

# Forestry Notes



## Pitch Pine—A Tree Born of Fire

### This native of the New Jersey Pine Barrens Thrives in a Fire Dependent Ecosystem

#### Pitch Pine Withstands Fire

Pitch pine in New Jersey's Pine Barrens has evolved the unique ability to survive fire even if all of the needles are destroyed by the fire.

It withstands fire because of its thick protective bark; its ability to re-sprout rapidly; its wide-spreading root system; and the buds lying dormant in the trunk that are stimulated to grow by fire. Even when all of the needles on a pitch pine are burned, the crown can recover and be almost back to normal in just a few years.

Pitch pine is the most abundant tree species in the most frequently and intensely burned parts of the New Jersey Pine Barrens. Pitch pine grows well in the Pine Barrens, an area of about one million heavily forested acres on the nutrient poor soils of the coastal plain of southern New Jersey.

#### The Pine Barrens

The "Pine Barrens" were so-named by European settlers whose imported crops grew poorly on the sandy, acidic soils. Pitch pine earned its common name from the high pitch, or resin, content as compared to most other pines.

Pitch pine grows in fire dependent forest communities which often include oak trees and scrub oaks. These special plant communities are influenced by landscape features, soil types, climate, fuel types, and fire.

#### The Pygmy or Dwarf Pine Plains Forests

The pygmy or dwarf pine plains forests are unique areas scattered in the Pine Barrens that are well-known for frequent and intense fires.

Here pitch pines and scrub oaks seldom grow more than 5 to 10 feet tall. The pines produce serotinous cones which release seeds after fire melts the resins holding the cone scales closed.



Some pitch pine cones, especially those from trees in the pygmy forest, need fire to open the scales to release seeds.

#### Pitch Pine is a Tree Dependent on Fire

Pitch pines are dependent on fire and must be carefully managed with fire to assure that the ecosystem provides habitat for wildlife, quality water supplies, and safety for visitors and residents of the pinelands.

Prescribed fire is an important management tool for healthy, productive and safe pitch pine forests.



In the Pine Barrens, pitch pines can grow to 50 to 90 feet tall.

## Pitch pine is.....

### Stiff Needles and Rigid Cone Scales

The Latin name of pitch pine - *Pinus rigida* - means rigid or stiff, and refers to both the cone scales and the wide-spreading, sharply-pointed needles. The needles grow in bundles of three. The wood is coarse-grained, moderately strong and quite resinous. It is used primarily for rough construction and where decay resistance is important.



### Special Uses

**Naval stores and lumber.** Pitch pine was an important tree during the days of wooden ships. In Colonial times, pitch pines were a source for pitch, tar, rosin, and turpentine. These were vital in keeping wooden sailing ships afloat. Because of its high pitch content, the wood resists decay, which made it particularly useful for ship building, and today, for rough construction, mine props, fencing, and railroad ties. It is also used for pulpwood, crating, and fuel.

**Charcoal.** Huge acreages of pitch pine and oaks in the pinelands were cut in the 1700's and 1800's to create charcoal to feed furnaces to make iron, glass and brick.



Pinelands charcoal unearthed from a site where charcoal was made in the 1700's or 1800's near Speedwell, NJ

### Wildlife food.

Pitch pine is a food source for wildlife. Cones of pitch pine often remain on the trees unopened for several years or until the heat from a forest fire opens them. Seeds shed in mid-winter are an important source of food for squirrels, quail, and small birds such as the pine warbler, pine grosbeak, and black-capped chickadee. White-tailed deer and rabbits also browse young sprouts and seedlings.

## .....a tree adapted to fire

The Pitch Pine Type Is the Primary Forest Type in the Pinelands

According to the U.S. Forest Service Forest Survey, the pitch pine type covers more than more than 700,000 acres in New Jersey.

### Pitch Pine Cones

Pitch pine is reported to bear good crops of cones at approximately three-year intervals, although production may be irregular. In southern New Jersey, good to excellent crops have occurred at intervals of four to nine years. Occasionally, poor crops are borne in two successive years, although usually a poor crop is followed by fair to excellent crops for one to three years.

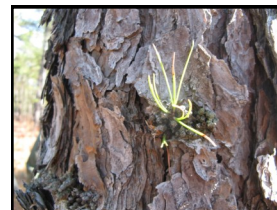
On some trees, the cones open soon after maturity. At the other extreme, some cones remain closed for many years until the heat of a fire opens them or until the trees are cut. Trees of the latter type are characteristic of the areas with a long history of wildfire. On trees showing cone behavior between the two extremes, the cones open erratically within a few years after maturity. Apparently there is no fixed pattern of when, what, or how many cones open .

### Pitch Pine Seeds

Seed dispersal begins about November 1 in southern New Jersey when cones open soon after maturity, and ends in April. The seeds will not germinate well if they fall onto a thick leaf litter covering the surface of the ground. In one study by USFS research scientist Dr. Silas Little, few seedlings were found in July on the thick litter of unburned sites. On similar sites treated with a severe September fire before seedfall, 6,700 to 22,800 seedlings per acre were counted on very poorly to imperfectly drained sites, and 900 per acre on upland sites.



### A Unique Ability to Withstand Fire



Fire is truly critical in the life of pitch pines. Wildfires, however, can result in poorly formed trees and losses of life and property. Prescribed fires are the key to maintaining a healthy forest and to protecting life and property from devastating wildfires.