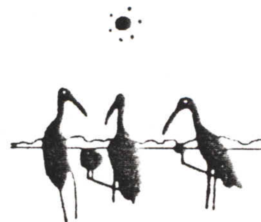
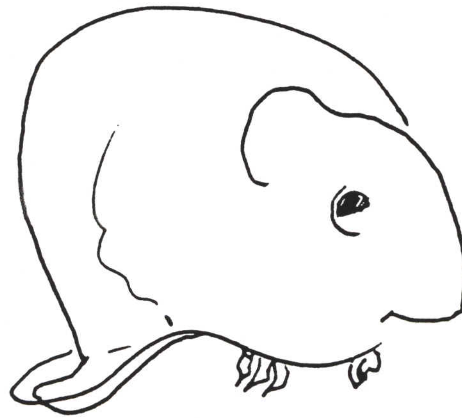
The Antigonish Review

Number 124



Shane Patrick Mahoney



The Land Mammals of Insular Newfoundland

Newfoundland, with an area of 112,000 km^2, is the sixteenth largest island in the world. A wonder of geographic fusion, the region is a product of massive tectonic collisions and volcanic eruption which has remained relatively unchanged geologically for 400 million years. Tearing its spectacular west coast from North America, and its eastern borders most probably from North Africa, the island's final fusion was cemented by the tortured compression and rising, in its center, of an ancient sea bed. This underlying complexity was further addled by the great Pleistocene ice sheets which swallowed the island, rasped it clean of spore from earlier subtropical climates, and much of its soil, and then slowly disgorged it 8000 years ago as a frivolously sculptured masterpiece of mountains, plateaus, and fjords. With its 8000 km of frenzied coastline, its necklace of Arctic water from the north and the intemperate intrusion of the warm Gulf Stream from the south, Newfoundland sits as a lone sentinel of spectacular beauty, a resilient outpost amidst cathedrals of ice, looking away to the east and south across 1000 km of ocean fetch.

To the north and west lie the nearest mainlands, impersonal spawning grounds for the waves of earliest human cultures that repeatedly arrived and departed the island: the Maritime Archaic Indians, the Palaeo-Eskimos and finally the modern Indians and Eskimos, all of whom left traces of their hunter gatherer societies, cultures entwined in that rich

fabric of land and sea abundance which was to lure the great seafaring nations of Europe and then the world entire to these shores. From the same mainland sources came the island's mammalian fauna, presumed to have struck out from southern Labrador across the 17.6 km wide Strait of Belle Isle, or with greater risk from the nearest western land mass of Cape Breton Island, Nova Scotia, some 112 sea kilometers away. Possibly, too, some arrived even earlier from the south, pioneers from the Grand Banks refugium which may have offered a tundra expanse to many life forms during the extreme glacial advance 18,000 years ago, an oasis as productive in the cool light of Pleistocene day as it is now, buried in the darkened depths of the Atlantic Ocean. Where the great depleted hordes of cod fish now swim, mastodonts and bears almost certainly once roamed! Many forms disappeared of course, lost forever to us who remain, but others struck out across the watery distance on rafting ice pans and bridges, or hitched rides, whiskers quivering, on vegetated islands, most of which disintegrated in the mist laden expanse of wild ocean. Some however succeeded in reaching Newfoundland, and from these sweepstake survivors arose the fauna which so spectacularly thrives on the "rock" today.

Like many other oceanic islands Newfoundland's mammalian fauna is an intriguing mix of low diversity but high distinctiveness, as the few forms which successfully ran the gauntlet of ocean currents, winds and ice, arrived, bred, and over a long period of isolation developed unique characteristics in body form and color, and often behavior. Thus Newfoundland has only 13 resident indigenous mammals, compared with 38 on the adjacent mainland. A fourteenth, the Newfoundland Wolf is extinct, and two other species, the polar bear and arctic fox, are seasonal visitors. Of the 14 indigenous forms however, fully 10 have at one time or another been recognized as subspecies; all peculiar enough, and bearing witness to Newfoundland's remarkable powers of inquisition. The existing indigenous forms include: two species of bat, the Little Brown Bat and Keen's Bat; one member of the rabbit/hare family, the Arctic Hare; three rodents, the Beaver, the Muskrat and the Meadow Vole; six carnivores, the Red Fox, the Black Bear, the River Otter, Richardson's Ermine, the Pine Marten and the Lynx; and one deer species, the Woodland Caribou.

This original Newfoundland assemblage shows striking disharmony from usual mainland patterns, especially in the relative number of carnivorous species which is indeed extraordinarily high. This combination of reduced diversity and a unique species' guild suggests that relatively few invasions probably occurred, even by those species that succeeded in establishing. This low diversity and low numbers of colonizers had significant implications for the eventual character and dynamic of the Newfoundland fauna. On the

one hand it allowed certain species to expand into unusual (unoccupied) habitats, such as Arctic Hare into forests, Beaver onto the barren lands, River Otters into the coastal marine waters, and Meadow Voles into forests, barrens and bogs. On the other it furnished one crucial ingredient required for rapid morphological and behavioral change - a small number of breeding individuals possessing only a limited amount of the total genetic diversity of the parent population. Once this mixture began to bubble and hiss, isolated from further immigration events and encountering the subtle peculiarities of the island's land form and climate, a unique ecology for Newfoundland mammals was preordained. Peculiarity begets peculiarity — this is one of nature's great diversions; and to this day the island remains inimitable, its mammals just one more link in a bracelet of spectacular difference.

Of course much has changed in the 8000 years or so that Newfoundland has been ice free and many alterations to the mammalian fauna have undoubtedly occurred. Indeed, it is almost a certainty that more species may have existed at any given time, perhaps gaining a foothold but unable for various reasons to succeed, disappearing without trace, their fragmentary existence unresolvable with the passage of so much time. Other events however are traceable, such as the intentional introductions of at least 11 additional mammal species since 1864. Undertaken for various reasons, these interventions have had varying levels of success and the species, along with the unintentional delivery of the House Mouse and Norway Rat, have had varying impacts on indigenous faunal relations. Their histories are worthy of mention, for they too are now part of the island's ecology.

The new invasion force is a diverse collection, including three species of vole introduced to offshore islands in 1967 (Gapper's Red-Backed Vole; Large-toothed Red-Back Vole and Bank Vole) for scientific study, and presently of uncertain status, scientific or otherwise; the Masked Shrew introduced in 1958 to do battle with a forest insect pest, the Larch Sawfly, which it incidentally dealt with en route to a spectacular blitzkrieg of the entire island; the Mink, imported to Newfoundland in 1934 as a fur farming venture, escaping sporadically almost right away and then with unbridled enthusiasm as the industry went into a tail spin in the 1950's, and severely perturbing the dozy island Muskrats which were apparently unprepared; Norwegian Reindeer brought to the Northern Peninsula in 1908 and, after a short vacation, delivered unto the mainland of Canada, although not before depositing a viable population of parasitic nematodes of doubtful benefit to resident caribou; American Bison released in 1964 to Brunette Island on the Newfoundland south coast, and disappearing by

1998 after a seemingly endless series of last survivor episodes; the Red Squirrel, officially introduced in 1964 in an apparent political endorsement of an unauthorized seeding by bored fishermen the previous year, and leading to severe competition with the Red Crossbill, an unassuming little passerine sharing the squirrel's inclination for spruce cones, but not its tendency to bury them in masses; and the Eastern Chipmunk, enthusiastically introduced in 1962, 1964 and yet again in 1968, but responding with only a modest establishment in localized and predictable circumstances.

Of all introductions however two have been of special significance. Over a period of years beginning in 1864, snowshoe hares (rabbits as far as Newfoundlanders are concerned) were captured in Nova Scotia, and released at numerous points throughout the island, including near St. John's. They were of respectable numbers by 1879 when the first hunting season was declared, but reached their first great high island wide between about 1896 and 1912. This new source of food was a small miracle for the isolated coastal residents of Newfoundland who delighted in an animal kind enough to predictably travel runways along the forest floor and thus enable capture with rope and (later) wire slips. Quickly becoming a tradition, the snaring of snowshoe hares is often a young person's introduction to hunting in Newfoundland and during years of high numbers as many as half a million animals or more have been captured and consumed. Thus although their arrival was severely delayed, snowshoe hares were quickly embraced by residents as an integral component of the Newfoundland environment and their abundance in any year is a matter of lively interest and discussion.

The belated appearance of snowshoe hares had many ecological implications. For example, once abundant, rabbits led to the first significant increase in lynx, an animal which had previously existed in low numbers in Newfoundland but thereafter enjoyed a boom and bust life style while trailing the effervescent and phenomenally fecund snowshoe through its now famous ten year cycle. The enlivened lynx populations are thought to have exerted considerable pressure on the Arctic Hare, dramatically reducing its numbers, and restricting its range by strongly encouraging it to retreat to its more usual haunts of high alpine areas where both snowshoe hares and lynx were less inclined to venture. It is also certain that lynx predation on voles and ptarmigan would have increased and while island foxes would have delighted in the new source of protein, they would have undoubtedly been perturbed by the appreciable increase in competition with lynx for all prey species. When the snowshoe hare made its long hop across the Gulf of St. Lawrence, aboard somebody's schooner no doubt, it thumped a rather sleepy mammal guild into higher gear, diverting more of the island's energy from the small shrubs and sprouting hardwoods on

which rabbits feed into the cycle of tooth and claw. We will never decipher all the subtle changes that shuddered through the mammal community here, but the sheer biomass of snowshoe hares during their periodic highs is an ecological juggernaut, and one that an ice free Newfoundland was without for as long as 8000 years.

One further implication of the arrival of snowshoe hare was their dramatic association with woodland caribou. No, caribou don't eat rabbits, but it has been proposed that the newly sprung lynx population turned with sufficient intensity to caribou calves, especially during years of low rabbit numbers, to help cause declines in the herds. Certainly in the 1960's many caribou calves died from lynx predation either directly or as a result of a bacterial infection passed to the young animals during predation attempts. While lynx are presumed to have preyed on caribou for thousands of years, their impact on the island herds was certainly increased as a result of the snowshoe hare introduction, pointing to the often unpredictable and complex consequences of treating established faunas as wildlife salads, ever improved by the addition of yet another ingredient.

Today lynx and snowshoe hare are both well established throughout the island, and as with all areas of North America, years of low rabbit numbers mean lean times for the hauntingly beautiful snow cat. As a further twist in this saga, there is no doubt that at present man is the greatest competitor of both fox and lynx for the snowshoe hare, a beast that neither of these three species had contact with in Newfoundland before the middle of the last century. By implication this should mean that Newfoundlanders' predilection for rabbit — baked, stewed, souped and fried — interferes with these two intriguing predators while benefitting our native caribou. And of course we now know also that another of our little experiments, the introduction of that punk rocker the red squirrel, one hundred years after the snowshoes leapt gleefully ashore, is also implicated here. Squirrels eat young rabbits, a recent finding from wildlife research which confirms the long standing insight of one of our trappers from Appleton that "the problem with rabbits is dose goddam squirrels eatin' de rabbit eggs!" When the Hon. Stephen Rendell conceived of bringing snowshoe hares to Newfoundland as a source of fresh meat for island residents he probably thought it was a straightforward proposition; but our island, like our nature, is never so simple.

The second wildlife introduction of special significance occurred in 1878 when one male and one female moose from Nova Scotia were released with great optimism near Gander Bay. The uncertainty of this introduction led to renewed efforts and a second release near Howley in 1904 of two males and two females from the Miramichi area of New

Brunswick. While the success of the first introduction is a matter of debate, a discussion given lasting insolvency by the lone bull shot on the Gander River in 1912, the overall success of moose in Newfoundland certainly is not. Moose, in the absence of their natural predator the wolf, which was extinct on the island by about 1922, have been phenomenally successful, colonizing virtually every part of Newfoundland including numerous near offshore islands. In fact, moose in Newfoundland reach some of the highest densities in the world, in many areas plodding through life without fear of anything but old age. They are beyond a doubt the most economically significant wildlife introduction ever made to the island. Their great size and abundance was a delight to Newfoundlanders who quickly realized that each moose carried more than twice the meat of resident caribou and therefore, although a bit long in the nose, they were quickly adopted as the favored species to hunt. Elephants would have been better, of course.

Since the first open season in 1935 more than three quarters of a million moose have been harvested, the majority legally (but a respectable number otherwise), providing an important dietary supplement to coastal residents especially. Moose also generate large amounts of money for the local tourist economy, from "sports" who come from away to hunt them, and from other visitors who just wish to see one. On the other hand the presence of so many large animals has also presented significant problems. Unchecked moose populations do alter naturally occurring plant communities over wide areas, disrupting indigenous ecologies, and causing significant losses to commercial forestry operations in more restricted locales. In addition, moose pose a significant problem along highways where encounters with motor vehicles can result in considerable damage, as well as human injury and, infrequently, death. Modern travelers must be constantly vigilant. Seeing a moose through your windshield is one thing; seeing him in your windshield is quite another. Despite their enormous size, moose share with all things wild an extraordinary ability to emerge from nowhere.

In addition to these well documented histories three other mammals have very recently been confirmed on the island: the White-footed Deer Mouse, whose origins are unknown; the Red Backed Vole which may have derived from the short-lived experimental introduction to Camel Island, Notre Dame Bay, in the 1960's; and the Eastern Coyote which arrived in similar fashion to earlier voyagers in the Pleistocene dusk, across the ice clogged Gulf of St. Lawrence. While the two little rodents appear cautious in their colonizing efforts, the coyote, since first arriving at March's Point on the Port aux Port Peninsula in 1985, has trotted his secretive way across the entire island. His arrival will no doubt cause shudders throughout the ecological community. Crafty opportunists with an inexhaustible repertoire,

coyotes will to some extent fill the wolf's vacant niche. They have already been confirmed chasing and killing both calf and adult caribou and their predilection for mutton is too well known to allow us surprise at their incursions to livestock holdings. But their impact will be medusa like. Coyotes are just big enough to tackle caribou; but are small enough to subsist nicely on smaller mammals and birds. With a diet extending from raspberries to ants, and from nestling birds to moose hocks, coyotes are undoubtedly yipping their bold strike across the Gulf to all who would listen; and under the white moons of March wild hills remember the last wolf's loneful howl, and surely smile. The potential significance of the coyote's arrival in a fauna already top heavy with carnivores should not be underestimated; nor their gradual redefining of the predator prey relationships on the island ignored. No where else have coyotes arrived with more promise to alter the status quo. Once again Newfoundland stands ready to evolve uniquely. Each night that passes, the wolf's little brother grows more certain, more convinced of his right to be here. And like all of us, he knows in his heart, there is no better place.

It is this compliment of rugged pioneers, obstinate stragglers, garden party opportunists and fateful travelers that make up the mammalian fauna of this spectacular island. Exactly the same varieties are recognizable in the one primate species that crawled ashore. And although the diversity of species is low, the pageant of those that reside is wondrous. The fall charge of the white maned caribou stag is a sight never to be forgotten, his bronzed antlers hanging fire and his black face alive with intensity, the great shoulders bunching, each galloping stride a thunderous collision with the crimson ground that wavers in the west wind laments of the Newfoundland autumn. So too the otter caught racing between open water, humping and belly sliding along the carpet of brilliant March snow, his thick luxurious pelt shining in the hard winter sun; he is recognizable instantly as a no nonsense entity — strong, determined, and entirely unimpressed by the rest of the world. And what can match the unexpected encounter with one of our great bears! To see him approach over some small rise, to perceive his great black form and the indivisible power of his slow, insouciant walk; to feel the wild breeze stirring diamonds from the ebony cloak, and to meet the small untelling eyes that give no warning; how could this be forgotten?

It cannot be. Nor can the crash of the bull moose surprised in his early morning travels, his great antlers festooned with bloodied flags. It is September and the velvet that once covered his broad weapons now hangs tattered, each fragment a seminal preparation for the mating wars. To see him turn towards you, the steam pouring from his nostrils and hanging like star dust in the frosted air, this is to perceive wildness and to know your

frailty. What if his inclination was not to run? These are the images that abound in Newfoundland; they are the wealth of generations, the legacy of nationhood. So is the frenzied run of the meadow vole that speeds between grass lined tunnels, his plumpness carried on tiny feet and his appearance between your boots a gift that makes you smile. So too the fox that trails you, smiling all the while, swinging the arc of his long nose through a thousand scents and floating over the ground as though Newton was entirely wrong. What can match his audacity? None perhaps but the weasel who will chuckle his way to whatever share of your food he deems appropriate, successfully poking his whiskered triangular face through holes that seem far too small, and launching his wiry frame at prey ten times his size. Weasels the size of bears would make Newfoundland uninhabitable to humans. The smack of the beaver's tail, the oily slip of the mink into water, the marten's paw prints in the soft snow of deep, quiet forests...all these are jewels, stunning gifts of a land to her people.

This and so much more is what the mammals of this island bring to us. Their spectacular histories are no more so than our own. Their expressiveness and peculiarities as well as their extravagance are all the fashion, simply because Newfoundland has ordained it so. Here the place reigns supreme; and every creature, man no less, is a product of her wiles. Along a dazzling road of chance, the island has come to be what she is. The furred creatures that move across her ancient mountains, wild barrens and wind swept plateaus, or through her dark forests and quiet rivers, are a legacy of extraordinary and irreplaceable worth. We must do what is right for them, and right is what safeguards the natural world. Any alternative will dismiss us all.