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CONSERVATION EDUCATION

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The Council Of Outdoor Educators Of Ontario

The Council Of Outdoor Educators Of Ontario
The Advisory Board

CHAIRPERSON
John H. Aikman
47 Rama Ct.
Hamilton, Ont. L8T 3R7
(416) 383-5696 (H)
(416) 527-5092 (W)
Ext. 374

VICE PRESIDENT
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Peterborough Co. Bd. of Education
Box 719
Peterborough, Ont. K9J 7A1
(705) 742-3908 (H)
(705) 743-7431 (W)

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79 Donnamora Crescent
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(416) 630-6263 (W)

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(416) 453-3552 (W)

CORRESPONDING SECRETARY
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186 Crockett St.
Hamilton, Ont. L8V 1H2
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(416) 525-2930 (B)
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(519) 941-0678 (H)
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REGIONAL REPRESENTATIVES

FAR NORTHERN
A. Grant Vipond
78 Wembley Dr., #1,
Sudbury, Ont. P3E 1M8
(705) 969-5954 (H)
(705) 674-5249 (W)

NORTHERN
Susan Devaux
R.R. #1
Callander, Ont. P0H 1H0
(705) 752-2375 (H)
(705) 474-5420 (W)

CENTRAL
Mark Whitcombe
34 Blind Line
Orangeville, Ont. L9W 3A5
(519) 941-9966 (H)
(705) 435-4266 (S)

FAR NORTHERN
Lori Jarvis
R.R. #3
Thunder Bay, Ont. P7C 4V2
(807) 577-6053 (H)
(807) 344-9151 (W)

WESTERN
Brenda Steffler
55 Brentwood Cr.,
London, Ont. N6G 1X4
(519) 473-5509 (H)

EASTERN
Penny Purcell
561 Reynolds Street
Whitby, Ont. L1N 6H6
(416) 668-0433 (H)
(416) 663-9011 (W)

AD HOC MEMBERS

MEMBERSHIP
John Aikman
47 Rama Ct.
Hamilton, Ont. L8W 2B3
(416) 383-5696 (H)
(416) 527-5092 (B)
Ext. 374

GOVERNMENT LIAISON
Dorothy Walter
80 Dunblaine Ave.
Toronto, Ont. M5M 2S1
(416) 488-4854 (H)
(416) 965-2356 (B)

PROFESSIONAL DEVELOPMENT
Lloyd Fraser
156 Shaughnessy Blvd.
Willowdale, Ont. M2J 1J8
(416) 493-2944 (H)
(416) 225-4661 (B)
Ext. 217

ANEE
Skid Crease
20 Granada Crescent
Scarborough, Ont. M1B 2H5
(416) 282-8451 (H)
(416) 225-2346 (W)

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From The Editorial Desk

Happy New Year! Well, so much for trying to get out the December issue - here it is in January! The best laid plans...look even better in 1986! This issue looks at Conservation Education, and the special Zoo lessons, the tremendous resource of the CCO's Worldwatch Papers, and the kits and theme article from FON will provide a dynamic incentive to get viable programs moving in our classrooms and Field Centres in 1986. We are holding fast to our resolution to provide our membership with news, views, whos, and how to's, and we once again invite you to participate and respond. Check out the Upcoming Features - you, or a colleague could be our next theme author! And photographers - we need your very best outdoor shots for covers and for article highlights - so get snapping!

Upcoming Feature Topics

FEBRUARY - Make Peace With Winter - the Conference highlights from program to personalities.

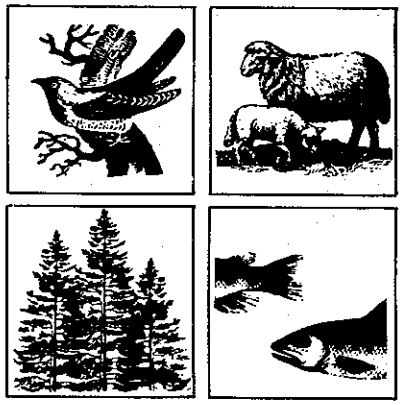
APRIL - Wetlands and Wildlife - from an ecosystem perspective, that duck is your brother.

JUNE - How to Poison a Small Planet issues and alternatives for a consumer society caught on the toxic scary-go-round.

AUGUST - Bringing the Outdoors In - displays, dioramas, and bulletin boards for the classroom and Field Centre.

NOTE: The September Conference Proceedings will now be published by the Conference Committee, not by Anee.

Contents



Yours outdoors,

Dr. O. Dehors

DR. O. DEHORS, PROFESSOR OF ENVIRONMENTAL PSYCHOLOGY, BISCOTASING UNIVERSITY

Dear Dr. Dehors:

I'm thinking ... it's about this joke I heard/saw at a movie the other night.

This Cherokee man and Einstein were riding an elevator together. Einstein asked this question, "They say the Cherokee, no matter where they are, feel that they are the center of the universe. Do you feel this?" The Indian responded with hesitation, "Yes, ... but it's a bit hard to feel this in an elevator."

Well, that's sort of the best way I can think to present it at present. You see, good Doctor, something inside ME is telling me I'm the center of the universe, just like you, your pet dog Wilber, those dreaded Bisco mosquitoes, and for that matter, everything else. But I live in the 20th century, and there's no cure for that... or is there!

Like the Cherokee, it's not a question of going up or down on the elevator. Perhaps it's best to get off the ride altogether.

Is this why I'm involved in Outdoor Education?

Just another fish in the sea, a former Bisco resident,

Archie Belaney

P.S. The movie's title is INSIGNIFICANCE.

****

Dear Archie:

There is nothing insignificant about your thoughts. Your owl-like wisdom has filtered the grey matter out of a black and white dilemma. You have already arrived at the solution, but have not yet accepted it.

The cure for the 20th century is COEO; you have become involved with Outdoor Education not to get off the ride, but to keep the ride evolving.

Remember, once upon a time, the lobefin was just another fish in the sea ...

Yours outdoors,

Dr. O. Dehors

Dear Dr. Dehors:

I have been involved with Outdoor Education and COEO for the past seven years. Recently, the T-shirt craze hit our organization, and I faithfully buy one each year to wear at my Field Centre.

However, my director has become quite forward lately and says that I am tempting him with my lewd T-shirt slogans. I really don't see what he's talking about.

Is there something hidden in my "Do It Outdoors" shirt? Did I miss a subliminal message on my "Try It Outdoors" top? What could possibly be misconstrued from my hotpink "Outdoor Educators Do It Naturally" sweatshirt?

Please advise, as the situation is getting quickly out of hand.

Innocently yours,

Taffy

****

Dear Taffy:

There is nothing hidden in your T-shirt messages. Beauty is in the mind of the beholder. Obviously, your director has a fixation on IT. Once you have clarified for him that IT refers to teaching outdoors, the problem should resolve itself.

If you have any concerns yourself about the nature of IT as misinterpreted by your director, please make an appointment to meet with me privately at the Make Peace With Winter Conference and I will attempt to allay your anxieties.

Yours outdoors,

Dr. O. Dehors

ERRATUM

Well...so there were a few errors in the Proceedings. Yes, we know that the cinquain poem in Language Arts Outdoors should have read:

Rocks
crags, cliffs
crushing, scouring, towering
majestic monuments eroding into
sand

Yes, and we know that the recipe for a diamantes poem should be: Title
2 describers
3 ed or ing describers
4 action describers
3 ed or ing describers
2 describers
Re-title

And, yes, Nancy Miles, we know that even Storytellers can spell discipline.

But worst of all, we left Peter Herlihy's original photos in the copy room! Sorry Peter; here are the good shots of Clark Birchard receiving his Life Membership and you presenting the Robin Dennis Award to Don White.

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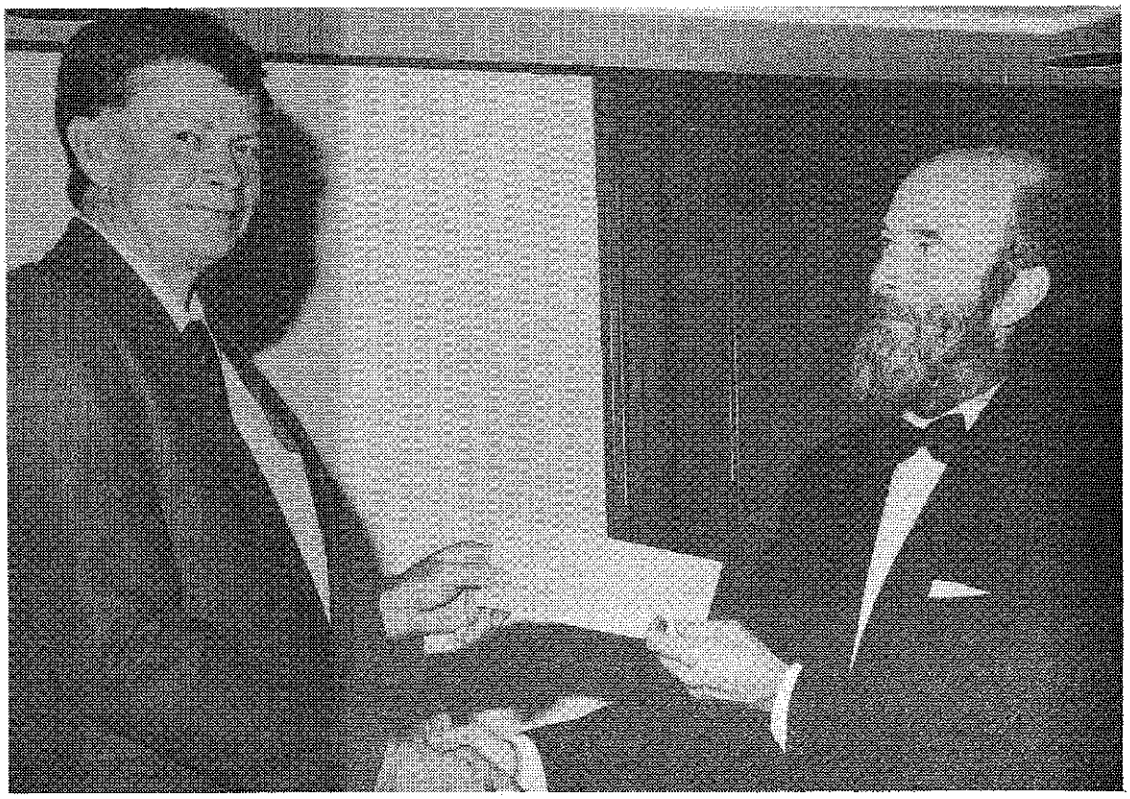


People In The News

NAME: John H. Aikman

ROLE: President/Membership Secretary

John's involvement with COEO is extensive - he is a charter member, worked on the planning committee for the First International Outdoor Education Conference in 1972, has been our Membership Secretary since 1975, and was even granted an Honourary Life Membership in 1981. John has served as a central region rep, and co-authored the first edition of the Programs and Personnel (outdoor education) Catalogue.

John has been teaching for twenty-five years, and is now with the Outdoor Education Department of the Hamilton Board of Education. Although born and raised in Hamilton, John has universitied his way around Ontario, getting his B.A. at McMaster, his B.Ed. at U of T, his M.Ed. at Brock, and his M.Sc.Ed. at NIU in the U.S.A.

John is married to Elaine, has two sons, Peter and Mark, and one cat. His hobbies include collecting pioneer tools on local history studies; he also collects swords and pewter. His outdoor recreation pursuits include sailing and cross-country skiing. He is presently completing the Principals Course, Part II, at York University. Just in time to retire!

NAME: Michael Townsend

ROLE: Task Force Co-ordinator

Michael decided that after so many years of enjoying COEO as a member, that it was time to put something back into the relationship. Mike began his "giving back" by working on the editorial board for Anee last year, and this year accepted election to the executive as the Task Force Co-ordinator.

Mike has been teaching for the past fifteen years with the Hamilton-Wentworth Roman Catholic Separate School Board. For the last nine years Mike and Jerry Best have been running the Outdoor Education programs for their system. Michael is a graduate of the Masters program from Northern Illinois University.

Mike's outdoor pursuits include canoeing, sailing, and skiing. He is presently dividing his time between his responsibilities with the Board of Education, and the running of a sport and fitness consultant company. Mike quietly acknowledges that it was <u>not</u> his company that helped Sylvester Stallone get ready for Rambo and Rocky IV. Mike is very honoured to be a part of the COEO executive and hopes that his contributions will be of benefit to all.

ATTENTION :

ALL C.O.E.O. MEMBERS, TALENTED ARTISTS, DESIGNERS, or "DABBLERS"!

"Michaelangelo got his start painting ceilings."
NOW all you C.O.E.O. Members have been given the same chance...

WE NEED YOUR SKILLS TO:

- DESIGN A LOGO FOR YOUR REGION, OR IF SO INCLINED FOR ALL FIVE REGIONS.

FANTASTIC PRIZES TO BE AWARDED!!
(YET TO BE DECIDED ?)

CONTEST RULES

1. The Logo should reflect the specific nature of the region.
   ex. Polar Bear - Far North
   Rising Sun - East
2. The Logo must include the C.O.E.O. Lettering
3. The Logo must include the Regional Name.

The Logo will be used as an identifying mark on letterheads, t-shirts etc. - i.e. for any event that is specific to, or sponsored by a particular Region.

Please submit your designs to your Regional Representative by March 20, 1986.

central region

Central Region has again had a busy fall! The Ontario Agricultural Museum in Milton was the site of the October meeting. The educational staff were excellent tour guides, information sources and cooks! The 1986 Spring programs include:

RURAL TRAVEL - a century of change	**(APRIL 14 - 18)**
NEWBORNS ON THE FARM	**(MAY 5 - 16)**
WONDERS OF WOOL	**(MAY 26 - 30)**
IT'S DAIRY MONTH	**(JUNE)**
GROWING THINGS	**(JUNE 16 - 27)**

For more information on the above programs and the museum itself, call the educational tour coordinator: 1-416-878-8151

The cool weather and pouring rain did not deter many hardy folks in November at the Mountsberg Wildlife Centre. The staff entertained us with their fabulous puppet show and a ride through the property on horse and wagon. Unfortunately, many of the ducks decided to stay in the water and do rock imitations. This centre is well worth a weekend visit!

Central Region rounded out 1985 and the Christmas season with a Come and Share at Cedar Glen O.E.C. Thanks to all who shared and to Nancy Payne for all the "goodies".

UPCOMING EVENTS IN CENTRAL REGION!

Sat. February 8, 1986
ALL DAY

4th ANNUAL VOLKS-SKILAUF
CEDAR GLEN OUTDOOR EDUCATION CENTRE
- a fun-filled family ski day

Wed. February 26, 1986
7:00 pm

MOUNTAIN EQUIPMENT CO-OP
- an expert from the store comes to Forest Valley Outdoor Education Centre to show us the "latest and the greatest"

Thurs. April 24, 1986
7:00 pm

HALTON REGION MUSEUM
- Grant Linney and Bill Cook from the Peel Field Centres show us how they use the museum in their outdoor programs

FOR ANY MORE INFORMATION ON ANY COEO CENTRAL REGION EVENTS, CALL:

SUE BROWN 416-630-6263
MARK WHITCOMBE 705-435-4266

SPRING SYMPHONY

Eastern Region

FRI, APR 25 - SUN, APR 27, 1986

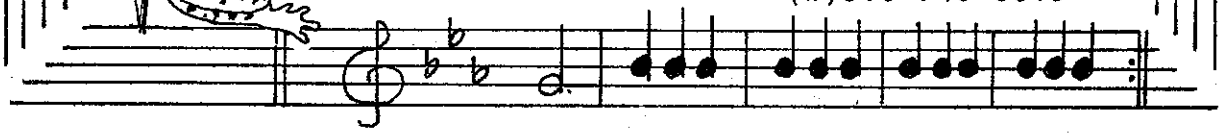
at

Camp Cameron Outdoor Learning Centre

...winter will be fading and nature will be waking to the warmth of spring.

**Session details and registration will be in a later issue of Anee.

***If you have any ideas or if you would like to help out please call:
Carmel Hunt (H)613-745-6947
(W)613-746-0019



1000 ISLANDS / EASTERN ONTARIO

HOME TO NEW RESIDENTIAL EDUCATION CENTRE

Hill Island Resort Residential Education Centre located on Hill Island in the very heart of the St. Lawrence Islands National Park will open its doors in the spring of 86 to students from School Boards across Ontario.

One of the Province,s truly unique regions there are few areas blessed with such a rich blend of natural and cultural landscapes. A colourful and extensive heritage combined with a plethora of natural wonders makes the 1000 Islands a most educational and enjoyable classroom.

PROGRAMS OFFERED;
The educational study units offered at the Centre are curriculum related and include such themes anbd topics as .

1. Environment studies. Ecology , geography, geology,river dynamicss, gravel pit studies, aquatic biology and wildlife studies offered on 1000 acres of National Park property on Hill Island and some 20 other island retreats.
2. History/ Culture Studies., Offered on National Park Islands , Old Fort Henry , Upper Canada Village, Murney Tower and Marine Museum of the Great Lakes.
3. Recreation and Community skills.Group dynamics, group social and recreational time and activity games undertaken in the National Park and the Resort Centre property.

THE CENTRE:
The Centre operating from the facilities of Hill Island Resort was originally constructed in the mid 60s, extensively extended in 1980 and to-day provides an ideal base from which to operate education activity programs.

THE NATIONAL PARK AND ISLAND ACCESS:
The St Lawrence Islands National Park comprised of a network of islands is literally on the doorstep of the Centre. Access to islands other than Hill Island is provided by private charter vessel owned and operated by the owners of the Centre, indeed access to Grenadier Island which includes units offered in each of the residential stay programs is accessible only by boat.

HISTORICAL AND CULTURAL PROGRAMS:
Off property units of study are also offered at unique historical resource facilities in the area and are included in our programming. This adds substantially to the utility of the Centre as a Residential Education Centre.

FURTHER INFORMATION:
For those interested in obtaining more information on the facility , a free MANUAL and PRE-PLANNING INFORMATION GUIDE is available.

WRITE... Hill Island Resort,
Education Centre,
780 King Street West,
GANANOQUE, ONT, K7G 2H5.

or CALL COLLECT 613 382 3226

and ask for ALEC TURNER.

NORTHERN REGION

By way of introduction, I have taken over from Barrie Martin as the Northern Region representative. Fortunately for us Barrie has not withdrawn his services. This year he will be acting as the Chairperson for the 1986 C.O.E.O. Annual Conference .... an appropriate time to mention that it will be held in Northern Region. You will be provided with more information on the Annual Conference in upcoming issues of Anee.

By the time this issue of Anee has gone to print Northern Region will have had its first planning meeting. The meeting to be held on November 19th, is intended to draw out those folks who may be interested in becoming actively involved in COEO-Northern Region, lay some groundwork for the Annual Conference and Spring Celebration workshop, and give consideration to organizing a few local workshops.

Northern Region is still in search of the perfect regional logo. No doubt it is caught inside a leaf bud, or on the wings of a southbound bird. If that's the case, we may not find it until Spring, but when we do....just wait!!!

Editor Skid has asked all regions for a page submission for each issue of Anee. I feel that this will provide the ideal opportunity for Northern Region to highlight its outdoor education programmes, centres and camps. So in addition to any update on Northern Region activities, you will find informative write-ups on outdoor education in Northern Region. To start things off, I've written the following summary on the environmental/outdoor education programme at the North Bay-Mattawa Conservation Authority.

Before signing off, I want you to know that as of November 6, 1985, I have yet to see winter's first snowflake!

Susan Devaux

ENVIRONMENTAL/OUTDOOR EDUCATION AT THE NORTH BAY-MATTAWA CONSERVATION AUTHORITY - Susan Devaux, Information-Education Co-ordinator

The aims and objectives of the North Bay-Mattawa Conservation Authority direct its environmental/outdoor education programme, its intent being "to promote an awareness of the need for and importance of conservation..." The programme serves three local boards of education and countless youth and community groups.

The Conservation Authority employs one permanent staff person to operate the education programme, in addition to public relations and special event duties. Unlike many larger Conservation Authorities, the North Bay-Mattawa Conservation Authority does not have a field centre. These limitations of staff and facilities have not hindered the programme, but rather have made the Conservation Authority more resourceful in implementing it.

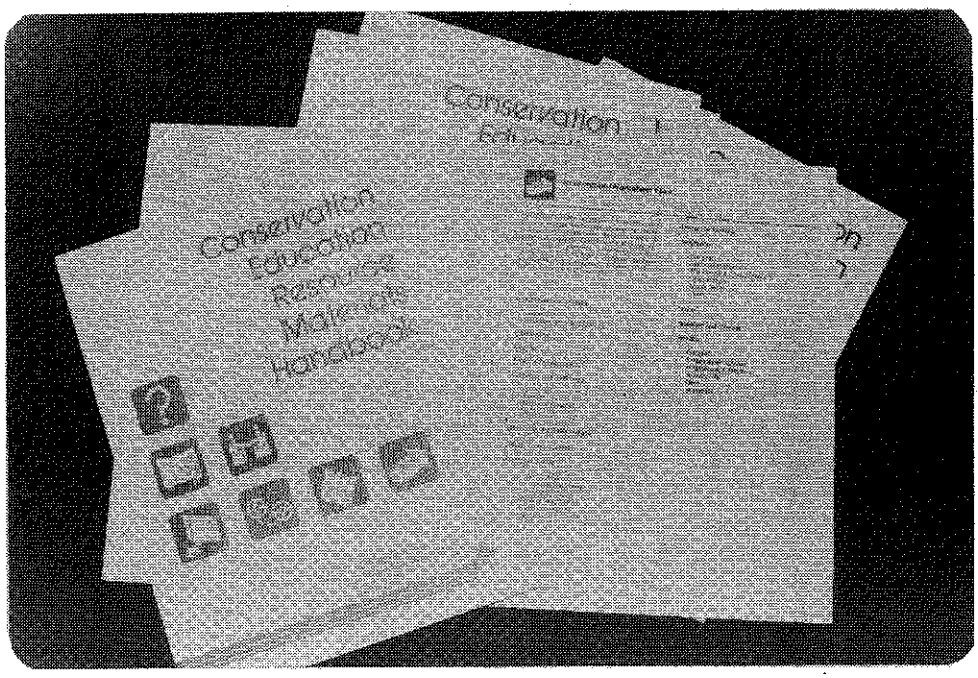
The shortage of staff has been dealt with in a variety of effective ways. Firstly, the Conservation Authority has made use of both federal and provincial employment programmes. During the past five years, it has received over eight environmental/outdoor education projects, employing from 1 to 4 individuals for three to six month periods. Secondly, the North Bay-Mattawa Conservation Authority has worked out a cost sharing agreement with one of the boards of education, whereby they employ a Conservation Education Technician to work with teachers in preparing and implementing environmental units relevant to the curriculum. As well, the Conservation Authority lends any of its prepared resource materials to instructors when staff are not available to assist with programmes.

Tips & Tricks

Local schools including those in the centre of North Bay are fortunate in having pockets of nature within a short walking distance, eliminating the need for a field centre. Lacking the exhibit areas which field centres offer, the Conservation Authority has made its exhibits and resources portable, so they can be easily moved from classroom to classroom. These resource materials have been divided into five categories: information/worksheet files; films; slide presentations; instructional displays; and nature games. The information/worksheet files cover all natural science subjects. Each contains background information, field worksheets, activity sheets and prepared units. Although some materials have been developed in-house, most have been "begged, borrowed and stolen" from other programmes. The Conservation Authority has access to a number of film libraries and maintains detailed records on the suitability of previewed films. Twelve slide presentations have been prepared by the Conservation Authority. Sample titles include: "An Ecosystem - What Is It?", "How To Be An Animal Detective" and the "What's It Good For Anyway?" series, so far including "The Forest" and "Water". Instead of static exhibits, instructional displays have been designed to encourage learning through active participation. Materials include a felt board and kits, such as Pond Ecosystem, A Tree & Its Uses, and The Water Cycle; an identification board with sets of six such as Animal Tracks, Tree Form & Twigs, and Aquatic Insects; Soil Erosion Model; Rocks and Minerals kits; and much more. Each nature game is described on individual cards with a listing of the variations, the required number of players and materials, and the suitable age range. Where required the Conservation Authority has game materials. All the Conservation Authority's resource materials have been listed and described in a handbook which is distributed to school teachers and group leaders.

In closing, if you feel limited by money, staff, time and facilities in setting up an outdoor education programme, look again.....there are some very viable options!

Resource material.



Boy and white pine seedling.

CONSERVATION EDUCATION

"We do not inherit the earth from our forefathers; we borrow it, for a short time, from our children". This observation has been echoed by many individuals who are concerned about the future of our natural environment. It implies a serious responsibility on behalf of the adult world to pass on a healthy and diverse environment to the next generation. We must try to hand over the best possible environment, and it is our collective responsibility to ensure that youth are prepared to accept this legacy.

With the recognition of this responsibility comes an implicit need to educate our youth and inspire in them an awareness and understanding of their environment. Planting and nurturing an environmental ethic within a child is an investment in the future of the natural world. It can also be, for the child, the beginning of a lifetime of appreciation and enjoyment of nature.

There is a growing emphasis placed on teaching youth about issues which affect their lives and society as a whole. Environmental issues, such as acid rain, toxic wastes, air and water quality etc. fall squarely in this realm. With a basic understanding of the interdependence of living things and the balance of nature, students can tackle the issues with which adults are struggling themselves. Afterall, the students of today will be the decision-makers of the future. We must endeavour to provide them with the knowledge, skills and initiative with which to make necessary, wise decisions which will ensure the future health of the environment.

In response to this challenge, the Federation of Ontario Naturalists, a non-profit conservation organization, began producing environmental education kits in 1982. We chose issues about which we are very concerned and of which we felt youth should be aware. The material is easily used, comprehensive and Ontario-based. Efforts have been made to tie many of the lesson plans to Ministry of Education curriculum, and to use a multidisciplinary approach. It is our belief that concern for the environment and lessons about conservation should not be slotted simply into a science or geography lesson, but should be approached as a lifestyle issue which permeates a student's whole education. From the tremendous response that these kits have received from educators across Ontario, it appears obvious that they are filling a very real need.

To date three FON education kits are available:

1) Why Wetlands $45.00 plus $5.00 postage and handling
   - 6 sections : What is a Wetland?
     Wetlands and Water
     Wetland Wildlife
     Wetland Web of Life
     Wetlands and Man
     Wetland Resources (including slides)

2) Wildlife in Jeopardy $45.00 plus $5.00 postage and handling
   - 6 sections: Wildlife in Jeopardy
     Communities in Jeopardy
     Why Should we Care?
     What is being Done?
     What can you Do?
     Wildlife Resources (including slides)

3) Hazardous Wastes $45.00 plus $5.00 postage and handling
   - 6 sections: Hazardous Waste in Ontario
     People and the Environment
     Balance of Nature
     Disposal and Control
     You and a Good Future
     Resources

A fourth kit, on Acid Deposition, is expected to be completed by the end of 1986.

All kits come with complete lesson plans, activities and follow-ups, including both indoor and outdoor activities. The material is designed to do more than teach facts. It tries to teach students about the importance of conservation, why they should care about the environment and also how they can get involved in conservation activities. Learning about an issue and then using this newly acquired knowledge to do something positive and constructive is complete education. The experience becomes meaningful and memorable.

In addition to education kits, teachers can use resource people to help show students how different conservation groups operate, how change does and does not occur and what the government's role in environmental management is. Individuals can be invited to speak to students or a panel-type discussion may be arranged where different opinions can be compared. A list of non-government organizations is found in the Environmental Sourcebook, currently being updated, and available from:
Environmental Non-governmental Organizations (ENGO)
730 Bathurst Street,
Toronto, Ontario
M5S 2R4

It is very important to invite speakers with potentially different perspectives or priorities regarding an issue to enable students to judge the arguments and decide for themselves where their own priorities lie. Although the temptation is great to influence these decisions, we have found that conflict resolution, or the presentation of opposite points of view in lessons, is very effective and certainly presents a more realistic view of the "real world".

Well organized field trips can also be excellent teaching tools for conservation. Ranging from nature study at a local conservation area or outdoor education centre to attending an Ontario Municipal Board hearing for the fate of a wetland, these opportunities can often leave very deep impressions.

Encourage your students to seek conservation-related hobbies or activities beyond the classroom. A number of local naturalist clubs across Ontario welcome older students and offer junior programs, as do some facilities such as the Royal Ontario Museum. Clubs often conduct many outings during the year which may be suitable for young people. Summer camps based on a nature theme can also provide new ideas and insights into the natural world. FON runs a one week Young Naturalists' Camp for ages 11-14 in the summer. In 1986 the camp will be held August 24 - 30 at Wolfe Lake, near Westport, Ontario.

Whether a student goes on to become a doctor, lawyer, politician, tradesperson, biologist or homemaker, his or her attitudes toward the environment will be reflected in the everyday conscious and unconscious decisions that directly and indirectly affect the future environmental quality. If we work hard now to prepare students for their ultimate responsibility, it is hoped that their decisions will be wise, and of benefit to future generations.

Pamela Hickman
Education Projects Coordinator
Federation of Ontario Naturalists

Any inquiries regarding the FON and its Education Program can be directed to me at 355 Lesmill Road , Don Mills, Ontario, M3B 2W8 (416) 444-8419

MetroTorontoZoo

ZOOS: MAN AND NATURE

THIS SPECIAL EIGHT PAGE PULLOUT PRESENTATION WAS CREATED FOR COEO AND THE JANUARY 1986 ISSUE OF ANEE BY MEREBETH SWITZER EDUCATION OFFICER FOR THE METRO TORONTO ZOO.

COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO

ZOOS: MAN AND NATURE

Merebeth Switzer

Education Officer

MetroTorontoZoo

"If we hope to meet the environmental challenge of our times, we must get together, share our experiences and co-ordinate our endeavours."

J. C. Smyth,
Representative of the Education Council of the I.U.C.N. and the Royal Zoological Society of Scotland

As members of C.O.E.O. we are intimately involved with the task of educating people about the environment. We work to awaken in each student his or her own empathy with the natural world. In doing this we hope to create a knowledgeable public capable of understanding today's environmental issues.

ZOOS AND CONSERVATION

Zoos have changed dramatically over the years. Their goals of **conservation, education, research** and **recreation** are now well-established. Their animal collections are no longer simply menageries but they form an important gene pool for much of the world's endangered wildlife and offer a valuable teaching resource.

Representatives of the world's zoos form part of the Education Commission for the **International Union for the Conservation of Nature and Natural Resources (IUCN)** and take an active role in dealing with the **World Conservation Strategy.** (see insert next page)

Zoos and their affiliates deal with their goal of conservation in a variety of ways.

The **education** programs currently being established in zoos throughout the world show a new concern for their role as conservation educators. The intangible goal of zoo education is to instill in our visitors respect for the natural world and a concern for the future of its inhabitants. This concern will hopefully result in a more aware public willing to work to support global conservation efforts.

The more directly recognizable conservation efforts in zoos relate to their **research** in the breeding and captive management of the wildlife entrusted to their care. Their own efforts of conservation can be seen in their own self-regulation of their consumption of wildlife. In 1970 greater than 80% of the animals arriving in North American Zoos were captured in the wild. This demand on wild populations has decreased dramatically bringing it to a level of less than 15% in 1980. This change was brought about through a variety controls including many placed on the trade in endangered species and many initiated by zoos themselves.

Zoos also act as reserves for many of the world's seroiusly threatened wildlife and several, including the Metro Toronto Zoo, are currently involved with special projects to re-introduce animals to the wild.

CO-OPERATION BETWEEN ZOOS

Some species already in captivity might easily disappear without a concerted, aggressive effort to support their long-term propagation. Zoos work co-operatively to help the reproduction of the animals in their care.

Of primary concern to a successful breeding program is the establishment of a healthy breeding population of animals. Many zoos work to actively acquire individuals of the species that they are proficient at breeding. For example, the Metro Toronto Zoo has a collection of over 4000 animals representing over 400 different species.

BREEDING PROGRAMS

The **METRO TORONTO ZOO** has had numerous breeding successes and has won many awards. The following are only a few of the animals that have produced young during the past two years at the Metro Toronto Zoo:

Lowland gorilla (V)
Ring-tailed Lemur
Black lemur (V)
Orangutan (V)
Chinese Leopard (V)
Bactrian Camels
Grevy's Zebra (V)
White Rhino (V)
Malayan Tapir (V)
South African Fur Seal **
African Elephant (V)*
Masai Giraffe
Grey-cheeked Hornbill**
Renauld's Ground Cuckoo**
Puerto Rican Crested Toad (V)

(V) Vanishing Species
* Breeding Award
** First breeding in the Western Hemisphere

ARTIFICIAL BREEDING

One of the most promising methods of preserving endangered wildlife may be in the area of artificial breeding. The **Metro Toronto Zoo** is currently involved in research concerning artificial insemination and inter-species embryo transfer.

ARTIFICIAL INSEMINATION

Artificial insemination has been used for the reproduction of prize-winning livestock for many years. It is this technology that is now being used in the reproduction of zoo animals and in particular with endangered species. Artificial insemination allows certain controls to be exercised in the breeding process and may eventually offer the opportunity for reproduction between animals living living in zoos continents apart. This technology may also result in the use of sperm banks for some of the world's disappearing wildlife.

INTER-SPECIES EMBRYO TRANSFER

The breeding of any animal is often tricky business but with an endandered species there is an added risk. The death of a breeding female as a result of complications surrounding a birth can be extremely seriou in a small breeding population. Many zoos are now looking for alternatives.

Recently the Bronx Zoo, New York has used embryo transfer in the hopes of off-setting some of these risks with its population of gaur, a seriously threatened species of wild cattle. The fertilized embryo is removed from the female and transferred to a domestic cow where it develops until its natural birth. This process reduces the risk to the breeding female and increases its breeding potential by removing the time the gaur would be unproductive due to pregnancy and post-natal recovering.

GLOSSARY for ZOO CONSERVATION

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES

An independant global organization with members representing governments, private societies and institutions and international organizations. It is supported by such prominent organizations as the United Nations, UNESCO, the FAO (Food and Agriculture Organization) and the World Wildlife Fund.

Its aim is to ensure the conservation and perpetuation of wild areas and natural resources worldwide. A large part of its work is carried out through the work of its six commissions," one of which is the Education Commission.

WORLD CONSERVATION STRATEGY

Published by the IUCN in 1980 the World Conservation Strategy attempts to create a comprehensive view of universal conservation concerns. It works to prevent environmental damage before it happens and recognizes man as an integral part of the systems to be conserved. In its planning the Strategy acknowledges human poverty, malnutrition and population growth and the need to develop resources to provide an improved quality of life for mankind.

From the viewpoint of the Education Commission, conservation education is seen as an integrated topic requiring an understanding of the natural world and man's impact on it.

RED DATA BOOK

The IUCN monitors the decline and threatened loss of individual species and suggests remedial action whenever possible. As part of this work it publishes the RED DATA BOOK, an offical listing of species throughout the world that are in immediate danger of extinction (Endangered), those likely to move into this category (Vulnerable) and those that are rare or at risk.

ISIS - INTERNATIONAL SPECIES INVENTORY SYSTEM

As a step toward more effective genetic management, the Metro Toronto Zoo and most other zoos in North America, participates in ISIS, a computerized system for collecting data about wild animals in captivity. But it is no mistake that the acronym of the program, ISIS, is also the name of the ancient Egyptian fertility goddess. ISIS is used predominantly by zoos to seek out genetically compatible mates for their animals. A "computer dating service for zoo animals" if you wish.

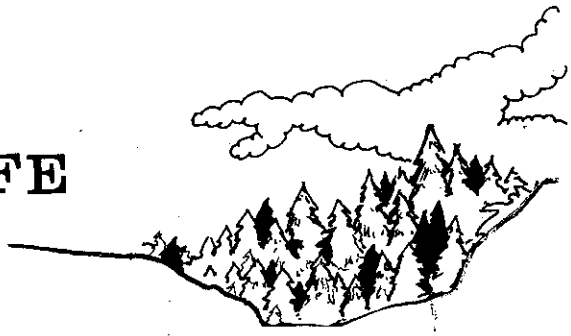
SPECIES SURVIVAL PLAN

The Species Survival Plans (SSP) are detailed programs for the management of individual species of rare or endangered animals. Global studbooks are maintained about more than fifty species of rare animals in captivity, of which nearly half are represented at the Metro Toronto Zoo. With each species the captive collection is treated as if it were a population in the wild. Decisions such as which zoo should house and propogate which species, when breeding should take place, and how the captive propogation should be managed genetically to provide optimum success, are made for each plan. Animals in the SSP include the Siberian tiger, snow leopard, Grevy's zebra, barasingha deer, gaur, black lemur, scimitar-horned oryx, gorilla, orangutan, lion-tailed macaque, Przewalski's horse and Rothschild's mynah; all of which are represented at the Metro Toronto Zoo.

BREEDING LOAN

In cooperating with the ISIS and SSP programs, zoos become involved in animal breeding loans with other zoos. These loans help to reduce inbreeding, separate non-productive mates and provide isolated individuals with breeding companions. Each loan involves a specific agreement between the zoos involved covering liability and ownership of any resulting offspring.

REINTRODUCING WILDLIFE



WOOD BISON RE INTRODUCTION: A CANADIAN STORY

The story of the Wood Bison is, like that of the Plains subspecies, one of rapid nineteenth-century decline, followed by slow recovery in the twentieth century. By 1900 only a few hundred Wood bison were left. In the early 1920's a National Park was established to help preserve the few remaining members of this species.

The introduction of several thousand Plains bison to the park soon threatened the Wood bison again, this time as a result of hybridization. In the years that followed, very few pure-bred Wood bison calves were born and the subspecies seemed headed for extinction. In 1958 an isolated herd, unaffected by interbreeding, was found in a remote area of the park. THese animals have reproduced since then to such an extent that other herds have been started using the offspring of these animals.

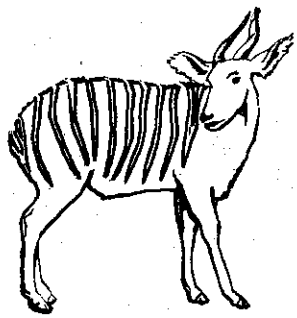
Natural factors affecting the bison populations include lack of food during severe winters and natural disease and parasites. Added to these are the manmade threats of habitat destruction, illegal hunting and the diseases of domestic cattle, such as anthrax and bovine tuberculosis, to which the bison has no immunity.

It was because of the danger of disease that the Canadian Wildlife Service began its program to disperse Wood bison to areas outside of the park. This would prevent a localized natural disaster from wiping out the entire species. Animals were dispersed to Alberta and the Northwest Territories in wild and semi-captive herds. It is from one of these populations in ELk Island National Parks that the Metro Toronto Zoo received its original 10 animals in 1977.

During the past seven years the herd has increased to nearly fifty animals and it is because of this success that the zoo and the Canadian Wildlife Service worked to re-introduce 18 of these animals back into the wild.

In February of 1985 the zoo gathered together three of the original bison and 15 zoo-born offspring for shipping to a reserve in northern Manitoba. All animals were given a complete physical and vaccinated before shipping.

The herd is doing well and is being kept under close supervision by trained game wardens. This project and others like it have removed the Wood bison from the classification of an endangered species.



MetroTorontoZoo

TEACHER RESOURCE KIT: "Vanishing Species" is one of five kits produced by the zoo's education office. The kit discusses the rare and endangered animals found at the Metro Toronto Zoo and the reasons for their dwindling numers. Using current information from the IUCN the kit supplies background information, maps, reference material and study ideas. Other kits: The Zoo, Animal Adaptations, Canada and the Americas, and Africa.

TEACHERS' WORKSHOP – Friday, March 28

The Zoo and Vanishing Species is one of numerous workshops offered at the zoo. The morning workshop begins at 9:30 with a special slide presentation followed by a small tour of the zoo discussing the topic in detail. Effective teaching methods and study ideas will be discussed. Participants must be pre-registered.

OPENING IN THE SPRING, 1986

The Metro Toronto Zoo will be opening its education building in the spring. This building will offer classroom and lecture space to help the zoo's developing education program. Over the next five years we anticipate significant expansion both in the education of school children and in the development of public programs.

SKIING AT THE ZOO

What better way to combine physical activity and a significant learning experience. The zoo has extensive trails, skilled instructors and rentals. Please contact them for further details.

Suggestions? Ideas? Please contact us:

Education Office,
METRO TORONTO ZOO,
P.O. Box 280,
West Hill, Ontario
M1E 4R5

Phone: 284-8181 Ext. 257

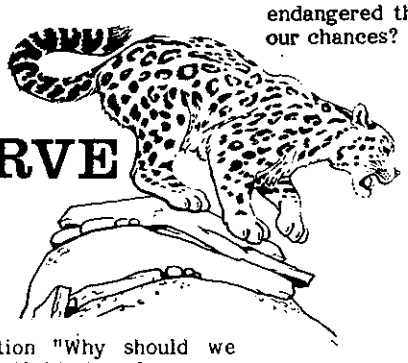
FOR FURTHER READING:

Metro Toronto Zoo, Resource kits

Equinox, Sept./Oct. 1983 "Metro's Ark" R. Spence, pp. 28-46

Lesson 1:

WHY CONSERVE ?



For many the question "Why should we bother to save widlife?" is of utmost importance. It is important to lead an open discussion which will alow the students the opportunity to determine their own views on this matter.There are many points to consider the following represent six of the main concepts:

1. The extinction of any one species results in the disruption of its natural ecosystem.

2. When a species becomes extinct its genetic material disappears removing a set of future evolutionary possibilites.

3. Some species represent a significant commercial asset to their country.

4. Plant and animal by-products are amazing in their diversity and the loss of any species may mean the loss of a vital medicine, vaccine or food source.

5. Plants and animals are barometers of the natural world. As wildlife becomes endangered through our actions, what are our chances?

6. What is our **moral** responsibility towards the other inhabitants of our planet?

IDEAS TO ILLUSTRATE THE ABOVE POINTS AND INITIATE DISCUSSION:

1. Use a simple food chain (plants plus 4 or 5 animals) and remove species individually. Discuss the effect the total removal of a species would have on all of the members of the chain. Do this with each species in turn.

2. Grains, which form the major food source for much of the world evolved from primitive grasses. (Eg. rice, wheat, barley, corn, etc.) Chose your own example of an ancient ancestor and discuss what would have happened if it had become extinct before passing on its genetic material. You might wish to use the ancestor of the horse as an example.

3. At the Metro Toronto Zoo the Malayan Bonytongue represents the only endangered fish in our collection. Its future is seriously threatened because of its heavy use for food. Discuss Canadian examples of animals that represent a significant value to the Canadian economy. Try to determine their actual dollar values and the number of people employed in their harvest. Note: The hunt may be brought up as part of this topic but please note that the Harbour Seal is not currently endangered.

4. Have the students research medicinal plants and their uses. What modern medicines have their origins in plants and animal folklore.

5. WHO'S NEXT? This area is open to several topics including: DDT and its effect on the food chain; mercury levels in fish; acid-rain and its effect on local plant-life; the fallout effects of spruce budworm spraying; the long-term effects of the defoliant "Agent Orange" after the Viet Nam war.

6. THE MORALITY. Have the students list animal and plant products that we might use. Go through the list and determine which are luxuries and which are necessities.
For discussion: Discuss the ethics of slaughtering a cow or mowing a wheatfield or killing an animal for a luxury item. Where is the line drawn?

Lesson 2:

WHY DO WE HAVE ZOOS?

AS A CLASS:

Outline the features of a **farm, a national park, an African game preserve** and a **zoo.**

AREAS FOR CONSIDERATION:

- Are the animals confined? If so, by what means?
- Are the animals wild or domestic?
- How 'natural' is their environment? (from both their viewpoint and ours)
- What care is given to the animals? Medicinal? Nutritional? Planned breeding?
- What are the outside factors affecting the animals? Eg. predators, people, etc.

Compare the similarities and contrast the differences between zoos and the three other circumstances listed.

Discuss the reasons for zoos.
(This may be controversial. Allow time for differing viewpoints to be presented. Have the students recognize that itis not necessary to reach a final conclusion.)

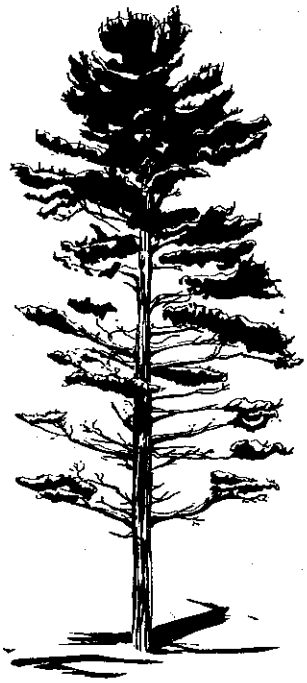
There are several good films about modern zoos. You may wish to close the lesson by showing one of them.

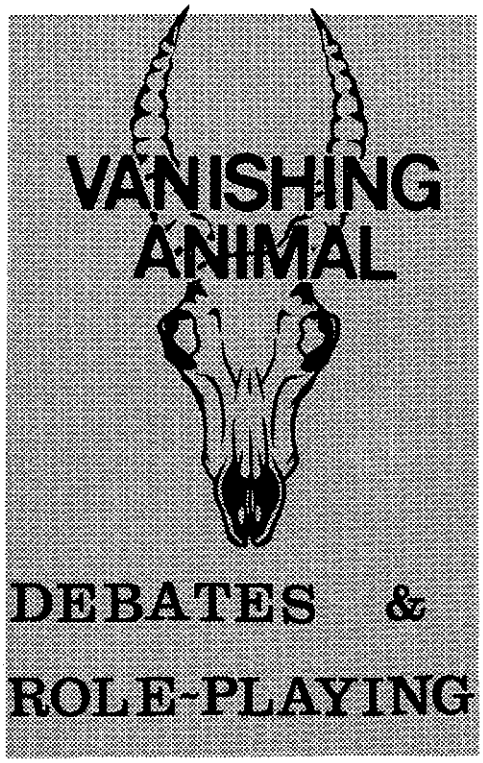
ZOO, N.E.V.T.A. by the Friends of the National Zoo, 1974. 22 minutes

LOOK AT ZOOS, National Geographic Society, 1978. 12 minutes

A ZOO'S EYE VIEW: DAWN TO DARK, Encyclopedia Britannica, 1973. 12 minutes.

The film may serve as a conclusion to this lesson or you may wish to continue with a short discussion in order to compare the students' ideas about zoos with those put forth in the film.





Lesson 3:

THE TRADE IN IVORY

POINTS

Ivory is not a necessity.
In parts of Africa, elephant populations have increased to the point where the land cannot support them. Animals are culled to benefit the whole herd. This is the source of **legal** ivory. The sale of ivory is important to the economy of the developing nations.
If ivory is sold legally, it opens the way for poaching and the sale of illegal ivory. It is impossible to tell legally obtained ivory from contraband.

For this debate you will take one of the following roles:

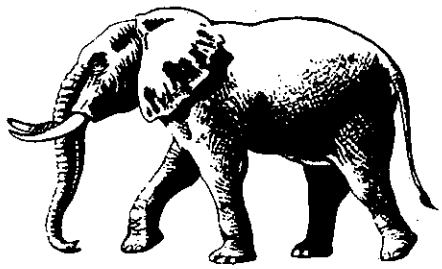
GOVERNMENT OFFICIAL who is trying to help his country to build its economy.

FARMER with a large family to feed, who depends on his land for food. Elephant herds are destroying the few trees needed to prevent erosion and supply shade to his cattle. Rhinos have destroyed over half of his crops and a family member must stand guard every night to patrol the fields.

A **TOURIST AGENT** working for an African country and hoping to increase the tourist business coming there.

A **GAME WARDEN** who must control poaching. His men have often been wounded and they are poorly paid, leaving them open to bribes from the poachers. He has seen the numerous carcasses slaughtered for the ivory alone, but he is also aware of the risks taken by his men and the poachers.

POACHER. He can make more money from one tusk than from an entire year of farming. He risks death if he is caught.



REINTRODUCING WILDLIFE

The balance of nature is extremely complex and changes in any of its seemingly independent parts may have enourmous and far-reaching effects. An attempt must be made to understand these effects before any re-introduction is attempted. These are only a few of the questions that must be considered:

1. Does the animal's natural habitat still exist? If not, is there another area suitable for the re-introduction?

If we do not act to save the natural world, wild animals will not have any place in which to exist. On the large scale, the preservation of national parks, wildlife refuges and wilderness preserves is vital but closer to home, we must also work to save our marshes, fields, streams and neighbourhood woodlots.

2. Is the area for the intended re-introduction protected and have the factors that contributed to the animal's original decline changed? Are there new threats to consider?

3. What effects will the return of the species have on the environment and upon its current inhabitants?

Nature continually works to maintain a balance. As one species becomes extinct another species moves in to fill its niche. This change may affect other plant and animal species within the environment but eventually a balance is achieved. The re-introduction of the original species will result in re-newed fluctuations within the environment which may result in adverse effects on another fragile species.

4. Can the individuals still survive in the wild? Do they know how to obtain food, find shelter and avoid predators?

5. Do the individual animals pose a threat to other wildlife through the parasites they carry, through their health or behaviour?

6. Who will bear the cost of the re-introduction project?

Costs for re-introduction projects can be quite high. They may include shipping costs, veterinary costs, costs for staff involved in the project, salaries for "caretakers" to watch the animals in their new home, supplemental foods, game warden salaries, fencing, public education programs and so on.

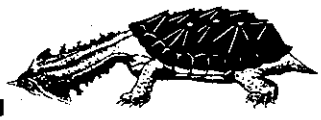
7. What human- factors must be considered?

Will local citizens respect the project? Are there human factors such as urbanization which might alter the long-term value of the project?

AFTER READING THE PRECEEDING POINTS, TAKE FIFTEEN MINUTES TO RESEARCH AND CREATE THE GROUNDS FOR YOUR DEBATE. FOR A LONGER TERM PROJECT YOU MIGHT WISH TO CREATE YOUR OWN CHARACTERS AND USE THEIR POINT OF VIEW AS A BASE FOR YOUR ARGUMENTS.

Eg. You are the government official of a small dveloping nation. Foreign biologists want to re-introduce tigers to a reserve near several villages. You know the villagers will not support this plan nor the expenditure of government money.

Lesson 4



ANIMAL DIVERSITY

In helping students to understand the significance of saving endangered species it is important that they appreciate the diversity of living creatures found on this planet. This can be done in a variety of ways but one of the most significant areas is through the understanding of adaptations and through training for careful observation.

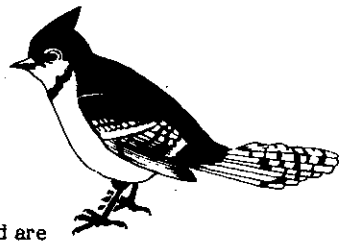
ADAPTATIONS

An adaptation is any genetically controlled characteristic that aids an individual or the species to which it belongs, to survive and reproduce in its environment:

- **an adaptation is inherited**
- **an adaptation must affect the survival of the individual or the species**

Animals are specially adapted to:

- **avoid predators**
- **obtain food**
- **survive in their environment**
- **reproduce**

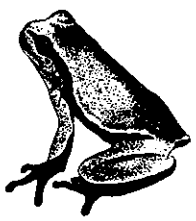


Adaptations that may be easily observed are either **structural** (eg. horns, claws, fur) or **behavioural** (eg. grooming, breeding rituals).

The following deals with a few ideas about adaptations. If you wish further information, it is recommended that you refer to the Metro Toronto Zoo Resource Kit, **ANIMAL ADAPTATIONS,** or look for information about individual animals.

Adaptations for Avoiding Predators:

- Divide the class into deer and wolves. Decide what adaptations the wolves would need to catch a deer and what adaptations the deer would need to avoid the wolves.
- Select your favourite sport and outline the adaptation(s) that would help you to be a champion.



Adaptations for the environment:

From deserts and mountains to the Arctic and the oceans of the world, there are animals specially adapted to survive in their environment.

Select an animal that is specially adapted for one of the following circumstances. Do a special research project to determine the special adaptations that your animal possesses to survive in its environment.

Desert
Arctic
Lake
Nocturnal
Hibernation
Mountain
Ocean
Undergrond
Jungle
Migration

Data sheet for animal observation

Observer's name _____ Date ____
Observation site _____
Time of day _____ Weather conditions _____
Animal's common name _____
Animal's scientific name _____
Animal's habitat _____

Physical characteristics

Method of locomotion
Crawl/swim/fly/
walk/run

Tail
None
Long/short
Thick/thin

Ears
Long/short/none
Side/top

Location of eyes
Front/side/top

Body covering
Skin/scales/fur
Long/short
Thick/thin
Straight/curly

Food
Plants/animals
Both

Teeth
None
Pointed/flat

Color
Dark/light
Solid/pattern

Behaviour

Passive
Boundary marking
Submissive postures
Grooming

Aggressive
Screaming/growling
Roaring/baring/
clacking teeth
Smacking lips/staring

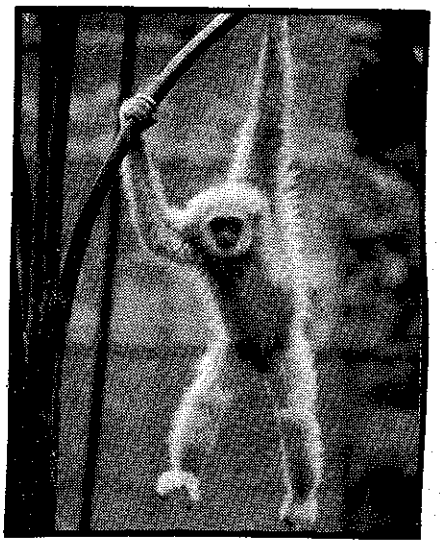
Comments

From: Science and Children, Feb. 84
Prof. James Milson "Looking Around at the Zoo"

DESIGN A ZOO

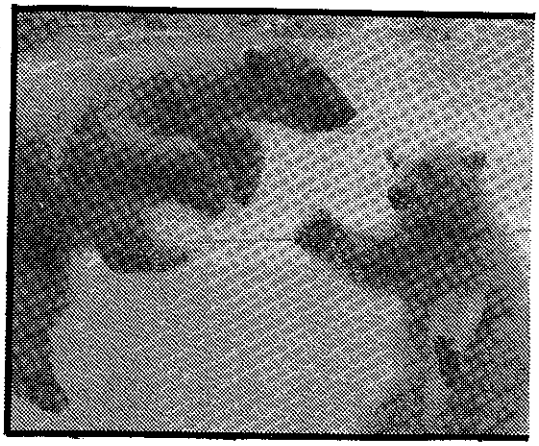
Animals need homes suited to their individual needs. In a zoo the following factors should be considered:

- Exhibits must **keep people and animals separate** where required.
- Exhibits must allow the public the opportunity to view the animals while insuring that the animal has private areas in which to feel safe
- **Provide shelter.** From winter, sun, rain and people.
- Consider **special needs** for **light, temperature** and **humidity.**



- **Climbing structures.** Areas for exercise, to stimulate natural behaviour, to act as nest sites.
- **Building material** must be supplied. Plants, mud, etc. for nests and to help elicite natural behaviour.
- **Rubbing posts,** rocks. To rub against in order to loosen fur, velvet from antlers, help in shedding, for scratching.
- **Water.** Swimming, exercise, baths, defecating.
- **Playthings.** For exercise and to keep animals enterntained and behaving in a natural manner.
- **Rocks.** Climbing, wearing down hooves.
- **Feeding.** Special stations for food, food for occupational purposes.

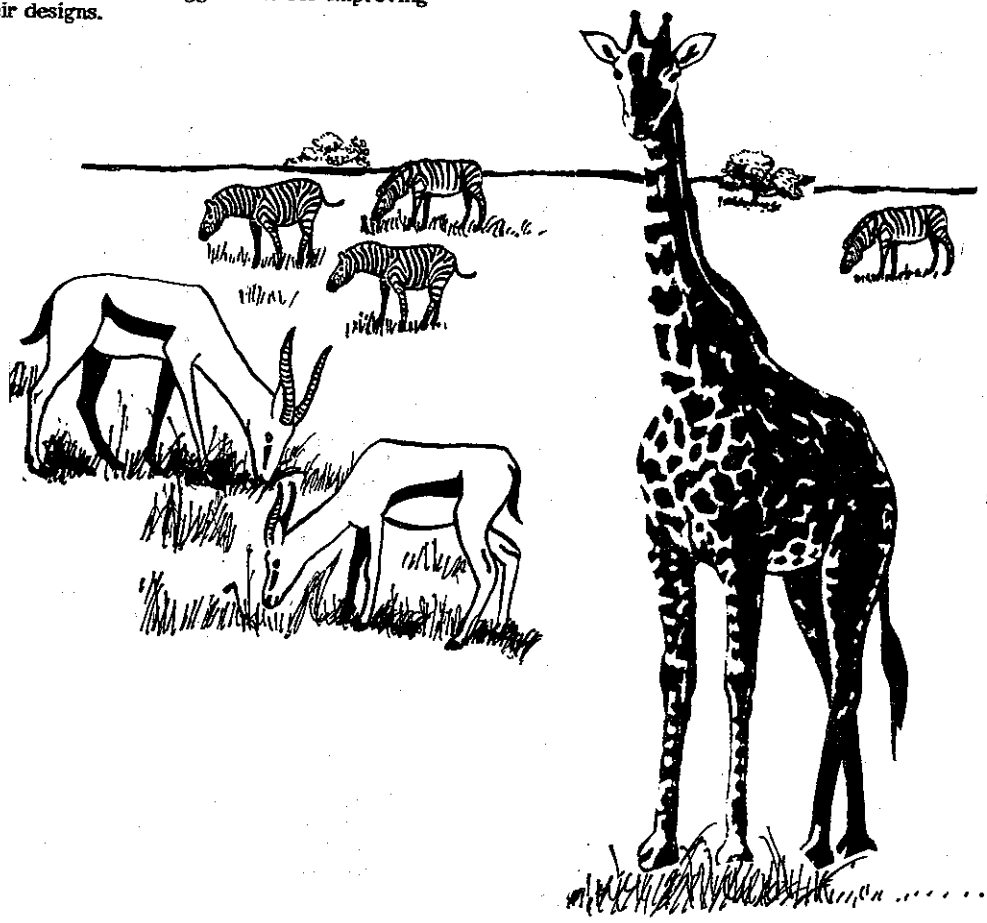
Have each student select an animal. He/she must determine its special needs It is valuable to ask questions such as: Would the animal be found in a herd or a small group? Is is a diurnal or nocturnal animal? What would its habitat be? What are its unique features?



Polar bears at the Metro Toronto Zoo have a uniquely designed exhibit incorporating land areas with rocks for sunning and a large pool for exercise and play.

After each student has determined their animal's special needs they should work towards designing a zoo exhibit in which to house their animal. Exibits can be designed on paper or you may wish to develop the project further using paper mache, clay, wood etc. to construct actual exhibits.

After you have completed your zoo discuss the different exhibits and how they were planned. Students may wish to discuss the pros and cons of their design and offer each other constructive suggestions for improving their designs.



THE CONSERVATION COUNCIL OF ONTARIO

A Consensus on Conservation

Every environment-related organization in Ontario has a slightly different concept of conservation and, hence, different priorities - the conservation of soil, natural resources, wildlife, a river system, or a life style. The task is to combine these different perspectives into a unified, comprehensive strategy for incorporating conseration into the management of Ontario's economy. Hence, The Conservation Council of Ontario, a forum for research, discussion and action on current environmental issues.

The Conservation Council of Ontario was founded in 1951 by the late Frank H. Kortright. It is a non-profit, non-political public service body composed of 32 groups representing people from many walks of life: businesses, both large and small; labour; the professions; naturalists groups; and a diversity of research and teaching disciplines. Together our Member Organizations represent over one and one-quarter million constituents. The current representatives to Council from C.O.E.O. are Phyllis Hill and Brent Dysart.

CURRENT PROJECTS/EDUCATIONAL AIDS

1. Ontario Conservation Strategy: Working with the Provincial Government, the Council is currently producing an assessment of the ability of existing legislation and policy to solve the major environmental issues. This report, to be released early in 1986, will make recommendations relating to the priority concerns in six areas: Agriculture, Forestry, Land-Use Conflicts, Water Resources, Waste Management, and Wildlife and Natural Areas.

2. Slide-Tape Shows: Two 10-minute slide-tape shows for the general public will be available for distribution in 1986.

   Using Water - shows the many uses of water in our society and the impact of development on supply, quality and the water cycle.

   Preserving Our Natural Heritage - looks at the conflicts between economic growth and natural heritage protection.

3. Ontario Conservation News: For information on Council activities, current events in Ontario, upcoming conferences and new educational materials, the Ontario Conservation News is a must.

   Published 11 times a year, this four-page newsletter will keep you informed at a glance of what's happening on the conservation scene. Subscriptions cost $20. per year.

4. Worldwatch Papers (From Worldwatch Institute, Washington, D.C.)

Looking for a concise source of information on current issues?

Check out the Worldwatch Papers - a series of well researched, 60 to 100 page Papers presenting the conservationist perspective on a wide range of global issues.

For example - here are some quotes from No. 67, the September 1985 Paper "Conserving Water: The Untapped Alternative":

"Only by managing water demand, rather than ceaselessly striving to meet it, is there hope for a truly secure and sustainable water future."

"Placing a tax on groundwater pumping wherever aquifers are being depleted would help equate private and social costs, and encourage conservation."

"Worldwide the efficiency of irrigation systems is estimated to average only 37 percent."

"Putting conservation to work in meeting long-range water needs is a relatively new idea."

"An investment in irrigation efficiency is also an investment in the productivity of crops and soils."

"Simply installing a low-flow showerhead can lower the year's electricity bill for a family with an electric water heater by about $100."

"Failure to address the inefficiency, inequity and unreliability of irrigation systems will set back the momentum in Third World food production."

"More than 80 percent of the world's cropland is still watered only by rainfall."

"Technology alone cannot close the growing gap between regional demands and supplies."

"Pricing water below its true cost is tantamount to accepting 'an inability to meet tomorrow's demands.'"

For a complete list of available Worldwatch Papers see the following two pages.

Please send me the following Worldwatch Papers (prices are shown at the end of list)

_____ copies of Paper No. _____ Cost: $ _____

_____ copies of Paper No. _____ Cost: $ _____

_____ copies of Paper No. _____ Cost: $ _____

Please send me the Ontario Conservation News ($20 for 11 issues/year) Cost: $ _____

Total Cost: $ _____ (enclosed)

NAME: _____

ADDRESS: _____

_____

Postal Code: _____

Send to:

The Conservation Council of Ontario
Suite 202, 74 Victoria Street
Toronto, Ontario M5C 2A5

TITLES OF WORLDWATCH PAPERS

1. The Other Energy Crisis: Firewood by Erik Eckholm
2. The Politics and Responsibility of the North American Breadbasket by Lester Brown
3. Women in Politics: A Global Review by Kathleen Newland
4. Energy: The Case for Conservation by Denis Hayes
5. Twenty-two Dimensions of the Population Problem by Lester Brown, Patricia McGrath, Bruce Stokes
6. Nuclear Power: The Fifth Horseman by Denis Hayes
7. The Unfinished Assignment: Equal Education for Women by P. McGrath
8. World Population Trends: Signs of Hope, Signs of Stress by Lester Brown
9. The Two Faces of Malnutrition by Erik Eckholm and Frank Record
10. Health: The Family Planning Factor by Erik Eckholm, Kathleen Newland
11. Energy: The Solar Prospect by Denis Hayes
12. Filling the Family Planning Gap by Bruce Stokes
13. Spreading Deserts - The Hand of Man by Erik Eckholm, Lester Brown
14. Redefining National Security by Lester Brown
15. Energy for Development: Third World Options by Denis Hayes
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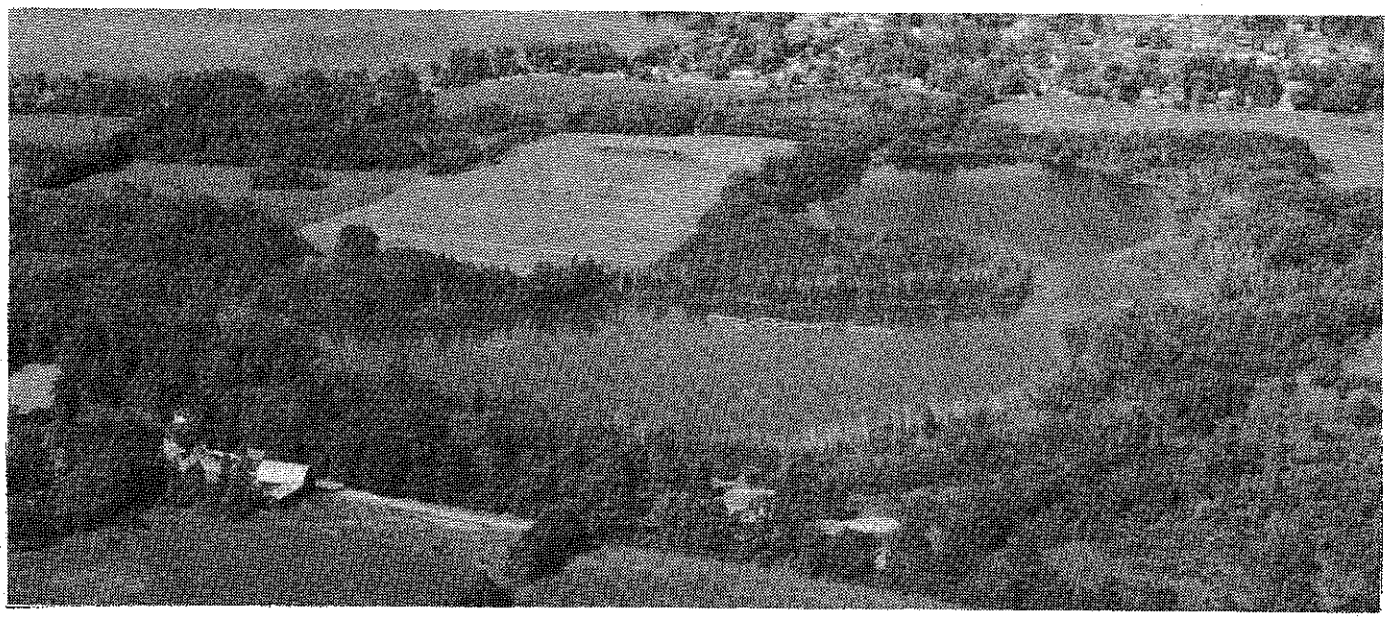
Field Centre Report:

LAKE ST. GEORGE, Metropolitan Toronto and Region Conservation Authority



An aerial view of Lake St. George, taken from the northeast. Wilcox Lake is in the upper left area of the photo.

ON THE PATH TO A BETTER UNDERSTANDING by Dennis Hitchmough

As outdoor educators interested in helping students to be aware of environmental problems, a number of outdoor centres offer programs on conservation themes. These obviously help students to become more aware of the world around them, and develop an appreciation for and wonder in nature.

Lake St. George Conservation Field Centre is in a unique position to offer extensive conservation programs to all ages. Built on the eighteenth century estate of Henri Quetton St. George, this 140 hectare (340 acre) property is centered on a kettle lake in the Oak Ridges moraine area beside the Lake Wilcox community. It's dotted with varied habitats in many stages of natural succession. Students can observe, inventory, and analyze these situations and draw conclusions about natural change. The Centre, however, has carried these studies one step further. Habitat manipulation programs have been designed to demonstrate current techniques and allow the students to become more aware of the positive, as well as the negative, factors involved when man "lends a hand to nature."

The Centre, with the assistance of Ducks Unlimited and Conservation Services, has proposed a two acre pond, suitable for ducks, to be developed where a barn and farm house were removed. The soil and pasture lends itself well to a variety of support plantings to attract wildlife. This long range plan would be completed with student assistance. Student workers currently involved with this program are introduced to a variety of techniques and, after completing an inventory of the area, propose a suitable site plan for the development of a wildlife area. Their pro-

posals are then presented to a panel of teachers representing an environmentalist, a banker, a mayor, a farmer, and/or any other concerned individual. After extensive discussion and comparison to the Centre's master plan, students are given an opportunity to implement compatible suggestions from their plans.

Another program is based on the work being done at Lake St. George by York University. For the past several years, University researchers have been studying Lake St. George by using large containment pens called limno corrals. These isolated bodies of water are used to develop cause and effect relationships with regard to the food chains in our lake. After the particularly long, hard winter of 1981, many species of fish died in the lake due to lack of oxygen. With the heavy snow cover, that "winter kill" selectively removed the large predators and allowed an increase in the zooplankton eating fish. York researchers, in co-operation with the Ministry of Natural Resources, have developed new, more efficient techniques for the breeding and release of fish into a lake. After extensive research, large quantites of Walleye were released into Lake St. George. These predators should limit the zooplankton eating fish and rebalance the food chains as they were in the past. [see Editor's note]

Students wishing to better understand these programs can inventory the lake using 18 metre (60 foot) seine nets set from row boats under the watchful eyes of our instructor/ lifeguard. Once captured, the fish species are identified and studied for size, number, and habitat preference before being released. Other aspects of the lake's biosystems can be studied safely from the stable deck of our pontoon boat, literally a floating classroom. After a discussion with our staff, and often with the York researchers, fish management through biomanipulation of food chains is better understood from a practical as well as scientific viewpoint.

These are only two of the conservation education programs being offered at Lake St. George. Students, having completed these mini-courses, are much better equipped to intelligently discuss the effects of man's impact on the environment.

Dennis Hitchmough is an instructor at the MTRCA's Lake St. George CFC.

[EDITOR'S NOTE: Fish have been evolving for more than five hundred million years. It is interesting to note that scientific man, in the last few years, has found "new, more efficient techniques for the breeding and release of fish into a lake." The natural predator of Lake St. George is the pike. During that winter kill of 1981, the shores of the lake were covered with thirty to thirty-six inch fish when the ice went out. How did the pike get there? The lake is the source of the East Humber River. Lake St. George empties into Wilcox Lake, and Wilcox flows across Yonge Street into the East Humber. A few years ago, the Ministry of Natural Resources put a flood control dam on the Yonge Street outflow of Wilcox Lake. The pike fishing in Wilcox dropped off since the pike could not get over the dam to spawn in Wilcox and Lake St. George. Local fisherman say that the pike are thick below the dam in spawning season, but the Ministry of Natural Resources will neither basket nor ladder the fish over. Now that man has impacted the system, he returns to make it all better by introducing a new predator, the walleye, into Lake St. George. Does it happen to be coincidence that the walleye is a more marketable game fish? Of course it is, just like having Ducks Unlimited design the duck pond. Murphy's Law applies all to well to the Conservation of our Natural Resources :

"Whatever they're talking about, they're talking about money."]

Hook your class on winter habitat as they try to keep their Jello babies "alive"!

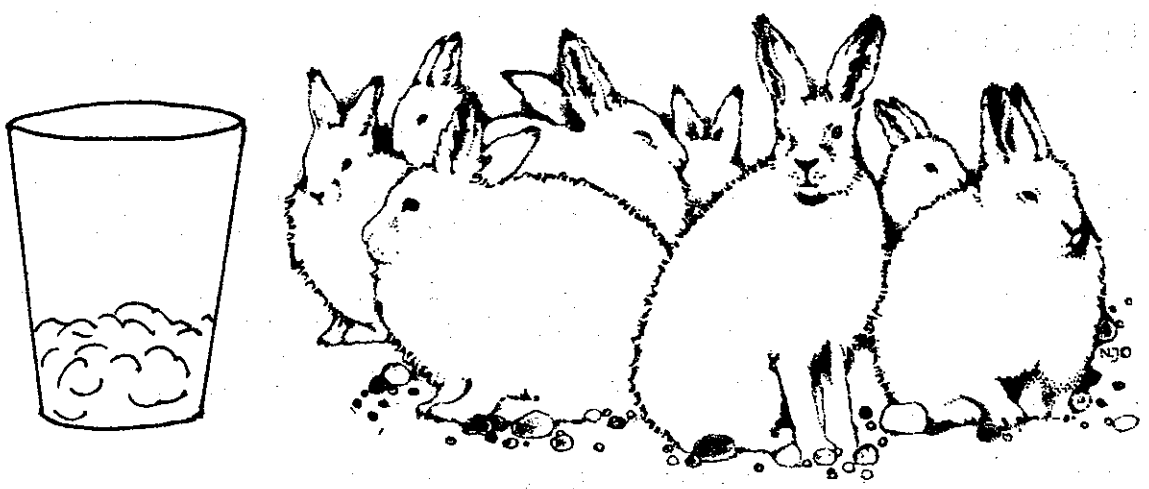
PURPOSE: A) to determine what spots are good sleeping places for animals in the winter.
B) to determine how shape and size affect heat loss.

EQUIPMENT: -gelatin
-paper cups (various sizes) with lids
-measuring cups/spoons
-watch

METHOD:
1. Divide the class into groups of two or three.
2. Give each team a paper cup partially filled with gelatin (equal).
3. Instruct each group to find or make the warmest sleeping spot that they can for their gelatin animal. They may dig, tunnel, or line a hole with any available material.
4. Time how hard it takes for the gelatin to become too hard to pour.

OPTIONS: a) Put the same amount of gelatin into two different containers, one wide and the other thin.
b) Double or triple the amount of gelatin in selected containers.

DISCUSS:
1. Why will the gelatin freeze, but rabbits and squirrels won't?
2. Which gelatin froze first in terms of shelter?
3. Which gelatin froze first in terms of shape (stocky vs. skinny)?
4. Which gelatin froze first in terms of volume (small vs. large)?
5. Apply what we learned about the Jello babies to real animals:
-Where are the warmest wintering spots?
-How does surface area (shape) affect heat loss?
-How does volume (size/amount) affect heat loss?



Sue Brown

photo contest : THE RESULTS ARE IN!

Congratulations to all of those interested photographers who participated in the COEO/PHOTEO Contest.

It was very enjoyable to view all of the excellent shots with Len Cobb, who had a special comment for every photo. It is very difficult to reproduce some of the colour slides and prints, which were very large and even framed! Here is a list of our winners, and a sample of photos from the contest.

Watch for future COEO contests!

The Communications Committee

COLOUR SLIDES

People in the Outdoors	1. Jerry Best (mountain-climbing) 2. Joan Millard (man & canoe)
Wildlife	1. Audrey Wilson (owl) 2. Barrie Martin (feather on water)
Landscape	1. Louise Rutten (mountain) 2. Jerry Best (shore with canoe)
Nature *added category in this grouping	1. Jerry Best (berries) 2. Barrie Martin (drops on grass)

BLACK AND WHITE

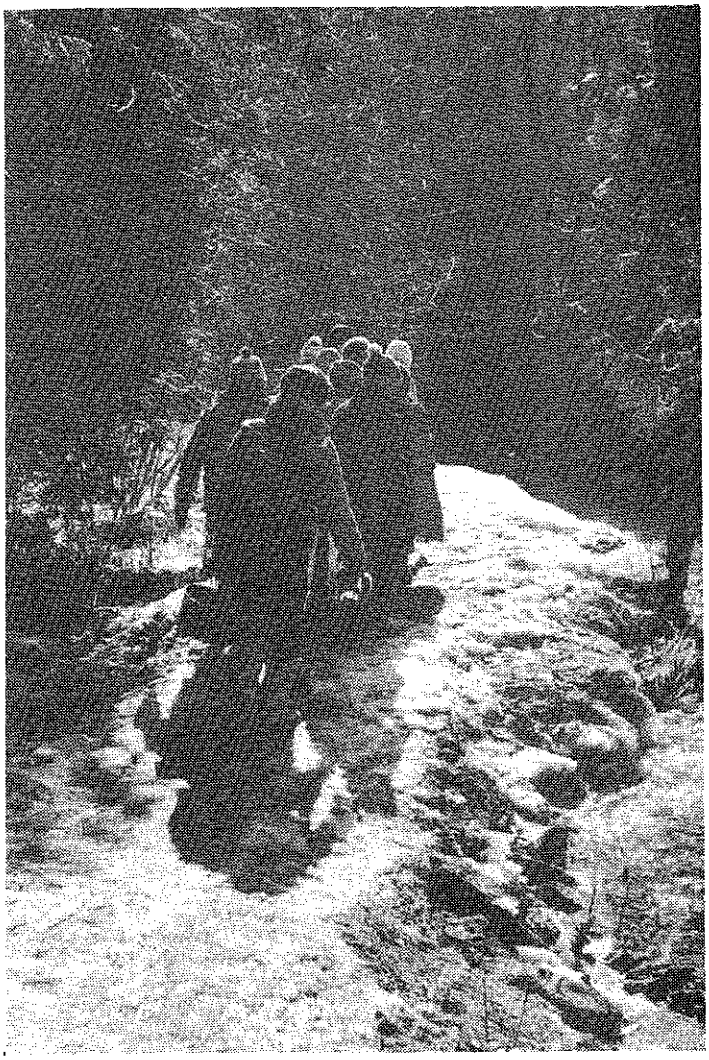
People in the Outdoors	1. Rob Alsop (spring hike) 2. Sandra Hannah (kids and bus)
Wildlife	no prizes awarded
Landscape	1. Grant Vipond (winter creek) 2. Lloyd Fraser (ski trail)

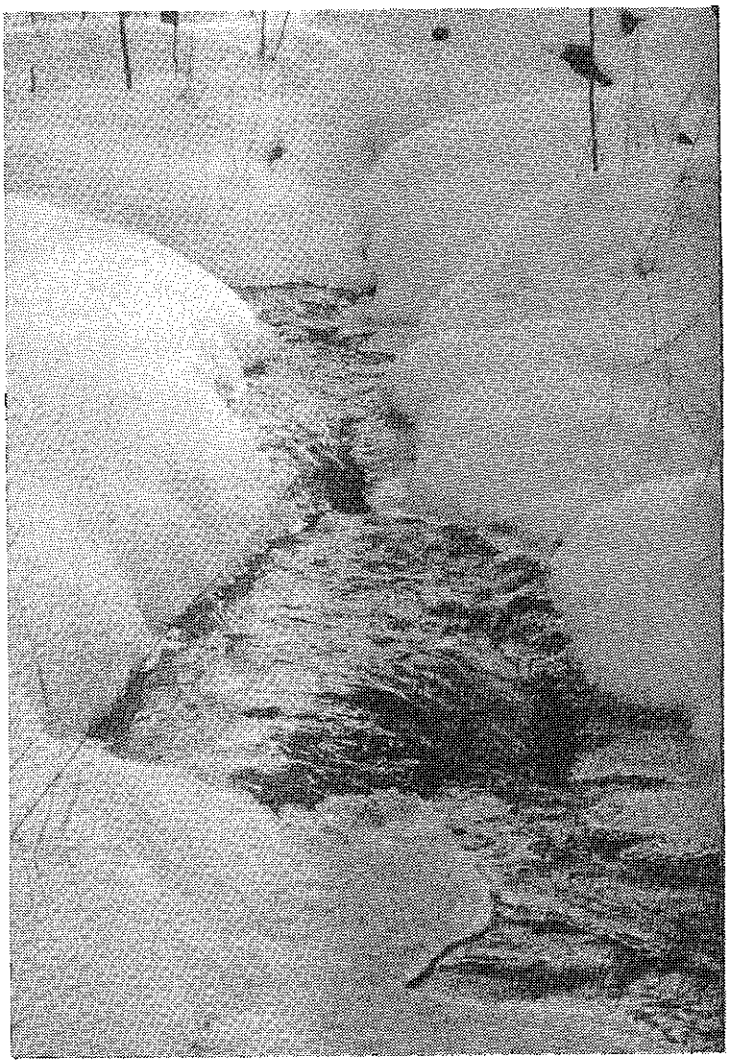
COLOUR PRINTS

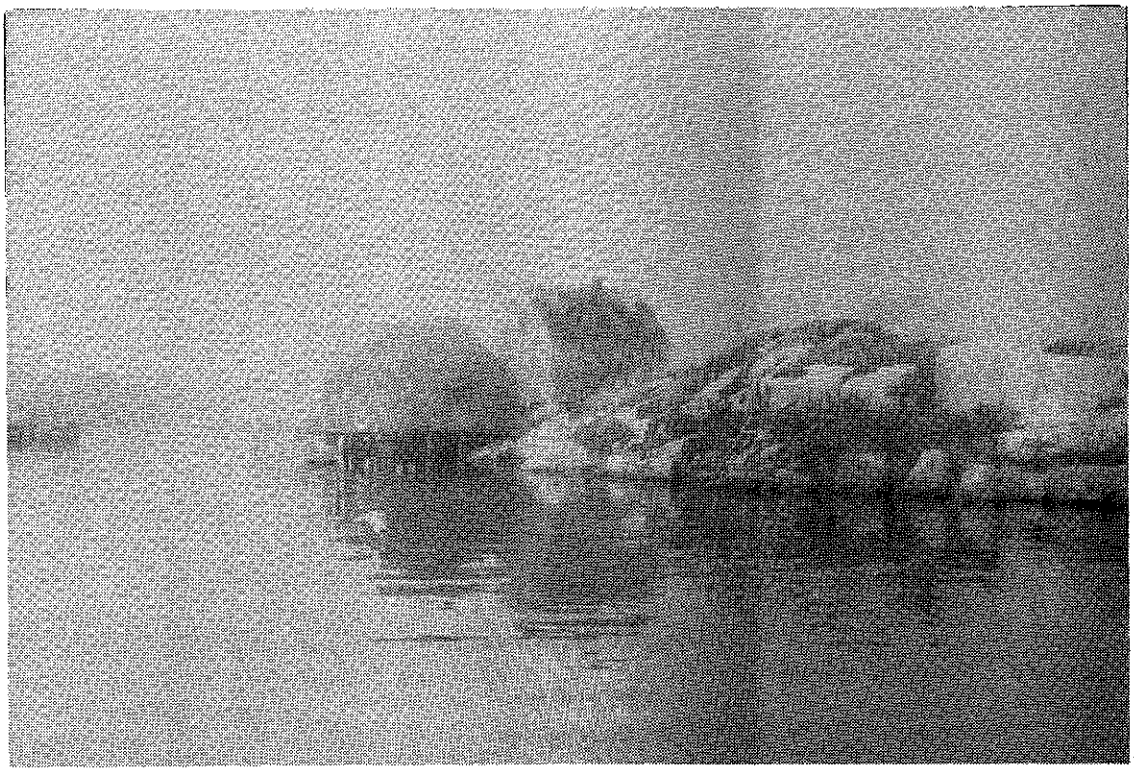
People in the Outdoors	1. Lloyd Fraser (snowshoeing/escarpment) 2. Rob Alsop (shoes)
Wildlife	1. Rob Alsop (snake) 2. Audrey Wilson (butterflies)
Landscape	1. Lloyd Fraser (mountain ghost)** 2. Lloyd Fraser (cypress hills)

GRAND PRIZE **Lloyd Fraser, Mountain Ghost Free Conference

JUDGE: LEN COBB, PHOTOGRAPHER, KODAK CANADA INC.







PHOTOGRAPHERS:

top left-
Rob Alsop,
"Spring Hike"

top right-
A. Grant Vipond,
"Winter Creek"

lower-
Louise Rutten,
"Sea Mist"

KILOMETERS FOR COEO

JUST WHAT WE'VE ALL BEEN WAITING FOR! IT'S THE DYNAMIC DUO OF CATHY CASSEL AND BARB RUBIE (the COEO senior women's marathon canoe team) TRYING THEIR BEST TO PADDLE 3000 KILOMETERS FOR COEO - IN THE MIDDLE OF WINTER - ON A "MAD RIVER" PADDLING MACHINE. YOU CAN USE THE OFFICIAL PLEDGE SHEET BELOW, OR YOU CAN CALL 898-5437. IF YOUR ENERGY ALLOWS, SIGN UP FRIENDS AND COLLEAGUES TO SUPPORT THE TEAM IN THIS TREMENDOUS CAUSE OF SELFLESS ENVIRONMENTAL CONCERN. ALL PROCEEDS WILL BE GOING TO DEVELOP AND COMMUNICATE SOUND ENVIRONMENTAL PROGRAMS AND INFORMATION IN COEO FOR THE GOOD OF OUR MEMBERSHIP AND OUR CLIENTS. THE FUTURE OF ONTARIO'S ENVIRONMENT IS IN YOUR HANDS - SIGN UP/CALL IN TODAY. COEO NEEDS YOU!

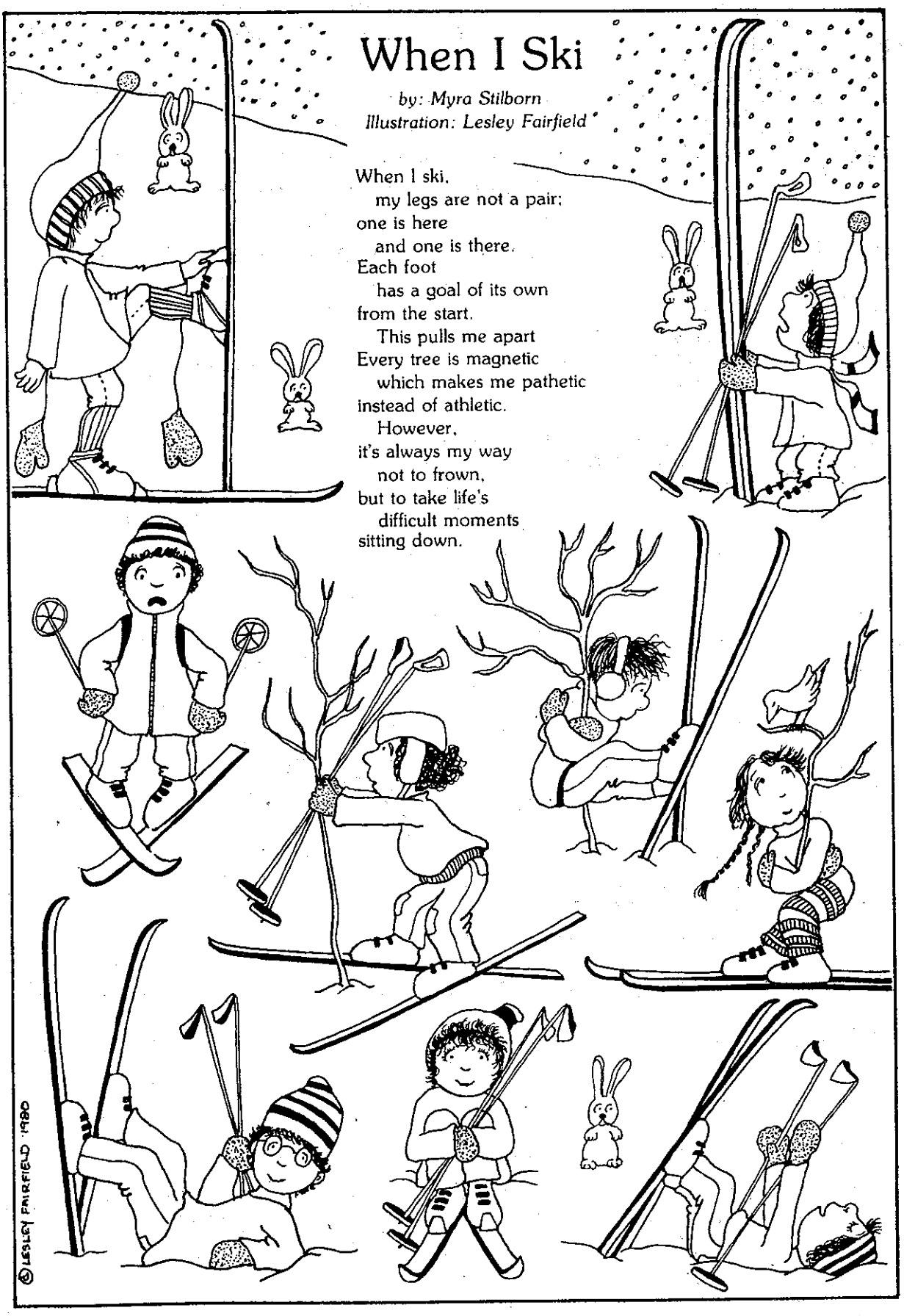
KILOMETERS FOR COEO - PLEDGES

NAME	ADDRESS	¢ PER KM	TOTAL

Please send your pledge totals in to Anee.

Kidstuff:

Remember the first time your class went skiing? Here is a child's poetic viewpoint, reprinted from The Childrens Annual.



4th ANNUAL VOLKS-SKILAUF

FEBRUARY 8 1986

PLEASE PRAY FOR SNOW THIS YEAR!

10 A.M. - 5 P.M.

CEDAR GLEN, BOLTON, ONTARIO

COEO

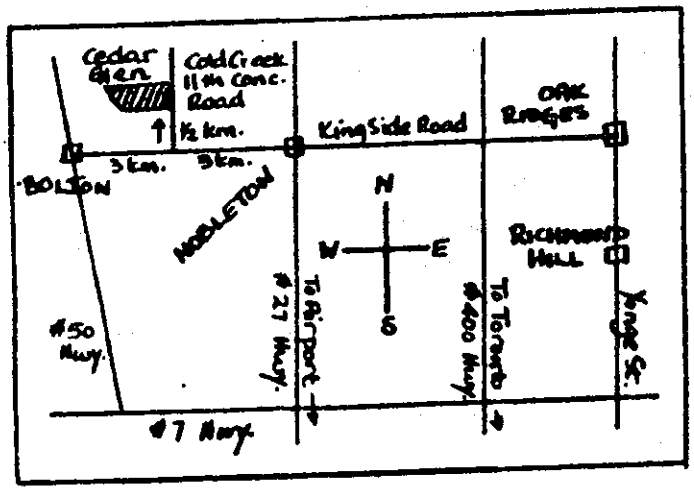
VOLKS - SKILAUF

Come and join us for a family cross-country ski day at the Glen. Groomed and marked trails lead skiers up and down the Caledon Hills, finishing off with a hot drink, a hearty meal, and friendly folks. Your registration fee includes equipment (if necessary), lunch, a button and a variety of hot drinks.

Tubing will be available again this year as well as a mini-winter carnival with events for all ages.

COEO members:	Adults	$ 12.00	Non-members:		$ 15.00
	Children	$ 8.00			$ 8.00
	Family Rate	$ 35.00		Family Rate	$ 40.00

Pre-registration is a must as numbers are limited.
Make cheques payable to: Central Region COEO
Address registration forms to: Nancy Payne
Cedar Glen O.E.C.
Box 345
Bolton, Ontario
L0P 1E0



Names _____ COEO no. _____

Address _____ Phone (B) _____

(H) _____

No. of people attending: Adults _____ Children _____

Equipment required: Yes _____ No _____ Fee enclosed _____

In the event of cancellation due to inclement weather, a $2.00 administrative fee per person will be retained, and the balance refunded.

COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO

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I am in the _____ Region of COEO (see listing below)

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Please check: NEW _____ RENEWAL _____ CURRENT MEMBERSHIP NO. _____

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