HALIFAX FIELD NATURALISTS NEWSLETTER

c/o Nova Scotia Museum
1747 Summer Street
Halifax, Nova Scotia
B3H 3A6

OCTOBER - DECEMBER 1979

HALIFAX FIELD NATURALISTS NEWSLETTER

OCTOBER - DECEMBER 1979 NUMBER: 22

Meetings are held on the first Thursday of every month, at 8.00 p.m. in the Auditorium on the ground level of the Nova Scotia Museum, 1747 Summer Street, Halifax.

Field Excursions are held at least once a month.

Membership is open to anyone interested in the natural history of Nova Scotia. Membership is available at any meeting or by writing to - Membership, Halifax Field Naturalists, c/o the Nova Scotia Museum. Individual membership is five dollars yearly; family membership is seven dollars. Members receive the Newsletter and note of all excursions and special programs.

Directors for 1979-80:

President	Joe Harvey
Vice-President	Anne Greene
Membership Secretary	Marjorie Willison
Treasurer	Pat Cunningham
Directors	Mike Burke
	Nancy Davis
	Erick Greene
	Linda Morris

Newsletter . . . . . Anne Greene
Mike Burke
Doris Butters

Mailing Address:

Halifax Field Naturalists
c/o Nova Scotia Museum
1747 Summer Street
Halifax, N. S.
B3H 3A6

HFN is a member organization of the Canadian Nature Federation.

HFN is incorporated under the Nova Scotia Societies Act.

reports

HALIFAX CITY TREE SURVEY -

RESULTS -

At a meeting 5 June 1979, Halifax City Council heard presentations from a variety of people on the subject of the spraying of the street trees of the city with insecticide. The brief history of the subject is that the trees had been sprayed in early summer for a number of years using a large air-blast sprayer but that this programme had been discontinued a few years ago after some citizens protested (see HFN Newsletter No.18, Nov.-Dec., 1978). The June Council meeting was asked to consider the matter anew since City Field staff felt that by not spraying there was a danger that the trees would become weakened and a request had been put to Council to allow spraying to be carried out in 1979.

After hearing arguments from David Patriquin, Ken Neil and Susan Mayo (Susan representing Ecology Action Centre) against the spraying and Mr. Ben Scallion representing City Field staff in favour, Council voted against allowing spraying in 1979, but asked that the Dalhousie University Biology Department conduct a survey of the trees and report back in the autumn. Well, winter succeeded autumn and it was not until the Christmas break that time was found to write this report.

As a result of Council's request David Patriquin and myself decided that a complete survey of the City trees, unfinanced, was beyond the scope of two people, but that this was just the sort of community natural history for which HFN was founded. A single page leaflet was hence sent out in the summer with the usual flyer of events to over 200 members. The leaflet contained a guide to the identification of the common street trees and a table to score how many of each specied on a street were healthy (Class "A"), had some damage (Class "B") or were badly affected by insects (Class "C"). People were asked to survey the trees on their street or elsewhere and return the form. A total of eleven people did so but the great majority of the streets were surveyed by either David Patriquin or myself.

RESULTS -

Thirty-nine streets or portions of streets were surveyed resulting in a total of 2588 trees being scored. An attempt was made to keep a balance between the North and South ends of the city and to include older neighbourhoods (e.g. Old South End) as well as streets built in the last 30 years. The West of the city was not included appreciably nor where the suburbs such as Fairview or Spryfield. Had these latter been included it might have increased the maple total somewhat. Oak Street, with solid oak planting (a nice idea) was deliberately omitted lest it over-emphasise the proportion of oaks in the city.

The Table of Results shows some interesting figures and points out unequivocably where the problem lies.

MAPLES -

Fifty per cent (50%) of all the trees in the city are maples of one sort or another. However, of the five maples identified in the streets, norway maple makes up 47% of all trees, the remaining maples (sycamore, silver, sugar and red) constitute only 3% of the city trees. Of the total maples, 95% were judged to be perfectly healthy 'Class A', 4% showed some leaf damage and less than 1% were distinctly unhealthy (11 out of 1274). This shows that the most abundant tree in the city is norway maple and that it is a vigorous and healthy species. The policy of City Field staff over the past 30 years of planting predominantly norway maple is thus handsomely vindicated (there is, however, a proviso later).

TABLE OF RESULTS

Species	No. and % in 'Class A' - (healthy leaves)	No. and % in 'Class B' - (some damage)	No. and % in 'Class C' - (unhealthy)	Total %
Norway maple	1163 (95.4)	46 (3.7)	10 (0.8)	1219 (47)
Sugar maple (?)	9 (90)	1 (10)	0 (0)	10 (0.4)
Silver maple	22 (91.7)	1 (4.2)	1 (4.2)	24 (0.9)
Sycamore maple	14 (93)	1 (6.7)	0 (0)	15 (0.6)
Red maple	5 (83)	1 (16.7)	0 (0)	6 (0.2)
MAPLE totals	1213 (95.2)	50 (3.9)	11 (0.9)	1274 (49.2)
Elms	194 (24.2)	401 (50.0)	208 (26.0)	803 (31.0)
Linden	285 (85.1)	36 (10.8)	14 (4.2)	335 (13.0)
Oak	36 (100.0)	0	0	36 (1.4)
Mountain Ash	20 (45.5)	18 (41.0)	6 (15.6)	44 (1.7)
Ash	11 (45.8)	10 (41.7)	3 (12.5)	24 (0.9)
Horse chestnut	8 (100.0)	0	0	8 (0.3)
Hawthorne	13 (100.0)	0	0	13 (0.5)
Paper birch	10 (41.7)	12 (50.0)	2 (8.3)	24 (0.9)
Poplar	10 (52.6)	6 (31.6)	3 (15.8)	19 (0.7)
Crab apple	4 (100.0)	0	0	4 (0.2)
Willow	3 (100.0)	0	0	3 (0.1)
Pine	1 (100.0)	0	0	1 (0.04)
Totals	1808 (69.9)	533 (20.6)	247 (9.5)	2588

ELMS -

The next most common group of trees are the various species of elm, 31% of all trees. Considering elms alone, 50% were considered slightly damaged, 26% heavily damaged and only 24% reasonably healthy. That makes 76% of elms in 'Classes B' plus 'C' with something wrong with the leaves (mainly elm leaf miner damage).

This year we were watching the elms closely and it became obvious that different degrees of susceptibility to leaf miner were operating. In some streets trees with healthy leaves were growing adjacent to trees which looked very healthy indeed. It was obvious that the trees differed in their resistance to attack by leaf miner and that this was due to the elms belonging to a different species. It would be nice at this point to say which elm species were resistant and which susceptible but the elms in Halifax are peculiarly difficult to identify because, being formerly better connected to Britain than to Upper Canada, we must have imported a great deal of nursery stock from Britain.

This means that we probably have english elm, Ulmus procera; wych elm, U. glabra and probably other of the elms and hybrids grown in Europe in addition to our native Ulmus americana, which is so characteristic of the richer soils along streams in our various valleys and in the agricultural towns of the Maritimes. These elms are distinguished one from the other chiefly by characteristics of the fruits; whether they are round or oval, large or small, hairy or glabrous, with the seed central or to one side. The fruits are found only in early summer since elms flower before the leaves open and the fruit, which looks like small rounded scales about 1 cm. diameter, is soon dropped. (Maybe some HFN member could make a collection in 1980).. The leaf survey did not get underway until the fruit had been shed.

Ignorant as we are about the species present it does seem likely that the most susceptible one was the one with larger leaves than the rest; presumably wych elm. This is an elm which sets abundant fertile seed which germinate in neglected gardens and odd corners and provides most of the self-sown trees in the city. Particular localities examined included some along the railway on Beaufort Drive opposite the end of Regina, and on the bank by the sidewalk on Robie Street between St. Francis and Gorsebrook Schools. These saplings had a large proportion of their leaves turned brown and crinkly by early summer. In contrast, the planted elms in the boulevard on Robie in the same region were some of the more healthy looking specimens in the city and were obviously different from the elms on South Park Street by the School for the Blind which were turned brown.

Recovery of the affected trees was also recorded over the summer. On attacked trees the initial branchlets bearing leaves put out in spring had practically all the leaves attacked by leaf miner and hollowed out, turning brown and crinkly and causing the leaves to drop off. This is the stage which particularly upsets people and

causes pressure on City Field personnel to create a spray programme. The brown stage reaches its peak about the end of June.

Later in the summer these same trees on Robie showed no sign whatever of the attack, their leaves were green and healthy. What had happened was that the apical bud had continued growing, produced a second crop of leaves which were not affected by leaf miner larvae. Obviously the leaf miner stops breeding by midsummer but the tree continues growing, producing what are called lammas shoots. The result is that the "unhealthy" elms put on a considerable branch extension despite leaf miner attack. They did not seem particularly weakened by the events.

LINDENS (BASSWOOD, LIME) -

Generally a healthy group with 85% scoring as 'Class A'. Linden has one attraction and one vice. The attraction is that when they flower they give off a delightful honey-fragrance, especially on warm, still summer evenings. This is quite delightful to those who recognise it and is being appreciated more and more now that automobile pollution is declining. The vice is that they are host to the linden aphid (greenfly) which sucks sap and excretes large quantities of honeydew. This falls on the lower leaves turning them black and on anything beneath the trees, and is most noticeable on freshly polished cars, to the chagrin of the owner. Honeydew is a sugar solution which dries to give a sticky deposit of sugar.

One might be puzzled as to why any animal should excrete sugar of all things since sugar is the chief biological currency of energy. The point is that the linden aphid, like all aphids, moves little and hence needs little energy for this function. What the aphid requires is amino acids for growth and its abundant parthenogenetic production of offspring. It sticks its stylet into a phloem vessel of the tree and obtains the weak solution of sugar and amino acids synthesised in the leaves. The amino acids are in short supply so the aphid takes in large quantities of sap, extracts the amino acids and excretes most of the water and sugar. It literally, pardon the expression, shits sugar.

REMAINING TREES -

The oaks seemed robustly healthy but only comprised 1.4% of total trees. The other trees are also in low percentages although sometimes quite conspicuous as in the case of mountain ash (rowan) which produces white flower clusters in spring and conspicuous heads of scarlet berries in autumn. The leaves of mountain ash are often attacked and stripped by mountain ash sawfly larvae. Despite this it does not seem to be particularly harmed but contributes a cheerful crop of berries year after year.

Ash had a high proportion of badly shaped trees with eaten leaves and seemed to be one of the least successful street trees. Poplar and birch were also rated fairly low but their presence is usually accidental resulting from their growing on the land before the boulevard or road was built.

CONCLUSIONS AND COMMENTS -

Apart from the elms we have a pretty healthy set of city trees. It would be exaggerating to call the situation a crisis. The whole debate is basically a matter of a minor point of aesthetics concerning a small proportion of the city trees with conspicuous brown patches on their leaves, versus a feeling of unease that a few people have about a mixture of chemicals being blown about the streets. A chemical mixture which moreover has been certified as safe for use in these circumstances by experts on chemicals. This latter point I would like to discuss a little more since it is central to the issue.

The chemicals used are given a clear bill of health by a Provincial officer, so we can all feel safe. End of argument. Vote to spray. But ....., the Province has no testing facilities for long or short term testing of toxicity; these are too expensive for a small province to maintain. The Provincial person in charge of such matters gets his information from the Federal Government which has an agricultural advisory service which does a certain amount of testing, but not much and in ways one can argue with. In turn the Federal advisors rely for a lot of their advice on toxicity on published information coming from the U.S.A. and a great deal of that comes from the chemical companies who manufacture insecticides and, quite rightly, have to prove that their product is safe.

Toxicity tests are complex and expensive but involve at the minimum giving doses of the chemicals in question to animals to determine the acute toxicity (how much will kill in a few days or weeks). What is really difficult, expensive and controversial is determining the long-term effect of minute doses because this involves large numbers of animals over long periods of time. Laboratory mice are one animal used and even they can live to be a couple of years old. The results of these experiments then have to be extrapolated to humans, an arguable exercise.

In effect, what the City Field staff are saying, although they don't know it, is, 'let us give the citizens of Halifax a minute dose of insecticide each year and see what happens over the next twenty or more years'. Although this puts the situation rather starkly, it is the crux of my personal objection to the spray programme.

This exercise has pinpointed elms, some elms, as the problem trees. If spraying is to be permitted then it should be confined to elms. The idea of the therapeutic value of spraying every tree in every street just in case it might be harbouring something is not really defensible.

FUTURE DISEASES -

It seems that about every 20-30 years some major tree pest is introduced to North America. Chestnut blight from E. Asia literally wiped out the sweet chestnut forests of E. U.S.A., beech canker insects are debilitating the beech trees (Halifax seems to have the dubious honour of being the centre for introduction of this European pest), gypsy moth was introduced but valiant efforts seem to have wiped it out, and, most recently, a vigorous and virulent mutant of the dutch elm disease has been introduced to North America and has finally reached Nova Scotia.

The brief presented by Ecology Action Centre to Council in June dwelt fairly extensively with dutch elm disease. At the time this was a bit of a red herring since the spray programme was primarily being activated to deal with a very different pest, elm leaf miner, only coincidentally confined to elms. However, it is obvious that dutch elm disease is the next disease which will arrive in the city.

It should be clear by now that chemical treatments cannot stop dutch elm disease, thousands of towns in North America and Europe have tried and failed, Halifax might be different but I doubt it. The best slowing-down procedure seems to be to cut a tree down as soon as it shows the least sign of the symptoms (leaves on a branch suddenly dying simultaneously while the rest of the tree remains green. this is quite distinct from leaf miner). Branches must be burnt to kill the beetle larvae which would otherwise spread the disease (a fungus). Trunks may be used for lumber provided the bark is stripped off. It is a tragedy that millions of elm trees are either being burnt or left to rot when the wood could be used for furniture and other purposes for which hardwood is used. After all they represent the last crop of elm trees ever to be taken in North America and we are wasting it.

Another comment that could be made is that dutch elm disease may be the 'cure' for elm leaf miner; homoeopathy with a vengeance!

When it does take hold dutch elm disease is going to leave gaps in certain areas of the city but we shall not suffer as much as those cities which had elm as their major tree. We are fortunate to have a mixture of species planted in the city.

Some other insect pests have a cyclical trend in their occurrence; virtually none for a few years, an increase, a peak and a decline in numbers. The fall webworm is one such species which has cycled on and off in the city for many years. It attacks almost any tree. At the moment we have just passed through the low part of the cycle for webworm and with the cycle being about ten years we can expect an increase in webworm activity over roughly the next five years. During the last peak some of my neighbours got quite worried by the appearance of the 'tents' of these colonial caterpillars and concerned at the 'damage' that they were doing to the trees. One neighbour in particular got a long pole, tied a kerosene soaked rag to the end, lit it and went round burning the webs. I told him it did not damage the tree to have a few leaves eaten off since the twig and buds are untouched but that by burning the branches he was causing their death. Well, he enjoyed doing it and obviously felt like a hero 'saving' the trees, but sometimes inaction is better than action.

How then does one defeat an infection of fall webworm? The answer is that you wait, and it goes away. There is an inbuilt and invisible control mechanism consisting of a number of insect and fungal parasites which combine to cause a decline in the webworm population.

Any parasite-controlled system is sensitive to outside influence and several cases are recorded of what I call the 'Ecological Perversity Principle' which results from this. Perversity principles are a slightly more scientifically based form of Murphy's Law and cover those situations where you do something in order to produce a certain result, and exactly the opposite happens. The examples in mind are cases where chemical sprays have been used to eliminate a particular insect pest resulting in the next season in an increased population of the insect thus necessitating more spraying and so on.

The mechanism is that insect numbers are normally controlled by parasites which are present in quite low numbers. Spraying kills the insect you don't like but also has the invisible effect of wiping out the parasites which unfortunately in many cases seem to be rather delicate things. The result is that next season the original insect you wanted to eliminate can grow freely uncontrolled by its natural set of parasites. How would I control the next outbreak of fall webworm? As I said, taking account of their natural parasites and the Ecological

Perversity Principle, I would just leave them alone and they will go away.

FUTURE TREES -

Obviously from the foregoing, elm is not going to be planted any more. The best tree we have is norway maple which already dominates the city and should probably remain at the heart of any planning programme. Equally obvious is that heavy reliance on a single species will invite a future disaster. I shudder to think of the effects of a serious maple disease.

In the past some streets were planted with two species alternating. Lucknow and Beech are examples surveyed where elm and linden alternate and hence, when dutch elm disease arrives these streets will be little affected since the trees are already a little too close.

Future policy should be to plant several species alternating along the streets. Already more linden is being planted and alternations involving linden, norway maple and oak would seem to be one obvious approach. Some experimenting is obviously going on since I notice a variety of trees including one of my favourites, Ginkgo, being tried out along Connaught Avenue boulevard.

Why is norway maple the favourite tree? Most reasons have already been mentioned: rapid healthy growth in our climate, winter hardiness, lack of parasites, fairly cheap to grow, transplants well. Is it therefore the ideal tree? No, it isn't. It gets too big and it doesn't blossom (yes I know it has flowers but they are yellow-green). Tree choice is in fact influenced by one overwhelming factor - vandalism. Norway maple is a strong grower and soon gets above the size at which it can be snapped off. Readers may have noticed the repeated attempts over the past few years to establish trees in downtown Halifax, I have been particularly observing Argyle and Grafton Streets. These attempts have been practically 100% frustrated by vandalism.

Norway maple has also suffered from an old gardening adage; "When you plant a tree cut out the leading shoot to make the head bush out". We were all taught this and yet in the case of norway maple it has had an adverse effect in that many of the city trees have a fork or cluster of branches just above head height. This forking creates a weak spot into which water and fungus can penetrate and where splitting takes place when we have an ice storm or heavy snowfall such as happened in the 'October snowstorm' of a few years ago when the heavy snow stuck to the leaves and split many trees with the weight.

BLOSSOM TREES -

Are there any blossom trees which are vigorous, cheap and vandal-proof.? Unfortunately not. The flowering cherries which do so well in parts of the USA and Japan are not quite hardy here. They grow to medium size and then sicken with Verticillium wilt. The rosybloom crabs are the Canadian replacement for cherries and are spectacularly beautiful when in flower. Their fault is that they tend to bush out too low down even when grown as a standard and are not tall enough or strong enough for street edge planting. However, for boulevards and parks they are excellent and should be planted more than they have been. Some of our park elms could be replaced with flowering crabs although they are much smaller.

Sunburst locust is not a bloom tree but its bright yellow leaves in spring give the impression of flowers and it turns yellow again in the autum before the leaves literally disintegrate into tiny leaflets so that there is no sweeping to do. It would make an almost ideal street tree if it were cheaper and fast enough growing to replace the maple-linden-oak triumvirate.

Sunburst locust is useful for parks and boulevards and of course home gardens.

Double pink and red hawthorns suffer similar disadvantages, (they are beautiful but slow-growing). Mountain ash is used very effectively in several places in the city and the scarlet berries are always noticed. The leaf stripping sawfly larvae does not seem to stop them blooming and fruiting and the berries outweight the stripping. Again it is a small tree barely reaching to a third the height of a norway maple of the same age.

When it comes to breeding new forms of street trees attention will have to be given to a whole complex of species and hybrids between the many mountain ashes and whitebeams of the world. Some of them are more vigorous than mountain ash and, being very hardy, should be useful as a slightly smaller street tree than norway maple for Halifax. Unfortunately research on trees such as this has hardly begun. I saw some fine whitebeams growing vigorously in the trial garden at Wisley in England and thought how nice they would look in Halifax.

Dave Patriquin and I would like to thank our helpers: John Coates, Christopher and Christina Corket, Stephen Fry, Maud Godfrey, Edward and Charlotte Lindgren, Linda Marks, Bernice Moores, Ardith Parker and Martin Willison.

M.J. Harvey.

book review

EXPLORING NOVA SCOTIA, Lance Feild, East Wood Press ($6.95 US)

It is difficult to know where to begin a review of Mr. Feild's book. The concept is good but the execution leaves much to be desired. The first third is devoted to providing a variety of background information, the majority of the remainder to trail descriptions.

The background material presented is a hodge-podge of facts with a sprinkling of errors and contradictions. The misplaced emphasis present in almost all the sections gives a distorted view of the province.

For example, contrary to Mr. Feild grapes do not grow wild in the province peaches are not common, nor are there any caribou. The mention of grizzlies is inappropriate as there are none in the province. On summer hikes bathing suits and shorts would be appropriate but the parka could be omitted.

Unfortunately, Mr. Feild's description of the trails leave even more to be desired. Mr. Feild has decided to use rough and sometimes very inaccurate sketches in place of reproduction of actual maps. Often his descriptions are not detailed enough to allow one to find a trail without a good map. Further, he has indicated bus service to a number of places that have none. Two situations where his descriptions are improper follow:

The Lake of Islands Trail (in Cape Breton Highlands National Park) is usually driven for the first 8 miles (leaving two miles to walk) and is thus designated for day use. Mr. Feild's proposed use of the trail for overnights conflicts with park regulations. Similarly his camping area at Pollett Cove is private property and should not be used for camping without permission. Oversights such as these may cause bad feelings towards hikers in general and could possibly get the individual into trouble.

Considering the numerous errors and basic inaccuracies, and considering also the other hiking trail books which have long been available, Exploring Nova Scotia falls far short of making Nova Scotia "at last available to the hiker and backpacker".

Colin Stewart.

Additional Note:

The majority of trails in Exploring Nova Scotia also appear in The Canadian Hosteling Association's Hiking Trails of Nova Scotia or in DEVCO's Walk Cape Breton. Both of these are available through bookstores and some camping supply stores. Both national parks have pamphlets which contain information on hiking trails.

Contact the parks or the regional office (Historic Properties, Halifax) for these.

editorial

- THE 80's -

Not since the 40's have I seen such pessimism in the New Year predictions. At least in 1940, even though there was a war on, people had a definite purpose, a job to do, even if the outlook was grim - as it turned out to be. In 1950 there was rebuilding, an increased standard of living, the hope that some day the family could buy a car and get one of those things you had hitherto only seen in stores (T.V.sets). The Cold War was a worry to people with strong memories of the 1939-45 war but things improved.

By 1960 we had kept nuclear war at bay, prosperity increased albeit with ups and downs of the business cycle. Then a few scientists started to get worried by the population increase and the rate of use of raw materials, energy and food, but since this has been endemic to scientists for over a century no one took any notice. We now had two-car families and bicycles had gone the way of the horse-drawn carriage.

By 1970 we had a whole generation of young folk brought up without global war. True, there was the Vietnamese War but for the average North American this was the first war which made absolutely no difference to the standard of living of the ordinary citizen. Countries such as Vietnam and Cambodia were devastated without feeling the slightest pinch in the living standards in North America, Europe or Japan. I always felt that there was something immoral in this.

But the 60's and 70's were different. Young people were beginning to reject the value systems of their parents. The parents, growing up in the 20's, 30's and 40's had worries about the economic cycle. 1962 had seen the publication of Rachael Carson's 'Silent Spring' and the children of these parents started worrying about the ecological cycle. Both expressions come from the same Greek root, oikos.

The agitations of the ecofreaks of the early 60's gradually worked its way down and started to interest the ordinary citizen. Hence the latter part of the 60's and the majority of the 70's saw a great upsurge in interest in what came to be known as environmental affairs. This interest was in part brought about by the very success of the economy during the past few decades. The cars that clogged and polluted the streets in the bigger cities (we now started to get three-car families) and the TV sets that had by now become universal and were used by business to stimulate demand for goods, were the product of unprecede-dented affluence. The idea of some scientists (always fringe members of our society) about the environment and in particular pollution, came to be noticed by sufficient members of the public that politicians got interested and environmental legislation started to hit the statute books. There were votes on environmental issues! Bicycles returned to the streets. People started to be interested in their personal fitness.

Now we are entering the 80's*. The western world is in a period of pessimism, the economic outlook is cloudy but almost certainly bad, People are becoming introspective and in the face of the current trend to conservatism are starting to regard as hopeless standing up for values which just a few years ago they would have been pushing for. Young people are seen but not heard. From across the country comes hints of a declining interest in environmental affairs, including lessened activity in many natural history societies. We have hints of this in Nova Scotia. Compare the very vigorous and successful campaign in the mid-70's which was organised from Cape Breton to persuade the government not to permit the spraying of the forests for spruce budworm, with the attempt in 1979 by HFN to get the membership to report on the health of the trees in their own street because of a city proposal to spray the trees (and hence the citizens). Not including the two organisers, nine replies were received out of over 200 survey forms sent out,a rate of less than 5% returned. This may be a poor example but I feel it is part of the change in attitude which has occurred over the past five-year period. Maybe HFN members are not interested in this type of subject, in which case the current executive should be displaced by people more attuned to the wishes of the members. The group was after all founded to involve people actively with the out-doors and was deliberately not meant to be merely an entertainment society showing pretty pictures of flowers or furry animals.

Over the same five-year time period the promises of a Provincial Liberal Government to enact legislation enabling the setting-up of Ecological Reserves were shelved when they came under pressure and the Conservative Government which displaced them has shown no signs of reviving the proposal. Without pressure from citizens such legislation will never be enacted. It looks like we will all retreat into an apathetic state in the 80's - let's all become TV morons. The attitude is that the individual is powerless in the modern world and after all, the things which benefit Big Business, real estate developers and international conglom-erates are bound to benefit the average citizen: well - aren't they?

This is a pessimistic picture I have proposed. There is one ray of hope. Whenever I have predicted anything or voted for a government, the opposite has happened. Let's hope that the same happens here, but it does mean that citizen participation will have to be strong.

M.J. Harvey.

* Incidentally, not the start of a new decade. My extensive education in mathematics and religion informs me that the Christian calendar started at year 1 A.D., a mistake no doubt, but a little hard to correct after all these years. Since a decade is a period of 10 years, the first decade was from 1 to 11 A.D. Hence the next decade will begin in 1981.