



The Esquensing

Nov-Dec 2016 Newsletter
Volume 51, Number 2



Talks and Walks

Indoor Events:

Meetings begin at 7:30 p.m. on the second Tuesday of the month, October to June at St. Alban the Martyr Anglican Church, 537 Main Street, Glen Williams, unless stated otherwise.

Tuesday November 8, 2016

Bill McIlveen: Short Story Trilogy

Club member and renaissance man Bill McIlveen will break from the usual presentation format and instead will provide the audience with three shorter-than-normal talks on widely different topics. One will deal with the biology of “**European Starlings**” and their introduction to North America. Next will be a talk about a well-known and important weather phenomenon we recognize as “**Fog**”. Lastly, there will be a discussion of “**Stump Fences**” and how they came to be where they are. As diverse as these topics are, the audience is sure to leave with a new appreciation of the common subjects to be discussed.

*** Note: Bill’s presentation replaces “Fungi” by Linda Kohn, cancelled due to a conflict. We will attempt to arrange another fungi presentation in 2017.**

Tuesday December 13, 2016

Annual Pot Luck dinner

Come for the gustatory pleasure of Ray Blower’s legendary bean salad and for general conviviality. There will be an opportunity to show slides after we eat, but due to time constraints, please limit your images to ten or less.

Tuesday January 10, 2017: TBA

Tuesday February 14, 2017

Mark Peck: The Ethics of Nature Photography

Mark Peck is an Ornithology Technician with the Royal Ontario Museum. He will talk to us about how to respectfully interact with photographic subjects. Mark notes that this presentation ties in with the world’s most prestigious nature photography competition currently being presented at the ROM: The Wildlife Photographer of the Year exhibition.

Outdoor Events:

Saturday November 12, 2016

Late Flowering Plants Survey Hike

Bill McIlveen will be leading the 15th annual survey to find and identify any flowering plants that are still blooming late in the season at sites around Halton Hills. Meet at the parking lot of the old public school, Mary Street, Norval at 1:00 pm.



Fall at Upper Credit Conservation Area by Tanya Piko

Thursday December 29, 2016

Christmas Bird Count

The 26th annual Christmas Count for Halton Hills will take place in the standard survey area around Halton Hills on Thursday December 29. The area will be divided into smaller areas with participants assisting experienced leaders. This is a great way for beginners to learn their birds. If you would like to join in any aspect of the count, please contact Bill McIlveen via e-mail at wmcilveen@sympatico.ca, at (519) 853-3948, or send us a message at info@hnpnc.com

President's Message

After one of the hottest and driest summers on record recent rains have been most welcome. Too late though for farmers and too late as well for all of the larval amphibians dependent on vernal pools, including wood frogs, spotted salamanders and Jefferson salamanders. Most probably lost their race against time this year – to transform before the drying of the ponds.

The production of mast appears way down this year as well, probably because of the lack of rain. The numerous birds and animals that depend on acorns, beechnuts and hickory nuts may be in for a tough winter.

If this drought was an outlier and not likely soon repeated, the resilience of nature will compensate for these setbacks. But if dry summers become our new normal, the local ecology will almost certainly be impacted.

So here's to a snowy winter and a wet spring!

Regardless of the weather, club members can look forward to a series of interesting, thought-provoking talks in the months ahead. In the new year, a professor from UofT will tell us about his bat research, an ornithologist with the ROM will offer a cautionary presentation on the ethics of nature photography. And our own Bill Milveen will deliver an eclectic series of mini-talks that are sure to stoke your curiosity.

Many people model themselves after woodchucks or chipmunks in the winter – battering down the hatches and hibernating. As hardy naturalists, we don't do this of course. We get out and explore. Right? ☺ Think about taking part in one of our winter nature investigations. Prominent among these is the Christmas Bird Count. This is always fun, always informative and even if you can't distinguish a chicken from a chickadee you are more than welcome to participate. Each group will have at least one marginally competent birder.

Another walk currently scheduled is Bill Milveen's annual late flowering plant survey. But watch your email for other opportunities to explore nature – winter waterfowl along Lake Ontario and animal tracking among them.

And please try to attend our annual pot luck dinner in December. This is an opportunity to socialize and share a few images of your nature experiences. Hope to see you there!

Don Scallen

Harmful Algal Blooms

By W.D. McIlveen

It is well known that the consumption of certain shellfish at certain times of the year can lead to poisoning of those that use them for food. It is somewhat unfair to blame the shellfish because the source of the toxins involved is the algae that the shellfish consumed. Several types of algae are involved. The different types of algae produce different types of toxin though the chemistry is generally defined by the algal species involved. The amounts of toxins produced is controlled by a complex set of factors though it is apparent that the most toxin can be produced when there is a high abundance of the alga. High densities of algae are referred to as 'blooms'. The presence of a bloom does not necessarily mean that there is a significant amount of toxin present. Conversely, the toxins can be present without a conspicuous bloom occurring. The presence of toxins in shellfish tissues can only be determined in the laboratory. It does not affect the taste or appearance of these foods and therefore it is not possible to avoid consumption of shellfish based on either of these criteria. Unfortunately, the toxins are not destroyed by cooking.

Type	Habitat	Effect	Toxin	Species
Red Tide and Harmful Algal Blooms	Marine	Amnesic Shellfish Poisoning	Domoic acid	<i>Pseudo-nitzschia</i>
	Marine	Paralytic Shellfish Poisoning	Saxitoxin	<i>Alexandrium</i>
	Marine	Neurotoxic Shellfish Poisoning	Brevetoxins	<i>Karenia brevis</i>
	Marine	Diarrhetic Shellfish Poisoning	Okadaic acid, Dinophysistoxins, Pectenotoxins	<i>Dinophysis</i>
Cyanobacteria	Freshwater	Hepatotoxins	Microcystin	<i>Microcystis</i>
General Fouling	Marine	Fouling		<i>Caulerpa</i>
	Freshwater	Beach fouling and decaying heaps of algae	Odor	<i>Cladophora</i>

Domoic acid is produced by algae of the genus *Pseudo-nitzschia*. It is harmful because it's a neurotoxin, which means it affects the brain. In mammals, it prevents neurons from firing correctly and may cause the hippocampus part of the brain to die. Because this part of the brain is responsible for spatial orientation and memory, a human that consumes too much of the toxin can exhibit symptoms of Amnesic Shellfish Poisoning (ASP). These symptoms include short-term memory loss, confusion, nausea, headaches and gastro-intestinal distress and even death in humans. ASP has been found to damage larger marine mammals including sea lions, dolphins, manatees, and whales. This condition may well have been the basis of erratic behavior that was exhibited by the birds, mainly gulls, in the Alfred Hitchcock film *The Birds*.

Paralytic Shellfish Poisoning (PSP) is caused by Saxitoxin that is produced by the alga *Alexandrium* (formerly *Gonyaulax*). Saxitoxin blocks sodium metabolism in mammals. PSP symptoms can include tingling in the lips, mouth and digits, drowsiness, headaches or dizziness, incoherent speech, difficulty in breathing and several other manifestations. In severe cases, muscle paralysis may lead to respiratory arrest and death. Saxitoxin accumulates in the tissues of bivalves and in lobsters and crabs.

Exposure to brevetoxins can cause Neurotoxic Shellfish Poisoning (NSP). Brevetoxins are produced by the dinoflagellate *Karenia brevis* and other *Karenia* species. Like most other algal toxins, the brevetoxins can accumulate in filter-feeding organisms. Symptoms of NSP in humans include tingling, change in temperature sensation, muscle pain, vertigo, loss of coordination,

abdominal pain, nausea, diarrhea, headache, slowed heart rate, dilated pupils and respiratory distress.

Diarrhetic Shellfish Poisoning (DSP) is caused by one or more toxins produced by *Dinophysis*, another dinoflagellate. Another common but quite different dinoflagellate *Prorocentrum* has also been implicated in DSP. As the name suggests, DSP produces debilitating gastrointestinal symptoms shortly after consumption of toxic shellfish that include mussels, oysters, clams and scallops. The illness lasts for several days with severe diarrhea, nausea, vomiting, and abdominal pain. Unlike the other shellfish poisonings, DSP does not have neurological effects. Several toxins have been identified as causing DSP. These include primarily okadaic acid, as well as dinophysistoxins and pectenotoxins.

Algal blooms also occur in freshwater systems. Of greatest concern from a health perspective are those caused by cyanobacteria. Formerly, this group was called “blue-green algae”. The organisms are actually a type of bacteria that have photosynthetic ability and generally behave much like the algae described above and generally fall into the purview of phycologists. In large concentrations, they form greenish deposits on the surface of ponds or lakes and resemble an algal bloom. Sometimes they are so abundant that the water appears like pea soup. Although there are many species of cyanobacteria, it is *Microcystis aeruginosa* that poses the greatest threat. This species produces a hepatotoxin toxin called microcystin. When ingested in drinking water, the microcystin can cause a variety of symptoms including abdominal pain, nausea, vomiting, diarrhea, sore throat, dry cough, headache, blistering of the mouth, atypical pneumonia and elevated liver enzymes, as well as hay fever symptoms, dizziness, fatigue, and skin and eye irritations. For humans, this exposure is a concern when the species is abundant in drinking water. There is also a concern that recreational water use, either through body contact (swimming), inadvertent ingestion, or inhalation of water droplets may pose a threat. It is also a danger to fish and wildlife when the cyanobacteria bloom leads to a depletion of oxygen from the water column when the cell mass eventually dies and decays at the end of the growing season.

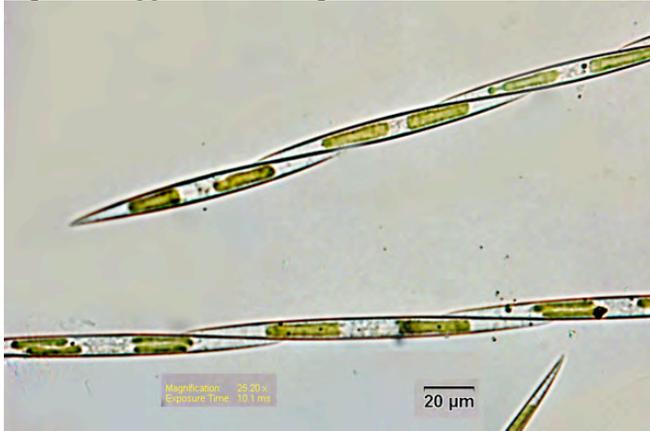
In some situations, alga may grow profusely and form thick mats of material over any structure within the water column when there is adequate light for growth. In some of our lakes, the alga *Cladophora* forms dense growths that break away from the substrate. Wave action will cause the alga to build up on the shore. Shortly after this, the algae heaps start to dry and decay. The algae are not toxic in the usual sense but the decay process produces a very strong and most unpleasant smell. This is very important to local residents and essentially removes any potential for aquatic recreation in an area where the algae accumulate. Like the cyanobacteria mentioned above, the decay of these algae at the end of their growth cycle can lead to oxygen depletion.

There are other situations where algae cause problems. For example, *Heterosigma akashiwo*, a swimming marine alga in the class Raphidophyceae has been associated with significant kills of farmed salmon populations in British Columbia. The mechanism by which it changes from a normal harmless background species to one that kills fish is unknown. Also unknown is the toxin that is produced.

Algae remain as one of the prime agents that absorb carbon dioxide from the environment. This is extremely important in these days of climate change caused by carbon emissions from human activity. Marine organisms absorb about half of all the CO₂ that is fixed each year. Some of this settles to the bottom of the ocean and is thus eliminated from the atmosphere. Other carbon is recycled in other ways. Consideration is

being given to using algae as a biofuel. In the longer term, this is a carbon-neutral process compared with the net accumulation of CO₂ released from fossil fuels employed as energy sources. So while algae do offer considerable positive potential for dealing with the problems associated with CO₂ emissions, some of them also pose problems seen as toxic agents that affect recreation, marine shell-fisheries, wildlife and environmental processes.

Figures - Appearance of algae mentioned in the text above.



Pseudo-nitzschia



Alexandrium



Karenia



Dinophysis



Prorocentrum



Microcystis

Going Places

By Don Scallen

From August through much of October a single Common True Katydid called from a neighbour's Norway maple. Each night, starting at dusk, it would chirp an average of 15 times per minute, amounting to 900 times an hour. This would continue each evening for at least three hours. So at least 2700 chirps a night for about 60 days for a very conservative estimate of 162,000 chirps.

Hear the call at <http://songsofinsects.com/katydid/common-true-katydid>

As with birds, male katydids call to attract mates. And the Common True Katydid has the loudest calls of any katydid species. One of my neighbours was annoyed at the noisy "tree frog" that wouldn't shut up. For my part I pined for the lonely katydid, suspecting that all his vocal effort would come to naught. He would perish with the first heavy frost, unmated.

Common True Katydids are a Carolinian species that sometimes appears further north. In 2008 a CBC Ontario Today broadcast was devoted to explaining strange noises in an Ottawa neighbourhood. One resident thought he was listening to an electrical short. He was in fact listening to a katydid.

How the katydids got to Ottawa (and to Windsor Rd. here in Georgetown) is open to speculation. Apparently, Common True Katydids aren't good flyers. Perhaps they arrived on nursery stock. Or perhaps as tiny nymphs blown by the wind.

Wind can be an excellent dispersal agent for plants and animals. We all know about the little parachute seeds of dandelion and milkweed. "Ballooning" spiders sometimes reach very lofty heights and can travel hundreds of kilometres. Fairy shrimp, a lovely crustacean and vernal pool specialist, also depends on wind for dispersal. Autumn winds scour the dry beds of their vernal pools, blowing their dust-like eggs to other ponds.



Fairy Shrimp male and Daphnia

Every plant and animal has its own strategies for getting around, for colonizing new territory. And thank goodness they do, for twelve thousand years or so ago, nothing lived here – no plants other than ice-loving algae perhaps, and no animals and no birds.

All the native plants and animals that now populate our landscape had to get here from ice-free zones in what is now the U.S. They moved hundreds or even thousands of kilometres, in diverse ways.

The movement of trees is generally well understood: winged seeds of ash and maple blow in the wind; nuts are spread by squirrels and birds such as blue jays; fruit like that of black cherry is swallowed whole by birds and then excreted with intact seeds and a dollop of fertilizer. From pollen in sediment core samples botanists even know the approximate speed that trees moved north as the ice sheets retreated: 350 metres per year for white pine, 225 metres for maple and 100 metres for American chestnut for example.

Some trees appear to have stalled in their advance north, perhaps due to the loss of their dispersal agents. Osage orange, Kentucky coffee-tree and honey locust are three tree species that may have depended upon extinct mega-fauna to spread. They are anachronistic, waiting in vain for lumbering ground sloths and mastodons to eat their fruit and spread their seeds.

Luckily for these trees, we have stepped in as proxies for their extinct megafauna benefactors. Honey-locust and its many cultivars have long been a staple of the nursery trade. Kentucky coffee trees are now frequently planted as boulevard trees. Decades ago thorny Osage Orange had a renaissance as a hedgerow tree on livestock farms.

Human assisted tree dispersal is probably not confined to the modern era. One theory contends that pawpaw trees were brought into Ontario by first nations people. An outlying population of shagbark hickory – a tree with tasty, nutritious nuts – south of Georgian Bay, may have arrived there courtesy of native people as well.

People have now become the primary movers of plants and animals. Thousands of species from Asia and Europe have been brought to Ontario, intentionally and unintentionally - often with disastrous results. Consider phragmites, dog-strangling vine, emerald ash borer, Dutch elm disease and on.

We've released bird species such as starlings, house sparrows and house finches and we've assisted the northward colonization of birds by offering bird food. Cardinals and Mourning Doves are two notable species that have availed themselves of our largesse.

The movement of birds is easy to understand, as they are among the most mobile of creatures. Many insects too are excellent flyers so their presence here is usually easy to explain. Mammals also are mobile and the rivers and lakes separating us from the United States hasn't stopped them from colonizing Ontario. All the mammals that inhabit northern New York state, Pennsylvania and Ohio also live here.

I am truly puzzled though about the salamanders that have somehow extended their ranges north of the water barriers that define our southern borders. Consider a Red-backed Salamander for example and think about what a tremendous challenge it would be to cross wide, fish- filled rivers like the Niagara and the St. Lawrence. But obviously it did happen, for this species is our most abundant salamander. Forging those rivers inside floating logs appears to be the most likely possibility.



Red-backed Salamander

Evidence though, would suggest that the rivers and lakes along our southern border have inhibited the northern movement of some salamander species. Two species of dusky salamanders for example – the Allegheny Mountain and the Northern – have only the most tenuous foothold in the province, in the Niagara Gorge. Yes, they did manage to cross the Niagara River. But if these abundant New Yorkers had been able to walk across the border, chances are they would be far more widespread in the province.



Niagara River

There are many other tantalizing questions about animal and plant dispersal to ponder. For me, how Brook Stickleback ended up in the kettle ponds of Forks of the Credit

Provincial Park is one of them. These ponds are isolated from other bodies of water and are not attached to inlet or outlet streams. Sticklebacks can't walk.

But perhaps they can fly. Maybe the adults or their eggs were transported to the ponds by waterfowl. In the feathers of the birds? Coughed up from the birds' crops – somehow still alive? These scenarios seem unlikely, but the kettle ponds of Forks of the Credit have likely existed for at least 10 000 years. Time can make the improbable, possible.

The pitcher plants at Caledon Lake also puzzle me. As far as I know, this is an isolated population, far removed from other pitcher plants. The Caledon Lake pitchers may be remnants of a time thousands of years in the past when southern Ontario had more of the boggy habitat necessary for their growth. Pitcher plants were possibly far more widespread on our landscape at one time.



Pitcher Plants

I'll miss the Common True Katydid next summer. But someday in this area a wayward male katydid may get lucky and meet a female – a fellow wind traveler or nursery stock clinger, and a range expansion may result. Nature isn't static. Animals and plants are forever going places.

Photos by Don Scallen

Results of the 2016 Monitoring of Bird Boxes Established at Scotsdale Farm, Halton Hills

By W.D. McIlveen

A project to erect and monitor a network of bird nest boxes at the Scotsdale Farm located at Silver Creek north of Georgetown was initiated by the Halton/North Peel Naturalist Club in April 2014. Initially, sixteen boxes were placed at Scotsdale and three more were set up at St. Albans Church in Glen Williams. In 2015, 27 boxes were added at Scotsdale and four others were placed at other locations. It was decided that 13 old boxes already at Scotsdale would also be monitored. No new boxes were erected in 2016. The positions of the boxes are shown in Figure 1.

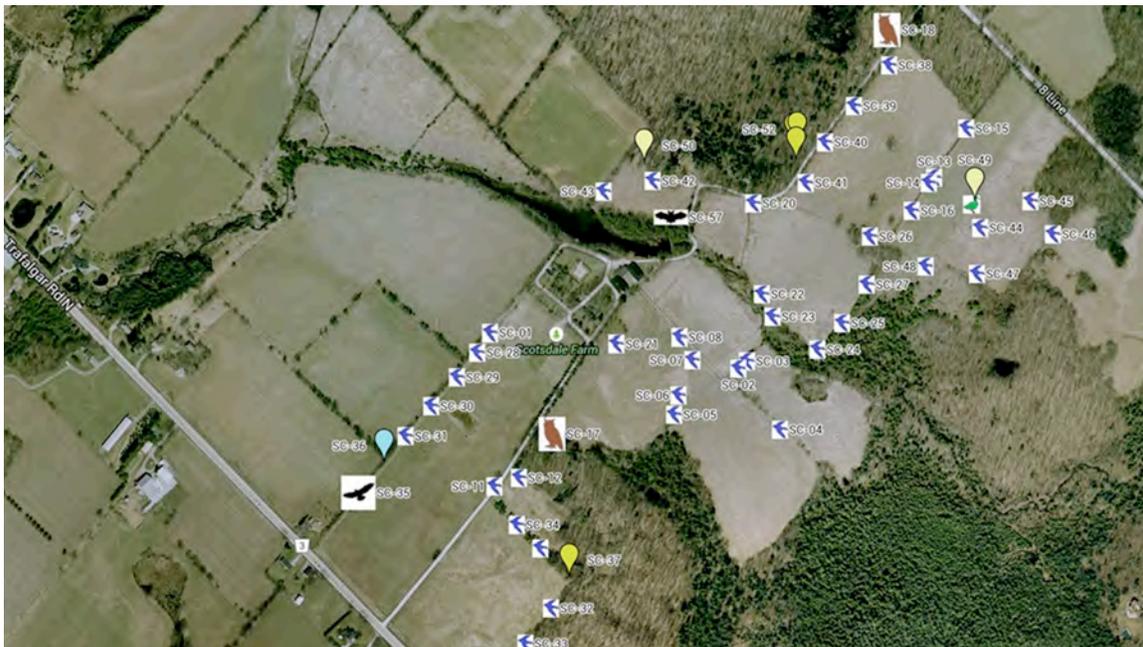


Figure 1. Positions of bird nest boxes at Scotsdale Farm, Georgetown, Ontario.

The majority of boxes were of a standard design suitable for Tree Swallows or Bluebirds. The boxes included two boxes designed for owls and one was for kestrels. The old boxes had mostly been designed for Tree Swallows but at least one was intended for nesting ducks. Each box was assigned a unique identification number to assist with the anticipated subsequent monitoring. Monitoring in 2016 was done in the peak of the breeding season on June 14. The boxes were cleaned over several days in mid-October 2016 and the contents of each box was noted. The present report considers the results for only those boxes at Scotsdale and St. Alban's Church.

The results of the monitoring for 2016 are summarized in Table 1. Data for the boxes in the two previous years are also included for comparison.

Table 1.

Contents of Bird Boxes at Scotsdale Farm and St. Alban's Church, 2014-2016					
Species	2014	2015		2016	
	June	June	October	June	October
Eastern Bluebird		1	2	2	0
House Wren	1	4	4	2	3
Tree Swallow	2	12	8	6	6
Mouse		1	2	5	7
Squirrel		2	1	1	0
Unknown		9	17	13	20
Empty	19	30	25	30	22
Total	22	59	59	59	58

As in previous years, three species of bird and two species of mammal were found to use or have used the boxes. All of the species involved were species that commonly accept nest boxes. These were Eastern Bluebird, House Wren and Tree Swallow. The mammals were Red Squirrel and mouse species. During the June 2016 visit, the nesting birds had either eggs or young at different stages of development. All nesting attempts appeared to have been successful as there were no remaining eggs or dead young in the boxes when they were examined in October. The nests that were still present at that time appeared to be quite normal for a nest that had been successfully occupied. One box missing during the nesting period has been recovered and will be reinstalled prior to the next breeding season.

Overall, the usage of the boxes was generally similar in the two full years of monitoring. The occupation by Tree Swallows declined from 2014 but the number of mouse occupations had increased. While we can see some differences, the period of monitoring is far too short to consider the changes to be real trends in population.

Small amounts of material of uncertain origin (leaves, grass, fungi, Bitternut Hickory nut) were found in some boxes but usually no particular nesting species could be identified. Often it was not possible to even conclude that there had been a genuine nesting attempt. In one case, a species of paper wasp had built a nest in the box and had even partially sealed the box with the paper material. At least three caterpillars of the Greater Wax Moth (*Galleria mellonella*) were found feeding in the remains of the wasp nest. Cocoons of undetermined moths, likely Gypsy Moth and Tent Caterpillars were seen in several boxes. In October, two of the boxes were found to be occupied by pairs of mice believed to be White-footed Mouse. These boxes were left intact for the use of the current occupants.

None of the old nest boxes had been used. There was no evidence that any of the owl or kestrel boxes were used other than by squirrels. In 2016, several additional old boxes were noted along the Trafalgar Road fence line. These had not been checked or noted previously and their contents are unknown. Their positions appear to be quite suitable for nesting Bluebirds or Tree Swallows and therefore they should be added to the nest box network for future years or replaced by new boxes if necessary.

It is anticipated that the monitoring of the nest boxes will continue in 2017. Prior to the breeding season in the spring of 2017, consideration should be given to:

- 1) Pruning branches from surrounding vegetation
- 2) Removing or replacing old boxes that are in poor condition
- 3) Repositioning boxes that are too sheltered and move them to 'edge' sites



Scotsdale Farm by Tanya Piko

Halton/North Peel Naturalist Club, Box 115, Georgetown, Ontario L7G 4T1
Charity Registration number 869778761RR0001

Executive			Appointments	
President:	Don Scallen	(905) 876-6180	Membership:	Lorysa Cornish
Past President:	Fiona Reid		Newsletter:	Tanya Piko
Vice President:	Ian Jarvie	(905) 877-1441	Ontario Nature Representative:	Don Scallen
Secretary:	Emily Dobson		Public Relations:	Rose Barcarse
Treasurer:	Anne Fraser		Webmaster:	John Beaudette
			Member at Large:	Janice Sukhiani
			Member at Large:	William McIlveen
			Crozier Property Steward:	vacant
			Hardy Property Steward:	Ray Blower

Membership for one year: \$30 Single; \$40 Family
The Halton/North Peel Naturalist Club is an affiliated member of Ontario Nature.

www.hnpnc.com

Halton/North Peel Naturalist Club Membership Form

_____ Renewal or _____ New Member(s) Date _____

Name(s): _____

Address: _____

Postal Code: _____ Telephone: _____

E-mail: _____

Membership renewal fee

from September through to August _____ Single (\$30.00) _____ Family (\$40.00)

New members' fees from sign-up date:

December through to August _____ Single (\$22.50) _____ Family (\$30.00)

March through to August _____ Single (\$15.00) _____ Family (\$20.00)

June through to August _____ Single (\$ 7.50) _____ Family (\$10.00)

Do you have any suggestions for programs or field trips?

How did you hear about our club (newspaper/website/friend/other)?

WAIVER OF LIABILITY

(**must** be signed by anyone planning to attend field trips or other outdoor activities)

In making this application, I affirm that I am in good health, capable of performing the exercise required to participate, and that I accept as my personal risk the hazards of such participation and will not hold the Halton/North Peel Naturalist Club or its representatives responsible.

In consideration of the Halton/North Peel Naturalist Club accepting my application, I hereby and forever release and discharge the Halton/North Peel Naturalist Club and its officers, directors, servants and agents from any liability whatsoever arising as a result of my participation in these trips and declare that this is binding upon me, my heirs, executors, administrators and assigned.

Signature(s): _____ Date: _____

_____ Date: _____

Meetings are at St Alban's Church in Glen Williams (see over) starting at 7:30 p.m.

Please fill out this form and bring it in to next indoor meeting or mail with payment to:

Halton/North Peel Naturalist Club,
P.O. Box 115,
Georgetown, Ontario, L7G 4T1

**Halton/North Peel Naturalist Club
Meeting Location
St. Alban the Martyr Anglican Church, 537 Main Street, Glen Williams**

