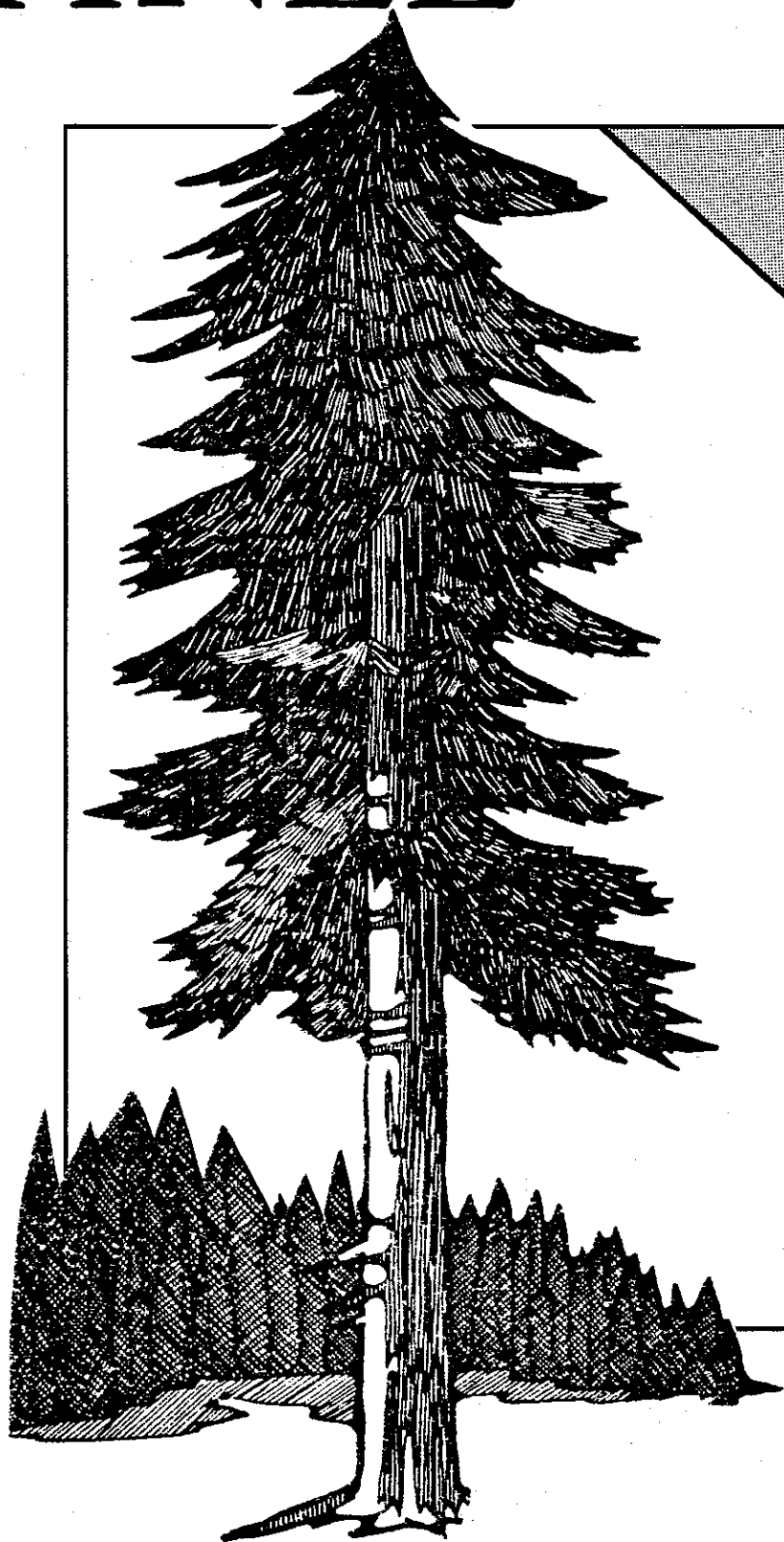


ANEE NEWS-JOURNAL



September 29 - October 2
In Quest of New Horizons
in Outdoor Education
Conference '88 Registration
(see inside for details)

**Forestry
Education**

Volume 17, Number 4

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The Council Of Outdoor Educators Of Ontario

The Council Of Outdoor Educators Of Ontario

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ANEE

The Council of Outdoor Educators of Ontario

March/April Volume 17, Number 4

Forestry Education

President's Message	2	Cathy Beach
Coeo Calendar	3	COEO special events!
In the News	4	Current activities on your behalf
Directors Colloquium	4	
COEO Curriculum Committee	4	
ORCA Events	4	
No Frills Camping Weekend	5	
Puzzled?	6	a NEW Anee feature
Outdoor Education Assistants Wanted	7	
The Idea Book	7	
Outdoor Education Facility Design Criteria	7	
MPWW IX	8	
Spring Celebration	9	Are you registered yet?
Focus on Forestry Education	9	Susan Wiecek
Why Forestry Education	10	Bill Andrews
OFA and the Forestry Story	12	Jim Coats
Conference '88 Registration	13	In Quest of New Horizons
Forestry Education, K-OAC	22	Mary Demers, Dave Higgins, Jack Mali, Donna Shaddick
Forest Management Activities	25	Terry Carr and the Boyd CFC Staff
How Do Forest Animals Cope with Snow?	28	Larry Weido
If a Poplar Fell in a Forest without Someone to Harvest It, Would It Still Be a Weed?	30	Bruce Murphy
COEO Mail Order Service	32	Come and Get It Again!!

Anee is an Ojibway word used when greeting a friend

Editors:
Dennis Hitchmough
Bill Andrews

Deadlines:
May/June 'Urban Studies' - April 20
July/August 'Book Reviews' June 20

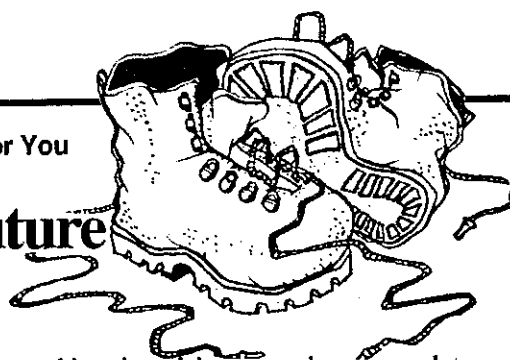
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Opinions expressed in ANEE are not necessarily the formally approved
views of COEO unless expressly stated as such.

President's Message

Your Advisory Board at Work for You

3 steps into the future



Every year, the Advisory Board develops goals and objectives for COEO to achieve in striving towards our mandate; the promotion and development of Outdoor Education in the province of Ontario. Here are just 3 of what your Advisory Board is doing for you and for Outdoor Education this year.

1. Volunteer Management: The Most Important Renewable Resource

At last, finally, we have a long-sought Volunteer Co-ordinator, Loren Patterson. Loren's job will be to help assist volunteers work with volunteers.

For COEO is definitely a people-organization: everything we do is accomplished by so many people working voluntarily with other people for other people. And for the dream of outdoor education throughout Ontario. From Thunder Bay to Ottawa and London Ontario, COEO is people volunteering to work on behalf of a dream. We believe our volunteers deserve to be taken care of. Loren has been setting up a computerized volunteer data-bank and net-working system, as well as a Resource Support Guide for COEO leaders in key positions. In September, Kate Wiele will present a workshop on Volunteers at our Annual Conference at Bark Lake. Together, we hope to improve our effectiveness as an organization through strong and healthy volunteer base: COEO people are our most vital resource!



2. Provincial Liason Symposium: Taking the Leading Edge

With so many organizations and associations in Ontario working towards related and similar goals, COEO has initiated the hosting of the first symposium of representatives from various outdoor/environmental/education and recreation groups throughout Ontario. In doing so, COEO endorses the Ministry of Tourism and Recreation's most recent policy statement:

"The partnership between public and private agencies is critical for the future in order to minimize duplication of effort and to ensure that all resources are used to meet recreation needs in an efficient manner."

From this symposium, all of the participating organizations and agencies stand to gain:

1. Improved communications between groups.
2. Greater awareness of goals and services of various agencies and organizations.
3. Co-operation and support for possible future joint projects

And on top of all this, through the efforts of Clarke Birchard (Vice-President), Norm Frost (Task Force), and all of the hosting Advisory Board members, COEO stands to gain support and a sense of pride in once again, taking the leading edge. Good Luck and the best of success!

3. ANEE Special Task Force: of Dreams and Schemes...

Based on a directive from the Advisory Board, a special task force has been meeting once a month to investigate the future possibilities and present concerns of developing COEO's NewsJournal, ANEE, into an even more attractive, professional and cost-effective publication of Outdoor Education in Ontario.

Dennis Wendland (Chair), Dennis Hitchmough (ANEE Editor), Bill Andrews, Bob Henderson, Ralph Ingleton and Jim Raffan, have been working together to do some dreaming and scheming as to how a volunteer organization such as ourselves can possibly do more than the impossible. Our volunteer editor is already struggling to work on volunteer time, with only volunteer help, to produce one of the highest quality publications of a volunteer organization in Ontario. How can we do better???

Have no doubt that when the jury is in, this task force will have presented us with some plans and possibilities, of dreams and schemes....

Then the Advisory Board will be challenged with finding a way of doing them! If their present productivity and commitment is any indication, watch for positive future developments...

March

- 2** Central Region
Brain Mapping Session;
Forest Valley OEC
- 12** Northern Region
Dog Sledding
Temagami Wilderness Centre
- 30** MTR - Grant Reports Due

April

- 12** Eastern Region
Spring Equipment Night
Trailhead Ottawa
- 13-14** Seminar of Directors of Centres;
Mono Cliffs OEC
- 15-16** COEO Symposium for
organizations involved in
Outdoor Ed. & Rec.
- 22-24** Eastern Region
Spring Symposium;
- 28** COEO Colloquium for
organizations involved in
outdoor environmental
education and recreation.
- 29-30** COEO Advisory Board
Fall Retreat;
Bark Lake
- 30** Central Region
Canoeing at Botanical
Gardens

May

- 6-8** Northern Region
Spring Celebration;
Leslie M. Frost Centre,
Dorset
- 28-29** Central Region
No-Frills Camping Weekend;
Cedar Glen OEC

June

- 9** Central Region
BBQ; Forest Valley
- 16** Advisory Board Meeting

Graduate Course in Outdoor Education

CIOE 530: Curriculum Development for Outdoor Education

Instructor:- Bud Weiner

Emphasis:- Developing and Assessing
Curriculum Materials

Topics:-

- The role of the practitioner in developing outdoor education materials.
- The role of the Ministries, organizations and publishers in curriculum development for outdoor Education.
- Survey, critique and selection of outdoor oriented materials.
- Developing simulation lessons and activities for outdoor education.
- Designing and producing curriculum materials for outdoor instruction and program development.
- Organizing and carrying out a Outdoor Education Curriculum Materials Fair (tentative)

Dates: March 26-27, 1988
April 9-10
April 23-24
May 14-15
May 28-29
(make-up dates if needed)

Location: Toronto area

Fee: \$300

This programme is offered with the permission of the Ministry of Colleges and Universities of Ontario who requires that we advise you that "The Ministry of Colleges and Universities does not endorse this programme of studies or certify that it meets Ontario University standards. In addition, it cannot guarantee that the degree that the degree will be recognized by Ontario Universities and employers.

You are advised that the NIU degree is deemed "an approved Master's Degree in Education" for QECO Evaluation Programmes 3 and 4, and it is evaluated by QECO as "no less favourable but no more favourable than degrees taken from recognized Ontario Universities."

Further you are advised that students from this programme have found Ontario Universities willing to accept equivalency when credits are being transferred to the Ontario University. Some Ontario Universities will only accept courses which they consider appropriate for the programme of studies undertaken at the Ontario University.

*For further information contact Mark Whitcombe,
34 Blindline, Orangeville, Ontario, L9W 3A5,
Home (519) 941-9966 or Messages (416) 465-4631
Reservations require a \$50 deposit.*

In the News

Colloquium for Directors of Field Centres

The Professional Development Committee of the Council of Outdoor Educators of Ontario announces a Colloquium for Directors of Field Centres. The purpose of this Colloquium is to bring together Directors and Managers of Outdoor Education and other Field Centres which deal on a regular basis with school children. This will include both Day Centres and Residential Centres. The event will be held at the MONO Cliffs Outdoor Education Centre on **April 13-15, 1988**. If you feel that the opportunity to exchange ideas both formally and informally with your peers would be of benefit, contact

*Lloyd Fraser,
c/o Kathleen Huntingford, Outdoor Education North York Board of
Education, 5050 Yonge Street, Willowdale, Ontario, M2N 5N8.*

COEO Curriculum Committee

Does it Again!

Science is Happening Here is the new, soon to be released Ministry policy statement for Science in the Primary and Junior grades. Rod Ferguson, a member of our Curriculum Committee, was one of the writers of this document. His role is a visible reminder of the hard work that often goes on in the background. Our committee has a mandate to maintain active liaison with various Ministries and Teaching Federations. It is also involved in the effective utilization of outdoor learnings in a variety of curricula and is seeking to develop appropriate materials to assist teachers in using the out-of-doors more effectively. Your committee members are John Aikman, Alan Watson, Donna Reid, Marlene Hume, Arnis Pukitis, Wally Poole, Rick Briese, Rod Ferguson, Audrey Wilson, Terry Rigg, Janet Buntin and Doug Herridge.

Did you know...

...that COEO has a charitable tax status?

Consider giving a donation to COEO to help the organization to further the growth of Outdoor Education in Ontario. All donors of \$25 and over will be issued a charitable income tax receipt.

Donations, payable to COEO, should be sent to:

John MacEachern, Treasurer, RR#4, Tottenham, Ontario, L0G 1W0



The ONTARIO RECREATIONAL CANOEING ASSOCIATION (ORCA) is one of four organizations affiliated with Canoe Ontario. ORCA concerns itself with the interests of recreational canoeists in the province and was established to promote the SAFE, COMPETENT, and KNOWLEDGEABLE recreational canoeists. The organization has developed programs of instruction for Lakewater paddlers, Moving Water paddlers and for Canoe Tripping paddler enthusiasts. Each year ORCA offers courses to canoeists who wish to be certified as canoeing instructors. The courses and dates are as follows:

Moving Water Level III (Instructor)
Thurs., May 19 (Noon) to Tues., May 24 (NOON)
Lakewater Level III (Instructor)
Fri., June 17 (pm) to Sun., June 26 (Noon)
Lakewater Level III (Instructor)
Fri., Sept. 23 (Eve) to Sun., Sept 25 (Eve)
and Fri., Sept. 30 (Eve) to Mon., Oct. 3 (Eve)
Canoe Tripping Level III (Instructor)
Fri., June 17 (pm) to Sun., June 26 (Noon)

For more information regarding these courses, write to Ontario Recreational Canoeing Association, 1220 Sheppard Ave. E, Willowdale, Ontario, M2K 2X1, (416) 495-4180.

Western Region CANSI Ski

Western Region and CANSI (Canadian Association of Nordic Ski Instructors) held a ski workshop on January 9 and 10 at Bingeman Park, Kitchener. Peter Rasberry of Laurel Creek OEC and CANSI organized the weekend and was our instructor. On the 9th, twelve people turned out for the Pre-Level 1 workshop. There was also an equipment expo so we all got to see the latest in Nordic ski gear. Seven people attended the "Introduction to Instruction" workshop on January 10th. This new program offered by CANSI is ideal for educators who offer ski programs and want to learn new teaching techniques.

The weather was fine both days - sunny and cold - but a little too breezy. The snow conditions, however, were marginal which provided us all with a built in excuse for our many falls and technique boondoggles.

Peter introduced many excellent teaching techniques including: "motion on skis" concept of playing games and dancing on skis to build confidence and the use of a video to evaluate your technique that are fun and effective. These were used in relation to diagonal stride and skating styles of skiing.

An enjoyable, fun, informative - and tiring - weekend for us all. Thanks Peter!!

Kevin Ferguson

COEO Central Region

May 28-29, 1988

NO FRILLS CAMPING WEEKEND

- | | |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Saturday am - | Arrive at Cedar Glen OEC and set up your tent.
Lunch provided |
| Saturday pm - | Tentative sessions planned are on pioneer crafts, adventure playgrounds, earth education, campcraft, knots and birds. |
| Saturday Evening - | Owl prow, campfire and singsong |
| Sunday am - | Enjoy the outdoors, Games and initiative tasks |
| Sunday pm - | Homeward Bound |

Call Nancy at 630-6263 (W) for details if interested in attending. Bring your own camping gear and food.

All I Ever Really Need to Know I Learned in Kindergarten

Most of what I really needed to know about how to live, and what to do, and how to be, I learned in Kindergarten. Wisdom was not at the top of the graduate school mountain, but there in the sandbox at nursery school. These are the things I learned: Share everything, Play fair, Don't hit people, Put things back where you found them, Clean up your mess, Don't take things that aren't yours, Say you're sorry when you hurt someone, Wash your hands before you eat, Flush, Warm cookies and cold milk are good for you, Live a balanced life, Learn some and think some and draw and paint and sing and dance and play and work every day some, Take a nap every afternoon, When you go out into the world, watch traffic, hold hands and stick together, be aware of wonder, Remember the little seed in the plastic cup. The roots go down and the plant goes up and nobody really knows how or why, but we all like that. Goldfish and hamsters and white mice and even the little seed in the plastic cup - they all die. So do we. And then remember the book about Dick and Jane and the very first word you learned, the biggest word of all - LOOK. Everything you need to know is in there somewhere. The Golden Rule and love and basic sanitation. Ecology and politics and sane living.

Think of what a better world it would be if we all - the whole world - had cookies and milk about three o'clock every afternoon and then lay down with our blankets for a nap. Or if we had a basic policy in our nation and other nations to always put things back where we found them and clean up our own messes. And it is still true, no matter how old you are, when you go out into the world, it is best to hold hands and stick together.

Robert Fulgrim, Ministry Emeritus, Edmonds, Wash. United Church.

- Puzzled? -

S F L O W E R I N G D O G W O O D
 D U C A R O T U N L A W K C A L B
 W L T I N I A N C A N A A D A S T
 A C U C U M B E R T R E E P R D E
 R T C S A R F A S S A S H E W W S
 F F R O B C K M T E O Y R O N A T
 C O H Y L T R O **E E E R T P O H** R P
 H W C R A I A A R R N S D S O F T
 E R R O C F B R E T O U M G R H U
 S A I K K N L B D P D C B E N A N
 T D B C G T L A B I Y O O T H C R
 N E Y I U U E R U L T L S H K K E
 U O R H M R H C D U U Y K A E B K
 T S R D O F S D L T N E O C A E C
 O K E E E E G L R I G N A E I R O
 A R H R A N I I D P I O O S I R M
 K N C T P E B W L P P H E E H Y P

FRDAW RCBYEHRAK _____
 MCRUEUCB RETE _____
 GBI RHESLBLKA _____
 KYPIRLC REAP CSUATC _____
 FRDAW NTUSHTec KOA _____

DISCOVER CAROLINIAN CANADA!

Unscramble the following words, circle the individual letters of each of the words in the word search and a hidden message will be revealed.

PHO ERTE hop tree
 PNI KOA _____
 PLIUT REET _____
 FSSSAAASR _____
 CBAKL MGU _____
 EBUL SAH _____
 DRE YHRIOKC _____
 NHEOY TUCLSO _____
 KCBAL TNWUAL _____
 DRE RLBYERMU _____
 BEDDUR _____
 LWDI RCBA _____
 NGTIUP _____
 KRMUTENOC _____
 WPAPWA _____
 RRCYEH CRIHB _____
 ONRWFIGLE WDDG000 _____

Are there any interpreters out there?

XLI RKTZOAHOMN XKII TU TAXMKOT OJ XLI SLOXI ROAI

For starters, that common three letter word "the" appears twice.

-a new feature of ANEE-

designed by John McLaughlin and Kathy Grant
 Comments, ideas and suggestions are welcomed. Please direct
 them to: K. Grant
 #209-485 Kingston Rd. Toronto Ontario M4L 1V6

Outdoor Educational Assistants

The Bruce County Board of Education requires for its Outdoor Education Centre near Warton, Ontario two Educational Assistants. This would be for a period of 11 weeks beginning on or as soon as possible after April 11, 1988. This centre offers residential, camping and one-day programs to students from K to Grade 13. Educational Assistants will work with full time Outdoor Education teachers. Accommodation and some meals are provided. Suitable candidates will combine as many as possible of the following attributes:

Background or education in an environmentally related field
Experience and/or interest in the out-of-doors
Experience and/or certification in first aid, swimming, water safety, canoeing, tripping, orienteering
Leadership ability
Stamina and good personal health.
Aspiration toward a career in Outdoor Education

Apply in writing to:

Clarke Birchard
Supervisor of Outdoor Education
The Bruce County Board of Education
P O Box 190
Chesley, Ontario
N0G 1L0
(519) 363-2014

The Idea Book: A Guide to Successful Programs...

How are schools and teachers beginning to reverse a trend which has limited the participation of many female students in math, science and technology? The Idea Book is a list of projects that improve these opportunities for girls.

The Canadian Teachers' Federation, Ottawa, (613) 232-1505.

Outdoor Education Facility Design Criteria

The University of Waterloo, Department of Recreation, has just published an Occasional Paper entitled Outdoor Education Facility Design Criteria. This document can be purchased at cost for \$10 from the university, care of Dr. Paul Eagles, or directly from the author, Karen Crozman, RR #3, Caledon East, Ontario, L0N 1E0. (416) 880-0488.

Moving??

Please remember to contact the Membership co-ordinator if you have moved or are contemplating a change of address. We would hate to lose contact with you!



The Nottawasaga Valley Conservation Authority has changed the dates of two important events in their region. The Minesing in the Spring Canoe Tour has been moved ahead to May 14 and May 15, 1988. The 5th Annual Conservation Foundation Fund Raising Dinner is now being planned for October 22, 1988. Be sure to check your calendar and mark these new corrected dates.

Anee Does it Again!!

The Far Northern Region ran an incredibly successful Bullets Workshop and sent us some great pictures. What started out as an excellent report was compromised by both the photo work on our part and by our thanking the wrong people. Let's get it straight. The people involved were Michelle Guilmette, Paul Higgins and Shel Lowe. We apologize for the inconvenience and commend them on their tolerance! Stay tuned for more 'Boondoggles'!

Make Peace with Winter IX Again a Wonderful Success !!



Many Thanks to all the Fabulous Participants & Resource Staff
for
Making Peace with Winter - even in the Rain!

Ontario Environmental Network

COEEO is a member of the Ontario Environmental Network and Barrett Greenhow, from the Mono Cliffs Centre, attended one of their conferences and reports...

The aim of the OEN, a non-profit, non-government organization, is to facilitate communication and co-operation among environmental groups in Ontario. It actively attempts to contribute to the enhancement

and protection of the environment.

This particular conference attracted an extremely diverse range of interest groups - all of which would be glad to supply information to any interested person regarding environmental issues.

Over 300 different organizations are members of OEN and include Friends of the Earth, Ont.

Waste Management, Waterloo Public Interest Group and Pollution Probe to name only a few.

Barrett would be interested in supplying a complete list to anyone interested and can be contacted at Mono Cliffs OEC at (416) 452-0505.

COEO NORTHERN REGION PRESENTS

SPRING CELEBRATION

MAY 6, 7, 8, 1988

at the
Leslie M. Frost Natural Resources Centre
Sponsored by the Council of Outdoor Educators of Ontario

A weekend workshop designed to develop outdoor education skills and knowledge for teachers, interpreters, and youth group leaders.
Includes registration, meals, accommodation, COEO

COST: \$ 110.00 per person - includes registration, meals, accommodation, COEO program, and social activities.
Register by April 15, 1988 and qualify for a special prize draw. COEO members will be entered in a members only draw.

For more information call Jan Heinonen at (705) 386-0580 or Susan Christian at (705) 474-5420. A pre-registration package for programs will be sent to applicants.

TENTATIVE PROGRAM
Silver Bullets
Project Wild
Night Learning
Rock Hounding
Forestry Kit
Kayaking
Rock Climbing
Loon Magic
Insects in Spring
Paddle Making
Endangered Sp. Game
Backcountry 1st Aid
and much more

REGISTER NOW! LIMITED TO 160 PARTICIPANTS!

NAME: _____ COEO # _____
ADDRESS: _____ POSTAL CODE _____
OCCUPATION/AFFILIATION _____ PHONE () _____
PREFERRED ROOMMATE _____ SMOKER? _____

* Make cheque payable to "COEO SPRING CELEBRATION" and mail to: REGISTRATION, c/o Linda McKenzie, Box 324, South River, Ontario P0A 1X0

Focus on Forestry Education

*Susan Wiecek,
Forestry Education Co-ordinator,
Ontario Ministry of Natural Resources*

Students in Ontario schools will be able to study forestry next year with the help of a new education program jointly funded by the Ontario Ministry of Natural Resources and the Canadian Forestry Service. Activities and lesson plans focussing on forests and forest management are currently being prepared by teachers and consultants from across Ontario. The program is guided by a steering committee composed of professionals from both the fields of forestry and education.

Since the program is aimed at all grades (primary/junior and intermediate/senior), two distinct approaches have been taken. At the primary/junior level, an interdisciplinary activity guidebook is being

prepared using forestry as the instructional vehicle to teach science, math, language arts, music, and other subjects.

At the intermediate/senior level, optional units are being designed to fit into the Environmental Science curriculum, with cross-references made to core units in geography and science. All material is reviewed by the steering committee to ensure that it complements current curriculum guidelines and addresses key forestry concepts and resource management issues.

Both the primary/junior and intermediate/senior material will be introduced into schools via workshops in the '88/89 school year to ensure that

teachers are comfortable with and understand how to "Focus on Forests" in their classrooms. For further information contact:

*Susan Wiecek
Forestry Education Co-ordinator
Whitney Block, Room 5340
99 Wellesley Street West
Toronto, Ontario
M7A 1W3*

(416) 965-2756



Why Forestry Education?



*W.A. Andrews, Professor,
Faculty of Education,
University of Toronto*

The forests and woodlots of Ontario need our help if they are to continue to meet our needs for lumber, fuel, pulp, and recreation while simultaneously maintaining their role in the balance of nature. Yet our willingness to supply this help, at a societal level, is woefully inadequate. For decades we have been casting barbs at the Ministry of Natural Resources and the forest industry for improper management. But what we have *not* done is to assure the government that we want better management and are willing to pay for it. Nor have we told the forest industry that our society is prepared to fund better forest management through increased prices for forest products. In short, we have had lots of talk but little action, because action costs money.

Proper forest management requires a commitment from all segments of society - industry, government, and the public.

It is our responsibility as educators to fully inform our students about the present state of our forests and about future prospects so they can participate in responsible decision making regarding forest management. This paper, a condensed version of one presented at the 1987 conference, provides information that should help to get you started on this important topic.

Overall Importance of Forests

Forests like those in northern Ontario have long been a major resource in Canada. They provide firewood for heating and cooking. They produce lumber for building homes

and furniture. They are a source of pulpwood for making paper. They yield foods such as fruits, nuts, and sugars. And, more recently, they have become popular places for recreation - camping, hiking, and nature walks.

Forests also help prevent rapid runoff of water. This, in turn, lessens soil erosion, helps prevent flooding, and helps keep water quality high in streams. And forests are the habitat for a wide variety of plants and animals. Forests also play a role in forming the microclimate of an area. In fact, large forested areas can greatly affect the climate of a whole continent and, perhaps, the entire earth.

Economic Importance of Forests

Forests are very important to the economy of Canada. In recent years the forest industry contributed over \$23 000 000 000 to the Canadian economy per year. Canada now produces about 14% of the world's timber and other forest products. This is the third largest share in the world. And Canada is the world's leading exporter of forest products. Much of this export goes to the United States. This provides Canada with a \$15 000 000 000 annual trade surplus. Over 250 000 000 trees are cut each year to keep Canada's forest industry going.

Canada's forest-related industries employ about 1 in every 10 Canadians and contribute over \$23 000 000 000 to the economy annually.

About 300 000 people are employed directly in the Canadian forest industry including loggers, sawmill workers, and pulp and paper

employees. Another 700 000 people have jobs that depend directly on the forest industry: newspaper employees, home builders, and furniture builders. Canada's population is near 25 000 000. Of this number, about 10 000 000 are employed (the rest are children and young adults still in school). Therefore, about 1 working Canadian in every 10 depends on forestry. In British Columbia this ratio jumps to 1 in every 4. As you can see, if the forest industry is in trouble, the national economy will suffer as well.

The Present Condition of Our Forests

The seemingly endless supply of trees in Canada has encouraged over-exploitation and improper management. In fact, a Science Council of Canada report says that the forests have degenerated to a dangerous point. Wastage is great. One estimate suggests that to get the 250 000 000 trees marketed each year, over 3 000 000 000 are cut. In other words, only 1 of every 12 trees cut is used. The others are cut and left to rot. Perhaps they are too small, hard to get at, damaged, or not quite perfect. Regardless of the reason, the waste is great.

Fires destroy about six times more forest than loggers cut each year. Careless users of the forest cause much of this loss through discarded cigarette butts and improperly set and extinguished campfires. Insect pests also cause great damage. In the 1970s the spruce budworm alone defoliated 75 000 000 ha (750 000 km²) of forest in Ontario, Quebec, and the Maritimes. This area is almost equal to the land area of Ontario. And recent studies suggest that acid rain and other atmospheric

pollutants are affecting growth and regeneration of forests.

What Can Be Done?

There are currently from 20 000 000-25 000 000 ha (200 000-250 000 km²) of logged but unreforested land in Canada. And Canada's forests are reduced a further 1 000 000 ha (10 000 km²) each year by poor management. This is an area about equal to the size of Prince Edward Island. A first step, then, is to replant more actively and effectively and to cut more carefully.

A second step is to reduce losses by fires. Prevention is much more effective than trying to put out fires once they start. You should know the fire regulations before beginning a camping trip in the forest. You should also know how to make a safe campfire. (Generally, the safest campfire is a small portable stove.) And people who must smoke should be *absolutely certain* that butts are extinguished.

A third step involves better pest control. Some pesticides seem to be effective against major insect pests. But they can also pollute streams, kill wildlife, and affect human health. The trend today is toward **Integrated Pest Management**. This method uses lower amounts of pesticide along with other control measures. Among these other methods are:

- Thinning of the forests through controlled burning and cutting. Pests seem to thrive in the thick forests which have developed since forest fires have been better controlled.
- Development of resistant tree species. Cut areas of forests can be replanted using species which are resistant to major diseases.
- Biological controls. Forests are sprayed with bacteria, fungi, and other organisms which control the pests.

A fourth step is to recycle wood products such as newspapers. If we recycle, fewer trees will have to be cut from our forests. Finally, **tree farms** could be used to supply more of our pulpwood. Species have been

developed which are large enough to cut for pulpwood in about 5 years. These should be more actively planted as crops on marginal farmland.

Integrated pest management and sustained yield forestry are two important targets for a conservation-oriented society.

Canada must move toward **sustained yield forestry**. In such forestry, the government and industry ensure that cut trees are replaced. Further, cutting is done in such a way that there will always be a supply of marketable trees. Overall, Canadian forest management techniques lag behind those of the United States, Sweden, and Norway. Sweden, for example, has only one-quarter of the forest land Canada has, but it produces two-thirds as much wood product. In recent years, Canada's share of the world pulp market has dropped from 70% to 30%. Clearly a strong effort is needed to revitalize the forest industry. This effort will have to be guided by well-trained foresters. Canada now has only one forester for every 500 000 ha of forest. This ratio is one for every 14 000 ha in countries like Sweden and Norway.

Woodlots

Almost every farm in southern Ontario has a woodlot. However, in many prime agricultural areas, less than 5% of the land area is forested. Nonetheless, an encouraging trend is occurring. Poorer agricultural land is being taken out of production and planted in trees. Such **tree farms** are usually managed well by the Ontario Ministry of Natural Resources or, in some cases, the landowners. In most cases, the objective of the owner is to make money. As a result, tree farms are often planted to a **monoculture** (one species), and they often specialize in fast-growing **hybrid** species.

Woodlots, whether they be natural or tree farms, are of great importance ecologically, economically, and socially. They provide wildlife habitat

and soil protection. They act as ground water recharge areas. They help moderate climatic extremes. They are sources of wood and wood products. They are prime sites for recreation. And they add greatly to the beauty of the countryside. For these and other reasons, woodlots must be protected and improved.

Southern Ontario woodlots can be logged on a sustained yield basis with little negative impact on the ecology of the woodlots.

Because of poor management (often no management), woodlots are not making the contribution they could make. Proper thinning could greatly increase timber production from woodlots. In many areas, the woodlots need to be expanded to make a noticeable contribution. Extensive replanting needs to take place. For example, trees need to be planted along fence lines to protect crops and soil from the winds. And trees should be planted along all creeks and rivers to reduce erosion and increase water quality.

Concluding Remarks

Use the information in this article to convince your students that all of us have a responsibility to know about forest ecology and forest management. However, this is only a starting place. You must now get your students involved. Make sure they participate in forest ecology and forest management activities. Show them some of the many excellent audiovisual aids available on our forests and woodlots. Make available to them printed materials from the Ministry of Natural Resources and the forest industry. Take them on a tour of a cutting operation, a lumber mill, or a pulp and paper operation. Get them collecting newspaper and magazine articles on our forests. Encourage them to correspond with the appropriate government and industry people. But, above all, teach them to stop being finger pointers and to accept their share of the responsibility for the present and future state of our forests and woodlots.

OFA and the Forestry Story

*Jim Coats,
Executive Vice-president,
Ontario Forestry Association*



Where can the teacher get the straight goods on forestry? There are several sources of information including the Ministry of Natural Resources, local forest industries, the forest industry associations, the Faculty of Forestry at the University of Toronto and the School of Forestry at Lakehead University, Sir Sandford Fleming College at Lindsay, Sault College at the Sault, and Algonquin College at Pembroke and the Ontario Forestry Association. OFA has been in business since 1949 for the express purpose of helping the public, including school teachers and students, better appreciate and understand forestry matters.

OFA's interpretation of forestry is broad and recognizes the roles of soils, water, wildlife, energy, economics, recreation, wilderness, and everything from the pesky black fly to the perfect black walnut table.

In its early days OFA was able to send lecturers to schools around the province. While forest fire education was an important component, the graduate foresters on staff were pushing 'conservation' and the 'wise use' of natural resources. Farm audiences were interested in the forest/soil connection. Tourist resort operators wanted to know about fish/forest relationships. Forest industry audiences sought understanding of the ways to protect forests and have them renewed. All the audiences in those days seemed intent on taking better care of available and potential resources so bad examples of resource abuse did not happen here.

The Ontario Forestry Association has been involved in public education about forest-related matters for 39 years. Have you used this valuable resource?

OFA was never in the position of insisting that its position on anything was the only one that would work. Because of the many segments of resource interest included in its membership, it frequently found it difficult to arrive at 'a position'. Its function was, and is to get the various interest groups together to seek solutions rather than confrontation. Many have accused it of fence-sitting while others have come to appreciate that the view from the top of the fence is much better than that from either side.

Dryden Conservation Course

In 1957 the Dryden Paper Company began the Dryden High School Conservation Course for 36 grade 10 students. It consisted of a three day bush camp program in the woods. Specialists on forestry, hydraulics, pollution, energy, and related topics discussed conservation issues with the students right there where they could be seen. OFA provided their manager as Chief Instructor in the second year and the same connection ... and the same person ... will continue in late May, 1988. Great Lakes Forest Products Ltd. sponsors the course but relies upon and gets terrific help from the Natural Resources, Ag and Food, Hydro, local farmers, the Canadian Forestry Service and others. This has been a long-running and highly successful

program with benefit to the professional instructors and teachers at least equal to that provided the students.

Resource Rangers

By the early sixties OFA was into a youth education program of its own called, appropriately enough, Resource Rangers. Seventeen clubs were formed about the province and twenty study units were prepared. These dealt with the conservation of soils, water, wildlife, and forests. Great as the program was, it ran into real difficulties securing the volunteer leadership required and reluctantly the program was discontinued in the seventies.

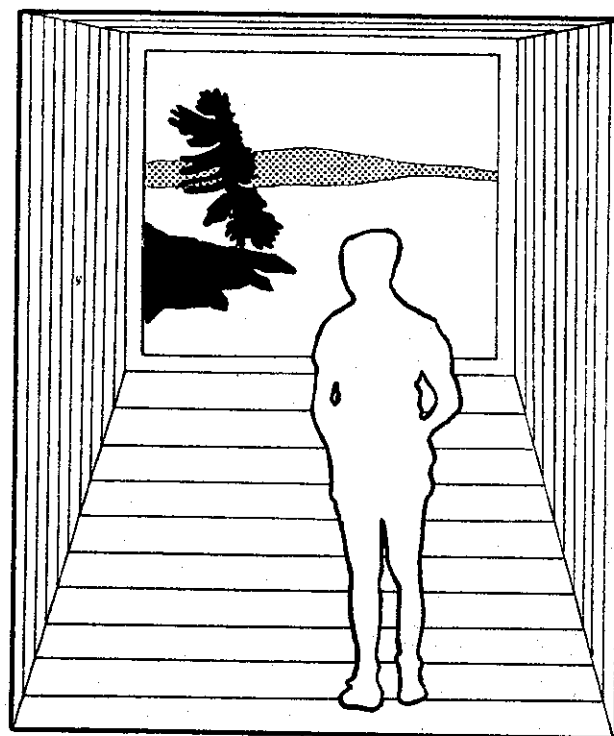
Tree Farming

Tree farming has always been a major OFA area of interest and activity and in the early 1970's it became the focal point of the organization. Many meetings, field trips, briefs, court appearances, lectures, and articles centred on this important concept. The Tree Farm Movement of the early fifties saw OFA recognizing nearly 400 Ontario forest owners as 'tree farmers'. It is amazing to realize today that this was a new concept to the public at that time. Even today the legislators and lawmakers have trouble recognizing that trees are a crop and tree farming is farming. OFA is still active in this area through operation of a woodlot management course with the University of Toronto's School of Continuing Studies, preparation of briefs, field trips, and other endeavours.

continued on page 21.

Journey Eastwards...

**IN QUEST OF
NEW HORIZONS
IN
OUTDOOR EDUCATION**



**1988 Annual COEO Conference
September 29 - October 2
Ontario Camp Leadership Centre
(Bark Lake)**

**Irondale, Ontario
K0M 1X0
(705) 447-2452**



COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO

Conference 88

The Council of Outdoor Educators of Ontario proudly welcomes you to its 18th Annual Conference. "IN QUEST OF NEW HORIZONS" will be an active conference where delegates old and new come together in "quest" of new ideas and perspectives in outdoor education.

Sessions have been set up to meet the needs of those of you who may be new to C.O.E.O. conferences; and, to those who have been involved in outdoor education for a while and are looking for new knowledge and inspiration. The program will maximize the resources of Bark Lake to bring you a balance of sessions in outdoor skills, professional development, and the accessible environment - the backyard and beyond.

Highlights of Conference 88 will be the impressive line up of session leaders and keynote speakers, several of whom are of international repute. And, in the true spirit of C.O.E.O., a varied schedule of social events are planned including: a campfire, talent show, night paddle, square dance and much more! Plan to join in the learning and fun. Mark your calendar September 29th to October 2, 1988. See you there!

Registration

Please return your registration form as soon as possible, as program sessions will be filled on a first come first served basis. There is a \$20.00 saving if you register before June 30.

All registrations must be accompanied by a deposit of \$75.00. The balance may be paid by post dated cheque for September 10.

Letters of support to expedite employer funding are available by contacting the president of C.O.E.O..

Due to the popularity of C.O.E.O. conferences, and a limit of 190 spaces, preference will be given to the registration of C.O.E.O. members up until June 30th. After this date, registrations from non C.O.E.O. members will be accepted if space is available. Non C.O.E.O. members may have their names placed on a waiting list effective immediately, to help ensure their spot after June 30th has passed.

Once the conference is full to capacity, a waiting list will also be created for anyone hoping to get in due to last minute cancellations.

Cancellation Policy: A full refund minus an administration fee of \$25.00 will be given up to and including September 10th. After this date, a refund will only be given if you can find someone to replace you. The \$25.00 administration fee will be applicable in all cases.

Parking

Parking space is very limited at Bark Lake. Please plan to car pool with other delegates. Enjoy the company: sing a song and tell a few stories on your way to Conference 88.

The Site

Ontario Camp Leadership Centre (O.C.L.C.) is the Ministry of Tourism and Recreation Outdoor Leadership Training facility. The centre's setting on Bark Lake is shared only by the loons, and is surrounded by 4,000 acres of Canadian Shield Wilderness. Lodging ranges from rustic cabins to dorms. All rooms accommodate 6 to 8 people, and all are accessible to shared bathrooms and hot showers. A camping option will be available on a limited basis.

Other facilities at O.C.L.C. are several meeting lodges, a large recreation hall, dining hall, environmental centre, canoe docks, ropes course and several rich and diverse wetlands.

Meals will be provided for all delegates in the dining hall. Box lunches will accommodate those who are out on day trips, and refreshments will be available in the dining hall. Provision has been made for vegetarian meals or other dietary requirements. Please make any special requests known on your registration form.

Smoking will be restricted to one location on site, and there will be designated areas where alcohol can be consumed.

For More Information Contact:

Carmel Hunt, Conference Chair
Henry Munro Middle School
(613) 746-0091 (work)
(613) 745-6947 (home)

Kathy Reid, Registrar
Otonabee Region Conservation Authority
(705) 745-5791 (work)
(705) 745-6916 (home)

ADVENTURE PROGRAMMING

Advanced Skills & Standards Seminar

A Workshop for outdoor educators experienced and/or
working in Adventure Based Programs

with

Karl Rohnke



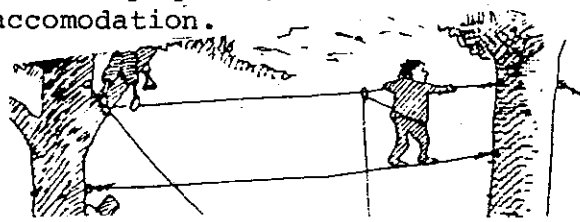
EXECUTIVE DIRECTOR OF PROJECT ADVENTURE, INC.
AND AUTHOR OF SILVER BULLETS, COWTAIL AND COBRAS, AND OTHERS..

- * EMPHASIS ON ROPES COURSES: THEIR MANAGEMENT AND USE
- * ALSO PRESENTING: *ADVENTURE PROGRAMMING DESIGN & LEADERSHIP
- *INITIATIVES AS A SKILL BUILDING TOOL
- *SAFETY LIABILITY ISSUES

If you have any specific questions or concerns, please bring them with you or send them ahead. Karl will try to deal with them during the workshop.



WHEN?	TUESDAY, SEPTEMBER 27 (after Dinner) until THURSDAY, SEPTEMBER 29 (includes Dinner)
WHERE?	ONTARIO CAMP LEADERSHIP CENTRE (BARK LAKE)
COST?	\$158 per person includes: all fees, use of materials and equipment, 2 days food & accomodation.
LIMIT?	Maximum 20



Please photocopy, complete and return (with Main Conference Registration if you plan to attend both) to: Kathy Reid, Registrar.

Name _____

Single cheque (\$158) enclosed

Address _____

Separate cheque included with
main conference registration
(\$158 + \$235)

Occupation/Place of Work _____

NOTE: Please make cheques payable to C.O.E.O.

IN QUEST OF NEW HORIZONS in OUTDOOR EDUCATION

THURSDAY, September 29, 1988

6:00 - 9:00 Registration
8:00 - 9:00 Social Hour

9:00 - 10:00 Keynote presentation with
storyteller JACKSON GILLMAN

10:00.... Games with Karl Rohnke
Wine and Cheese
Guitar Bar

FRIDAY, September 30, 1988

9:00 - 10:15 CHANGE AND PLANET EARTH...THE INFLUENCE OF MAN Keynote address by Dr. Bill Fyfe

FULL DAY 10:30-4:15

QUARTER DAY 10:30-11:45

FR1 THE FUR TRADE

Cathy Beach
Enter the days of the coureurs
de bois and voyageurs: paddle
the great canoes, laugh and
sing the old french songs.
Session will include the Fur
Trade game, historical back-
ground and developing pro-
grams for students and
outers clubs.

FR5 MORE AMMUNITION: THE SEQUEL

Karl Rohnke
Join leading edge in initiatives,
games & trust building activ-
ities. Karl will bring newest
ideas from "Project Adventure",
soon to be published in his 3rd
book More Ammunition.

**FR7 A CHALLENGE FOR O.E. CENTRES:
CAN YOU PROVIDE PROGRAMS FOR
SENIORS?**

Dorothy Walters & Jean Wansbrough
There is a place for seniors in
O.E. programs. Come & find out
what is happening & be prepared
to discuss how your centre can
become involved.

FR9 LES RESSOURCES EN FRANCAIS

Irish Sullivan
La session sera orientée aux
profs d'immersion. Nous dis-
cuterons les ressources dis-
ponibles en français pour
aider à l'enseignement en
plein air ou dans la cour
de l'école.

**FR6 MANAGING RISK - PUTTING THE
ODDS IN YOUR FAVOUR**

Chris Niles
Session will outline concept-
ual framework for actively
managing risk in you pro-
gramming. Outline of effective
risk management plan presented.

FR8 O.E., P.R., YU?

Jan Stewart
How do you market your centre?
Ideas, techniques & strategies
for "selling" your O.E. centre.

FR10 PROJECT SELF

Rod Ferguson
Rod will present a new pro-
gram where a small group of
students unable to function
in a regular school works
with a teacher & social
worker in outdoor setting.

FR2 CHANGING MINERAL RESOURCES

Rick Keavill
A tour to discover minerals
in the area; a chance to
collect specimens & see new
and unknown potentials for
the future. Areas include
Tory Hill, Bancroft, Wilberforce.

HALF DAY 1:30-4:15

QUARTER DAY 1:30-2:45

FR11 ROPES COURSE (Intermediate)

Karl Rohnke
Some prior experience on a
course is assumed. Session
to include: use of courses,
safety, as well as personal
challenge on Bark Lake Ropes
Course.

FR16 AVIAN REHABILITATION

Kit Chubb
Kit will talk about her Avian
Rehab centre in Verona, Ont..
She will also discuss the
causes & possible prevention
of bird injuries.

NOTE: There will be other
opportunities during unprogrammed
time for beginners to try the
Bark Lake Ropes course

FR12 ORIENTEERING (Beg/Inter)

Jim Macpherson & Winnie Scott
Hands on practical workshop.
Will break into two separate
groups and focus on skill
development or review
depending on your level.
Intermediate assumes
prior experience.

FR17 O.E. AROUND THE WORLD

Brent Dyart
Pending his return from a year
sabbatical, Brent will present
what's happening in O.E. in
several locations around the
globe.

FR18 THINKING IN TECHNICOLLOUR

Bob Campbell
What colour is your thinking?
Bring your multicoloured
thinking hats and learn to
think more effectively. A
neat way for teachers &
students to develop their
thinking outdoors or in.
Come learn to think in
technicolour.

FR3 WILDERNESS EMERGENCY PLANNING

Jim Raffan
Theoretical and practical look
at all aspects of wilderness
crisis management including:
small group discussions, hand-
outs, and outdoor crisis
simulations.

FR13 FUN WITH INTEGRATION

Judy McGill
Experiencing the out of doors
together: what are the chal-
lenges; how can we ensure
people with disabilities feel
welcome; what kind of supports
can we provide?

QUARTER DAY 3:00-4:15

**FR19 TOWARDS MORE PRODUCTIVE
OUTDOOR TEACHING**

Rud Wiener
Exploration of research
models for making out-
door instruction more
effective; and, their
application in practical
settings.

FR22 COMPUTERS IN OUTDOOR ED

Paul Wilkinson
Introduction to computer
applications for administration
of small institutions & O.E.
centres. Paul will also discuss
what is available in programs
& simulations for teaching.

FR4 WHO NEEDS WETLANDS?

Ed Reid
Wetlands will be explored in
a combined seminar and inter-
pretive walk. Topics to be
covered include wetland eco-
logy, values and interpretation.
Bring your rubber boots!

FR14 CREATIVE FUNDING & VOLUNTEERISM

Kathy Wiele
Ever considered matching vol-
unteers with creative funding?
Session will look at managing
volunteers while they have
fun raising funds.

FR15 A CLOSER LOOK AT INSECTS

Audrey Wilson
Learn to differentiate moths
from butterflies. Then try
your hand at tagging monarchs
before they depart for Mexico.
Also view life cycles of
aquatic & terrestrial insects
first hand.

FR20 SKULLS AND SKELETONS

Mark Rupke
Learn how to collect, prepare
& use skulls in educational
setting. Mark will bring his
collection & share a fascination
he's had since youth.

4:30 - 5:30 PRESIDENT'S RECEPTION

FRIDAY EVENING

7:00 - 8:00

8:30..... Square Dance with Jack Zoubie
Guitar Bar

9:30 Evening Paddle

10:30 THE 1987 QITDLARSSUAQ EXPEDITION
Keynote slide show by Mike Beedell
on his epic dog sled journey in the north.

SATURDAY, October 1, 1988

FULL DAY 9:00-4:15

HALF DAY 9:00-11:45

QUARTER DAY 9:00-10:15

SA1 ROCK CLIMBING (Beginner)
Dave Moore & Gord Baker
Basic introduction for individuals who have ever considered or wildly contemplated rock climbing. In class component in morning, climbing and rappelling in afternoon.

SA5 KAYAKING - PADDLING & PEDAGOGY
Shawn Hodgins & Roger Tilden
Come kayak with Shawn of Wapitai Wilderness Centre, & Roger of Peterborough Co. Brd. of Ed.. Session will cover basic skills, safety & methods of instruction.

SA13 INITIATIVES (Beginner)
Lois Antool & Mike Lawrence
Participants will be presented with a logical, sequential progression of games & challenges designed to meet educational objectives.

SA14 CANOEING SKILLS (Beginner)
Jim Gear
Learn to be comfortable in a canoe, first on land, then on water doing draws, prys forward and backward strokes.

SA15 SELLING YOUR PROGRAM IN ANEE
Jim Raffan
Workshop with writer/editor Jim Raffan to begin the process of writing interesting articles on O.E. programs for Anee.

QUARTER DAY 10:30-11:45

SA2 "SUNSHIP EARTH" AT YMCA CAMP WANAKITA
Jim Jansen
Explore the "Forgotten Forest"; Journey into the "Zoom Room"; Join a wizard to "Touch the Earth". This full day session will explore the magical Sunship Earth Program in detail. Emphasis on practical exposure to its components.

SA7 JOURNAL JOURNEYS INTO THE ENVIRONMENT
Bill Hammond
You will experience "The Journal" as creative tool for building connections to the environment. Activities for students & teachers based on latest brain and learning style research hands-mind on format.

SA16 PROJECT ADVENTURE & ENVIRONMENTAL EDUCATION
Mike Lawrence
Participants will be exposed to strategies for linking personal responsibility & social/environmental responsibility through adventure programming

SA17 CANOEING SKILLS (Intermediate)
Wendy Grater
Review of tandem skills with emphasis on how they apply to solo paddling. Focus on increasing confidence in both.

SA8 FASCINATING FOLKLORE
Alan Foster
Find out how plants have been used through history as medicines, perfumes and more! Share in the traditional beliefs of our North American forerunners.

SA18 WILDLIFE IN JEOPARDY
Pam Hickman
Pam will present a program the Federation of Ont. Naturalists uses to teach school groups all about endangered species.

HALF DAY 1:30-4:15

QUARTER DAY 1:30-2:45

SA3 "NATURAL RESOURCES FOR YOU" AT THE LESLIE M. FROST CENTRE
Bartie Martin
Participants will actively explore educational resources and opportunities available at the MNR's residential O.E. facility. Hands on activities and exposure to MNR resource kits. Free posters and publications; prize draws for special items.

SA9 HOW TO TEACH INITIATIVES
Mike Lawrence
Focus will be on selection of initiative tasks, design of scenarios, facilitating & processing group experience. Several unique group challenges will complement this session.

SA19 TRANSFORMING A VISION INTO PRACTICE
Bill Hammond
Succeed at moving environmental ed. to action & involving students in addressing & implementing solutions to environmental/community problems. Workshop will use discussion & activities to demonstrate variety of teaching strategies & techniques.

SA20 THE ROLE OF THE ASSOCIATE TEACHER AT O.E. CENTRES
Rod Bain
Evaluating "teachers in training" in O.E. programs: there are special needs that are not necessarily addressed in the traditional classroom experience.

SA10 HOW TO TEACH DIFFERENT STROKES TO DIFFERENT FOLKS
Skid Crease
Fine art of canoe instruction to be highlighted in this active on water session: hooking various groups, refining detection & correction skills, developing activities for skill improvement.

SA21 RABIES AND WILDLIFE
Dr. MacInnes
Session will address variety of issues related to rabies in Ont. Dr. MacInnes will describe the MNR's rabid animal baiting program.

QUARTER DAY 3:00-4:15

SA4 RIVER WATER RESCUE
Dirk Van Wick
Become familiar with river rescue methods: ropes & knots, 2 drags, tag lines, snag drags, bridge lowers, telfer lowers & tyroleans. Slides and discussion to complement session.

SA11 SHIFTING THE FOCUS FROM EXAMINATION TO DEMONSTRATION
Milton McLaren
Session will address uses of environmental & outdoor ed. as vehicles to allow students to develop peak performance. Geared to teaching intermediate/secondary students.

SA22 SHUTTERBUG SHARE SESSION
Mike Beedell
Opportunity to hear a professional photographer talk about his experiences & secrets to success with a camera. Come prepared with questions, your ideas & experiences too.

SA23 FUR TRADE BOARD GAME
Jim Gear
Jim will discuss and present a board game he has recently developed. The game is based on the history and lifestyle of Canadian voyageurs and their involvement in the Fur Trade.

SA12 MAKING YOUR WETLAND PROGRAM WORK
Jim MacMillan
Jim, Program Coordinator at Wye Marsh will share his ideas & teaching strategies on how to present an effective wetlands program.

SA24 ADVENTURE RECREATION FOR HEAD INJURED ADULTS
Dr. Jim Merritt
Formerly of the N.J. School of Conservation Dr. Merritt is now Director of the first "transitional living" program with a vocational emphasis of its kind in North America. The program capitalizes on the therapeutic benefits of outdoor adventure recreation in the rehabilitation of head injured adults.

4:30 - 5:30 Regional Meetings

SATURDAY EVENING

7:00 - 8:00 ANNUAL GENERAL MEETING

8:30 - 9:30 Talent Night

9:30 - 12:00 Dance up a Storm
Stories in the Night Sky
Fun & Games & Sing Along
Cash Bar

12:10 Campfire

SUNDAY, October 2, 1988

QUARTER DAY 9:30-10:45

SU1 SPIRITUAL DIMENSIONS ON OUTDOOR EDUCATION

Bert Morwood
A practical session to explore ancient horizons (but new to our time) in the spiritual dimension of the natural world. The educational value and merit of ceremonies will be demonstrated and discussed.

SU2 SONGS OF RELEVANCE

Bob Henderson
An old style campfire sing song of contemporary music. Lyrics to churn your emotions and rot your socks! Lyrics and chords provided. Vocal chords needed. Bring your favorites to share.

SU3 ECHOES

Peter Middleton
A reflective pond paddle. A time to canoe and share words in the wilderness.

SU4 SURF N TURF

Bruce Hood
Beef up your knowledge of the forests and waters of Bark Lake and the creatures that live there. You will sample a smorgasbord of innovative and exciting ideas for teaching students about lakes and forests, fish and wildlife.

SU5 WHY NOT START WITH ART?

Jan Stewart
An opportunity to enjoy a relaxing experiment in the out of doors. Bring a pencil, some paper, your imagination, an observant eye and a creative mind.

11:00 - 12:15 PREPARING NAVIGATORS FOR SHIPS OF THE FUTURE

Keynote address by Milton McClaren

12:30 Lunch and Safe Journey Home!!

PRESENTING THE KEYNOTES

JACKSON GILLMAN

Jackson Gillman combines mime, dance, sign language and song in his unique style of storytelling. On Thursday Evening, Jackson will take on the role of "Pierre Giono", an environmentalist from Provence. Giono will share with us an inspirational account of conservation efforts made in an isolated region of France earlier this century.

DR. W.S. FYFE

Dr. Bill Fyfe is Dean of the Science Faculty of the University of Western Ontario. On Friday Morning, in a colourful, stimulating and provocative presentation entitled Change and the Planet Earth...The Influence of Man, Dr. Fyfe will describe some of the most important aspects of environmental change, and what we must do about it.

MIKE BEEDELL

Mike Beedell is a professional freelance photographer who has travelled widely throughout the Canadian North - much of the time alone with his camera. Join Mike on Friday Evening, and share with him his slides, stories and excitement for an epic dog sled journey from Baffin Island to Greenland: The 1987 Qitdlarssuaq Expedition.

BILL HAMMOND

After dinner on Friday Evening, we will be privileged to have Bill Hammond in our midst. Bill is Director of the internationally recognized environmental education program in Lee Valley, Florida. In his multimedia presentation Context: Who We Are & Why We're Here & Where We Might Be Going..., Bill will examine environmental and outdoor education in light of the human brain, learning styles, research into the concept of the human mind, and how we can use this information as a powerful tool to attain our goals.

MILTON MCCLAREN

Milton McClaren will provide a fitting close to Conference 88 in his presentation Preparing Navigators for the Ships of the Future. In his keynote address, he will consider the role environmental and outdoor education can play in the process of transforming schools from an industrial to post industrial mission.

COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO



IN QUEST OF NEW HORIZONS IN OUTDOOR EDUCATION

Please use a separate registration form for each Conference Participant. Preference will be given to the registration of C.O.E.O. members up until June 30. After this date, registrations from non C.O.E.O. members will be accepted if space is available. A waiting list is effective immediately for non members to help ensure their spot after June 30th has passed.

Last Name _____ First _____		<input type="checkbox"/> Male	<input type="checkbox"/> Female
Mailing Address _____		() _____ Day Phone Number	
City _____	Province _____	Postal Code _____	() _____ Evening Phone Number
Occupation _____			
1988 C.O.E.O. Membership Number _____		C.O.E.O. Region _____	
First C.O.E.O. Conference	<input type="checkbox"/> yes <input type="checkbox"/> no	First Visit to Bark Lake	<input type="checkbox"/> yes <input type="checkbox"/> no
Dietary requirements _____			
I will _____ car pooling to Bark Lake. be not be			

RENEW MEMBERSHIP WITH THIS REGISTRATION

Regular \$30.00 Family \$40.00 Student \$20.00 \$ _____

PRECONFERENCE WORKSHOP (Karl Rohnke) \$158.00 \$ _____

CONFERENCE PACKAGES AVAILABLE

Due to the limits of facility and environment only the following accomodation arrangements are available.

Package A: Bark Lake lodging (6-8 per room) \$235.00 \$ _____
 Preferred room mate(s) _____

Package B: Camping at Second Beach \$220.00 \$ _____
 (limit of 14 campers)

Student members Deduct \$30.00 \$ _____

Registration by June 30, 1988 Deduct \$20.00 \$ _____
(main conference only)

TOTAL \$ _____

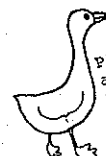
Minimum Deposit Due Now \$75.00 \$ _____

Balance due by post dated cheque (please enclose)
(September 10, 1988) \$ _____

* **CANCELLATION POLICY:** A full refund minus a \$25.00 administration fee *
* will be given, up to and including September 10, 1988. After this date *
* a refund will only be given if you can find someone to replace you. *
* The \$25.00 administration fee will apply in all cases. *

Please send Registration Form and Cheque (payable to C.O.E.O.) to:

KATHY REID
OTONABEE REGION CONSERVATION AUTHORITY
211 HUNTER STREET EAST, TIME SQUARE
PETERBOROUGH, ONTARIO, K9H 7B5
Phone: (705) 745-5791 (work)
 (705) 745-6916 (home)



Please turn over
and complete
reverse side.....

Program Selection Sheet

Please select your choice of program by placing 1 beside first choices, 2 beside second and 3 beside third. Please be sure to select the correct combination of full, half and quarter day programs to fill your day.

All sessions will be filled on a first-come, first-served basis and some sessions have limits.

* Please return this form with your registration.*

FRIDAY, September 30, 1988			
FULL DAY	QUARTER DAY AM		
____ FR1	____ FR5	____ FR7	____ FR9
____ FR2	____ FR6	____ FR8	____ FR10
____ FR3	HALF DAY	QUARTER DAY PM	
____ FR4	____ FR11 ____ FR12	____ FR16 ____ FR17 ____ FR18	
	____ FR13 ____ FR14	____ FR19 ____ FR20 ____ FR21	
	____ FR15		

SATURDAY, October 1, 1988		
FULL DAY	HALF DAY AM	QUARTER DAY AM
____ SA1	____ SA5 ____ SA6	____ SA13 ____ SA14 ____ SA15
____ SA2	____ SA7 ____ SA8	____ SA16 ____ SA17 ____ SA18
____ SA3	HALF DAY PM	QUARTER DAY PM
____ SA4	____ SA9 ____ SA10	____ SA19 ____ SA20 ____ SA21
	____ SA11 ____ SA12	____ SA22 ____ SA23 ____ SA24

SUNDAY, October 2, 1988				
QUARTER DAY				
____ SA1	____ SA2	____ SA3	____ SA4	____ SA5

CONFERENCE REGISTRAR:

Membership	\$		Amount Received	\$	
Package Cost:	\$		Amount by Post-		
Date Registration Received			dated Cheque	\$	
Date Confirmation Mailed					

The Play's The Thing

OFA sponsored Eco-logical Theatre's Tree Musketeers a few years ago and then started its own Sylvan Theatre group with the Forest People Players. Their play, "May the Forest Be With You", is still running from time to time.

Back to Education

There has been a marked swing back to the forestry education interest of OFA in recent years. OFA has been trying, for example, to bring in Project Learning Tree, a teacher motivation program which uses the forest as a window. The program operates in most States south of the border and in several Canadian provinces. It was the forerunner to Project Wild and utilizes a similar technique of operation. Why isn't it here? Funding is the number one problem. Canadianization is another as far as OFA is concerned. Timing has been bad, too, for the Canadian Pulp and Paper Association and the Ministry of Natural Resources both have their own programs. OFA is anxious to help further their programs but sees an opportunity to get even further forestry education value from PLT. The matter is still under active consideration.

Good Outdoor Manners

As these major activities have been pursued there have been others at OFA, too. The Smokey Bear program continues as a major OFA activity. Smokey gets around and the highlights of his 1987 year were his appearance on national television with Fran Pappert on Romper Room (for the fourth time) and National Smokey Bear Day with Tom Henke, Jimmy Williams, and the Toronto Blue Jays at Exhibition Stadium. Woodsy Owl has been recruited to continue the good outdoor manners work begun by OFA's Litter Pickin' Pete some years ago.

Honour Roll of Ontario Trees

The Honour Roll of Ontario Trees is also an important OFA program. This listing of the biggest tree of each species known in Ontario has been enhanced by operation of an annual Tree Tour on a Sunday in June. An outgrowth of the Honour Roll was selection of Ontario's Arboreal Emblem, the eastern white pine. Since its proclamation in May, 1984 nearly every province in Canada has developed an honour roll and named a provincial tree.

Teacher Help

What can the teacher get from OFA today? There is the Forestry Manual for Ontario Secondary School Teachers by G.R. Morrison, a retired teacher from Espanola. Four sets of tree identification slides and guide books are available. There is a Conifer Tree Identification Wheel which teaches the student how to use a 'key' as well as identify Ontario's native conifers. There are slides available, too, on spruce budworm, dutch elm disease, and the gypsy moth.

The Ontario Forestry Association has many teaching aids available for teachers on a cost recovery basis.

Through the years many tons of information have passed through OFA's offices. Some of it has been their own such as the facts pamphlet "Ontario's Forests at a Glance", while other items have come from a wide variety of sources. The best bet for teachers is to ask for material on specific subjects so the Association can attempt to deal with it. Often that may be direction to another, more appropriate, source.

An Opportunity

One of OFA's pet projects is National Forest Week which runs for the first full week of May each year. This year the dates are May 1-7 and the theme is "Forests ... a Shared Resource". Teachers are encouraged

to make good use of this special period. There are many possibilities from print to practice, from the indoors to the outdoors. OFA would like to hear about the ways you mark the Week.

Funding ... the Bad News

OFA sells some of its items but makes many available free. Funding is a terrific problem and postage is a brute. Many teachers drop in to the OFA offices at 150 Consumers Road, Willowdale, and go away thrilled with the posters, pamphlets, and other items received ... even those they bought and paid for! OFA seeks members, too, of course, and you can join for \$25 a year.

What's Coming?

With the interest in the Temagami Forest and the Class Environmental Assessment of Timber Management on Crown Lands, there is bound to be a rise in school activity related to these items. OFA will be doing its best to cope with the demand. It will no doubt continue to emphasize the merits of good forest management and sound land use. All sides of issues need to be aired and OFA is as anxious that the forest industry side get expression as that of the wilderness proponents. OFA will not attempt to brainwash you. It will ask that you give all angles an even break. "Wise use" is still a good philosophy but it needs wise judgment and intelligent consideration to make it work.

For further information contact:

*Ontario Forestry Association
Suite 209
150 Consumers Road
Willowdale, Ontario
M2J 1P9*



Forestry Education, K-OAC

Mary Demers, Dave Higgins,
Jack Mali, Donna Shaddick,
Huron County Board of Education



Editor's Introduction

The authors of this curriculum outline developed it as a project during the Three-part Environmental Science Specialist Course offered by the University of Toronto in Huron County in 1986-7. To develop the curriculum, the authors first decided what the ultimate aims of forestry education should be, that is, what knowledge, skills, and attitudes students should have before they leave our K-OAC school system. Then the authors worked backwards from the Senior Division to the Primary Division to develop the content, skills, and attitudes that would have to be developed at each division level to progressively approach the ultimate aims. No attempt has been made to be grade or subject specific, nor do the authors claim that the topics in this outline are all-inclusive.

Mary Demers, Dave Higgins, and Donna Shaddick teach at Huron Centennial P.S.; Jack Mali is Head of the Science Department at F.E. Madill S.S. in Wingham.

ULTIMATE AIMS OF FORESTRY EDUCATION

Knowledge

1. to recognize the forest as an ecosystem and as an integral part of a larger ecosystem (roles of producers, consumers, decomposers; interactions, habitat for wildlife, maintaining nutrient cycles, energy flow).
2. to comprehend the vast economic importance of forests in Canada; in the world.

Skills

1. to be able to identify the index species of trees in this area, and some of the more important ones in Canada.

Attitudes

1. to develop a lasting respect for forests as living things.

3. to recognize the importance of forests as a renewable resource.
4. to know the various methods used in silviculture.
5. to know the various forest management practices used.
6. to recognize the consequences of various management practices.
7. to know the laws and regulations regarding forests.
8. to understand succession in forests.
9. to recognize human impact on forests locally and globally.
10. to know and understand the functions of the various structural features of trees as plants (i.e. roots, stem, leaves, life cycle).
11. to know the inputs and outputs needed by forests to maintain a healthy condition.
12. to understand how climate relates to forest species and biomes.
13. to understand the significance of forests in the past, now, and in the future.
14. to realize the natural controls nature has on forests.
15. to understand the types of disease various tree species are susceptible to.
2. to be able to identify types of diseases and pests of forests.
3. to be able to conduct a population distribution survey of a woodlot.
4. to be able to draw significant conclusions from a distribution survey.
5. to be able to implement the proper method of forest management for an area.
6. to be able to identify types of forests using aerial photographs.
7. to design a successful windbreak for a landscaping assignment.
8. to be able to measure tree value and board feet measure.
9. to recognize softwood and hardwood boards used in furniture-making by grains and colour.
10. to plan and conduct an effective field trip through various forests.
11. to organize an effective campaign to protest human neglect and detrimental practices towards forests on some specific issue.
12. to design and implement a case study concerning forests.
13. to conduct research and deliver a seminar on some aspect of forests.

3. to be in a position to protect and nurture attitudes in others, towards the preservation of forests.
4. to maintain a healthy forest for future generations.
5. to use and conserve forest products as a *limited renewable* resource.
6. to protect all abiotic and biotic aspects of forest.

SENIOR DIVISION AIMS

Senior Division Content

1. understand the forest as an ecosystem.
2. understand forest succession - primary and secondary
3. understand sustained yield forest practices
4. know the various factors contributing to the economic value of a healthy well managed forest
5. understand possible causes of forest dieback
6. recognize and locate on a map the forest biomes of the world
7. evaluate uses of trees for landscaping personal property
8. study human impact on Boreal Forests, Tundra, Temperate Deciduous Forest, Desert, Grassland, Temperate Rainforest, Tropical Rainforest
9. know forest protection techniques: controlled burns; selective harvesting; thinning; cutting; clear cutting; replanting.
10. develop knowledge of possible careers in forestry.

Senior Division Skills

1. develop mapping skills (biomes of world)
2. analyze the utility for developing habitat and landscaping on personal property
3. evaluate forest protection techniques

4. participate in government forestry issues
5. utilize communication skills by responding to issues
6. experience aesthetic pleasures of forests - hiking, bird watching, skiing, snowshoeing - on trails
7. use a problem-solving model to cope with forestry issues
8. develop preparatory and participatory skills involved in public learnings

Senior Division Attitudes

1. appreciate the interdependence of forests and surrounding ecosystems
2. accept personal responsibility for the long-term health of forests
3. appreciate the aesthetic pleasures forests offer

INTERMEDIATE DIVISION

Intermediate Division Content

1. identify index species in each stage of succession from bare ground to woodlot
2. learn the historical importance of forests and forestry in early pioneer days in Canada
3. recognize the forest as a renewable resource
4. be aware of the economic value of healthy well-managed forests
5. know the facts about responsible use of woodstoves, fireplaces, and outdoor fires
6. know the ways forest regions can affect global climate
7. know methods of forest conservation

Intermediate Division Skills

1. conduct field studies of meadow, ecotone, forest; use the data to compare abiotic and biotic factors at each stage

2. use research skills to learn the historical importance of forests.
3. determine the importance values of the species in a woodlot by calculating the frequency, density, and cover of each species
4. use quantitative data to determine the stage of succession of a woodlot
5. use data to predict the path succession will follow and predict changes in species (diversity) if marketable trees are harvested
6. produce a risk/benefit analysis on the use of woodstoves, fireplaces, and outdoor fires
7. mark out transect lines for a woodlot study; measure and record circumference, diameter, height of trees; use data to draw conclusions about the woodlot
8. develop mapping skills (biomes)
9. plan a management strategy and evaluate various existing management strategies
10. use a problem-solving model to deal with forestry issues
11. use dichotomous keys to identify deciduous and coniferous trees
12. develop communication skills by responding to issues

Intermediate Division Attitudes

1. appreciate the use of wood in home construction, furniture, and other domestic and industrial uses
2. appreciate the aesthetic and recreational pleasures forests offer
3. have positive attitudes about forested areas
4. respect for environment
5. respect for all forms of life

JUNIOR DIVISION

Junior Division Content

1. identify common trees of this area: deciduous trees - poplar, beech, birch, cherry, oak, maple, ash; coniferous trees - pine, spruce, hemlock, cedar, fir
2. use a dichotomous tree key to identify various coniferous trees
3. understand the concept of natural succession from bare ground to woodlot
4. describe the economic values of forests: maple syrup, paper, soft wood products, hard wood products, insulation, medicines; statistics on forestry employment in Canada; value of Canada's forestry trade
5. outline forest problems: environmental, spruce budworm, tent caterpillar, hemlock looper, other insect damage; over logging; risk/benefit analysis of spraying to control insects
6. apply above concepts during a walk in a forest; demonstrate ways to use forests with minimal impact
7. identify the parts of a cross-section of a tree trunk and state their functions
8. state the parts of a leaf and their functions
9. describe the process of photosynthesis
10. describe the forest as an ecosystem (food chains, food webs, interrelationships)
11. list the benefits of forests - wind break, makes oxygen, controls erosion, climate moderation, renewable energy resource
12. defend the conservation of paper - recycling, wise use
13. recycle leaves to provide natural lawn nutrients; composting of leaves; soil study comparison - (forests, field, hilltop) - com-

pare litter depth

14. list causes of forest fires and describe the results
15. know how to use trees wisely - reduce damage done by insects, disease, fire and people

Junior Division Skills

1. given two clues (leaf and bark) identify the various trees
2. label the cross-section of a tree
3. classify various trees
4. use dichotomous key to identify coniferous trees
5. estimate the circumference, diameter, and height of trees; record and evaluate data
6. compare the soil in forest, field, and hilltop
7. sketch various tree shapes in early and late fall
8. plant a tree in forest, hilltop, and field and observe in each grade
9. use group interaction skills effectively
10. collect news items on forestry related activities and issues

Junior Division Attitude

1. develop respect for the values of forests
2. develop respect for environment
3. develop respect for all forms of life

PRIMARY DIVISION

Primary Division Content

1. identify two groups of trees, deciduous and coniferous
2. describe tree bark by sight, feel, and smell
3. draw leaf shapes
4. sketch tree shapes - triangle, round, oval, umbrella, spear

5. match tree pictures to real shapes
6. state general uses of trees - furniture, shade, beauty, economic, recreation, landscaping, paper, animal habitat
6. describe ways to create backyard habitat and food
7. conduct hug-a-tree activities; adopt a tree
8. identify the parts of a tree - crown, trunk, roots, leaves, branches, twigs, buds

Primary Division Skills

1. classify trees as deciduous or coniferous
2. classify leaves as simple or compound and by shape and colour
3. participate in art activities based on leaves, trees, and forest animals
4. plant a tree and care for it
5. plant various tree seeds in the classroom
6. make comparisons based on size concepts i.e., big, bigger, biggest
7. use sensory skills to aid in tree identification - sight, smell, touch
8. pretend you are a bird or animal in forest and gather your dinner

Primary Division Attitudes

1. encourage careful use of paper and discourage wastage and litter
2. appreciate the values of forest as animal habitat and for recreation
3. to appreciate that trees are important and they need to be cared for - cut a tree and plant a tree
4. feel a responsibility to help look after trees

Forest Management Activities

*Terry Carr and the staff of the Boyd Conservation Field Centre,
Metropolitan Toronto and Region Conservation Authority*

Editor's Introduction

You have likely noticed the numerous unmanaged conifer plantations that occur on both public and private land across Ontario. Many of these plantations were established decades ago, mainly for erosion control and flood abatement. Today they are desperately in need of management - pruning, culling, and thinning. Yet lack of funds, time, and motivation often inhibit proper management, and a resource that could yield valuable timber is wasted.

Your students could learn about forest ecology and forestry principles by participating in the management of a conifer plantation.

It has often occurred to me that our students could learn a great deal about forest management and develop a respect for forests and forestry by participating in the management of these plantations. Just about every school is within a reasonable travelling distance of a conifer plantation that requires management. And, whether the plantation is owned by the local conservation authority, the Ministry of Natural Resources, or a private individual, you should have little trouble convincing the owners that they could use some free labour to manage the plantation.

Knowing that the Boyd Conservation Field Centre of the M.T.R.C.A. has a good forest management program to which students respond with enthusiasm, I asked Terry Carr for activities we could print in this

issue of Anee. Here is what Terry sent me.

Purpose

- 1) Learn the importance of forests.
- 2) Learn the reasons for management of our forests.

Introduction

By the end of the lesson the students will have accomplished the following:

- 1) planted two trees
- 2) after careful selection, cut down one tree
- 3) improved wildlife habitat by building brush piles

Discussion

- 1) Why are forests important?
- 2) What are some methods of management?
- 3) Why do we manage forests?

Safety Concerns

- 1) Proper handling of saws and shovels should be stressed.
- 2) All students and staff must wear hardhats during tree cutting.

Assignment of Duties

- 1) Divide students into groups of 5 to 7 people per each staff member.
- 2) Have each group choose a director and someone to be in charge of the equipment.
- 3) Divide the groups in half, with

some starting on planting and some starting on cutting and brush piles.

Outside Activity

- 1) Planting group will travel to area to select trees for transplanting. Each small group digs out two trees and transports them to the planting site. This will take approximately 30-45 min.
- 2) Each of the small groups selects a tree to be cut and uses a data sheet to record their information. The group will create a brush pile from deadfall and branches from their felled tree. This will take approximately 30-45 min.
- 3) The two groups will then switch and complete the other activities.

Follow-up

See two examples of possible follow-up.



FOREST MANAGEMENT: A FOLLOW-UP

A forest, if well managed, can represent an interesting income from the sale of firewood, pulpwood, or timber. But there are other benefits from trees. The forest is a part of a complex interaction between all plants and animals, including humans. It shelters wildlife, prevents erosion, protects river-bounded lands from spring runoff damages, feeds wildlife, supplies oxygen, and provides a windbreak in winter and shade in summer.

The Metropolitan Toronto and Region Conservation Authority provides us with well managed forests for many of these reasons, including several recreational opportunities.

Forest management involves many tasks including: habitat improvement, spraying, cutting, planting, and construction of recreational areas. In our program we deal with all of these except the spraying. This portion deals with tree cutting and habitat improvement.

What Trees Do We Cut?

Choose 4 trees from the drawing to the right that you would cut. Write their number and state why you would cut them.

Answers

Number - Reason

Trees to Keep!

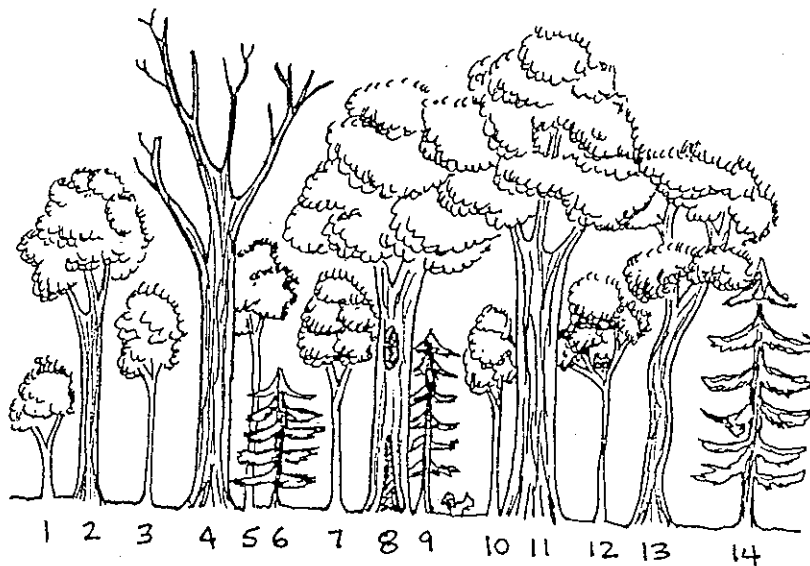
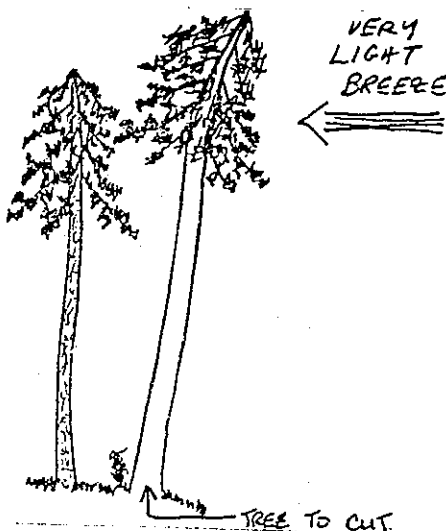
Trees and shrubs that border the forest and serve as a windbreak.

What are the numbers of those trees? _____

Good trees which are still growing. What are the numbers of those trees? _____

How To Cut A Tree

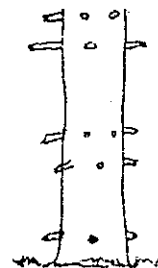
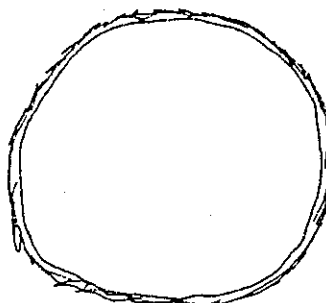
In the diagram below, choose and label the direction of fall, and draw into the trunk the wedge and back cuts. Which cut is made first?



The Age Of A Tree

For your tree: Number of rings ____; Number of internodes ____

For the tree shown below on the left, draw the first 5 rings from the centre of the tree in the cross-sectional diagram on the right. Also label the heartwood, sapwood, bark, and one example each of winterwood and summerwood.



The Brushpile!

Name the animals and other organisms that benefit. _____

FOREST MANAGEMENT: CUTTING AND FIELD STUDY CHECK LIST

Group # _____

1. Identify the Red Pine and choose the tree to be taken down. List three reasons for taking down 'this' tree:
 (a) _____
 (b) _____
 (c) _____
2. Count the internodes to determine the age of the tree. Record your answer: _____
3. Cut the tree down:
 (a) Cut out a wedge on the fall side of the tree.
 (b) Back cut on the opposite side.
4. When the tree is down draw a sketch of the stump.
5. Measure the internodes from the base of the stump to the top of the tree. Record your answers in the space provided below:

(a)	_____ cm
(b)	_____
(c)	_____
(d)	_____
(e)	_____
(f)	_____
(g)	_____
6. Smooth off the stump and bring a section back to the lab.
7. Spray the stump with the sodium nitrate solution to prevent root rot.
8. Cut a section ("pancake") for each member in your group.
9. Prune off and heap all branches into a slash pile.
10. Cut the tree into lengths and neatly stack the logs in the appropriate place.

How Do Forest Animals Cope with Snow?

Larry Weido,
Zurich Public School,
Huron County Board of Education

Editor's Introduction

This sequence of activities that Larry has submitted lead from a study of the density and surface hardness of snow to an investigation of the problems animals encounter when they must walk on or through snow.

Introduction

When snow first falls it is generally only 5% liquid water. This light soft snow has excellent insulating properties. It then packs into denser drifts, the tops remaining cold and the bottoms staying around the freezing point, the temperature of the ground. Water evaporates from the snow below and collects on the snowflakes higher up, making them larger and also denser. The bottom layer assumes a coarse granular structure or may be eroded away leaving vacant spaces next to the ground.

How Is Density Measured?

Density is defined as the mass of a unit volume of a substance. In stating densities suitable units must be used such as g/cm^3 . Note that the density of water in the metric system of measurement is 1 g/cm^3 .

Before doing your study of density with snow, the students should be familiar with the concept of density. The students can compare the relative density of combinations of four salt solutions of different concentration which are colour coded with food colouring. Typical concentrations are: volume of water - 1 litre; volume of salt - 100 mL, 50 mL, 25 mL, none.

Snow Bank Exercise: How Can Snow Density Be Measured?

1. Select a suitable area where snow has obviously drifted.
2. In order to obtain a clear overall picture of a snow bank, it is ad-

visable that the same steps be carried out at a number of points or stations along the length of the drift. Many students can participate with two or three at each station.

3. Establish stations along the length of the snow bank. At each station dig out a cross section of the drift. The sides of the cross section should be as nearly vertical as possible.
4. Perform the following activities at each station: (Demonstration of method)

Location 1: Ground level

Volume of can _____ cm^3
Mass of snow + can _____ g
Less mass of can _____ g
Mass of snow _____ g
Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Location 2: 20 cm above ground

Mass of snow + can _____ g
Less mass of can _____ g
Mass of snow _____ g
Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Location 3: 40 cm above ground

Mass of snow + can _____ g
Less mass of can _____ g
Mass of snow _____ g
Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Location 4: 60 cm above ground

Mass of snow + can _____ g
Less mass of can _____ g
Mass of snow _____ g
Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Location 5: 80 cm above ground

Mass of snow + can _____ g
Less mass of can _____ g

Mass of snow _____ g

Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Location 6: 1 m above ground

Mass of snow + can _____ g

Less mass of can _____ g

Mass of snow _____ g

Density = $\frac{\text{mass of snow (g)}}{\text{volume of can (cm}^3\text{)}}$
= _____ g/cm^3

Arrange the densities according to depth:

Bottom of drift Location 1. _____
2. _____
3. _____
4. _____
5. _____
Top of drift 6. _____

1. Compare and record any relationships between the depth and the density of the snow bank.
2. Graph the results.

Significance of Density

As already stated, the bottom layers of a snow drift are denser than those above, provided of course, that the snow bank is several days old. The denser snow has poor insulating qualities, but if it is deep enough or covered with light snow, it will still protect the animals and plants beneath. If the snow becomes packed by snowmobiles, the compressed area loses much of its insulating properties and the plants beneath the packed area may die.

Significance of Surface Hardness

When the first large snowfall comes to Ontario, it brings joy to the hearts of many snowmobilers, skiers, and tobogganists. As more snow accumulates, the happier these enthusiasts become. To all of them the snow surface is of great importance: the bet-

ter the snow surface, the better it is for various activities.

However, this same large snowfall may spell doom for some of the various animals that must seek their food and shelter in winter. To the white-tailed deer, deep snowfalls cause hardships and even death. As the deer must obtain tender buds, twigs, and needles of trees and shrubs, deep snow means that they must expend large amounts of energy to move through deep snow to the food source. Food must be within 30 m of a "deer yard" to be useful, as deer do not have long legs to get through deep snow: they are barely 1.3 m high at the shoulder.

Deer normally travel by packed trails in search of their food. But, when large snowfalls occur, these trails become blocked also. The only chance for the deer is to have heavily crusted snow caused by mild temperatures. Then the deer may walk over the hard surface of the snow in search of their food. Of course, a surface that is only lightly crusted greatly hampers deer movement. The deer break through the crust and have difficulty moving their feet through the snow.

This is just one example which shows that snow surface can and does affect many animals. Name five animals that are active in winter and must travel on top of the snow in order to survive.

- a) _____ Reasons _____
- b) _____ Reasons _____
- c) _____ Reasons _____
- d) _____ Reasons _____
- e) _____ Reasons _____

How Can Surface Hardness Be Measured

A very simple device can be used to measure the surface hardness of snow:

1. Place a 10 cm² plastic plate carefully on the surface of the snow.
2. Proceed to place gram masses on the surface of the plastic plate until it breaks through the surface of the snow. Record the total mass.

3. You may want to try different locations to get many measurements: these then may be averaged.
4. Use the following chart to record your observations:

Location	1	2	3	4
Total mass (g)				
Mass supporting capacity (g/cm ²)				
Conclusions				

Further Investigations

1. Find an area where the snow is quite deep. Stand in the snow without the snowshoes. Measure the depth of your tracks in centimetres.
2. Repeat the same activity in the same place but this time with the snowshoes. Measure the depth of your tracks in centimetres.
3. Inside, trace the perimeter of one of your boots on a large piece of graph paper (metric of course).
4. Repeat step 3 for the snowshoe.
5. Count the number of cm² that supported your body mass in each case. Compare the area of support with and without snowshoes to the depth of each track. Calculate the mass supporting capacity in g/cm² that you exerted in each case.
6. (a) From your measurements of how deep you sank into the snow, how far would the following animals sink into the snow? Use ratios to arrive at your answers.

Animal	Mass supporting capacity
Wolf	100 g/cm ²
Fox	40 g/cm ²
Lynx	34 g/cm ²
Ptarmigan	14 g/cm ²
Snowshoe hare	12 g/cm ²
White tailed deer	889 g/cm ²

- (b) Which of the above animals would have the least difficulty travelling over the snow? Which ones would have the most problems?

- (c) Graph the g/cm² for the animals researched or measured in the snow during a field trip. (See sample graph). Note that a plastic transparency with metric cm² is ideal for placing over a track in snow. The student then may count the squares and estimate the squares that are not whole. (See sample "Surface Area" diagram.) The graph vividly displays to the students why animals such as the snowshoe hare can travel easily over the snow. This is a particular adaptation which should be discussed.

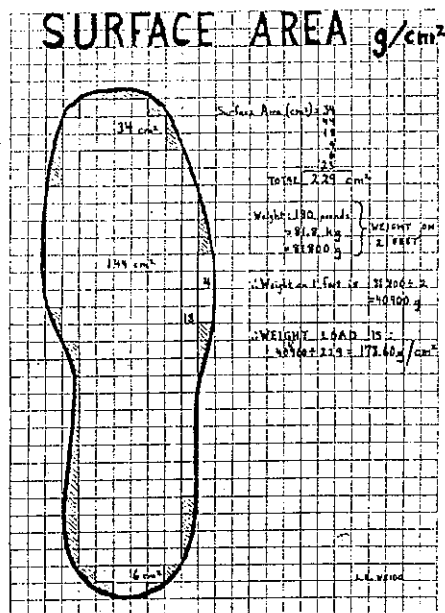
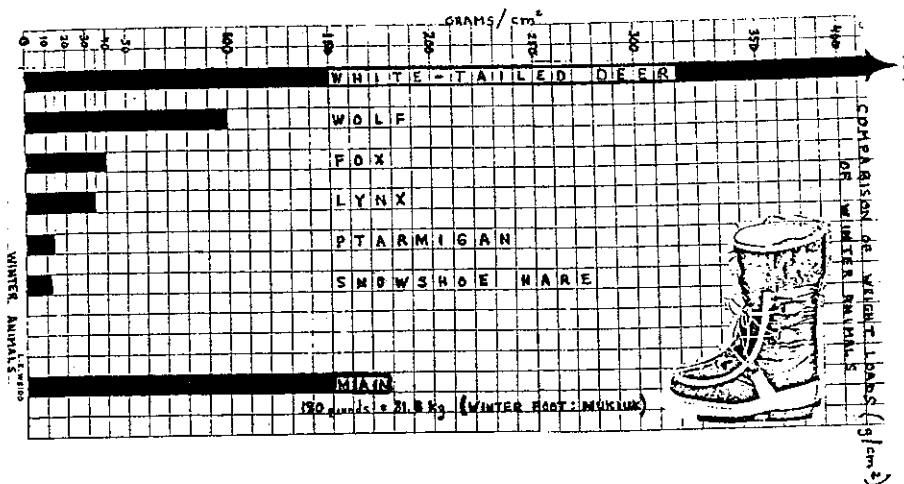
- (d) The following reference books may be used to obtain actual size tracks:

1. Chase, Charles and Myran, *Field Guide to Tracks of North American Wildlife*, NASCO, Fort Atkinson, Wisconsin, 1969
- Gives picture of actual size track.
2. Collins, Henry Hill Jr., *Complete Field Guide to North American Wildlife*, Eastern Edition, Harper & Row, New York, 1981
- You will have to enlarge these tracks to the size stated in the book.
3. Murie, Olaus J., *A Field Guide to Animal Tracks*, Houghton Mifflin Co., Boston, 1975
- You will have to enlarge these tracks to the size stated in the book.

For further information contact:

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If a Poplar Fell in a Forest without Someone to Harvest It, Would It Still be a Weed?

Bruce Murphy,
Boyd Conservation Field Centre, M.T.R.C.A.

As outdoor educators we often have divergent views on what we think we should be teaching our children to give them the ecological literacy they will need to safeguard the biosphere for all earthlings. For me the poplar has become both a symbol and a focus for articulating a viewpoint that seems to cut across the grain of fundamental belief and practice in outdoor education circles. Hopefully some of the ideas described here will provoke thought and require some of us to re-evaluate our thinking. In

order to articulate my thoughts on poplar, a personal digression will hopefully be tolerated.

My first introduction to poplar occurred on my very first canoe trip, which was really just an overnight affair. We paddled around a couple of lakes until we found a huge tree which had toppled near the shore. This led me to suspect that canoeing was merely a matter of paddling from fuel source to fuel source. This particular tree had big stubby branches

that looked like they had once been life support systems for chains of knuckles. The crackling and popping of the branches as they released their decades of sunshine and the smell of the sweet smoke put a spell on me. The wood didn't take long to burn but that didn't matter to me; it was a warm night; I was savouring my first night in the bush, and I loved putting wood on the fire; my conversation with the flames so to speak. Such was the scene that embedded poplar in my memory.

My next poplar encounter caught me totally unprepared. I was fortunate enough to be a junior ranger in boreal Ontario. Being a junior ranger was the first step in becoming a full fledged forester. I was young, naive and loved trees, good qualities for a future in the forest. It was with the keenness of youth that I pushed my way to the front to hear the unit forester talk to us about something called "releasing".

"This, gentlemen, is a poplar; it is a weed."

I gasped.

"Wherever we clear cut and try to reforest, it grows in faster than the pine can. We therefore have two options: We either spray these weeds with a herbicide or cut them down. We refer to this as releasing. You'll get lots of practice at it this summer. Any questions?"

"You mean we have to kill these poplar?"

"They are no good to us boy. Think of it as releasing the jack pine. By the time the poplar sprout up again, the pine will have enough of a head start to out-compete them. We need jack pine; we do not need poplar."

I was young, naive and loved trees. That summer I must have killed a million poplar and I am still not convinced I know why. The thought that I find most disconcerting is not that I gave up on forestry, instead of trying to influence the scene, but the thought that thousands of bright, young people who probably all love trees are being taught that poplar are weeds and should be wiped out.

What does it mean to call a tree species a weed? Is this a scientific or moral concept?

Let's then delve into this concept of a plant or tree being a weed. It stems from a philosophy or outlook that sees the world as a garden. The image of the garden conjures up the idea of a gardener who is there to

keep control and maintain order and make any improvements felt to be necessary to enhance the yield of the garden. Thus, species that are beneficial and of utility to humans are fostered and the ones thought to be a nuisance are wiped out, if possible. It is this philosophical arrogance that led the head of the U.S. Forestry Service in 1912 to set the pace for our century by proclaiming:

There are only two things on this planet, humans and resources. (Fox, 1984: 23)

The breakdown and the problem of the garden concept when applied to thriving biological communities is that it assumes we know enough about ecology that we can take entire species out of the web without disturbing the community, or as Aldo Leopold once put it:

A system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually eliminate, many elements in the land community that lack commercial value, but that are (as far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. (Leopold, 1981: 214)

It is important to re-evaluate our thinking of weed species and attempt to look at their ecological role in the community. "Weed" species often belong to a category of plants and animals known in successional terms as pioneers. Joseph Meeker gives us something to consider when he writes:

That we celebrate the qualities in human pioneers that we despise in pioneers of other plant and animal species. (Meeker, 1980: 42)

One would be better off to try to ponder rather than conquer pioneer plants as they will always attempt to create an environment that will lead towards more diversity and stability in the community. Our true role as educators may be to teach our youth to adapt rather than conquer. We are not engaged in a battle with nature; to teach that we are is a grave disservice to the future.

What we should teach is that we are part of nature not apart from it. Is the "gardener concept" compatible with this ideal?

We should also be very wary of the gardener in us. When we hear mention of individuals trying to "improve" the forest with genetic hybrids we need to be suspicious. Perhaps the time has really come when we need to recognize that our consumptive and economic needs are tempting us to change the very nature of nature. We must allow our children to gain a full view of ecological integrity and embrace the diversity of biotic communities rather than just see the world as resources and weeds.

It is probably very apparent that I am still naive and still love trees, but I should not mention all my good points at once.

References


- Fox, S. (1983). *Approaches to environmental history*. In N. Evernden (Ed.), *Symposium proceedings: The Paradox of Environmentalism* (pp. 7-17). Toronto: York University.
- Leopold, A. (1981). *A sand county almanac*. New York: Oxford University Press.
- Meeker, J.W. (1980). *The comedy of survival: In search of an environmental ethic*. Los Angeles: Guild of Tutors Press.

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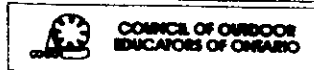
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