> *How an active sentiment can be awakened for preservation of Minnesota timber I don't know, as the present sentiment is to 'grab all you can' and no one cares about the future."*
> *—George Goodrich, fire warden,*
> *Becker, Minnesota, January 13, 1896*

CHAPTER FOUR CHANGES IN THE FOREST (1800s–PRESENT)

Clearing the Land

In the early 1800s, dramatic change began to arrive from the east. The French, and later the British, fur traders plied their trade in the northern expanses of the state. At the same time, other Europeans were gradually pushing their way westward across the growing nation in search of the farmland riches they had been told were part of this vast, unknown terrain. By the 1840s, settlers had begun establishing farms on lands that the Ojibwe and Dakota had given up through treaties in the southern part of what is now Minnesota.

As these new settlers trickled in, they were quick to spot opportunity. And with their minds set on farming, the soil was it! In the forests of the southeastern and central parts of the state, they saw rich cropland just waiting to be freed from the weight of the enormous deciduous trees towering above them. Not only that, but they needed wood to build their houses, barns, mills, and towns.

The task was clear, and they set to it with the radical resolve that gave many immigrants the strength to stand up against the hardships that drove them across the ocean in the first place. The trickle of pioneer farmers soon became a steady stream, and most of the rich deciduous forest in the southern and central part of what is now Minnesota fell to the ax and to fires deliberately set to clear the land for farming.

The Logging Era

As America stretched its boundaries across the continent, the demand for building supplies soared. Forests became, in the eyes of some visionaries, collections of ***timber*** just waiting to become joists, rafters, tables, chairs, drive tongues for covered wagons, and paper stock for leaflets and newspapers announcing the riches of the West. And the very best timber, it seemed, waited in the great, but difficult-to-access, white pine forests of northern Minnesota.

Many view the construction of Minnesota's first sawmill at St. Anthony Falls in 1821 as the start of the logging industry in the state. In 1837, treaties with the American Indians opened up much of Minnesota to logging. With that change, and with the increasing demand for wood caused by the settling of the prairies to the south, timber companies pushed into the northern pine forests. The first commercial cuts were made along waterways that could provide transportation for logs. Trees were cut in the winter and hauled by horse

Old government sawmill and flour mill in Minneapolis, circa 1857.

Minnesota Historical Society—Photographer: Benjamin Franklin Upton. Used with permission.

or oxen to the edge of streams. Then, when spring came, they were floated downstream in rivers to mills.

From the time the first lumber was cut at Marine on St. Croix in 1839 to the last big log milled in the Virginia Rainy Lake Mill in Virginia in 1929, lumbering in Minnesota was big business. Timber barons amassed great wealth harvesting the vast stands of white and red pines. Minneapolis, Stillwater, and other towns along the St. Croix and Mississippi rivers became hubs of logging-related activity. By the 1930s, the major lumber companies operating in Minnesota's north woods included General Logging, a Weyerhaeuser enterprise; International Lumber,

Minnesota DNR

Because the logs cut by the various timber companies were all mixed together, logs transported to market by river were branded like cattle by their owners so they could be sorted out at the mill.

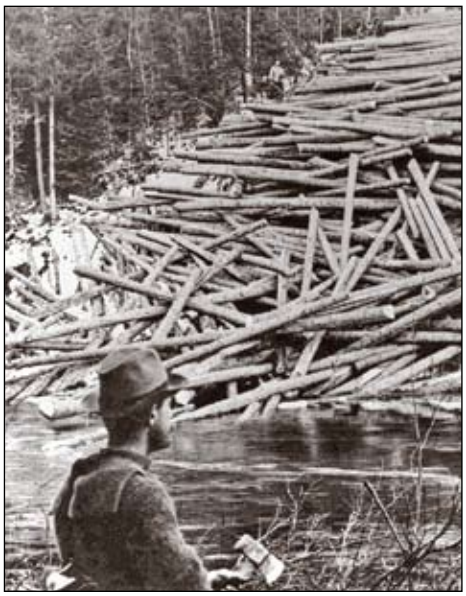
later International Paper; North Star, a division of Kimberly-Clark; and the Minnesota and Ontario Paper Company, the largest corporation in the state.

During the heyday of logging, 1890 to about 1930, tens of thousands of lumberjacks—men who felled huge trees with muscle, ax, and saw rather than by steam engine—toiled in the woods during frigid winters. Lumberjacks earned their livelihoods cutting trees, removing tree limbs, and moving logs on sleighs powered by teams of horse or oxen, from the woods to landings at the river's edge. Thousands more worked on the river drives, moving the logs to hungry sawmills downstream. Though floating on rivers was usually efficient, sometimes logs would jam up and the river drivers would need to risk their lives using dynamite and muscle power to break the jam. In the meantime, 20,000 men worked from dawn to dusk cutting what some saw as endless white pine.

Timber is often measured in a unit called a board foot—the amount of wood in a board that is 1 inch thick, 12 inches long, and 12 inches wide or 144 cubic inches. A ***board foot*** is a volume measurement that foresters use to describe how much timber exists in a forest or at a pulp mill.

The average pay for these workers was a dollar per day plus room and board. (For comparison, in 1890, one dollar could buy 10 pounds of flour, 2 pounds of round steak, 2 quarts of milk, and 20 pounds of potatoes.) Consequently, hundreds of Minnesota towns depended on logging for their economic existence. Immigrants, eager to start a new life in America, found themselves working the winter camps where labor was in short supply.

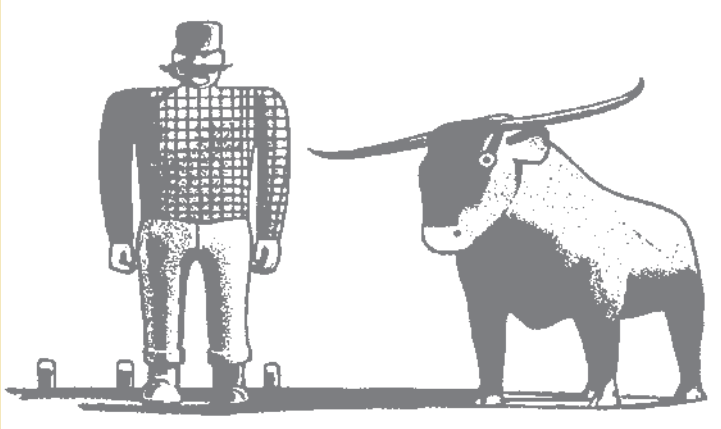
Winter logging was a constant battle against the elements. Frozen ground was necessary to move the heavy logs with horses and oxen. Ice roads for sliding logs had to be built and maintained. Heavy snow, early thaws, and low spring water levels could jeopardize a winter's work. These extreme conditions, combined with the rugged individualism of the woodsmen, gave rise to some rich lumberjack folklore. It was from these stories of great feats of strength, endurance, and ingenuity retold around the bunkhouse workstoves, that the legends of Paul Bunyan and his mighty Babe the Blue Ox grew.



Hinkley Fire Museum. Used with permission.

Breaking up log jams on Minnesota rivers was dangerous work involving dynamite and muscle power.

Paul Bunyan



The tall tales of Paul Bunyan and his blue ox, Babe, are legendary. Like the one about the day Babe was stung by a Bunyan-sized bee and bolted for the West Coast. Paul grabbed Babe's tail, dug his heels in, and stopped the ox. Thousands of people still visit the trench left by Paul's boots. It is known today as the Grand Canyon.

Thousands of storytellers, gathered around the stove in the bunkhouse of logging camps in Minnesota's northern woods, have contributed their chapter to the classical picture of Paul Bunyan. Those storytellers gave Paul the blue ox, Babe, who measured 42 ax handles and a plug of chewing tobacco between the horns. They helped to create the lumberjacks of Olympian feats; strong, brave jacks who lived in a country of giant bears and mosquitoes the size of hummingbirds.

Paul and Babe are perhaps the most renowned of lumberjack legends. However, many "legends" were, in fact, based on truth. While there is some skepticism about the lumberjacks' unearthly abilities during the logging era of the early 1900s, there is no question that these woodsmen led a harsh, if not unique and colorful, life while earning their livelihoods. To be considered good lumberjacks, men had to be energetic, strong, and able to work in the cold for long hours at a time.

In 1857 alone, some 100 million board feet of lumber were cut in the state. By 1889, with the rapidly growing railroads both increasing demand for wood and providing a new means to get wood from the forest to the market, production topped 1 billion board feet. The introduction of new technologies that made harvesting, transporting, and processing logs easier and more efficient helped that number double within the next decade to its all-time peak of more than 2 billion board feet in 1899. (All numbers are annual.)

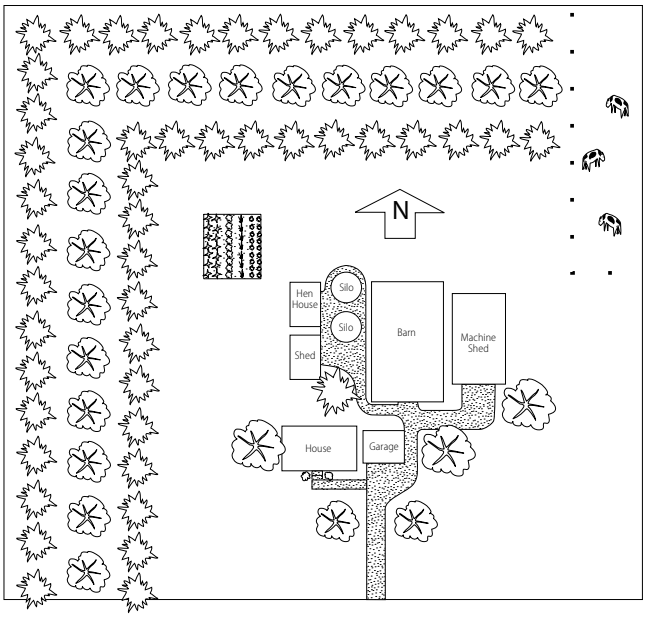
The cut-and-run logging characterized by this era left behind piles of tinder-dry brush and stumps called ***slash.*** Loggers believed that farmers would want to move into the lands they were clearing, so they didn't even consider planting new trees. Fires were periodically set to rid the land of these leftovers, and not all fires respected the boundaries intended by those who set them. For roughly 30 years, from 1890 through 1920, forest fires peppered the newspapers with stories of their ravages: 418 dead in the great Hinckley Fire of 1894; mass destruction in Chisholm in 1908; great damage in Baudette and Spooner in 1910; and 453 dead in the Cloquet–Moose Lake Fire of 1918. (Read about some famous Minnesota forest fires on page 28.)

By the mid 1920s the most difficult to reach timber in northeastern Minnesota was being cut and by 1930, loggers were beginning to discover that they had literally worked themselves out of their jobs. Only a remnant of the massive pine forest that once graced Minnesota remained. With the aid of the frontier-piercing railroads, many of the lumberjacks who had changed the face of Minnesota forever headed out to the Pacific Northwest to ply their trade there.

Windbreaks and Shelterbelts

Although some of the early settlers of Minnesota's agricultural land saw trees as obstacles, others recognized that trees could be their allies by helping to protect their families, animals, and soil from wind and weather.

The value of trees as windbreaks and shelterbelts was driven home during the dry and windblown Dust Bowl years of the 1930s. Farmers began to plant trees in rows to slow the winds that cut across plowed fields, stealing valuable topsoil and leaving behind barren land. The field-lining ***windbreaks*** not only helped keep topsoil from being blown away, they also retained moisture by keeping snow on the farm field, added beauty and variety to the landscape, and provided homes and travel corridors for wildlife. ***Shelterbelts***—L-shaped lines of trees—wrapped around the windward side of homes and farm buildings, provided many of the same functions, and reduced fuel and animal feed needs by creating a pocket of warm air around houses and outbuildings.



Ideal shelterbelt planting for a farmstead. Small, 15-foot trees line the outer perimeter, flanked by 70-foot tall trees through the middle, with rows of 15- to 20-foot trees lining the shelterbelt closest to the buildings.

Arbor Day

Arbor Day is a time to celebrate trees. Historically, it is a time when people plant trees and shelterbelts, and rally to green up their communities. In the 1870s, most states, including Minnesota, established Arbor Day. Today, all states have an Arbor Day, mostly on the last Friday in April. In 1978, Minnesota became the only state to celebrate an entire month—May—as Arbor Month.

Roots of Conservation

Even in the heyday of logging, the roots of conservation—of treating the forest as a resource to be maintained rather merely extracted for its timber—were being laid in Minnesota. Although the white pine forests of the north seemed endless to some, settlers in the prairie lands of the southwestern part of the state, who lacked wood for fuel and homes and standing trees for shelter, felt the price of being treeless.

Recognizing the need for trees in the vast open spaces that were being carved up into farms, the Minnesota Legislature in 1873 passed a law giving farmers $2 a year (with a 10-year limit) for every acre of saplings they cared for. That same year, the federal government passed the Timber Culture Act. This law supplemented the Homestead Act, which gave 160 acres of land to anyone willing to farm it for five years, by requiring settlers to grow trees on at least 40 of those acres. Within a year, the acreage required by law was reduced to 10, but the message remained: Trees are important. Consequently, some 8 million trees were planted in 1873, totaling more than 25,000 acres within the next seven years.

The Minnesota State Forestry Association, established in 1876, is Minnesota's first forest conservation organization. Today it is known as the Minnesota Forestry Association.

The disastrous Hinckley Fire of 1894 indirectly stimulated conservation by moving the Minnesota Legislature to create a state fire warden position. The first chief fire warden, former Civil War general Christopher Columbus Andrews, had spent several years in Scandinavia studying reforestation techniques and was anxious to apply them here. The first state forest was established in 1900 when Governor John Pillsbury donated 1,000 acres of cutover pine lands in Cass County to the state, and the land was designated Pillsbury State Forest. In 1903, the state established a school of forestry at the University of Minnesota—the second of its kind in the nation—to train professionals, and set up a state-run nursery, state forest park preserves, and more state parks that emphasized natural resource conservation.

Minnesota Forestry Timeline	
1821	Minnesota's first sawmill opens at St. Anthony Falls to cut timber for the construction of Fort Snelling.
1837	Treaties with American Indians open most of Minnesota for logging.
1839	Lumber is cut at Minnesota's first commercial sawmill built at Marine on St. Croix to process logs floated down the St. Croix River.
1857	100 million board feet produced in Minnesota.
1858	Minnesota gains statehood.
1873	Timber Culture Act augments the Homestead Act by giving title of an additional 160 acres of land to any person who plants trees on at least 40 acres of it.
1876	Minnesota State Forestry Association is founded to promote wise stewardship of forest lands.
1890	The heyday of logging in Minnesota begins (ends in 1930).
1894	The Hinckley fire kills 418 people. This fire was so destructive because it burned slash piles—remnants of logging operations—that left over 350,000 acres of unstoppable fuel.
1895	The Minnesota Legislature appoints the state auditor as forest commissioner. The auditor appoints General C.C. Andrews as Minnesota's first chief fire warden.
1899	Logging hits an all-time peak, with 2 billion board feet of lumber produced in Minnesota in just one year. The Minnesota State Forestry Board is created.
1900	The Pillsbury State Forest is established when flour mill owner John Pillsbury donates 1,000 acres of cutover pine land to the state.
1903	The School of Forestry at the University of Minnesota is established.
1908	The Minnesota National Forest is established (its name changes to Chippewa National Forest in 1928).
1908	The Chisholm fire burns 20,000 acres.
1909	The Superior National Forest is established.
1910	The Baudette–Spooner fire kills 42 people.
1911	The Minnesota Legislature creates the Minnesota Forest Service.
1918	The Cloquet–Moose Lake fire kills more than 450 people.
1925	The Minnesota Department of Conservation is established. (In 1971, the name changes to the Minnesota Department of Natural Resources).
1929	The Virginia Rainy Lake Mill in Virginia cuts its last big log, signaling the end of the heyday of logging in Minnesota.
1933-1943	Numerous reforestation activities take place under the Civilian Conservation Corps and the Works Progress Administration (renamed in 1939 to Work Projects Administration).
1930-1937	Dust Bowl era causes massive droughts and fires in Minnesota and throughout middle America.
1953	Red pine *(Pinus resinosa)* is named Minnesota's "state tree."

The federal government created two national forests in Minnesota: the Minnesota (1908) and the Superior (1909). (In 1928 the Minnesota was renamed the Chippewa National Forest.) Leaders began to acknowledge that some land just naturally was better for trees than for crops, and in 1914, the state's constitution was amended to allow the Legislature to create state forests out of such land.

Minnesota Historical Society

Crews from the Works Progress Administration control a fire in northern Minnesota.

The economically trying times of the 1930s ironically became a time of hope for Minnesota's forests. Many of those who had tried to set up farming in the cutover lands of the north around the turn of the century had found themselves unable to scratch out a living on the unsuitable acreage. By 1930, these owners had turned their land over to the government in lieu of taxes. In 1932, a governor's commission recommended that these lands be reforested for income and recreation. And, thanks to the Depression, the workforce was available to carry through. Many of the forests that grace the state today are partly the product of laborers hired by the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC).

U.S. Forest Service

The story of Smokey Bear emerged from a lightning-caused fire in New Mexico in 1950. A firefighter found a black bear cub clinging to a tree after a fire. The cub was cared for and then employed by the U.S. Forest Service to spread the message, "Only You Can Prevent Forest Fires."

Gradually, the concept of forest management evolved into a full-fledged discipline. Recognizing that forests can be renewable resources—but only if they are treated as such—people began to use trees as though the future mattered. Landowners—especially big ones, such as the federal and state governments and timber and paper companies—began hiring professional foresters to help them manage forests. Planning for the next growth of trees became an assumed part of the logging process. Forestry research began to provide concrete advice on how management techniques such as planning, planting, inventorying, harvesting, fire management, and thinning could work together to ensure the ongoing health of the forest. People began to realize that the best forests are not necessarily those untouched by human hands—that good management can improve wildlife habitat, environmental protection, and aesthetics as well as better trees.

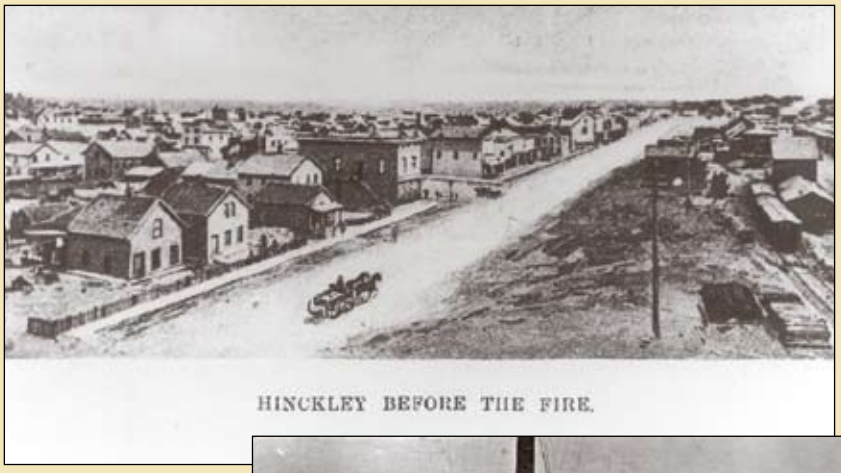
In 2001, Smokey Bear's motto became "Only You Can Prevent Wildfires." The motto was changed from "forest fires" to "wildfires" because the U.S. Forest Service occasionally manages forests and grasslands with fire. Unintended, human-caused *wildfires* do the most damage.

Hinckley Fire

Sometimes fuel accumulates and catastrophic fires erupt. At the turn of the 19th century, the timber industry was moving fast over Minnesota forests. Loggers removed millions of mature trees and shipped them away to growing metropolitan areas. The Hinckley fire, the first of the four "famous fires" of Minnesota, was no simple forest fire. Stark statistics tell the story: 320,000 acres (500 square miles) burned, more than 400 lives lost. For thousands of years, fires of varying intensities had periodically burned through the forest. However, in the 19th century, timber-harvesting activities helped to increase the amount of fuel on the ground. Logging operations took only the largest trees, leaving piles of fuel waiting for the right conditions for a devastating fire. Those conditions came in the early years of the 20th century. Near-drought conditions made these fuels tinder-dry. At the same time, agricultural settlements increased the number of homes and families living in these cutover lands, thus expanding the potential for tragic results.

The city of Hinckley owed its existence to its strategic location in the center of the white pine timber region. The Brennan Lumber Company, the major employer in Hinckley, hired roughly 400 workers. The Brennan complex consisted of a sawmill, planing mill, lumberyard, and a stable of 90 horses. At the time of the fire, its wood yard was stocked with 28 million board feet (enough wood to make a 1" by 12" board reach from New York City to Los Angeles, California, and back to Buffalo, New York) of lumber awaiting shipment and another 8 million board feet (enough to make the same board reach from Minneapolis to Orlando, Florida) of logs ready to saw.

It was in this situation that on Saturday, September 1, 1894, sparks from burning stumps at the Brennan yard blew into the lumber pile. The fire quickly grew out of hand and spread toward the town. Firefighters and mill hands tried to keep ahead of the flames, but Fire Chief Craig assessed the futility and ordered the men to abandon equipment and evacuate the town. Although the fire burned several communities and spread over parts of five counties, it became known as the Hinckley fire because that city sustained the greatest loss in lives and property.



HINCKLEY BEFORE THE FIRE.

Hinckly Fire Museum. Used with permission.

Hinkley after the fire.

Famous Minnesota Fires				
Area	**Date**	**Number of acres burned**	**Number of lives lost**	**Cause**
Hinckley Forest Fire*	September 1, 1894	350,000	418 (may be higher since American Indians weren't counted)	Sparks from burning stumps igniting a 28-million-board-foot pile of lumber at the Brennan Lumber Company.
Chisholm Forest Fire*	September 4, 1908	20,000	0	Windy conditions brought sparks into piles of slash (woody debris left over after logging) within village limits.
Baudette–Spooner Forest Fire*	October 9, 1910	1,000,000	42	Windy conditions fanned several small fires into a large one that consumed the towns of Baudette and Spooner. The death toll would have been much higher, had not trains been available to whisk to Canada hundreds more just ahead of rampaging fires.
Cloquet–Moose Lake Forest Fire*	October 12, 1918	1,200,000	453	Six distinct fires burned together, fanned by wind; 5,200 people injured or displaced; 38 communities destroyed.
Fires of 1931 (Dust Bowl)	1931	993,000	4	There were several, but the largest was the Red Lake Fire, which ran from Red Lake to the Canadian border.
Huntersville Forest Fire (Wadena, Hubbard, Cass counties)	September 7, 1976	23,000	0	A spark from a farmer's haymaking machine ignited dry grasses.
Carlos Edge Fire	October 19, 2000	8,500 acres	0	Caused by escaping sparks from a home debris pile.
Ham Lake Fire	May 5, 2007	75,851 (36,443 in Minnesota; 39,408 in Canada)	0	A campfire-started blaze consumes some of the forest affected by the windstorm of July 4, 1999, in the Boundary Waters Canoe Area Wilderness. A little more than half of the acres burned were in Canada.

* The "Famous Four" fires of early Minnesota history

To sum up

Chapter Four: Changes in the Forest (1800s–present)

- Early settlers cleared forests for farming.
- Logging became one of Minnesota's primary industries, especially from 1890 through 1930.
- Over-harvesting and unmanaged cutover lands made many areas susceptible to massive wildfires.
- Several wildfires occurring around the turn of the century burned millions of acres and took hundreds of lives.
- Forest conservation practices include planting windbreaks and shelterbelts, establishing policies and practices that encourage people to replant and care for trees, establishing a state fire warden position, and dedicating public forests.