

HALIFAX FIELD NATURALISTS' NEWSLETTER

December 1992 to February 1993

No. 69

Figure 1



Field mouse literacy was important in Renaissance pest management. (Reproduced from Environmental Review)



**Return address:
Halifax Field Naturalists**



**Return address:
Halifax Field Naturalists**



Field mouse literacy was important in Renaissance pest management. (Reproduced from Environmental Review)

HALIFAX • FIELD • NATURALISTS

Objectives To encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large. To represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources.

Meetings On the first Thursday of every month at 8:00 pm in the auditorium of the Nova Scotia Museum, 1747 Summer Street, Halifax.

Field Trips Are held at least once a month, and it is appreciated if those travelling in someone else's car share the cost of the gas.

Membership Is open to anyone interested in the natural history of Nova Scotia. Memberships are available at any meeting of the society, or by writing to: Membership Chairman, Halifax Field Naturalists, c/o NS Museum. New memberships starting from September 1 will be valid until the end of the following membership year. The regular membership year is from January 1 to December 31. Members receive the HFN Newsletter and notices of all meetings, field trips, and special programmes. The fees are as follows:

Individual	\$10.00 per year
Family	\$15.00 per year
Supporting	\$20.00 per year
FNSN (opt.)	\$5.00 per year

Executive 1992

President	Colin Stewart	466-7168
Treasurer	Shirley van Nostrand	445-2776
Secretary	Steven Saunders	445-4943
Past President	Michael Downing	823-2081

Directors Lesley Butters, Tony Lock, Bob McDonald, Bernice Moores, Mary Primrose, Steven Saunders, Clarence Stevens II, Stephen Ward

Mailing Address Halifax Field Naturalists
c/o Nova Scotia Museum
1747 Summer St., Halifax
Nova Scotia B3H 3A6

Committees

Newsletter		
Editor	Ursula Grigg	455-8160
Conservation Issues	Colin Stewart	466-7168
	Clarence Stevens II	835-0098
Publicity/Membership	Steven Saunders.	1-624-9361

HFN is incorporated under the Nova Scotia Societies Act and is a member organization of the Canadian Nature Federation. It is registered for federal income tax purposes. Official receipts will be issued for individual and corporate gifts. The HFN Newsletter is printed with the assistance of the Nova Scotia Museum.

Illustrations This Issue (No. 69): p. 11 — tide table courtesy Dept. of Transport;; all other illustrations from copyright-free sources.



Newsletter is printed with the assistance of the Nova Scotia Museum.

Illustrations This Issue (No. 69): p. 11 — tide table courtesy Dept. of Transport;; all other illustrations from copyright-free sources.



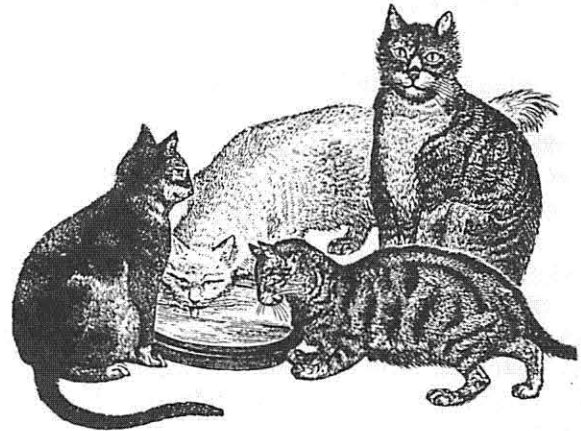
HFN NEWS AND ANNOUNCEMENTS

NOTICE OF MOTION FOR THE ANNUAL GENERAL MEETING, 1993

Proposed by Colin Stewart, seconded by Michael Downing:

"That the setting of membership rates be added to the duties and powers of the Board of Directors."

This motion was passed at a meeting of the Board of Directors in February 1992.



EDITORIAL

It's nearly New Year, and 1992 is going out on a good note. The club has many new members, and there is a great sense of enjoyment in meetings and out of doors.

This issue deals mostly with conservation, and our part in it. Some of our conservation efforts are beginning to show results; HFN President Colin Stewart reports on these on page 4.

We are looking forward to two great meetings. The Catherine Traill Club, which holds two workshops a year away from home, hopes to meet in Lunenburg in June 1993 and has asked us to take part. And there is our own invitation to the Canadian Nature Federation to hold the 1994 AGM here in Halifax. There will be more about the Cat Nats later; Bob McDonald's account of the CNF AGM in Quebec this past summer, and updated information on arrangements for 1994 are in this issue.

Doris Butters typed the text for this Newsletter before she left for Bermuda; thank you to Doris, and to contributors and the people who helped with distribution.

May everyone have a happy Christmas and a healthy, prosperous year in 1993.

Ursula Grigg

!TIME TO RENEW!

HFN memberships expire at the end of the year (except for new memberships dating from September 1st 1992) Please send renewals to the Treasurer, Shirley van Nostrand, at the Museum, or hand them to her at a meeting.

NEW AND RETURNING MEMBERS

Francis Barry
Harry Crosman
Michael Daigle
Don Dockrill
Dawna Gallagher
Marcia Hirtle
Garth and Kathy Horne
Helen Jones
Bonita Lee- Saxton
Barathi Sreenivasani
Sonia Tang

CONTENTS

Special Reportsp. 4
Special Articles.....p. 6
Tide Table: January to Marchp. 11

SPECIAL REPORTS

OF CABBAGES AND KINGS: CONSERVATION

It's been a busy year. The inserts with this newsletter are intended to give you some idea of the many things we've been up to. The Fundy brochure is included on behalf of the Canadian Parks and Wilderness Society - it's not our project.

Endangered Species Pamphlet: We created this Nova Scotia list to help make people aware of what species are endangered HERE. We are also pointing out that such legislation as there is, is weak, and should be replaced by a separate Endangered Species Act.

We printed 25,000 English copies, and they have all been given out. Our thanks to Rhea Mahar and dozens of consultants for preparing it, and half a dozen sponsors for the funding (see the pamphlet for the list).

Conrads Beach: Have you been there lately? The old channel course is becoming vegetated, mostly beach pea nearest the water, but healthy Marram Grass towards the center. Losing the channel has really affected the marsh behind the dune. It's much fresher, and doesn't drain as low between tides. Indeed the extra flooding seems to be forming a new exit between the parking lot and the dune.

When I first went to Conrads, that ground level access through the main dune was a depression people partied in. Now there are three more large party holes along the dune to the right of it. An onshore hurricane (like the one in 1963 which formed the old channel) or a major storm could breach the dunes in four locations.

An early August work party filled the holes with a thick layer of smelly, rotting seaweed. This was used because unlike snow fence (which traps sand better) it's awkward to burn, and a pain to move out of the way. The result has been a few ugly fire remains down on the sandy beach, but a reduction in damage to the dunes.

The first intimation that the area is being protected as a significant natural site and a component of the

An early August work party filled the holes with a thick layer of smelly, rotting seaweed. This was used because unlike snow fence (which traps sand better) it's awkward to burn, and a pain to move out of the way. The result has been a few ugly fire remains down on the sandy beach, but a reduction in damage to the dunes.

exclude the Piping Plover breeding areas.

The next indication was the posts defining the parking lot. Any of you who have been there since October will know that there is now a boardwalk from the parking lot to the beach. The height is intended to keep it safe from flooding and winter ice. As the snow plow uses the parking lot to turn in, there won't be a gate until spring; after that the parking lot will be closed at night on the same schedule as other provincial parks.

McNabs: You can't get there from here. At least not if your boat needs a large pier - as the McNabs Ferry does. In late November a large fence was erected at the end of Garrison Pier; anyone landing on the pier would have to jump into the water to get around it. Garrison Pier is owned by DND, which no longer has any active operations on the island. The negotiations for the province to take it over seem to have fallen apart, hence the fence. However, it is the pier that's closed, not the island - you are still welcome to land on the beach and explore.

You may have noted that we are among the intervenors on the Halifax Harbour Sewage Treatment Facility Environmental Impact Assessment. We believe the treatment plant should be built where it won't detract from a natural area, and we plan to show that there are alternatives which are better both economically and environmentally. At writing, the Environmental Assessment Review Panel has ordered Halifax Harbour Cleanup to prepare additional documents including information on alternative sites before the hearings can proceed. Paul Calda (president of HHCI) has 'credited' the Metro Coalition for Harbour Cleanup (including HFN) with causing the extra work, expense and delay. The Review Panel received over 25 submissions, many as detailed as ours, and regardless, can only order HHCI to do work they were supposed to have done in the first place.

Point Pleasant Park: First, the city is taking applications for the Point Pleasant Park Commission (and other boards and commissions). Applications (available from the mayor or city clerk's offices) are due by the end of December.

We have, yet again, been protesting to members of the Point Pleasant Park Commission about the number of trees cut unnecessarily in the park. We'd in the first place.

Point Pleasant Park: First, the city is taking applications for the Point Pleasant Park Commission (and other boards and commissions). Applications (available from the mayor or city clerk's offices) are due by the end of December.

We have, yet again, been protesting to members

a 'committee' to come up with a management plan proposal (or similar concept) for the park. We are supposed to be hearing from it, but it seems to be moribund. We have decided that instead of just criticizing the cutting in the park we'd better have ready a description of what we see for the future. The two page draft included in this mailing has been reviewed by the board, but before we actually adopt it as policy we are giving you, our members, a chance to comment on it. Please write your comments (put them in your membership renewal!) or phone me at 466 7168. Once final we'll send this off to the Commissioners and their committee members.

Piping Plover Guardian program: We are in the process of documenting this years program, (reports, reports, reports), and have just applied for another 2 years of funding for an expanding program.

First, this year's results. In PEI weather seems to have had a major effect on the bird's success. On 7 beaches 11 pairs produced 11 chicks (with no data for two other pairs). This is a success rate of 1.0, compared with 0.6 last year. This should correspond to a shift from a declining population to a stable to very slightly increasing one, on these beaches .

The Nova Scotia results are better. Weather also played a big role early on, so everything was late, but the birds did settle down and do their thing. On 10 beaches 21 pairs fledged 35 young. This is an improvement from 0.7 birds per pair (declining) last year to 1.67 birds (solidly increasing) this year. We believe the results are largely attributable to the efforts of the guardians, hence we're looking to do it again on 35 beaches in all four Atlantic provinces next year.

HFN provides most of the administration, and some of the guardians. Stephen Flemming is the scientific authority, and Island Nature Trust did a lot of the PEI end of it. In Nova Scotia we had particularly good support from the Department of Natural Resources, including Parks, Wildlife, Operation and Enforcement divisions. We'll give a more detailed thank you in the next issue. We will also be looking for a few extra volunteers who want to help but can't, or don't want to, do the beach end of it. There are tasks like coordinating the distribution of clothing, or setting up training sessions, that could use extra help.

Colin Stewart, President

resources, including Parks, Wildlife, Operation and Enforcement divisions. We'll give a more detailed thank you in the next issue. We will also be looking for a few extra volunteers who want to help but can't, or don't want to, do the beach end of it. There are tasks like coordinating the distribution of clothing, or setting up training sessions, that could use extra help.

Colin Stewart, President



THE 1994 CNF CONFERENCE COMMITTEE REPORT

As I hope most HFN members already know, our club has offered to host the 23rd Annual General Meeting and Conference of the Canadian Nature Federation (CNF). The invitation was made to the CNF Board at their March 27, 1992 meeting in Halifax, and was accepted soon after.

First, I should correct an error which I made in my commentary in the February Newsletter about past conferences. The only previous CNF Conference to have been held in Nova Scotia was hosted by the Nova Scotia Bird Society, not the Blomidon Field Naturalists, at Acadia University in late August, 1973. This was the 2nd Annual CNF Conference and attracted over 300 delegates, clearly a smashing success. Can we be so successful?

The venue for the 1994 Conference will be St. Mary's University, and the dates, August 5-7, 1994. This overlaps with the Buskers' Festival and is the weekend before the Waterfowl Celebration in Sackville, N.B.

We held the first meeting of our organization committee on November 12 and the Conference Chair (Bob McDonald) talked about a proposed committee structure, the duties of some of the main sub-committees, and presented a possible conference overview (social events, programme, field trips). Some of the planning sub-committees still need members, so it is not too late to volunteer your services in helping to plan this important national conference.

Committees requiring additional workers include social/special events, displays, physical arrangements (meeting and residence rooms and meals at SMU.), programme, children's programme, ~~sub-committees field trips~~ (social events, programme, field trips). Some of the planning sub-committees still need members, so it is not too late to volunteer your services in helping to plan this important national conference.

Committees requiring additional workers include social/special events, displays, physical arrangements (meeting and residence rooms and meals at SMU.), programme, children's programme,

SPECIAL ARTICLES

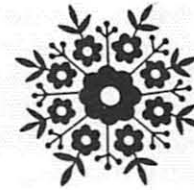
REPORT FROM THE 1992 CNF CONFERENCE

The 21st Annual General Meeting (AGM) and Conference of the Canadian Nature Federation (CNF) was held in Quebec City, 13-16 August, 1992. My family and I were among a dozen or so delegates from Nova Scotia, a healthy representation considering that conference registration was only 125 to 150.

We were welcomed to the conference at the traditional Thursday evening reception at the host site, the Loews Le Concorde Hotel. This event gives participants an opportunity to renew old friendships and make new ones. We were also able to get our first look at the extensive displays set up by federal and provincial departments involved with nature and the environment, various non-governmental environmental and natural history groups (both national and local) and corporate interests. The Alcan and Hydro-Quebec displays were both eye-catching; their participation at the conference was both surprising and controversial.

The indoor programme began on Friday morning and included four half-day sessions. Since most of the presentations were "en francais", the simultaneous translation provided was most useful and frequently entertaining for those of us who needed it. We learned about many of Quebec's natural areas and special places, from the Laurentian Highlands and the Gaspé, to the St. Lawrence Estuary, the Magdalen Islands and the Saguenay Marine Park. The problems associated with northern development including Hydro-Quebec's La Grande complex were also addressed.

Several of the proposed field trips had to be cancelled because of the low numbers of registrants, which was in turn partly due to lack of advance publicity. One pre-conference trip which did go and in which I participated took us to Cap-Tourmente, a wildlife reserve famous as a migratory stop-over for hundreds and thousands of Greater Snow Geese and



several species of ducks. We walked several km of trails birdwatching and botanizing and were able to get a good look at an active Peregrine Falcon nest (with two fledglings!). We also had a very entertaining and informative presentation on the human history of this area. Early morning field trips to the nearby Plains of Abraham, the "Dormaise de Maizerets" and Beauport Bay gave us an opportunity to view some common breeding species and a few migrating shorebirds. Shorebird migration is not as big an event in Quebec as it is in Nova Scotia. In all, my bird list totalled 60 species, not bad for mid-August.

Social events included a medoui (a French-Canadian style barbeque) held on Friday evening at a sugar shack just outside the city, and the Awards Banquet on Saturday evening, at which Diane Griffin of the Island Nature Trust received the Pimlott Award, an award given annually by the CNF to an individual for continuing and outstanding contributions to conservation matters.

Participants at the meeting also had their appetites whetted for the 1993 CNF Conference hosted by the North Okanagan Naturalists Club to be held at the Silver Star Mountain Resort near Vernon, B.C. For more information on dates and the conference address, please see the "Advance Notice" announcement elsewhere in this issue.

See you in Vernon!?

Bob McDonald



CATS AND CONSERVATION

In the course of some research on the habits of local predators, I have come across three opinions on household cats as players in the conservation game.

The first was reported as an opinion of Charles Darwin, author of "The Origin of Species."

He said that the abundance of clover as pasturage and hay in turn-of-the-century England was directly due to English spinsters, each of whom kept at least one cat. Country cats hunted field-mice, reducing the population considerably, and thus sparing the nests of colonial bumble bees which formed part of field-mouse diet.

This left plenty of bumble bees to fertilise the clover, which depended on seeding for its future crop, and which was fertilised principally by this species of bee.

Two other opinions of the role of cats are printed below. If Rusty knew of Mr. Darwin's observations, he would probably mention the war-like habits of *Homo sapiens* as the cause of the high population of spinsters in England at that time.

Ursula Grigg



DOMESTIC CATS; OUR IMPORTED WILDLIFE TERRORISTS

Our shop cat was just 'earning his keep' one afternoon many years ago. 'Dick' held a field mouse in his paws for a minute, then released it. Instantly the mouse scrambled off across the driveway for the grassy shelter of a nearby field. Dick tore off in hot pursuit. Returning triumphantly to the shop entrance, the cat repeated this routine several times.

I watched Dick's predatory fun with a growing sense of dismay. Finally, the field mouse refused to

play the game. Standing on its hind legs and uttering a shrill scream, it attacked the cat. The fatal moment burned into my brain. I began to reconsider the nature of domestic cats, and their role as introduced wildlife predators.

House cats boated to North America with the same early European settlers who unintentionally brought the Norway rat and the house mouse. A Humane Society official recently suggested that approximately five million house cats live in Canada, about the same number as in Britain. The United States houses 56.2 million cats, with an extra 10 to 28 million homeless or feral cats. Each household cat consumes more beef per year than the average Central American person. For some, wildlife is just frosting on the predatory cake.

Over the years researchers have rarely studied wild food items eaten by domestic cats. Most food studies involve examining excrement or the stomach contents of dead animals. Excrement analysis is painstaking, unpleasant work that is difficult to quantify. Gut contents can only be extracted from dead animals. This might prove to be an unpopular method with pet owners.

Cats do have inclinations useful for research purposes. Well-fed and apparently happy cats like to kill wildlife. Feeding has no influence on their predatory instincts. Cat owners often find their tabby dragging the latest prize home. Studies in the United States and Britain capitalized on this trait to gain some insight about the victims. Owners or researchers dutifully collected wildlife remains from their cats for proper scientific identification.

Urban, suburban and rural cats may have differing wildlife species at their disposal. Some prey items may be favoured because they are more tasty, offer 'Garfield' more of a challenge, or are easily caught. Most cats are opportunists, jumping wildlife that is available or vulnerable. Shrews, for example, are not eaten because of poison glands, but are killed anyway. Others develop particular tastes, one cat preferred to hunt bats.

What do existing studies show? One well-fed cat in Michigan brought in 1660 mammals and birds in an 18-month period. Farmstead studies show that free-ranging cats always hunt, and commonly kill rodents, rabbits and birds up to the size of pheasants. In Britain, which has about the same cat population as Canada, a study multiplied the annual catch per cat in one village by population in the country and came up with an estimated 70 million wildlife deaths. An American study found that cats brought home only about half of their total catch. If this is the case, the

annual British (or Canadian?) kill could be estimated at about 140 million wild animals. Researchers in Britain found that between a third and a half of all sparrow deaths were attributable to cats. Depending on the cat's urban or rural situation, 30 to 50 percent of the total 140 million wild animal mortality involved birds. If the British findings are similar to what is occurring in Canada, our cats may kill 42-70 million wild birds each year. Projecting these figures from two other countries is admittedly arguable. But there may well be more hunting opportunity in Canada. Whatever the case, while we rightly fret about overwintering songbird habitat disappearing with the rain forests of South America, we turn a blind eye to what our cats do to the same birds while they are here during the vulnerable breeding season.



What about rodents? Field mice, the native species that Dick caught, should be eaten by native predators such as red fox, coyote, bobcat, saw-whet owl, barred owl, northern harrier, and sharp-shinned hawk. A significant part of their food resources may be eliminated by competition from domestic cats. In the natural world, prey abundance determines predator numbers. Put another way, lynx populations drop shortly after rabbits become scarce, and increase again after the rabbits start to come back. If home-fed domestic cats substantially reduce the numbers of wild animals available to native predators, populations of foxes, hawks, owls and other species will decline.

As a cat owner many times over in the past, I realise that some owners may be shocked and offended by these suggestions. Responsible owners restrain their pets from free-ranging in the wild. Raised in houses, and prevented from roaming outdoors, many cats live contented indoor lives without becoming wildlife killers. In rural areas, and in some towns and cities, domestic cats serve a useful role in keeping down imported mice and rat populations. In my community, a new batch of young barn cats is banished into the fields and woods each autumn by poorly fed older cats with an urge for survival that forces them to retain the barn "resources" for themselves. I meet these young cats stalking up the driveway, intent upon my neighbours, the chipmunks and chickadees.

Even in towns, cat life may not be as idyllic as we think. When a friend lost her cat in a South Shore community, she enlisted the local dog catcher's assistance. That night he took her to a local goldfish pond. A flashlight revealed about 150 pairs of eyes around the edge - cats fishing for a meal. Were they hungry and homeless, or angling for fun?

What can be done? Once allowed to roam, cats

do not like to be confined indoors. Usually, happy house cats are ones that have never experienced what they are missing. Both sexes should be neutered, whether they are in a barn or a condominium. Bells and claw removal may save some wild animals and furniture, but will not diminish a cat's predatory inclinations. Leashes are resented, but might be a compromise. Dogs in my old neighbourhood used to "control" cat populations. Cat lovers were morally outraged. Now cats are being "harvested" by coyotes. Is this nature's justice? It sounds fair to me. If you care for wildlife and love your pet, keep it home.

From an article by Bob Bancroft, in *Conservation: Winter 1990*

THERE WAS A REPLY:

TO THE EDITOR:

I have just read your article titled Domestic Cats - Our Imported Wildlife Terrorists.

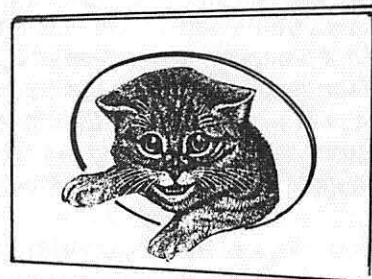
Being a cat I have taken strong exception to the suggestion that we should be, for all intents, locked up.

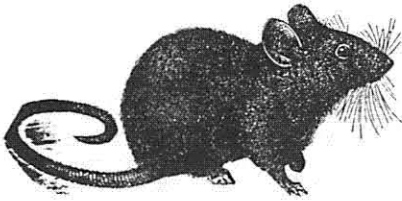
I shamefully admit to your accusation, but we are a very minor predator when compared to one other very dangerous creature.

Who has devastated the rainforests, waged horrendous wars with his fellow creatures, polluted the earth, air and oceans and is responsible for the disappearance of many species of wildlife and fauna? Where does the finger point? *Homo sapiens*. (*Homo* I can take, *sapiens* is a blatant misnomer.)

Your last paragraph should make you very uneasy.

True friend, Rusty the Cat, Baddeck, N.S.





THE HISTORY OF PESTICIDES

Since the beginning of recorded history, pest control has used (in roughly chronological order) superstition and social practices, plant extracts with pesticidal action, inorganic chemical preparations, and products from the synthetic organic laboratories of the chemical industry. The history of pest management stretches over several millenia; a few highlights are described here.

A method first mentioned in the GEOPONIKA (a 6-7th century collection of agricultural practices from Greek and Roman times) was used until the late 19th century for getting rid of field mice. The farmer was to write on a piece of paper: "I adjure the mice taken in this place, that you do me no injury yourself, nor suffer another to do it; for I give you the ground [the field or area]; but if I again take you on this spot I take the Mother of Gods to witness I will divide you into seven parts,"

The paper was to be taken to the infested field before dawn and placed under a stone with the writing visible (see figure on page 1)

No mention is made of the degree of mouse literacy required for pest management success.

The ferocious nature of an animal was sometimes used without the living animal actually having to be present. Pliny noted that mice could be kept from stored grain by sprinkling it with the ashes of a cat or weasel, or with the water in which one of these had been boiled. He warned, however, that the odour of this preparation might taint bread made from the grain.

The use of salt as a soil sterilant dates from biblical times. "And Abimelech fought against the city all that day; and he took the city, and slew the people that was therein and beat down the city, and sowed it with salt". (Judges 9:42).

Xenophon (4th Century BC) and the Romans (146 BC) used salt on the fields of vanquished enemies, believing that crops could never again be grown there. The 9th century Arabic writer, Ibn

Qutayba, noted that equal parts of salt and duck excrement would kill vegetable crops. . In the 17th century, several authors observed that salt had herbicidal effects but in some instances, it would also strengthen grains and pulses. The concept of the application rate (dose) determining the overall benefit or damage was noted in Scottish writing from the 18th century. During this period salt was used as an insecticide in preparations of botanical extracts combined with brine. Similarly, combinations of salt with both inorganic and biologically-derived material were employed to control fungi on seed grain

FATE AND TYPE OF PESTICIDE

Table 2 shows the general trend from inorganic and botanical pesticides to botanical and organic chemical ones.

The fate of pesticides is determined to a great extent by their physical and chemical properties. In general, the oxidation state of the inorganic pesticides listed can change, but they cannot degrade. Botanical and synthetic organic pesticides usually degrade, the rate of degradation determining whether the pesticide will persist.

If a pesticide persists long enough, it can migrate to other parts of the environment. Vapourisation of a pesticide allows it to be moved as drift to contaminate nearby land or distant ecosystems. Runoff and movement within the soil can transport residues to ground and surface waters. Thus, longer-lived pesticides may affect forms of life and ecosystems never considered when the pesticide was originally registered. Shorter-lived pesticides can undergo chemical, photolytic, and/or metabolic degradation before translocation becomes a problem; however, vapourisation and runoff may occur shortly after the pesticide has been applied.

Table 3 lists a diverse selection of pesticides and their environmental fate

CONCLUSION

Pesticides have widely varying properties causing them to impact pests and other life-forms in many ways. Clearly only some pesticides accumulate in food chains, but these are of concern to organisms at the top of the food chain, and in the Arctic. Many pesticides now available do not accumulate, but are excreted quickly, or are degraded after use rapidly enough to be of little environmental concern.

A combination of the ingenuity of the chemist in conjunction with that of the entomologist, the weed scientist, the soil scientist, the plant or animal pathologist, and the ecologist is enabling the development of integrated pest management systems

which are increasingly environmentally friendly. In agriculture, which necessarily involves the manipulation of the natural environment to yield a sustained food supply, the enlightened use of the best pesticides available will cause few serious direct environmental impacts.

Adapted from "PESTICIDES; ORIGINS AND CHALLENGES" by G.R.Barrie Webster, for The Canadian Chemical News, August 1991. Appeared in Catherine Traill Naturalists' Club Newsletter, May 1992.

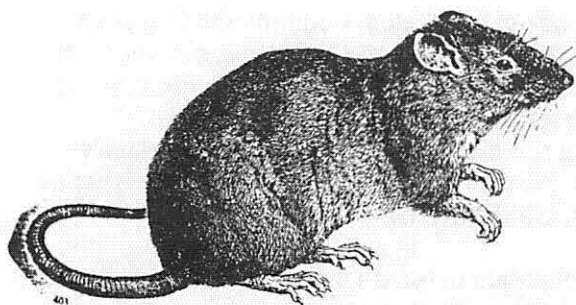


Table 2
Pesticide Development and Type

Date	Pesticide Development	Type
1200 BC	use of salt*	I ^b
100	Romans use hellebore against rodents and insects	B
25	seed treatment with nitre and amurca	I/B
900 AD	arsenic* used by Chinese against garden insects	I
1649	rotenone used to paralyse fish in South America	B
1690	tobacco extracts as contact insecticide	B
1787	insecticidal soap	A
1800	pyrethrum used against lice	B
	whale oil used against scale	A
	lime and sulphur for insects	I
1867	Paris green (As ₂ O ₃ + Cu(OAc) ₂)	I
1883	Bordeaux mixture (Ca(OH) ₂ + CuSO ₄)	I
1892	K salt of 2,4-dinitro- <i>o</i> -cresol (DNOC) as insecticide	O
1931	thiram* fungicide	O
1936	pentachlorophenol* wood preservative	O
1938	TEPP insecticide discovered	O
	<i>Bacillus thuringiensis</i> insecticide	M
1939	DDT* discovered to be insecticide	O
1942	2,4-D* herbicide	O
1950	malathion* insecticide	O
1956	carbaryl* insecticide	O
1960	trifluralin* herbicide	O
1975	methoprene* insect growth regulator	O
1982	abamectin* anthelmintic insecticide and fungicide	M

* These pesticides commented on in Table 3.

^b I = inorganic, B = botanical, A = animal derived, O = organic, M = microbiologically synthesized product

Table 3
A Historical Selection of Pesticides with Comments on Their Persistence and Environmental Fate

Pesticide	Environmental Fate	Rating*
NaCl	elements remain in system	R
As and Cu	elements remain in system	R
thiram	hydrolysis to CS ₂ and diethylamine	D
pentachlorophenol	photochemical degradation	W/C
DDT	dehydrohalogenation	R
	reductive dehalogenation	R
2,4-D	microbial metabolism, hydroxylation	D/W
malathion	oxidation, hydrolysis	D
carbaryl	hydrolysis, hydroxylation	D
trifluralin	oxidative <i>N</i> -dealkylation, reduction	D/R
methoprene	oxidation, metabolic processes	D
abamectin	hydrolysis, oxidation	R/D

* R = residue remains for years; D = degrades to innocuous products within days to weeks; W = residues remain in contaminated water for years; C = persistent contaminants (dioxins).



ALMANAC:

Most of the information for this space is not available. We will find another source for astronomical data.

Information for the 1993 Annual Meeting of CNF will be available in January (see back page); and for the Catherine Traill Naturalists' workshop, probably in the next newsletter.

Almanac is for dates of events which are not found in our programme; for field trips which members might like to attend, or natural happenings such as eclipses, comets, expected migration dates, blooming dates and so forth. Please suggest some suitable items.

NATURE NOTES

Everyone reports that this year's cranberry crop was excellent.

Regina Maass reports that phytoplankton in the North West Arm is prolific.

It's also been a good fall for unusual birds:

Bill Freedman saw a yellow-billed Cuckoo.

Clarence Stevens has seen or heard of:

Northern Oriole, Indigo Bunting, Fox, Clay-coloured, and Vesper Sparrows, Dickcissels and Rufus-sided Towhee.

Definitely a time to watch the bird feeders!



Canadian Nature Federation

22nd Conference July 22 • 23 • 24 • 25 1993



North Okanagan Naturalists' Club

Box 473, Vernon, B.C. V1T 6M4

"From desert sands to alpine slopes"

Registration Kits will be available January 15, 1993. For more information, write to the Secretary, North Okanagan Naturalists Club, P.O. Box 473, Vernon, B.C. V1T 6M4.



! NEXT DEADLINE !

5 February for March Issue

Contributions to the Editor HEN



! NEXT DEADLINE !

5 February for March Issue

