

Canada-Ontario Forest
Resource Development Agreement
Final Report 1984-1989



Forest Resource Development Agreement
Entente sur la mise en valeur de la ressource forestière

Canada

Ontario

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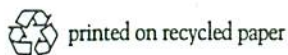


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A message from the Honourable Frank Oberle, Minister of Forestry, Government of Canada

I am pleased to present the Final Report of the Canada-Ontario Forest Resource Development Agreement (COFRDA). Over the past five years, the expansion of the Ontario forest management program has in no small way benefited from the substantial investments made through COFRDA.

Targets for increased seedling production capability and increased regeneration of forested land have been achieved. Forest research and technology transfer have supported this expanded program by producing new tools for today's forest managers.

In partnership with my provincial colleague, the Honourable C.J. (Bud) Wildman, I am proud of the contribution COFRDA has made to regenerating productive forest lands throughout Ontario. Forestry agreements across the country have had a significant impact on sustaining our forest resources. In the process, they have helped to increase awareness of the need to sustain the development of forest lands for both economic and environmental purposes for future generations.

A message from the Honourable C.J. (Bud) Wildman, Minister of Natural Resources, Government of Ontario

It is with great pleasure that I present the Final Report of the Canada-Ontario Forest Resource Development Agreement. This co-operative agreement has made a significant contribution to the management and renewal of Ontario's most important resource, its forests.

Forest management is as important to forestry as forestry is to Ontario's environment and its economy. And COFRDA has played a key role in supporting my ministry's forest management program. Over five years, the Agreement has provided \$150 million for regeneration, renewal and research - vital elements in the task of sustaining our forest resource.

COFRDA has also enhanced the co-operative spirit present in the forestry community. The Agreement has brought together many different people and organizations, all of whom share a commitment to Ontario's forests. Governments, Indian bands, universities, consultants, the forest industry - all have played a role in this most important and satisfying co-operative venture.



*The Honourable C.J. (Bud) Wildman,
Minister of Natural Resources.*



*The Honourable Frank Oberle,
Minister of Forestry.*



INTRODUCTION

The Canada-Ontario Forest Resource Agreement (COFRDA) has been a vital tool in the nurturing and management of Ontario's forests. Signed in 1984, the \$150 million co-operative cost-sharing agreement between the Government of Canada and the Government of Ontario has been a major component of Ontario's forest renewal program, providing funding for 20 percent of the province's regeneration accomplishments over the last five years.

The results have been impressive: 110,000 hectares (ha) of forest land have been regenerated; 166 million tree seedlings have been purchased; 400 kilometres of forest access roads have been built; a sophisticated computerized forest fire detection and monitoring system has been purchased and installed; a forest education program has been developed; and the list goes on.

These results support COFRDA's objectives: to increase the socio-economic benefits associated with a healthy forest industry in Ontario, and to protect and enhance the recreational and environmental values supplied by Ontario's forests. The forest sector is an integral part of Ontario's economy. More than 72,000 Ontario residents are employed directly in the forest industry and thousands of others work in industries that utilize wood and wood products.

For many northern communities, the forest is their lifeblood. But the benefits extend beyond the north — everyone in Ontario depends on the forest industry, whether it's for their morning newspaper or a new home.

COFRDA's success owes much to the dedicated and innovative spirit of its partners and participants; from governments to private business, and from scientist to bush worker, there has been a strong commitment to the Agreement and to Ontario's forest industry. Whether one chooses to focus on the forest management achievements of 53 Indian bands, or the \$5 million contributed by forest industry companies to COFRDA projects, the message is clear — the Agreement's success has been a co-operative one.



COFRDA's success owes much to the dedicated and innovative spirit of its partners and participants.

The objectives of the Agreement were to increase the socio-economic benefits associated with a healthy forest industry in Ontario, and to protect and enhance the recreational and environmental values supplied by Ontario's forests.



More than 72,000 Ontario residents are employed directly in the forest industry and thousands of others work in industries that utilize wood and wood products.



PROGRAM ADMINISTRATION AND FUNDING

The Ontario Ministry of Natural Resources (MNR) - the province's manager of its vast Crown landholdings - has had primary responsibility for implementing COFRDA. Forestry Canada-Ontario Region (FCOR) also played an important part in administering the cost-shared component of the Agreement and had primary responsibility for research and forest management on federal Crown land.

The Agreement was divided into four major program components: Forest Management and Renewal Operations; Forest Management and Renewal Support; Innovative Programs; and Administration, Communications and Evaluation. Funding for the four program areas is shown in Figure 1. COFRDA's total allocation of \$150 million was shared equally by Canada and Ontario with each government contributing \$75 million.

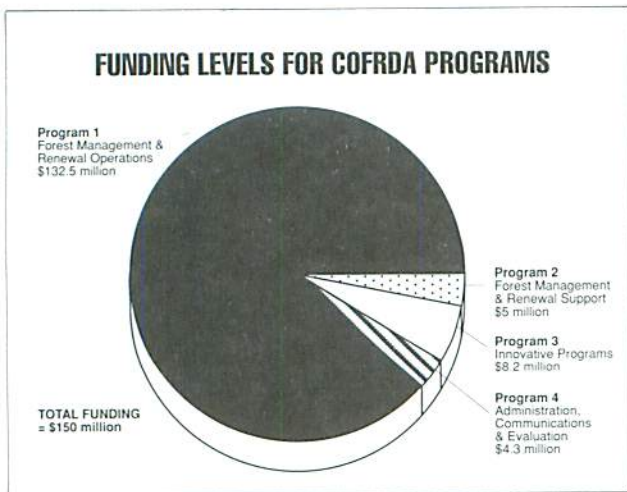
FOREST MANAGEMENT AND RENEWAL OPERATIONS (Program 1)

This program was the largest and most extensive under COFRDA, reflecting the Agreement's emphasis on forest maintenance and renewal.



■ Under COFRDA, 110,000 ha of forest land have been regenerated.

Projects in this program were designed to increase the long term timber supply from Ontario's forests through increased reforestation, intensive forest management practices and improved road and bridge access to forest stands. These activities were divided into five sub-program areas: intensive forest management on Crown land, stock production, tree improvement, private land forestry and forest access. Over the past five years, \$132.5 million has been spent under Program 1, representing 88 percent of total COFRDA expenditures.



■ Figure 1
Funding levels for COFRDA programs.

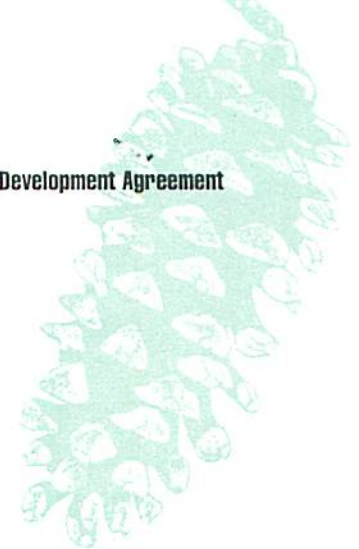
Intensive Forest Management

This sub-program has financed regeneration of Crown forest areas which were depleted by harvesting or by natural causes such as fire or insects. Forest renewal involved preparing forest sites, seeding, planting and tending young trees. Other activities included site preparation through prescribed burning and enhanced fire management through expanded facilities and increased education.

COFRDA funded the regeneration of 98,000 ha of Crown land, 36,000 ha of tending and 106,000 ha of site preparation, including 42,000 ha through prescribed burning.

A component of this sub-program designed to improve forest management on Indian reserves was carried out by FCOR.

By helping Indian bands manage their forests for wildlife and recreation in addition to commercial forestry, a contribution was made to social and economic development on the reserves. FCOR contributed up to 90 percent of the costs, with the balance provided by the bands or Indian and Northern Affairs Canada.



■ COFRDA provided funds for prescribed burning of 42,000 ha to prepare sites for renewal.



■ Forest renewal involved preparing forest sites, e.g., with this disc trencher, as well as seeding, planting and tending young trees.



■ The Intensive Forest Management sub-program financed the regeneration of Crown forest areas that were depleted by harvesting or by natural causes such as fire or insects.

A COFRDA Perspective

“With the introduction of the Indian Reserve Lands component into COFRDA, the door has been opened for bands to deal with the province and industry on resource issues. Forest management means long-term management and I see a bright future for the many bands that took advantage of this tremendous program.”

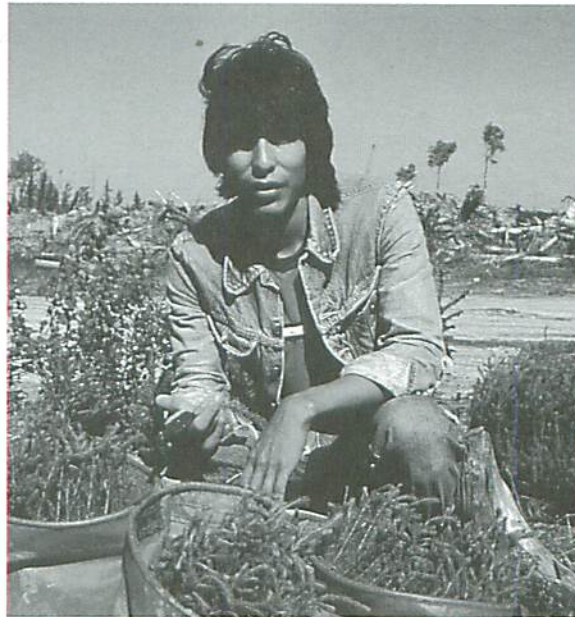
- Willie Wilson, Chief,
Rainy River Band and Chairman, Indian
Forestry Development Program.

Protecting forests from fire is also an important part of forest management. COFRDA contributed \$1 million to purchase and install a computer system at MNR's Aviation and Fire Management Centre (AFMC) and at five regional fire centres. The new computer equipment provides weather, fire and forest information and greatly enhances AFMC's ability to predict fire occurrence and behaviour.

The project was completed in 1988 when the computers at the regional centres were linked with AFMC. The system - a province-wide forest fire monitoring network - proved its effectiveness during the summer of 1988 when drought and record high temperatures triggered

one of Ontario's worst forest fire seasons on record. Rapid identification of lightning strikes and accurate prediction of fire behaviour helped fire crews keep damage to a minimum.

In southern Ontario, responsibility for fighting forest and grass fires lies largely with local municipal fire departments. COFRDA contributed \$200,000 to help MNR develop a 16-unit instruction program on forest fire fighting for municipal fire departments. The self-teaching program consists of audio-visual slide presentations with an accompanying workbook.



■ Helping to improve forest management on Indian reserves was another achievement of the Intensive Forest Management sub-program.



■ New computer equipment installed at the Aviation and Fire Management Centre and at five regional fire centres greatly enhances the ability to predict fire occurrence and behaviour.

Stock Production

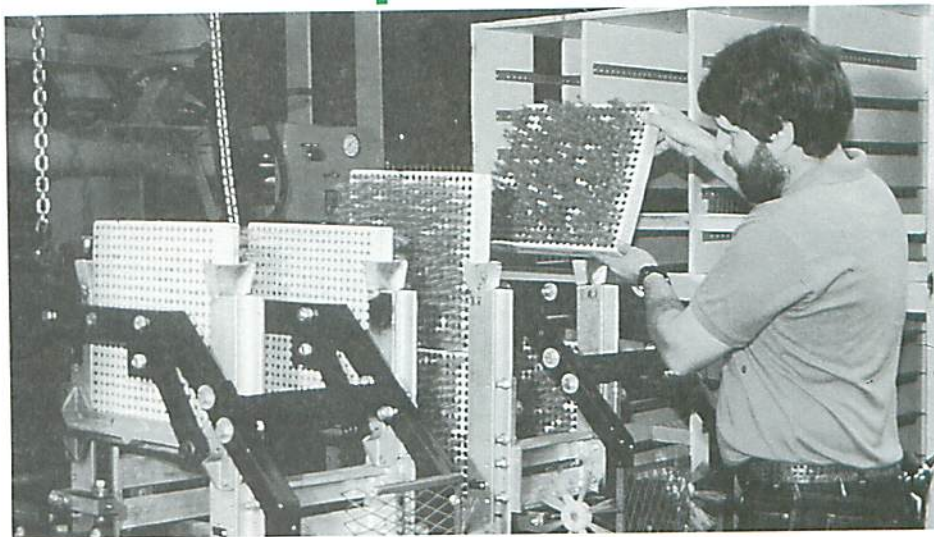
The Stock Production sub-program was designed to increase the number of tree seedlings available to help meet reforestation targets. The seedlings are grown by private growers, located primarily in northern Ontario. COFRDA funding under this sub-program enabled the purchase of more than 166 million trees for planting on provincial Crown and private land.



COFRDA funding permitted the purchase of more than 166 million trees for planting on provincial Crown and private land.

Funding was also provided to convert a California lettuce transplanter to a black spruce seedling planter. Using this new technology, seedlings are grown in greenhouses for three months then mechanically transplanted into nursery beds for further growth. At two years of age, the seedlings are ready to be shipped and planted. Black spruce seedlings are normally grown for three years prior to shipping, thus this technology reduces growing time by one third, resulting in significant cost savings.

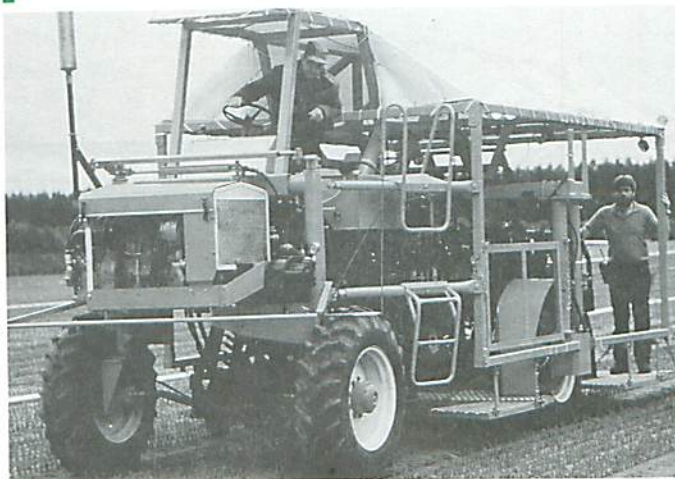
A California lettuce transplanter was converted to a black spruce seedling planter.



This new system improves seedling growth and survival, and reduces growing time by one third.



Seedlings grown by private growers have helped meet reforestation targets.



Tree Improvement

The Tree Improvement sub-program was established to enhance the quality of Ontario's future forests. By studying tree genetics and selecting the best trees for breeding and seed orchards, scientists can help establish healthier, faster-growing trees. About 30 tree improvement projects were funded over the course of the Agreement, including five multi-year projects conducted under the auspices of the Ontario Tree Improvement Council (OTIC) with \$1 million in COFRDA funding. The objective of the projects was to help increase the supply of industrial roundwood (timber for use by the pulp and paper industry) by developing high-quality trees that mature quickly and have high yields of wood fibre.



Activities included selecting the tallest and healthiest trees in a section of forest and collecting their cones. Seeds from these "plus trees" were then used to establish production seed orchards of genetically superior trees. Breeding orchards have also been established using scions (a plant part, usually a branchlet) from plus trees which have been grafted onto root stock. Scientists believe trees from these orchards will lead to the development of improved stock for reforestation.

Forest companies recognized the value of this work and many cooperated in tree improvement projects including Abitibi-Price, Quebec and Ontario Paper, Canadian Pacific Forest Products, Malette, Boise Cascade Canada and E.B. Eddy Forest Products. These companies contributed \$1 million to COFRDA tree improvement projects.

A COFRDA Perspective

"COFRDA funds have allowed OTIC members to establish in four years what would have perhaps taken us ten years to establish without COFRDA funds. As a result, genetically improved seed will be used in the plantation program much sooner than anticipated and, with an annual planting program of 48 million trees in our area of concern, could account for a substantial increase in yield and quality."

- Jim Coles, Director,
Ontario Tree Improvement Council.

Tree improvement projects have helped in the development of high-quality trees that mature quickly and have high yields of wood fibre.

Private Land Forestry

The Private Land Forestry sub-program has helped to improve forest management practices in private woodlots, with the aim of increasing the timber supply and improving the quality of forest on these holdings.

COFRDA funding has enabled MNR to improve advisory services to landowners with various ambitions for their small woodlots. Some strive to improve the quality and quantity of timber from their lands, while others wish to develop maple syrup potential, improve wildlife habitat or discuss environmental concerns. In addition, COFRDA funded 12,000 ha of regeneration, 24,000 ha of tending and over 7,000 ha of site preparation on private land.

FCOR shared the costs of forest management activities carried out on lands owned by large companies. Companies co-operating in this sub-program included Algoma Central Railway, Abitibi-Price, Domtar, E.B. Eddy Forest Products, Newaygo Forest Products and RKM Wood Products. Almost \$2 million was contributed by the companies for renewal activities.

Forest Access

Good resource management depends largely on good access. Roads and bridges must be built and maintained so that users of the forests can gain access to it. An extensive road network permits improved fire protection and access for tourists, hunters and anglers for recreation. A total of 400 kilometres of forest access roads and 14 bridges were constructed or rebuilt under this sub-program. Two million dollars in funding has been shared equally by MNR and FCOR; MNR provided an additional \$12.6 million. Company contributions to access projects represent 50 percent of the costs of these roads.

A total of 400 kilometres of forest access roads and 14 bridges were constructed or rebuilt under the Forest Access sub-program.



The Private Land Forestry sub-program has helped to improve forest management practices in private woodlots.



FOREST MANAGEMENT AND RENEWAL SUPPORT (Program 2)

Accurate and up-to-date information about the forest resource is essential for effective forest management. The Forest Management and Renewal Support Program provided \$5 million to build on and improve existing information systems which deal with Ontario's forests.

One of the projects undertaken under this program was the acquisition and installation of a computerized Geographic Information System (GIS) by MNR. The system combines data from forest stands with geographic information, allowing forest managers to create custom, computerized maps which can be used in the development of forest management plans. In 1989 the Iroquois Falls Forest became the first forest management unit to be completely mapped using the GIS.

New methods of gathering information for the forest inventory are being explored. One approach investigated under COFRDA makes use of a Multi-Spectral Imagery Scanner. The scanner, carried by an aircraft, digitally records data about vegetation as the plane flies over the

forest. The information is processed by computer. Foresters can then determine the health, tree species and harvest potential of the forest.

Another project funded by COFRDA is the Prime Land Inventory. Information about soil type, geography and forest stand conditions was compiled and a site classification key was developed. The key describes and defines different forest types, allowing managers to compare sites. As well, an intensive soil survey was completed resulting in detailed maps of soil conditions on a variety of sites in MNR's Northern Region. The information gathered under this inventory will be used to make more cost-efficient silvicultural decisions by identifying the best sites for intensive forest management treatments.

Two forest site classification projects were funded under COFRDA - one in northwestern Ontario and another in the Algonquin Region. A goal of these projects has been to provide foresters and other resource managers with a simple, common language for describing forest sites. Site classification systems also provide foresters with the means to assess management options and evaluate silvicultural successes and failures. These systems simplify ecological and silvicultural relationships and are essential for more successful intensive forest and resource management.



The new Geographic Information System purchased under COFRDA allows forest managers to create custom, computerized maps that can be used in the development of forest management plans.



Under the Prime Land Inventory, information about soil type, geography and forest stand conditions was compiled and a site classification key was developed.

INNOVATIVE PROGRAMS (Program 3)

Innovation is a combination of imagination, foresight and practical know-how. Canada and Ontario recognized the importance of innovation in forest management and a separate program was created under COFRDA to promote new forestry ideas and techniques. The program is the second largest under the Agreement, with \$8.2 million in funding. There are four sub-program components, all of which emphasize innovative concepts to improve forest management and renewal.

Methodology to Optimize Investments

Forest management requires not only silvicultural expertise, but financial knowledge as well, so that resources directed to forest management are spent in a prudent and effective manner. Studies conducted under this sub-program have been designed to develop models for forest managers so that silvicultural investments are made wisely.

One study conducted under this sub-program was the Tomiko Pilot Project. An economic model was developed to assess treatment costs, mill-delivered product values and yield tables for use in MNR's Northeastern Region's forest management planning process.

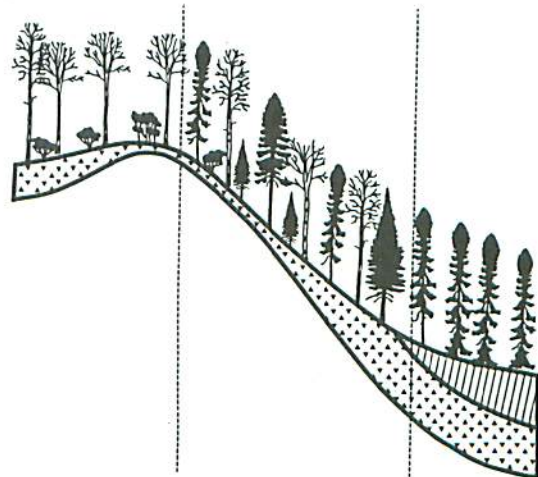
A prescribed burning model developed under this sub-program to evaluate management regimes will benefit forest management decisions by encouraging alternative silvicultural treatment options, providing awareness of areas in which knowledge is lacking and encouraging dialogue between prescribed burn specialists and forest managers.

These models will help foresters determine how to maximize the return on forest investment.

Two forest site classification projects funded by COFRDA are providing managers with simple, common languages for describing forest sites.



Information gathered by a Multi-Spectral Imagery Scammer is helping foresters determine the health, tree species and harvest potential of the forest.



Integrated Resource Management

Integrated forest management is wise forest management. That means taking into account wildlife, fisheries, tourism and recreation values, and modifying management practices to satisfy all concerns. Over the course of the Agreement, COFRDA funded six projects under this sub-program.

One study looked at the effect various types of timber cutting methods have on moose habitat and population, while another examined the impact of herbicide use on vegetation which provides food and shelter for fur-bearing animals.

As well, a video on the interdependence of forestry and wildlife was produced to encourage dialogue between foresters and biologists.



■ In one of six projects funded under the Integrated Resource Management sub-program, the effect of various types of timber cutting methods on moose habitat and population was studied.

Research, Development and Application

This \$6.5 million sub-program supported basic and applied research studies geared to improving forest management and renewal operations. The emphasis has been on projects which increase the transfer of forestry technology from theory to use in the field. Activities also included seminars, training courses and the production of an instructional audio-visual program. Because of the federal government's role in forestry research, the largest part of the program (\$4.5 million) was funded and delivered by FCOR, with the remaining \$2 million shared by the two governments.

Fifty-eight projects have been conducted under this sub-program, including a project to improve the drought and heat resistance of seedlings by carefully withholding water and exposing them to non-lethal doses of heat. The long-term goal of this research is to develop hardier seedlings with greater survival rates in the field. A related project looked at how temperature, light and fertilizer affected bud initiation in container crops which are to be over-wintered outdoors. This research is helping determine factors which can improve survival rates in nursery stock.

The results of these and other COFRDA research studies were showcased in Toronto in November 1989 at the Forestry Research Marketplace, another COFRDA-funded initiative.

Marketplace highlighted forest research undertaken through COFRDA and by universities, the private sector and other government agencies. More than 150 exhibitors displayed their work and shared information about technology and achievements in forest research and development.

A COFRDA Perspective

"COFRDA funding for research projects resulted in valuable experience for, and training of, graduate students that will yield longer term benefits to forestry in Ontario and Canada; contributed to the improved interaction of the Faculty researchers with industry and government through the conduct of the studies and dissemination of results; and stimulated the overall program of the Faculty."

- David C.F. Faile,
Assistant Dean, Research,
University of Toronto.



■ Fifty-eight research projects were aimed at improving forest management and renewal operations; many of them emphasized the transfer of forestry technology from theory to use in the field.

Utilization, Marketing and Product Development

This sub-program has helped finance initiatives which encourage the complete use of all forest stands and tree species through product development and marketing. Private forest companies have been encouraged to play a part in these activities. Finding new methods to utilize existing fibre is one way of ensuring the best use of the present timber supply. Projects dealing with reducing waste and improving utilization focused on fire-killed timber, sawmill residues, conifer plantation thinnings and tamarack use in pulp production.

Marketing is being examined through a study of the potential market for Ontario lumber products in selected European nations.

ADMINISTRATION, COMMUNICATIONS AND EVALUATION (Program 4)

This program was designed to ensure the effective administration and delivery of COFRDA programs, to provide information on the importance of forestry to the people of Ontario and to evaluate the effectiveness of the Agreement. A total of \$4.3 million was allocated to the program.

Informing the public about forestry was an important part of the program's objectives. Extensive communications and information initiatives were conducted to increase public awareness and understanding of forestry, its contribution to society and the problems facing the forest sector.

Forestry promotions were sponsored by COFRDA during National Forest Week and at several Sportsman's Shows. As well, the results of several research studies conducted under COFRDA have been published. Information brochures and videos about topics as diverse as identifying root rot in conifers, integrated resource management and forest ecosystem classifica-

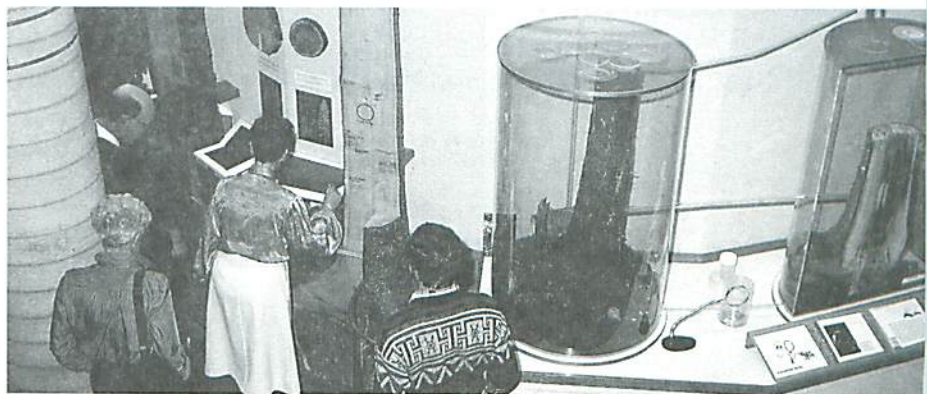
tion systems have also been produced. Additional reports will be published as other projects are completed. These reports are available from the Public Information Centre, Queen's Park, Toronto.

COFRDA also contributed to the design and construction of an exhibit about forest management at Science North in Sudbury. The exhibit, designed to promote awareness of forest management, will be part of the Centre's Biosphere section which deals with northern ecosystems. Under the theme "A Man Managed Forest", the exhibit will use 'hands-on' activities to explain the importance of forest management and forest products in Ontario.

School children are learning about forest management in their classrooms as well, thanks to the "Focus on Forests" education program funded by COFRDA. The program was launched as a pilot project in 95 schools across Ontario during the 1988-89 school year. The program introduces school children to principles of forest ecology and forest management using a wide range of educational approaches. Full-scale introduction of "Focus on Forests" into the curriculum of Ontario primary and secondary schools is taking place in 1990.



Elementary and secondary school students throughout Ontario are learning about forest management in their classrooms, thanks to the COFRDA-funded "Focus on Forests" program.



The creation of a forestry exhibit at Science North was one of many communications initiatives that helped to increase public awareness and understanding of forestry, its contribution to society and the problems facing the forest sector.

A COFRDA Perspective

"COFRDA funding of public forestry awareness was very useful. Information notes, posters, photographs, several exhibits, an interpretive trail, Woody the Talking Tree, National Forest Week announcements and media materials were among the many items supported. The positive educational impact of the Agreement will be long felt through the "Focus on Forests" program."

- Robert N. Staley, Past President, Ontario Forestry Association.

LOOKING AHEAD

Although COFRDA officially expired on March 31, 1989, the Agreement included provisions to fund on-going projects to 1991. A substantial number of studies were completed in 1989-90 and final reports prepared. The Agreement also provided for a final evaluation of the programs and studies conducted under COFRDA.

Over the past five years, COFRDA has contributed significantly to the health and management of Ontario's forests. Forest renewal and research have received an important boost from the Agreement. Moreover, COFRDA has provided a model for future co-operative forest management initiatives.

COFRDA's commitment to the long-term viability and development of Ontario's forest industry has also been a model. The forest sector is of vital importance to the provincial and national economies: agreements such as COFRDA demonstrate that forestry can be at the top of the country's agenda, and that support for the forest industry can be energetic and long-term.



■ *COFRDA has made a valuable contribution to the long-term viability and development of Ontario's forest industry.*