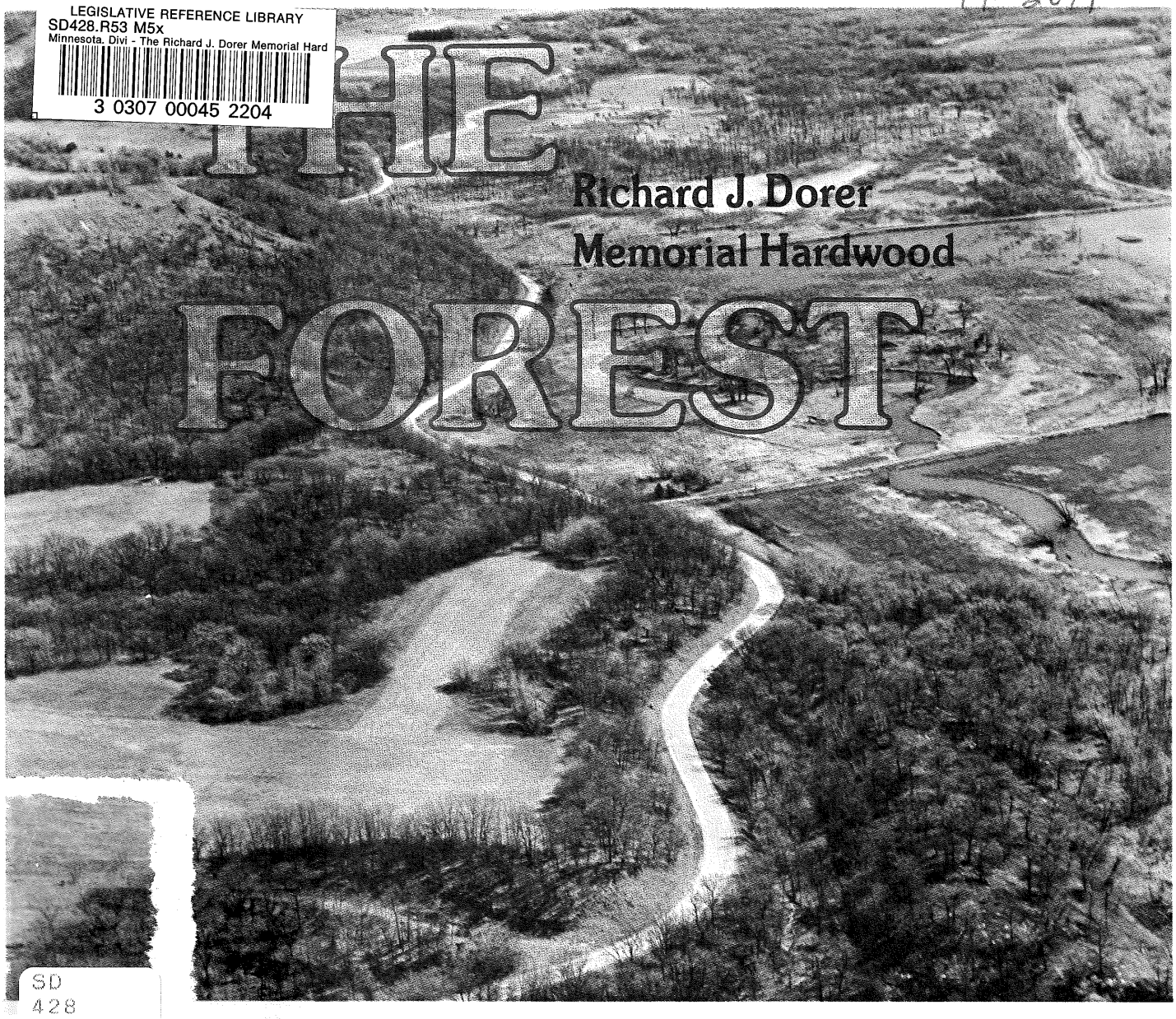
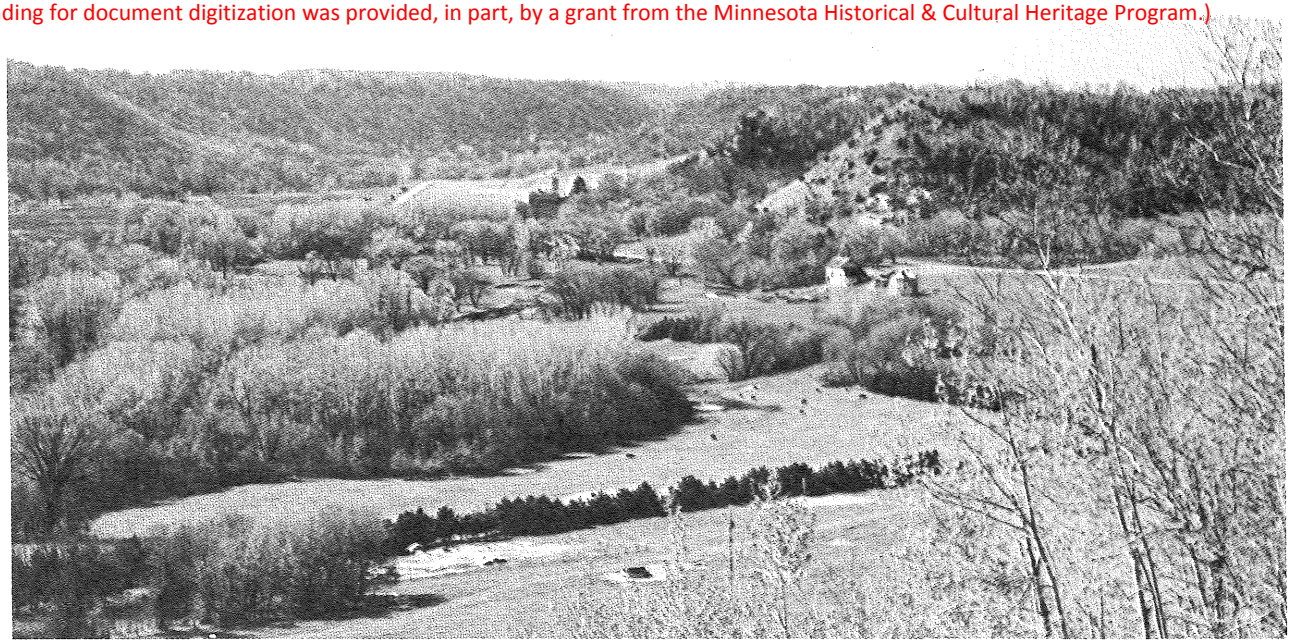
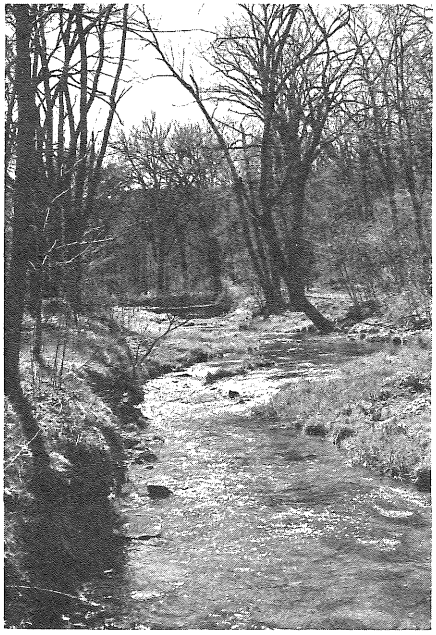
THE Richard J. Dorer Memorial Hardwood FOREST



A FOREST FOR EVERYONE

Division of Forestry
Minnesota Dept. of Natural Resources





Scenic bluffs, fertile valleys, spring-fed streams — all trademarks of "coulee country."

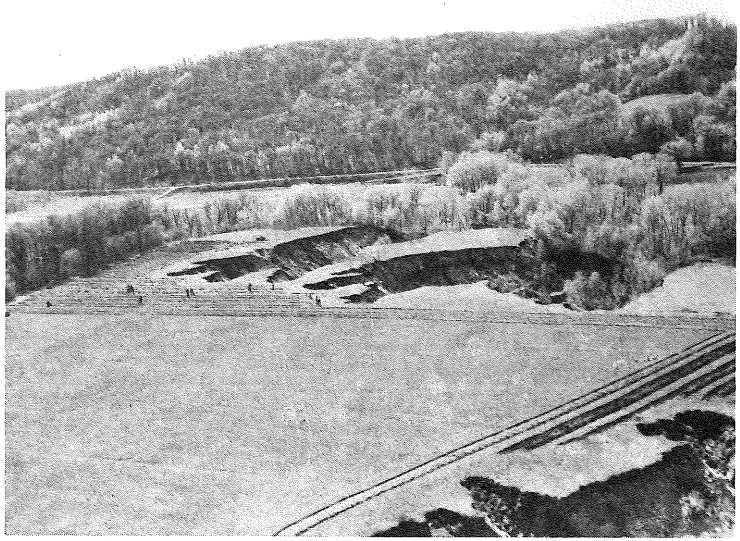
INTRODUCTION

It would be difficult — if not impossible — to find an area with as much natural charm as southeastern Minnesota. Here, amid lush forests, spring-fed trout streams, verdant valleys, and towering bluffs is a land of fascinating character and variety.

But southeastern Minnesota didn't always have this natural appeal. There was a time when entire hillsides were bare of trees and wildflowers, when farmlands and homesteads were entombed under layers of mud and sand, and trout streams ran muddy brown.

What caused these calamities? To understand the causes, one must look back to when "conservation" and "ecology" were not household words.

Early settlers in the region cleared the land for crops and cut the mature timber to build their homes and towns. They burned the hillsides, turning woodlands into pastures for their cattle and



Innocent people created their own "monster." Poor land management practices led to severe erosion. Entire hillsides slid away to bury fields, roads, and even one town.

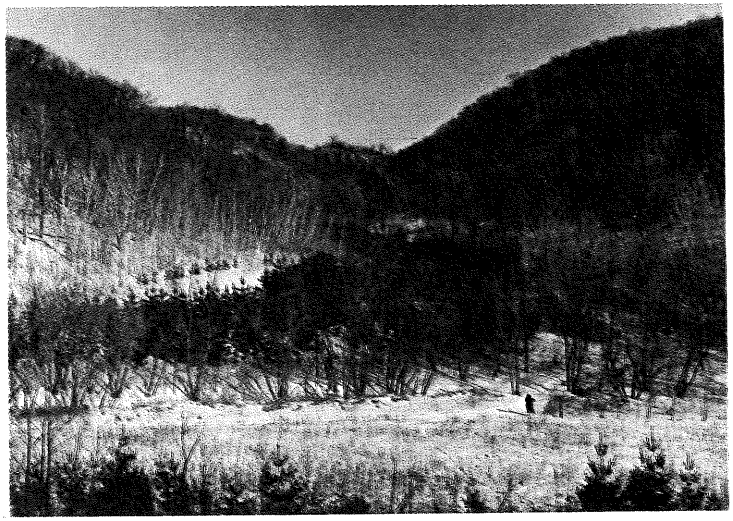
sheep. They plowed the blufftops, planted crops on the same soil year after year, and stripped the steep hillsides of trees, shrubs, and grasses.

At first, their activities seemed to have little impact upon the land and the people were not aware of the consequence of their activities. But as the years slipped by, the region began to experience the calamities of abusive land treatment.

With the protective buffer of trees and vegetation gone, the soil was exposed to heavy spring rains. Tiny rivulets at the top of the hills became raging torrents that ripped and gouged the earth. Meanwhile, in the valleys below, the swollen waters slowed, depositing their loads of soil and gravel on croplands and towns.

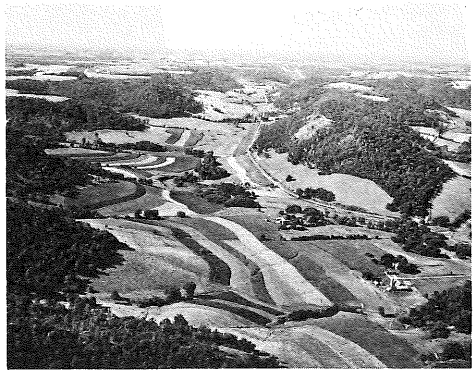
People began to realize that the unique real estate of southeastern Minnesota demanded unique land use practices. Meanwhile, they began to support local efforts to preserve the land. In 1919, the Legislature created Whitewater State Park in a valley once devastated by erosion.

Richard J. Dorer, with the then Minnesota Department of Conservation, took great interest in the Whitewater Valley where 28 floods occurred in 1938. Dorer realized that restoring the Valley would require more state land acquisition than the park

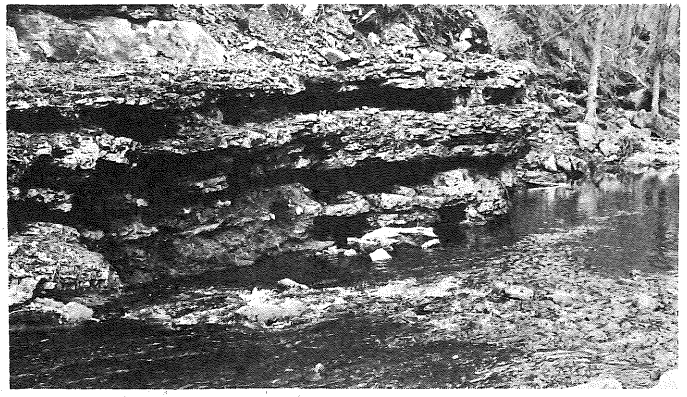


could accommodate. He led a local crusade which ended, temporarily, with establishment of the Whitewater Wildlife Management Area and a goal to acquire 38,000 acres. The project was highly successful and when Dorer retired from the DNR in 1958, he led a crusade to create the Memorial Hardwood State Forest. It was established in 1961 with great support from the local public.

Recognizing that improper land treatment and land use caused most of the erosion, the DNR and Soil Conservation Service worked cooperatively to improve and restore stability to the land and water. The Memorial Hardwood State Forest, named in Dorer's honor after his death in 1974, has helped to restore the ravaged land through forestry conservation practices on state and private lands. Marginal agricultural land has been converted to permanent vegetation cover, eroded stream banks have been repaired, proper agricultural practices such as crop rotation and strip-cropping have been encouraged, and water control structures have been built to arrest erosion. The forests are now stabilizing the soil, enhancing the beauty and bounty of the southeast.



Improved farming techniques combined with tree plantations and other erosion-control measures have helped restore the land's vitality.



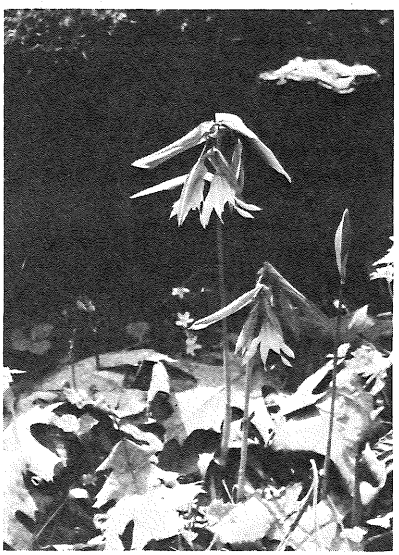
THE FOREST

Richard J. Dorer Memorial Hardwood Forest is the largest of Minnesota's 55 state forests. It encompasses all of Wabasha, Winona, and Houston counties and parts of Goodhue, Fillmore, Olmsted, Dodge, and Dakota counties.

The Forest contains a variety of tree species, but is generally comprised of northern hardwoods. Most of the forest is red and white oak mixed with hickory. Other common trees include elm, maple, ash, basswood, aspen, birch, black walnut, butternut, and black cherry. (Walnut, butternut, cherry, and red and white oak are known for their high market value.) Occasional stands of white pine and red cedar are found.

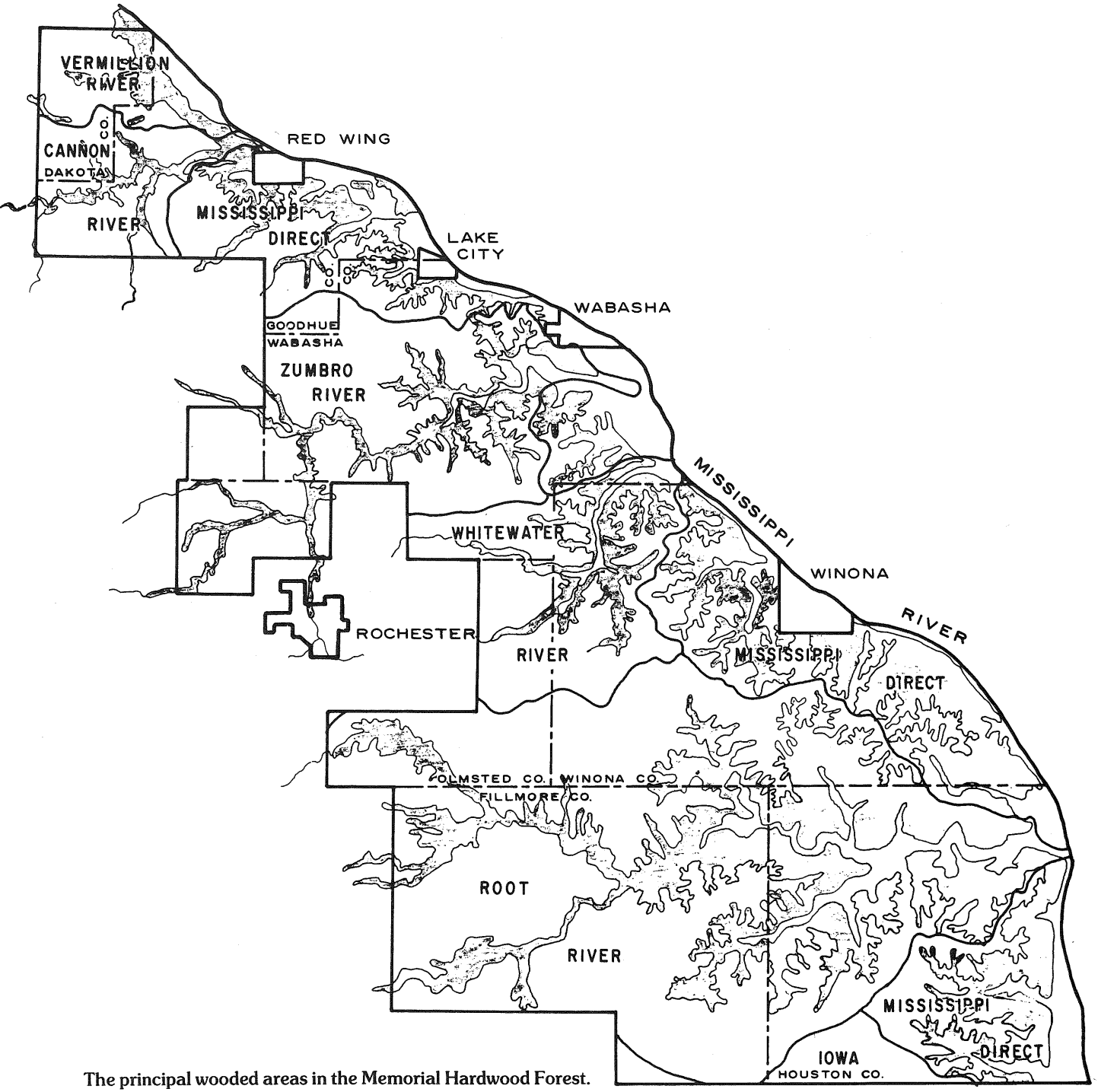
The forest has an amazing array of wildlife. Hundreds of bird species live year-round or migrate through the southeast, among them several rare and endangered species such as bald eagles and peregrine falcons.

Some 2,000 miles of rivers and streams wind through the patchwork of forests and farmlands. These streams are inhabited by several species of trout which attract fishermen from throughout the state.



Wildlife, charming wildflowers, and clear trout streams abound in the Forest.

Leonard Lee Rue III



The principal wooded areas in the Memorial Hardwood Forest.

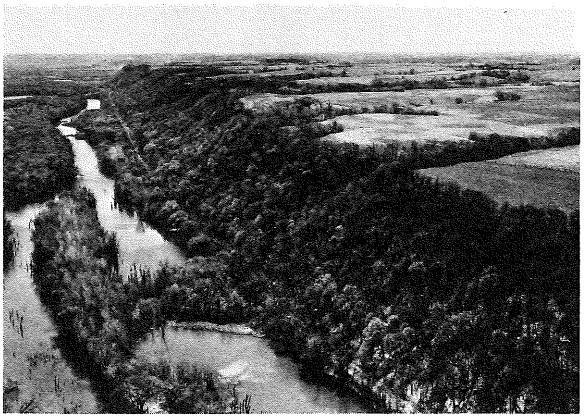
WHY MANAGE FORESTS?

Is forestry an important land use in southeast Minnesota?

The rolling topography of coulee country is particularly vulnerable to changing land uses, overuse, and mismanagement. Maintaining vegetative cover, particularly trees, is critical on this unique countryside. The layer of organic matter which accumulates on the forest floor acts as a sponge, absorbing rainfall so it will seep into the ground to replenish ground-water reserves. Plants on the forest floor obstruct the flow of water causing it to slow down so it drops soil particles, thus reducing erosion. For instance, water entering the forest from a hilltop field is usually harmlessly dispersed.

However, during a rain, where fields are plowed on steep slopes or proper field cropping is not practiced, surface runoff builds in amount and speed. Small gullies form in the fields and channel the water into the forest. The forest floor cannot withstand the force of the water and erosion continues.

Where lands are too steep to be tilled, they are often grazed. Heavy grazing destroys the blanket of litter and lush vegetation on the forest floor and compacts the soil. Water entering the forest is no longer absorbed or filtered into the soil. As a result, greater quantities of silt-laden water enters streams, causing additional stream bank erosion and floods.



Hardwood forest flanks the Mississippi River.

Foresters and soil conservationists can recognize sources of erosion and will advise and use various management practices to prevent erosion and to control sedimentation in streams. The Division of Forestry has constructed over 100 erosion-control structures on state lands to correct problems caused by previous private owners.

FOREST MANAGEMENT

Typical of other units in the state forest system, Memorial Hardwood State Forest is a mixed pattern of public and private lands. About 90 percent of the land is privately owned with the remainder in state, federal, and county ownership.

What is the major objective of state foresters in the Memorial Hardwood Forest? Basically, our goals are: To encourage proper land use on private lands within the Forest and to manage state-owned lands so Minnesotans and the environment will benefit.

State-owned Land. The Division of Forestry of the Minnesota Department of Natural Resources manages some 35,000 acres of state-owned forest lands in the Memorial Hardwood Forest. Basic management goals are to develop and manage timber, enhance fish and wildlife populations, protect watersheds from erosion, protect water quality, and provide recreation.

Private Lands. This program is aimed at promoting sound forest management practices among southeastern landowners. Woodland owners are given technical advice and the use of certain types of equipment. In addition, both state and federal aid is provided to community fire departments for forest fire control.

Snow-covered hills near Reno in Houston County.

MANAGEMENT TECHNIQUES

Developing and managing timber resources is the major objective on forested lands. To this end, DNR foresters apply many management practices during the life of a forest stand.

First, of course, the tree stand must be planted or established by natural regeneration. As the stand grows, certain Timber Stand Improvement (TSI) practices are applied. Densely-stocked stands must be thinned to give selected high-quality trees room to grow. Low branches must be pruned to insure development of a tall clear log (without knots).

As trees mature, they are harvested for forest products and to make room for a new crop of trees. Foresters determine which stands or specific trees are ready for harvest, mark these trees, and then administer a "timber sale."

Fuelwood sales on state and private lands are administered by foresters. Fuelwood permits are sold to area residents who heat their homes with wood. This benefits homeowners while benefiting the timber stand because it enables foresters to remove and use low-quality trees.

Of paramount importance is the need to manage the Memorial Hardwood Forest for timber production to sustain existing industry. Unfortunately, most of the Forest is still in poor condition. Many large "wolf trees" grew up in the absence of management and interfere with natural reproduction. Our forest inventory shows that more than half of the growing forest is of lower quality timber, reflecting years of no management. In some areas, erosion is a recurring problem if logging roads and harvest techniques are not carefully planned.

Despite its many problems, the Forest has excellent potential for growing quality timber. Reasons to support this optimistic view include:

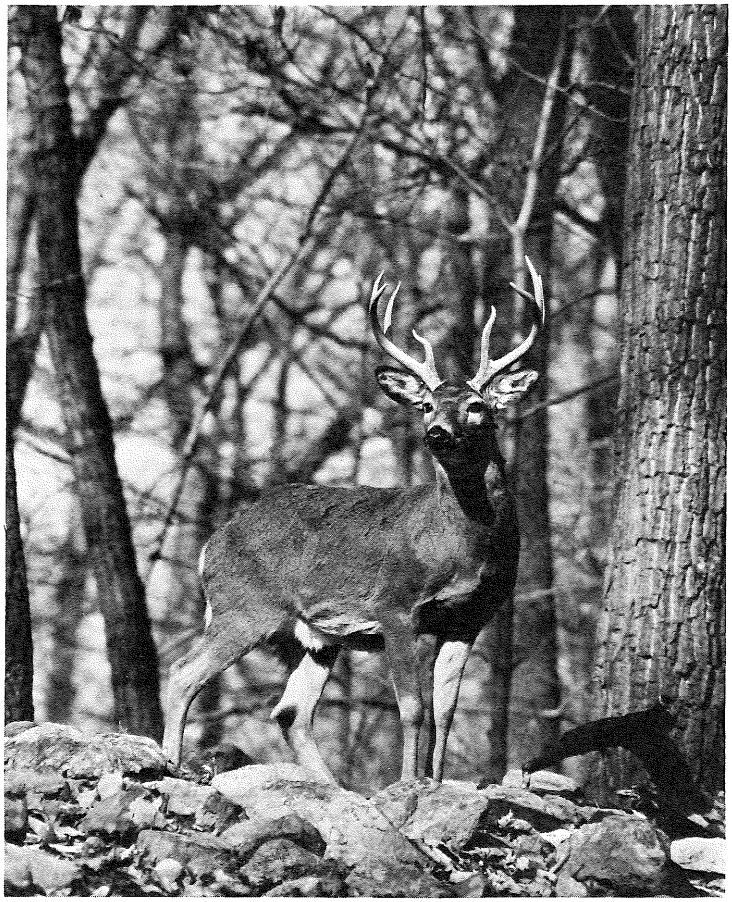
- The growing season in southeastern Minnesota is long — nearly one month longer than the northern forested region.
- Average annual precipitation is highest in the state — about 30 inches per year.
- Many of the Forest's tree species are of high value and in demand.
- Because the Forest has such a diversity of tree types, it is less susceptible to severe outbreaks of disease and infestation by forest pests.

Growing timber demands also paint a bright future for the forest. For example, there is a new demand for fuelwood. The demand for hardwood grade lumber logs and box-grade veneer is gradually increasing. And, there is an insatiable demand for softwood logs and high-quality hardwoods such as walnut, butternut,

Left: DNR forester and landowner discuss new growth on land logged the previous year.

Above: DNR forester measures tree circumference. **Below left:** Increment borer tells a tree's age. **Left:** Logger prepares to fell a huge elm.

Leonard Lee Rue III

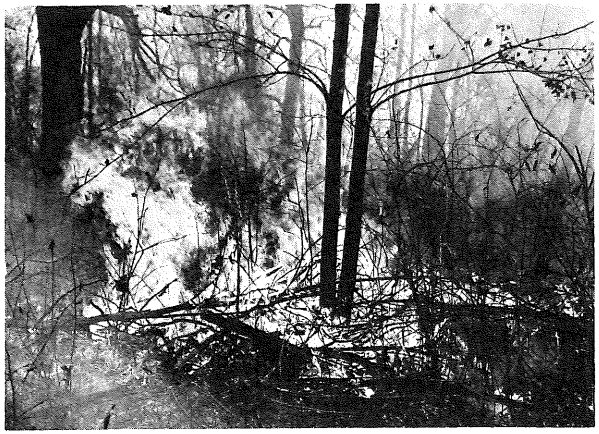


White-tailed deer.

oak, basswood, and cherry. There is a growing demand for low-grade materials for use in chip mills and utilization as fuelwood.

Maintaining a healthy forest is likewise essential for maintaining fish and wildlife communities. Timber management practices, such as logging, benefit these communities by maintaining a diversity of habitat. Part of a forest is young and growing vigorously, providing food and cover for innumerable species of wildlife. Meanwhile, another part consists of mature trees which benefit many other kinds of birds and mammals. Silvicultural practices can be applied to increase wildlife food supplies and nesting conditions. Plots of corn can be left standing in fields to help certain species — deer, grouse, turkey, etc. survive Minnesota's harsh winters.

The Dorer Memorial Hardwood Forest is also managed for recreation. Countless Minnesotans hunt, trap, and fish on state lands. The woodlands are also enjoyed by berry and mushroom pickers, campers, photographers, hikers, skiers, snowmobiles, horseback riders, sightseers, and canoeists. The Forest provides access to many trout streams and contains three designated canoe routes. In addition, five recreational areas provide primitive camping facilities and trails. They include: Kruger, Trout Valley, Snake Creek, Crooked Creek, and Hay Creek.

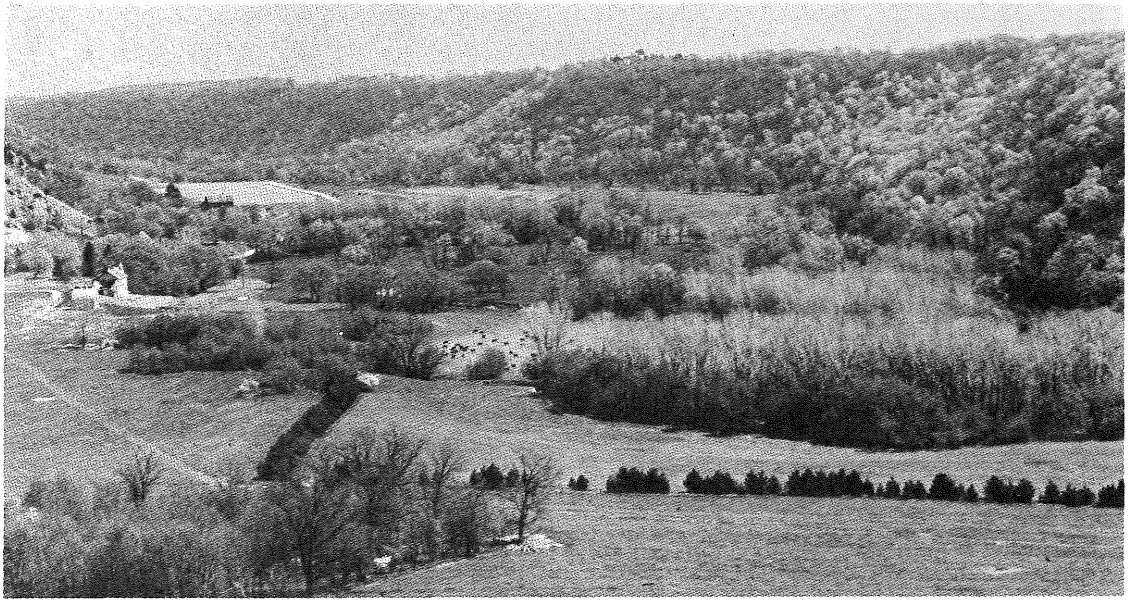


FOREST PROTECTION

Fire and disease are deadly adversaries of the forest. Below: Elm killed by Dutch elm disease.

A growing forest must be safeguarded against insects and disease — either can cause widespread destruction. Early detection of outbreaks is critical. Control measures include cutting, burning infected trees and applying pesticides. Other preventative measures may be used such as controlling the composition of the forest stand to lower its susceptibility to infection.

Fire control is vital to timber management. In a matter of hours, fire can wipe out decades of forest management work. Fires in southeastern Minnesota can have a devastating impact on vegetation and will greatly impair the quality of hardwood trees.



THE FOREST AND YOU

Recently, the Division of Forestry drafted a comprehensive land acquisition plan for Memorial Hardwood Forest. The plan assigns purchasing priority to specific lands which, if acquired, would enhance forest management objectives.

The Division of Forestry did not devise this land acquisition plan alone. Foresters sought and considered the views of local citizens. At public meetings throughout the southeast, we heard the concerns of hundreds of residents. The DNR also worked closely with a citizen advisory committee comprised of representatives from the area. Our objective was to formulate a land acquisition plan that would be acceptable to area residents, the State Legislature, the DNR, and citizens of the state.

At the various public meetings held throughout southeastern Minnesota, residents voiced many concerns during question-answer sessions. Foresters will continue to listen and learn, while making every effort to inform residents of conditions, plans, and opportunities available to them in the Forest.

Following are our answers to the most commonly-asked questions at the hearings:

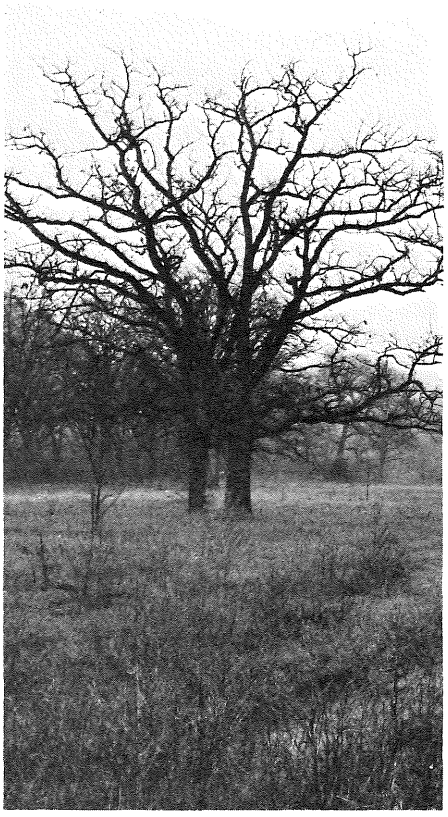
Q. What kinds of land does the Division of Forestry want to buy for the State Hardwood Forest?

A. Contrary to what some people believe, DNR **does not** want to acquire lands which are suitable for farming and other types of use. Foremost to foresters are those lands which are more suitable for forest production and which are sensitive to disturbance, thus needing special management. For example, prevention of erosion on steep hillsides above trout streams are vital to the health of the streams. These areas usually have unique flora and fauna and, if properly managed, can grow valuable forest products while protecting the soil — and the stream below — from erosion and siltation.

Q. Why is it necessary for Division of Forestry to buy more land?

A. Public ownership enhances long range timber management. Management objectives can be applied over a long period of time, providing a steady timber supply in the future. The timber resource can be developed to its **fullest potential** on state lands. This provides a favorable climate for more business and industry — and more jobs — which depend upon a continuing supply of forest products.

Of course, good timber production can be sustained over many years

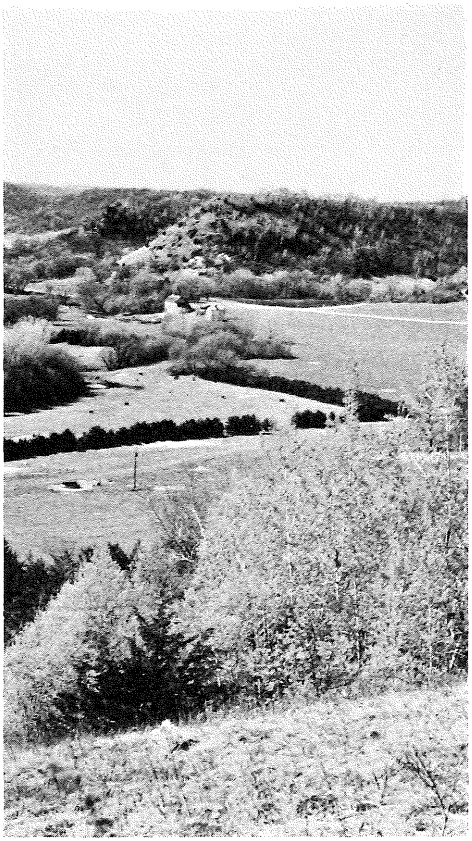


Large "wolf trees" often grow where the land has been over-grazed.

on private lands. However, few landowners are willing to devote the time and expense necessary to develop a hardwood forest to its fullest potential.

Q. How much land does Division of Forestry want to buy?

A. At this time, the DNR projects that at least 84,000 acres or 14 percent of the forested and rough land in the Forest should be owned by the public by 1990. The Division of Forestry will reassess its land needs periodically. In a reassessment, it will be necessary to look at how private landowners are using the land and managing their timber resources. Proper land use and management are critical for insuring a healthy environment and economy.



Mix of forest and farm lands.

Q. Can a landowner be forced to sell?

A. Absolutely not! For the past 15 years, **all** land acquired for the state forest has been purchased only from **willing sellers.** There have been more landowners willing to sell than funds available for purchasing their lands.

The Division of Forestry cannot exercise the power of eminent domain over any landowner. It would take an act of the Legislature to force a landowner to sell his or her land for state forest acquisition.

Q. What price will the state offer a landowner?

A. The landowner is contacted to determine if he or she is interested in selling land to the DNR. If so, the land is appraised based on comparable private lands transactions. This appraisal must next be approved by the Minnesota Department of Administration. After this, the landowner is presented with an offer based upon the appraised value. He or she may accept the offer or, if it does not seem fair, may refuse to sell.

Q. Does the Division of Forestry buy agricultural land?

A. Again, based on its land acquisition plan, the Division of Forestry assigns priority to acquiring forested and rough lands, those which are usually unsuitable for agriculture and in need of special projects that restore the land to its natural state. Occasionally, however, tillable lands are acquired along with such a purchase. This may happen when a landowner is unwilling to sell only a portion of his or her property.

Q. What is done with new agricultural land purchased by the Division of Forestry?

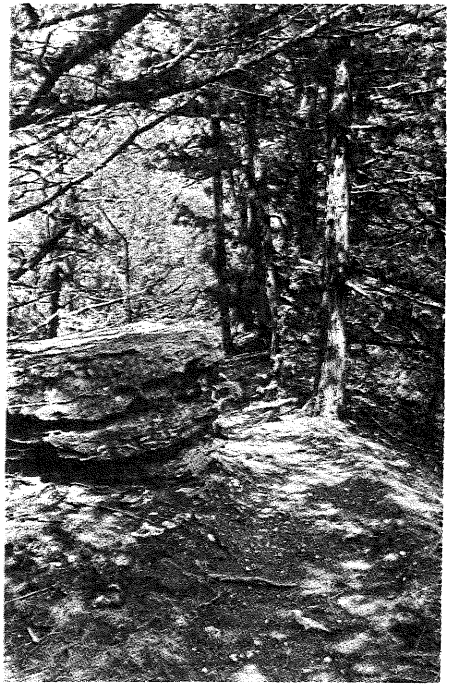
A. Minnesota law requires the DNR to try to exchange or sell certain types of agricultural land that have been acquired. The law states that Soil Conservation Services Class I, II, and III agricultural lands that are accessible and at least ten acres in size be either exchanged for timber-type lands or sold to private interests.

Today, about eight percent of state forest land is agricultural. Much of this land has not been taken out of agricultural production. Most of it is leased to nearby farmers who plant crops that are compatible with state forest management objectives.

Once any new tract of agricultural land is acquired, the Soil Conservation Service is asked to write a management plan for the tract. So far, about 13 percent of acquired agricultural lands were determined by the SCS to be marginal or unsuited for crop production because of serious soil limitations such as soil type, steep terrain, or frequency of flooding. These areas are planted with trees and shrubs to maintain permanent cover. Open grassland is occasionally left for upland game birds.

Q. How does the DNR land acquisition affect my local tax base?

A. State-owned land is not on the county tax rolls. Yet the loss of tax revenue from county to county is not substantial. Here's why. In five southeast counties, the assessed value of state-owned land amounts to less than one percent of the total value of assessed land (see table 1).



Rough lands and soils unsuitable for agriculture are given acquisition priority.

TABLE 1 RELATIVE QUANTITY AND VALUE OF STATE FOREST LANDS IN COUNTIES

	Fillmore County	*Goodhue County*	*Houston County*	*Wabasha County*	*Winona County*
Total Acres in County	552,960	502,920	368,280	356,280	417,520
Total Forested Acres	86,320	64,440	140,880	78,400	137,560
Total State Forest Acres	5,010	4,450	10,179	9,140	6,287
% of Total Land Surface Owned by State Forest	.93%	.87%	2.8%	2.6%	1.6%
% of Counties Assessed Value in State Forest	.23%	.04%	.6%	.57%	.12%

In addition, state forest land generates taxable income for counties. The counties receive one-half of every dollar generated from state timber sales and leases. This money is distributed to school districts and townships in the same manner as taxes.

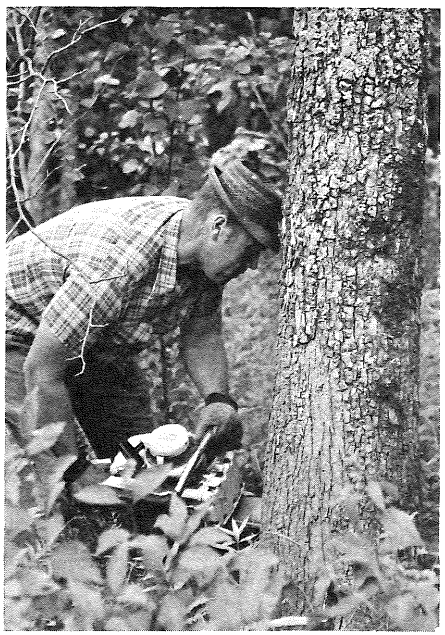
In recent years, state money returned to two southeast counties has exceeded the amount which would have been collected in taxes. Studies indicate that, over time, state-forest-generated monies will exceed expected tax revenues in the forest counties. Why? Primarily because future supply and demand projections for timber products indicate that well-managed hardwood stands can become high-value crops if produced for furniture, lumber, veneer, and firewood for future energy needs.

Q. Can the Division of Forestry continue to manage the land it is responsible for?

A. Like any public agency, the DNR must cope with a budget that may fluctuate from year to year. Over the years — some very lean! — the Division of Forestry has accomplished a great deal, including:

- Over 100 erosion-control structures on state land
- Nearly 150 timber stand improvement projects
- 50 miles of recreational trails
- 7,680 rods of fencing
- Nearly $1 million in timber and fuelwood sales
- 1.5 million trees planted
- 2 miles of stream bank stabilization

Less visible than these accomplishments is the behind-the-scenes work that is essential to a sound forest management program. Timber stands must be inspected and Forestry lands must be inventoried. This enables foresters to prescribe specific management projects for a specific stand — a kind of prescription for improving the health of a woodland.



Well-managed timber stands are money-in-the-bank come harvest time.

COOPERATIVE FORESTRY

Q. Is it profitable for a private landowner to manage his or her land for timber production?

A. Foresters want to help landowners manage their lands for timber. By studying projections of timber growth on a good site with proper management, and basing these on economic trends, foresters are able to predict profits landowners can expect. For example, the gross return projections for oak. An average 4.7 percent rate of return on an investment in older stands (greater than 50 years) is predicted. This profit margin is low because older, unmanaged stands do not respond quickly to timber stand improvement operations. In more favorable situations, up to 16 percent rate-of-return is possible.

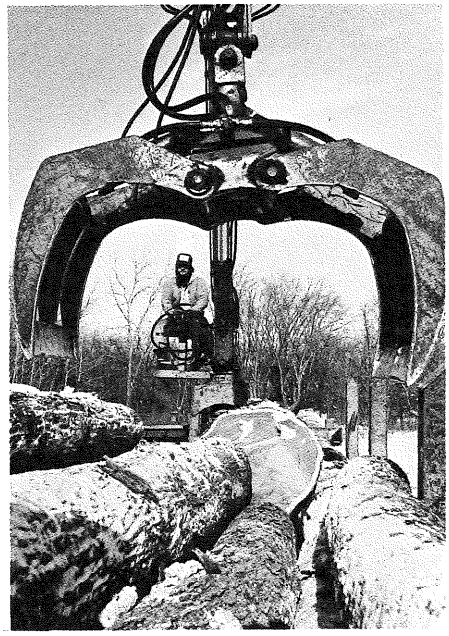
Certainly, low-quality timber does not yield much profit and it may take many years to improve the productivity of the stand. Perhaps this fact may explain the reluctance of landowners to invest in their woodlands.

Q. What kinds of forest management assistance are available to landowners?

A. The Division of Forestry administers the Private Forest Management Program (PFM) which provides free technical advice to woodland owners upon written request.

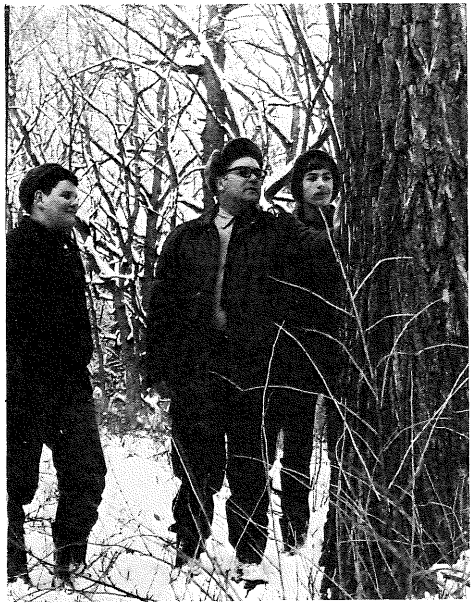
A DNR Forester will examine your woodland, prepare a management plan according to your objectives, designate timber to be cut, scale or measure the wood cut, and provide market advice and assistance. (A nominal fee is charged for marking timber for cutting.) In addition, planting stock can be purchased from the DNR at cost. Equipment such as planting bars, pruning saws, and tree planters can be borrowed or rented from the DNR.

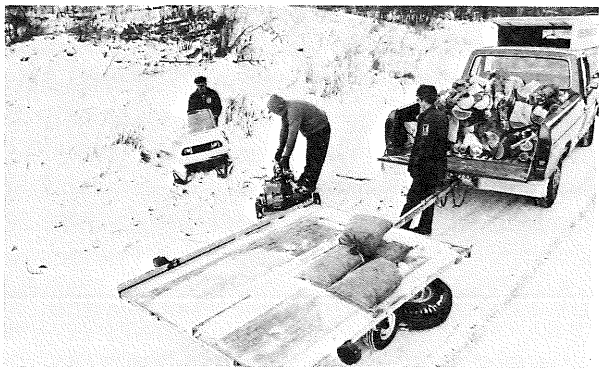
Federal cost-sharing programs are available to landowners through Agricultural Stabilization Conservation Service offices in most counties.



Loading elm logs during salvage operation. Many elms killed by disease can be salvaged before the wood begins to decay. Consult your local forester for details.

Right: Harvesting firewood on state land. **Below:** DNR forester discusses black walnut growth with students. **Bottom:** Young snowmobiler on the Reno Trail.





Under the Forest Incentives Program (FIP), and Agricultural Conservation Practices (ACP), landowners may share the costs of planting, pruning, thinning, fencing, and preparing a site for planting.

Q. Can a landowner whose land adjoins state forest land obtain assistance in building and maintaining a partition fence?

A. Yes. Under current fencing laws, Hardwood State forest land is treated like private land. The state must pay equal shares in the construction and maintenance of a fence between state property and adjoining land if one or both parties want the fence.

Q. Are there other programs which benefit rural communities?

A. The DNR provides state aid for forest fire control. It pays a flat annual amount to communities plus a per run payment. (The annual rate is based on a fire mill rate and the value of DNR lands within the local fire district.)

Under the Federal Title IV program, local fire departments have access to surplus federal equipment such as vehicles and pumps. They can also receive 50 percent reimbursement, to buy equipment for rural fire control.

A timber marketing and utilization program promotes new and improved uses of timber and helps local industries utilize wood products while reducing waste. Foresters stand ready to help sawmills and other wood processors to use more of every tree and to save wood by accurately grading and sawing lumber. These quality and quantity improvement studies are made available to any wood industry upon request.

DNR Foresters also work with local clubs, civic groups and schools to provide educational assistance in forest management and environment education.

Craig R. Borck

Backpackers in Frontenac State Park.

DNR FORESTRY OFFICES

For more information about the Richard J. Dorer Memorial Hardwood State Forest . . . or for assistance in managing your woodland, contact the Forestry office nearest you.

DEPARTMENT OF NATURAL RESOURCES

Regional Forestry Office and Area 2300 Silver Creek Rd. NE Rochester, MN 55901	507-285-7420
*District Office and Area Box 69, Lake City 55041	612-345-3216
*District Office Box 195, Faribault MN 55021	507-334-8190
*District Office and Area Box 278, Lewiston, MN 55952	507-523-2224
*District Office Box 72, Caledonia, MN 55921	507-724-3348
*District Office Box 212, Preston, MN 55965	507-765-3892

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