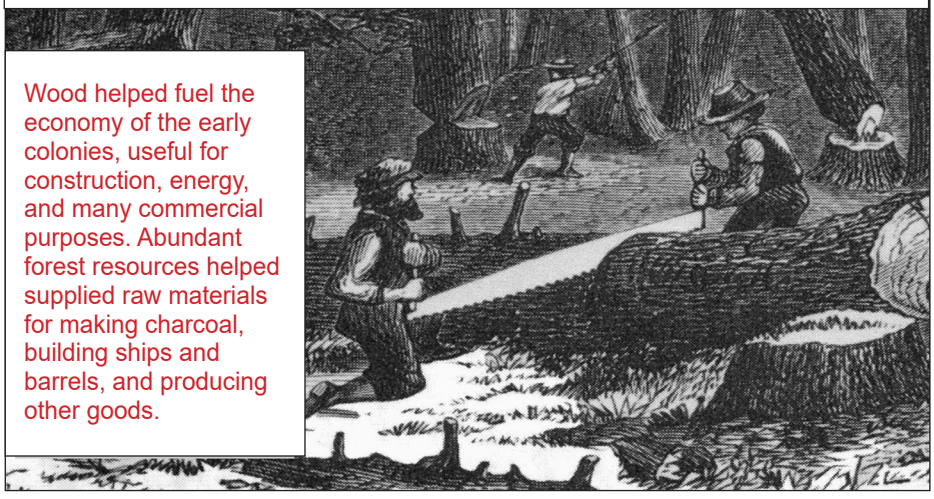
A Historical Overview of Delaware's Forests

Delaware's forests have evolved considerably from the virgin acres of oak and hickory that greeted its early Swedish settlers in the 1600s, and provided them with rich timber harvests for ship building, charcoal making, farming and settlements. Experts believe virtually all of Delaware's uplands (excluding marshland) were forested at the time of European settlement. Today, forests cover almost one-third of Delaware with the remainder cleared for agriculture and then residential and commercial development. These forests are as vital to its future as historical forests were to its growth and economic development.

Before the arrival of Europeans, the peaceful Lenni Lenape people gathered food, game, and crude building materials from the forest. In 1610, an English sea captain whose ship was blown off course into a bay which he named De La Warre, saw huge trees of oak and hickory lining the nearby shore. Early Swedish settlers, in the colony of New Sweden in northern Delaware in the early 1630s, told of the great expanse of nearby timber suitable for framing and "planking." They hand-split, with maul and wedge, the abundant native timber to build their forts and unique log cabins.

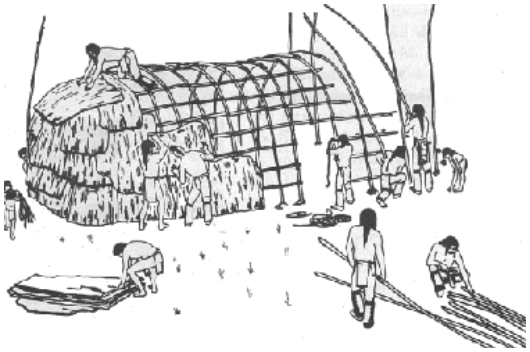
As soon as sawmills were erected on the many streams flowing eastward to the Delaware Bay, rough boards were cut and shipped back to Europe, along with oak barrel staves and cedar shingles. Tree bark for the medicines of the day, along with the bark of the black oak for tanning, were subsequently shipped to England as that country gained control of the settlements in this new and challenging land in 1664. With the refinement of streamside sawmills, lumber was cut from the plentiful oaks, pines, and cypress for the building of ships to haul the new colony's bounty. In return, the new settlers sought iron, nails, sugar, seeds, cloth, and Indian trade goods from the outside.

Forests: Fuel for the Industrial Revolution



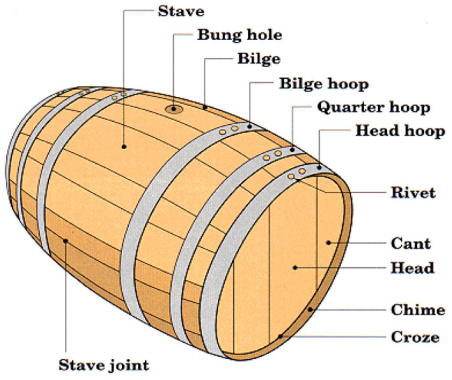
Wood helped fuel the economy of the early colonies, useful for construction, energy, and many commercial purposes. Abundant forest resources helped supplied raw materials for making charcoal, building ships and barrels, and producing other goods.

Forests covered much of Delaware before Swedish settlement in 1638.



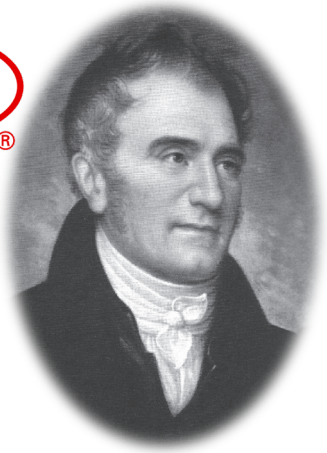
Delaware's Lenni Lenape gathered food, game, and building materials from the forest.

This log cabin built by early Swedish settlers in the 1600s is still standing today in Pennsylvania.

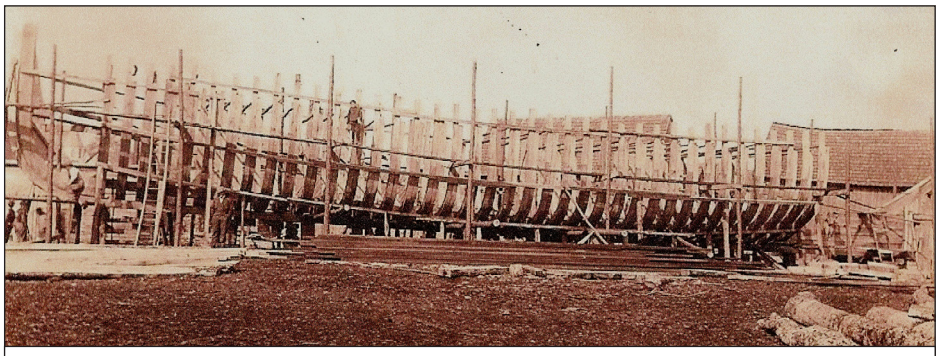


Someone skilled at making barrels was a "cooper." Many goods could be shipped and stored in barrels for long periods to keep out vermin. Barrels could be transported easily and rolled down gangplanks. White oak is a fine-grained wood ideal for storing liquids.

Delaware's many streams and rivers and its prime location on the Atlantic Coast fostered the development of its rich forest resources.



Eleutherian Mills (above left, circa 1905), built by E. I. DuPont in 1802, utlized charcoal made from nearby willow trees on the Brandywine River to manufacture gunpowder. The mill was the early forerunner to Delaware's DuPont corporation.



MILTON SHIPYARD ON THE BROADKILL: Wooden shipbuilding benefited from access to vast inland forests of white oak that helped the growth of "river towns" such as Laurel, Lewes, Milton, and Wilmington. (Suffix *"-kill" is Dutch for "river"*)

History books relate that most of the small rivers heading toward the bay could support a sailing ship of 50-100 tons. In later years, Delaware-built wooden ships would carry charcoal, local produce, furs, iron ingots, marsh hay, and passengers up and down the Delaware Bay. It followed that new towns would spring up around the sawmills, gristmills, shipyards, and docks, which was the genesis of many of Delaware's river towns, including Wilmington in the north, Frederica, Milford, and Milton in the east, and Seaford, Bethel, and Laurel in the west.

Baldcypress is a deciduous conifer. The tannic acid from its shedding needles creates the dark color in the water of the Great Cypress Swamp.

As towns grew, so did the demand for wood. It was needed for building construction, crates, boxes, wharves, and many other uses. Allied industries, such as charcoal-making to smelt the bog iron, developed, and the charcoaling business lasted over l00 years. Evidence of old charcoaling sites can be found in several locations of the state to this day. (As late as the early l950s, a kiln making tinner's charcoal operated in lower Delaware.) Carpenters, shipwrights, wheelwrights, and wagon makers plied their trades, and the new railroad spanning the state from north to south in the l850s needed oak ties from Delaware woodlands.

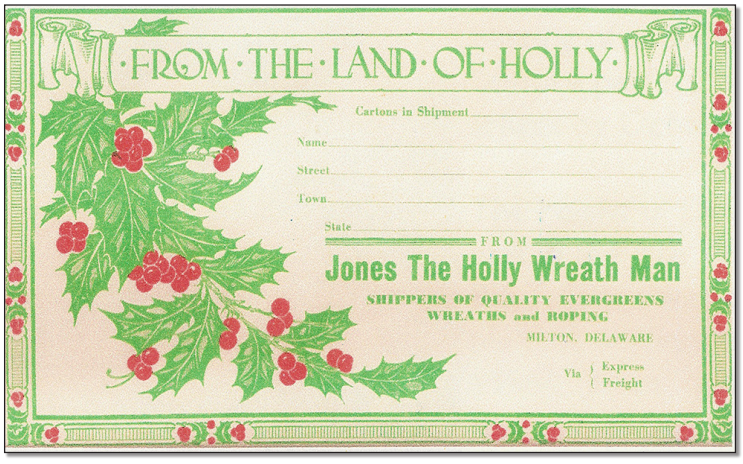
GREAT CYPRESS SWAMP: Once covering more than 50,000 acres in lower Sussex County, it is the northernmost stand of baldcypress in the U.S. Since cypress is resistant to decay, wood from fallen trees was used to make shingles for roofing and siding, as shown in an illustration in *Harper's New Monthly* by Delaware native Howard Pyle in 1879.

CHARCOAL PRODUCTION: Someone who made charcoal was known as a “collier.” Charcoal was used as a filtering agent for making rum and whiskey, but it was also key to the development of the iron industry. Large ironmaking operations required as many as 400 bushels of charcoal to make one ton of wrought iron, and it took one acre of woodland for 800 bushels of charcoal. These photos show a family operation in Sussex County in 1929. Six cords of pine wood was stacked, covered with pine needles, and then six inches of moist earth. A basket of coal was fed in daily through a hole in the top.The fire burned for several days with a few holes to allow gas to escape.

As demand for wood products rose at the turn of the new century, dozens of small to medium-sized sawmills, now fueled by steam (later by electricity), went to work in earnest on the seemingly inexhaustible supply of the state’s timber resources. Wood production rose to a high of 55 million board feet in l909 and dropped to a low of 5.2 million board feet in l9l8, notwithstanding a high demand for wooden boxes, crates, and baskets for overseas food shipments.

Thereafter, another boom cycle began as numerous “basket wood” and “spoon wood” mills flourished until the early 1950s, producing a variety of machine-made products for Delaware agricultural goods. The species most in demand were the “sweet” woods – sweetgum, yellow-poplar, and maple – until this output was replaced by the plastics industry. The First State was also the center of a boom in holly wreath production in the 1920s and 1930s, before plastic wreaths came to dominate the market. In honor of its importance, American holly was named official tree in 1939. Wood production increased to a peak in the mid-1950s. Production fell again in l970, but has gone through several cycles since then and is currently stablized around 15 million board feet.

BASKET WOOD MANUFACTURING: Species such as sweetgum, yellow-poplar, and maple were useful in manufacturing bushel baskets and crates to support Delaware’s important agricultural sector, such as five-eighths bushel baskets set out to dry (below) in Sussex County.



HOLLY WREATH BOOM: Delaware was a center of holly wreath production in the 1920s and 1930s, which led to its naming as the state tree in 1939.

Delaware Forests Today

Delaware's forest base has remained relatively stable, with only a 6% reduction in the past 20 years. About 29% of Delaware is forested with 359,000 acres of forestland. Of these acres, 96% is classified as commercial timberland that can provide sawtimber, pulpwood, veneer, and pilings. Wood production has also remained stable up until the past few years. Delaware is now experiencing a decrease in larger mill operations but an increase in smaller mills looking to expand. Delaware produces approximately 15.2 million cubic feet annually, which is divided into 36% softwood and 64% mixed hardwoods. In addition to sawtimber, considerable pulpwood (primarily loblolly pine) is harvested annually.

The breakdown of growing-stock volume by major species group over the last ten years is shown at right. Hardwoods account for 86 percent of total volume, while conifers (softwoods) account for 14 percent. Loblolly pine accounts for about 90% of entire conifer volume. Low-value hardwoods and red oaks (mainly northern red oak) decreased slightly whereas the more valuable white oaks and yellow-poplar increased. Softwoods, primarily loblolly pine, stayed constant over this time.

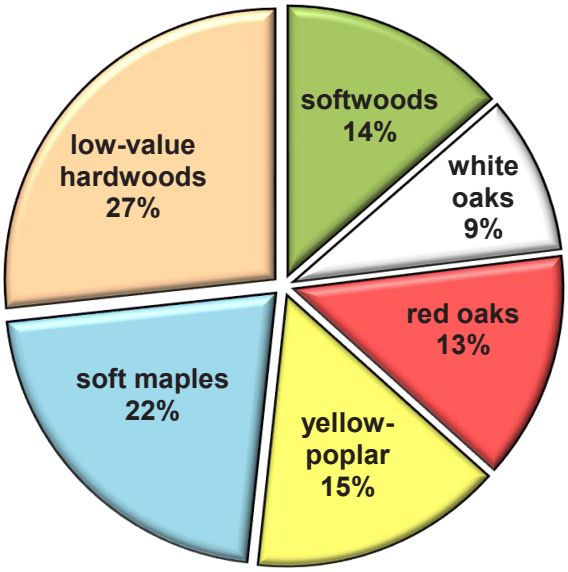
Nearly one-half of all growing-stock volume consists of red maple (*Acer rubrum*) and other low-value hardwoods. The abundance of low-value hardwoods is due to a combination of factors, including improper timber harvests. Past poor timber harvests resulted in pine forests regenerating to low quality hardwood forests and the common practice of high-grading (removing only the best species and specimens) that results in an increase of poorly-stocked forests.

A prime reason for poor hardwood management is a lack of markets for small-diameter and low-quality hardwood. Better and sustainable management and an improved market for low-value hardwood could help shift species composition back to favorable species such as oak, yellow-poplar, loblolly pine, and other valuable species. New markets would likewise improve the health and sustainability of hardwood forests. Baldcypress and Atlantic white-cedar have also declined due to timber harvesting and the practice of draining wetlands and channelizing streams.

Forests are important to protecting watershed integrity, therefore, forest management is an effective tool for managing surface and ground water resources. Delaware has a vast array of these resources and forest management is one of the best ways to protect them. Delaware has many unique natural areas and is a key location on the Atlantic Flyway for migratory birds. Forestlands are the base for many of these natural areas and unique wildlife habitats. Fragmentation and poor forest management can seriously threaten wildlife habitat and unique natural areas.

This educational fact sheet was produced by the Delaware Forest Service's Office of Information and Education from Delaware's Forest Action Plan.
For more information, https://agriculture.delaware.gov/forest-service

Delaware has 359,000 acres of forestland, or 29% of its land area.



Forests are important to water quality and wildlife habitat.