

FORESTS OF THE NORTHWEST TERRITORIES



R.A. Bohning

*T*he northern boreal forests of the Northwest Territories cover a vast area with a number of different ecosystems. The terrain varies from large mountains in the west to wide meandering river valleys crisscrossing huge areas of muskeg in the central region and the rugged topography of the Precambrian Shield in the east, which gradually gives way to the tundra.

The forests have been home to the aboriginal Dene for more than 11 000 years. Most Dene still live in small communities surrounded by vast forests. Like many Northerners they rely on the forests for much of their livelihood and maintain a strong cultural and spiritual bond with the forests. Northwest Territories forests provide habitat for a great variety of plant and wildlife species. They also provide watershed protection, erosion control and ecosystem stability and contribute significantly to the NWT economy.

A Shared Commitment to Sustainable Development

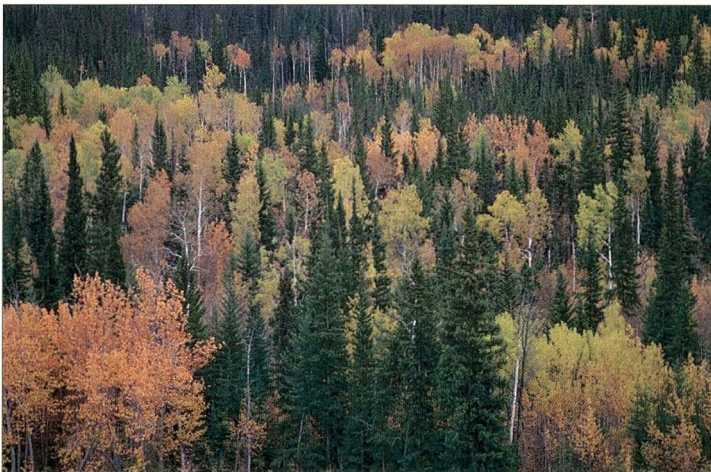
The Forest Management Division of the Northwest Territories Department of Resources, Wildlife and Economic Development is responsible for managing, developing and maintaining the forests of the NWT. The Division works with First Nation organizations, communities and other groups in the NWT, as well as with the Canadian Forest Service and other government agencies to fulfill its mandate.

The Government of the Northwest Territories is a signatory to the National Forest Sector Strategy produced under the direction of the Canadian Council of Forest Ministers. In 1991 the territorial and federal governments signed the Canada-Northwest Territories Cooperation Agreement in Forestry, under which both governments committed themselves to a policy of sustainable development of NWT forests.

F OREST LANDS AND RESOURCES

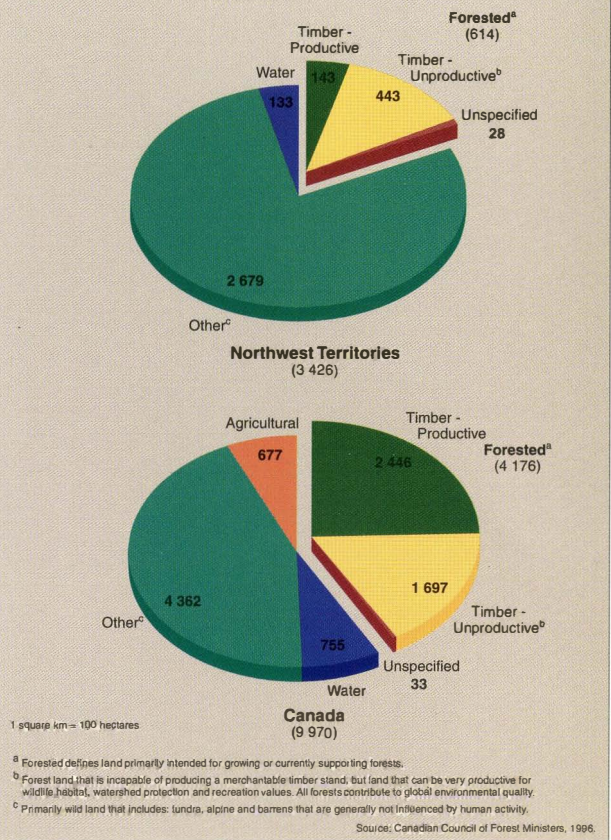
Forest Resources

The NWT has an abundance of forest resources. Approximately 614 000 km², or 18%, of the NWT is classified as forested land. Of this, 137 000 km², or 22%, is considered non-reserved timber-productive land and available for timber management. Canada as a whole has 4 176 000 km² of forested land, with about 56% considered available for forest production purposes.



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Area Classification ('000 km²)

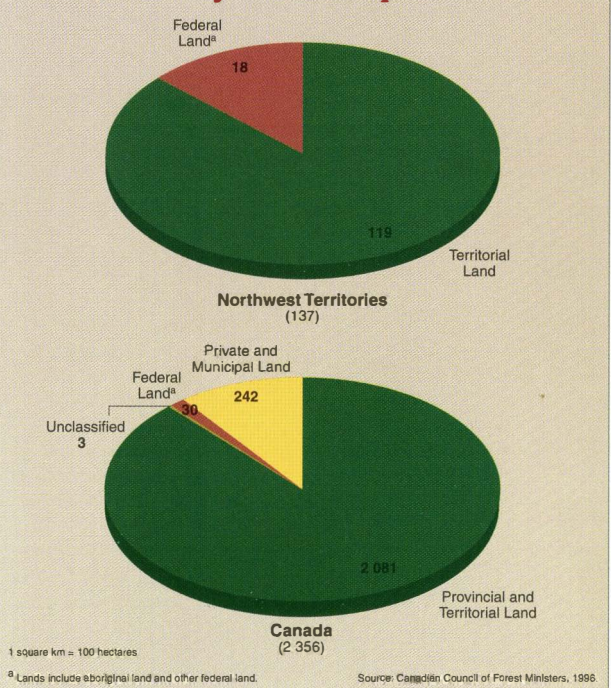


Terrestrial Ecozones of the Northwest Territories



The terrestrial ecozones of the NWT are part of a national ecological system. Each ecozone defines a particular combination of climate, vegetation, soils, land forms and human activity values.

Non-reserved, Timber-Productive Forest Land by Ownership ('000 km²)



TREES AND THEIR USES

Hardwood Species



Trembling aspen (*Populus tremuloides* Michx.) Trembling aspen is found throughout most of the forested area of the NWT. It grows in almost all soils but prefers well-drained, moist loams. Trembling aspen grows rapidly and quickly invades areas after forest fires or

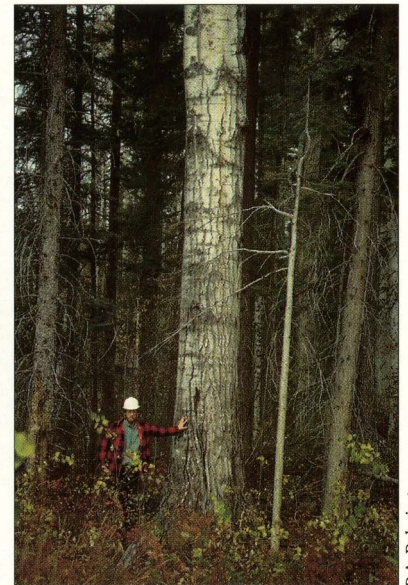
logging. The trees reach an average height of 20-25 metres and grow to 30 metres on the best sites. Aspen bark is smooth and greenish white with a waxy appearance; it becomes rough and furrowed with age. The bark is the principal food of beaver, while the shoots, twigs and leaves provide browse for moose and hares. Aspen wood is comparable to spruce in strength; the wood is white, with a fine even texture. When properly seasoned it is used for lumber, chopsticks, oriented strandboard, pulp, paper, and firewood. In the NWT aspen is virtually unused for wood products, although recently there has been some lumber/timber manufacturing.

Traditional Aboriginal Uses – Wood: canoe paddles, tipi frames, bowls; ashes for soap and tanning. **Bark:** medicine, aspen tea, horse fodder, food during famine. **Buds and Leaves:** spring tonic for the elderly for treatment of rheumatism, liver and kidney problems.



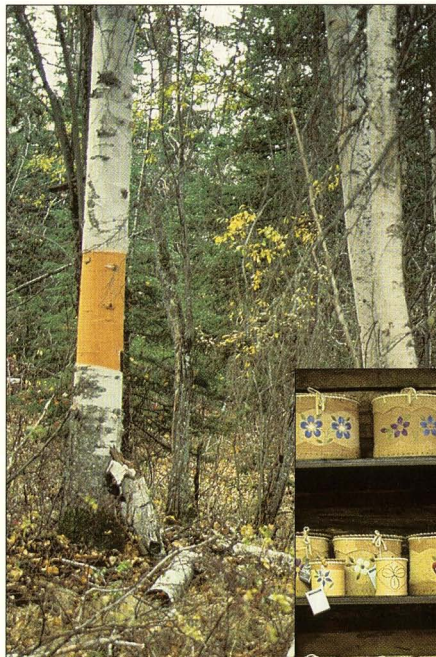
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Vigorous aspen stand



Large aspen tree

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Birch bark baskets



T. Beckley



White birch (*Betula papyrifera* Marsh.) and **Alaska birch** (*Betula neoalaskana* Sarg.) White birch, also known as paper birch, is distributed throughout most of the forested area of the NWT. It is found in open to dense woodlands but grows best in forest clearings on well-drained, sandy

loams. White birch is fast growing, reaching a height of 15-21 metres. It is noted for its white, paper-like bark that peels easily into large sheets. The bark is flammable and thin, and the tree is easily killed by fire; however, it is also one of the first species to colonize burned or logged areas. White birch reproduces quickly by developing sprouts around the base of the trunk. Wildlife depends on white birch as a source of food. Moose browse on the twigs in winter, grouse and ptarmigan eat the buds and various birds and rodents eat the seeds. The wood of the white birch is moderately strong, hard and dense. It is creamy white and straight-grained, with a fine, even texture. When properly dried, birch wood is suitable for furniture, flooring, veneer, novelties, turnery and joinery. In the NWT it is used primarily for firewood and birchbark baskets. The Alaska birch resembles the white birch. It does not grow as large and is not commercially important, although it can be used for firewood.

Traditional Aboriginal Uses – Wood: firewood, tipi frames, tanning racks for hides, sleds, snowshoes, paddles, canoe ribs, carrying boards, wooden nails for canoe gunwales, bows, arrows, drums, axe handles, hammers, spoons, snowshoe webbing needles, dog whip handles, grease lamp bowls, curing meat and fish. **Bark:** baskets, boxes, tubs, baby cradles, platters, bread pans, cups, tipis, canoes, torches, cone-shaped trumpets for hunting, kindling, drums, writing material, bandages, casts and slings, ointments. **Leaves:** medicines. **Sap:** boiled for syrup, beverages and sauces. Overall the white birch is the most versatile tree species, providing a wide range of uses by Aboriginal people.

TREES AND THEIR USES



Balsam poplar (*Populus balsamifera* L.) Balsam poplar is found throughout the forested area of the NWT. It belongs to the same family as trembling aspen and is similar in many ways. Balsam

poplar is a fast growing tree that reaches an average height of 15 metres. On the best sites (low-lying, moist, rich ground) balsam poplar may be as tall as 25 metres. Balsam poplar grows in mixed or pure stands in river valleys or on terraces. Moose browse on the twigs and foliage of balsam poplar, grouse eat the buds and beaver, hare and porcupine feed on the bark. The wood is similar to aspen but grayer and has a coarser texture. It is used for pulp and paper, oriented strandboard, lumber and firewood. In the NWT balsam poplar is virtually unused except as firewood.

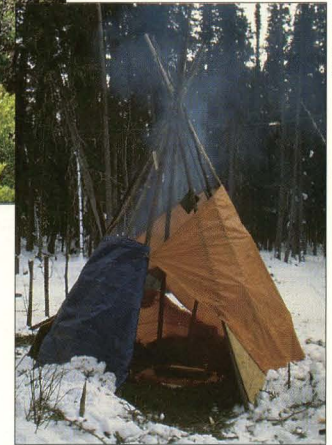
Traditional Aboriginal Uses –

Wood: spoons and toys; in some areas it is the preferred wood for smoking fish. **Leaves and Bark:** used as medicines; poultice to stop bleeding, salve for wounds, sores and rashes and tea to prevent scurvy.



D. Sidders

Mixed-wood forest



T. Beckley

Wood used for smoking meat

Softwood Species



White spruce (*Picea glauca* (Moench) Voss) and **black spruce** (*Picea mariana* (Mill.) B.S.P.) Spruce are the most widespread of tree species in the boreal forest. White spruce, the largest tree species in the NWT, can grow to a height of 40 metres on the best sites. Black spruce generally

reach 7 to 10 metres on poor sites and 20 metres on upland sites. Both species grow in a variety of soils and climatic conditions; however, white spruce grows best on well-drained, moist, silty soils while black spruce is usually found in wet, boggy conditions. Black spruce is the northernmost tree in the NWT, with stunted, misshapen specimens delineating the edge of the treeline. Moose and caribou depend on spruce forests in winter for shelter and eat the lichens that grow on the trees. In summer moose use these same spruce stands for shade. The wood structure of white and black spruce is nearly identical. It is light coloured, has low weight when dried and is soft, resilient and straight-grained, with good machining properties. Because of their long fibres and low resin content, both species are valued for pulp, paper and newsprint manufacturing as well as for lumber and plywood. In the NWT white spruce is used mainly for lumber, building logs and firewood. Black spruce is used for firewood and fence posts.

Traditional Aboriginal Uses – Wood: shelter, firewood, canoe frames and paddles, arrow shafts, fishnet floats, drying racks, pelt stretchers and tipi frames, animal traps, boughs for bedding and mats. **Roots:** twine and cord. **Bark:** canoe covering, cooking baskets, roofing shingles. **Pitch:** glue, waterproofing and caulking materials, chewing gum. **Cones and needles:** medicinal uses such as a mouthwash and powder for burns. **Inner Bark:** medicinal wash, poultice, pitch-salve, cough syrup, pitch-chew for sore throats, spruce beer tonic.

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Spruce trees for log building

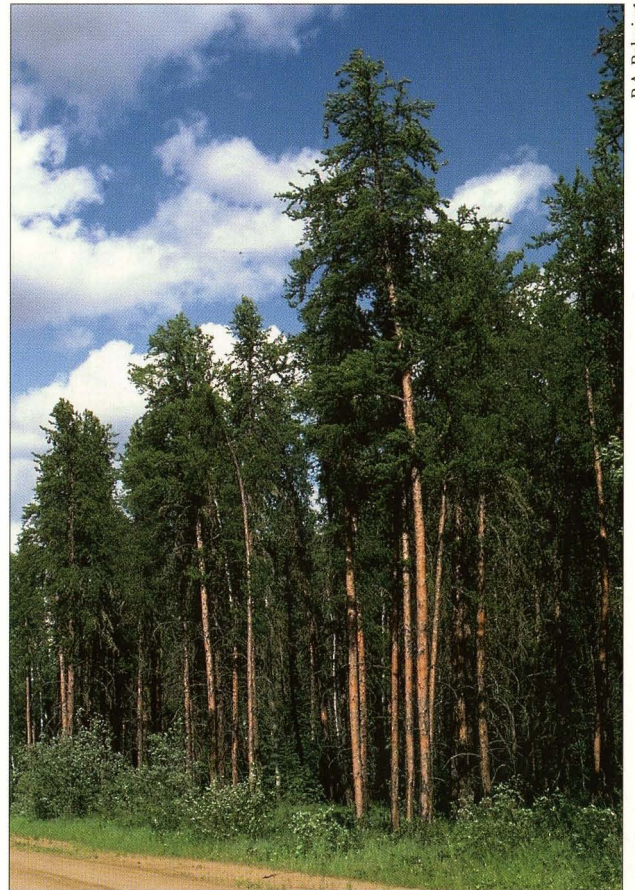




Jack pine (*Pinus banksiana* Lamb.) and **lodgepole pine** (*Pinus contorta* var. *latifolia* Engelm.) Lodgepole pine is found only in the southwest corner of the NWT. Jack pine, which is the official tree of the NWT, is far more common.

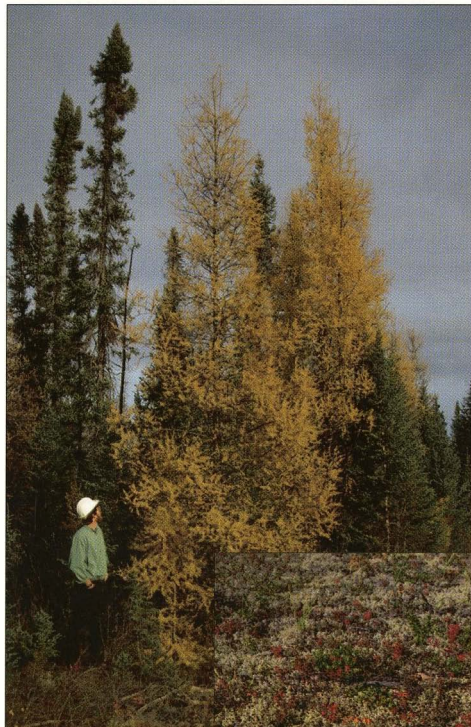
It is fairly widespread throughout the southern half of the NWT. Jack pine is the most northerly of all pine species. Jack pine and lodgepole pine are trees adapted to fire. The cones are serotinous, which means that they require intense heat to open and release the seeds. Both species readily regenerate on burned-over sites. Jack pine grows well in dry, well-drained, sandy, gravelly soils but is also found, sometimes in stunted and twisted shapes, on rocky outcrops and shallow soils along muskeg areas. Jack pine grows in both forest stands and in the open. It can reach a height of about 20 metres. Caribou browse on lichens found growing in jack pine stands, porcupines feed on the bark and squirrels harvest the cones for their seeds. The wood of jack pine and lodgepole pine is similar. It is light brown and of medium strength and hardness. It is used for pulp and paper, lumber, treated wood products such as railway ties, posts and poles, as well as mine timbers and fuelwood. In the NWT jack pine is used mainly for firewood, lumber and posts.

Traditional Aboriginal Uses – Wood: log cabins, sleds and toboggans, floats for fishnets, medicinal uses. **Bark:** beverages, medicines such as poultices and pine bark tea for coughs. **Needles:** incense, medicines for frost sores, burns and cuts. **Pitch:** disinfectants, canoe caulking, pine-pitch smoke as fumigant. **Cones:** burned for tanning hides. **Oil and Tar:** disinfectants, antiseptics, insecticides, deodorants and medicines.



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Jack pine stand, Fort Smith



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Tamarack in fall



Tamarack (*Larix laricina* (Du Roi) K. Koch)

Tamarack is a member of the larch family, a conifer species that loses its needles in winter. Tamarack is a small to medium size tree that reaches from 6 to 15 metres in height. Tamarack is found throughout most of the forested area of the NWT. It is usually associated with black spruce on cold, wet, poorly drained sites such as fens, sphagnum bogs and muskeg. It can also grow with aspen, white spruce and birch on moist, well-drained soils. Tamarack is very susceptible to larch sawfly degradation, which can severely damage tamarack stands. Caribou browse on the lichen associated with the tree, and porcupines feed on the bark. Tamarack wood is not in great demand, partly because of its limited availability. It is moderately hard and heavy, somewhat oily and has a spiral grain that makes it unsuitable for most lumber. Its strength, resistance to decay and durability makes it suitable for use as floor planking, building skids, pilings, posts, poles, pulp and paper. In the NWT tamarack is used for posts, poles and firewood.

Traditional Aboriginal Uses – Wood: toboggans, canoe paddles, snowshoe frames, drums; wood smoke for smoking fish and tanning hides. **Bark and Needles:** medicinal purposes such as poultices; teas to treat earaches, jaundice, colic, sore muscles, arthritis, diabetes and colds; powder to treat colds and bronchitis. **Roots:** art weavings and sculptures.

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Reindeer lichen, caribou browse

F OREST USES

Forest Industry

The Northwest Territories forest industry consists of a number of small family-run logging and sawmill businesses and larger, joint venture partnerships between local First Nation development corporations and established logging and sawmilling companies. The total timber harvest in 1995-96 was 133 000 cubic metres. Nine sawmills produced 8 million board feet of lumber. Included in the lumber manufacture were 1.7 million board feet of aspen and 2 million board feet of salvaged fire-killed spruce. In addition, approximately 73 000 cubic metres of spruce sawlogs were produced for export and an estimated 20 000 cubic metres of wood was harvested for local fuelwood consumption. Overall, 75% of the lumber produced was exported.



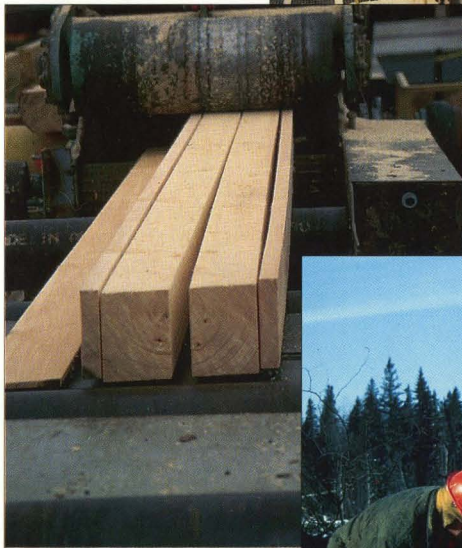
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Logging truck



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Gang edger,
Lichtner's Sawmill



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Cutting
firewood

Licensing and compliance of the commercial forest industry in the Northwest Territories is regulated jointly by the territorial government under the *Forest Management Act and Regulations* and by the Department of Indian Affairs and Northern Development Canada under the *Territorial Lands Act and Land Use Regulations*. Commercial logging operations require licences and permits from both agencies. The most productive areas of forest growth and the majority of sawmills and forestry developments are along the flood plains of several major river valleys in the southern NWT.

Sustaining our Forests

The Northwest Territories Department of Resources, Wildlife and Economic Development promotes economic development in NWT forests at a level that will ensure a sustainable harvest and maintain ecological processes and natural diversity.

Annual Allowable Cut – the amount of timber that may be harvested annually from a specified area; used to regulate the harvest level to ensure a perpetual supply of timber.

The annual harvest of timber can be calculated using an *Annual Allowable Cut (AAC)* formula.

The calculation is adjusted to account for biological impacts such as fire and disease and protection of other forest uses such as wildlife habitat and recreation. Annual allowable cuts are currently being determined for NWT forests.

NWT Lumber Producers

| Name | Type of Operation |
|---|-------------------------------|
| C. Plamondon Lumber Box 672, Fort Smith, NWT X0E 0P0 (27 km west of Fort Smith) | commercial sawmill |
| H. D. Contracting Ltd. Box 1484, Fort Smith, NWT X0E 0P0 (35 km west of Fort Smith) | commercial sawmill (mobile) |
| Freund Building Supplies Box 221, Fort Smith, NWT X0E 0P0 Telephone: 403-872-2155 | commercial planer |
| Great Slave Lake Forest Products Fort Resolution, NWT X0E 0M0 Telephone: 403-394-5100 | commercial sawmill and planer |
| La Merse (Dave) Box 1257, Fort Smith, NWT X0E 0P0 Telephone: 403-872-4152 (25 km west of Fort Smith) | commercial sawmill and planer |
| Cliff Kimble General Delivery Enterprise, NWT X0E 0R1 Telephone: 403-984-3612 | commercial sawmill |
| Lichtner Forest Industries Ltd. Box 535, Manning, AB T0H 2M0 Telephone: 403-836-2071 Mobile: HJ 32728 (km 11 on Mackenzie Highway) | commercial sawmill |
| Mackenzie Wood Products Box 290, Fort Simpson, NWT X0E 0N0 Telephone: 403-695-3533 (junction Highway 1 and Highway 7) | commercial sawmill |
| Soo Construction Edwin Lindberg Box 28, Fort Simpson, NWT X0E 0N0 Mobile: JR3 6644 (Pointed Mountain) (165 km southeast of Fort Simpson on Hwy #7 to Fort Liard) | sawmill (mainly own use) |



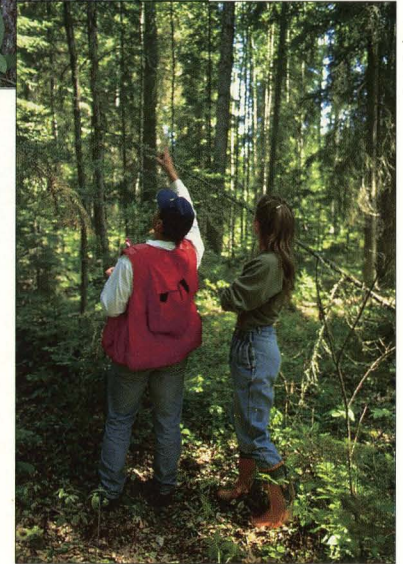
C. Robinson

Timber cruising

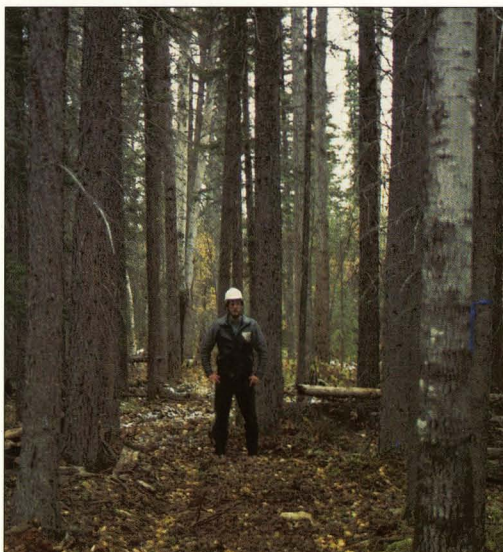


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Hardy attractive lupine



R.A. Bohning



R.A. Bohning

Checking forest plots

Employment Benefits

In 1996 the forest sector in the Northwest Territories directly and indirectly supported an estimated 300 full-time jobs. Approximately 100 direct jobs were created in logging and lumber manufacturing, the equivalent of 15 full-time jobs in site preparation and planting, 5 jobs in cone collection and approximately 10 jobs in other forest management work. Indirect employment offered 170 jobs in supply and service support to the forest industry.

The equivalent of 145 full-time jobs were created in the fire management program in 1996. This included 85 person years in management and summer fire fighter positions, as well as twenty 5-person contract fire crews and more than 500 emergency fire fighters.

Most employment in forestry is in the smaller, outlying communities, where job opportunities are limited. Local programs consisting of on-the-job training and structured, formal courses are an important part of the forest management program. Over the years a core of trained fire fighters and forestry workers has been developed in most communities.

F OREST USES

Other Uses for the Forests

The forests of the Northwest Territories have other uses besides the production of timber, and many Northerners living within the treeline derive direct

The forests are more than trees and timber.

benefits from the forests. The estimated economic value of resources from NWT forests in 1996 was about \$59 million. This figure is strictly a measure of the value of resources consumed in the NWT and includes a measure of the contributed value of the harvester's efforts. The commercial forest industry contributes about \$13 million annually from lumber and sawlogs. Fuelwood represents another \$1.7 million. The forest also supports other commercial enterprises, particularly in small communities. Trapping is a traditional way of life and has great cultural value. It is an important source of income for the Dene and contributed about \$1.7 million to the economy in 1996. The commercial fishery contributed about \$2.2 million. The forests also support a subsistence economy that contributes about \$38 million from the use of country foods such as meat and fish.

Many people visit the NWT to hunt or view wildlife or to hike and travel in the forests. The revenue from outfitting is about \$2 million. Recreation and tourism also add significantly to the economy of the NWT.



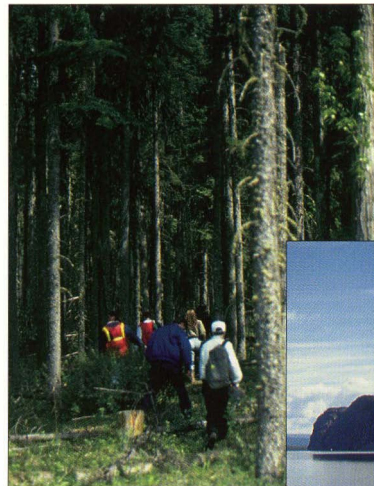
Outfitting camp

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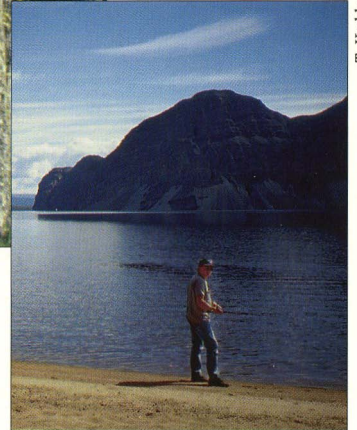
Stretching a beaver pelt

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Hiking

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Fishing

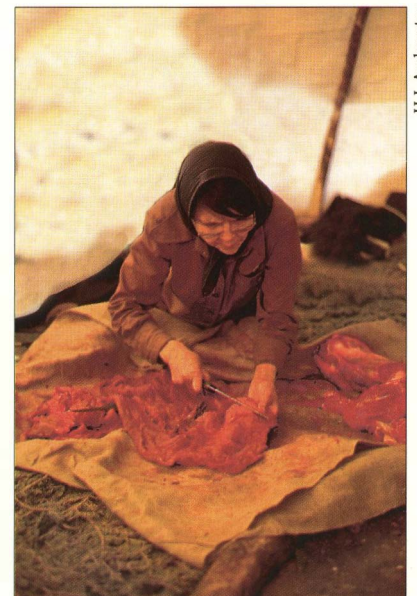
T. Keady

Value of Resources from Northwest Territories Forests

| | |
|-----------------------------|------------------------|
| Commercial forest industry | \$ 13.0 million |
| Fuelwood | \$ 1.7 million |
| Trapping | \$ 1.7 million |
| Fishing | \$ 2.2 million |
| Outfitting | \$ 2.0 million |
| Country foods (subsistence) | \$ 38.0 million |
| TOTAL | \$ 58.6 million |

Source: Department of Resources, Wildlife and Economic Development, 1996.

Preparing meat for drying



H.J. Ambruster

Wildlife

The forests of the Northwest Territories support significant natural ecosystems that are home to many wildlife species. Grizzly bears inhabit the mountainous areas of the western NWT, whooping cranes nest in Wood Buffalo National Park and the world's largest free-ranging herd of wood bison roam the forest near Fort Providence. Vast herds of caribou annually migrate through parts of the northern forests, and there is an abundance of moose and fur-bearers throughout the forested areas. The rivers and lakes are teeming with fish, and major flyways for migrating birds pass over the NWT.

Many Northerners rely on country foods for a large part of their livelihood. Traditional activities include fur trapping and the harvesting of moose, caribou, fish and birds. Wildlife are also spiritually important to the Dene.



J.D. Johnson

Bunchberry



J.D. Johnson

Northern Labrador tea



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Caribou study

The Department of Resources, Wildlife and Economic Development, in conjunction with the Canadian Wildlife Service, universities and communities, has a number of research and study projects in the forested areas. Small mammal response to timber harvesting, habitat management for wood bison, caribou and fur-bearers, population surveys and the development of habitat suitability indices as part of the ecological classification system are some of the projects.



H.J. Armbruster

A feeding grizzly bear



E. Kuyt



Wood bison

R.A. Bohning

Whooping crane egg research



E. Kuyt



D.C. Thomas

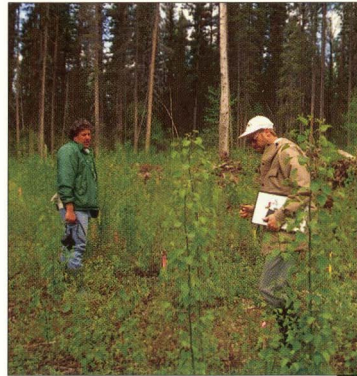
Moose

Forest Policy

The main objectives of forest management in the Northwest Territories are:

- ensuring that the harvest of forest products is sustainable;
- minimizing the impact of timber harvesting on the environment and traditional resource uses;
- completing forest inventories;
- preparing integrated resource management plans with full community participation;
- ensuring forest renewal on all harvested areas;
- increasing local involvement in forest management through the development of community forests and co-management agreements;
- increasing opportunities for NWT residents in the forest sector;
- providing education and training programs;
- increasing opportunities for northern lumber and value-added production.

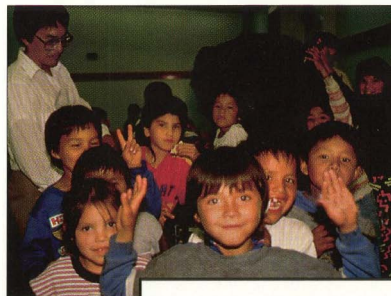
The Forest Management Division of the NWT Department of Resources, Wildlife and Economic Development works closely with communities and First Nation groups, the Canadian Forest Service, other research organizations, private industry, and other government agencies in Canada in managing the forests of the NWT.



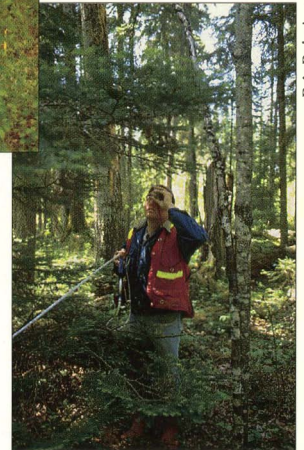
T. Keady

Forest research

Forest education



A. Cockney



R.A. Bohning

Integrated Resource Management Plans

The Forest Management Division is actively involved in the preparation of integrated resource management plans with the full support and participation of First Nation groups, communities, other public organizations and government agencies in the Northwest Territories. These plans set out guidelines and standards for the development and management of different land and resource uses within specific forest areas. Forest vegetation inventories and ecological classifications provide essential information for forest, fire and wildlife resource planning and development. A vegetation inventory describes the characteristics and distribution of the vegetation in the forest. Other inventories identify wildlife habitat, recreation values and important traditional use areas and sacred sites. An ecological classification describes the productivity or value of different sites in the forest for timber production, wildlife habitat, water quality and other resources. The information collected through these inventories and classifications is mapped and evaluated to provide the basis for many of the recommendations in the integrated resource management plans.

To date, approximately 25% of the NWT's productive forests have timber inventories, and the first integrated resource management plan is being completed for the area of Fort Liard. This plan will include inventories and an ecological classification for the area and will guide the establishment of standards for land use and resource management. It will establish a community consultation process and a resource management committee to guide resource development.

Dwarf raspberry
(*Rubus arcticus*)



J.D. Johnson

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Common Indian paintbrush
(*Castilleja miniata*)

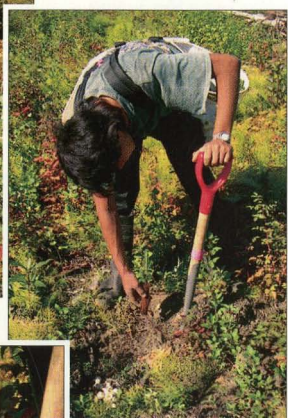
Silviculture and Forest Renewal

When left undisturbed, a mature forest gradually declines until a natural phenomenon such as insect infestation, disease or fire destroys the old growth and starts a period of renewal. A large part of forest management is maintaining the life cycle of the forest through a combination of timber harvesting and silvicultural treatments.



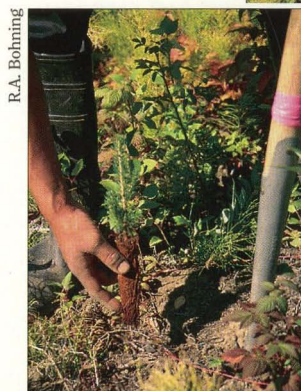
R.A. Bohning

*Site preparation,
Meri-crusher*



R.A. Bohning

Planting



R.A. Bohning

Silviculture: *The theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the biological and economic objectives of forest management.*

The most significant and important silviculture treatments for forest renewal in the NWT are site preparation and planting of harvested areas. All NWT tree species will eventually regenerate naturally, although it can take hundreds of years. A combination of site preparation and planting will greatly reduce the time required for successful regeneration of the forest.



R.A. Bohning

A decadent stand

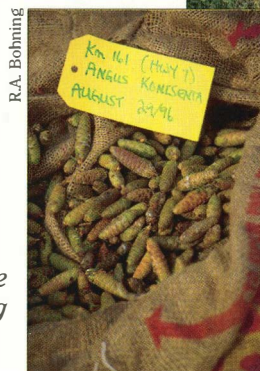
In 1992, under the Canada-Northwest Territories Cooperation Agreement in Forestry, the Forest Management Division expanded site preparation and planting programs. With assistance from the Canadian Forest Service, the Division has implemented a variety of site preparation, planting and seeding techniques. New scarification equipment designed for cold winter conditions in northern forests has been tested. In 1996 the Division planted 155 000 seedlings and performed site preparation on 88 hectares of forest cutovers.

Site Preparation: *disturbance of an area's topsoil and ground vegetation to provide favourable conditions for natural or artificial regeneration.*



R.A. Bohning

Cone picking



R.A. Bohning

New concepts in mixed-wood management and harvesting are being tested. Thinning and other stand modification treatments have been initiated, and a network of monitoring plots is being established to analyze and evaluate different site preparation treatments and the success of various seedling stock types.

F OREST PROTECTION

Fire

Fire is the greatest danger to NWT forests and an important influence on forest succession and wildlife habitat distribution. The NWT's forest fire management policy recognizes fires as being a significant and natural phenomenon in the forests of the Northwest Territories. A natural part of the renewal of forest ecosystems, fire is beneficial to the control of diseases and insects as well as essential in rejuvenating decadent forests and maintaining biological diversity. On the other hand, fire also destroys. It affects valuable commercial timber, traplines, property and wildlife habitat. Values that may be threatened or destroyed by forest fires are termed values at risk. In order of importance they are human life, property, resource values and cultural values.

More than anything else fire manages our forests.



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Water bomber

Fire control costs about \$14 million per year. The Forest Management Division of the NWT manages the fire prevention, pre-suppression, detection, prescribed fire and suppression programs. Community protection is a critical part of the fire program. The current trend

Protection through prevention

is towards protection through the manage-

ment of community forests. Community fire prevention programs include forest fuel management projects, fire danger rating and a toll-free telephone number (1-800-661-0800) for the public to report forest fires. Aerial patrols, lookout towers, public sightings and lightning strike monitoring are all used to detect forest fires.

Fire crews are located in most communities during the fire season. They are supported by an air tanker fleet of CL-215 and DC-4 land-based tankers.

Fire



GNWT

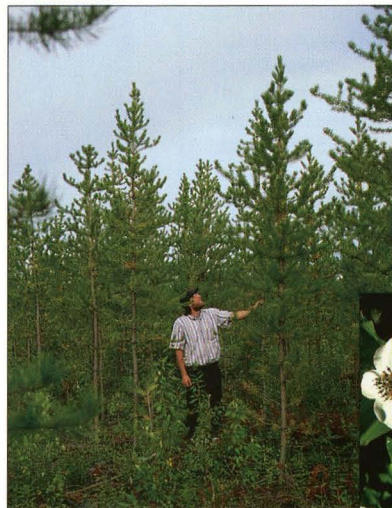


GNWT

Firefighters



GNWT



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New growth after fire



J.D. Johnson

The number, distribution and size of forest fires varies considerably in any given year. Vast forested areas, lack of infrastructure, a small population and great distances make fire control especially challenging in the NWT. In the past 10 years the annual number of fires has ranged from 137 in 1988 to 627 in 1994. The area burned annually over the same period has varied from 37 000 hectares to more than 3 million hectares. The long-term average number of fires is about 300 and the average area burned is about 600 000 hectares, or about 1% of the forested area, per year. When losses do occur from forest fires, the Forest Management Division supports the salvage harvest of fire-killed stands where possible. Fire-killed trees are also an important source of firewood for commercial fuelwood operators and private citizens.



T. Keddy

Spruce seedling

R.A. Bohning



Salvage logged

Yellow lady's-slipper



J.D. Johnson

Shaggy mane, edible fungus



R.A. Bohning

The Forest Management Division conducts training programs for community fire fighters in fire prevention, fire fighting and fire behaviour. Prevention activities for protection of values at risk also include silviculture treatments such as harvesting, stand conversion or modification and prescribed burning. New knowledge and new technology are constantly being incorporated into the fire management program. Fire management is an important priority for Northerners, and the communities are committed active partners in the fire management program.

Insects and Diseases

In cooperation with the Canadian Forest Service, forest insect and disease surveys are conducted annually in the Northwest Territories. Spruce and jack pine budworm, leaf miner and forest tent caterpillar and larch sawfly cause significant local defoliation from time to time. In the late 1980s and early 1990s a severe spruce budworm infestation occurred in the Liard River Valley. Forest diseases in the NWT are similar to those in the northern areas of the prairie provinces. Root rot, rusts, cankers, galls, fungal decay and stains occur naturally throughout the forests. Management of insects and diseases is limited to sanitation logging, where feasible. Naturally occurring infestations are generally allowed to run their course. The Forest Management Division supports research on spruce budworm and forest tent caterpillar problems.



C. Still

Spruce budworm and damage

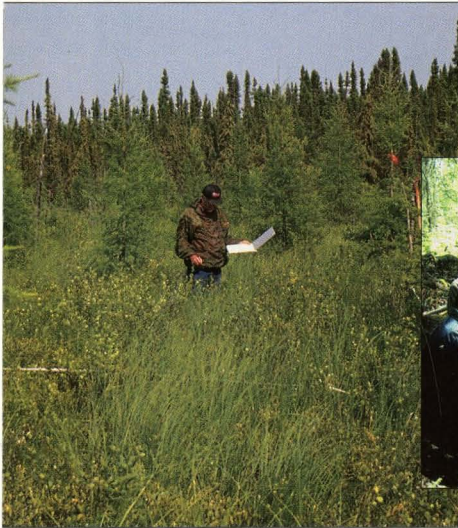


J. Volney



R.A. Bohning

Brown cubical butt rot



H.J. Ambruster

Ecological assessments



R.A. Bohning

Studying soils

Muskeg River Forest Demonstration Area

In 1995 the Department of Resources, Wildlife and Economic Development, in cooperation with the Canadian Forest Service, established the Muskeg River Forest Demonstration Area near Fort Liard in the southwest Northwest Territories. The area is an applied research, demonstration, information and education site for use by the public and anyone involved in forest management in the Northwest Territories. Harvest, site preparation and reforestation techniques have been established in the area and will be monitored in the years to come. A recreation trail with examples of traditional forest products and forest uses has been built for public use. The main focus of the demonstration area is forest management, but principles of integrated resource management will also be studied. The knowledge gained from the area will have applications throughout the northern boreal forest.

T. Keddy



D. Sidders

Muskeg River Forest Demonstration Area



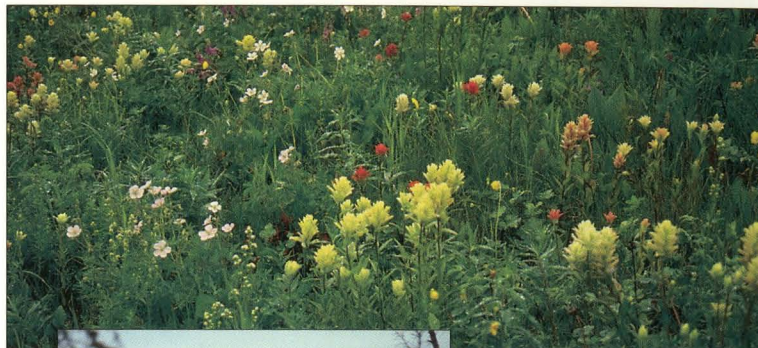
T. Keddy

FOREST COMMUNITIES

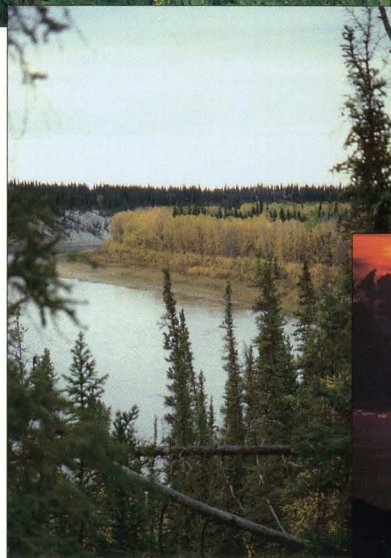
Communities and Forest Management

In the Northwest Territories a significant part of the forested area will be affected by Aboriginal land claims that are currently being negotiated. Settled land claims include provisions for the creation of management boards and councils to oversee the preparation of forest management plans and forestry development. The boards and councils consist of land claim beneficiaries and representatives from government in equal partnership.

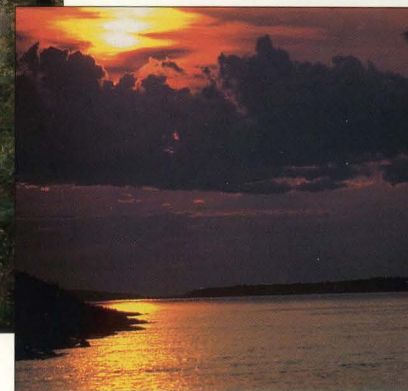
The Department of Resources, Wildlife and Economic Development is working closely with First Nation communities and other public groups in the preparation of integrated resource management plans that include community forest management plans. The Department provides technical advice, guidance, training and education to community management groups. The communities identify resource management issues and development priorities in their traditional territories. In addition, the Department consults with communities on review and approval of timber harvesting to ensure that community concerns and land use issues are addressed.



R.A. Bohning



R.A. Bohning



C. Robin

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R.A. Bohning

Sustaining Global Health

Forests are important to the health of our planet. Through photosynthesis trees absorb carbon dioxide (CO₂), a greenhouse gas, and convert it to carbohydrates, of which carbon is an essential ingredient. Forest decomposition and forest fires release carbon, in the form of carbon dioxide, into the atmosphere, where it contributes to global warming or the greenhouse effect. Trees store much of the carbon they absorb. The wood products that are manufactured after the trees are harvested continue to retain carbon. As a result, forest management practices may help to alleviate the greenhouse effect by increasing net amounts of stored carbon, either in the trees or in the soil.

Peatlands, which are often forested, are included in calculating the overall contribution of forest lands to this carbon sink. Canada has more than 10% of the world's forests and Canadian forests absorb 135 million tonnes of carbon per year. Of this, 58 million tonnes of carbon return to the atmosphere through fire, decomposition and other processes. The other 77 million tonnes of carbon are stored in our forests. Northwest Territories forests alone store about 5 million tonnes of carbon per year.¹

¹ Based on the NWT comprising 17% of the Boreal West, 35% of the Subarctic and 35% of the Subarctic Cordilleran ecoclimatic zones of Canada.

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