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Le Naturaliste du N.-B.

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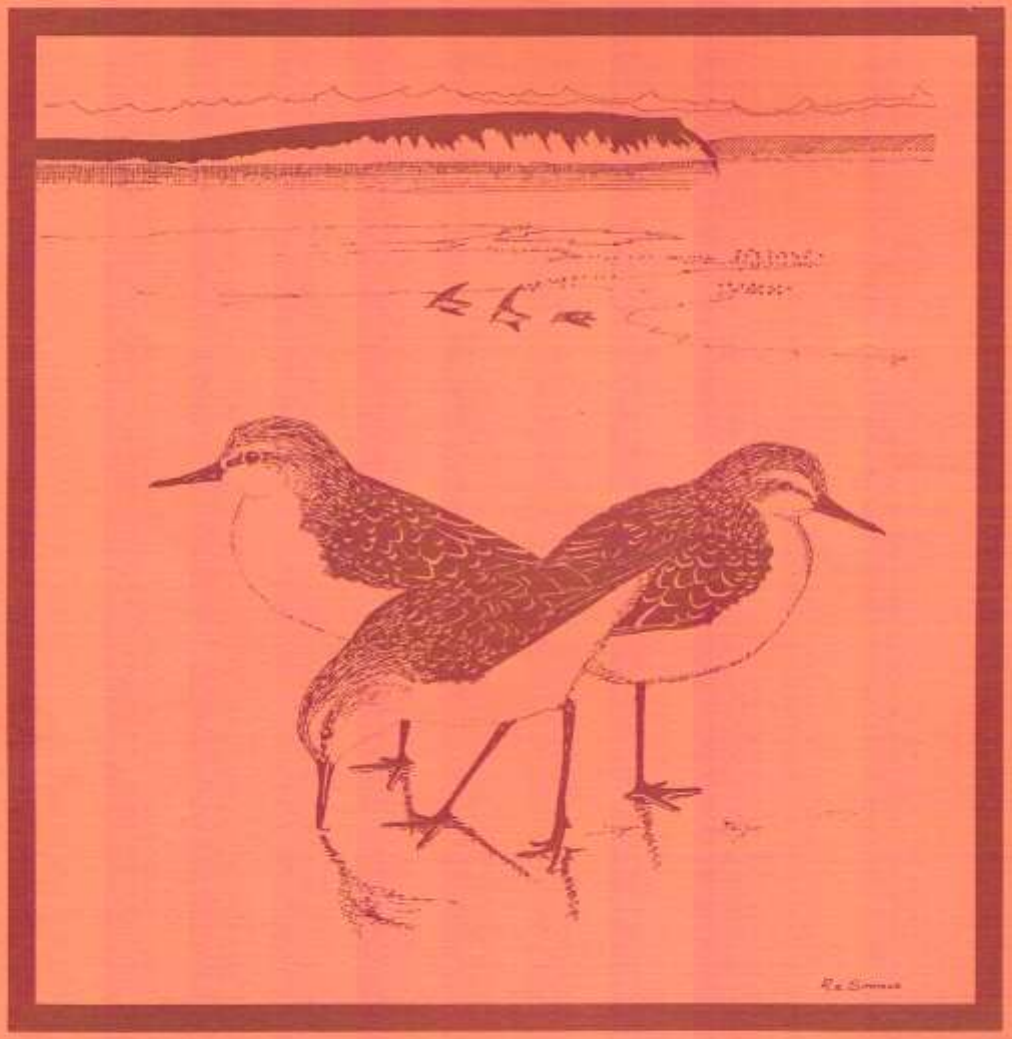

N.B. NATURALIST

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Telephone: (506) 693-1196

Articles are invited in both official languages, and will be printed in the language they are received. The opinions expressed are those of the authors. Original material appearing in N.B. Naturalist may be reproduced without permission; credit lines would be appreciated.

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LE NATURALISTE DU N.-B.

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On peut lire dans Le Naturaliste du N.-B. des rapports scientifiques touchant l'histoire naturelle du Nouveau-Brunswick.
Votre concours serait fort apprécié. Prière d'envoyer vos articles à:

Gayl Hipperson, directrice
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277 avenue Douglas
Saint-Jean, N.-B. E2K 1E5

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Dates limites de présentation de vos articles, réflexions, avis et photos: les 1er janvier, 1er avril, 1er juillet et 1er octobre. Les dessins au trait et les photos de couverture doivent être préparés à l'encre noir et dans le format de publication.

Dates limites pour toute observation destinée à la rubrique "Nature News": les 1er décembre, 1er mars, 1er juin et 1er septembre.

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Contents

Cover Illustration

Semipalmated Sandpipers on Starr's Point mudflats, Wolfville, N.S.
Pen and ink drawing by Robert Simmons.

Illustration de la couverture

Bécasseaux semi-palmés sur le littoral vaseux à Starr's Point, Wolfville, N.-E.
Dessin à la plume par Robert Simmons.

From the Editor / President

With the elections of the Annual General Meeting held this past June, the Federation comes under new management. At the risk of creating a monopoly, I succeeded Mary Majka as president and at the same time clung selfishly to the editorship of N.B. Naturalist. Joining me on the new executive are Mary as Past-president, Hal Hinds (Fredericton botanist familiar to all as the man behind the Rare Plant column) as Vice-president, Ruth Rogers (registered nurse from Moncton), as Secretary, and Dave Smith, Saint John, continuing for his fourth year as Treasurer. Director-at-large Wilma Miller retains her seat from the Tobique, and David Clark (biologist with the Huntsman Marine Laboratory) joins us to represent the St. Andrews/St. Stephen area. Individual Club Representatives completing the Board of Directors are printed on the inside back cover of this magazine.

The Directors held an initial, organizational meeting in Saint John in July in order to ensure the continued smooth and efficient running of the Federation. In the next year we will be working to improve communication with local clubs, increase the opportunity for individual involvement in the Federation, double the membership (more about that later!), and respond more publicly to issues of concern to provincial naturalists.

To achieve our ambitions, we need your support more than ever - you, after all, are the Federation. Club Directors have pledged themselves to keep their local organizations fully informed of Federation activities, and the 'Federation News' section of this magazine will do the same for those of you who are not members of one of our eight affiliated clubs.

More about membership - Before the year is out, we must increase our membership to 400, about double what it now is. The N.B. Naturalist you have been receiving is costed on that basis. If, indeed, there are only 200 paying customers out there (say it isn't so!!) then the magazine will, of financial necessity, be considerably scaled down in 1985.

So - a membership blitz is on! Anybody who ever belonged to the NBFN is being contacted by founding director David Christie in a personal appeal to join us again; Club Directors have taken up the challenge to increase Federation membership from the ranks of their local clubs; and, with this issue of N.B. Naturalist, every one of you is receiving an invitation for a friend to take advantage of our late-in-the-year new member special - 1984 AND 1985 membership and EIGHT issues of N.B. Naturalist for $15.00 (a $5.00 saving over the $20.00 two-year regular price).

Please - pass the offer on! Encourage someone you know who shows an interest in the environment, the wildlife, the flowers of New Brunswick, to join our 'provincial voice for nature'.

I think I've rambled on enough as President. As Editor, I have only to introduce this issue as one with a bias toward endangered species. It wasn't planned - the theme just emerged as the issue took shape. I expect it from Rare Plants, naturally enough, but it is perhaps a sad sign of the times that the precarious existence of so many animals and plants kept cropping up again and again.

From the Committee on the Status of Wildlife in Canada comes the announcement that 21 species of animals and plants have been added this year to their list of wildlife that is rare, threatened, endangered, extirpated or extinct in Canada, bringing the total to 75.

The Museum announces the publication of the second in its Natural Science series, Rare and Vulnerable Species in New Brunswick, a compilation of data on 52 species in a tenuous position in our own province.

Stephen Clayden, senior author of the Rare and Vulnerable Species publication, has provided a thoughtful - and thought-provoking - review of another 'endangered' provincial publication, The Rare Vascular Plants of New Brunswick, by Hal Hinds.

Even 'Bugs!' in this issue sounds a melancholy note as it reflects on the sensitivity of its subject, dragonflies and damselflies, to environmental degradation.

Gayl Hipperson

Everybody is out for money, in these inflationary times, and the lean-ness of the economy has produced keen competition for the few available dollars. Cultural and research organizations are being driven to new heights in their creative search for corporate support. Two that have reached the pinnacle of target fund-raising are the San Diego Museum of Man, whose human evolution gallery credits the Playboy Corporation for funding the anatomically correct models of early man, and the Center for Action on Endangered Species, Ayer, Massachusetts, whose successful appeal to the same corporation allowed mammalogist James Lazell Jr. to complete his studies on the Florida marsh rabbit, Sylvilagus palustris. Lazell has distinguished a new subspecies of the rabbit which, in gratitude to his funding agency, he has named Sylvilagus palustris hefneri, after Playboy founder Hugh M. Hefner ... a fitting tribute, indeed, to the man who came up with a new breed of bunnies himself.

A TRIBUTE TO THE SAINT JOHN ... A CANADIAN HERITAGE RIVER

K. Henrik Deichmann

The lower Saint John, the last 90 miles or so, is an impressive waterway. It is tidal and wide for all this distance. This estuary forms part of one of eastern North America's major river systems. Taken in total, the river is remarkable for its significant spring freshet and its lush intervale lands and islands; the river skirts forested ridges and villages among farms caught in the time warp of the 1783 Loyalist colonization.

The river was the Woolastook to the Malecites. Their name, simply stated, meant 'goodly' - good to travel on, and with game aplenty, good for berries and nuts, and with intervales that could grow excellent crops of beans, corn, and squash.

Enter Spring

In the pleasant musty darkness and warmth of a root cellar, potato eyes send forth hopeful sprouts, confirming for the countryman the calender's promise of longer days. Along the river's bank, the shore cakes rise and heave, answering the increasing pressure of the water and fortelling the impending freshet. Often, for many days, nothing seems to happen. Then suddenly in April, sometimes early, sometimes in the last days of the month, the last ice rents and splits. The water surges, spilling over low banks. Once the crest is reached, the water's decline is almost imperceptible.

Further up the bank, lingering snow drifts gather a yellow cast of alder pollen. Soon to follow are the crimsom blooms of the red maple, then those of silver maple and beech.

Each dawn brings a night's load of fresh migrant birds. Their breeding plumage colours the just beginning-to-leaf-out tree crowns. Their challenging songs of territoriality ring through the wood. Beneath this activity, and amid the decay of the discarded leaves of seasons past, sun-loving trout lilies, spring beauties and Dutchman's breeches telescope their annual cycle in a race against the shade of a complete leaf canopy developing overhead.

Back in the river, the brown bouillon of the freshet triggers spawning schools of gaspereau, shad, sea sturgeon, and striped bass. This murky soup is unacceptable to the salmon and sea trout, however, and they literally torpedo through on their way to clearer and colder tributary streams.

Summer's Greening

As the freshet subsides, black ducks are well along in the 28 day sojourn of incubation. Where once there was a moat of deep water around the nest, all is shallow and seething with insect life by the time the ducklings emerge.

Intervale trees respond to the push in their roots from the saturated soils being heated by the now friendly sun. The growth is phenomenal. 'When the leaves on the birches are as big as a mouse's ear, it's time to plant the peas' is a popular River Valley saying. Heralded in is a whole sequence of discing, drilling, and seed-setting. The summer crop routine has come into action.

Summer-flow water levels permit an easier passage for the seven cable ferries that shuttle to and fro at strategic points along the lower river. Where once proud paddlewheelers churned, and sturdy Johnny woodboats freighted brimful loads of firewood, lumber and other products to market in Saint John city, the present day river is the road for the tug-towed gigantic chip barges. On 'the Reach' and Kennebecasis Bay, the bright white triangles of sails brighten many summer afternoons and weekends.

Summer is at its zenith when potatoes come to blossom and the cabbages start heading. Out in the meadows, the tires of the wagons squish out with the weight of the harvest. The odour of drying and dying chlorophyll is intoxicating! By early August, apples in valley orchards blush a modest pink.

The Year's Fall

One late August morning the dawn will be refreshingly cool and the wind a bit northerly. A hint? A warning? There's a solitary red leaf in an otherwise massive green crown of a maple. Fall is on the way...summer is on the wane.

Platoons equalling armies of swallows make up impressive large flocks along insect-rich stretches of the valley. The birds are staging in preparation for an exodus. Less conspicious are the smaller numbers in individual flock size, but they add to the steady drift of birds. With the first frosts, blue-winged teal families coalesce into larger companies prior to moving down the river to the Fundy saltmarshes, in preparation for their

southern flight. Later, in Indian Summer, northern bred golden-eye and scaup take up traditional staging haunts, where they will cling until the wintery blasts and the freeze-up drive them on.

When everything is bleached with drumming November rains, and the last stubborn red oak leaves reluctantly flutter down, the cheer and the cleansing of a layer of bright white, new snow would be welcome. It arrives. The year has come full circle.

Terra Nova National Park
Newfoundland

Announcement!

CALL FOR PAPERS

The Natural Science Department of the New Brunswick Museum would like to bring its Publications in Natural Sciences series to the attention of possible contributors.
The series is intended as a low cost outlet for original information covering the geology, flora, and fauna of New Brunswick. Regional faunal surveys, ecological and taxonomic studies and bibliographies will all be considered. The first number in the series, Status and Conservation of Solution Caves in New Brunswick by Donald F. McAlpine, was issued in 1983; the second, Rare and Vulnerable Species in New Brunswick by Stephen Clayden et al, was released in June 1984.
Manuscripts are given critical review by specialists and are issued at irregular intervals; contributions are invited in French or English. Authors with manuscripts they feel might be suitable for publication in this series are invited to contact the Editor, NBM Publications in Natural Science, New Brunswick Museum, 277 Douglas Avenue, Saint John, N.B. E2K 1E5.

A BIRD IN THE HAND IS VERY DEFINITELY WORTH TWO IN THE BUSH

"If I hadn't believed it, I wouldn't have seen it" is an all-too-familiar refrain facing birders reporting an extreme rarity, a bird never before seen in their part of the world, or something of only "hypothetical" occurrence. Your credibility can take a severe bruising if, in the heat of the moment, you "see" diagnostic wing-patches or black-tipped beaks where, indeed, there are none. If you can back your sighting with such irrefutable proof as the bird itself or even photographic evidence, however, then you really have something nobody can argue with.

Following are the accounts of two birds, the Little Tern and the White-winged Dove, both previously (but very seldomly) reported for the province, but not authenticated. Both are now firmly entrenched on the list of New Brunswick birds -- thanks, in the case of the tern, to a young girl and her dog and, in the case of the dove, to a camera-ready sharp-shooter.

LEAST (LITTLE) TERN - FIRST AUTHENTICATED RECORD

Cecil Johnston

After school on the afternoon of April 11, 1984, Shalometh Dow went for a walk in the fields near her home overlooking the Bay of Fundy in Saint John. Inky, the family poodle, stopped to sniff the grass, and Shalometh bent down to find a dead bird. She picked it up, had a good look at it, put it on a stone fence, and wandered off home.

When she told her mother of the find, Mrs. Dow's curiosity was aroused, and she went to retrieve the bird. She called me and described a bird 'not very large, white underneath, a beautiful shade of grey above, with a black cap, swallow tail, partially webbed feet, and a long, slender, black-tipped yellow bill.'

My heart caught in my throat, because, although Mrs. Dow didn't realize it, she was describing perfectly the Least, or Little, Tern (Sterna albifrons) a species of only hypothetical occurrence in New Brunswick. The Least Tern has been occasionally reported in the province after severe fall hurricanes, but no photographs or specimens have ever been obtained to authenticate the sightings. In fact, only three Least Tern specimens exist

for all of Canada. The three were obtained in Nova Scotia, after storms of hurricane proportions; one is in a private collection, one at the Nova Scotia Museum, and one in Ottawa as part of the national collections. The bird has not been recorded in any other province.

Shalometh's find is, therefore, extremely important. The Least Tern can no longer be recognized as only hypothetical in New Brunswick, but now has the status of an actual visitor to our province. Dr. W. Earl Godfrey, author of Birds of Canada, will elevate the Least Tern in the revised edition of the book, now in preparation. The specimen itself has been catalogued into the bird collections of the New Brunswick Museum, and is being sent on loan to the ornithologists at the National Museum for their expert examination.

It is likely that the tern arrived here as a result of having been swept northward by prevailing winds during the stormy weather experienced in southern New Brunswick immediately preceeding the discovery. The closest breeding colony is on the southernmost portion of the Maine coastline.

However the bird got here, it was a timely walk Shalometh Dow and her dog took that day, to give us an authenticated addition to our list of provincial birds.

WHAT? - ANOTHER DOVE IN NEW BRUNSWICK?!

Jim Wilson

On May 22nd this spring, Cecil Johnston and I were driving back to our cottage at North Head, Grand Manan, after a morning of birding. Suddenly, a medium-sized bird passed rapidly across the road in front of us and then flew along the road in the direction we were headed. We found ourselves shouting at each other in unison -- 'What the devil was that?' Its size, and the large white areas on its wings were reminiscent of a Willet, but we knew this bird was not that species by its shape and obviously different wing markings.

With grim determination, Cecil gave chase, and to my great relief the bird soon set its wings and alighted at the far end of a ballfield, approximately 100 meters from our car. When it did so, it descended the final meter or so to the ground on rapidly beating wings. This gave us a final clue to add to the impressions already given by the size, shape, and coloration.

We felt certain it was probably a member of the Pigeon family, and those conspicuous white wing patches would almost surely make it a White-winged Dove (Zenaida asiatica)!

The bird soon flew on, however, and it was not until another half-hour had passed, and we had scoured several adjacent properties along the next kilometer of road, that we managed to relocate the exciting visitor. It was indeed a White-winged Dove, and Cecil managed to obtain a fine series of photographs through his Questar lens, as the bird fed busily in a weedy field. It was quite tame, and allowed us to approach within 25 meters.

The White-wing is a pretty little bird, very similar at first glance to our now-familiar Mourning Dove (Zenaida macroura) which has become increasingly common in many areas of the province in recent years. It differs superficially in having a shorter, rounded tail with large white corners, and wings with large white patches. When we examined it at close range, we noted that the bill appeared longer and more decurved than a Mourning Dove's, that it had a small bare patch of blue skin around its orange-red eye, and that there was a patch of iridescent green-gold on each side of the neck. When the bird was walking about, the white wing patch appeared as a conspicious white line along the frontal bend of the folded wing.

The normal haunts of the White-winged Dove are in the southern United States, mostly arid regions in the West and Southwest, although it has been introduced into Florida, and small numbers now appear in that state. I had seen one there in the spring of 1981.

Cecil's photographs make this the first confirmed sighting for New Brunswick, although this species, with its strong field marks, has been reliably reported on two previous occasions. Interestingly enough, both were on the same afternoon - July 31, 1977. One was seen at Mary's Point by Bev Schneider, David Christie, and Peter Pearce, while at the same time a pair of the doves were being observed at East Quoddy Head, Campobello Island, by Mr. and Mrs. George Smith.

This latest addition officially brings to five the number of members of this family on our provincial Bird Checklist. We can now boast of the occurrence of Mourning Dove, Rock Dove, White-winged Dove, Band-tailed Pigeon, and the now-extinct Passenger Pigeon.

As always, one pauses to wonder whenever a new wanderer is added, just how it came to arrive here. A quick check of the maps in your field guide will tell you that two of this group of five covered great distances in order to reach us. This is just another example of why we birders, who are constantly seeking the unexpected, find our hobby so fascinating here in New Brunswick.

Committee
on the Status
of Endangered
Wildlife
in Canada

RARE AND ENDANGERED SPECIES UPDATE

Twenty-one plants and animals have been added to the list of wildlife species that are rare, threatened, endangered, extirpated, or extinct at the national level in Canada. The list now totals 75.

The announcement was made following this year's Federal-Provincial Wildlife Conference by the Chairman of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). COSEWIC is Canada's national committee that commissions preparation by experts of status reports on species, then meets annually to assign them a risk category. The committee includes representatives of federal, provincial and territorial governments and national conservation organizations.

Following are a list of the 1984 committee decisions and the complete list of all 90 species reviewed by COSEWIC to date. Species recorded in New Brunswick are starred (*). For provincial status, readers are referred to The Rare Vascular Plants of New Brunswick by H.R. Hinds, 1983, Syllogeus No. 50, National Museum of Natural Sciences, and Rare and Vulnerable Species in New Brunswick by S.R. Clayden et al, 1984, Publications in Natural Science No. 2, New Brunswick Museum.

1984 DECISIONS, COSEWIC ANNUAL MEETING

Rare:
- Green dragon Arisaema draconitium
- Shumard oak Quercus shumardii
- Hop tree Ptelea trifoliata
- *Prothonotary Warbler
- *Eastern Bluebird
- *Barn Owl
- Western woodland caribou (mainland west of James Bay)
- Queen Charlotte Islands ermine

Threatened:
- Plymouth gentian Sabatia kennedyana
- Water willow Justicia americana
- Giant helleborine Epipactis gigantea
- Mosquito fern Azolla mexicana
- Henslow's Sparrow
- *Maritime woodland caribou (south of St. Lawrence)
- Shorthead sculpin

(* Species recorded in New Brunswick)

Endangered:	Southern maidenhair fern Adiantum capillus-veneris Pink coreopsis Coreopsis rosea Cucumber tree Magnolia acuminata Pink milkwort Polygala incarnata Acadian whitefish
Extinct:	Dawson woodland caribou (Queen Charlotte Islands)
Not Placed in Any Category:	False mermaid Floerkea proserpinacoides *Bald Eagle Northeastern woodland caribou (East of James Bay, North of the St. Lawrence) Newfoundland woodland caribou (Newfoundland) Mountain beaver

LIST OF SPECIES WITH DESIGNATED STATUS AS OF APRIL 1984
(N.I.A.C. = Not in any Category)

BIRDS

SPECIES	STATUS
* White Pelican	Threatened
* Double-Crested Cormorant	N.I.A.C.
Trumpeter Swan	Rare
Ferruginous Hawk	Threatened
* Gyrfalcon	N.I.A.C.
Peregrine Falcon:	
Pealei	Rare
* Tundrius	Threatened
* Anatum	Endangered
Greater Prairie Chicken	Endangered
Whooping Crane	Endangered
* Greater Sandhill Crane	N.I.A.C.
* Piping Plover	Threatened
* Eskimo Curlew	Endangered
Ivory Gull	Rare
* Caspian Tern	Rare
* Burrowing Owl	Threatened
* Great Gray Owl	Rare
Kirtland's Warbler	Endangered
* Ipswich Sparrow	Rare
Ross' Gull	Rare
* Red-Necked Grebe	N.I.A.C.
Prairie Falcon	N.I.A.C.
* Red-Shouldered Hawk	Rare
* Cooper's Hawk	Rare
* Prothonotary Warbler	Rare
Henslow's Sparrow	Threatened
* Eastern Bluebird	Rare
* Barn Owl	Rare
* Bald Eagle	N.I.A.C.

(* Species recorded in New Brunswick)

MAMMALS

	SPECIES	STATUS
	Eastern Mole	Rare
	Vancouver Island Marmot	Endangered
	Black-Tailed Prairie Dog	Rare
	Fox Squirrel	N.I.A.C.
	Pocket Gopher	Rare
*	Right Whale	Endangered
	Bowhead Whale	Endangered
	Swift Fox	Extirpated
	Grey Fox	Rare
	Grizzly Bear	N.I.A.C.
	Newfoundland Marten	N.I.A.C.
	Black-Footed Ferret	Extirpated
	Badger	N.I.A.C.
	Sea Otter	Endangered
*	Eastern Cougar	Endangered
	Peary Caribou	Threatened
	Wood Bison	Endangered
*	Wolverine	Rare
	Long-Tailed Weasel (Prairies)	Threatened
*	Humpback Whale	Threatened
*	St. Lawrence Beluga	Endangered
*	Blue Whale	Rare
	Mountain Beaver	N.I.A.C.
	Queen Charlotte Islands Ermine	Rare
	Woodland Caribou: (By Population)	
	Dawson Woodland Caribou	Extinct
	Western Woodland Caribou	Rare
	Northeastern Woodland Caribou	N.I.A.C.
*	Maritime Woodland Caribou	Threatened
	Newfoundland Woodland Caribou	N.I.A.C.

REPTILES AND AMPHIBIANS

	SPECIES	STATUS
*	Leatherback Turtle	Endangered

(* Species recorded in New Brunswick)

PLANTS

	SPECIES	STATUS
*	Furbish Lousewort Pedicularis Furbishiae	Endangered
	Small White Lady Slipper Cypripedium Candidum	Endangered
	Willow Salix Planifolia Tyrrellii	Threatened
	Thrift Armeria Maritima Interior	Threatened
	Small Whorled Pogonia Isotria Medeoloides	Endangered
	Kentucky Coffee Tree Gymnocladus Dioica	Threatened
	Blue Ash Fraxinus Quadrangulata	Threatened
	Broad Beech Fern Phegopteris Hexagonaptera	Rare
	Southern Maidenhair Fern Adiantum Capillus-Veneris	Endangered
	Green Dragon Arisaema Draconitium	Rare
	Plymouth Gentian Sabatia Kennedyana	Threatened
	Pink Coreopsis Coreopsis Rosea	Endangered
	False Mermaid Floerkea Proserpinacoides	N.I.A.C.
	American Water-Willow Justicia Americana	Threatened
	Shumard Oak Quercus Shumardii	Rare
	Hop Tree Ptelea Trifoliata	Rare
	Giant Helleborine Epipactis Gigantea	Threatened
	Cucumber Tree Magnolia Acuminata	Endangered
	Pink Milkwort Polygala Incarnata	Endangered
	Mosquito Fern Azolla Mexicana	Threatened

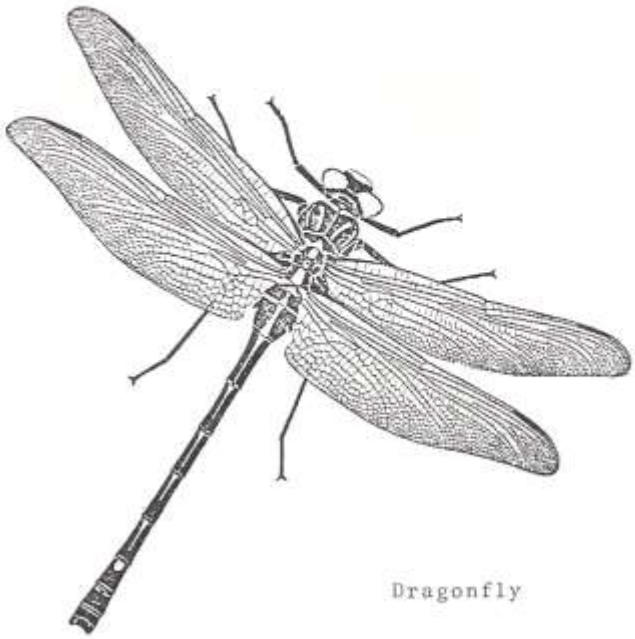
FISH

	SPECIES	STATUS
*	Shortnose Sturgeon	Rare
	Speckled Dace	Rare
	Giant Stickleback	Rare
*	Blueback Herring	N.I.A.C.
	Spotted Gar	Rare
	Spotted Sucker	Rare
	Silver Shiner	Rare
	River Redhorse	Rare
	Charlotte Unarmoured Stickleback	Rare
	Acadian Whitefish	Endangered
	Shorthead Sculpin	Threatened

(* Species recorded in New Brunswick)

"Bugs!"

Tony Thomas



Dragonfly

'DRAGONS' AND 'DAMSELS'

Order: Odonata

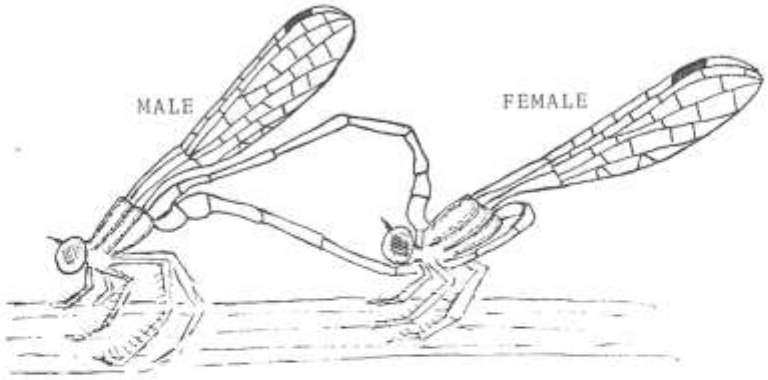
To many people, all adults of this group of insects are called dragonflies. The enlightened naturalist appreciates that two major groups (suborders) are included in the 'dragonflies'. These are the dragonflies proper (suborder: Anisoptera) and the damselflies (suborder: Zygoptera). They have many features in common, hence their being placed in the same Order; but they have some major differences, hence the separation into two suborders.

When at rest, dragonflies hold their wings outstretched at right angles and horizontal to the body whereas damselflies hold their wings together above the body in a fashion similar to butterflies. Both groups have large heads which rotate freely on the thorax. Dragonflies have enormous bulging eyes, each made up of up to 20,000 lenses, which overspread the head and touch each other. Damselflies have eyes projecting from the sides of the head; these eyes are widely separated from each other. Dragonflies have a generally more robust appearance and a purposeful flight; damselflies are more delicate with a fluttering uncertain flight.

Adults have well developed legs which are not used for walking (although they are used for clinging onto objects when the insect is not flying) but for catching food. All species are predators, feeding on insects ranging in size from mosquitoes and blackflies to bees and butterflies. In flight, the bristle-covered legs are slung forward beneath the head where they form an effective basket with which the insect prey is captured. As the prey is scooped out of the air, a slight dropping of the head brings the powerful mandibles (jaws) into contact with the prey, which is rapidly eaten.

Adult life consists of two stages: a maturation (pre-reproductive) period that lasts about one week and a reproductive period that lasts about a month.

Anatomically, odonate males are different from other insects. Whereas the males of other insects have the copulatory organs at the far end of the body, odonate males have theirs just behind the hind wings in the middle of the body. The male genital opening, however, is where it should be at the far end of the body. The mating process thus presents certain problems and obstacles. The first problem the male has to overcome is to transfer sperm from the end of his abdomen to the middle part of his body. This is readily accomplished by curling the tip of the abdomen forward until the genital opening touches the copulatory organs. The second obstacle, that of transferring sperm to the female, is left to the initiative of the female. But before this can happen, the selection of a mate has to be made. The selection of a female is made during flight. The posterior tip of the abdomen of the male has a pair of claspers with which the male can grip the neck of the female. Pairs of these insects flying 'in tandem' with the male in front are commonly seen above lakes and rivers where



Damselflies resting in tandem.

egg laying occurs. The actual transfer of sperm is dependent upon the female swinging her abdomen forward beneath her head and beneath the male's body and making contact with the copulatory organs of the male. Even after sperm transfer the pairs often remain 'in tandem'. The pair may separate for several seconds while the female oviposits, the male hovering nearby. After egg laying, the male again clasps the female and they continue to fly 'in tandem'. This process may be repeated for several hours.

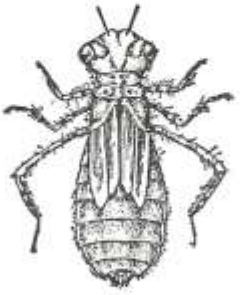
Damselflies always lay their eggs in the tissues of aquatic plants, sometimes extending the abdomen beneath the water surface to do so. Dragonflies may place their eggs in water plants but often just drop them onto the water. The most spectacular egg-laying behaviour I have observed, in Algonquin Park, Ontario, was by a large female who was hovering in a vertical position with her wings just above the water surface and her long slender abdomen beneath the water. Her performance consisted of flying up and down with her body vertical whilst slowly moving upstream, in the fashion of the vertically moving needle of a sewing machine. At each downward thrust an egg was being laid in the sand forming the stream bottom.

The eggs are parasitized by minute wasps; not surprising, as most insect eggs are similarly parasitized. Somewhat surprising, however, is that these wasps even parasitize the eggs laid under the water. The adult parasites enter the water and swim beneath the surface using their wings. There are enough food reserves in one odonate egg for a wasp to complete its life cycle.

Odonate eggs hatch into nymphs which resemble the adults except in size and development of the wings. The change-over from the aquatic nymph to the aerial adult is gradual, at each moult the nymph gets to look a little bit more like the adult until the final moult when the adult emerges. Such a development is termed simple metamorphosis in contrast to the complete metamorphosis shown by butterflies, in which the immature stages are termed larvae and bear no resemblance to the adult insect. Larvae have simple eyes in contrast to the compound eyes of nymphs and adult insects and show no evidence of wings. Insects undergoing complete metamorphosis require a 'resting' stage, the pupal stage, for the major job of restructuring the larval body parts into the adult parts.

Once again there are major differences between nymphs of dragonflies and damselflies. Damselfly nymphs are slender delicate insects which obtain oxygen from three tail-like gills at the end of the body. When harassed, these nymphs swim in a fish-like manner, the gills acting as a tail fin. Dragonfly nymphs are short and squat. Their gills are internal in a modified portion of the hind part of the alimentary canal. Water is pumped in and out of this chamber in a gentle stream. However,

when a burst of speed is necessary, to escape an enemy, for example, the water can be expelled from this chamber with sufficient force to propel the nymph forward rapidly - the original jet propulsion?



Odonate nymphs, like adults, are exclusively carnivorous and capture prey in a unique way. The 'lower jaw' terminates in a pair of grasping lobes armed with teeth, hooks and spines. This 'lower jaw' can be shot out in front of the nymph, grasp a prey animal and be withdrawn with such speed that the human eye cannot follow the motion. The prey is then eaten.

Dragonflies are a very old group of insects, known from the fossil record. One fossilized species from the Carboniferous and Permian Periods, about 300 million years ago, had a wing span of 70 cm (28 inches) and is the largest known insect which has ever existed on earth. Just think what size the mosquitoes must have been!

Worldwide, there are 4,780 known species of odonates; 420 are known from North America and 194 from Canada. I am not sure of the number of species presently known from New Brunswick but in 1942, 67 species were recorded from this province with a total of 88 species from the Maritimes.

To close on a somewhat pessimistic note, I will mention that odonates are especially sensitive to water degradation and offer exceptional promise for use as indicators to monitor faunal changes and to measure the environmental impact of human activities. Collect all you can now, in a few years such data may be of immense value.

Nature News

SPRING 1984

David Christie

Mammals

A Minke Whale made the news frequently during the fourth week of May, when it repeatedly came ashore and was towed out in Northumberland Strait between Grande-Digue and Caissie Cape. Ultimately, it washed in dead at Johnson's Point.

Last spring mention was made of a Woodchuck out on the early date of March 15. This year, an even earlier one met its fate on the highway at Florenceville March 9 (Ford Alward).

Writing from Grand Manan, Brian Dalzell reports that Otters are now commonly encountered on the island and are being caught regularly in beaver traps. Otters were apparently present on Grand Manan about 1900 but disappeared, only to again colonize the island sometime before 1960. Art MacKay believes that the introduction of Beavers to Grand Manan about 1948 has resulted in an increase of suitable freshwater habitat for Otters on the island (Ingersoll and Gorham; The history of the mammals of Grand Manan. Jour. N.B. Mus. 1979: 108-124), thus aiding the establishment of a viable population.

Rob Walker and Don Kimball, canoeing on partly frozen First Eel Lake April 15, enjoyed watching a pair of Otters poking their heads up through soft, slob ice and one of them running and tobogganing on the hard ice.

Birds

The most unusual birds reported this spring were Yellow-billed Loon, Lesser Black-backed Gull, Least Tern, and White-winged Dove. The loon, an adult in breeding plumage, was identified at Northwest Harbour, Deer Island, April 27, by Kathleen Telfer and David MacNearney. Unfortunately, it could not be photographed or subsequently relocated. Yellow-billed Loons breed in the Arctic, winter on the Pacific and are not normally expected along the Atlantic coast. A description of this, the first of its species reported in New Brunswick, has been placed in the museum files by the observers.

On April 26, an adult Lesser Black-backed Gull was discovered by Jim Wilson in flooded fields along the Saint John River at Lower Sheffield. The bird moved about the floodplain with many other large gulls, but was seen by four other observers on three occasions as far west as Maugerville and until May 1. No one succeeded in getting what could have been the first photo of this species in New Brunswick. There have been at least four previous sight records.

The few previous reports of Least Terns in New Brunswick, all after hurricanes, have not been well documented but this spring a beautiful adult bird was found dead at Saint John West by Shalometh Dow April 11. It is now preserved in the New Brunswick Museum collection.

Cecil Johnston succeeded in getting the first New Brunswick photographs of a White-winged Dove. He and Jim Wilson, visiting Grand Manan, found one at Castalia Bank May 22, a nice sequel to their Stonechat adventure of last fall. This dove had been reported in the province three times. Five days after the Grand Manan occurrence, another, or the same?, White-winged Dove was seen briefly at Mary's Point, Albert County, by Mary Majka. Although well beyond the spring period, it is pertinent to relate that a possible White-wing was also seen at Saint John West June 25 (Gerald Spencer et al.).

The period April 8-12, when a stalled weather system brought cold, northeast winds and snow to southeastern New Brunswick, affected many migrants. As the winds picked up on April 8, American Robins, which had been moving north for two weeks, turned around and at least 400 were seen retreating to the southwest at Mary's Point (DSC). When the snow began the next day (Moncton received 91 cm of snow April 9-12), thousands of small birds concentrated wherever they could find bare ground or a source of food. Along the Albert County shore, where the snow was less heavy, spectacular numbers of sparrows were observed. Rob Walker reports thousands of Dark-eyed Juncos and hundreds of Song and Fox Sparrows on the 9th, tens of thousands of Juncos and thousands of Song and Fox Sparrows on the 10th. At my Mary's Point feeder, Juncos peaked at about 75, Song Sparrows at 80, and Fox Sparrows at 100 on the 12th. More than a mile or two from the bay few of these birds could be found. At Stoney Creek, 30 overwintering Am. Tree Sparrows remained at a feeder until April 15 and then disappeared entirely (Al Fownes).

At this same time, a few birds appeared on very early dates (and there was also the Least Tern record). Three Rose-breasted Grosbeaks were earlier than any previous provincial record. Two of them came to feeders April 8, one at Saint John West (Reg Smith), the other, which remained till at least mid-May, at New Horton, near Riverside-Albert (Shannon Inman et al.). We don't have a date for the third, which was at Lakeville, Carleton County, in early April (Anna Fogarty). Very early Black-and-White Warblers,

one at Fredericton April 10 (Jean Adams) and three at Florenceville April 15 (Jeannette Green), were well ahead of the usually first Palm and Yellow-rumped Warblers.

There were the normal few appearances of 'southern' herons and ibises, which overshoot their breeding range in spring migration: 1, later 2 Snowy Egrets, at Halls Creek, Dieppe, from May 12 (Lowell Brine et al.), 2 at Saints Rest Marsh, Saint John West, May 16 (Johnston), 1 at Grand Manan in late May (Wilson & Johnston), 2 then 3 at Red Head Marsh, Saint John East, May 24 and 28 (Hugh Cunningham, Tom Page et al.); 2 Louisiana Herons at Saints Rest May 25 (Johnston); a Cattle Egret at Woodwards Cove, Grand Manan, in early April (Mildred Russell), 1 at Sheffield May 11-13 (Jeremy Forster), 1 at Burton May 16 (George Gilbert), 1 at Grand Manan in late May (Wilson & Johnston); a Glossy Ibis at Red Head Marsh May 14 and about the 17th (Wilson and Jack Holloway) and 2 at Sheffield May 12 or 13 to 22 (Peter Pearce et al.). Green-backed (Green) Herons included one at Gagetown May 20 (Enid Inch) and two at the Perth sewage lagoon in late May (Fred Tribe).

Did some of last fall's stray Tundra (Whistling) Swans return this spring? Shannon Inman, who found two of last year's birds, reported two again, near Waterside April 8. A few Snow Geese were seen among the waterfowl between Lower Jemseg and Sheffield, the first being three April 15, the last seven or eight May 11 (Pearce & Doug Graham). A pair of Gadwalls were seen at Lower Jemseg April 23 (Jeremy and Margaret Forster) and another pair at Mary's Point April 28 to May 5 (DSC). A Eurasian Wigeon was at Moncton May 11 (Ruth Rogers) and later (Brian Dalzell). The largest number of Northern Shovelers, of which a pair were upriver as far as Perth sewage lagoon in May (Tribe), was six at Red Head Marsh April 5 (Page).

Barrow's Goldeneyes, picked out from the much more numerous Common Goldeneyes, were a female at Lower Jemseg April 7 and a male at Jemseg April 12 (Pearce) and three at Meenan's Cove, Quispamsis, April 15 (Wilson). This species was also seen at Connell, below Florenceville, April 8 (Jean Carmichael). Among several reports of Hooded Mergansers were seven in open patches of water around Hammond River and Darlings Island, near Hampton, March 25 (Wilson) and a pair at Riverbank, below Florenceville, April 15 (Carmichael).

Brant are common in certain coastal areas but rather rare inland, where there was one at Maugerville April 23 (Pearce), another at Hampton sewage lagoon April 27-28 (Mark Phinney) and perhaps the same one on the river near Hampton May 29-30 (Graham). A pair of Oldsquaws were inland at Jemseg April 7 (Pearce).

Most readers are probably aware that hybridization between Mallards and Black Ducks is increasing. Recent observations of that phenomenon include a hybrid male paired with a Black female at Maugerville, a male Black paired with a female Mallard near Gagetown (Graham), and four male Mallards paired with Black females in the Jemseg area June 5 (Henrik Deichmann). An interesting report of behaviour that might lead to hybridization comes from Doug Graham, who observed a Greater Scaup defending a female Ring-necked Duck against three male Ringnecks near Hampton May 15. The female passively accompanied the scaup.

Three Turkey Vultures were reported, near Murray Corner April 25 (Brian Dalzell) and at Moncton (Pearce) and Upper Woodstock (Bob Speer) May 23. Two of the rare Cooper's Hawk were identified, a female studied for 15 minutes while it sat on a hydro pole near Woodstock April 18 (Dalzell) and an immature-plumaged bird at Black Brook, between St. Leonard and St. Quentin, May 22 (Kimball). Some Gyrfalcons occurred later than usual. An almost white bird and a gray-backed one at Hopewell Hill, near Riverside-Albert, April 16 ('Mike' Majka) may have been influenced by the bad early April weather, but a dark Gyr had no logical excuse for being at Machias Seal Island May 11 and 15 (Steve Daniel).

Willets were reported at Grand Manan, Mary's Point, Waterside, and Cape Tormentine during May and at Buctouche Bar, where they are apparently now breeding, June 4 (Pearce and Phinney). A Whimbrel at Red Head April 17 (Page) was a scarce spring migrant, as well as earlier than previous provincial records. Also earlier than usual were a Dunlin March 31 and April 1 (Walker, Angus and Stella MacLean) and a Short-billed Dowitcher April 22-23 (DSC and Majkas), both at Waterside. Seven Solitary Sandpipers at Tripp Settlement, near Keswick Ridge, May 13 (FFNC) and five at Jones Lake, Moncton (Dalzell) were rather high counts for spring.

Two Wilson's Phalaropes at Sheffield May 12 (DSC) and 22-23 (Pearce) continue the pattern of occurrence of recent years, but the four Red Phalaropes at Jemseg May 13 (Pearce) were unusual there. A very unusual gull in spring was an adult Ivory Gull which visited Machias Seal Island May 11 (Steve Daniel). One to two Laughing Gulls were also seen there beginning May 15.

A Snowy Owl seen regularly in Saint John throughout March was last reported to the museum on April 11. Another was being harrassed by crows at Cambridge March 29 (Gordon and Annie Carpenter). A Boreal Owl at Gull Lake, near Black Brook, April 7, the first reported in the province for a few years, typically allowed Don Kimball to approach it within a few feet.

Two Red-headed Woodpeckers were found, one at Machias Seal Island May 10-11 (Daniel) and the other at Hartland May 18-25 (Sheila and Stephen Palmer et al.).

A large flock of Horned Larks, which had begun to return during the last week of February, was 130+ at Moncton Airport March 16 (Dalzell). Concentration of swallows were 250 Trees at Beechwood May 9 (Ford Alward), and 500+ Banks at Harvey, Albert County, May 22 (Walker). May 25, when about 100 were noticed moving east, was the peak of Blue Jay migration at Mary's Point (DSC). In Fundy Park and neighbouring areas American Robin migration was heavy April 2-6 and especially April 17-18, when Rob Walker reported thousands migrating along the bay.

A House Wren was seen near Hampton May 20 (Graham). An Eastern Bluebird, among a large flock of Robins, at Cambridge April 25 (Joyce and April Robinson) was the only one of its species reported before the month of June. As usual in recent years, there were several reports of Northern Mockingbirds, including a pair possibly nesting at Woodstock in May (Tom Bellis) and an individual at Florenceville May 12 (Ron and J. Green). Brown Thrashers were in fewer locations, a pair at Lower Brighton, near Hartland, from May 13 (Arthur Bryant) five at Machias Seal Island May 16 (Daniel), and two at Fredericton May 26 (FFNC).

The winter's good flight of Bohemian Waxwings lasted into the spring, with 100 still at Moncton March 14 (Bill Quartermain), 20 at Fredericton March 25 (Pearce), 20 at Clifton, Gloucester County, April 12, seven at Midway, near Riverside-Albert, April 29 (Dalzell) and a very late individual at Martinon, Saint John, May 15 (Evan Smith).

A Loggerhead Shrike was identified near Hampton April 18 (Graham, Terry Power and Earle Hickey), just four days after Rob Walker watched the latest Northern Shrike singing at South Branch, near Mechanics Settlement.

As in 1983, a good number of Indigo Buntings were reported, beginning with a pair at Millidgeville, Saint John (Joan Sellars), and a male at Two Brooks, near Everett (Glen Howard and Roger Jenkins), April 18 and one at Saint John West April 19 (Herb Owen). Unusual in spring was a Dickcissel at Riley Brook April 27 (Jenkins). A female Rufous-sided Towhee was at Machias Seal Island May 8-23 and 6 Field Sparrows appeared there May 8; a good number of White-crowned Sparrows, 25, were on that island May 21 (Daniel).

At Wilson's Beach, an adult male Yellow-headed Blackbird visited feeders along with other blackbirds March 25 to April 3 (Gloria Newman, Sheila Malloch et al.). This western species is extremely rare here in spring.

House Finches have re-appeared in the province. A male began visiting Ford Alward's feeder at Florenceville May 3 and was later joined by a female. They continued to be seen sporadically into June. Another female was seen for several days beginning May 11 at Springfield, near Upper Hainesville (Bob Speer).

Various small finches were numerous at bird feeders this spring, for instance 100+ Common Redpolls March 24 and 75+ Pine Siskins at Brian Dalzell's in Moncton, 'many' siskins at Reg Smith's in Saint John West April 8, 'too many siskins to count' at Dave Smith's in Saint John April 9, 33 Purple Finches May 8 and 35 American Goldfinches May 20 at mine at Mary's Point.

Have you noticed a reduction in House Sparrow numbers? Harriet Folkins mentions a considerable die-off of them at Sussex during the winter and early spring. A lot of dead or sick sparrows have been found. Perhaps an epidemic affected them there.

A selection of first sightings for the spring follows: Pied-billed Grebe at Florenceville April 5 (Alward); 2 Double-crested Cormorants at Saint John March 24 (Dalzell); Great Blue Heron at Saints Rest March 22 (Johnston); Wood Duck April 11 at Saint John West (Molly Smith); Green-winged Teal at Mary's Point March 17 (DSC) and 5 at Saints Rest March 20 (Johnston); Northern Pintail March 23 at Saints Rest (Johnston); 2 Blue-winged Teal April 9 at Sussex (DSC and Mary Majka); Northern Shoveler March 29 at Saints Rest (Johnston).

Osprey April 3 at New River Beach (Dalzell) and April 8 at Hartland (Marie Bryant); Northern Harrier (Marsh Hawk) at Waterville, near Jacksonville, March 30 (Alward); Am. Kestrel March 25 at Sheffield (Pearce) and March 27 at West Saint John (Gayl Hipperson).

Sora April 29 at Mary's Point (Mike Majka); Semipalmated and 11 Piping Plovers April 23 at Waterside (DSC and Majkas); 2 Killdeer at Bristol March 23 (Albert Bell) and 1 at Waterside March 25 (Dalzell and Jim Blewett); Greater Yellowlegs at Waterside April 26 (DSC); Spotted Sandpiper from May 2 (Graham); 4 Upland Sandpipers at Salisbury May 10 (Dalzell); Semipalmated Sandpiper May 19 between Saint John and Jemseg (SJNC) and at Moncton (DSC); 7 Least Sandpipers at Moncton May 10 (Dalzell); 20 Pectoral Sandpipers May 12 at Machias Seal Island (Daniel); Common Snipe April 12 at Harvey (DSC) and 3 near Moncton April 13 (Dalzell); American Woodcock March 25 at Mary's Point (DSC); 2 Terns (Common or Arctic) May 6 at Maugerville (Pearce); 6 Caspian Terns April 26 at Mary's Point (DSC).

Black-billed Cuckoo in the last week of May at Sussex (Folkins); Common Nighthawk May 22 at Mary's Point (Mike Majka) and 6 on May 25 at Moncton (Dalzell); 2 or 3 Ruby-throated Hummingbirds May 17 at Saint John West (Molly Smith and Isabel LeBlanc); Yellow-bellied Sapsucker April 27 at Good Corner, near Centreville (Carmichael); Common Flicker April 3 at St. Andrews (Dalzell); Olive-sided Flycatcher May 23 at Fundy Park (Walker) and May 24 at Williamstown, near Centreville (Carmichael); 2 Eastern Kingbirds May 9 at Hartland (Palmer); Tree Swallow April 14 at St. Andrews (Ian Cameron) and Williamstown (Dean Prior) and April 15 at several places; Cliff Swallow April 25 at Bayside, near Port Elgin (Dalzell); 2 Barn Swallows April 29 at Waterside (Dalzell).

3 Water Pipits May 5 near Lower Jemseg (Graham); 4 Cedar Waxwings May 25 at Mary's Point (DSC); 2 Philadelphia Vireos May 22 at Mary's Point (DSC); 2 Red-eyed Vireos May 25 at Fundy Park (Walker); 12 Yellow-rumped (Myrtle) and 20 Palm Warblers April 23 at Bancroft Point, Grand Manan (Dalzell); Black-throated Green Warbler May 3 at Wicklow, near Florenceville (Green and Carmichael); 2 Chipping Sparrows April 26 at Florenceville (Green); Savannah Sparrow from April 16 and Swamp Sparrows from May 3 in southern N.B. (Graham); Fox and 3 Song Sparrows March 24 at Mary's Point (DSC); White-throated Sparrow April 22 at Williamstown (Carmichael) and Mary's Point (DSC); 12 White-crowned Sparrows May 8 at Machias Seal Island (Daniel).

Bobolink May 8 at Mary's Point (DSC) and May 13 at Saint John West (15, Johnston), Hammond River (flock, Charlie Wilson), Hartland (Prior), Florenceville (Green) and Harvey (50, DSC); Red-winged Blackbirds and Common Grackles at Alma (Walker) and 2 Grackles at Saint John West (Johnston) March 23; 6 Rusty Blackbirds March 25 at Alma (Walker); Northern (Baltimore) Oriole at Machias Seal Island May 8 (Daniel).

Flora

Little information has been contributed on spring flowers. The earliest reported Coltsfoot flower was at Saint John March 26 (Johnston) and Skunk Cabbage was in bloom at Hammond River by April 11 (Dick Fillíter). Among garden weeds, Bird's-eye Veronica (V. persica) was flowering at Mary's Point April 7 (DSC) and Common Chickweed at Saint John West April 23 (M. Smith). Both Dogtooth Violet and Red Trillium were blooming at Rockwood Park, Saint John, May 7 (Page).

LIQUIDATION SALE

Copies of Rogers Burrows' A birdwatcher's guide to Atlantic Canada, Volume 1 - offshore Islands, Pelagic Ferries, Newfoundland and Labrador, is available for just $2.00 per copy (regular price $4.95) from Touche Ross Limited, P.O. Box 13094, St. John's, Newfoundland A1B 3V8.

Rare New Brunswick Plants

AN ARCTIC ISLAND IN A BOREAL SEA...

THE ARCTIC PLANTS OF THE WILSON BROOK GYPSUM CLIFFS AREA

Hal Hinds

Normally you would expect them near the tops of the highest mountains or in the Arctic, north of the treeline, but there they are on the gypsum cliffs and on the nearby gypsum talus, near Wilson Brook in Albert County. Here occur three flowering plants which are found nowhere else in the province. This rare threesome is Mountain Avens (Dryas integrifolia), the Dwarf Goldenrod (Solidago multiradiata), and the Arctic Willow (Salix myrtillifolia). The area also supports the rare Small-flowered Anemone (Anemone parviflora) and the Buffaloberry (Shepherdia canadensis). Each of the latter two species occurs in only a few scattered localities on limestone elsewhere in the province. Why do these unusual plants cling to this small area of gypsum?

This specialized habitat differs from the majority of habitats in our area in that the soil is less acid, and the substrate relatively unstable and ecologically young with little or no soil profile development and high mineral content.

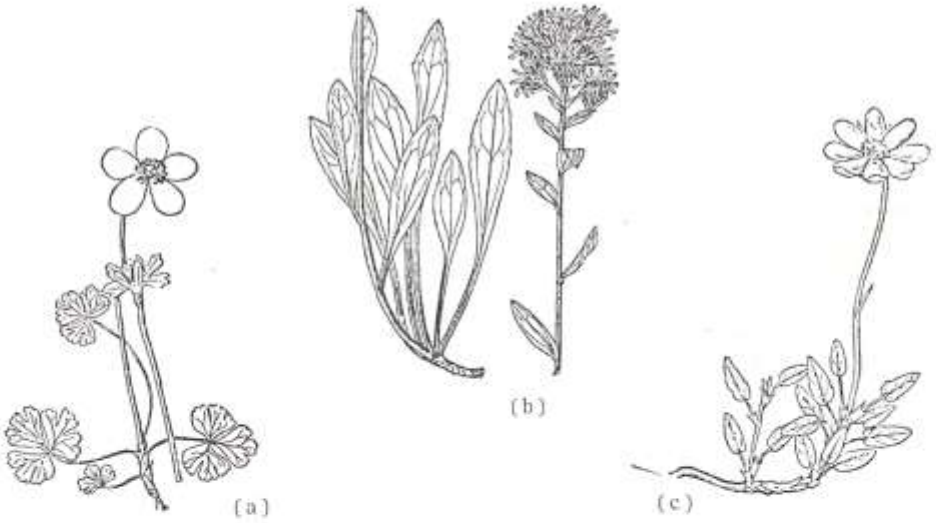
The arctic plants, now isolated in such sites, represent relicts of the vegetation of late glacial or early postglacial times, which have been extinguished over the bulk of their former range by forest expansion and consequent shading. They, and other plants, slowly migrated south ahead of the glacial ice during the last of the most recent glaciation stages, the Wisconsin, of the Pleistocene epoch, within the last 30,000 years. When the climate warmed and the glaciers retreated northward, as recently as about 10,000 years ago, the majority of the plants followed.

However, some of these arctic plants managed to survive on high mountain peaks above the treeline such as in the White Mountains of New Hampshire, Mt. Katahdin in Maine, the Shickshock Mountains of the Gaspé, the deep canyons of Cape Breton Highlands, and in New Brunswick along the Fundy coast, on the summit of Big Bald Mountain in Northumberland County, and on the cool, moist gypsum above Wilson Brook. Here the crumbling gypsum provides a suitable niche for the abandoned arctic plants.

This specialized habitat is too unstable, precipitous or temporary, and chemically unsuitable to support a cover of the boreal forest that could overshadow the sun-loving arctic plants. Today they continue their precarious existence as they have for approximately 8,000 years, making these populations some of the oldest in New Brunswick.

The Wilson Brook gypsum cliffs area has been proposed for legislated status as an ecological reserve. This status could set aside the area as an important natural landmark and could also prohibit further use of the area except under special circumstances. This would depend on the management plan developed for the area. However, because of certain geological features of the area, the local residents are eager to develop the area as a tourist attraction. Without proper management, the friable gypsum and the fragile plants would probably soon disappear.

One possible solution would be to carefully develop the area as a unique kind of botanical garden and plant and animal sanctuary. The soil and general topography are especially suitable for the growing of a great variety of plants. The cliffs, sinkholes, pond and brook all contribute to the scenic beauty of the site and could, with careful planning, be developed into New Brunswick's first botanical garden and a major tourist attraction.



Arctic threesome of the Wilson Brook gypsum cliffs.
(a) Anemone parviflora. (b) Solidago multiradiata. (c) Dryas integrifolia.

Book Reviews

The Whale Watcher's Handbook. By Erich Hoyt. 1984. Penguin Books, Markham, Ontario. 208 pp. Illustrated. $14.95.

A Field Guide to the Whales, Porpoises and Seals of the Gulf of Maine and Eastern Canada (Cape Cod to Newfoundland). By Steven K. Katona, Valerie Rough and David T. Richardson. 1983. Charles Scribner's Sons, New York. 255 pp. Illustrated. $15.95.

Reviewed by Mary Majka.

The Whale Watcher's Handbook is just about the best field guide I have encountered on any subject! It is astonishing how so much information could be packed into 208 pages of text, photographs, drawings, and maps, all well laid out and pleasingly printed. This well researched and meticulously put together book will prove to be another of those indispensable aids to all naturalists regardless whether they contemplate going on a whale watching expedition, live on the coast, or want to follow the recent concern for and interest in those 'friendly giants'. That is how Erich Hoyt refers to whales, dolphins and porpoises -- and although he is more factual than poetic in describing these mammals of the sea, there is no doubt left that he studies whales with the greatest of respect and love for his subjects.

The book is divided into three sections. First, the identification of 77 species of whales, all accompanied by at least one photo and one drawing. Second, a guide to places where whale watching is at its best. The North American continent, Hawaii and the West Indies are treated in much detail, with varying amounts of information on the rest of the world, (probably dependent on availability). The author does not stop there. In the third section is a wealth of information on where to find whale watching outfits, whom to contact, what to read and to listen to. A glossary explains what a 'bonnet' or a melon is in the whale fashion world. As a good guide should, Mr. Hoyt sees to it that we take the right clothing, cameras, and recording equipment with us and he even looks after our discomforts at sea by popping the right pill into our awe-struck mouth.

A highly recommended book; in my opinion, a must.

After all the superlatives I just bestowed on Erich Hoyt's book, I can see readers just rushing out to the nearest book store. But hold your dolphins! I am about to convince you that you should spend yet more money and in the process really become an expert on marine mammals. (That could be a great asset in the future when

New Brunswick may have a National Marine Park of its own). A Field Guide to the Whales, Porpoises and Seals of the Gulf of Maine and Eastern Canada can easily match Hoyt's book in appearance, excellence of research, and illustrations (photos and drawings). A bit more bulky, its 255 pages are full of detailed information on six baleen and 16 toothed whales (including dolphins) as well as six species of seals. There is a very interesting chapter on the feeding habits of marine mammals and the life cycle of marine life that they feed on. Tips are included on the best times and places to observe and photograph marine mammals from the land, or from sea by taking boat trips anywhere from New England to Newfoundland.

This book is a third, and much enlarged, edition of the modest booklet on which I was weaned as a whale watcher (A Field Guide to the Whales and Seals of the Gulf of Maine) and is the handiest reference for our area. Whenever you're confronted a wondrous creature emerging from the sea, I am sure you will treasure both books.

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'and some brought flowers' - Plants in a New World. Selected and introduced by Mary Alice Downie and Mary Hamilton. Illustrated by E.J. Revell. 1980. University of Toronto Press. 164 pp. $24.95.

Reviewed by Molly Smith.

This book's intriguing title comes from Martin Frobisher who, on reaching the coast of Labrador in 1576 'commanded his company, if by any possible means they could get ashore, to bring him whatsoever thing they could first find, whether it were living or dead, stock or stone, in token of Christian possession --- and some brought flowers'.

The introduction outlines the history of botanical observations and collections in Canada from Louis Hébert, first settler on the St. Lawrence, to Catherine Parr Traill whose 'Canadian Wild Flowers' was published in 1868.

Of the 30 species illustrated in Mrs. Traill's book only 13 appear in this present volume, which has 70 species arranged alphabetically. However, Mrs. Traill's selection was limited to flowering plants observed and described by her when she settled in Upper Canada around 1840, whereas the list of Mrs. Downie and Mrs. Hamilton ranges throughout the plant kingdom and includes lichens, ferns and conifers with species chosen from across the continent.

The illustrations are delightful. Each is given a full page and is accompanied by a botanical description and notes on distribution together with quotations from a wide range of historical sources. Some of these record the value of the plants to early explorers and settlers (in many cases learned from Canada's original inhabitants, the Indians) while others are purely descriptive.

The book ends with an excellent biographical and bibliographical section on the authors quoted which makes it useful for reference.

Beautifully produced, the volume is a pleasure to handle. It is not a manual to be consulted for botanical information but rather a delightful source of happy winter hours indoors and a useful guide to further reading on the history of botany in Canada.

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The Rare Vascular Plants of New Brunswick/Les Plantes Vasculaires Rares du Nouveau-Brunswick. By/Par Harold R. Hinds. National Museum of Natural Sciences/Musée national des sciences naturelles. 1983. Syllogeus 50. 38 pp./41 p. + maps/cartes. (Free/Gratuit! Available from National Museum of Natural Sciences/Disponible du Musée national des sciences naturelles; Ottawa, K1A 0M8).

Reviewed by Stephen Clayden, Rothesay.

The Rare Vascular Plants of New Brunswick is the ninth publication of the Rare and Endangered Plants Project undertaken by the Botany Division at the National Museum of Natural Sciences (NMNS) in 1975. The project was founded on the premise that accurate, readily accessible information on the distribution and status of rare plants is a prerequisite to the adoption of appropriate conservation measures for both individual species and sensitive natural areas. Accordingly, carefully documented rare plant lists are being compiled and published for each of the provinces and territories of Canada. The assistance of regional botanists and naturalists has been solicited throughout the project and a number of the lists have been co-authored by botanists at provincial museums and universities. Hal Hinds has the distinction of being the sole author of the New Brunswick list, and he is to be congratulated for having brought a many-faceted task to successful completion.

*Un compte rendu français de cette publication paraîtra dans le prochain numero du Naturaliste du N.-B.

In format, the list follows the model set by the previous publications in the NMNS rare plants series. An introduction of several pages details the criteria by which species were assigned rare status as well as the research methods, organization of the lists, and distribution patterns of rare plants in the province. A tellingly brief section outlines the protection (or lack thereof) of rare plants in New Brunswick. The list proper is arranged alphabetically and presents information in condensed form on the following aspects of each rare plant: scientific name and synonyms (common names are not given, since their use is not uniform: snakeroot, for example, may refer to any of three dissimilar plants in the New Brunswick flora); documentation of occurrence in New Brunswick (location of voucher specimens, citation of literature records); North American and New Brunswick range; references to published distribution maps; habitat; and status in other provinces/territories of Canada and in the United States. Concise supplementary notes are provided in many cases on known threats to rare plant habitats, on dates of last known collections and on the possibility that certain species have been introduced into the province. There are two appendices to the main list, the first a list of excluded species and the second a re-listing of the rare species in taxonomic sequence. Distribution maps are provided for all species and are grouped together at the end of the publication.

According to the working definition adopted by the Rare and Endangered Plants Project, 'a rare plant is one that has a small population within the province or territory. It may be restricted to a small geographic area or it may occur sparsely over a wider area.' In New Brunswick, these two types of rarity may be illustrated by Senecio pseudo-arnica, the Seabeach Groundsel, known only from Grand Manan, and by Asplenium viride, the Green Spleenwort, which occurs at several widely spaced localities in the province, but always in very low numbers. The 206 vascular plants identified by these criteria represent approximately 15-20% of the indigenous New Brunswick flora, a proportion similar to that recorded in rare plant publications for other provinces. Not surprisingly, the plant families with the greatest overall species representation in the province are also those with the largest contingent of rare species. Taken together, the grass, sedge and aster families comprise one-third of the rare plants of New Brunswick. The large number of unfamiliar species should not discourage naturalists from obtaining and using this important book.

To appreciate the makeup of the list, it is necessary to recall that the definition of rarity is based on criteria of distribution and population density and that no explicit reference is made to the notion of vulnerability. This explains the absence of certain plants, including orchids such as the Showy Lady's-Slipper, Cypripedium reginae, which some naturalists would consider to be vulnerable to wildflower picking or habitat

destruction, and which is decidedly not common. Spiranthes lucida, Salix candida, Hepatica americana, Arabis drummondii and Dirca palustris are other examples of plants which the author presumably considers to be widespread and/or locally common, since they are not included in the list. I am surprised, however, at the absence of the Showy Orchis, Orchis spectabilis, which has been assigned rare status in all of Quebec, Maine, New Hampshire and Vermont (Bouchard et al. 1983). Other species could be mentioned which must have been considered as candidates for rare status, and I wonder why more do not appear in the appendix of excluded species. 'Possibly introduced' species, most of them confined at present to man-created habitats, may seem to some botanists to be over-represented on the list. These are difficult cases to decide on and I feel that the author has opted wisely to include them.

'Rare' is perhaps a euphemistic way to describe the status of a distressing number of vascular plants in New Brunswick. According to my tallies of the information presented, 9 species have not been seen in the field since 1900, 11 more since 1940 and a further 6 since 1965. Most of these are plants with conspicuous flowers or foliage and it seems unlikely that they have been overlooked by recent collectors. Figures like these should be enough to prompt a serious reassessment of conservation policy and practice in New Brunswick, to say nothing of the urgent need for remedial action.

In his interpretation of the distribution patterns of rare plants in New Brunswick, the author identifies 13 'centres of rare plant concentrations', most of them characterized by the presence of 'specialized habitats'. Examples include the Grand Lake area, Shippegan-Miscou Islands, and the Bay of Fundy coast. Such a classification provides information which will prove essential to the establishment of a network of formally protected, distinctive natural areas in the province. The biogeographic and dynamic contexts of rare plant distribution patterns are not analysed in this section. Hal Hinds is perhaps reserving a full treatment of the subject for his upcoming (impatiently awaited) Flora of New Brunswick.

We are accustomed to taking for granted the ready accessibility of unspoiled natural areas in our province - rivers, sand dunes, marshes, forests to which we return often in our leisure time. Few of us, however, are without a tale to relate of how some favourite local haunt has been destroyed by a housing subdivision or a new road or been overrun by all-terrain vehicles. The disappearance of a number of vascular plants from the flora of New Brunswick is a result of the summing of such individual losses of natural habitat. Distinctive plant communities generally harbour dependent and equally distinctive associations of animals, fungi and microbial life. Plants, therefore, are conspicuous, useful indicators of the overall biological diversity and character of natural areas. The monitoring of their status, to which naturalists can make a valuable contribution, may help to ensure the health of whole ecosystems.

This publication should encourage New Brunswick naturalists to act upon an important part of the mandate of our provincial federation, namely 'to encourage an understanding of nature and the environment' and 'to safeguard the natural heritage of New Brunswick'. I hope that individuals in each of the regional clubs will write for copies of the book and will familiarize themselves with some (or more) of the rare species and distinctive habitats in their areas. In order that our concerns about threats to local habitats or species' populations be known and addressed, we must also take it upon ourselves to report them to our clubs and federation.

Bouchard, A., D. Barabé, M. Dumais and S. Hay. 1983. The rare vascular plants of Quebec/Les plantes vasculaires rares du Québec. National Museum of Natural Sciences, Syllogeus 48.

Recent Titles

OF INTEREST TO NEW BRUNSWICK NATURALISTS

Compiled by Donald McAlpine

Clayden, S.R., D.F. McAlpine and C. Guidry. 1984. Rare and Vulnerable Species in New Brunswick. The New Brunswick Museum Publications in Natural Science No. 2. 95 pp.

Corey, S. and L.J. Newman. 1984. Aspects of the biology and distribution of pteropods (Gastropoda; Opisthobranchia) from the Bay of Fundy Region, Canada. Canadian Journal Zoology 62:397-404.

Gaston, A.J. 1984. Guide to the Seabirds of Eastern Canada. Canadian Wildlife Service, Environment Canada.

Herman, T.B. and F.W. Scott. 1984. An unusual decline in abundance of Peromyscus maniculatus in Nova Scotia. Canadian Journal Zoology 62:175-178. (*Compares Nova Scotia data with three New Brunswick localities.*)

Kevan, D.K. McE. 1983. A preliminary survey of known and potentially Canadian and Alaska centipedes (Chilopoda). Canadian Journal Zoology 61:2938-2955. (*Contains some New Brunswick records and an excellent review of our state of knowledge of Canadian centipedes.*)

Kevan, D.K. McE. 1983. A preliminary survey of known and potentially Canadian millipedes (Diplopoda). Canadian Journal Zoology 61:2956-2975.

Lobban, C.S. 1984. Marine tube-dwelling diatoms of Eastern Canada; descriptions, checklist and illustrated key. Canadian Journal Botany 62:778-794.

Mulligan, R. 1984. Geology of Canadian Tungsten Occurrences. Geological Survey of Canada. Economic Geology Report 32. 121 pp.

Powell, G.R. 1984. Forest cover on two watersheds of the Nashwaak experimental watershed project in west-central New Brunswick. Naturaliste Canadiene 111:31-44.

Smith, G.J.D. and D.E. Gaskin. 1983. An environmental index for habitat utilization by female harbour porpoises with calves near Deer Island, Bay of Fundy. Ophelia 22:1-14.

Whitaker, J.O. and T.W. French. 1984. Foods of six species of sympatric shrews from New Brunswick. Canadian Journal Zoology 62:622-626.

Versteeg, H. 1984. The protection of endangered species: A Canadian perspective. Ecology Law Quarterly 2(3):267-304.

Cook, F.R. 1984. Introduction to Canadian Amphibians and Reptiles. National Museum of Natural Sciences. 200 pp.

Blouin, G. 1984. Weeds of the Woods: some small trees and shrubs of New Brunswick. Department of Natural Resources, New Brunswick.

Blouin, G. 1984. Arbustes des Bois: La flore méconnue du Nouveau-Brunswick. Ressources Naturelles Nouveau-Brunswick. 125 pp.

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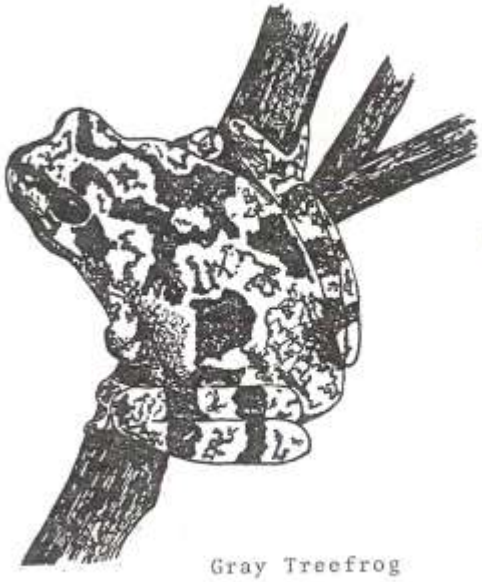
NEW CWS PUBLICATION

The Canadian Wildlife Service has announced the release of a new publication on wolves. Entitled Wolves in Canada and Alaska: their status, biology and management, the book brings together the latest information on the distribution of wolves, their relationship with big game, the problems that arise from man-wolf contacts, and the management challenges faced by various jurisdictions. The publication is a compilation of papers presented by wolf specialists from government and universities at a symposium held in Edmonton in 1981. Copies are available in English or French for $12.50 in Canada, $15.00 foreign, from the Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Ontario K1A 0S9.

Museum News

NEW PUBLICATION RELEASED



Gray Treefrog

Rare and Vulnerable Species in New Brunswick is the title of the recently released second publication in the museum's Natural Science Series. Authors Stephen Clayden, Donald McAlpine, and Carol Guidry have drawn together information on the status of fifty-two rare and vulnerable species of New Brunswick plants, freshwater molluscs, butterflies and moths, fishes, amphibians and reptiles, birds, and land mammals.

The publication, funded by the Environmental Protection Agency, Environment Canada, gives the geographic distribution of each species (maps show provincial occurrences), describes the species' habitat in New Brunswick, and assesses the vulnerability of each animal and plant based on the actual or potential threats to its existence in the province.

The report aims not only to summarize available information on the current status of rare and vulnerable species in New Brunswick, but to alert policy makers, resource developers, and conservationists to the possibly precarious survival of these animals and plants in the province.

In the introductory section, the report stresses the need for changes in provincial legislation to safeguard species jeopardized by loss of habitat, and urges establishment of a well-defined review process to bring government attention to the status of vulnerable species. The authors lament the failure of the New Brunswick Endangered Species Act to provide direct protection for the habitat of endangered animals, as it does for plants, and notes that while a second piece of legislation, the provincial Ecological Reserves Act, allows for the creation of reserves 'in which rare or endangered native plants and animals ... may be preserved', to date no reserve has been established to protect the habitat of a rare or vulnerable species in New Brunswick.

As museums play a valuable role in the collecting, storing, and disseminating of information used in assessing the status of wildlife, readers of the publication are invited to contact the New Brunswick Museum with their comments, additions, or deletions to the fifty-two species provincial list.

Rare and Vulnerable Species in New Brunswick is available from the Museum Sales Department for $5.00.

SCIENCE STAFF

The Natural Science Department is pleased to announce the appointment of Yvonne Bourque to the Museum's permanent staff as Science Laboratory Technician and Specimen Preparator. Yvonne began her museum career three years ago as a volunteer helping Stan Gorham. She overcame her initial distaste for the often messy insides of animals (with flying colors, in fact -- she single-handedly reduced a rotting, 300 pound bull moose to a nice clean skeleton last summer), picked up more than a few tips from Stan and a Museum-run Manpower Training Program, and gradually became so indispensable as to be elevated from casual to permanent status.

In addition to her routine specimen preparation and collections maintenance duties, Yvonne is honing her taxidermy skills as she practices preparing birds and mammals for the new gallery exhibits.

* * * * *

Two exhibit researchers have joined the Science staff on six-month contracts. Elizabeth MacLellan, a Fredericton geologist, and Chris Majka, well-rounded New Brunswick naturalist and media free-lancer based in Halifax, are developing exhibit concepts for the new natural history gallery now under development.

Federation News

AGM

The 1984 annual general meeting, hosted June 8-10 in Florenceville by the Valley Naturalists, was blessed with sunny skies, exceptionally interesting area field trips, good attendance, and a sumptuous concluding repast -- if we didn't know better we'd say it had something to do with the calling of the Reverend Ford Alward, president of the host club and motivating force behind the considerable organization evidenced in the weekend event!

NEW HONOURARY MEMBER

Freeman Patterson, resident of Kings County, and internationally acclaimed photographer, was elected honourary life member of the NBFN at the Florenceville meeting. The award comes in recognition of his long-standing support of the Federation (particularly his great contribution to the success of the CNF meetings hosted by the NBFN in Sackville last year), and in appreciation for the role his photographs, books, and lectures play in creating in all who see them a heightened awareness of the natural world.

Dr. Patterson has asked that his honoured acceptance of the award be conveyed to the membership of the NBFN.

CHRISTMAS CARDS

CNF Christmas cards will be available through the NBFN Club Directors . . . keep us in mind when selecting cards; help the Federation and your local club make a little extra money. Directors will be offering more information at your club's fall meetings.

SCHOLARSHIP FUND GROWS

The Federation has gratefully accepted a donation to its scholarship fund from the Kennebecasis Naturalists' Society in memory of Mrs. Florence Dodge. The Scholarship Fund helps young naturalists attend nature camp, and awards the annual $50.00 George Stirrett Memorial Prize to the author of the best natural history article appearing in N.B. Naturalist.

WOLVES CANCELLED

No, you didn't miss it. The planned NBFN trip to the Wolves Islands in the Grand Manan archipelago was cancelled. We don't feel too badly ... Sunbury Shores had to call theirs off, too; it's been a foggy year on the Bay of Fundy!

COMMITTEES FORMED

At the Board of Director's meeting July 7, several committees were established to look after the key concerns of the Federation. Membership is drawn from the ranks of the Directors, but there is nothing to prevent any of you from contacting the people listed below to sign up for anything that interests you ... in fact it would be a nice thing to do!

N.B. Naturalist - Gayl Hipperson, Dave Smith, David Christie, Donald McAlpine, Peter Pearce, Mary Majka.

Membership and Fund Raising - David Christie, David Clark, Dave Smith, Gayl Hipperson.

Issues (conservation concerns) - Hal Hinds, Erwin Landauer.

Publicity & Trip Planning - Ruth Rogers, Harriet Folkins.

Scholarship Fund - Harry Walker, Vernon Goodfellow.

NAVIGATION EXPERIMENT

(Reprinted with permission from Nova Scotia Birds, Vol. 26, No. 2, April 1984.)

(After complaints from the public on the behavior of mallard drakes in the London Parks, the Ministry of Works caught up a large number and shipped them to Dr. G.V.T. Matthews, of the Wildfowl Trust.)

They're changing ducks at Buckingham Palace:
Serious charges were laid by Alice.
'A female's life is terribly harsh
To be raped in public upon the grass.'
Quite revolting--get rid of them, fast!'
Snaps Alice.

'Decent people can't walk in the Park
Without seeing things best done in the dark.
A dreadful example to Modern Youth--
The way they make love is most uncouth,
Quite revolting--and that's the truth.'
Nags Alice.

'It's just the same wherever one goes,
And I blush from my ears to the tip of my nose.
On top of each post and litter bin
Are a couple of mallard living in sin.
Oh dearie me, what a world we live in',
Moans Alice.

So they caught all the ducks, with considerable malice,
And sent them away from Buckingham Palace.
Matthews took them to Salisbury Plain:
They flew off east, through wind and rain.
Two weeks rest and they're at it again.
Poor Alice.

--R.G.B. Brown

NEW BRUNSWICK FEDERATION OF NATURALISTS
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LA FEDERATION DES NATURALISTES DU NOUVEAU-BRUNSWICK
277, avenue Douglas, Saint-Jean, N.-B., Canada E2K 1E5 Tél.(506)693-1196

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 safeguard the natural heritage of New Brunswick.

La fédération est une organization sans but lucratif 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 la nature et de l'environnement naturel, et pour sauvegarder le patrimoine naturel du Nouveau-Brunswick.

BOARD OF DIRECTORS/CONSEIL D'ADMINISTRATION

Past president/Ancien président:	Mary Majka	RR 2, Mary's Point Road, Albert, E0A 1A0
President/Président:	Gay Hipperson	280 Douglas Avenue, Saint John, E2K 1E7
Vice-president/Vice-président:	Hal Hinds	Biology, UNB, Box 4400, Fredericton, E3B 5A3
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	Erwin Landauer	(Valley Naturalists)
	Donald McAlpine	(Saint John Naturalists' Club)
	Peter Pearce	(Fredericton Field Naturalists' Club)
	Harry Walker	(Miramichi Naturalists' Club)

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Miramichi Naturalists' Club	276 Heath Court, Newcastle, E1V 2Y5
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