

Pinus strobus: Eastern White Pine¹

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Introduction

Eastern white pine has soft blue-green needles borne in groups of five although foliage color varies greatly from one tree to the next. It is the state tree of Maine and Missouri. Some specimens keep the bluish color throughout the winter, others lose it. Although it can grow 100 to 120 feet tall with a three to five-foot-diameter trunk and spread 50 to 60 feet, it is typically seen from 50 to 80 feet tall in landscapes. Growth is very rapid at first but slows down with age. Several branches on young trees normally originate from the same point on the trunk forming a tree appearing to be built of layers of foliage. Although young trees are pyramidal and usually grow with one central leader, the layers (or whorls) of horizontal branches give white pine a distinctive appearance in middle and old age. The gray bark on the trunk and large branches remains unusually smooth through middle age, breaking up into elongated blocks in old age. Be sure to purchase only certified rust-resistant plants.

General Information

Scientific name: *Pinus strobus*

Pronunciation: PIE-nus STROE-bus

Common name(s): Eastern white pine

Family: *Pinaceae*

USDA hardiness zones: 3B through 7B (Fig. 2)

Origin: native to North America

Invasive potential: little invasive potential

Uses: specimen; screen; hedge; shade; bonsai; Christmas tree

Availability: not native to North America

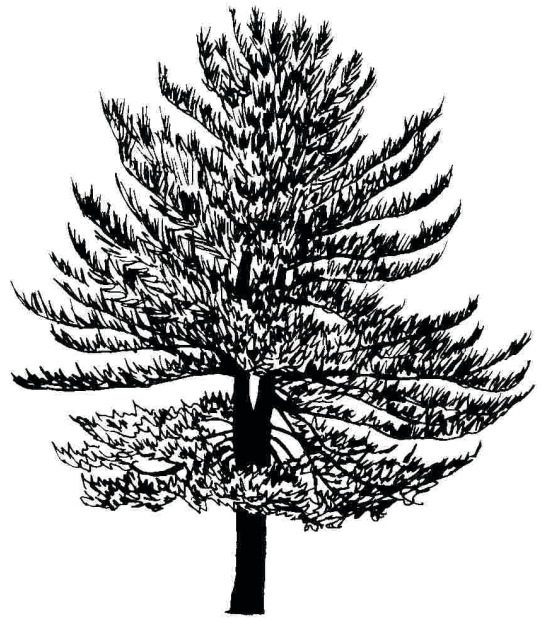


Figure 1. Middle-aged *Pinus strobus*: Eastern white pine

Description

Height: 50 to 80 feet

Spread: 25 to 35 feet

Crown uniformity: symmetrical

Crown shape: pyramidal, oval

Crown density: moderate

Growth rate: fast

Texture: fine

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Figure 2. Range

Foliage

Leaf arrangement: alternate (Fig. 3)

Leaf type: simple

Leaf margin: entire

Leaf shape: needle-like (filiform)

Leaf venation: parallel

Leaf type and persistence: fragrant, evergreen, needled evergreen

Leaf blade length: 2 to 4 inches

Leaf color: blue or blue-green, green

Fall color: no color change

Fall characteristic: not showy

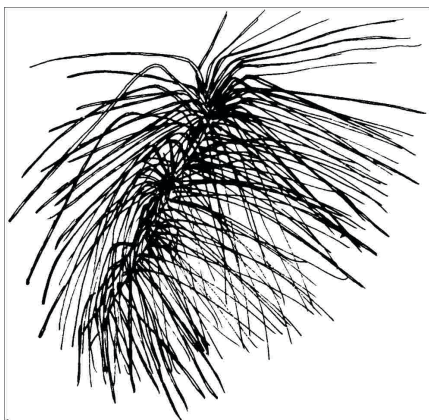


Figure 3. Foliage

Flower

Flower color: yellow, pink

Flower characteristics: not showy

Fruit

Fruit shape: elongated, cone

Fruit length: 6 to 12 inches

Fruit covering: dry or hard

Fruit color: brown

Fruit characteristics: does not attract wildlife; showy; fruit/leaves a litter problem

Trunk and Branches

Trunk/bark/branches: branches droop; showy; typically one trunk; thorns

Pruning requirement: little required

Breakage: susceptible to breakage

Current year twig color: green, brown

Current year twig thickness: thin

Wood specific gravity: 0.35

Culture

Light requirement: full sun, partial sun, or partial shade

Soil tolerances: sand; loam; acidic; well-drained

Drought tolerance: moderate

Aerosol salt tolerance: none

Other

Roots: not a problem

Winter interest: no

Outstanding tree: no

Ozone sensitivity: sensitive

Verticillium wilt susceptibility: resistant

Pest resistance: sensitive to pests/diseases

Use and Management

The lower branches are retained making white pine an excellent candidate for specimen use, although group plantings with trees spaced 15 to 25 feet apart add a soft accent to any landscape. Planted 8 to 15 feet apart they are one of only a few pines which makes a nice hedge or screen of soft foliage. They are also used as a Christmas tree. Pinch or clip the candles as the needles begin to emerge.

Root systems are usually shallow and highly branched with many fine roots close to the surface of the soil. Trees transplant well balled and burlapped or from containers. The wood is soft and is popular as a lumber tree in the northern part of the country.

Young white pines are quite tolerant of half-day shade while mature white pines prefer a sunny location and tolerate loamy, moist, well-drained soils. They do not grow well and often die on clay or on soil with a pH above 7. Trees appear to have little tolerance for drought, soil compaction and heat and should be used only in the cooler climates. Eastern white pine is susceptible to salt injury from roads or drain fields and is sensitive to air pollution (particularly ozone and sulfur dioxide).

There are a few cultivars: 'Fastigiata'—nearly columnar habit; 'Glauca'—foliage bluish; 'Nana'—a dwarf, compact

with short needles; 'Pendula'—weeping, eight feet tall; 'Prostrata'—absolutely prostrate.

Propagation is from seed.

Pests

White pine weevil is probably the biggest problem. The larvae of white pine weevils feed on the sapwood of the leaders and this is devastating to the tree. The leader is killed and the many shoots replacing it form a bushy head. First symptoms are pearl white drops of resin on the leaders. The leaders die when the shoot is girdled as adults emerge in summer.

Some adelgids will appear as white cottony growths on the bark. All types produce honeydew which may support sooty mold. European pine shoot moth causes young shoots to fall over. Infested shoots may exude resin. The insects can be found in the shoots during spring.

Bark beetles bore into trunks making small holes scattered up and down the trunk. Stressed trees are more susceptible to attack. The holes look like shotholes. Keep trees healthy.

Sawfly larvae caterpillars are variously colored but generally feed in groups on the needles. Some sawfly larvae will flex or rear back in unison when disturbed. Sawflies can cause rapid defoliation of branches if left unchecked.

Pine needle miner larvae feed inside needles causing them to turn yellow and dry up.

Pine needle scale is a white, elongated scale found on the needles. Pine tortoise scale is brown and found on twigs. Depending on the scale, horticultural oil may control overwintering stages.

Pine spittle bug lives and hides in a foamy mass.

Spruce mites cause damage to older needles, and are usually active in the spring and fall. Mites cause older needles to become yellowed or stippled.

Zimmerman pine moth larvae bore into the trunk. The only outward symptoms may be death of parts of the tree or masses of hardened pitch on the branches.

Diseases

Procerva root rot kills many white pines planted off site. Avoid planting in dry sites and clay or alkaline soil.

White pine blister rust attacks white pine and uses currant as an alternate host. European black currant, the favored alternate host, may be banned from certain areas. Other currants, particularly red currant should not be grown within 300 feet of pines. Infected branches may be pruned off. Be sure to select white pine trees certified to be rust-resistant.

Canker diseases may rarely cause dieback of landscape pines. Keep trees healthy and prune out the infected branches.

Needle cast is common on small trees and plantation or forest trees. Infected needles yellow and fall off.

White pine decline is used to describe the slow decline of trees planted in dry, clay soils low in organic matter. Plants with this disorder have only a small cluster of needles at the ends of the branches.