



THE FOREST IN CRISIS

The forest land base of the
world is disappearing at
the rate of 50 acres a minute.

— *The Food and Agriculture
Organization of the United Nations*



National
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du Canada

INTRODUCTION

Forest products are Canada's single largest export, worth more than twelve billion dollars a year. Without our annual harvest of trees, the Canadian economy would starve. Our forests provide the raw material for industries that, in return, provide one million jobs for Canadians. Because we are in danger of losing our forests, the overall Canadian economy is threatened.

The Forest in Crisis examines the problem of our disappearing forests and emphasizes the importance of good forest management in maintaining both a strong economy and a sound environment.

FACTS FROM THE FILM

- 1** A look at a pulp mill in Thunder Bay, Ontario illustrates the wood requirements of our forest industries; the mill consumes 55,000 trees a day, seven days a week.
 - 2** It takes up to 100 years to grow a tree to maturity.
 - 3** Poor logging practices result in long term environmental damage (eg. shifting of the water table, erosion of the shallow soil of the boreal forest.)
 - 4** Canada currently produces top grades of newsprint but is skimming off only the best wood to do so. Low quality trees are left behind in clear cuts to regenerate.
 - 5** While Sweden invests up to \$1000 per acre on regeneration, Canada spends less than \$100 an acre.
 - 6** Some effective methods of regeneration are strip cutting, aerial seeding, bare root planting, vegetative propagation, and genetic tree improvement.
 - 7** There is much more to renewing a forest than simply planting. Among the many hazards that can threaten a forest's growth are frost, fire, and competitive regeneration from low quality, fast growing trees.
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BIOLOGICAL SCIENCE

THE FOREST AND THE WATER TABLE

Water vapor from plant transpiration is a major contributor to the moisture content of the air. One mature tree can transpire as much as 100 gallons of water.

Demonstration:

To illustrate the process of transpiration in the classroom:

Take two pots, one containing germinated beans or a similar fast growing plant, and another containing only soil. Cover them both with bell jars and place them near a warm sunny window or another light source. Have the class observe the moisture accumulation on the bell jar that results from transpiration.

Questions for Discussion:

1

What effect will a forest cover have on the amount of water in the ground?

2

What effect would a clear cut have on a water table?

3

a) Black spruce often grows in areas that have only a few inches of soil above the water table. What effect would a clear cut have in such a situation? (An open swamp would be created.)

b) What are the possible solutions to this problem? (No cutting, which means a loss of

land for timber production, or carefully planned strip cutting.)



What will happen to the land if current practices continue?

THE FOREST AND OUR NEED FOR OXYGEN

Trees are the major contributor to the atmosphere's oxygen content. It takes sixty to seventy trees to supply the oxygen needs of just one adult. As carbon pollution increases, we will need even more trees to meet our needs.

In one year, each acre of forest can convert one ton of carbon to oxygen. At that rate, we are going to need an average of 1,820,000,000 acres of forest to keep up with the rise of carbon pollution resulting from our increased use of fossil fuels.

Question for Discussion:



What will be the impact on our atmosphere if the forests continue to disappear?

NATURAL REGENERATION: JACK PINE AND BLACK SPRUCE

The two major commercial softwood species in Northern Ontario are jack pine and black spruce. Both species are so adapted to fire that they virtually depend on it for regeneration. The heat of a fire will

open the tree's cones to release its seeds; unless the cones are exposed to heat, many will remain on the tree and close after ripening.

A thick layer of partially decomposed plant material, or duff, is a common ground cover in the boreal forest, where the short summer season does not allow for complete decomposition. Since duff desiccates during dry spells, it makes an excellent seedbed for jack pine and black spruce.

Questions for Discussion:

1 How would a seedbed of duff contribute to the natural regeneration of jack pine and black spruce?

2 Both species depend on fire for natural regeneration to take place. Since wholesale forest fires are not the answer for obvious reasons, expertise needs to be developed and applied in the area of simulating fire results and in the use of controlled burning. What will happen if such expertise is not developed and applied?

Demonstration:

If students can obtain some cones of jack or lodgepole pine, they can demonstrate for themselves the characteristic that makes these species fire dependent. Have them toast the cones over an open flame, as they would a marshmallow, and watch the scales open to release the seeds. Alternatively, they might place the cones in an oven, at low heat, for half an hour.

COMMUNICATIONS

HEARING WHAT WE LISTEN TO: A SCREENING EXERCISE

The following questions, asked before and after the students view *Forest in Crisis*, will help them identify the most important points raised by the film's three key spokespersons for the forest industry.

Colin Laybourne, a sawmill worker, Warren Moore, an industrial manager, and Tulio Mior, a trade unionist, discuss the problem of our diminishing wood supply. What points does each person make? What idea do they have in common?

Answers:

Colin Laybourne

- Both urban Canadians and those living in forest communities are responsible for the poor management of our forests.
- Our forests are overcut and highgraded.
- Companies are not regenerating cut-overs.
- Vast amounts of wood are being wasted.

Warren Moore

- The health of the forest industry depends on the health of the forest itself.
- Good forest management requires the support of governments, the forest industry and the public.

Tulio Mior

- The public is not informed and therefore not aware of the primary and secondary industries supported by the forest.

All three agree that the public has a part to play in encouraging good forest management, and that sound decisions regarding the forests must be made and acted upon immediately.

SOCIAL STUDIES

WHAT THE FOREST MEANS TO US

As an economic base

The economic activity generated by the forest has a significant impact on most local economies in Canada. To illustrate that impact, and to provide students with a better understanding of our economic system, involve the class in the following survey of local economy.

Exercise:

One job in ten in Canada is connected to forest industry. The forest generates economic activity in a variety of sectors; many will apply to your community. To identify them, have students list local businesses that belong under each of the following headings, along with an estimate of the number of people employed by each.

The forest supplies the raw material for:

Wood Extraction

- Logging
- Transport

Primary Manufacturing

- Sawmills
- Pulp mills
- Veneer mills
- Miscellaneous (eg. pole yards, shingle mills, charcoal plants, etc.)

Secondary Wood Manufacturing

- Furniture plants
- Sash and door and other millwork
- Paper mills
- Paper manufacturers (box plants, novelties, printers, etc.)
- Particle board plants
- Other manufacturers using wood (eg. railroad box cars, boatyards, etc.)

Forest industries are the customers for all or part of the production of the following items.

Logging machinery (skidders, loaders, grapples, etc.)

Road building machinery (bulldozers, backhoes, roadgraders, gravel trucks, etc.)

Transport equipment for raw material, primary goods such as lumber, and secondary goods such as furniture (trucks, rail equipment, marine equipment, etc.)

Machinery for all types of manufacturing plants listed above

Parts and supplies for the above machinery (tires, fuel, etc.)

Service industry (garages, food services, etc.)

Have students list manufacturers and distributors of these items in their community.

Have the students discuss the extent to which their community's economy relies on forest industry.

Valuable in other ways

In addition to their economic value once cut, forests in a natural state are valuable biologically, aesthetically, recreationally, and as a wilderness preserve for native plants and animals and indigenous lifestyles.

Exercise:

Have the class debate the conservation vs. industrial deforestation issue.

WHO IS RESPONSIBLE?

The federal government collects about one billion dollars a year in taxes from primary and secondary forest industries. It returns approximately 130 million dollars to the forest in research and transfer payments to the provinces.

At the provincial level, responsibility for regeneration has been bounced back and forth between industry and government for years. According to recent agreements in Ontario, industry is responsible for the work of reforestation, while government provides the financing.

Questions for Discussion:

- 1** What are some of the pressures on governments and the forest industry to avoid spending money on reforestation?
- 2** Why should our government be spending money on trees in the North, when money is badly needed for hospitals, transportation and other services in the more populated South? By what criteria should government spending priorities be decided?
- 3** What are some of the political implications of long term, as opposed to short term, spending priorities with regard to our forests?
- 4** What part does the public have to play in conserving and recycling forest products?

Exercise:

Have students research the history of the lumber trade in Canada. What did other countries such as Germany, the British Isles and Scandinavia do when they began to run out of wood?

Invite a local politician or a representative from the provincial forest service or forest industry to come into the classroom to explain how responsibility for forest management is shared in your province.

Have students who are interested in voicing support for better forest management in Canada write letters to the editor of the local newspaper or to their federal Member of Parliament or provincial representative.

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