

THE EGRET



THE ESSEX COUNTY FIELD
NATURALISTS' CLUB

DECEMBER 1993 VOL.10, #4

THE EGRET

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EGRET SUBMISSION DEADLINES

March Issue - February 10, 1994

PRESIDENT'S REPORT

Greetings:

The December Issue of the Egret portends the close of another year for the Essex County Field Naturalist's Club. At this time I am inclined to reflect on the club's activities during the past year. We have enjoyed the experiences and knowledge of nine monthly speakers on topics as specific as one species of snake to those as broad as habitat restoration. We have taken part in outings to observe and band birds and trips to little known natural habitats. We even managed a few social gatherings such as our first annual picnic. In regards to our responsibilities as environmental citizens, the club has been quite active. As well as our usual commitment to the Bailey Birdathon, bluebird nesting boxes, NHRP, and our presence at the Kingsvill and Holiday Beach Migration Festivals; the club has also sponsored a World Series Birdying Team and deepened its involvement to save the Heinz Bush in Leamington. In my opinion it has been an active and well rounded year for our club.

The diversity and quality of club programs are directly attributable to the individuals serving on the club's executive. I feel that the current executive should be commended for the personal commitment each member has made to ensure the E.C.F.N.C. is an organization worthy of your membership. However a club such as ours should be a reflection of the concerns and desires of its members. The annual General Meeting on January 12th is an opportunity to fine tune the relationship between the executive and the general members. At this meeting the executive is obliged to account for its actions but it is more important for you, the individual, to set the pattern for the future by communicating your concerns and goals for the E.C.F.N.C. At the Annual General Meeting you will be able to question the past executive, out forward motions on club policy and select or join the new club executive. The club is involved in many interesting and significant programs. You owe it to yourself to take an interest in the club's development. Please attend the January meeting and make your voice heard.

I wish to salute Carl Miaolani for organizing yet another successful Annual Dinner. Carl, along with speakers Jerry Waldron, Rob Zonis, and auctioneer extraordinaire Peter Bondy made the evening a pleasurable experience. I also wish to recognize the efforts of new executive member Pam Simpson. Thanks to her, club activities are regularly advertised by the news media; something that has never been consistently been done in the past. It is important to make the community aware of what the E.C.F.N.C. has to offer - so keep up the good work Pam.

The Friends of the Heinz Bush has just completed a door to door canvas of Leamington - Mersea area. Co-chairs Ruth Junge and Bobby Clarke are now pursuing other avenues for funding and would appreciate any assistance club members could give them. The committee has also named the winners of the Heinz Bush Contest in which local elementary schools used art and poetry to explain the importance of this natural habitat to Essex County. All the 243 entries were of exceptional quality. Thus the prizes generously donated by the Pelee Wings Nature Store, Bausch and Lomb, the Leamington Sporting Goods, and Photography Unlimited, and the Friends of Point Pelee found very deserving homes.

Nineteen Ninety Four should be a particularly exciting year to be a member of the E.C.F.N.C. On January 31, 1984, Paul Pratt, Peter Bondy, Barb and Terry Ouellette, Alan Wormington, Tom Hince, Terry Priddle and Mike Oldham met at Jim McAllister's house for the first organizational meeting of what soon became the E.C.F.N.C. By December of that year the club had held several meetings and field trips, published a newsletter and become incorporated. As a result this is the tenth anniversary of our club. An anniversary committee has been set up to consider ways of celebrating this milestone. So far, the Ouellettes, Pam Simpson, Peg Wilkinson, and Myrtle Bessette are involved in this project. They are anxious to accept input from other members to make this a memorable year.

I look forward to sharing another decade with my friends in the Field Naturalist's Club.

Yours,
Thomas Hurst

A YEAR ON THE BLUEBIRDS' TRAIL

When the blue skies of February promise spring, Eastern Bluebird monitors flock together (that is, carpool) to their trails on sunny Sunday afternoons to check the condition of their bluebird boxes, share the memories of the past season, speculate on the upcoming nestings, to nibble on quick breads and sip herbal tea. Despite the lingering grip of winter on the County, a few Eastern Bluebirds are likely to be seen, such as the small flock of three birds seen along a property line as the birds moved about the oaks and hawthorns. Several afternoons of such activity in February are enough to ensure that monitors are anticipating the nesting season ahead.

This monitor had the unfortunate experience of the discovery of numerous white-footed mice occupying bluebird boxes in mid-winter. The mice had filled the boxes with shredded plant fibres that made lovely, cozy nests. A vivid memory is the moment this monitor pushed aside the fibre at the centre of the nest to reveal two mice which were curled in the nest, sleeping soundly, completely oblivious of the human peering in at them. It wasn't possible to evict these tiny animals from their warm winter home.

The last of the mice were eventually cleared from the bluebird boxes on April 18, 1993 which was very good timing as the Eastern Bluebirds were on territory. A male bluebird was observed on that date carrying bits of fine grass into a nesting box. The female bluebird does most of the actual nest construction but the male in the area was an indication of future nest building. According to the notes, April 18, 1993 was "beautiful" with numbers of spring migrants observed as well as a group of white-tailed deer.

The very first bluebird egg was observed on April 25, 1993 along with signs of a real flurry of nest building. The mice in the nest boxes were now just a memory. By early May, two nests held clutches of five eggs each with female bluebirds incubating the eggs. Notes indicate that another wave of spring migrants had arrived. Along a farm laneway beside a woodlot, spring wildflowers were abundant as numbers of Field Pussytoes, Adder's Tongue and Spring-beauty were observed.

The task of bluebird monitoring was shared with a friend from the Durham Field Naturalists on May 15, 1993 when a total of 13 baby bluebirds were seen in the boxes. Barb Glass was delighted to open the nesting boxes and thrilled to count the tiny birds in their nests. A foraging raccoon along a tributary of Cedar Creek was an unexpected sighting.

A monitor on a nearby trail did not have the same success that we had experienced that morning. Denise Hartley had discovered the body of a female bluebird on the eggs the bird had been incubating. Every season there is at least one report of the loss of an adult bluebird in this manner. Are the birds affected by insecticides or are they simply unable to survive the rigors of nesting?

This monitor was to receive her own unexpected setback on May 23, 1993 when a box that had contained five tiny babies the week before was found to be empty. The adult birds had vanished. What had happened? Had the foraging raccoon taken the babies? Another monitor suggested that a snake could have destroyed the young and offered the suggestion to carefully prune any vegetation that might be too close to the boxes. Still the memory of the loss of those tiny birds lingers on, as they had been the centre of much joy only a week before.

By the end of May, the surviving babies hatched earlier in the month had grown to "a good size", fledging in early June. Already there were signs of second nest building indicating a second brood. A freshly constructed nest had five eggs laid.

Other creatures continued to have an interest in the nesting boxes. The white-footed mice had returned to attempt nest building but were not allowed to become too settled. The wooden boxes continued to attract minute, dark ants which resisted removal. A few wasps entered the boxes, to be removed with care. House Sparrow nest were removed weekly, always causing the monitor to be astonished that these birds could spend so much time gathering and constructing the messiest of nests. The most startling temporary box dweller was a medium-sized Fox Snake found on June 13, 1993 in one of the more popular boxes.

June 13, 1993 was remarkable to the monitor for another incident that occurred on that day. This monitor neglected to wear the proper footwear while monitoring with the result that an impressive array of blisters developed on the monitor's feet which prevented a thorough and proper check of the trail until June 29, 1993. Luckily, the bluebirds had carried on with their nesting activities during the monitor's absence. Twelve bluebird eggs were found in two boxes, with four babies in another box. A family group of two adults and two immatures along a fence row was a welcome sight.

By July 6, 1993, the four babies seen on June 29, 1993 had fledged. Five newly hatched young were found in another box. The monitor's notes indicate that the mice were back again, this time attempting to hide in boxes that contained abandoned House Wren nests. Other nesting birds were observed along the trail, as well as a number of butterfly species.

Five babies had fledged by July 21, 1993 and either three or four babies were in another box, with a single baby in another. By July 26, 1993 the single baby was about to fledge. Notes indicate that "its eye was large and dark, with its feathers starting to show blue". The last box had three babies, also ready to fledge shortly.

Twenty-one Eastern Bluebirds were fledged from this monitoring area with a total of 107 Eastern Bluebirds fledged from all nesting boxes monitored by ECFNC monitors and private landowners who maintained trails on their properties.

Eastern Bluebirds are seen in the County throughout the Fall, often coming together in flocks which can provide a great deal of entertainment to landowners such as the flock that fed on dogwood berries at the rear of one property, then visited the dog's water dish at the back door for refreshment. Flocks of bluebirds can be seen in migration from the hawk migration observation tower at Holiday Beach Conservation Area with the final tally of migrating bluebirds published in the Holiday Beach Migration Observatory's winter newsletter. During the annual Christmas bird counts a few bluebirds are regularly seen, making those observations the last record of the Eastern Bluebirds in Essex County for the year.

Bluebird monitors are to be thanked for another year of faithfully visiting their assigned areas to monitor our Eastern Bluebird nesting boxes. Everyone's efforts are very much appreciated.

E. C. F. N. C BLUEBIRD TRAILS '93

	# Boxes	Visiting Bluebirds	# of Pairs of Bluebirds	# of Bluebirds Fledged	Tree Swallows	House Wrens
<u>Club Trails</u>						
Wheatley	6					✓
Harrow Ansi	10		3	28	✓	✓
Brunet Park	4		1	4		✓
Arner Nut Grove	8	✓			✓	✓
Arner Point	5	✓			✓	✓
Maidstone Woodlot	8				✓	✓
Pleasant Valley.	32		8	21	✓	✓
Shell Trail	15				✓	✓
Friends Trail	39		8	33	✓	✓
3rd Concession	8		1	0	✓	
Stewart's	2					
<u>Affiliated Trails</u>						
Chewick	21		2	8	✓	
Linda's Goat Farm	6					
Pagquette Corners	28		1	4	✓	✓
Wilamette Farms	10	✓			✓	
Gore Road	4	✓			✓	
Ruthven	6				✓	
McCormick Road	4		1	4		
Lexi-Luck	8	✓			✓	✓
Self-Song Farm	15				✓	✓
Anderdon	20		1	0	✓	✓
Pohanka Farms	6		1	5	✓	
Totals	265		27	107		

Did you know.....?

Over the last 100 years, more than 75% of the wetlands in southern Ontario have been lost due to various types of development.

The original extent of wetlands in agricultural southern Ontario was 2.3 million hectares (ha.)*. Only 13% to 22%, or 300,000 to 500,000 ha. remain.

In Ontario over 6,540 people own provincially significant wetland.

Over 64,502 ha. of provincially significant wetlands are privately owned.

Private ownership of wetlands in Ontario varies from 6.5% in the Canadian Shield to 81% south of the Shield.

In southern Ontario, 51.5% of wetlands are on agricultural lands and 8.3% are owned by private hunt clubs.

In a sample of 10,000 wetlands in southern Ontario, 40% were under 4 ha. in size, and 36% were over 400 ha. (the average size of southern wetlands is 27.5 ha.)

Wetland ecosystems are second only to tropical forest ecosystems in diversity of plant and animal species, compared to other ecosystems.

Species of flora and fauna that depend on wetland habitat include over 142 birds, 11 mammals, 19 amphibians and reptiles (herptiles), and 350 plants.



The Committee on the Status of Endangered Species in Canada (COSEWIC) lists 212 rare species that depend on wetlands; 38 birds, 29 terrestrial (land) mammals, 16 marine mammals, 53 fish, 64 plants and 12 herptiles

Living near a wetland does not necessarily mean more mosquitoes. Mosquitoes also breed in small ponds, in puddles or in your eaves- troughs after a rain. Wetlands are breeding grounds for animals and insects that prey on mosquitoes. For example, dragonflies, small fish, frogs, toads, wrens and swallows. These species may help to control mosquitoes on your property.



Eating bananas may attract mosquitoes. Some say it's the other way around (see Vol.4 No.1, Autumn 1991). Give it a try and see - if you dare. Maybe it works differently for different people.

* 1 hectare = 2.5 acres

The hardest nut to crack, of all the difficult nuts of environmental deterioration, is the very real human capacity to forget something not now present that was once of considerable importance to our lives, and the obvious inability to miss something we've never experienced. And so from generation to generation the environment becomes less interesting, less diverse, with smaller unexpected content, and our immediate surroundings become depauperate of animals and plants and exuberant human life. What your father can hardly remember, you will not miss. What you now take for granted, or what is now slowly disappearing, your children, not having known, cannot lament.

(Kozlovsky, 1974, 44)

9th Annual Dinner Report

On Saturday, November 13, 1993, the Club held its Annual Dinner at the Teutonia Club in Windsor. The guest speakers were Gerry Waldron and Rob Tonus. In his capacity as Club Member and NHRP seed collection coordinator, Gerry gave some introductory remarks about NHRP. His colourful descriptions helped to emphasize the significance of the project while at the same time reminded everyone of the fragile nature of its continued existence. He proceeded to introduce Rob Tonus, a Program Officer of the Environmental Partners Fund (the government body that has funded most of the efforts of NHRP).

Using slides as illustrations, Rob outlined the history and structure of the EPF and gave examples of the various projects that have benefitted from EPF funds. He emphasized the uniqueness of our project in that we are attempting to restore local areas using seed stock collected from local sources. He also pointed out that funding from EPF had been cut back due to budget restraints. Fortunately, many new projects are taking advantage of money being made available from private foundations.

We wish to thank Rob and his wife Wanda for making the trip to Windsor and being part of our Annual Dinner.

For the continuing record, the weather this year was much better than last, with mild temperatures prevailing and snow nowhere in sight. Most people arrived between 6:15 and 6:45 and proceeded to scan the silent auction table for their favourite picks. Some animated greetings were exchanged as people renewed friendships with members not often seen at regular meetings.

Dinner was served promptly just after 7:00 and consisted of Schmitzel, roast chicken, roast potatoes, and green beans. Assorted pastries served as dessert. While the dishes were cleared away, everyone made their final visits to the silent auction table. The speakers started just before 8:30 and finished around 9:15.

Next came the Bondy Auction, affectionately named after our Auctioneer Extraordinaire, Mr. Peter Bondy. He once again put some serious energy into hawking some truly valuable treasures. This year the auction included books, professionally-framed prints, pottery, tapes of bird sounds, wreaths, a lady-mouse (suitably dressed and stuffed), an original Teddy Bear dressed as a Field Naturalist, an Owl Prowl, and a scope and tripod which were donated by Bausch and Lomb for NHRP. During the Bondy Auction the various silent auction items were handed out to the winning bidders. After all was said and sold, everyone paid up and left for home, hopefully satisfied. The evening concluded this time shortly before 11:00.

Special thanks go out once again to Peter Bondy whose efforts contribute greatly to a profitable night. We also wish to give special thanks to Betty Learnmouth for once again soliciting the various book publishers for their donations.

Individual donors of auction and door prize items included (in no particular order):

John and Elizabeth Moore
Anderson Nursery and
Garden Centre
Clarine Maiolani
Ojibway Nature Centre
Carl Maiolani
Les Dickirson
Phil Roberts
C.W. Peters
Pam Simpson
Somethin' Special Shops
Linda Dawson
Wild Visions

Anne Barbour
Ruth Junge
Betty Learmouth
Andy Nicholas
Pelee Wings (Mike Malone
& Joan Walker)
Bruno Sfalcin
Peggy Hurst
CNIB
Jose's Noodle Factory
Peter Bondy
Pat Watson

Other items donated (courtesy the efforts of Betty)
Birdfeeders-Yule-Hyde Assoc. Ltd. , Droll Yankee Inc.
Calendars-Firefly Books Ltd., Whitecap Books

Books:

Atlas of Breeding Birds of Michigan, Michigan State U. Press
Beachwalker: Sea Life of the West Coast, Douglas & McIntyre
Bird Watching Guide to the Vancouver Area, Cavendish Books
Birding in Newfoundland, Jesperson Press
Butterflies of Alberta, Lone Pine Publishing
Columbia Icefield, Altitude Publishing
Dancing with Whales, Creative Publishers
Eastern Butterflies, Thomas Allen & Sons
Flying Colours: Design on the Wing, Lone Pine Publishing
Guide to Fossils, Princeton University Press
Guide to the Birds of Costa Rica, Cornell University Press
Hawks of Holiday Beach, Holiday Beach Migration Observatory
Hiking Ontario's Heartland, Whitecap Books
How to Spot a Fox, Firefly Books
National Park Guide, Prentice Hall
Ontario's Wildlife, Boston Mills Press
Protected Places: a History of Ontario's Provincial Parks
System, Dundurn Press
Quails, Partridges and Francolins of the World, Oxford
University Press
Roadrunner, Texas Tech University Press
Trees, Shrubs & Cacti of South Texas, Texas Tech University
Press
Wetlands, Kids Can Press
Wildflowers of the Llano Estacado, Taylor Publishing
Wing in the Door, Hounslow Press

Our thanks go to each and every one of the above
companies for their generous contributions.

After all was said and done our financial gain from the
auction was as follows: Silent Auction: \$795

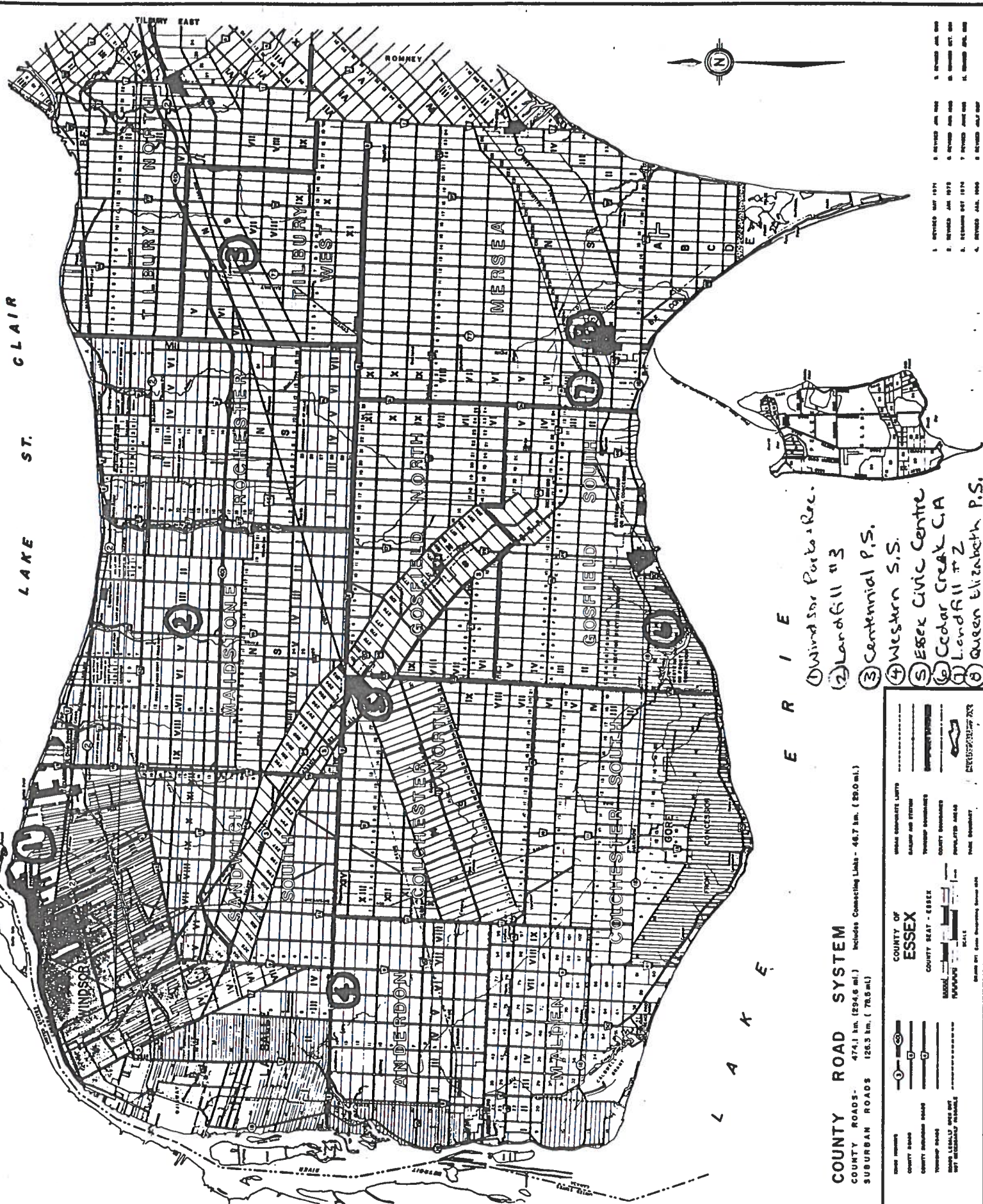
Bondy Auction: \$734

Bausch & Lomb items (to NHRP): \$415

Total, not including dinner: \$1,944

Finally, we wish to thank everyone who attended and
generously supported this fundraiser. Carl Maiolani.

WEST FURNING ROAD ST. CLAIR

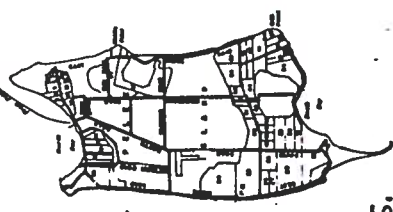


COUNTY ROAD SYSTEM

COUNTY ROADS - 474.1 km. (294.6 mi.) Includes Connecting Links - 46.7 km. (29.0 mi.)
 SUBURBAN ROADS - 126.3 km. (78.6 mi.)

	COUNTY ROAD		DISTRICT BOUNDARY
	SUBURBAN ROAD		PARISH BOUNDARY
	CONNECTING LINK		WATERWAY
	RAILWAY		FERRY
	BUS ROUTE		PUBLIC BUILDING
	SCHOOL		CEMETERY
	PARK		RECREATION GROUND
	PUBLIC HOUSE		PUBLIC HOUSE
	PUBLIC HOUSE		PUBLIC HOUSE

- E R I E**
- ① Windsor Park Rec.
 - ② Landfill #3
 - ③ Centennial P.S.
 - ④ Western S.S.
 - ⑤ Essex Civic Centre
 - ⑥ Cedar Creek C.A.
 - ⑦ Landfill #2
 - ⑧ Queen Elizabeth P.S.



- 1. REVISED MAY 1974
- 2. REVISED JAN 1975
- 3. REVISED OCT 1974
- 4. REVISED JUL 1969
- 5. REVISED APR 1968
- 6. REVISED MAR 1968
- 7. REVISED JAN 1968
- 8. REVISED DEC 1967
- 9. REVISED OCT 1967
- 10. REVISED JUL 1967

Scale: 1:50,000

NATURAL HABITAT RESTORATION PROGRAM

SURVIVAL ASSESSMENT RESULTS OF SPRING '93 PLANTING

The following are the survival results of the trees which were planted in the spring of '94 through the Natural Habitat Restoration Program. When the number of trees planted was less than 1000 on a single site, an exact survival check was made of all the trees on the site. In areas with more than 1000 trees planted, a sample of the trees were assessed.

	Total # of trees planted	Total # of trees assessed	Survival Rate
1. WINDSOR PARKS & REC. - LITTLE RIVER			
	5000	765 (15%)	98%
Very little competition around seedlings, great survival, seedlings planted along a bike trail.			
2. ESSEX COUNTY LANDFILL #3			
	7650	2883 (38%)	97%
Seedlings have been well maintained, good survival of all species.			
3. CENTENNIAL CENTRAL PUBLIC SCHOOL - COMBER			
	400	400 (100%)	89%
Species with poor survival are: white oak, pin oak and red oak. Difficult soil for seedlings to establish themselves. Trees will eventually act as a windbreak for the school yard. Should not require replanting.			

4. WESTERN SECONDARY SCHOOL

8150 601 (7%) 97%

Very heavy competition surrounding seedlings. Survival is most likely much less than 97% due to the difficulty of finding seedlings. Ground conditions are very poor. Some vegetation control should be carried out.

5. ESSEX CIVIC CENTRE

7075 2958 (42%) 96%

Great survival of seedlings, most seedlings in tubex tree shelters are outgrowing unprotected seedlings.

6. CEDAR CREEK CONSERVATION AREA

3000 837 (28%) 99%

Vegetation surrounding seedlings is about one metre high but it does not seem to be hindering growth. Maples are approximately one metre high. Mowing between the rows may help growth of other species.

7. ESSEX COUNTY LANDFILL #2

3225 573 (18%) 78%

Nutrient poor soil causing death of species such as; ash, red oak, white oak, pin oak, hackberry, maple. Competition of tall grasses is moderate. In-filling may be necessary.

8. QUEEN ELIZABETH SCHOOL - LEAMINGTON

600 600 (100%) 95%

Fence established around planted area to keep children away from seedlings. Some natural regeneration occurring around large maple tree. Good survival of all species with red oak and white oak having the lowest survival rates.

TOTAL: 35,100 9617 (27%) 94%

overall more trouble with oaks

HAWK MIGRATION ASSOCIATION OF NORTH AMERICA CONFERENCE MAY 4 - 7, 1995

The Hawk Migration Association of North America's seventh conference will be held in Windsor at the Ramada Inn, May 4 until 7, 1995. (That's right, 1995). This is the first time that the 900 member Association (HMANA) has held its conference outside the United States. The last conference was in Corpus Christi, Texas in April 1993 and the conference after the Windsor conference will be in Salt Lake City, Utah in 1997.

Local hawk watchers are already meeting to plan for an exciting conference. The theme "Wings Across the Borders" has been chosen, reflecting the long distance flights of many of our raptors and the series of monitoring sites that are conducting migration studies of these raptors.

Plans for the conference are in the initial stages. Field trips will be of interest to visitors from beyond our area so opportunities will be provided to visit the Holiday Beach Migration Observatory and Point Pelee National Park. Several dinners are planned with keynote speakers. A number of presentations from hawk watchers around North America will give delegates up-to-date information regarding hawk monitoring sites.

Local birders and naturalists will want to attend the sessions on May 6 and May 7 to learn about various aspects of hawk migration in North America. Such eastern monitoring sites as Braddock Bay, N.Y., Grimsby, Ont., Hawk Mountain, Penn. and Cape May, N.J. have been monitored for many years. In Alberta a site known as Lorette Mountain is creating great excitement among hawk watchers as there has been a recent discovery of a major migration route of Golden Eagles in the Front Ranges. Numbers of Golden Eagles appear to be undertaking significant distance migration which has gone undetected until March 1992. This fall will have marked the fourth season (spring and fall) that this migration has been monitored. Wouldn't it be exciting if Peter Sherrington of Cochrane, Alberta could attend the HMANA Conference to share his experiences at Mount Lorette?

As the Conference plans unfold, the Essex County Field Naturalists will be kept informed of latest developments.

PREFACE

During the past two hundred years of European settlement, the natural landscapes of the City of Windsor have been heavily influenced by man. Forests have been cleared, wet prairies and marshes drained, natural fires suppressed, and many of the plants and animals that once existed in abundance have become extirpated or totally extinct. The many biotic communities which contributed to the natural, diverse landscapes of the City are now very scarce.

As humans, we are just now recognizing our role as an integral part of the environment and that our welfare is ultimately tied to the condition of that environment. Any efforts to conserve remnant pieces of natural heritage can only enhance the quality of life for citizens living in urbanized areas. The Candidate Natural Heritage Site Inventory Project is indeed, a commendable effort in assessing the significance of Windsor's remaining natural areas.

INTRODUCTION

The City of Windsor Natural Heritage Site (N.H.S.) Inventory Study was initiated in response to Windsor City Council's request (CA159-91(c)):

"that a city-wide inventory of all remaining private and public natural areas, excluding parks which are not presently designated open space, be undertaken to determine if these natural areas should be designated and retained as open space and whether the Essex Region Conservation Authority's new Environmentally Sensitive Areas policy could be utilized to preserve the areas."

In response, City Administration informed Council that a number of steps would be required to fully answer this question. The steps necessary would be:

- a] to develop a preliminary list of possible sites (prepared by City Administration in October, 1991);
- b] to produce a refined definition of "natural areas" and list additional sites (e.g. wetlands, fauna habitats);
- c] to ground check all sites to determine what is actually existing and the significance of these natural areas; locally, regionally, provincially, and nationally;
- d] to determine ownership, current and proposed zoning, as well as status in the Secondary and Official Plan;
- e] to ascertain the potential utilization of the areas as open space and their relationship to other existing and proposed open space uses (e.g. proximity to schools, demonstrated recreational needs of the community, etc.);

...cont'd

- f] to investigate other factors, such as the cost of acquisition and development; the relationship to the proposed changes to the Planning Act, which may include environmental assessment requirements for subdivisions; as well as acceptable private development uses (e.g. Fogolar Furlan); and
- g] to formulate and adopt a policy that deals with natural areas (e.g. a statement in the Official Plan which would be reflected in the Secondary Plans).

In October of 1991, City Administration identified (by air photo interpretation and staff knowledge) thirty seven (37) natural areas to be investigated. In March 1992, the Essex Region Conservation Authority (E.R.C.A.) offered to further the process by formulating the study criteria and undertaking the biological inventory and evaluation. The Candidate Natural Heritage Sites Biological Inventory fulfils steps b] and c] above.

Each of the 38 Candidate N.H.S.'s (one has been added) were subject to an initial evaluation using the following criteria:

- 1] **Significant Ecological Function** - The biophysical characteristics of the area serve one or more ecological function. Some examples include; providing a migratory stop-over, linking other natural areas, and serving a hydrological function.
- 2] **Diversity** - The area exhibits a high degree of natural biological diversity at the species, community or structural level.
- 3] **Significant Communities** - The area contains natural communities which are poorly represented from a local perspective, or are rare from a provincial or national perspective.
- 4] **Significant Species** - The area provides habitat for species which are rare, threatened or endangered from a national, provincial or regional perspective.
- 5] **Size** - The area is of sufficient size (at least 1.0 hectare) to enable communities and species to sustain themselves in a healthy, natural state due to less interface with surrounding urban activities.
- 6] **Representation** - The area is representative of at least one community and/or habitat of the natural landscape of the City of Windsor and not adequately represented in existing protected areas. Some examples include; oak/hickory forest, elm/ash/maple swamp, willow/dogwood scrub, prairie, and cattail marsh.
- 7] **Condition** - The area is in a relatively natural condition and/or exhibits low levels of disturbance. Some examples of disturbance include; utility corridors, drainage, soil disturbance, debris, and/or exotic species.

...cont'd

- 8] **Significant Earth Science Features** - The area contains earth science features which are poorly represented from a local perspective, or are rare from a provincial or national perspective. Some examples include; unusual soil types, iceberg signatures, and glacial lake shorelines.

The established criteria were selected on the basis of their ecological objectives, defensibility and applicability to the locale. Weighting of the criteria was not considered due to the resulting subjective bias, especially since weighting of criteria varies with societal trends and changes over time. Although the inventories themselves are "snap shots in time", they do serve as a basis for future study, policy formulation and implementation. In addition, having used the accepted standards for objective evaluation it is our hope that any subsequent federal and provincial legislation would be adaptable to the study.

CONCLUSION

The course of time can be an adversary during an exercise such as this. Natural Heritage Site #17 was lost to development in the short time that the study inventory was being conducted. Of the thirty-eight sites identified in the October 1991 preliminary list of areas to be studied (based on 1987 aerial photo interpretation), four sites were disturbed by the time the initial site evaluations were undertaken in July 1992. The four sites, including Candidate Site #17, were either filled or cleared by human activity resulting in the loss of significant biological diversity.

Currently, there are no protection policies at the federal, provincial or municipal levels to ensure protection of Natural Heritage Sites. As a biological inventory this study will serve as a basis document for the formulation of policies regarding protection of privately and publicly owned Natural Heritage Sites. However, assessment other than biological inventories may also yield valid information to facilitate protection of natural areas.

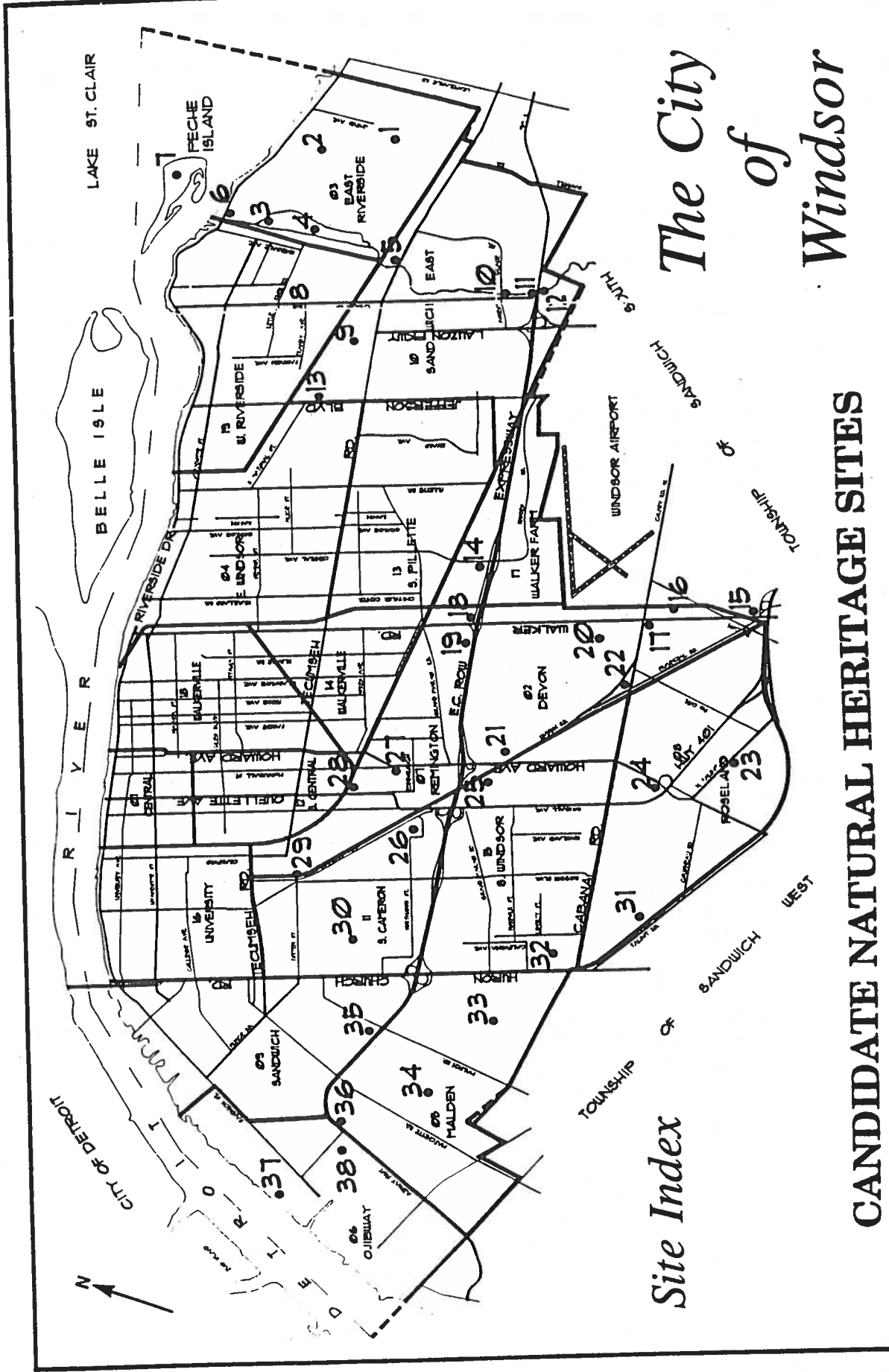
We welcome the comment and suggestions of Essex County Field Naturalists' Club. Should any member of the Essex County Field Naturalists' Club wish to supplement the information (e.g. species counts, fauna info) we would appreciate it.

Dan Lebedyk, Field Biologist, Essex Region Conservation Authority

Gerry Waldron, Biologist, Essex Region Conservation Authority

Faye Langmaid, Co-ordinator of Design & Development, City of Windsor

F317



The City of Windsor

CANDIDATE NATURAL HERITAGE SITES

Site Index

Making Ponds in the Essex Region

One of the most rewarding means of increasing the value and appeal of your property is to make a pond.

Ponds can serve as a source of irrigation water; for recreation such as wildlife watching and fishing; as an emergency water source in the event of fire; or as an enhancement of the natural environment, attracting and benefitting wildlife. This is an appealing alternative to farming areas of fields with poor drainage and low productivity.

Planning

First ask yourself, what is the purpose of the pond?

If you want maximum capacity and minimal land use, then a deep, steep-sided, regular-shaped structure may best suit your needs. The drawbacks to these irrigation-type ponds are that they add little aesthetic value to the property and fail to provide much wildlife habitat. And they can be dangerous to livestock and people.

On the other hand a pond with gently sloping sides and areas of shallow water will attract a variety of wildlife. Irregular shapes increase the natural appearance. Rock or earth islands lure nesting waterfowl. These ponds are suitable for irrigation, keeping in mind that extreme water level fluctuations hamper the establishment of native plants and animals. Increasing the size of the pond will dampen water level fluctuations.

After thinking about what your ideal pond will look like, determine possible sites. Ideally, the site will be the lowest land on your property. In Essex County, the lack of varying elevations almost exclusively lends itself to warmwater dugout type ponds, that is, excavated holes as opposed to dammed streams or channels.

Using an auger, soil samples should be taken throughout the proposed pond site. To hold water, the pond floor and sides need clay or fine sand with 20% or more clay content. Gravel, limestone, coarse sand, and other porous soils will need a packed clay lining unless the water table is near the ground surface.

The pond should be located away from manure and chemical contamination sources. A natural vegetation buffer strip around the entire pond will reduce erosion and help filter sediment, fertilizer, pesticide, and other contamination. The buffer strip provides wildlife food and shelter. Check lot lines, property deeds, locations of any overhead or underground lines, and local bylaws requiring fencing or permits. Permits are necessary before damming watercourses or creating a pond on a watercourse floodplain.

For abundant wildlife; proximity to woodlots, shrublands, unmowed grasslands or other natural areas is preferable. The greater the area and variety of connected natural habitat, the greater the utilization by wildlife. For wildlife watching, an observation area at the deep, steeper-sided section is suggested. There will be less vegetation to interfere with viewing or photography.

All ponds should have a rock or grass lined overflow spillway leading to a wetland or municipal drain. The use of piping for spillways is not recommended as it is expensive, tends to plug and leak, and is often under capacity in exceptionally wet periods.

Once an appropriate location and design is chosen, draw a sketch of your future pond. Add all necessary detail - a quick reference will be comforting during actual construction operations.

Construction

Using your sketch and calculated dimensions, outline the actual perimeter of your future pond using stakes. Clear brush, trees, logs and moveable rocks from the pond area. Save the natural debris to create piles for rabbits, pheasants and other wildlife. Rocks and logs can be placed along the shore and in the water to create additional wildlife habitat.

When the excavation begins, scrape off the topsoil (approximately top 12 inches) and save it for covering the banks of the pond and bottom where you wish plants to grow. It will greatly accelerate the establishment of vegetation. The rest of the soil can be used to fill low areas in fields and yards and to create hills and valleys adjacent to the pond. Small berms can be created to divert runoff from possible contamination sources. These areas will need a cover of topsoil too.

When digging and shaping the pond, form the banks and slopes at gentle but varying grades. Large rocks can be used for shoreline seats or islands within the pond. Ideally, half the area of the pond should have a water depth of 3 feet and less. The deeper half should slope to a maximum of 6 to 8 feet. The shallows allow for healthy vegetation growth and warm summer water for aquatic animals. The deep areas provide cooler summer waters and warmer winter water necessary for fish and other animals to survive. Islands surrounded with water at a depth of 3 feet or more provide nesting waterfowl with protection from predators. Before finishing the landscaping, remember to dig the overflow spillway.

Enhancement and Maintenance

Native trees, shrubs, grasses, wildflowers, and aquatic plants provide food, shelter, and nesting areas for wild animals. To attract and sustain abundant wildlife, add native plants to the area around and in your pond. Cattail, arrowhead, and other common aquatic plants can easily be transplanted from roadside ditches. These aquatics reproduce rapidly and establish themselves quite readily, often without any help.

Plant the shore and banks with native shrubs such as elderberry, nannyberry, and dogwoods. Grasses and other plants will quickly appear in the recently disturbed topsoil. These plants should be encouraged as they hold the soil and produce food. Seeding with a meadow or pasture mix is recommended. Limit mowing to access trails and observation areas.

The use of herbicides, pesticides, and fertilizers is to be avoided in areas where runoff enters the pond. These chemicals may cause problems including excessive algae growth.

The areas farther removed from the pond can be planted with native tree species. In wet areas, Cottonwood and Silver Maple do well. Trees should be planted back from the pond on the southern sides, - excessive

shading will reduce the water temperature, and thus the pond's wildlife productivity.

If fish are a priority, stock sunfish, bluegill, and perch. Avoid carp and goldfish as the cause muddy water and destroy aquatic vegetation as they aggressively stir the sediment. Largemouth Bass do well but are voracious predators of other pond wildlife. Bass introductions often lead to a loss of other species, and smaller ponds can only provide for a few sizable individuals.

Birdhouses for songbirds and waterfowl are successful around ponds. Place waterfowl nesting structures on poles in the pond to protect them from predators. Nest box and structure designs can be obtained free from the Essex Region Conservation Authority.

Excessive algal growth often occurs in spring due to nutrient runoff and lack of shading from aquatic plants. Cattails and other vegetation use the nutrients and shade the water once they begin growing and the problem disappears. Adding aquatic plants and shoreline vegetation, as well as reducing erosion and nutrient rich runoff will help alleviate the problem if it persists.

Muddy water may occur on clay soils. Many forms of wildlife from crayfish to muskrats will stir up sediments and a lack of vegetation in and around the pond will aggravate the problem. In many cases it will be better to accept a loss of clarity, especially in new ponds, rather than attempt a solution.

Results

Eventually your sterile-appearing, newly-dug pond will begin to transform into a lively wetland. It may become home to muskrats, raccoons, mink, turtles, amphibians, snakes, crayfish, fish, waterfowl, herons, kingfishers, dragonflies, and more. Be patient as some species take time to colonize new areas.

A pond is a natural ecosystem and with a wide variety of species maintains itself. Dragonflies, birds, frogs, and fish eat mosquitoes and other insects and, in turn, they are controlled by species higher on the food chain. A well designed pond with its continual flux can fascinate for a lifetime.

D. Kraus
January, 1993

SEED COLLECTION TO OCT 25

	AMOUNT	# OF SEEDS (APPROX)	LOCATION	
OAKS - BURR	65 L.	4,500	HARROW TR. S	
BLACK	13 L. (badly weev. infested)		J. MOORE	
PIN	50 L.	32,000.	HARROW TR. S	
RED	358 L.	67,500	HARROW TR. S	
SHUMARD	330 L.	46,500	HARROW TR. S	
WHITE	105 L.	16,200	M. WILLIAMS / J.	
HICKORIES - PIGNUT	120 L.	? unhusked	G. WALDRON	
SHAGBARK	95 L.	12,000	HARROW TR. S	
SHELLBARK	10 L.		G. WALDRON	
OTHER TREES	BLACK CHERRY	15 L.	15,000	G. WALDRON
	BLACK GUM	-	1,200	J. MOORE / B. SF
	BLUE ASH	16 L.	24,000	less than 1/2 sound G. WALD
	PUMPKIN ASH	-	1,000	M. WILLIAMS
SHRUBS	BLADDERNUT	-	1,850	G. WALDRON
	CHOKEBERRY (ARONIA)	5 L.	50,000	G. WALDRON
	MAPLE-LEAVED VIBURNUM	-	1,500	G. WALDRON
	PAWPAW	24 L. fresh fruit	1,080	M. WILLIAMS / G.
	ROUGH-LEAVED DOGWOOD	8 L.	5,000	G. WALDRON
	SMOOTH SUMAC	20 L. (fruit clusters)	150,000	G. WALDRON

STILL TO HARVEST - CROP MOSTLY NOT DOWN OR NOT PROCESSED

BUTTERNUT

HACKBERRY

RED ASH

RED CEDAR

SYCAMORE

TULIPTREE

WALNUT

SEED COLLECTION TO NOVEMBER 19

On November 10, 48 bags of seed were delivered to the MNR Angus Seed Plant. The following species were included in this delivery.

Burr Oak	Pignut Hickory	Pumpkin Ash
Pin Oak	Shagbark Hickory	Chokeberry (Aronia)
Red Oak	Black Cherry	Maple-Leaved Viburnum
Shumard Oak	Blue Ash	Rough-Leaved Dogwood
Butternut	Red Cedar	Basswood
		Smooth Sumac

Of the 48 bags, 38 were large, averaging about 23 kg. These bags cost \$16.00 to ship by Canada Post Courier, so the cost of delivery to Angus would be in excess of \$650.00. It is more economical to deliver the seed ourselves. Traveling time is about 10 hours.

Small lots of seed have been delivered to local growers, both commercial and hobbyist. The following species have been included in these deliveries:

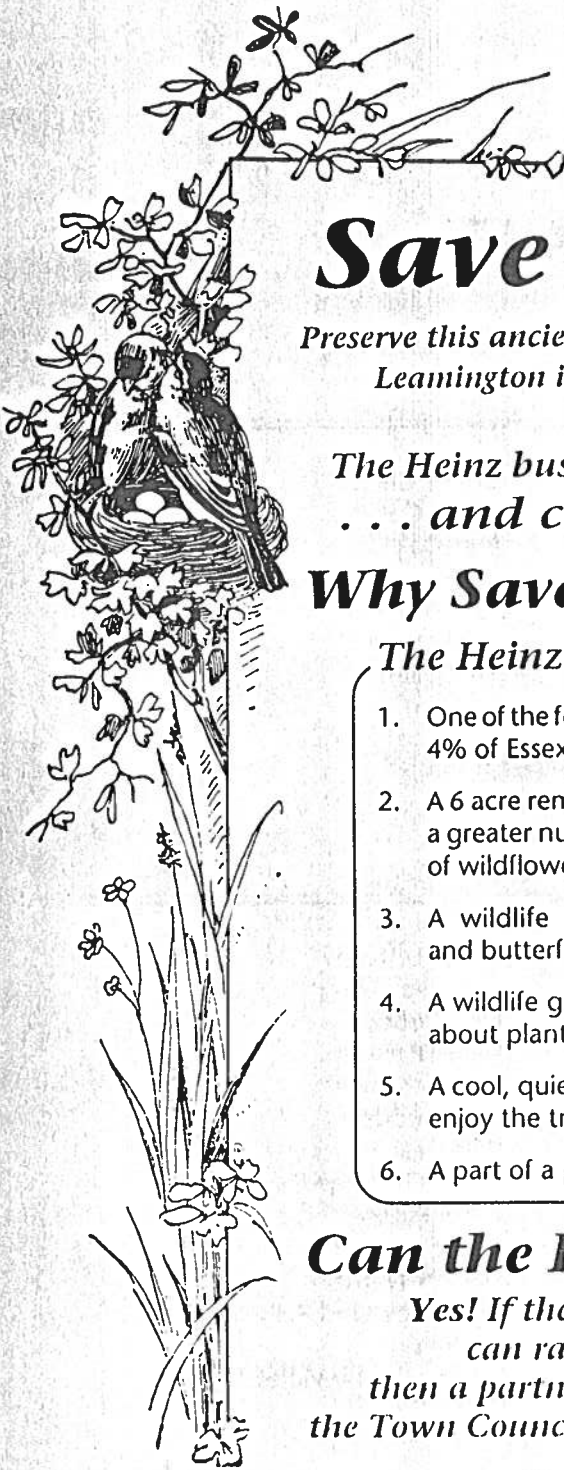
White Oak	Shellbark Hickory	Pawpaw
Black Oak	Black Gum	Redbud
Swamp White Oak	Bladdernut	Dwarf Hackberry
Black Walnut		

Three species remain to harvest. These are Hackberry, Sycamore, and Tuliptree. It is expected that quantities of the first two species will be large enough that commercial growers will be needed to propagate them. It is doubtful whether the Tuliptree seed crop will be large enough to go to commercial growers.

A number of landowners have requested small amounts of seed to propagate. These requests have met where quantities are sufficient.

Until we hear from Angus we will not have exact figures on the number of seeds collected to this point. However, using conservative estimates (and the approximately 150,000 Smooth Sumac seeds) it appears we are approaching the half million mark. This may be cause for celebration.

Gerry Waldron
November 24, 1993



Save the Heinz Bush

Preserve this ancient forest for future generations!

Leamington is home to one of the county's rarest natural resources!

*The Heinz bush is within a residential development plan . . .
. . . and could be lost if we don't act now!*

Why Save the Heinz Bush?

The Heinz Bush is:

1. One of the few remaining examples of original forests left in Essex County. Only 4% of Essex County remains tree covered, the worst record in Ontario.
2. A 6 acre remnant of primeval Carolinian forest which contains 26 tree species, a greater number than is found in the whole of Europe! In addition, 66 species of wildflowers, shrubs and vines are also found here.
3. A wildlife refuge for migratory and resident birds, mammals, reptiles and butterflies.
4. A wildlife garden which provides a living laboratory for our children to learn about plantlife, insects, ecology, air and water quality.
5. A cool, quiet place where people could walk in the woods, listen to birds and enjoy the trees and wildflowers.
6. A part of a parcel of land now being developed.

Can the Heinz Bush be Saved?

Yes! If the Friends of Heinz Bush, a local citizens group, can raise \$100,000 to purchase part of the bush, then a partnership of the Friends, the Separate School Board, the Town Council and the developer will be able to save the woodlot.

We need your help!

Please give generously when a canvasser comes to your door.

Your donation is tax deductible through the Essex County

Field Naturalist Club / HEINZ BUSH FUND. Non-profit corporation #597422.

Please think about giving:

\$100 — — — \$50 — — — \$25 — — — \$10 — — — or other.

Send cheque to . . .

Friends of Heinz Bush

Essex County Field Naturalists Club

c/o R. Junge, 4 Conover St., Leamington, Ontario N8H 2L7

Heinz Woodlot, Leamington

— Plant Inventory —

Tree Species

Manitoba Maple
Red Maple
Silver Maple
Black Maple
Sugar Maple
Yellow Birch
American Hornbeam
Hackberry
Beech

White Ash
Red Ash
Butternut
Tulip Tree
Apple
White Mulberry
Hop Hornbeam
Eastern Cottonwood
Black Cherry

Choke Cherry
White Oak
Burr Oak
Red Oak
Sassafras
Basswood
White Elm
Red Elm

Wildflowers

Soft Agrimony
Garlic Mustard
Wild Garlic
Wild Leek
Great Ragweed
Wood Anemone
Jack-in-the-Pulpit
Asters
Spring Cress
Enchanter's Nightshade
Spotted Cowbane
Spring Beauty
Hedge Bindweed
Toothwort
Wild Yamroot
Wild Cucumber

Common Horsetail
Trout Lily
Wild Geranium
Herb Robert
White Avens
Spring Avens
Spotted Touch-Me-Not
Michigan Lily
Butter-and-Eggs
False Solomon's Seal
Wild Bergamont
Smooth Sweet Cicely
Ditch Stonecrop
Pokeweed
Mayapple
Hairy Solomon's Seal

White Lettuce
Jumpseed
Bloodroot
Water Parsnip
Carrion-Flower
Goldenrods
Wild Bean
Skunk Cabbage
Wake Robin
White Trillium
Slender Nettle
Large-Flowered Bellwort
Mullein
Downy Yellow Violet
Wood Violet

Shrubs and Vines

Rough-Leaved Dogwood
Gray Dogwood
Running Strawberry
Spicebush
Japanese Honeysuckle
Moonseed
Virginia Creeper

Poison Ivy
Wild Black Currant
Multiflora Rose
Common Blackberry
Wild Red Raspberry
Purple-Flowering Raspberry
Pussywillow

Sandbar Willow
Elderberry
Bittersweet Nightshade
Nannyberry
Riverbank Grape



Thousands of volunteer scientists will query birds on seed preference

ITHACA, N.Y.--Although millions of people feed their backyard birds, few have asked the birds what seeds they like best. This winter that's about to change, as the Cornell Lab of Ornithology enlists thousands of bird watchers in what may be the most widespread experiment ever conducted--the National Science Experiment Seed Preference Test.

The experiment is simple and anyone can participate. Here's how it works: on one or more days between November 1, 1993, and April 30, 1994, volunteers will set three pieces of cardboard on the ground, place one kind of seed (black-oil sunflower, white millet, or red milo) on each one, then record the kinds and numbers of birds that choose each seed type during a series of five-minute watches. Finally they'll send their observations to the Lab of Ornithology for analysis.

Detailed instructions and data forms are contained in a \$7 kit supplied by the Lab. The kit also contains a full-color bird identification poster painted by noted artist Larry McQueen, showing about 40 common feeder birds. And, the fee includes a one-year subscription to *Birdscope*, the Lab's newsletter, which will include reports on the experiment's findings.

"No single researcher or even a team of researchers could collect this volume of information," said Margaret Barker, education outreach coordinator at the Lab of Ornithology. "We're hoping that at least 10,000 people in the United States and Canada will set up the seed preference experiment, learn to make scientific observations, and help answer a question of interest to bird watchers and ornithologists alike."

Why does the Lab of Ornithology want to know what seeds birds prefer? Surprising as it may seem, no one has ever conducted bird-food preference studies on a large geographic scale. As a consequence, some "conventional wisdom" may be untrue.

Consider red milo. This large, round seed is usually considered a "filler" in most commercial bird-seed mixes, added to the mix for bulk and color but largely ignored by the birds. But during the pilot study for the National Science Experiment, observers found red milo to be almost as tempting as sunflower seed for some birds in certain regions of the United States.

The National Science Experiment is real science. "We've designed the experiment to have as few variables as possible," said Rick Bonney, the Lab's director of education. "For example, the way that observers will count birds at their feeders is clearly spelled out."

Obtaining seeds for the study has also been addressed. U.S. participants who cannot find the necessary seeds locally will be able to purchase them at wholesale cost from Stanford Seed, which produces Lyric Wild Bird Food and

is a project sponsor.

The Seed Preference Study is one of several National Science Experiments coordinated by the Lab of Ornithology and supported, in part, by the National Science Foundation. In other experiments, inner-city children are examining the effects of feather coloration on the success of street pigeons, and advanced birders are studying the breeding success of tanagers in forests of different sizes.

When the seed experiment is finished, ornithologists may know whether seed preferences differ by location, time of year, weather conditions, or other factors, Barker said. Equally as important, participants in the study will have learned about the process of scientific inquiry.

And the birds will finally get to vote with their beaks.

Bird watchers anywhere in the U.S. and Canada can join the Seed Preference Test by sending \$7.00 (U.S. funds, made payable to Cornell Lab of Ornithology) to NSE/SPT, Cornell Lab of Ornithology, 159 Sapsucker Woods Rd., Ithaca, NY 14850, or by calling 1-800-843-BIRD with a credit card number. The participant's fee helps to cover costs of data forms, analyses, newsletters, and postage.

NOTICE TO BIRD AND NATURAL HISTORY ORGANIZATIONS:
We've enclosed a flier on the Seed Preference Test for use with your organization. You might consider reprinting it in your newsletter. For more copies, or for more information, please call (607)254-2440 and speak with Margaret Barker, education outreach coordinator, or Patty Porupski, program assistant.

The National Science Experiment

Seed Preference Test

The world's largest volunteer scientific team needs you!

The Mystery

Help us unlock it.

We've got a big, basic question and we need your help tracking down the answer.

Here at the Laboratory of Ornithology, we're not sure what birds prefer to eat. We haven't asked them. But we're about to...

You and your family can join the world's largest volunteer scientific team to discover the kinds of seed that ground-feeding birds prefer, by region and by time of year.

By joining the research team, you'll learn to make basic scientific observations. You'll also have fun.

When and where does this take place?

The experiment runs from November 1, 1993 through April 30, 1994, throughout the United States and Canada. You can sign up through the last week in April, 1994.

How much time will this take?

You can put in as much or as little time as you wish, from one five-minute watch on just one day to repeated weekly watches.



Where do I get the seed?

You can probably find it locally, but if not, you'll be able to order it wholesale from Stanford Seed, producers of Lyric Wild Bird Food.

What does this cost?

Although the National Science Experiment is subsidized by the National Science Foundation, a participant's fee is requested to help cover costs for data forms, analyses, newsletters, and postage.

What will I get out of it?

Sign up to be a researcher in the first-ever National Science Experiment and you'll receive an easy-to-follow guide and straightforward data forms. We'll also send you

- a beautiful color poster painted by noted artist Larry McQueen, showing 40 common feeder birds
- a one-year subscription to the Laboratory's quarterly newsletter, *Birdscope*. It'll keep you posted on the experiment's findings and other birding and conservation news
- and you will have participated in the world's largest volunteer science experiment



**Yes, I'd like to participate in the National Science Experiment!
Send my participant's packet.**

Name _____
first middle last


Address _____
street city state/province zip/postal code

My \$7 (U.S.) check is enclosed (make checks payable to Cornell Lab of Ornithology)

Please charge \$7 to my credit card DISCOVER VISA Master Card Exp. date _____

Credit card number _____ Signature _____

(Credit card users may call to sign up: 1-800-843-BIRD)

Return completed form to:  CORNELL LABORATORY of ORNITHOLOGY
159 Sapsucker Woods Road
Ithaca, NY 14850-1999

ESSEX COUNTY FIELD NATURALISTS' CLUB

199.4 MEMBERSHIP RENEWAL FORM

NAME _____ PHONE _____

ADDRESS _____

POSTAL CODE _____ TYPE OF PROJECTS YOU WOULD VOLUNTEER FOR _____

Please enter/renew my membership in the ECFNC in the following category:

Individual - \$15 per year _____

Family - \$20 per year _____

Sustaining - \$25 per year _____

Life - \$200 p. person _____

Please make cheque payable to the Essex County Field Naturalists' Club and mail to: ECFNC, P.O. Box 23011, 3100 Howard Avenue, Shoppers Drug Mart, Windsor, Ontario N8Y 3X3



The Essex County Field Naturalists' Club is an incorporated, non-profit organization open to anyone with an interest in nature and conservation. Club objectives are to promote appreciation and conservation of the diverse natural heritage of Essex County and surrounding region; to provide opportunity for people to become acquainted with and to better

understand the natural environment; to promote the identification, preservation, maintenance and restoration of natural areas of high quality for living things; to cooperate with and support organizations with similar objectives.

Indoor meetings with guest speakers and programs are held on the second Wednesday of every month, except July and August, at the Union Gas Building at 650 Division Rd (between Devonshire Mall and Leon's Furniture). Field trips and other activities are held throughout the year. The Club has several active committees including groups responsible for Bluebird Trails and a Heritage Fund. The Club newsletter, THE EGRET, is published quarterly and mailed to members.

CAROLINIAN KERFUFFLE



An avid gardener with an interest in natural history walks into an Ontario garden centre and asks to see some Carolinian species. The centre carries, among others, american beech, tuliptree, carolina poplar and *Rhododendron caroliniense*. Which of these should be offered for purchase? Unsure? Confused? You are not alone. Forester, landscaper, naturalist, biologist, neighbour and friend alike can be perplexed by this term (and if they're not they should be, as we will see). So ask us which of the above species are Carolinian and we would safely say only that the rhododendron isn't native and the poplar is a horticultural hybrid.

How did we reach this muddle; who do we blame? Let's start way back in 1629. In that year King Charles I granted his attorney general Sir Robert Heath the southern part of the English claim in America called the Province of Carolana (land of Charles). In some fashion, not explained in encyclopedias, this was corrupted to Carolina. Then the area was chopped into a North and South to become the states we like to golf in today.

But back to biology - in 1859, J.G. Cooper used the term Carolinian to describe a forest region running in a strip along the Atlantic coast from southern Long Island to Georgia. This appears to be the first use of the term in a biological rather than geographical sense. In 1892, J.A. Allen used Carolinian for a faunal region stretching from the Carolinas to New Jersey and west to South Dakota and Oklahoma. Both Allen and Cooper excluded southern Ontario from their Carolinian regions. In 1898 C.H. Merriam published his influential 'Life Zones and Crop Zones of the United States'. Merriam used isotherms as well as plant and animal ranges to define a Carolinian Area. "Counting from the north, the Carolinian Area is that in which the sassafras, tulip tree, hackberry, sycamore, sweet gum, rose magnolia, redbud, persimmon, and short-leaf pine first make their appearance together with the opossum, gray fox, fox squirrel, cardinal, Carolina wren, tufted tit, gnatcatcher, summer tanager, and yellow-breasted chat. Chestnuts, hickory nuts, hazel-nuts, and walnuts grow wild in abundance."

Merriam's study correlated crop adaptability with the life zones of the native plants and animals. For example, peaches do well where chestnut grows. Southern Ontario from the north end of Lake St. Clair to the west end of Lake Ontario was included in his Carolinian Area.

In 1915, Canadian researchers Macoun and Malte used Carolinian to identify the vegetation in southern Ontario bounded by "a line running approximately from the northern shore of Lake Ontario to Windsor". They characterized the vegetation as "the Hickories (6 species), the Oaks (10 species), the Black Walnut (*Juglans nigra*), the Chestnut (*Castanea dentata*), and the Sycamore (*Platanus occidentalis*). Less abundant and more local in their distribution are: Cucumber tree (*Magnolia acuminata*), Tuliptree (*Liriodendron Tulipifera*), Flowering Dogwood (*Cornus florida*), which have all beautiful and very conspicuous flowers, Papaw (*Asimina triloba*), Red Mulberry (*Morus rubra*), American Crab Apple (*Pyrus coronaria*), Sour Gum (*Nyssa sylvatica*), Sassafras (*Sassafras variifolium*) and others."

"The herbaceous vegetation is very rich, at least a hundred species occurring nowhere else in Canada being found in the zone. A few of the most conspicuous may be mentioned, viz.: Yellow Nelumbo or "Lotus Flower" (*Nelumbo lutea*), May Apple (*Podophyllum peltatum*), Wild Lupine (*Lupinus perennis*), Tick Trefoil (*Desmodium*), Flowering Spurge (*Euphorbia corollata*), Swamp Rose Mallow (*Hibiscus Moscheutos*), Wild Pansy (*Viola Rafinesquii*), Prickly Pear (*Opuntia Rafinesquii*), Poke Milkweed (*Asclepias phytolaccoides*), Wild Potato Vine (*Ipomoea pandurata*), Downy Phlox (*Phlox pilosa*), Waterleaf (*Hydrophyllum appendiculatum*), Bee Balm (*Monarda didyma*), Foxglove (*Gerardia pedicularia*, *G. virginica*), Tall Bellflower (*Campanula americana*), Great Lobelia (*Lobelia siphilitica*), Ironweed (*Vernonia altissima*, *V. illinoensis*), Dense Button Snakeroot (*Liatris spicata*), Prairie Dock (*Silphium terebinthinaceum*), Cup Plant (*Silphium perfoliatum*), Sunflower (*Helianthus decapetalus*, *H. divaricatus*), Tall Coreopsis (*Coareopsis tripteris*), Indian Plantain (*Cacalia tuberosa*). Golden Seal (*Hydrastis canadensis*) and Ginseng (*Panax quinquefolium*) were at one time abundant but are now practically extinct."

In 1938 another Canadian, John Adams, mapped an "Interlacustrine or Carolinian Region" with a northern limit along a line from approximately Toronto to Sarnia. He listed most of the same species as restricted to the region as Macoun and Malte.

Finally Dice (1943) defined a Carolinian Biotic Province which essentially followed that of Allen & Merriam but excluded most states west of the Mississippi and included Ontario below a line from Grand Bend to Toronto.

After this the term should have gone off to die in some biogeographical boneyard because other terms were ascendent. For example W. Halliday (1937) in his 'Forest Classification for Canada' outlined a Deciduous Forest Region described as "The rather low-lying portion of the Ontario peninsula, enclosed by lakes Ontario, Erie, and Huron...".

The associations are predominantly composed of broad-leaved trees. A large number of these species, many of small size, find their northern limit here. Amongst these are chestnut, tuliptree, mockernut and pignut hickories, chinquapin, chestnut, scarlet, black, and pin oaks, black gum, blue ash, magnolia, papaw, Kentucky coffee tree, redbud, red mulberry, and sassafras. In addition, within this Section is the main distribution for Canada of black walnut, sycamore, swamp white oak, the shagbark hickory, together with the more widely distributed butternut, bitternut hickory, rock elm, silver maple, and blue beech. All these species occur as scattered individuals or groups, either on specialized sites or within the characteristic association for the Section.

This association, made up of widely distributed broad-leaved trees common in part to both the Great Lakes - St. Lawrence and the Deciduous Forest Regions, consists primarily of beech and sugar maple, together with basswood, red maple, and (northern) red, white and bur oak. The presence of the species listed above, and the predominance of beech within the characteristic association, indicate a definite relationship to an Ohio centre of distribution. Coniferous species are poorly represented..."

Within the Deciduous Forest Region, Halliday mapped a single 'Section' which he called the Niagara Section. [J.S. Rowe in his *Forest Regions of Canada* (1959, revised 1972) followed Halliday's work and retained the Niagara Section of the Deciduous Forest Region.] In 1950, noted forest ecologist Lucy Braun mapped the area south of the Toronto-Grand Bend line within the Beech-Maple Forest Region of her Deciduous Forest Formation. Why Beech-Maple? The idea was that a mature landscape (ie. well-drained) would have a Beech-Sugar Maple community at the termination, the climax, of plant succession. She was clearly influenced by the earlier work on succession and climax communities by Weaver & Clement (1938). This was a time when the concept of climax vegetation was embraced by biologists eager to bring order from nature's chaos.

So now, at Mid century, Carolinian seemed headed for extinction but instead it was merely extirpated from most of its former range. The reprieve came at the hands of two Canadian academics, J.H. Soper and W.S. Fox.

Soper was curator of the herbarium at the University of Toronto and Fox was retired from the presidency of the University of Western Ontario; you may remember him as author of "The Bruce Beckons" or "T'aint Running No More" (or something like that). From 1952 to 1954 they published three papers entitled "The distribution of some trees and shrubs of the Carolinian Zone of Southern Ontario". In the first of these papers they noted that a floral "territory" (of trees and shrubs particularly) formed a unit in eastern North America "From its northern limit, somewhere in Canada, it stretched into the southland as far as Tennessee and the Carolinas, and even beyond...Captivated by a name redolent of the South, one investigator called, quite appropriately, the last, roughly defined expanse, the Carolinian Zone".

They don't name the romantic investigator but in the final paper they provide a genealogy of the word starting in 1859 with J.G. Cooper.

Since the Fox & Soper publications, the term Carolinian has received wide currency among Canadian authors in a variety of fields, appearing in papers by Catling et al. (1992), Cody (1982), Cruise (1969), Maycock and Fahselt (1987) Thaler and Plowright (1973) and of course Soper (1956 & 1962), to name a few.

At some point the 'redolent' quality of Carolinian must have struck a resonant chord within the Ontario Dept of Lands and Forests and the Canadian Parks Service: Pinery and Rondeau Provincial Parks, and Point Pelee National park began proclaiming 'Deep South' Carolinian status.

Final entrenchment came in 1984 with the fanfare and publicity surrounding the formation of the Carolinian Canada Programme by World Wildlife Fund (Canada) and others, with strong support from the Ontario Ministry of Natural Resources. The ensuing landowner contact, education, acquisition, research, documentation and publications brought the term to an ever widening audience. In 1985 a special Seasons magazine issue was devoted to "celebrating Carolinian Canada". Now, throughout southern Ontario, autoworker and professor alike use the term. Curiously, one Carolinian Canada publication (Allen et al. 1990) calls Carolinian Zone a "nickname" for the Deciduous Forest Region.

What are we to make of this word Carolinian? Perhaps, like many words, it is evolving; a semantic moving target, blurred, difficult to define.

We could make it a colloquial scientific term, a kind of ethnocentric artifact; or a description of a particular community. We could use it as a horticultural term, as a site description for restorative work, or a "nickname" for the Deciduous Forest Region. We could let it evolve until some consensus is reached.

As it is we have a term that is provincial in both senses. Is it reasonable to change terminology at a political border? Perhaps we should use the term Deciduous Forest Region (or Beech-Maple Forest) and retain Niagara Section as token chauvinism. We could reserve Carolinian for communities dominated by the species commonly used to typify the Carolinian Zone; species which are largely restricted to well drained, sandy, often acidic, soils.

Many ecologists, such as Dice (1952), have recognized associations within a biotic province. To quote Dice the association is "a type of community that in aggregate covers an important part of the area of a biotic province". Dice's 'association' is essentially synonymous with the mapping units of W.A. Morsink (1984). Morsink used 5 'Deciduous Forest Mapping Units' for the forest vegetation of Essex, Kent & Lambton Counties in Ontario. These included "Carolinian Upland Hardwoods". This contained sassafras, flowering dogwood, tuliptree, black gum and American chestnut as well as sugar maple & beech.

The concept of plant "association" was also recognized by both Halliday and Rowe. We can add further confusion at this point by noting that some researchers, of which Maycock is a good example, have emphasized the futility of defining associations because of the "continuous characteristics of forest patterns within the Deciduous Forest Formation".

What's our preference you will likely ask? Well, we would like to see Deciduous Forest Region used instead of Carolinian Zone. We would prefer Carolinian as a label for those associations within the Deciduous Forest Region in which sassafras and tuliptree are dominants. Some flowering dogwood in the understorey would be nice. Such an association would likely have had a lot of American chestnut at one time. Codominants would include black walnut, black oak, white oak, red maple, pignut hickory, and black gum. The species common to the association could be referred to as Carolinian in the nursery trade. By using Carolinian in this way we may lose some of the romance (and redolency) but just might gain some precision from conformity. We wouldn't be surprised if you disagreed.

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Acknowledgement: Although not referenced above we acknowledge our debt to R.F. Brady et al. who trod much of the same ground in their report "Regional Municipality of Niagara's Environmentally Sensitive Areas".¹

1. Dept. of Geography, Brock University, St. Catherines, 1980

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Ken Colthurst, Forester*

MONITOR

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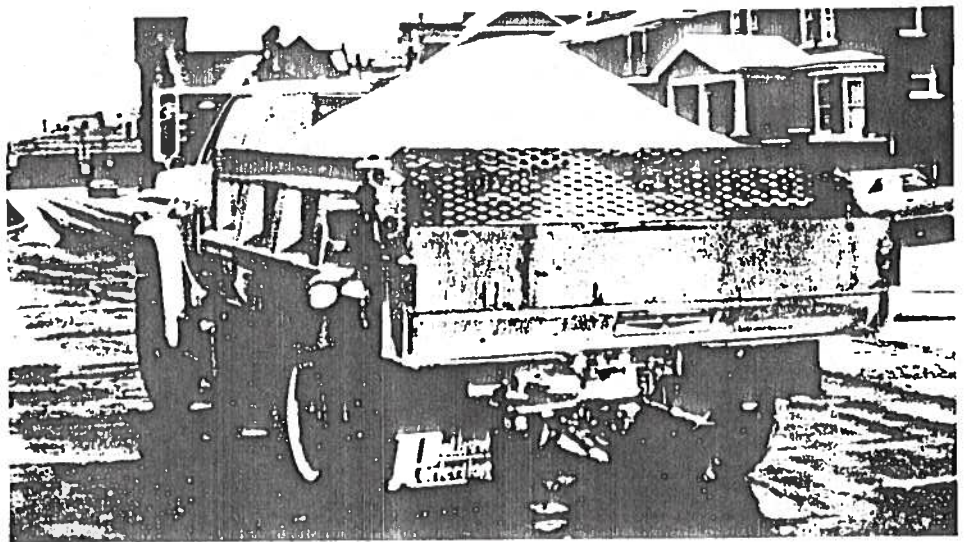
Where Streets are Paved with Salt

Road salt, that wintertime staple of the snowbelt, is a shining example of "better living through chemistry." Northern road and highway maintenance departments rely on it as the cornerstone of their winter programs for keeping the roadways clear of snow and ice hazards.

During every winter storm, teams of salt trucks hit the streets spreading liberal doses of rock salt, usually consisting primarily of sodium chloride (basic table salt), to melt the snow and prevent further ice formation. As temperatures drop below 20 degrees Fahrenheit, the rock salt is often supplemented with calcium chloride which improves its effectiveness at lower temperatures. Together, they make roadway travel easier, reduce transportation time and prevent countless auto collisions.

There are, however, tradeoffs when we deal with this substance. Road salt contaminates our freshwater sources, kills vegetation and corrodes metals. Sodium chloride, by far the most widely used form of road salt, is responsible for the closing of hundreds of wells and municipal water supplies across the northern states because the levels of sodium found in the water exceed the standards considered safe by the U.S. Public Health Service.

Sodium levels have also increased in many remaining freshwater sources. With over ten million tons of salt being dumped on American roads each year, it is considered to be the most likely source of excess sodium in our fresh water. All of this sodium adds up to a significant health risk. According to the National Institute on Aging, a clear correlation exists between



Salt Truck

high sodium intake and high blood pressure. The long term effects on the natural habitat from these elevated chloride concentrations are not fully known.

Both sodium chloride and calcium chloride from the two types of road salt react with poisonous heavy metals bound in the bottom mud of lakes and riverbeds, releasing these toxins into the water. In addition, special additives present in most road salts cause even more severe environmental problems. Ferrocyanides used to reduce caking will form cyanide in the presence of sunlight. Chromate, which is added as a corrosion inhibitor, breaks down to a highly toxic ion which is dangerous to animals and humans. Phosphate added to road salt is responsible for eutrophication which can topple delicately balanced ecosystems.

Road salt kills grasses, vegetation, trees and field crops. The sugar maple has been in decline throughout a 16 state area in

the northeast since the 1960s as a direct result of the rise in road salt use. These trees flourished prior to the 1960s when most roadway departments relied on the use of abrasives such as sand and cinder for winter safety.

A number of environmentally safer alternatives to road salt do exist. The most promising new alternative to road salt currently available is calcium magnesium acetate (CMA). It is non-corrosive and non-toxic (although some concerns have been raised about the long-term impacts of acetate and magnesium on surface and groundwater). CMA is created by the reaction of dolomitic limestone with acetic acid. While the dolomitic limestone is inexpensive and plentiful, acetic acid is expensive to produce. As a result, the price of CMA is about \$700 per ton.

Research is currently being con-

Continued on page 3

Road Salt...

Continued from page 1

ducted by the University of Illinois in conjunction with the Illinois Department of Transportation (IDOT) to make the acetic acid from corn. So far, the study has not successfully produced CMA that would compete in price with rock salt, but the benefits to Illinois agriculture may be great enough to warrant state support for the corn-based de-icer. The Federal Highway Administration has recognized the environmental benefits of CMA and has provided funds to encourage states to experiment with its use.

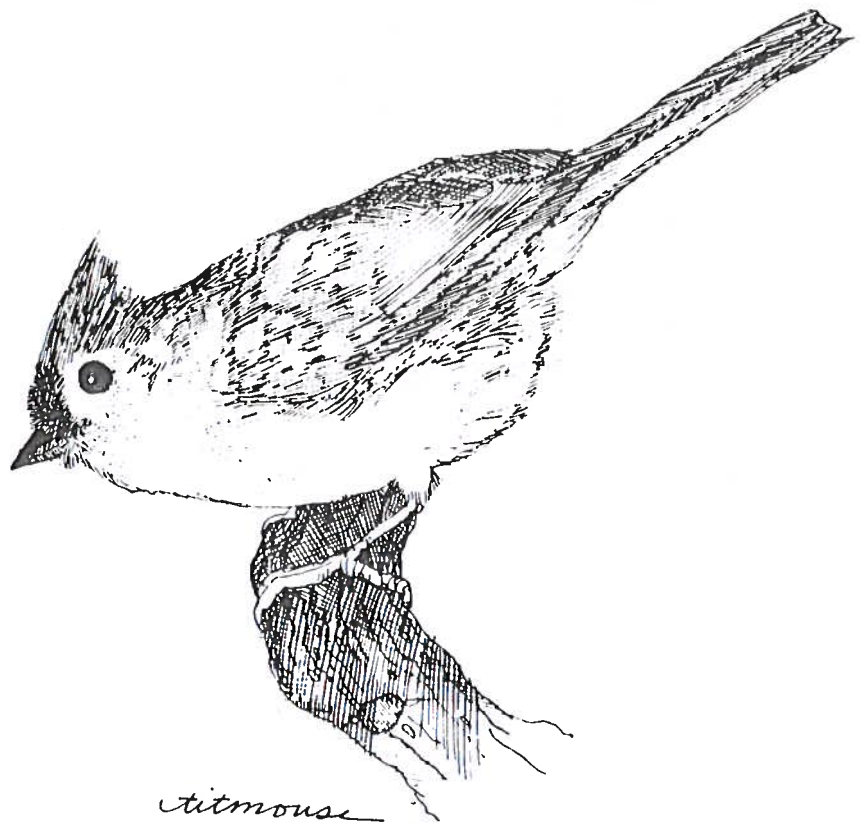
In addition to the various chemically derived alternatives to road salt, a number of new technologies are being developed to melt ice using such things as high intensity light, microwave radiation, electric currents, magnetically induced currents, embedded heating pipes and ultrasonic waves. Other mechanical snow and ice removal devices include heated plow blades or high velocity fluid jets. None of these techniques, however, has shown to be practical thus far, and further development is needed.

On the opposite end of the technology spectrum, we still have sand. In the most basic sense, the goal of winter ice control is to improve the friction, or traction, available on snow or ice covered pavement. Abrasives such as sand and cinder do this inexpensively without requiring the complete removal of snow down to the bare pavement.

The main disadvantage associated with abrasives is their lack of staying power. When applied to heavily traveled areas, sand tends to be kicked off the roads. Therefore, it must be reapplied more frequently than road salt.

Sedimentation caused by sand runoff into lake and river beds and roadside drainage ditches can create environmental problems which require occasional dredging. However, abrasives generally pose no major hazards to vegetation, soils, wildlife or humans.

Another more forward-thinking plan of winter roadway management involves road designs which improve surface drainage to prevent snow and ice build-up. Grooved pavement, modified surface textures and the use of open-graded asphaltic concrete can all be effective in reducing the



formation of slick road conditions.

The low price of road salt is deceptive. The U.S. Environmental Protection Agency (EPA) has recently estimated the direct costs of salt corrosion damage to vehicles and infrastructure across the country at approximately \$5 billion per year. While the cost is significant, it fails to address the more fundamental costs to society resulting from damage to the environment. According to the New York State Energy and Development Authority, every ton of road salt carries a true cost between \$800 and \$2,000 in total damages. This makes the alternatives to salt look like a bargain.

Most sources would agree that it is not easy to estimate the ecological costs created by the use of road salt. The long-term value of human health, ecosystems, wetlands, freshwater supplies, vegetation or

even an individual tree is difficult to quantify into dollars and cents. But once these costs are recognized in the price of each ton of road salt, it is apparent that we have been penny wise and pound foolish.

We can cut our losses now by urging our elected officials to consider the true cost of road salt. Citizens should contact their municipal government, county or state representatives or their state Department of Transportation Chief of Maintenance for Highways to tell them we do not support short-sighted road maintenance policies that rely blindly on environmentally hazardous road salt. We cannot continue with programs that fail to recognize the long-term cost effectiveness of safe alternatives, the time tested benefits of traditional abrasives and the wisdom of new road surface designs which eliminate the need for de-icers by preventing ice formation in the first place. □

Help the Lake Michigan Federation Raise Money While You Save Money!

The Lake Michigan Federation (LMF) is working with Global Communications Network to help our members save money on their commercial and/or residential long-distance phone bills while helping LMF raise money.

To find out how much you can save, call LMF member Debra Miller at *Global Communications Network* (708) 677-3627. Or FAX her the summary page and two detailed pages of your long-distance bill (708) 677-3649. This can include international and calling card calls. Be sure to mention LMF!

CALENDAR OF EVENTS

January 12	7:30pm	E.C.F.N.C. General Membership Meeting - Union Gas Building
January 13	7:30pm	Ojibway Nature Center - Winter Birding
January 15	Morning	Ojibway Nature Center - Winter Birding
January 26	7:30pm	E.C.F.N.C. Executive Meeting - Union Gas Building
January 29	Morning	Ojibway Nature Center - Winter Birding
February 6	Noon - 4:00pm	Ojibway Winter Festival
February 9	7:30pm	E.C.F.N.C. Membership Meeting - Union Gas Building "Natural areas of Southern Brazil" Speaker - Betty Learmouth
February 12	Morning	Ojibway Nature Center - Winter Birding
February 23	7:30pm	E.C.F.N.C. Executive Meeting - Union Gas Building
February 26	Morning	Ojibway Nature Center - Winter Birding
March 9	7:30pm	E.C.F.N.C. Membership Meeting - Union Gas Building "Management & Restoration of the Ojibway Prairie Preserve"
March 16	10:00 to noon	Ojibway Nature Center "Frogs, Snakes, & You" (ages 4-6)
March 23	7:30pm	E.C.F.N.C. Executive Meeting - Union Gas Building
March 17	10:00 - 3:00pm	Ojibway Nature Center "Snake Tales" (ages 7-11)
April 13	7:30pm	E.C.F.N.C. Membership Meeting - Union Gas Building "Butterflies & Moths of Brazil" Speaker - Jeff Larson

DON'T FORGET TO ATTEND!!!

**January 12th's ANNUAL GENERAL
MEMBERSHIP MEETING 7:30pm
UNION GAS BUILDING**

The EGRET, December, 1993, VOL.10 #4:Newsletter of the Essex County Field Naturalists' Club; 3100 Howard, P.O.Box 23011 Shoppers Drugmart, Windsor, Ontario.N8Y 3X3

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