly flying young—BDD).

There were several reports of **Great Egrets** during the summer: Buck Lake, Saint John, June 11 (2—Hank Deichmann), Grassy Island, near Oak Point, July 14 (Pat Kehoe), Maquapit Lake (Bill Varty), Gagetown (Enid Inch and Kathy Coombes) and Saints Rest Marsh, Saint John, for most of August (v.o.). **Snowy Egrets** were reported at Saints Rest about Apr. 7-17 (CLJ *et al.*), Mary's Point May 7-13, and Castalia Marsh on the May 20-23 weekend (MFM *et al.*). An adult **Little Blue Heron** was at Mary's Point May 17-18 and 30 (v.o.). A lone **Cattle Egret**, in faded breeding plumage, was seen near Hampton June 11 (Hank Deichmann).

Harry Walker had a report of **Fulvous Whistling-Duck**, the first of this extremely rare vagrant in several years. One was apparently seen twice by Anne Marie Arsenault near Chatham in early June.

Good numbers of **Snow Geese** had been reported in spring 1987 and 1988, but this year an unprecedented number were seen, probably an overflow from the burgeoning St. Lawrence River population. The reports



I've received are: 3 at Saints Rest Mar. 31 to Apr 4 (JGW *et al.*), 2 at Waterside Apr. 9 (Mr. & Mrs. Terry Andrews) and 14 there Apr 20 to May 14 (v.o.), from 70 to 115 (2 "blues") on the Shepody River marshes between Apr. 9 and May 20 (v.o.), 3 at Courtenay Bay, Saint John, Apr. 10-13 (JGW), 3 at Roachville Apr. 10 (Orland Brown), 35 near Jemseg Apr. 16 (George Haley), an unreported number at Pointe à Bouleau, near Tracadie, Apr. 16 (GB), 30± at Castalia Apr. 20 (Gloria Hobbs), 34 at Youngs Cove Apr. 21 (SIT & Oscar LeBlanc), 20 at Sussex Apr. 21 (*fide* HD), from 53 to 75 at Upper Coverdale Apr. 21 to at least May 10 (SIT *et al.*), 38 (1 "blue") at Nauwigewauk Apr 23 to May 11 (v.o.), 75 to 100 at Frog Lake, Harvey, York Co., for a week until May 9 (George Haines, *fide* Stocek). Many—all of the later ones—were dirty-looking year-old birds, which would not breed during 1989. If they use this same eastern migration route
in subsequent years rather than the traditional one over New England we can look forward to repeats of spring 1989, but with a lot more bright white adults.

A male "**Eurasian**" **Green-winged Teal** was spotted at Jemseg May 7 (JGW & PW). To a good number of **Shoveler** reports in southern N.B. can be added some from the north: Évangeline, near Inkerman, Apr. 22 (GB), Eel River Crossing in June and Tide Head in July (DSC *et al.*). Pairs of **Gadwall** were seen at Bloomfield and Lower Jemseg May 7 (JGW & PW), a single at the mouth of the Charlo River July 18 (DSC), 3 in the Tantramar River at Sackville Sept. 2 (DSC & EMM), and one at Lincoln Sept. 6 (JE).. A male **Eurasian Wigeon** was at Le Goulet May 6 (Jacqueline Savoie).

Two pairs of **Canvasbacks** were seen at Mactaquac Apr. 21 (Jean Cunningham) and a male **Redhead** at Jemseg Apr. 28 was possibly still there May 3 (*fide* PAP). **Lesser Scaup**, which favour sewage lagoon habitat, included a report at Sheila Apr. 2 (GB & HC), 10 at Sackville and a pair at Dorchester Apr. 29 (BDD & DSC), a pair at Hampton May 7 (JGW & PW), and 2 at Eel River Crossing May 16 (PAP). Some **Common Eiders**, **Oldsquaws** (one flock numbered 50—Mark Phinney), and all three species of **scoters** appeared on the Saint John River at Fredericton in the latter part of April (FNC Newsletter). Also inland were six **White-wings** at Little Magaguadavic Lake May 21 (David Myles). To the usual few spring **King Eiders**—male at St. Andrews Mar. 18 (FNC), adult male at Waterside Apr. 22 (DSC & EMM)— we can add some summering individuals: a male courting a female Common Eider at Dick's Island, near St. Andrews May 29 (Pat Kehoe), a 2nd summer male at Campobello Island June 17-July 5 (CD *et al.*), and a male in off plumage at Cape Jourimain Sept. 2 (EMM). A **Harlequin Duck**, seldom reported

except around the wintering area at the mouth of the Bay of Fundy, was seen at Miscou Island May 7 (GB). A pair on the South Benjamin River, Restigouche County, May 10 were in possible breeding habitat. A small population of Harlequins nests along rivers in the nearby Gaspé. Fredericton Nature Club members spotted a pair of **Barrow's Goldeneyes** at St. Andrews Mar. 18. Two males, accompanied by 4 females that were probably also this species, were seen at Epworth Park, Grand Bay, Mar. 22 (Don & Lynne McAlpine). A male **Ruddy Duck** was found at Caraquet May 6 (MD).

A **Turkey Vulture** at Pigeon Hill July 28 (Rose-Aline Chiasson & Émile Ferron) was later found shot; luckier ones were feeding on a dead porcupine at Waterville, near Hartland, Aug. 9 (Lloyd Culberson) and circling at Harvey, Albert Co., Aug 10-11 (RJW, Georgette Thibodeau & Gemma Ouellette). Halton Dalzell reported an adult **Cooper's Hawk** at Pennfield June 24. There were three spring reports of **Red-shouldered Hawks**: at Sheffield May 3 (JE), Black River, near Chatham, May 5 (DSC & EMM), and Mary's Point May 10 (DSC), and an agitated adult was seen near Plaster Rock in mid-June (BDD). First **Bald Eagle** of the year in the northeast, where they are less numerous than elsewhere in the province, was reported at Tabusintac Apr. 16 (CNPA). An adult **Golden Eagle** was seen at Mercury Island, near Upper Blackville, July 29-31 (Marge & Page Brown) and one, possibly two, adult birds were seen in the Nictau – Riley Brook area during the summer (*fide* BDD).

Peter Pearce commented that there seemed to be so few **American Kestrels** this year but that he had seen more **Merlins** than ever before. Summer Merlins included one chasing birds near Bayswater July 17-18 (Frank Withers) as well as nesting pairs in the UNB Woodlot, Fredericton (v.o.), Centennial Park, Moncton (v.o.), and Chaleur Provincial Park, Eel River Crossing (DSC & EMM). During late summer a pair of adult **Peregrines** and an immature were hunting the shorebird concentrations on Shepody Bay (v.o.) and five were reported harassing puffins at Machias Seal Island (*Guillemot*). The dark **Gyrfalcon** that wintered along the Petitcodiac was last reported at Riverview Apr. 10 (*fide* HD). A late, gray one was seen among hawks moving easterly at Caledonia Mountain May 3 (EMM).

A **Wild Turkey** found dead at Whites Cove Apr. 21 (Mark Elderkin) had presumably escaped from a farm raising them in the Youngs Cove area. A report of turkeys at Fairfield, near St. Martins, is being investigated. Brian Dalzell says the 40 turkeys released at Grand Manan in 1987 have now increased to 75+. The open winter of 1988-89 would have favoured high survival. In May one very aggressive male at Grand Manan attacked birdwatchers who trespassed his territory (v.o.).

Single **American Coots** were at Red Head Apr. 12 (Mike Roinila) and Miscou Island May 5 (Rose-Aline Chiasson), and a **Common Moorhen** at Doaktown July 6 (Harry Darrow).

The shorebird highlight of this period was a beautiful breeding-plumaged **American Avocet** discovered May 20 at the mouth of the Shepody River by Charles and Diane Allain and seen by numerous observers through May 23. The Allains also found a **Marbled Godwit**, another mainly western visitor, at Kelly's Beach in Kouchibouguac Nat'l Park Aug. 13. **Willet** reports included Waterside May 7 (2—RJW), Val-Comeau July 24 (Gertrude St-Pierre), Kouchibou-guac Nat'l Park Aug. 13 (Allain), and very pale individuals, that appeared to be of western origin, at Courtenay Bay Aug. 14 and Saints Rest Sept. 2 (JGW).

Upland Sandpipers were back May 10 at both the Salisbury (3—SIT *et al.*) and St-Isidore (Donald Cormier) breeding areas. The discovery in 1988 of breeding **Solitary Sandpipers** was followed by two more records this year: two almost fully grown young near Juniper July 7 (BDD) and fledglings at Hanford Brook near St. Martins (Ron Weir). A pair of **Wilson's Phalaropes** was seen at Carman Creek, near Fredericton, May 27 (FNC) and 1 to 3 at Lower Jemseg May 6-7 (v.o.). There was also apparently a pair at Cape Jourimain (*fide* BDD).

Scarce in spring were a **Lesser Golden-Plover** at Castalia Marsh May 19 (JGW *et al.*), **Lesser Yellowlegs** at Lower Jemseg May 7 (3—JGW), Mary's Point May 10 and 26 (DSC) and Inkerman May 15 (HC), and a **Whimbrel** at White Head Island May 20 (JGW *et al.*). A juvenile **Western Sandpiper** was picked out among the many Semipalmateds at Mary's Point Aug. 19 (EMM). Single **Baird's Sandpipers** were spotted at Miscou Island Aug. 20 (HC) and Red Head Marsh Aug. 25 (JGW), and **Buff-breasted Sandpipers** at Mary's Point Aug. 6 (DSC *et al.*), Cape Jourimain, near Bayfield, Aug. 26 (BDD and Blake Maybank), and Saints Rest Sept. 2 (JGW). A **Stilt Sandpiper** was at Saints Rest Sept. 2 (JGW).

A **Pomarine Jaeger** was seen during a Maine Audubon Society trip to Machias Seal Island Aug. 9. There was a **Laughing Gull** at Blacks Harbour May 21 (SIT) and 2 at Long Pond Beach, G.M., on the May 20-23 weekend (MFM), a **Common Black-headed Gull** at Évangeline May 13 (GB) and an adult **Lesser Black-backed Gull** at Lincoln Apr. 24-25 (JE).

Caspian Terns were reported at Courtenay Bay May 5 (2—JGW), Maisonnette June 5 (MD) and St. Andrews Aug. 20 (v.o.). An **Arctic Tern** was unusual inland at Mactaquac Dam May 14 (PAP). In addition to their large breeding colony at Machias Seal Island Arctics were reported from Pointe à Bouleau July 15 (HC *et al.*) and St. Andrews Aug. 20 (DSC & Majkas). An immature **Forster's Tern** was seen at St. Andrews Aug. 15-18 (David Clark *et al.*).

Two **Thick-billed Murres**, unusual in summer, were seen in Head Harbour Passage, off Campobello Island, July 28 and 31 (CD *et al.*) and another at Machias Seal Island July 9 (Maine Audubon Society—*Guillemot*).

Following the Chiasson's and Benoit's success finding **Boreal Owls** in 1988, several observers went looking for them this spring. At least 6 were found at Miscou Island (v.o.), two near Escuminac (Greg Bell, *fide* Harry Walker), and singles at Lamèque (Chiassons and Benoits), Notre-Dame-des-Érables near Paquetville (MD), and Caraquet (MD). A **Saw-whet Owl** nest with

3 young was found at Paquetville in the spring (Audard Godin).

A good-sized flock of migrant **Common Nighthawks**, 200, was seen at Saint-Léonard Aug. 5 (Gordon Pringle). A nearly adult **Red-headed Woodpecker** was seen at Mary's Point May 24 (DSC & EMM).

Two **Willow Flycatchers** were on territory at Halls Creek marsh, Moncton (SIT) and one singing at Lincoln June 14 (JE). New Brunswick's first confirmed breeding record of this recent immigrant was reported by Ron Weir who found a fledgling at Penobsquis July 19. A pair of **Great Crested Flycatchers** were "acting nesty" at Halls Creek, Moncton (SIT). Other records on the edge of this species' range came from Val-Doucet near Paquetville July 3 (MD), Tide Head (Madden *et al.*), and Clair (fledglings—BDD). Two **Rough-winged Swallows** were seen at Springfield, near Mactaquac, for about 3 weeks beginning May 7 (Donald Kimball *et al.*).

Two **House Wrens**, a species very rare in recent years, were seen at Saint John July 2 (Tom Page). The rather elusive **Sedge Wren** was heard and seen at Midgic Marsh, near Sackville, June 28 to July 2 (David Clark *et al.*).

A few **Blue-gray Gnatcatchers** often turn up during migration, as at Alma about May 20 (2—Doreen Rossiter) and Grand Manan on the May 20-23 weekend (MFM *et al.*). Rather perplexing, however, was a July observation by George Finney's father-in-law of a gnatcatcher feeding young at Sackville. Unfortunately, because he didn't realize it was unusual, he didn't mention it to George until days later, when the birds could not be relocated. The bird atlas review committee is considering the information; if found acceptable this would be the first breeding record for the Maritimes.

Mockingbirds were widely reported, including an arrival at Saint-Simon May 18 (MD). Single **Brown Thrashers** were at North Head May 21 (JGW *et al.*) and Doaktown July 6 (Harry Darrow) and Aug. 8 (Gordon Pringle). Several were seen in the upper Saint John valley through the summer, including an adult feeding a young near Edmundston July 14 (PAP & BDD).

Eastern Bluebirds continue their steady increase. Spring reports came from various southern locations and Miscou Island (CNPA). During the summer birds were nesting at Lorneville, Shepody, the Kingston Peninsula, and at least 6 locations in northwestern N.B. **Wood Thrushes** on the edge of their range were one at Saint-Simon May 26 (MD) and another at Popple Depot on the upper Nepisiguit River June 20 (DSC). Typical of Saint John valley populations were five singing at Carman Creek near Fredericton May 27 (FNC). I have no details of a most unusual **Varied Thrush** report at Machias Seal Island June 30 (Ruth Curran *et al.*); the few vagrants that reach this far east are normally seen between November and March.

Warbling Vireos were seen at Moncton (HD), up the Tobique as far as Riley Brook, up the Saint John past Edmundston (BDD), and at Tide Head (nest with young—DSC *et al.*). The known **Pine Warbler** range in southwestern New Brunswick was slightly extended by the discovery of a fledgling at Juvenile Settlement, near Hoyt (Ron Weir). A **Scarlet Tanager** at Maisonnette June 5 (MD) and a male at Laketon near Kouchibouguac June 15 (DSC) were beyond the main breeding area.

The observation of young **Indigo Buntings** being fed near Plaster Rock July 18 (BDD) is our furthest north breeding confirmation. Rob Walker's overwintering **Dickcissel** was last seen May 13, completing a 6-month stay at his feeder! A **Rufous-sided Towhee** visited a New Maryland feeder in the last week of April and first week of May (John Dublin, *fide* Rudy Stocek) and a male was at The Whistle, G.M., May 21 (JGW *et al.*).

A **Chipping Sparrow** that must have overwintered somewhere in the area appeared at a Moncton feeder in March (*fide* Doreen Rossiter). A **Clay-coloured Sparrow**, rare here, was singing daily at Saint-Simon from May 18 to June 12 (MD *et al.*); one of these days we'll find a pair nesting. Two "**Ipswich Sparrows**," the Sable Island race of Savannah Sparrow, were seen in early spring: at a Quispamsis feeder March 28 to Apr. 2 (Bill Hayward) and at St Andrews Apr. 1 (JGW *et al.*).

Eastern Meadowlarks seem to have declined in the last 10 to 15 years. Singles were reported in spring at Welsford Mar. 18 (FNC), St. Andrews Apr. 1 (CLJ & JGW), and near Norton May 7 (Orland Brown). There were fledged young in a pasture near the mouth of the Tobique in late July (BDD) and the species was also reported nesting near Knowlesville (*fide* Ford Alward).

House Finches are slowly but steadily gaining ground. Don and Alma White's feeder flock jumped to 7 by Mar. 15 and they saw adults feeding young in early June, the first proof of breeding at Moncton. Four were visiting Gayle Greer's feeder at Fredericton in March and April, a female was at Harvey, Albert Co., May 19 (RJW), and an unreported number in the northeast at Lamèque Apr. 16 (GB).

In mid-April Craig Benkman found two nests of **White-winged Crossbills** along the Plaster Rock–Renous Highway, the fourth nesting in that area since the previous summer. As seeds of the different spruces mature at different times, the crossbills had switched from feeding on White Spruce to Red Spruce and finally to Black Spruce.

An odd **Evening Grosbeak**, all yellow with white wings and tail, at Nictau was feeding normally coloured young in mid-July (Wilma Miller). The description is reminiscent of one that visited bird feeders in the Florenceville to Arthurette area a few winters ago.

Space doesn't permit extensive treatment of spring migration dates. Arrivals of some of some common species were:

Great Blue Heron—Mar. 24 Sheila (GB); Mar. 27 Albert County (Bob Thiel) and Lepreau area (Ron McCann); Apr. 1 Quispamsis (JGW).

Canada Goose—Mar. 17 Harvey (DSC); Mar. 19 Saints Rest (Barbara Gilliland); Mar. 24 Nauwigewauk; Mar. 30 Tracadie (Donald Cormier).

American Kestrel—Easter Weekend—i.e. Mar. 24-27—Fredericton area (FNC); Mar. 29 Albert (EMM); Apr. 1 Lamèque (HC); Apr. 3 Oakland near Florenceville (Ansel & David Campbell)

Killdeer—Mar. 17 Saint John Airport (CLJ); Mar. 18 St. Andrews (FNC); Mar. 24 Shepody (JGW); Easter Weekend Fredericton area (FNC); Mar. 27 Saint John

(Mark Phinney), Bayswater (Frank & Mitzi Withers), Oakland (Campbells), Tracadie (Norbert Austin).

Ruby-throated Hummingbird—May 16 Hammond River (JGW); May 17 Mary's Point (DSC); May 18 Penobsquis (DSC); May 19 Bayswater (Ruth Stevens), Pancake Hill near Hardings Point (Allen Gorham), Paquetville (Roland Robichaud); May 23 Oakland (Campbells).

Horned Lark—Mar. 4 Mactaquac (David Myles); Mar. 8 Sussex (Harriet Folkins); Mar. 13 Caraquet (Rosita Lanteigne)

Tree Swallow—Apr. 7 Hampton (JGW); Apr. 17 Westfield (CLJ); Apr. 21 near Hopewell Cape (DSC & EMM); Apr. 26 Rivière à la Truite (Jean-Yves Paulin); Apr. 29 Oakland (Campbells)

American Robin—Mar. 13 near Hopewell Cape (anon.); Mar. 15 near Bayswater (Withers); Mar. 18 Lorneville (Barbara Gilliland), Oakland (Campbells); Mar. 24 Rothesay (Phinney), Hammond River (JGW); Easter Weekend Fredericton area (FNC)

Yellow Warbler—May 15 Oakland (Campbells); May 17 Hammond River (JGW); May 20 St-Simon (MD); May 21 Bayswater (M. Withers)

Yellow-rumped Warbler—Apr. 21 Alma (Rossiter); Apr. 27 Pancake Hill (Allen & Janet Gorham); Apr. 30 near Nauwigewauk (JGW); May 2 St-Simon (MD); May 4 Oakland (Campbells)

American Redstart—May 17 Hammond River (JGW), Paquetville (Robichaud); May 21 Oakland (Campbells)

Rose-breasted Grosbeak—May 15 Oakland (Campbells), Pancake Hill (Gorham); May 16 near Hillsborough (Mary Fownes); May 17 Mary's Point (DSC), Village Blanchard near Caraquet (MD)

Song Sparrow—Mar. 24 Alma (JGW); Mar. 26 Caraquet (J-P Godin); Mar. 29 Renforth (Mary Ross), Saint John David Smith); Mar. 31 Oakland (Campbells)

Red-winged Blackbird—Mar. 14 Tracadie (GB); Mar. 15 Fredericton (Don Gibson); Mar. 17 Harvey (DSC); Mar. 18 Oakland (Campbells), Belmont, Saint John (Anne Mowatt); Mar. 22 Fredericton (Gayle Greer); Mar. 27 Bayswater (Withers)

Common Grackle—Mar. 17 Saint John West (CLJ), Mary's Point (DSC), Tracadie (Desanges Doiron); Mar. 22 Hammond River (JGW); Easter weekend Fredericton area (FNC); Mar. 27 Bayswater (Withers) & Oakland (Campbells); Mar. 28 Fair Vale (Win MacAndrews)

A few particularly early arrivals were:

Common Snipe—Mar. 18 St. Andrews (FNC), Lepreau area Mar. 27 (McCann), Rivière à la Truite Mar. 31 (Jean-Yves Paulin)

American Woodcock—Mar 18 Letete & St. Andrews (FNC)

American Wigeon—Mar 30 Saints Rest (CLJ)

Blk-cr. Night-Heron—Apr. 6 Tabusintac (GB)

Belted Kingfisher—Apr. 10 Rivière à la Truite (Paulin)

Blue-winged Teal —Mar. 26 Courtenay Bay (Phinney)

Gannet —Apr. 2 Four Roads (GB & HC)

Hooded Merganser—Mar. 28 Lepreau (Ron McCann); Mar. 30 Lakeville Corner (Phinney).

Least Sandpiper—May 9 Lamèque (HC)

Ovenbird—May 3 near Hardings Pt (Gorhams)

Ruby-crowned Kinglet—Apr. 12 Rivière à la Truite (Paulin)

Red-eyed Vireo—May 10 Hardings Point (Gorham) and Oakland (Campbells)

Ring-necked Duck—Mar. 16 Courtenay Bay (JGW)

Shoveler—Mar. 30 Saints Rest (CLJ)

Sora—Apr. 23 Mary's Point (MFM)

Swainson's Thrush—May 3 near Lamèque (HC).

Amphibians, Fishes and Flora

Cool April weather retarded the calling of frogs. I didn't notice **Wood Frogs** at Mary's Point until Apr.30, and the SJNC *Bulletin* mentions Wood Frog May 1and **Spring Peeper** May 3 at Pancake Hill (Gorhams).

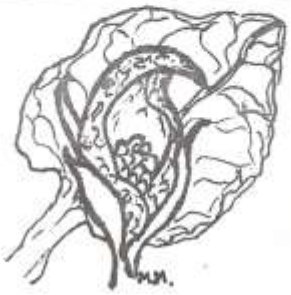
A **Blue-spotted Salamander** discovered during the "Spring Peep" amphibian field trip May 6 at Fundy National Park was the first record of that species in the park, despite considerable herpetological field work done there over the years. That evening lots of Wood Frogs, Spring Peepers and Spotted Salamanders were seen, as well as a few Red-spotted Newts (RJW).

Quite large schools of **Menhaden** entered the St. Croix and Petitcodiac rivers during the summer, followed later by **Bluefish** which were causing the menhaden to break water frantically (v.o.).

Cecil Johnston reported the first spring flower, four blossoms of **Coltsfoot** at Saint John March 17, and later **Skunk Cabbage** blooming at Hammond River Apr. 4. Along with Helen Brown, Cecil found a new location for one of our introduced vetches, *Vicia sepium*, near Westfield. A colony of our only introduced orchid, *Epipactis helleborine*, was found in woods near Dalhousie Junction in late **July** (DSC), possibly the first record for northern New Brunswick.

Abbreviations and Observers

BDD	Brian Dalzell	HD	Halton Dalzell
CD	Charles Duncan	JE	Jim Edsall
CLJ	Cecil Johnston	JGW	Jim Wilson
DSC	David Christie	MD	Marcel David
EMM	Mary Majka	MFM	"Mike" Majka
et al.	and others	PAP	Peter Pearce
fide	according to	PW	Peter Wilshaw
GB	Gérard Benoit	RJW	Rob Walker
G.M.	Grand Manan	SIT	Stuart Tingley
HC	Hilaire Chiasson	v.o.	various observers
FNC	Fredericton Nature Club	SJNC	Saint John Naturalists' Club
CNPA	Club des naturalistes de la Péninsule acadienne		



Federation News

1989 Annual General Meeting

This year's annual general meeting took place Sept. 1-3 in Sackville, a wonderful place to meet. Many of us remember the very successful Canadian Nature Federation conference we held there in 1983. This time our hosts, the Chignecto Naturalists' Club, really outdid themselves in hospitality and care for the smallest detail.

Our meeting took place in the Saint Paul's Anglican Church Hall, which faces the picturesque swan pond. Besides that an added attraction is the Sackville Waterfowl Park situated right next door to the church. The park, created just recently, nicely represents the relationship of the Sackville area to the surrounding marshes and their wildlife.

The weather was not promising on Friday. As we started for the meeting it was pouring and success of the many field trips scheduled was in doubt. But no matter that evening; we had to attend to the serious business of reports on federation activities, as well as from the federated clubs.

Our president informed us about progress made in several areas of wildlife conservation. The treasurer reported on our financial state, which is rather weak. Members were informed that clubs would in future pay $1 per member to the federation to support the work of our organization.

Several clubs, such as last year's A.G.M. hosts, the Club des naturalistes de la Péninsule acadienne, are obviously very active and thriving. Other reports revealed that quite a bit of work has been done towards protection of the Piping Plover on the North Shore, thanks to the efforts of Roland Chiasson. Ensuing discussion was directed towards the federation's changing priorities, namely from pure observers of nature to defenders of the environment.

Although it was still raining, a surprising number of brave souls ventured out with Hinrich Harries and Sandy Burnett to have a closer look at the waterfowl park early on Saturday morning. Later, as everybody gathered for the field trip to Cape Jourimain the skies started to break and we had glorious sunshine for the rest of the day! Interesting sightings included a good variety of shorebirds and ducks, a couple of Parasitic Jaegers chasing the terns and an assortment of interesting plants.

On our return to Sackville, our hosts had a tremendous banquet set for us, followed by a very thought-provoking talk by George Finney, Atlantic Region director of the Canadian Widlife Service. Sunday morning we had the choice of two field trips, one led by Con Desplanque to Joggins to view the fossils and later to Amherst Point MBS. The other field trip went to Dorchester Cape and Rockport and was led by Paul Bogaard and Peter Hicklin[1].

If we had any complaints about the weekend, it could only have been that the Chignecto Naturalists' had overfed us and generally spoiled us rotten, for which we are really very grateful. (It doesn't hurt to be pampered once in a while.) — Mary Majka.

Stirrett Prize Announced

Recipient of the George Stirrett Memorial Prize for the best natural history writing published in Volume 16 of this magazine was announced at the annual meeting. The winner was Dr. Mary Young for her article on the pitcher-plant, "The Most Curious Pitcher," published in Vol. 16, No. 2. Congratulations, Mary!

Students Employed at Shepody N.W.A.

During the summer, under a Challenge '89 Student Employment Project grant, the federation employed Sally MacPherson, a biology student at the University of Prince Edward Island, and Gary Woodworth, an education student at U.N.B., as warden-interpreters at Shepody National Wildlife Area.

Their principal task was meeting the many visitors who come to Mary's Point to watch the shorebirds at high tide, explaining the migration story and ensuring that no one disturbed the birds. In addition they maintained various facilities—trail and parking lot, pamphlet supply, visitor book, exhibits, outhouses, bulletin board, an exhibit of beachcomber's finds, and the "bird clock," an adjustable "clock" to show visitors when birds were roosting at the beach, and they carried out a number of general cleanups of the beach.

They also assisted the Canadian Wildlife Service in building an outhouse, preparing a concrete footing for the hemispheric shorebird monument, and cleaning a 7-km hiking trail in the Germantown section of the N.W.A..

We provided supervision and training, which eventually freed us from spending four hours daily at the shorebird roost and attending to cleaning and maintenance duties, which were especially necessary in this year of heavy visitation.

Mary Majka and David Christie

[1] Many of us have benefited from the enthusiasm and dedication of Peter Hicklin, a wonderful naturalist with an infectious smile. It will be therefore a shock to all those who know Pete to hear that he had a very serious accident just a few weeks ago. Spending some time this winter in Suriname to study shorebirds Peter stepped into the path of a truck. Peter is recovering now in the Moncton Hospital where he was transported from South America. I'm sure that everyone of us would want to wish him speedy recovery and very special warm wishes at Christmas.

Environment Week Projects

The Federation joined with The Nature Trust of New Brunswick and the Fredericton Botanical Garden in sponsoring the production of a 30 second video message concerning the protection of natural areas in New Brunswick. Funded by Environment Canada's National Environment Week Program, the video was distributed to TV stations for use as a public service announcement during Environment Week in June, and possibly at later dates.

The Fredericton Nature Club received funding to publish *A Nature Guide to Fredericton and Vicinity*, a 30-page booklet describing twelve interesting natural areas, within a 50 km radius of the capital city. Several hundred copies were distributed to area science teachers, libraries, scout groups, travel information centres, etc. As long as the supply lasts, individuals can obtain one for $1.50 mailing charges by contacting Gayle Greer (tel. 454-4051).

Among other projects awarded Environment Week funding was publication by the Fundy Guild, Inc. of *A Teacher's Handbook to Fundy National Park: Guided Events with Park Interpreters*, a guide for teachers taking class field trips to the park.

Coastal Cleanup

This September, for the first time, New Brunswick took part in an activity that has been held for several years along the coast of the United States. Coastal Cleanup is at least a partial solution to an increasingly severe global problem—pollution of the sea and its shores. For centuries all sorts of rubbish and waste has been thrown into the oceans, which seemingly "could take it all." With the increasing population and industrialization of our century this dumping is no longer acceptable.

New Brunswick's contribution to a cleanup of the Gulf of Maine – Bay of Fundy system (it also involved Nova Scotia, Maine, New Hampshire and Massachusetts) came from three areas: Saint John, Grand Manan Island and Albert County. The amount of garbage was, to our minds, staggering. (On eight Albert County beaches, for example, over 300 large garbage bags were filled; plastics accounted for 76% and glass, some of which was recycled, 14%.) As one Saint John participant put it, "Each of us can do a little to improve our world, but together we can move mountains—of trash!"

In reality of course, this was just a tiny stab at the symptoms of a huge marine pollution problem. Because each tide washes more garbage ashore, the surrounding publicity probably did more long-lasting good, by awakening the public conscience and educating people, especially the young (several youth groups and school classes took part).

Next September we plan a bigger and better campaign. For more information contact Kim Saunders at the New Brunswick Museum, 277 Douglas Avenue, Saint John, N.B. E2K 1E5; tel. 658-1842.— Mary Majka

Sustainable Development for New Brunswick

Formed by Premier McKenna, The Premier's Round Table on Environment and Economy has as its objective developing a strategy to ensure that economic development is carried on in a manner based on long-term sustainability and protection of the environment. "Sustainable development would ensure that all species of plants, animals and other living things are protected," states the Round Table Task Force on Sustainable Development.

For our economy to be sustainable, we in New Brunswick will have to make a tremendous effort to balance development against prevention of such damaging influences as pollution of air, water and land. It means that we as citizens will likely have to sacrifice some of our very high standard of living and some of the traditional ways of life. There really is no other alternative. Would we want to see our province's development proceed in a haphazard manner and in the process lose the unspoiled natural aspects of New Brunswick that we are so proud and happy about.

Planning for the future of our province is not an isolated event but rather part of a global movement that follows from the work of the World Conservation Strategy Meeting and the World Commission on Environment and Development. Canada has a national task force, and strategies are being developed in every province.

The very ambitious New Brunswick process will proceed from initial public consultations between November 1989 and January 1990, through sectoral group reports between Feb 1990 and September 1990 and a draft strategy presented at another round of public consultation in March 1991. A sustainable development strategy to be presented to the Premier in January 1992 should ultimately be adopted by our provincial legislature.

What does the sustainable development strategy mean for us as naturalists? It means that we can, as individuals and as a group, contribute to the development of plans that will safeguard the natural environment of our province, protect vulnerable species and places and map out the ways in which the industrial development, such as forestry and mining, will be carried out. The development strategy will help protect that which is dear to us as naturalists.

The public hearings have already started. Some individuals as well as representatives of the federation are presenting briefs. We urge you to attend those meetings and encourage you to present either your own or your club's views. To get an information kit write to the Premier's Round Table on Environment and Economy, Dept. of the Environment, P.O. Box 6000, Fredericton, N.B. E3B 5H1, or telephone 453-3703 (collect).

— Mary Majka

Christmas Bird Count Dates

The 1989-90 Christmas Bird Count period, set by the National Audubon Society, extends from Saturday, December 16 through Wednesday, January 3.