19 (3) October / octobre 1992

N. B. Naturalist
Le Naturaliste du N.-B.

New Brunswick Federation of Naturalists **La Fédération des naturalistes du Nouveau-Brunswick**
277 avenue Douglas Avenue, Saint John, N.B. E2K 1E5 Canada

The federation is a non-profit organization formed in 1972 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 encourager une meilleure compréhension de l'environnement naturel, et pour éveiller le souci pour le patrimoine naturel du Nouveau-Brunswick.

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N.B. Naturalist / Le Naturaliste du N.-B. ISSN 0047-9551

Published quarterly by the N.B. Federation of Naturalists, c/o New Brunswick Museum, 277 Douglas Ave., Saint John, N.B. E2K 1E5. Publication Mail Registration No. 7078. Return postage guaranteed. Send notice of change of address to the treasurer. Subscription rates: in Canada C$15; other countries C$20; single issues C$3 a copy, plus postage.
N.B. Naturalist carries articles and reports pertaining to the natural history of New Brunswick. Articles are invited in either English or French, and will be printed in the language in which they are received. The opinions expressed are those of the authors. Contributions should be sent to the respective editors. Ask for details of computer compatibility. Advertising rates available on request.

Cette publication trimestrielle est éditée par la Fédération des naturalistes du N.-B., a/s Le Musée du Nouveau-Brunswick, 277 ave. Douglas, Saint John, N.B. E2K 1E5. Enregistrée comme courrier de poste-publications no 7078. Port de retour garanti. Abonnements: au Canada 15$; aux autre pays 20$. On peut se procurer cette revue à 3$ l'exemplaire plus les frais postales.
On peut lire dans *Le Naturaliste du N.-B.* des rapports touchant l'histoire naturelle du Nouveau-Brunswick. Les articles seront acceptés en français ou en anglais pour être reproduits dans la langue d'origine. Les opinions exprimées sont celles de leurs auteurs. Prière d'envoyer vos articles aux directeurs. Demandez les détails de compatibilité d'ordinateur. Tarifs publicitaires disponibles sur demande.

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On the Cover / Sur la couverture

Silver-rod / Verge d'or bicolore by / par Bruce Bagnell; Viceroy / *Basilarchia archippus* by / par Mary Majka.

Our Volunteers / Nos volontaires

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Illustrations: Bruce Bagnell (Gardner Creek), Brian Dalzell (Castalia), Hilaire Chiasson, Jean-Raymond Gallien (Blanchard Settlement), Cecil Johnston, R.H. London, Mary Young;
Editing / réduction: Rose-Aline Chiasson (Lamèque), Stephen Clayden, Jim Goltz (Fredericton), Michelle Larsen (Albert); and
Jacks-of-all-trades: David Christie and Mary Majka.

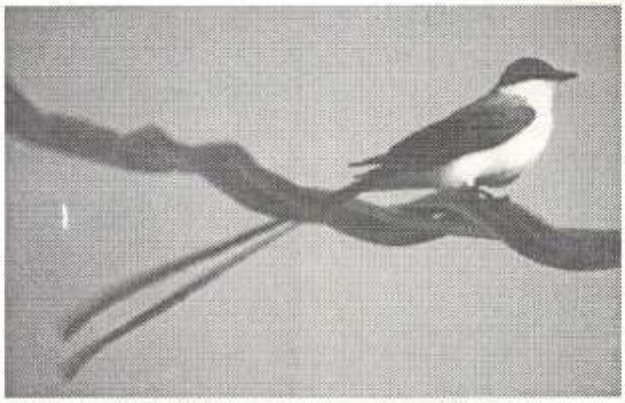
Un oiseau d'Amérique latine en visite chez nous

Donald Deschênes

Vendredi, le 9 octobre dernier, Gilles Daigle, un photographe de la flore et de la faune bien connue de Saint-Anselme et moi, un observateur d'oiseau bien mordu de Moncton, nous roulions sur la route 915, au sud de Riverside-Albert, en quête d'oiseaux à photographier. Quelle ne fut pas notre surprise d'apercevoir en fin d'avant-midi une espèce d'hirondelle avec une queue extraordinairement longue perchée sur un fil électrique. Je fis alors signe à Gilles d'arrêter et lui fis immédiatement part de ma découverte. Alerte comme pas un, Gilles arma sa caméra, m'intima de me taire et prit une douzaine de photographies, les premières, semble-t-il, à être prise de cet oiseau au Nouveau-Brunswick.

Après vérification dans mon Peterson aux coins écornés, je découvris à la page 301, dans les espèces tropicales exceptionnelles, que nous avions en face de nous un Tyran à queue fourchue (Fork-tailed Flycatcher, *Tyrannus savana* Vieillot). Pas de doute possible.

Nous n'avons pas tardé à signaler l'oiseau à la ligne des oiseaux rares (1-450-DUCK). Dans les 24 heures qui suivirent, plus d'une cinquantaine d'observateurs d'oiseaux et d'ornithologues se sont déplacés pour le chasser avec leurs lunettes d'approche et leurs caméras.



Le Tyran à queue fourchue à New Horton *Photo: Cecil Johnston*

Ce moucherolle de la taille d'une hirondelle possède une queue noire de 20 à 25 cm de longueur et ressemble à son cousin le Tyran à longue queue, sans posséder toutes ses belles couleurs. Il a le dessus, les côtés de la tête et la nuque noire, une petite tache jaune camouflée sur le dessus de la tête, le ventre blanc et le dos et les scapulaires gris. Son vol est court et ressemble à celui du papillon. Au vol, il a la queue en V, contrairement au Tyran à longue queue dont les deux pointes de la queue ouvrent et ferment à la manière de lames de ciseaux, d'où son nom anglais.

Le Tyran à queue fourchue se rencontre dans le sud du Mexique, en Amérique centrale et en Amérique du Sud, jusqu'au centre de l'Argentine. On l'observe très rarement aux États-Unis et au Canada. Son habitat comprend les zones dégagées comme les régions cultivées et les forêts clairsemées. Il se perche sur le faite de petits arbres, sur les clôtures, sur le toit des maisons et sur les fils électriques. Il se nourrit d'insectes, de baies et de petits fruits en saison.

Le Tyran à queue fourchue a été photographié pour la première fois au Canada à Halifax le 26 septembre 1970. Il a été vu 8 fois en Nouvelle-Écosse. Ici, au Nouveau-Brunswick, il a été vu pour la première fois en novembre 1977 à Grand Bay, près de Saint-Jean. Ce serait la troisième fois qu'il est vu dans la province.

Au même moment, il y avait, sur la berge sud de la Petitcodiac, en face de Riverview, une Avocette d'amérique, un oiseau qui vient du sud-ouest du Canada et de l'ouest américain. Comme c'est souvent le cas, on peut supposer que ces deux oiseaux furent entraînés ici par les forts vents qui se sont abattus tout dernièrement sur Terre-Neuve.

From the Editors

Yes, we're far behind schedule, but working hard to catch up again. Please bear with us.

In this issue we have tried a half dozen scanned photographic halftones. They look quite good in the copy we're sending to be printed, but deteriorate if we photocopy them. We're keeping our fingers crossed that they will be satisfactory in the magazine. If there are reproduction problems we will endeavour to make adjustments in the next issue.

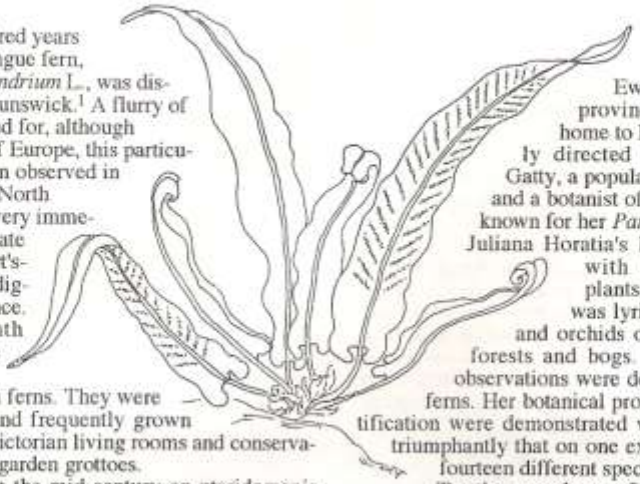
In any case, take note that we are now willing to use photographs (prints, but not transparencies) and a broader range of artwork than just the pen and ink drawings we have traditionally included.

So, in addition to sending in articles and reports, please think also of illustrations for them.

David and Mary

Pteridomania

C. Mary Young



It is over one hundred years since the Hart's-tongue fern, *Asplenium scolopendrium* L., was discovered in New Brunswick.[1] A flurry of excitement followed for, although common in parts of Europe, this particular species had been observed in very few places in North America. Its discovery immediately led to a debate on whether the Hart's-tongue fern was indigenous to the province.

The nineteenth century in Europe witnessed an amazing interest in ferns. They were widely collected and frequently grown for decoration in Victorian living rooms and conservatories as well as in garden grottoes.

In Britain from the mid-century on pteridomania (the fern craze) led to the wholesale collection of ferns from the countryside. Collectors swept into remote parts to ferret out the last remaining specimens of desirable varieties. These were sent for sale to the larger centres and to the main market in London to the detriment of several species of British ferns.

The invention of the Wardian case in 1829 made it possible for ferns to be exploited commercially as house plants. A London doctor and naturalist, Nathanial Bagshaw Ward, when studying the metamorphosis of a moth, inadvertently introduced a developing fern into the closed jar. It thrived and in a series of further experiments he sent plants on the long voyage to Australia. They also thrived.[2] He had serendipitously discovered a container that the indoor gardener could use to provide ideal conditions for plant growth.

An advance in botanical knowledge also contributed to the fern craze. Robert Morison, a British botanist, had described the sexual and asexual forms of the Royal fern and of the Hart's-tongue fern as early as 1699 but it was the mid-nineteenth century before the non-flowering plants - the cryptogams - received much attention.

William Hofmeister, a German botanist, discovered that the familiar fern plant, known as the sporophyte, produced spores which, after falling on a suitable substrate, developed into small insignificant-looking thalloid plants—the gametophytes. The gametophytes produced male and female sex cells. The motile sperm required a film of water to swim to the egg cells. After union a sporophyte once again developed. There was therefore an "alternation of generations" each of which required specific conditions for growth and development.

The infectious enthusiasm for ferns in Europe soon touched New Brunswick. Between 1867 and 1869 the writer Juliana Horatia Ewing was living in the province. Letters she wrote home to Britain were particularly directed to her mother, Mrs. Gatty, a popularizer of natural history and a botanist of some distinction, well known for her *Parables from Nature*.[3] Juliana Horatia's letters were sprinkled with descriptions of the plants she was finding. She was lyrical about the trilliums and orchids of the New Brunswick forests and bogs. Scattered among her observations were descriptions of different ferns. Her botanical prowess and skill in identification were demonstrated when she wrote home triumphantly that on one expedition she had seen fourteen different species of ferns.

To the members of the Natural History Society of New Brunswick, the discovery of a plant new to the province was always cause for excitement. Their enthusiasm rose to a crescendo with the report of the Hart's-tongue fern at Woodstock in 1882. Peter Jack, a fern enthusiast, and cashier of the People's Bank in Halifax, was visiting New Brunswick. He was shown the fern by Mrs. Charles Connell's gardener, James Sutton, who claimed to have found the plant growing nearby in the wild. Four years later the New Brunswick Natural History Society received other specimens from Peter Jack who in turn had received them from Miss Connell of Woodstock. According to Peter Jack these were of a named variety of the Hart's-tongue fern.[4]

A further report of the discovery of the Hart's-tongue fern along the Restigouche River by two teachers, John Brittain and Phillip Cox in 1893, appears not to have received much attention.[5]

It would seem to have been on the basis of the Woodstock observations that Professor Fernald of Harvard listed the Hart's-tongue fern as native to New Brunswick in his edition of *Gray's Manual of Botany* in 1955. Fernald distinguished two varieties, an American and a European, separated by small details

1 G.U. Hay. 1883. Botany of the Upper St. John. *Bull N.B. Nat. Hist. Soc.* II: 30

2 *The New Royal Horticultural Society Dictionary of Gardening*. 1992. 4: 685

3 Margaret Howard Blom & Thomas E. Blom. 1983. *Canada Home, Juliana Horatia Ewing's Fredericton letters, 1867-1869*. The University of British Columbia. 425 pp.

4 Report of the committee on Botany, *Bull. N.B. Nat. Hist. Soc.* 1886. V: 44.

5 G.U. Hay. 1893. The Flora of New Brunswick, *Trans. Roy. Soc. Canada*. ii, sect. IV: 48.

of structure and particularly by the extent of the extremities of the leaf veins. (See article by Hal Hinds, this Journal, vol. 12, No. 1, 1983.)

A recent American flora also accepts the New Brunswick record.[6] Canadian botanists, however, have uncovered evidence which they regard as proof that the Woodstock Hart's-tongue fern was of the European variety.[7]

Whether the Hart's-tongue fern discovered at Woodstock was of the American or European variety is for botanists to decide. It is certain, however, that this fern has not been recorded from the wild in New Brunswick in the last one hundred years. The American variety does occur at few stations in Ontario and in the United States but owing to inappropriate collecting and disturbance of its habitat by man it was added to the U.S. official threatened species list in 1989.

Perhaps the enduring lesson from pteridomania in general is that the removal of rare plants from the wild or interference by man often leads to their extinction.

6 Henry A. Gleason and Arthur Cronquist. 1991 *Manual of the Vascular Plants of Northeastern United States and Adjacent Canada.* New York Botanical Garden, New York. p. 21.

7 H.J. Scoggan. 1978. *Flora of Canada.* National Museum of Natural Sciences, Publication in Botany, No. 7, 2:165

Birds and Budworms

Rob Walker

In 1992, Fundy National Park was the focus of a survey of breeding birds. This research effort was aimed at revealing the changes in the park's bird population in the last 13 years and at providing clues as to how our actions in and outside the park have affected them.

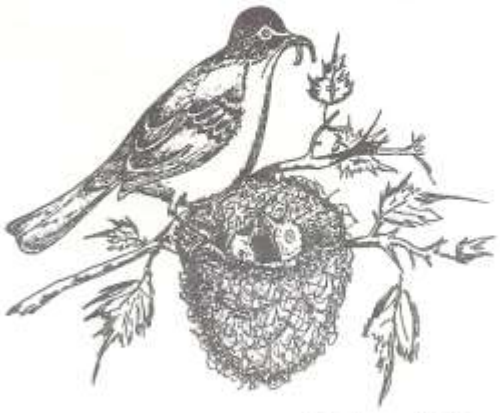
David Christie, the chief researcher involved in the park's 1979 breeding bird survey, undertook the new survey using the same plots and transect lines. The counts revealed that the biggest changes were among the colourful forest birds known as warblers. In 1979, 21 species of warblers accounted for three-quarters of the estimated 106,000 pairs of birds breeding in the park. The insect-eating warblers were benefiting from a population explosion of the spruce budworm, a small moth whose larvae feed on the needles of fir and spruce.

In Fundy National Park the spruce budworm outbreak lasted from 1968 until 1982. Breeding populations of songbirds can double during such an outbreak, but often are followed by an equally spectacular population crash—one of the northern forest's many natural cycles. By 1992, 16 of 21 warbler species had decreased significantly, particularly those known collectively as the "budworm warblers." The Tennessee Warbler, for example, declined from a 1979 high of 690 males in the survey areas to a low of 14 in 1992, a 98% reduction in numbers.

As we enter the 1990s there is particular concern for the migrant songbirds whose winter homes are the tropical forests of South America, Central America and the islands of the Caribbean. Fundy's 1992 survey presents a striking comparison of two closely related species which summer here: the Hermit Thrush and the Swainson's Thrush. The Hermit Thrush showed a 44% increase between the two surveys, the Swainson's Thrush a 47% decline! The difference: the Hermit Thrush winters from Mexico northward to the southern States, but the Swainson's Thrush winters in South and Central America. The Swainson's Thrush may be suffering from the impact of forest clearing in its winter home in countries which have lost more than 50% of their forests in the last 30 years.

The 1992 breeding bird survey brought good news too! A dense and rapidly growing young forest has covered most of the scars of the spruce budworm outbreak, providing excellent shelter and nesting habitat. Weakened by budworm defoliation, the spruce and fir trees produced almost no seeds from 1975 to 1988; the survivors now produce quantities of cones. These changes are mirrored in the thriving populations of bird species which both nest and winter in the park: Black-capped Chickadees increased to 20 times their 1979 numbers, while Red-breasted Nuthatches increased to 12.5 times and Golden-crowned Kinglets to 6 times.

A spring survey of breeding bird populations will continue annually, to allow us to monitor species which may require special measures to ensure their survival. Starting in 1993, birdwatchers are being invited to participate in surveys of selected areas of the park during the first two weekends in June.



Jean-Raymond Gallien

Mount Ararat Wildlife Management Area

Cecil Johnston

R. H. London

On June 24, I was pleased to represent the New Brunswick Federation of Naturalists at the dedication ceremony for the Mount Ararat Wildlife Management Area. This area is a 380-ha (938-acre) wildlife refuge located on Gagetown Island in the St. John River, adjacent to the village of Gagetown. It is to be operated as a provincial wildlife management area under private agreement with Chet and Helen Campbell, the owners of the island.

Just prior to boarding a cattle barge with about sixty other people, I had the pleasure of meeting the Campbells, and Helen was kind enough to lend me her hat as a shield against the many ravenous mosquitoes. Although it wasn't commented upon, it was obvious that her abundance of hair, and my lack of it, made me the obvious target. The barge, propelled by a motor boat, proceeded to Gagetown Island. The voyage was a pleasant one, the sun was bright, and the breeze kept the mosquitoes at bay.

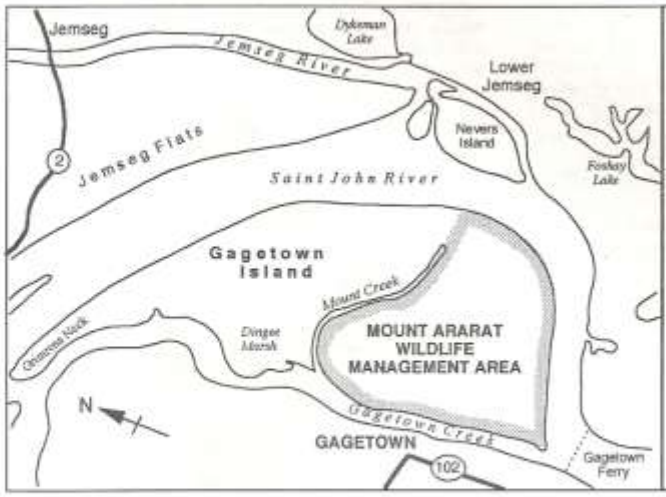
Arriving at the island, we boarded two flat-bed trailers and sat on bales of hay, while a tractor hauled us to our destination, about one mile distant. The island is a naturalist's delight, with bird song from every side and a profusion of wild flowers. I became an instant expert after identifying Sand Spurrey and Grove Sandwort.

The dedication ceremony got underway with an informal address by the Honorable Alan Graham, Minister of Natural Resources and Energy. He explained the agreement between his department, other provincial bodies, Ducks Unlimited, and the Campbell family.

A representative of Ducks Unlimited pointed out the many factors that make this refuge ideally suited as a staging area for waterfowl during the fall months, in addition to providing prime breeding habitat.

In his response to these speakers, Mr. Campbell told us that he, his wife and family love this part of New Brunswick. The people of our Province are to be congratulated on the receipt of this gift from the Campbell family. This area can be enjoyed now, and for generations to come, because of their generosity. At the close of the dedication, Mr. Campbell and family unveiled a beautifully mounted plaque that describes their involvement in this project.

Soon after the ceremonies, we journeyed back via hay ride and cattle barge to our point of embarkation. We then proceeded to the Steamer Stop Inn at Gagetown, where we all enjoyed a superb dinner. The coconut cream pie was the best I have ever eaten.



Mount Ararat Wildlife Management Area

Named for pre-1820 Mount Ararat Farm; ruins of the stone Mount House still stand on the island.

380 hectares of floodplain habitat, including 121 ha impounded to retain spring flood waters and rainfall. Hardwood trees provide cavity nest sites.

Undisturbed staging area for waterfowl during migration; up to 3000 have been seen in fall.

More than 75 broods of ducklings produced annually; main breeders are Black Duck, Blue-winged Teal, American Wigeon, Wood Duck, Common Goldeneye and Ring-necked Duck.

Piping Plover Conservation—Acadian Style

Mark Stabb[1]

A campaign to protect Piping Plovers received a third year of support from the James L. Baillie Memorial Fund in 1992. The intensive education and conservation effort is showing results, and is a model for community-based wildlife conservation.

The Piping Plover is endangered in Canada, a victim of habitat loss and nest disturbance. The plovers nest on sandy beaches. Most of these are privately owned, or are public lands that are magnets for recreation. Protecting Piping Plovers means convincing people to tread lightly on this beach habitat. The 1991 International Piping Plover Survey showed that New Brunswick harbours more Piping Plovers than any Atlantic province, and that the Acadian Peninsula—with about 50-60 breeding pairs—has the most unprotected habitat.

From 1990 through 1992, the Baillie Fund awarded grants to Roland Chiasson, Sabine Dietz and their colleagues to help pro'ect Piping Plovers on the Acadian Peninsula. Their work has also been supported by grants to the N.B. Federation of Naturalists from the Endangered Species Recovery Fund and the Environmental Partners' Fund and to the Club des Naturalistes de la Péninsule Acadienne from Employment and Immigration Canada.

All-terrain vehicles and recreational use of beaches are major threats to Piping Plovers throughout their range. Conservation efforts must involve people management. However, "intensive management of either the birds or humans is impossible, too costly and too imposing on the local people," reports Chiasson. His prescription was to work with local people as much as possible, and to use education as the ground work for all other conservation measures.

Chiasson and Dietz developed an awareness campaign that involves public information and educational materials, landowner contact and school programs. They forged links with local naturalists and government biologists. Signs were posted and nesting sites were cordoned off.

Through beach kiosks, school presentations and field trips, involvement in festivals and other approaches, the program has reached thousands of people each year; 5000 were personally contacted in 1991 alone. This was coupled with radio interviews and feature articles. The results? "Some students have told us that their families don't walk on beaches that have Piping Plover interpretation signs. School students spoke out in defense of Piping Plovers on local television and radio. All-terrain vehicle use has notably declined," says Chiasson.

Originally emphasizing Piping Plover conservation, the project evolved to 'Coastal Rehabilitation Côtière' to encompass coastal environments and Acadian culture and natural history. "From the beginning, we tried to associate the survival of Piping Plovers with the cultural survival of the Acadians, thus the reason for the Acadian flag in our promotional materials." This has been a successful and very appropriate image which, say Chiasson and Dietz, has increased interest in conservation on the peninsula.

Program staff , who are hired and trained locally, survey and monitor nests and contact landowners. This peer approach has proven successful with coastal seabird projects elsewhere in Atlantic Canada. Their results, and their contacts with government, have stimulated further action. Moves are now afoot to acquire a portion of the beach for a Piping Plover reserve and a proposed interpretive centre.

Not all has been rosy, however. Information signs have been shot or otherwise vandalized. Beach dredging and ATV-use are ongoing problems. One local person displayed a collection of shorebird wings on his property, presumably to protest regulations that restrict access or hunting in beach areas.

"We believe that after four years of this project, we can really see some success, and can measure to a small extent the impact we are having," reports Chiasson. Mary Majka of the N.B. Federation of Naturalists is not so conservative: "Over the years, the program Roland and Sabine have developed has proven to be an effective way to help the recovery of this endangered species. Not only are the birds protected, but the educational program is helping youngsters understand and appreciate the measures taken. They are helping a generation grow up with improved attitudes towards protection of their environment."

Conservation is always a challenge when you are not preaching to the converted. This makes the excellent work and dedication of Chiasson, Dietz and other Acadian naturalists all the more commendable. They are an important part of a new chapter in Canadian bird conservation. LPBO's Baillie Fund grants totalling $3000 supported portions of this very worthwhile project. We only wish that there were more funds available to support their work.

For more information, contact Roland Chiasson or Sabine Dietz, Box 115, RR 2, Tabusintac, N.B. E0C 2A0.

1. Secretary, James L. Baillie Memorial Fund.

From The Pages of the Journals

Monarchs, Viceroys and Queens: Who's the real pretender to the throne?

Christopher Majka

The mysteries of mimicry had a special attraction for me. Its phenomena showed an artistic perfection usually associated with man-wrought things. ..."Natural selection," in the Darwinian sense, could not explain the miraculous coincidence of imitative aspect and imitative behavior ... carried to a point of mimetic subtlety, exuberance, and luxury far in excess of a predator's power of appreciation.

– Vladimir Nabokov

Biology, like any scientific discipline, is undergoing constant revision and alteration in the face of new findings and results. Seldom, however, is the apple cart completely upset, rolling previously well-established doctrines helter skelter. Such is currently the case with the delightful and fascinating phenomenon of mimicry.

Henry W. Bates, the English naturalist and explorer spent a decade in the middle of the last century wandering the jungles of the Amazon avidly pursuing what biologist Richard Lewontin has called "the genteel upper-middle-class fascination with snails and butterflies." Nevertheless, the fruits of his explorations, published in the venerable *Transactions of the Linnaean Society* in London in 1862[1], gave rise to a whole new sub-discipline of zoology—mimicry.

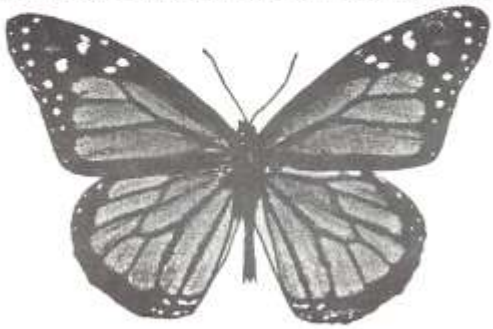
Bates captured over a hundred species of Heliconian, Ithomid and Pierid butterflies, many of which, though they came from different lineages, showed a striking resemblance to one another. The theory, as elaborated by more recent findings, runs somewhat along these lines. Certain butterflies (models) have evolved a chemical defense system against predation. They have also evolved a distinctive colouration—a warning flag if you like—to warn off possible predators. Experiments confirm that birds, after they have once attacked such a butterfly, will be much less likely to try eating it again.

Some other species (mimics) imitate this colouration. In other words, by resembling the unpalatable species they avoid predation by animals that have learned the warning signal. This has some inherent disadvantages for: "Bluff, with no stick to wield when challenged, is a risky sort of defense." If there are more mimics than models then potential predators get conflicting information, or even take the 'warning flag' for a 'dinner bell.'

Further support for this theory came from the fact that many model butterflies feed on noxious plants—milkweeds, nightshades, birthworts or passionflowers. It was assumed that the larvae of such butterflies, having evolved immunities to the toxic chemicals, were somehow able to stock-pile these chemicals in their bodies and retain them through to adulthood. The larvae of mimic species, conversely, usually fed on benign, non-poisonous plants. Presto—a most convincing theory of mimicry!

Ever since the pioneering studies of Jane Van Zandt Brower in the mid 1950s[3], the Monarch (model), and the Viceroy (mimic) have been archtypical, textbook examples of this type of 'Batesian' mimicry. Both species are familiar New Brunswick butterflies. Anyone who has ventured along the Bay of Fundy coast in the fall will surely have seen Monarchs on their migration to the mountains of Michoacán in south-western Mexico. Viceroys are commonly seen throughout the province during the summer.

Now, however, standing conventional wisdom on its head, come new findings which suggest that all that we once believed about mimicry 'ain't necessarily so.' David Ritland and Lincoln Brower[4] studied the palatability of Monarchs, Viceroys and Queens, a close southern relative of the Monarch and another species which, it was assumed, the Viceroy mimicked). In their work they presented Red-winged Blackbirds with abdomens of all three species (as well as of non-toxic control butterflies). They gave the birds only abdomens to prevent them from seeing or learning the warning patterns. Thus, the birds could respond only to the taste of the butterfly. To their surprise, they



Monarch (left); Viceroy (above)

found that the Viceroy and Monarch were *equally* unpalatable to the birds (only about 40% eaten, versus 98% of the controls) and *both* were more distasteful to birds than Queens (approximately 70% eaten). In one fell swoop the basis for supporting Batesian mimicry between these species disappeared.

A few years after Bates, however, a German zoologist, Fritz Müller, also went collecting butterflies on the Amazon. In his work published in 1878[5] he reasoned that each warning pattern has a learning curve for predators. 'Once bitten, twice shy,' presupposes at least one bite. If all the toxic species have their own distinctive patterns predators would have to learn every one—with a corresponding number of fatalities of the prey. Now, if several noxious species share a *single* pattern, arriving there via convergent evolution, then *all* benefit! Predators have only to learn one pattern and fewer butterflies get eaten. This reciprocal kind of mimicry is called Müllerian and it seems that the relation between Monarchs and Viceroys may be an example of it.

At this stage you might well be tempted to ask; "What's the big deal?" In fact the evolutionary and ecological dynamics of these two types of mimicry are very different in terms of both predators and prey. Müllerian mimics, for example, should be converging over time on a common distinctive pattern, whereas Batesian models should experience a pressure to *diverge* from their mimics. Moreover, other research is undermining the underpinnings of mimicry.

Work done by K.S. Brown Jr.[6] has shown that many noxious butterflies "derive few or no defense compounds from their larval host-plants." In fact, it is now thought that butterflies often evolve their own chemical defenses and only *afterwards* shift their feeding preferences to plants protected by similar means[7]. Depending on the species, they may or may not sequester these plant chemicals, as the Monarch appears to.

Some researchers doubt that Batesian mimicry exists, speculating that all mimicry may lie somewhere along a Müllerian spectrum. Others, as Vane-Wright suggests, argue that, "Because, in addition to sharing the same warning signal, all members of a Müllerian group are well-protected, it has been argued that no deception is involved and, therefore, they are not really mimics at all." In other words, mimicry as such, may not even exist! Whatever one calls it, this phenomenon in its extraordinary elaboration, casts some fascinating light on the twin concepts of parasitism and mutualism—two pivotal ecological and evolutionary notions. Perhaps I'll leave the final words to the lepidopterist V. Sirin:

I discovered in nature the nonutilitarian delights that I sought in art. Both were a form of magic, both were a game of intricate enchantment and deception.

1 Bates, H.W. 1862. Contributions to an insect fauna of the Amazon valley. Lepidoptera. Heliconidae. *Trans. Linn. Soc. Lond.* 23: 495-566.

2 Vane-Wright, R.I. 1991. A case of self deception. *Nature* 350: 460-461.

3 Brower, J. VZ. 1958. Experimental studies of mimicry in some North American butterflies. *Evolution* 35:32-47.

4 Ritland, D.B. & L. P. Brower 1991. The viceroy butterfly is not a batesian mimic. *Nature* 350:497-498.

5 Müller, F. 1878. *Ituna* and *Thyridia*; a remarkable case of mimicry in butterflies. *Proc. Entomol. Soc. London* 1879: 20-29.

6 Brown, K.S. Jr. 1985. *Revista Brasileira de biologia* 44: 435-460.

7 Akery, P.R. 1988. Hostplants and classification: a review of

New Brunswick to Manage Habitat for Wildlife of Mature and Overmature Forests

It is satisfying to learn that steps are being taken to manage overmature forest as an important habitat for wildlife. Short rotation harvesting destroys old forest that provides food and shelter necessary for the survival of certain birds, mammals, insects and plants.

The Department of Natural Resources and Energy, in cooperation with Wildlife Habitat Canada, has begun a project called Habitat Supply Analysis. Current intense harvest pressure on old stands will lead to a diminished supply in 20 to 30 years. After that, timber harvest would suppress the range of age classes to essentially 60 years and younger.

About 30 species of birds and mammals depend on or strongly prefer old coniferous forests as habitat. One of those animals is the American (Pine) Marten. It is dependent on mature and overmature coniferous forest and requires relatively large areas. A management program has been designed for marten because it is expected that providing habitat for this species will satisfy the requirements of other wildlife dependent on older coniferous forest types.

White-tailed Deer use older conifer stands as winter shelter. A separate strategy has been established to account for its use of these wintering areas.

New Brunswick's three million hectares of Crown Land is leased to eight forestry companies that are required to submit 80-year forest management plans. The revised plans due in 1992 were the first to include landscape-level wildlife habitat requirements.

It is hoped that our government will seriously carry through with its plan to protect sufficient habitat for viable populations of wildlife that requires old forest for its survival. This same forest is often as magnificent as it is ecologically important.

Book Reviews / Critiques littéraires

Guide des Sentiers de randonnées du Nouveau-Brunswick, par Marianne Eiselt et H.A. Eiselt. Moncton, Éditions d'Acadie, 1992, 232 p., 9.95$.

Donald Deschênes

En juin dernier, les Éditions d'Acadie publiait la traduction française de *A hiking guide to New Brunswick* de Marianne et H.A. Eiselt paru l'année précédente chez Goose Lane Editions. Ce guide, présente plus de 107 sentiers à travers la province. En introduction, on y trouve diverses informations sur les différents types de sentiers qu'il est possible de rencontrer, les principales caractéristiques géographiques de la province, la température, ce qu'il faut apporter, quelques notions de respect de l'environnement, les principales règles de sécurité et quelques conseils sur la façon de s'orienter en forêt.

Pour faciliter la consultation, on a conservé la division des 5 régions touristiques bien connues du public. Pour la vallée du fleuve Saint-Jean, on y présente quelques 14 sentiers, 24 pour le littoral de la Baie de Fundy qui comprend l'île de Grand Manan, 50 pour la côte sud-est qui comprend les parcs nationaux Fundy et Kouchibougouac, 4 autres pour le bassin de la Miramichi, 2 pour la côte acadienne et 12 pour les hautes-terres de Restigouche. Ainsi, on voit que certaines régions sont fort bien pourvues en sentiers de randonnée comme la côte sud-est en opposition à la Péninsule acadienne qui n'en a que deux.

Ce guide a été conçu pour une consultation facile et contient dans un ordre logique tous les renseignements pertinents sur les sentiers de randonnée. Pour chacun, on y trouve des informations sur le type de sentier, la durée, la topographie, la dénivellation, la distance à parcourir, le degré de difficulté, l'état, les principaux intérêts en cours de route, une description bien détaillée du parcours de même qu'une carte géographique détaillée.

En format de poche, solide et d'un coût très abordable, il s'agit d'un ouvrage qui doit prendre place auprès des indispensables comme le guide Peterson et les guides des fleurs sauvages et des arbres. Sa seule faiblesse est la bibliographie qui ne contient que des ouvrages en anglais. On aurait eu intérêt à y ajouter des ouvrages en français et à signaler les traductions françaises quand elles existent. Il est heureux que nos maisons d'édition néo-brunswickoises les plus importantes initient de tels projets de collaboration; nous ne pouvons qu'en profiter agréablement.

Wings Over Water: Water Birds of the Atlantic. By Stuart Tingley, photographs by Wayne Barrett, 1991. 104 pp. Nimbus, Halifax. $27.95

Jim Wilson

Imagine. You and a friend are camped on a small forested island in the Bay of Fundy. You pitch the tent in the afternoon and spend the remainder of the day exploring fields, beaches and forest. All is quiet except for the calling of gulls, the familiar songs of a few forest birds, and the scolding of an occasional squirrel. But as you walk among the spruces, an unfamiliar musky odor permeates the air. And you fail to notice the hundreds of small holes among the tangled spruce roots. As you drift off to sleep, lulled by the rhythm of the waves, you have the feeling you are not alone...

Suddenly, you are startled from your sleeping bags by strange chuckling laughter. It seems to come from all around the tent!

There is no moon, and a thin fog has crept over the place, lending an eerie glow to your probing flashlight beam. As you walk slowly toward the sound, you realize the air is full of bodies. In the beam of the light you see dozens, perhaps hundreds, of small dark shapes descending to earth through the conifers. They wander busily about in search of their respective burrows in the thin, peaty soil beneath the trees. Leach's Storm Petrels have returned from foraging on the open ocean to feed their chicks under cover of darkness.

This scene is replayed on many nights from April to November in the Atlantic Provinces and is one of many depicted in Wings Over Water, a book devoted to birds that make their homes in and around the waters of Atlantic Canada. Prince Edward Island photographer Wayne Barrett and New Brunswick author Stuart Tingley have collaborated to produce a book which introduces the reader to the surprising diversity of water birds that occur in this region each year.

Annually we are host to thousands of nomadic shearwaters, which nest on tiny islands in the southern hemisphere and spend their "winters" just off our coasts from May to October. There is the famous long-distance migrant, the adult Arctic Tern. It leaves local breeding islands in late summer, then circumnavigates the North Atlantic, roaming to the west coast of Africa

and as far as the southern South Atlantic before drifting in a clockwise circuit north again past the eastern coast of South America and on to our waters the following spring. The book also describes five species of northern "penguin" (including the comical Atlantic Puffin), each dressed neatly in formal black and white tuxedos and nesting by the hundreds at selected offshore sites. And each summer the true marathoners of the bird world, the shorebirds, descend from breeding grounds in the high Arctic by the hundreds of thousands to the mud flats of the Bay of Fundy. There they fatten for the non-stop flight to South America, a journey they accomplish in less than four days.

Wings Over Water is not restricted to birds of the salt water. It includes those of freshwater and estuarine habitats as well—waterfowl, herons, rails, kingfishers and birds of prey. In a given year, Atlantic Canada is visited by more than 125 species of water birds. This book gives equal treatment to each of the seven major groups which comprise this total.

The text is informative and easily read and Wayne Barrett's often stunning photographs capture many of the birds in beautiful natural settings. A slight disappointment is that a few of the less accessible species are not represented by pictures of the same quality.

Wings Over Water is a coffee table book that provides a valuable introduction to the amazing variety of waterbirds of Atlantic Canada. It should appeal to all readers.

Nature News

Summer 1992

David Christie

This season I will concentrate on a selection of the most interesting reports. Many more observations were received and processed for the New Brunswick Museum's natural history files.

Birds

Very rarely a **Leach's Storm-Petrel** turns up inland, as on Aug. 29 at Fredericton (Don Gibson). A stray **Brown Pelican** was reportedly seen at Southern Head, GM, in mid-August but details have not come my way.

A Least Bittern, a secretive, rare heron here, was seen at Musquash July 16 (JGW, DMcC). A **Great Egret** in the Grand Manan area was at Castalia in late July (Mildred Russell) and early August (DMcC) and at White Head Aug. 15 or 22 (450-DUCK). Two **Snowy Egrets** spent much of June and July at Saints Rest Marsh, Saint John (CLJ) and an immature **Little Blue Heron** Aug. 3-24 around the mouth of the Upper Salmon River at Fundy National Park and Alma (Rob Walker et al.). A **Green-backed Heron** was noted in the north, at Edmundston July 2 (Georgette Thibodeau & Cynthia Doiron).

As part of a program to establish breeding **Canada Geese** in the Grand Lake area, the Department of Natural Resources and Energy released a large number captured in Ontario. People were surprised to see flocks of geese arriving in late July and early August, when the big birds dispersed as far as Albert and Restigouche Counties.

A male **Eurasian Wigeon** was at Inkerman June 1 and 3 (RD) and a pair were sporadic at the Silverwood sewage lagoon until early July (450-DUCK). There were 3 **Black Scoters** off Long Beach, GM, June 26 (*fide* BED) and a male on the Hampton Marsh at Lakeside July 30 (KHD). Ten **White-winged Scoters** at The Whistle, GM, July 14 were unusual there in summer (DB). A female **Ruddy Duck** summered on the Tracadie sewage lagoon (RD), 3 male Ruddies were at the Sackville Waterfowl Park in June, and 2 were still there July 7 (v.o.).

A **Turkey Vulture** spent the summer along the Restigouche River (fide Ann Lavoie). Another was seen near Pennfield Aug. 22 (450-DUCK). Ron Weir had great luck finding **Red-shouldered Hawks** in July, with individuals seen at Elmsville and Lawrence Station, a pair at Welsford, and a nest containing one young at Joliffs Brook, near Belleisle Creek. Although these hawks undoubtedly breed annually in southwestern New Brunswick, this was apparently only the second nest found here. On June 10 a Red-shoulder was at Balmoral (ML), north of the presumed breeding distribution, and on Aug.22 one was migrating overhead at The Whistle Road, GM (AS). A light-plumaged **Rough-legged Hawk** that hadn't gone north for the summer was at Inkerman July 2 (RD & Stéphane Hachey). Individual Golden Eagles were reported at lac aux Outardes [= Wild Goose Lake?] June 6 (Louis Morin) and at Riley Brook Aug. 11 (AS).

Merlins nested widely, with fledglings reported at Lac Baker (Madeleine Lavoie *et al.*) and Grand Manan (*fide* DB and BED). At the Saint John Harbour Bridge, **Peregrine Falcon** young fledged in late June (450-DUCK) about 3 weeks earlier than at cliff nesting sites along the Bay of Fundy (fide DSC &

BED). It is depressing to learn that some anti-Peregrine feelings arose on Grand Manan because a Peregrine attacked a pheasant (*fide* BED).

A fortunate birding tour saw a calling **Clapper Rail** several times in a 12-minute period at Whale Cove Marsh, GM, June 13 (Gene Wilhelm *et al.*). There have been only a few reports in N.B. of this southern coastal rail. Don Gibson found 8 to 10 **Common Moorhens** at Musquash Marsh June 28 and one was seen there July 16 (JGW, DMcC).

Reduced numbers of most shorebirds were reported during southward migration. The Canadian North had experienced a very cold summer which resulted in many breeding failures. Thus, Peter Pearce lamented the "quite alarming dearth of shorebirds," Nathaniel Wheelwright reported less than 5% of normal numbers at Kent Island, with almost no juveniles up to the end of August, and Robert Doiron contrasted peaks of 200 **Lesser Yellowlegs** in favoured spots versus 400+ in other years. Despite the mostly low numbers, adult **Semipalmated Sandpipers** peaked at 300,000 in the Dorchester Cape-Johnson Mills area Aug. 7-8 (v.o.) and 130,000 at Mary's Point Aug. 11 (Russell Betts).

An **American Oystercatcher** present for 6 days in mid June at Marsh Point Pond, White Head Island, GM (Barry Russell; Rodney & Priscilla Albright), qualifies as the most unusual shorebird of the summer. An **American Avocet** also appeared in the Grand Manan area, an adult at Kent Island Aug.8 to 23 (Jan Pierson et al.). A **Marbled Godwit** at Kouchibouguac Nat'l Park July 23-30 (DD et al.) was equally rare.

More normal, yet scarce, migrants included one to two juvenile **Baird's Sandpipers** at Saints Rest Beach Aug. 24 and 28 (JE; JGW), a juvenile **Long-billed Dowitcher** at Saints Rest Aug. 24 (JE), and one to 2 **Wilson's Phalaropes** at Inkerman July 27-30 (RD). Several adult **Stilt Sandpipers** were found on the Acadian Peninsula, including 6 at Inkerman Aug. 2, and 6 at Pointe-à-Bouleau, near Tracadie, Aug. 6 (RD); there were also 3 at Cape Jourimain, near Bayfield, Aug. 4 (SIT *et al.*)

Two adult **Pomarine Jaegers** were seen from the Grand Manan ferry Aug. 14 (v.o.) and one south of Grand Manan Aug. 24 (SIT). An immature **Laughing Gull** was noted off Grand Manan from an Ocean Search cruise Aug. 22 (Laurie Murison).

Two adult and one second-summer **Little Gulls** were seen at Deer Island Point Aug. 17 (SIT) and one appeared Aug. 20 at the Tracadie sewage lagoon, where there was also a **Common Black-headed Gull** Aug. 29 (RD). A moulting Black-headed was also at the Baie Verte lagoon Aug. 3 (SIT). A second-summer **Lesser Black-backed Gull** was at Robichaud July 30 (SIT).

Two **Caspian Terns were reported at** Saint John July 13-16 (Ian Stead *et al.*), 2 at Anchorage Prov'l Park, GM, July 25 (AS), and 1 at Shediac Bridge Aug. 31 (SIT). An estimated 3 to 6 pairs of **Roseate Terns** nested at Machias Seal Island (Peter Dooley, *fide* SIT). A **Forster's Tern** was seen off White Head Island Aug. 29 or 30 (PEINHS).

A growing number of **Common Murres** must be breeding in the Grand Manan archipelago or at The Wolves. As in 1991, adults with half-grown young were seen from the Grand Manan ferry during August, and 30 adults were at Machias Seal Island Aug. 9 (SIT).

A stray **White-winged Dove** flew from the Marven Lake Road in Fundy Nat'l Park June 16 and was not seen again (DSC). A **Monk Parakeet** that spent all summer at Bloomfield Ridge, Kings Co., (Ross Coates, *fide* CLJ) could have escaped from captivity or flown from southern New England, where escaped parakeets have been breeding for a number of years..

Lingering **Snowy Owls** were at Inkerman June 3 (RD), South Richibucto Beach, near Cap-Lumière, July 10 (RD & Lisa Richard), and Tracadie Bay July 16 (RD). The Richibucto Beach bird may have been the same one reported through June and July at Kouchibouguac Nat'l Park (DD).

An immature male **Three-toed Woodpecker** at Ashburton Head July 24 (DB) is "the first good record for Grand Manan" (BED).

Willow Flycatchers were reported at Fredericton June 13 (L. Hughes) and Germantown, near Riverside-Albert, July 7 (Fulton Lavender). It seems unlikely that the adult male **Scissor-tailed Flycatcher** at Whale Cove June 13 (Wilhelm et *al.*) could have stayed out of sight on Grand Manan for a month; the one on the Swallowtail Road July 23 (fide AS) may have been a different bird.

Brian Dalzell feels nestling **Tree Swallows** suffered 75-90% mortality at Bancroft Point, GM, because of the wet weather in late June. Many of the adults abandoned their young June 23-25. The same occurred at Harrington Cove (Gerald Hunter). Not far away at Kent Island, however, Nat Wheelwright reported "mortality in line with other years." The Kent Island swallows nested later than usual and perhaps the young were at a less critical stage during the rainy period. Two **N. Rough-winged Swallows** were at Whale Cove, GM, Aug. 18 (PAP) and one at Bancroft Point the following day (BED).

A large white bird at Janeville attracted a lot of attention in the Bathurst area during August. Roland Robichaud went looking for it Aug. 14 and found an almost pure white **Common Raven**.

A **Carolina Wren** was singing at Maces Bay July 25 (RDW) and two singing at Saint John all summer (Dorothy Peterson). A **House Wren** at Grand Harbour sang regularly from early June to about the third week of July and stuffed a nest box full but found no mate (PAP *et al.*). A pair at Currieburg, near Stanley, had a nest with 4 eggs July 6 but later abandoned it (Connie & Roger Ince).

A **Blue-gray Gnatcatcher** was very unusual in midsummer at Pokiok Settlement July 8 (DM). The fall movement began in late August with individuals at North Head (SIT) and Campobello Island (DM).

Eastern Bluebirds increased in northern areas, nesting successfully at about 8 locations on the Acadian Peninsula (*fide* RD) and in three of 76 nest boxes erected for them by the Club d'ornithologie du Madawaska. A **Wood Thrush** was singing June 18 at Balmoral (Mike & Carla Lushington), near the northern edge of its range.

Northern Mockingbirds increased considerably in the north. A pair were nesting at Edmundston (v.o.), a dozen or more birds present in the Charlo-Dalhousie Junction area during June (*fide* ML), including a nesting pair at Dalhousie (Jim Blanchard *et al.*), and mockers in at least 15 different places on the Acadian Peninsula, most of them breeding (*fide* RD). **Brown Thrashers** were noted at Falls Brook Road, N of St-Jacques, June 21 (Gisèle Thibodeau), Deuxième Sault, near St-Joseph-de-Madawaska, July 25 (Monique Caron), and Nashwaak Bridge in early June (450-DUCK).

Loggerhead Shrikes were once regular, though rare, in southern N.B. but they have declined greatly in the northeastern U.S. and eastern Canada in recent years. Thus, one at Andersonville, near Lawrence Station, July 15 (RDW) was noteworthy.

A substantial extension of the **Pine Warbler** breeding range was provided by Denis Doucet, who saw an adult feeding young at Beaubears Island, near Newcastle, July 5. The previous day he had heard one singing at Kouchibouguac Nat'l Park.

A **Prairie Warbler** singing in the spruce tops at Kent Island June 23-27 (NTW *et al.*) was very unusual at that time of year. It and the increasing number of fall migrants appearing in N.B. suggest that the New England breeding population is expanding. Three were seen on Grand Manan in the last half of August (PAP; PEINHS). Another visitor from the northeastern U.S. was a **Blue-winged Warbler** at The Whistle, GM, Aug. 22 (R. Ken Edwards).

A yearling male **Dickcissel** at Kent Island June 14 (NTW *et al.*) was perhaps only the second June record in this province. A **Clay-colored Sparrow** found June 17 at Pokiok Settlement remained for about a week (Dan Keppie *et al.*).

A stray immature male **Yellow-headed Blackbird** was found on Ile Lamèque: at Coteau Road June 14 (Marie-Reine Noël) and at Savoie Landing July 12 (Gabriel LeBreton).

House Finches have been breeding in N.B. for at least 6 years but few if any nests have been reported. In 1992 one was found at Moncton in June (Dale Gaskin *et al.*) and another at Saint John July 7 (5 young in nest—JGW). Don't forget to report observations that reveal the expansion of this newcomer's population.

Amphibians, Fishes & Insects

In some parts of Canada there is concern about decreasing numbers of **Leopard Frogs**, but the floodplain meadows and farmland along the lower Saint John still seem to have good numbers. Following warm rain showers, Hank Deichmann witnessed a mass migration at Evandale Aug. 6; thousands were seen along 1 km of road, and a considerable number were killed by cars.

A report that should have been mentioned in a previous column was of two **Muskellunge** caught during ice fishing at Glasier Lake, Madawaska Co., in January 1992 (*fide* Pat Émond). I was surprised to hear that this large northern member of the pike family had been found in New Brunswick, but Don McAlpine informs me that a few muskies have spread into this province from introductions made in southeastern Quebec.

Bluefin Tuna were "abundant" around Grand Manan, being observed on 6 of 19 Ocean Search whale-watching trips from July 29 to Aug. 23 (Murison). A number also were caught in herring weirs at North Head. Brian Dalzell laments "the sorry situation... that these tuna are either dumped or seized by the Department of Fisheries and Oceans. Because the tuna fishery is strictly regulated by quota, the weir men cannot sell the fish" despite the fact that "a big tuna is worth $5000 or more on the Japanese market." Before 1992 tuna were only occasionally caught in weirs.

A **Crowberry Blue** butterfly found at Ross Island, GM, Aug. 12 (Chris Majka) is the first record on Grand Manan. **Monarch** butterflies were absent or extremely scarce during 1992 (BED, DSC *et al.*). Heavy frosts reportedly had caused heavy mortality on the Mexican wintering grounds.

Abbreviations

450-DUCK	N.B. Bird Information Line		
NHSPEI	Natural History Soc. of P.E.I.		
AS	Andrew Sharkey	GM	Grand Manan
BED	Brian Dalzell	JE	Jim Edsall
CLJ	Cecil Johnston	JGW	Jim Wilson
DB	Don Baldwin	KHD	Henrik Deichmann
DD	Denis Doucet	ML	Mike Lushington
DM	David Myles	NTW	Nat Wheelwright
DSC	David Christie	PAP	Peter Pearce
DMcC	David McCurdy	RD	Robert Doiron

The State of Canada's Environment

An impressive report, ***The State of Canada's Environment,*** presents the latest analysis of how the Canadian environment is changing. It contains five sections: The Ecosphere, Environment and Human Activities, Regional Case Studies, Current Issues, and Living Within the Limits and Opportunities of the Ecosphere. The report addresses four basic questions: what is happening?, why is it happening?, what are the impacts?, and what is being done about it?

Subjects treated include air quality, ozone depletion, agricultural practices, forest regeneration, energy use, arctic pollution, wildlife habitat, protected areas and urban growth.

The book costs $29.95 plus taxes. Orders may be sent to Canada Communications Group - Publishing, Ottawa K1A 0S9; tel. (819) 956-4802.

Awards / Honneurs

Rose-Aline Chiasson: bénévole de l'année

Rose-Aline Chiasson, la présidente du Club des Naturalistes de la Péninsule Acadienne, a été choisie bénévole de l'année pour s'être remarquée dans l'histoire du bénévolat à Lamèque.

Par son poste de présidente du comité Aviseur Paroissial, elle s'est impliquée dans tous les projets qui se déroulent au niveau de la paroisse. Depuis de nombreuses années, de par sa profession, elle enseigne la catéchèse à l'école. Ceci ne fait pas partie de sa charge de travail d'enseignante ou du temps régulier des cours. Elle le fait pour le mieux-être de ses tous petits.

En plus, elle fait partie de la Chorale Sormany, oeuvre sur le comité social et le comité-école de l'École Élémentaire de Lamèque. Comme vous le savez, elle est en plus une mordue de la nature. Elle est présidente du Club des Naturalistes de la Péninsule Acadienne et est aussi représentante à la Fédération provinciale. Alors vous voyez que pour elle, le bénévolat, l'implication et le dévouement, ce sont l'histoire de sa vie. (adapté de *L'Acadie-Nouvelle*).

Peter Pearce: Gulf of Maine Visionary Award

Peter Pearce, past president of the Federation, was recipient of a 1992 Gulf of Maine Visionary Award. Peter was honoured for his work promoting conservation of marine wildlife during a 24-year career with the Canadian Wildlife Service and personally through his efforts as a naturalist and educator in enhancing public awareness of the importance of protecting the coastal environment.

His work involved the effects of chemicals on wildlife, particularly of insecticides on forest birds and of toxic residues in marine birds. A particular affection for Grand Manan and the Bay of Fundy sparked his volunteer work concerning conservation issues and the Gulf of Maine.

The annual awards, which recognize exemplary efforts made by individuals, businesses and public and private sector organizations to preserve, protect and enhance the Gulf of Maine, were announced by Environment Minister Jane Barry, who chairs the Gulf of Maine Council on the Marine Environment. Mrs. Barry praised the winners for the time, effort and commitment they have dedicated to bettering our marine environment.

Federation News

1992 A.G.M.: Some Business Items

Cecil Johnston completed his term as treasurer and was succeeded by Michael Bamford of Saint John. The vacant position of vice-president was filled by Rob Walker from Fundy National Park.

Two Stirrett Prizes were announced for the best articles in the *N.B. Naturalist* / Le *Naturaliste du N.-B.*: in Volume 17 Doug Eidt of Fredericton for the article "Life in the jaws of death—or how to Survive in a carnivorous plant"; in Volume 18 Brian Dalzell of Grand Manan for the article "Journal of a castaway birder: three weeks on Machias Seal Island."

Jim Goltz reported that environmental issues acted on during the previous year included submission of a brief on coyotes to the Fish & Wildlife Advisory Board; participation in the N.B. Endangered Spaces Campaign; recommending that there be no harvesting of rockweed until an environmental impact assessment is done; support for the establishment of Black Beach Park near Musquash; support for coastal rehabilitation on the Acadian coast; questioning wetlands modification activities by Ducks Unlimited; promoting protection of Yellow Rail habitat; support for maintaining public access to lighthouse properties; providing input on the proposed introduction of Canada Geese at Grand Lake; opposing the introduction of the Trumpeter Swan; becoming partners in the Fundy Model Forest project; helping compile a new list of endangered species; speaking out against drainage of the Ram Pasture marsh at Sackville; and opposing the proposed Kings County solid waste disposal site.

Concerning membership and publicity, Peter Pearce reported that car window decals of the Federation logo were available for $1.50; that a new membership brochure was available in English and would soon be also in French; the portable table-top exhibit on display at the annual meeting had been developed for use by the Federation and clubs (contact Peter Pearce, 459-3691, to reserve it); a speaker's bureau was being developed.

Club News

Saint John Club's 30th Anniversary

The Saint John Naturalists' Club celebrated its 30th anniversary with a weekend of activities in June. Hosted by Janet and Allen Gorham at Pancake Hill on the Kingston Peninsula, numerous club members camped out for one or two nights, while others attended just some of the events.

Activities included star gazing, birdwatching,, visits to the "quaking earth" of a bog and to a mysterious stone wall built just above the freshet level of the St. John River, as well as swimming and canoeing on the river, and campfires and a singsong on the beach.

Opportunities to satisfy hearty appetites ranged from picnic lunches and marshmallow and wiener roasts to a big Saturday evening meal.

The anniversary dinner, emceed by Jan Gorham, featured bean-hole beans, augmented by ordinary (but also very good) baked beans, hot dogs, rolls, biscuits, and a variety of salads, sweets, and beverages. The anniversary cake, beautifully decorated with 30 yellow ladyslippers (made from icing; we wouldn't pick the real thing), was cut by club president Linda Caron, founding secretary-treasurer Jane Tarn, and founding president David Christie.

David McCurdy presented awards for meritous service to Cecil Johnston, Jim Wilson, and David Christie, who described the early days of the club. Certificates were presented to 30-year members and to former club presidents. The dinner concluded with a drawing for thirteen door prizes.

The anniversary marked the official introduction of the club's insignia designed by Mitzi Withers. The emblem is a Yellow Ladyslipper on a cream background with a narrow green border. The motif was chosen in honour of the late Tom Page, a former club president who led many walks to see lady slippers in Rockwood Park. The emblem is available in the form of pins and embroidered crests.

Fredericton Nature Club

To celebrate Arbor Day in May, the Fredericton Nature Club planted trees on the grounds of the Dr. Everett Chalmers Hospital in memory of deceased former members Blair Wood and Albert Morais. More recently, the club was saddened by the passing of John Francis, a long time active club member, who served as president of the Fredericton Field Naturalists' Club in 1969.

On June 6 Peter Pearce represented the club at the official opening of the Salamanca Trail, continuation of the green pathway system stretching from Morell Park to the Princess Margaret Bridge in what is now known as the Fredericton Wildlife Refuge. It was the last of a series of "Trees and People" ceremonies to be held in Fredericton. "Trees And People" was a national program designed to link provincial capitals with the nation's capital. The aim was to plant trees in people places. In Fredericton, the focus was on neighbourhood parks. The ceremony included planting of trees and shrubs (provided by The Tree Project) along the trail. You are invited to enjoy the Salamanca Trail and the Fredericton Wildlife Refuge, which are located along the south side of the St. John River, between the railway bridge and the Princess Margaret Bridge (Trans-Canada Highway).

"Projet Fleurs" on the Acadian Peninsula

The Club des naturalistes de la Péninsule Acadienne is doing a lot to encourage development of its members' knowledge through personal projects. Added to "L'objectif 200," the aim of which is to identify 200 species of birds on the peninsula, and "Projet arbres," to collect 50 trees and shrubs, has been added "Projet fleurs." To complete the new project, each member should collect and correctly label 150 species of plants from the peninsula. Perhaps the limit is a bit low; word has it that four or five members quickly completed their collections.

Concerning plants, on June 29 the club was pleased to discover a second site on the peninsula for Yellow Ladyslippers during their botanical field trip to Village Blanchard with Marcel David.

Club d'ornithologie du Madawaska

With no sea coast in the République de Madawaska, members of the COM have a much bigger challenge to find 200 species of birds than in many other areas of the province. Never-the-less, the objective does seem attainable. Members reported 184 species in the area between December 1987 and May 1992, and 143 breeding species were found from 1986-90 in Region 1 of the Maritimes Breeding Bird Atlas project.

The club has initiated "Projet merle-bleu," for which 76 bluebird nest boxes were erected. Three pairs of bluebirds nesting should be regarded as a very successful first year, most of the boxes were occupied by Tree Swallows, and some were taken squirrels or wasps. During the summer, 50 more nest boxes were built by Basil Arsenault, Daniel and Simon Bouchard.

The club has representatives on various local committees: Ducks Unlimited, city centre renewal, Le Salon de la Forêt (an annual forestry expo), and management of the Madawaska River shores. This is an excellent way to ensure that proper consideration is given to natural values.

Tern Population Trends in Atlantic Canada

A.R. Lock

Four species of terns (Arctic, Common, Roseate and Caspian) use the inshore islands of Atlantic Canada to breed. Many of these islands historically were settled by fishermen who exploited both adult birds and their eggs for food. Numbers were apparently not greatly reduced, however, until the last quarter of the 19th century when the demands of the millinery trade led to the shooting and trapping of great numbers of adult birds. Canadian tern populations were probably not as drastically affected by egging and plume hunting as those in the U.S.

Terns responded quickly once protected by the 1916 Migratory Birds Convention, and populations increased in both Canada and the U.S. Although we lack data for Atlantic Canada, breeding terns in New England increased from less than 20,000 pairs at the end of the 19th century to over 50,000 pairs towards the middle of the 20th century. Gulls, which have been shown to be a major factor in the decline of terns in recent decades, increased even more—from about 10,000 to 100,000 breeding pairs in New England.

The present breeding population of terns in Atlantic Canada is estimated to be about 45,000 pairs. But colonies in all provinces are being lost and tern numbers are decreasing. Human encroachment on breeding habitat is sometimes to blame, and growing gull populations have displaced terns from some of the best breeding habitat and increased predation on young and eggs. For Common and Roseate Terns, mortality on their winter range in the Caribbean and South America may also be important.

In the late 19th century the largest breeding concentration of terns in eastern North America was on Sable Island off the coast of Nova Scotia. In 1903 William Saunders reported "not... far short of a million" terns breeding there. Today there are fewer than 1000 breeding pairs...an alarming decline.

In New Brunswick, a 1983 CWS census estimated 15,000 pairs of Common Terns on sandbars and islands in the coastal lagoons along the Gulf of St. Lawrence. Some good records of individual colonies indicate that most colonies have decreased. For example, from 1970 to 1983, colonies in Bathurst Harbour decreased from 702 to 351 nests, and those on Egg Island declined from 216 to 74 nests.

The only colony to grow substantially is the one in Kouchibouguac National Park. In 1971, at the time of the creation of the park, 1419 nests were counted; by 1983, 7,000 nests were found, equivalent to about 5,000 breeding pairs. Numbers have since remained fairly constant. Other colonies on the gulf shore of New Brunswick are subjected to a great deal of human disturbance and gull colonies have proliferated. It is likely that the expansion of the Kouchibouguac colony resulted from immigration of terns from disturbed colonies elsewhere on the coast. The protection given this colony by the Canadian Parks Service has demonstrated that tern colonies can flourish if protected from disturbance as well as from gull and mammal predation.

In southern New Brunswick, terns were once common in the Grand Manan Archipelago. With the proliferation of gulls there, tern colonies have disappeared and they breed abundantly only on Machias Seal Island, a migratory bird sanctuary. This is one of the few colonies for which long-term records exist. In 1947 an estimated 3400 pairs of Arctic Terns bred there. By 1984 the population had decreased to 1350 nests. A 1988 census revealed a breeding population of 1802 pairs of Arctic Terns, 104 pairs of Common Terns and a single pair of Roseate Terns [see also p. 42—*Ed.*]. As in the Kouchibouguac colony, the increases of terns in recent years probably reflect immigration of birds from smaller colonies throughout the Gulf of Maine to this protected site.

The notable decreases in most Atlantic Canada tern colonies emphasize the importance of monitoring these species. Management programs will likely be necessary to prevent the loss of additional colonies.

(Excerpts from a longer report in *Bird Trends*, No. 2, Autumn 1992; Canadian Wildlife Service, Ottawa, Ont. K1A 0H3)

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Le Naturaliste du N.-B.
277 ave. Douglas Ave., Saint John, N.B. E2K 1E5
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