**Strobi, The White Pines**

*Strobi* includes 14 species; 6 in North America and 8 in Eurasia. Leaves are 5 per fascicle. Seed cones open at maturity, releasing seeds with a long or rudimentary wing. Cones have terminal umbos.

*Strobi* includes one species in the eastern North America:

![Image of Pinus strobus - eastern white pine](image)

*Pinus strobus* - eastern white pine
*Pinus strobus* L.

eastern white pine

(white pine, northern white pine, Weymouth pine, soft pine)

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Tree Characteristics:

- **Height at maturity:**
  - Typical: 25 to 33 m (80 to 100 ft)
  - Maximum: 48.2 m (158 ft)

- **Diameter at breast height at maturity:**
  - Typical: 90 to 120 cm (36 to 48 in)
  - Maximum: 170 cm (68 in)
• **Crown shape:** broadly conical with open spaces between branches, producing a layered appearance.

• **Stem form:** excurrent

• **Branching habit:** horizontally spreading; one tight spiral formed each year along the main bole (uninodal). Thus tree age may be estimated by counting the spirals.

Eastern white pine is the only naturally occurring white pine tree in eastern North America. Of the pines in the United States, this tree is second only in size to sugar pine (*Pinus lambertiana*) which occurs on the west coast. Considered a long lived tree, this pine commonly lives to 200 years of age, and selected individuals may live to 450 years.

**Human uses:** Furniture, interior trim, window framing, shelving, and Christmas trees. Also grown for landscaping and stabilization of strip-mine spoils.

**Animal uses:** Songbirds, such as the yellow-bellied sapsucker (*Sphyrapicus varius*), pine warbler (*Dendroica pinus*), and red crossbill (*Loxia curvirostra*), eat the seeds. A few mammals like the beaver (*Castor canadensis*), porcupine (*Erethizon dorsatum*), white-tailed deer (*Odocoileus virginianus*), and snowshoe hare (*Lepus americanus*) may also consume seeds, bark and foliage. Favorite tree for bald eagle (*Haliaeetus leucocephalus*) nests.
Pinus strobus L.

Bark

Bark characteristics:

- young bark grayish to grayish-black; smooth
- mature bark thick, rough; deeply furrowed ridges on the bole
- 2.5 to 5 cm (1 to 2 in) thick
- gray to black

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*Pinus strobus* L.

Leaves and Buds

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**Bud Characteristics:**

- 5 to 7 mm (0.2 to 0.3 in) long
- cylindrical
- thin, reddish to orangish-brown scales

**Leaf Characteristics:**

- 6 to 13 cm (2.5 to 5 in) long
- 5 needles per fascicle
- bluish-green
- acicular; straight, slender, flexible
- persist 1 to 3 years
- fascicle sheath 1 cm (0.4 in) long; quickly deciduous

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Pinus strobus L.

Range and Habitat

The native range of eastern white pine. (From Little, 1971.)

Geographic Range

According to Wendel and Smith (1990): "Eastern white pine is found across southern Canada from Newfoundland, Anticosti Island, and Gaspe peninsula of Quebec; west to central and western Ontario and extreme southeastern Manitoba; south to southeastern Minnesota and northeastern Iowa, east to northern Illinois, Ohio, Pennsylvania, and New Jersey; and south mostly in the Appalachian Mountains to northern Georgia and northwestern South Carolina. It is also found in western Kentucky, western Tennessee, and Delaware. The variety chiapensis grows in the mountains of southern Mexico and Guatemala."

Climate

According to Wendel and Smith (1990): "The climate over the range of white pine is cool and humid."
The distribution of white pine coincides reasonably with that part of eastern North America where the July temperature averages between 18 and 23 degrees C (65 and 74 degrees F).

"Annual precipitation ranges from about 510 mm (20 in) in northern Minnesota to about 2030 mm (80 in) in northwestern Georgia. In the area surrounding the Great Lakes, about two-thirds of the precipitation occurs during the warm seasons. The length of the growing season ranges from 90 to 180 days.

"Average depth of frost penetration ranges from more than 178 cm (70 in) in parts of central and northern Minnesota. Average annual snowfall ranges from 13 cm (5 in) in northern Georgia to more than 254 cm (100 in) in New England and southern Canada."

**Soils and Topography**

Inceptisols, Ultisols, Spodosols, Entisols, and Alfisols are the major soil orders in which *Pinus strobus* grows.

According to Wendel and Smith (1990): "White pine grows on nearly all the soils within its range, but generally competes best on well drained sandy soils of low to medium site quality. The soils permit fair growth of white pine but not hardwoods. On these sandy sites, white pine regenerates naturally, competes easily, and can be managed most effectively and economically. On medium-textured soils (sandy loams), it will out-produce most other native commercial species in both volume and value. White pine also grows on fine sand loams and silt-loam soils with either good or impeded drainage when there is no hardwood competition during the establishment period - as on old fields and pastures, burns, and blowdowns. It has been found on clay soils and on poorly drained or very poorly drained soils with surface mounds. It can be very productive on these sites but usually occurs as individual trees or in small groups. This pine should not be planted in heavy clay soils. Poorly drained bottom land sites and upland depressions are also poor choices for planting.

"At various places within white pine’s range, site quality has been related to combinations of soil and topographic characteristics such as texture and thickness of the A and B horizons, depth and permeability of the underlying rock or pan, depth to the water table, natural drainage class, topographic position, slope percent, and aspect.

"In the southern part of its range, white pine grows best on soils along rivers and streams and grows somewhat more slowly on well drained sites. The growth of white pine in plantations in eastern Tennessee was found to decrease with increased plasticity of the B horizon.

"In New England and New York, white pine generally grows at elevations between sea level and 460 m (1,500 ft) occasionally higher. In Pennsylvania, the elevation ranges from 150 to 610 m (500 to 2,000 ft). In the southern Appalachians, white pine grows in a band along the mountains between 370 and 1070 m (1,200 and 3,500 ft) above sea level, occasionally reaching 1220 m (4,000 ft). In Pennsylvania and the southern Appalachians, most white pine is found on northerly aspects, in coves, and on stream bottoms. Elsewhere, aspect seldom restricts it occurrence."
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Pinus strobus L.

Reproductive Structures

Male cones

- occur in clusters at base of new shoots in lower crown
- 8 to 10 mm (0.3 to 0.4 in) long at maturity
- yellowish to light brown
- release pollen April through June

Female cones

- occur singly or in clusters near the tips of main branches in upper crown
- 5 to 38 mm (0.2 to 1.5 in) long at time of pollination
- pink with purple margin at time of pollination
- appear between May and June
- 10 to 20 cm (4 to 8 in) long at maturity
• yellowish-brown to dark brown
• narrowly oblong-conic; slightly curved
• pendulous on a stalk
• apophysis mostly smooth
• umbo unarmed and terminal
• mature and release seed August through September of second season
• sheds from branch at maturity, usually during winter or following spring

Seeds

• 5 to 8 mm (0.2 to 0.3 in) long
• grayish-brown
• wing 18 to 25 mm (0.7 to 1.0 in) long; light brown
Additional Readings


