



timberlines

Forestry Canada, Northwest Region

Second quarter, April 1991



A project that showed mixed aspen-spruce stands can be effectively harvested to preserve the spruce understorey is an award winner. Please see page 3.

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Forestry Canada Forêts Canada

Canada

Maple syrup festivals— coming soon to Saskatchewan?

The sweet smell of steam rises from a large pot of boiling syrup. Children hover nearby, their mouths watering. Just a few more minutes, and the syrup will be ready to make taffy-on-snow.

It's a scene that takes place every spring in eastern Canada, where the maple syrup industry has thrived for more than a century.

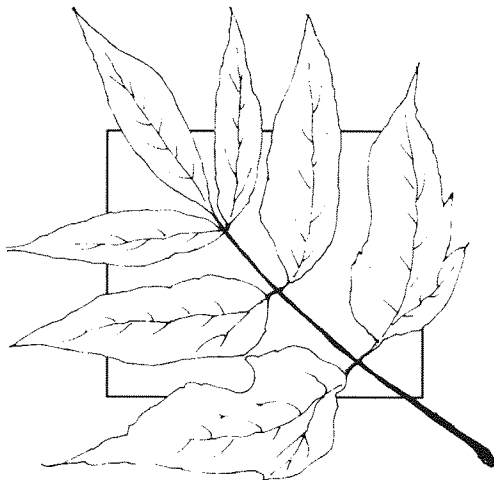
Imagine a similar tradition being established in Saskatchewan using Manitoba maples instead of sugar maples. And think of the money to be made, says Jim Johnston, a private lands forestry specialist with Forestry Canada in Prince Albert.

"With scientific research and a strong marketing strategy, farmers could tap into a source of extra cash. I can see a farmer bringing in \$10,000 in a season from the sale of maple syrup."

Some may scoff at the idea, but Mr. Johnston thinks he is on the right track. "A few years ago I heard stories about people tapping Manitoba maple trees in Manitoba. So

one day last spring when I was out visiting a friend on his farm, we decided to tap some of his trees."

Within the first 3 hours they had collected a gallon of sap from each tree. They boiled it down and



were pleasantly surprised by the results. "The syrup is very sweet and has a somewhat lighter taste than the traditional variety," Mr. Johnston says.

Excited by his discovery, he decided that the commercial possibilities were worth looking into. "I arranged for a consultant in Ottawa

to research legislation and the cost of production. But we have to get people interested, get the word out," he says.

A key issue is marketing— finding the markets and making a profit. To ensure a profit, the producer has to sell directly to the consumer. A maple syrup festival would give producers direct access to the consumer and a quick return, explains Mr. Johnston.

A lot of work has to be done before Saskatchewan celebrates the sugaring-off season. "First we need to gain more information on tree management. That's where Forestry Canada can help."

Mr. Johnston suggests that producers could also draw on information from Ontario. Having been raised in Elmira, Ontario, he knows the recipe for the industry's survival: a combination of smart economics and creative marketing.

Perhaps in a few years, Prince Albert will close off its main street for a maple syrup festival. "There's lots of potential for a maple syrup industry in Saskatchewan. Just watch and see what happens," Mr. Johnston advises.

—L. Worster

First national forestry account published

Forestry Canada has published its first annual national account of forestry, *The state of forestry in Canada*. One of the report's key findings indicates that between 1976 and 1986, the net growing volume of Canada's forest capital increased by 2.5%, or 693 million m³.

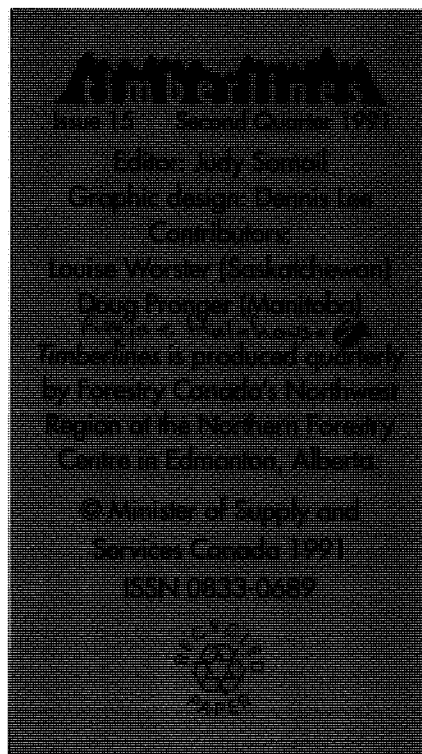
"This report provides a summary of the aspects of our forests, our timber resources, and the forest industry as well as areas we need to continue to develop, such as data on the environment and nontimber values," commented Forestry Ministry Frank Oberle. "It shows that we have made real gains in forest management over the last 10 years, yet the report recognizes that there is still much to be done."

Mr. Oberle also noted that increased reforestation efforts are

helping to maintain the forest resource managed by the provinces. "Since 1984, over \$1.1 billion has been invested to improve Canada's forests as a result of continued government support for federal-provincial forestry development activities."

He expressed concern, however, with the report's findings that Canada's productive forest land declined by 2% (4.74 million hectares) between 1976 and 1986 as a result of urbanization, preservation, and losses due to fire, insects, and disease.

Future annual reports are expected to refine and highlight changes in this first national forestry balance sheet. Each year a particular aspect of forestry will be reviewed and analyzed in depth.



PROGRAM PERSPECTIVES

FORESTRY CANADA, NORTHWEST REGION

1991-92

Forestry and environmental issues have continued to dominate the public eye over the past year. For Forestry Canada's Northwest Region staff this has emphasized more than ever the need for us to continue to uphold the excellence in forest research and development that has been our reputation for the past 90 years.

This is not to suggest that in the coming year we will be sitting back and resting on our past achievements. Instead, our staff will be working with a renewed sense of direction as various aspects of the Northwest Region's 1990-95 strategic plan are implemented and put into place. For example, three of our five new thrusts—climate change, decision support systems for mixed-wood management, and creation of a technology

development unit—have been developed into distinct projects.

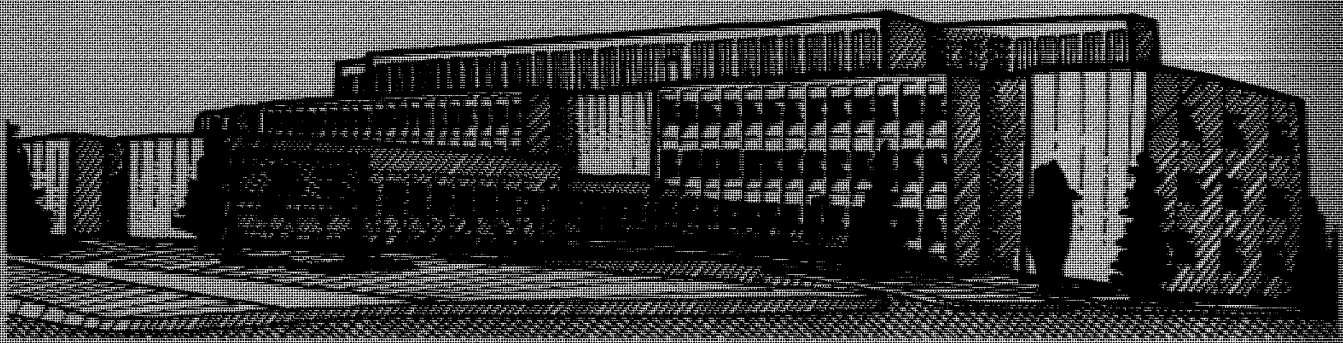
Further impetus to regional program delivery has been provided by the recent signing of a new \$30 million Canada-Manitoba Partnership Agreement in Forestry. Similar federal-provincial and federal-territorial accords are anticipated to be signed with Alberta, Saskatchewan, and the Northwest Territories in the very near future. These agreements will identify additional research and technology transfer and will provide essential funding for enhancements to ongoing programs.

The federal government's Green Plan, announced in December 1990, identified two major forestry initiatives: the Partnerships for Sustainable Forestry and the

Community Tree Planting programs. We anticipate that these will generate significant new resources for research and operational forestry activities in the years ahead and look forward to consultation with our forest sector partners to ensure that these initiatives are timely and relevant.

Program Perspectives is intended to give you a sense of the new ways in which we are committed to responding to your needs. It is not a comprehensive summary of all our planned activities for 1991-92 but focuses on some of the newer and more significant work we intend to continue or to initiate as resources become available.

—A. D. Kill
Regional
Director General





FOREST RESOURCES

Over the years, the Northwest Region's Forest Resources Program has been acknowledged as a source of expert knowledge and research in the region. In the year ahead, an exciting change of direction that makes better use of that expertise will take shape. A new Program Director, filling the position left vacant when Ross Waldron retired, will guide the individual projects

and easily accessible information in the form of client-oriented decision support systems (DSS) for management of boreal mixedwood and aspen forests.

One of five new thrusts identified for the Northwest Region was development of operational decision support systems. This also relates directly to Forestry Canada's national strategic plan and its intent to foster integrated

management and sustainable development of Canada's forest resources.

The Forest Resources Program has prepared its own detailed strategic and action plans for the next 5 years. The program's new focus stresses an ecosystem approach from forest stand to land-

scape that includes nontimber values such as wildlife and is aided by such tools as geographic information systems (GIS), data base management systems, remote sensing, and DSS.

While many of the previous activities will continue, others such as nursery management are being wrapped up.

Strategies for integrated resource management on mixedwood and hardwood land bases are being developed, with an emphasis on prototype models that are adaptable to regional forest resource management systems and client needs.

One important initiative in the next year will be work on a predictive site classification mapping system that will provide the link between the stand and the land and will add the spatial dimension to other modeling efforts within the Forest Resources Program.

The mapping system is being developed in cooperation with the Alberta Research Council and Hughes Aircraft of Canada Ltd. In addition, Millar Western Industries Ltd. and Canadian Forest Products Ltd. (Canfor) have supported detailed site mapping conducted by Forestry Canada staff in two pilot areas, which will also be used to test the predictions of the NAIA mapping system.

The NAIA Program (named after a company conducting spatial integration research) is in its second of three years. This year the emphasis will be on developing prototype software to integrate geographic



toward an increased emphasis on multidisciplinary research that considers a variety of forest land use objectives.

Our researchers have traditionally produced a large data base of valuable but fragmented research results. Now, the primary focus will be on organized, integrated,

FOREST RESOURCES
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FOREST PROTECTION AND ENVIRONMENT

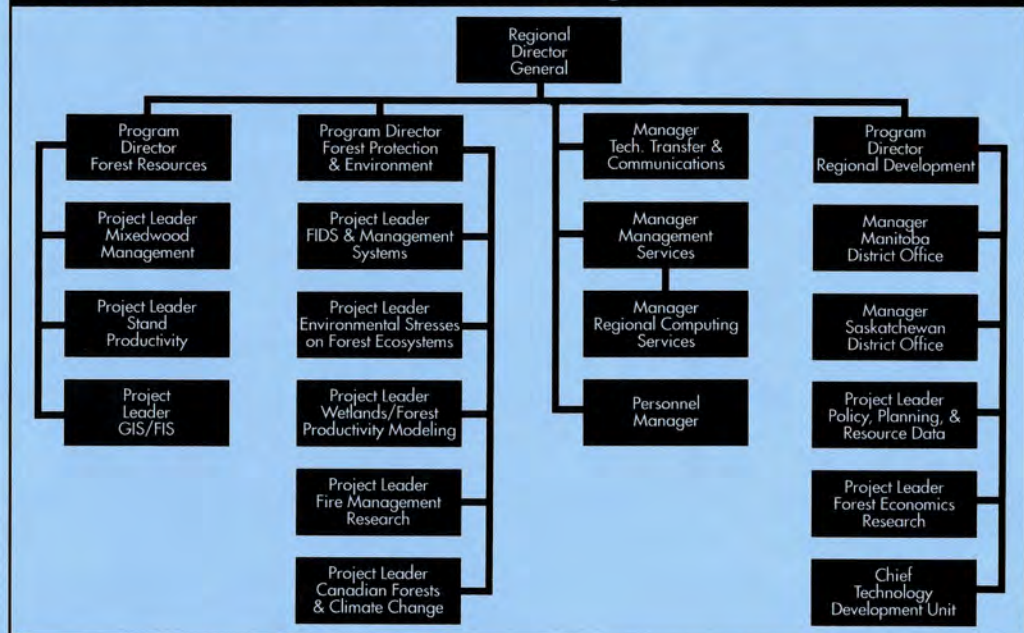
As the Northwest Region's largest program, the Forest Protection and Environment Program's direction for the next year has been strongly influenced by three of the Northwest Region's five new strategic thrusts: development of mixedwood decision support systems with linkages to fire management, insect and disease survey, and pest management projects; evaluation of the effects of climate change on forests; and emphasis on research in support of integrated multiple-use forest management.

Perhaps the most significant new activity is creation of a Canadian Forests and Climate Change project to carry out the Northwest Region's role as the departmental lead agency in climate change work. Staff in the project will coordinate Forestry Canada's activities nationally and internationally in addition to conducting regional research. It is anticipated that funding for this initiative will come from the Government of Canada's Green Plan.

The two main objectives of the project are to evaluate the effects of anticipated climatic changes and seasonal variability on forest growth, distribution, and productivity and to identify alternatives for

international studies such as BOREAS (Boreal Ecosystem Atmosphere Study) in conjunction with NASA (the U.S. National Aeronautics and Space Administration) and NBIOME (Northern Biosphere

Forestry Canada's Northwest Region



forest management within changing environmental conditions.

Because this is a new project, the initial efforts will focus on preparation of a research action plan. Then work will begin on developing models to predict the impacts of climate change on forest productivity.

There also will be ongoing cooperation in national and

Observation and Modeling Experiment).

The former Environmental Impacts and Vegetation Management project is now called the Environmental Stresses on Forest Ecosystems project and has a new emphasis as the 5-year herbicide environmental impacts study winds

FOREST PROTECTION
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REGIONAL DEVELOPMENT

▶ For the Regional Development Program, the upcoming year will again be one of waiting and being ready to spring into action at the scratching of a pen to get activities going under new federal-provincial forestry agreements. The \$30 million

splitting the Resource Economics project. Staff in the Forest Economics Research project will provide ongoing assistance to researchers in other programs to develop economic analyses for their studies. In addition, in the coming year there will be a

statistics and expenditure data. Work will begin this year on preparing industry profiles and directories for the provinces in our region.

The Regional Development Program will also be responsible for coordination of specific Forestry Canada

activities under the Government of Canada's Green Plan, particularly the Community Tree Planting program.

A Technology Development Unit has been established to proactively develop and transfer knowledge and technology to clients and promote innovation in the forest sector. Within the next year a chief and two technicians will be hired to deliver these services and maintain ongoing linkages with all Northwest Region programs.

Planning has begun for establishment of an Aspen Innovation Centre, which will be a complete clearing house for information on aspen management, utilization, product development and marketing, and biotechnology.



▶ Canada-Manitoba Partnership Agreement in Forestry was signed on March 25, and similar agreements are pending with Saskatchewan and Alberta. A smaller agreement is being negotiated with the Northwest Territories for the first time.

▶ Two new projects have been created as the result of

▶ joint research study with the University of Alberta on forest sector dependency in the prairie provinces.

▶ The Policy, Planning and Resource Data project will continue to provide regional coordination for the national forest inventory data base and to collect and publish annual forest management



FOREST RESOURCES *continued from page b*

information systems, expert systems, and associated modeling procedures.

As environmental and societal concerns have become prominent issues in forest management planning, it has

provinces, and its management (particularly in mixed stands with a spruce understorey) poses a major challenge for the forest industry. Forest Resources Program researchers have turned their

Northwest Region's system, improving our capabilities in artificial intelligence, wrapping up collection of site classification field data for two pilot areas, and integrating a site classification rule base, timber inventory, digital elevation model data and GIS. Predictive mapping models will then be applied to these data, and their results will be compared with the field data.

It is anticipated that by the end of 1992 the prototype predictive site classification model and prototype aspen DSS will be functional and work will have started on a spruce DSS. Eventually these will be integrated into decision support systems for mixedwood stands.

Forestry Canada's Northwest Region carries out federal forestry activities in Alberta, Saskatchewan, Manitoba, and the Northwest Territories. Through forestry research, technology transfer, and implementation of federal-provincial forestry agreements, our scientists, foresters, and other staff work to promote the sustainable development and competitiveness of Canada's forest sector.

Regional activities are directed from the Northern Forestry Centre in Edmonton, with assistance from district offices in Prince Albert and Winnipeg. Nearly 150 staff work with a projected annual budget of about \$20 million in 1991-92. The Northwest Region is one of six regions and two national forestry institutes of Forestry Canada, which has its headquarters in Ottawa.

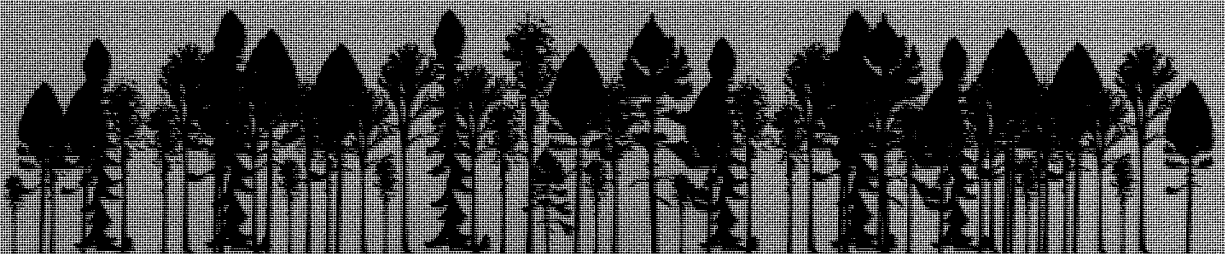
become necessary to consider all the ecological features of the forest—trees, understorey vegetation, landforms, soil, and wildlife—in the management planning process. When mapped and interpreted in an integrated manner, this information will provide land managers with an efficient means of making land-use decisions.

Aspen, at one time ignored or treated as a weed species, is now considered a valuable new resource in the prairie

attention to creating a prototype decision support system to use the wealth of information on aspen that already exists and to incorporate new information.

Over the next year, effort will be put into adapting an aspen DSS developed in the United States and refining the





FOREST PROTECTION *continued from page 6*

down this year. The project's new direction will be to examine the more long-term effects of forest management practices on the ecosystem.

Significant effort now will be directed toward a new base-line data study that will provide ecological benchmarks for analyzing the impacts of forest management practices on forest health. Another new study will look at the specific effects of forest harvesting practices on water quality.

Other projects in the Forest Protection and Environment Program in the coming year will continue working toward development of data bases in support of the Northwest Region's focus on operational decision support systems. For example, the Insect and Disease Survey and Management Systems project is beginning

work on a quantitative pest identification survey that will be rolled up into a data base.

Two new studies have been started in the Fire Management Research project: one on fire suppression tactics or systems and another looking at uses of prescribed fire in forest management, with special reference to the use of

fire for wildlife habitat, range management, control of weed species, site preparation, fuel hazard reduction, and control of insects and diseases.

The Tree Improvement and Forest Hydrology and Microclimate Research projects have been wrapped up, and the staff have been moved into other areas of research.

1990 - 91 Actual Expenditures

Program area	Person-years	Salaries (\$000)	Operations & maintenance (\$000)	Capital (\$000)	Contributions (\$000)	Total (\$000)
Director General	20.3	1 055.9	575.7	147.0	-	1 556.6
Management services	25.9	1 015.0	669.1	296.9	-	1 981.0
Forest protection	45.5	1 413.7	534.5	25.1	-	1 773.3
Forest resources	20.8	2 257.8	188.7	47.0	-	2 493.5
Regional Development	15.8	710.1	142.5	25.0	-	877.6
ENFOR (Energy from the FOREST)	-	-	206.7	-	-	206.7
Manitoba agreement Indian lands	5.2	291.0	71.9	-	14.5	377.4
Saskatchewan agreement Indian lands	-	-	-	-	20.0	20.0
Saskatchewan agreement Indian lands	5.6	314.0	113.2	-	25.3	454.7
Alberta agreement Indian lands	-	-	-	-	75.0	75.0
Alberta agreement Indian lands	5.8	257.0	60.9	-	-	317.9
Alberta agreement Indian lands	-	-	-	-	75.0	75.0
Student employment program	2.8	136.2	-	-	-	136.2
Total	143.5	7 428.7	2 165.2	541.0	210.0	10 344.9

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Northwest Region Office
 4300 - 42 Street
 Edmonton, Alberta
 T6B 1K6
 (403) 493-1210

Saskatchewan District Office
 1244 Centre Avenue
 Prince Albert, Saskatchewan
 S6V 4V9
 (306) 763-1604

Manitoba District Office
 200, 180 Main Street
 Winnipeg, Manitoba
 R3C 1A5
 (204) 943-1417

Protecting spruce in aspen a winner for project

A cooperative harvesting project involving the federal and provincial governments and the forest industry is the recipient of the second annual Alberta Forestry Innovation Award from Forestry Canada. The project demonstrated that in aspen-spruce stands the mature aspen can be successfully harvested while protecting the spruce understorey at a reasonable cost.

The award is presented by Forestry Canada in recognition of outstanding achievement in developing and applying research knowledge and technology to improve forest management practices and strengthen forest industry competitiveness.

"This year's award winner typifies the ongoing high quality of

innovations in Alberta's forest sector. It is the result of a cooperative approach that emphasizes teamwork, planning, and the application of high-technology methods to best utilize our forest resource," said Dave Kiil, Regional Director General for Forestry Canada's Northwest Region, during the presentation ceremony in Edmonton on May 3, 1991.

Participants in the Mixedwood Harvesting Project included Forestry Canada, the Alberta Forest Service, Weldwood of Canada Ltd.—Hinton Division, Blue Ridge Lumber (1981) Ltd., Millar Western Industries Ltd., Weyerhaeuser Canada Ltd., and the Forest Engineering Research Institute of Canada.

Forestry Canada staff who worked on the project included Ross

Waldron, Lorne Brace, Stan Lux, and Ron Gorman.

Three other projects received honorable mentions: free-to-grow reforestation standards developed cooperatively by the Alberta Forest Service and the Alberta Forest Products Association; an integrated forest resource management planning system for Weldwood's forest management agreement area at Hinton; and an on-site, or satellite, tree debarking and chipping operation being used on the Alberta Newsprint Company's forest management agreement area near Whitecourt.

An article on the mixedwood harvesting project appeared in *Timberlines* No. 13, Summer 1990.

Time on hands proves a blessing in disguise

The delay in signing a new forestry agreement in Saskatchewan has turned out to be a small blessing in disguise for Derek Sidders, a renewal and intensive management specialist with Forestry Canada in Prince Albert.

Thanks to the delay he was able to get his hands on Forestry Canada's A2 Forester (an experimental site preparation machine) and complete 240 hectares of site preparation in Saskatchewan last year.

"You could say that I turned a disadvantage into an advantage," says Mr. Sidders. "Because we had no federal-provincial forestry agreement last year, I had time to bring the A2 to Saskatchewan, fix it up, and put it to work."

The A2 Forester is a site preparation implement that works like a gigantic rototiller. "It was designed to enhance the growing medium way beyond conventional site preparation techniques. This entails high-speed mixing. No other implement of that nature exists," Mr. Sidders says.

Built for Forestry Canada in 1987, the A2 toured Canada for testing during field demonstrations. Its last stop was in the Maritimes,

where it was used in field trials in New Brunswick. "However, it was limited to only about 100 hours of use," he says.

making some modifications," he says. "It didn't have an instruction manual when it made its cross-country trip, so it had some wear and tear."



The A2 Forester is designed for site preparation work.

Impressed by the A2's performance, the Saskatchewan Forestry Branch asked if Forestry Canada could bring it back. "I had it shipped here—all 14 500 kg of it—and then spent 3 weeks patching it up and

Mr. Sidders' work paid off. About half a million seedlings will be planted this year on sites prepared by the A2 Forester. He anticipates that with its excellent track record in Saskatchewan, the A2 has a bright future. "We can use it in land reclamation, vegetation management, and establishment of seed orchards."

—L. Worster

Canada and Manitoba sign forestry agreement

Manitoba became the first western province to sign a new forestry agreement when Forestry Minister Frank Oberle and Manitoba Natural Resources Minister Harry Enns signed the Canada-Manitoba Partnership Agreement in Forestry,

Staff changes

The Northwest Region's role as lead establishment for Forestry Canada's climate change investigations has resulted in the creation of a Canadian Forests and Climate Change project, with **Steve Zoltai** as the regional Project Leader. **Mike Apps** will be part of this project but will play the lead role nationally and internationally for the climate change program. Other staff moved into the project are **Bob Swanson, Teja Singh, Harjit Grewal, and Rick Hurdle**.

In the Regional Development Program, **Marjorie Stephen** has been appointed Acting Program Director, **Joe De Franceschi** is now Chief of Development Coordination, **Diana Boylen** is Project Leader for Policy, Planning and Resource Data, **Bill White** is Project Leader for Forest Economics Research, and **Edith Hopp** is now Head of Library Services following the transfer of **Dave Robinson** to Transport Canada.

The Stand Productivity project has two new staff: **Andrew Wawrykowitz** (Stand Productivity Analyst) and **Harinder Hans** (Artificial Intelligence Applications Specialist).

Farewells were said to several staff who retired recently: Chief Insect and Disease Ranger **Jim Emond**, Remote Sensing Scientist **Walt Moore**, and Photographer **Phil Debnam**, all from the Edmonton office, and Silviculture Technician **Vic Kolabinski** from the Winnipeg office.

March 25, in Winnipeg. The cost of the \$30 million, 5-year agreement is shared equally between the two governments.

During the signing ceremony, Mr. Oberle emphasized that "Sustainable forest development will ensure that the forests continue to play a major role in environmental solutions, as well as Canada's social and economic well-being."

The partnership agreement outlines two main categories of initiatives: reforestation and wood supply enhancement; and applied research, marketing, and technology transfer.

Reforestation of past cutovers or burned areas that have not adequately regenerated naturally is a priority for the Government of Manitoba; \$12 million, or 80% of its



Signing the Canada-Manitoba Partnership Agreement in Forestry are (left to right) Northwest Region's Director General Dave Kiil (witness for the federal government), Forestry Minister Frank Oberle, and Manitoba Natural Resources Minister Harry Enns.

B. Newstead

contribution, is dedicated to planting an estimated 20 million seedlings on provincial Crown lands over 5 years.

Forestry Canada will conduct forestry research to improve the success of forest management activities and will ensure that the latest forest technology is explained and delivered to the forest community. The department will also expand its programming to assist Indian bands and private woodlot owners to improve forest practices and expand benefits from their forest lands.

New publications

Cerezke, H.F.; Emond, F.J.; Gates, H.S. 1990. Forest insect and disease conditions in Alberta, Saskatchewan, Manitoba, and the Northwest Territories in 1990 and predictions for 1991. For. Can., Northwest Reg., North. For. Cent., Edmonton, Alberta. Inf. Rep. NOR-X-318.

Kalra, Y.P.; Maynard, D.G. 1991. Methods manual for forest soil and plant analysis. For. Can., Northwest Reg., North.For.Cent., Edmonton, Alberta. Inf. Rep. NOR-X-319.

Kolabinski, V.S. 1991. Effects of cutting method and seedbed treatment on black spruce regeneration in Manitoba. For. Can., North. For. Cent., Northwest Reg., Edmonton, Alberta. Inf. Rep. NOR-X-316.

Ondro, W.J. 1991. Economics of 15 options for industrial utilization of poplar. For. Can., Northwest Reg., North. For. Cent., Edmonton, Alberta. Inf. Rep. NOR-X-320.

Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5
(403) 435 - 7210

Saskatchewan District Office
1288 Central Avenue
Prince Albert, Saskatchewan
S6V 4V8
(306) 953 - 8544

Manitoba District Office
200, 180 Main Street
Winnipeg, Manitoba
R3C 1A6
(204) 983 - 4817