



Pinus strobus Eastern white pine

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Pinus strobus (Eastern white pine) is the classic pine tree of the Northeastern United States. It has played a role in history matched by few other trees. *Pinus strobus* was first described as a species in 1753. The name means “pine cone tree.” Other scientific names used in the past included *Strobus strobus* (1903), *Pinus strobus* var. *strobus* (1940), and *Pinus strobus* var. *chiapensis* (Mexican or Chiapas white pine, 1940). Chiapas pine was made a separate species in 1964. Other common names include white pine, Northern white pine, Northern pine, ship-mast pine, soft pine, pin blanc, and Weymouth pine.

Pinus strobus is the largest tree of the Northeastern United States. It ranges from Southern Canada (Ontario to Newfoundland), Southward across the Lake States and New England, running down the Appalachians to far North portions of Georgia. Note the Georgia range map figure. *Pinus strobus* is a tree of cold Winters and warm Summers. It does not move far from the mountains in the Southern end of its range.

Pinus strobus grows best on rich, well-drained but moist slopes along streams and in moist coves. *Pinus strobus* thrives with good soil aeration and moisture, but can survive for a time on fine textured soils, compacted soils, and on drier sites.

It grows in Hardiness Zone 2b - 7a and Heat Zone 2-7. The lowest number of Hardiness Zone tends to delineate the Northern range limit and the largest Heat Zone number tends to define the Southern edge of the range. This native Georgia pine grows in Coder Tree Grow Zone (CTGZ) A (a multiple climatic attribute based map), and in the temperature and precipitation cluster based Coder Tree Planting Zone 1-2. Figure 2.

Pinus strobus is a fast growing and long-lived tree. Without disturbance white pines can grow to 220 years of age with a maximum of about 450 years. White pine is more tolerant of shade and interference than many pines and can be successful on many sites and with many other species. *Pinus strobus* is moderately fire resistant when old, but easily killed when most of the foliage is low enough to be burned. *Pinus strobus* develops extensive root graph systems with other white pines under forested and plantation situations, sharing soil resource space.

Pinus strobus grows to a height of 80 - 100 feet with a maximum height attainable in the North central part of its range of 160 feet. *Pinus strobus* grows to a diameter of 2-3.5 feet with a maximum of 6 feet. Height and diameter size are greatly diminished as the Southern range limit is approached. Crown form is tied to the tiers or whorls of branches produced each year. Live crown usually occupies a large portion of stem height, with some branches touching the ground. When young, the tree is classically upright and conical shaped. With age, a flat or rounded, irregular shaped crown remains.

Pinus strobus needles are 2.7 - 5 inches long with 5 needles per bundle. Needles are retained on a tree for 2 -3 years. Needles are soft, flexible, slender, and dark bluish green in color with minute white lines (longitudinally aligned stomates).

Pinus strobus reaches sexually maturity around 8 years of age with 5-7 years between good seed crops. Mature female cones are narrow and elongated in shape. Cones are 4 - 8 inches long and 1-2 inches in diameter. Cones are dangling, slender, occasionally slightly curved, long stalked (1 inch), and have no prickles. Cones are visibly resinous. Cones are yellowish-brown to greyish-brown in color with purple tints and white resin spots visible on scales. Cone scales are thin, flat, and flexible. Cones are open at maturity and fall from trees after 1-2 seasons.

Pinus strobus twigs are slender, smooth, grey-green to orange-brown in color when young with a light reddish trichomes (hairs) covering first year twigs. Branches are distinctly whorled with living branches held well down a stem. There are usually a few large branches and many small branches arising from each whorl. Branches tend to come out perpendicular to the stem with tips becoming more upswept with time. Stem periderm is dark green-grey colored, thin, and smooth on young stems. With tree age and diameter growth, periderm becomes thick and dark orangish-brown with purple tints, forming long, thin, rectangular shaped blocks separated by deep furrows. These periderm block surfaces have minute surface scales.

Pinus strobus is difficult to confuse with any native pine. Its five needles per bundle, hanging thin flexible cones, and noticeably whorled branching pattern are unlike any other Eastern or Southeastern pine. *Pinus strobus* does have five historic varieties (not standard cultivars) which can be seen in landscapes. These old varieties include *Pinus strobus glauca* which has pale bluish-green colored needles, *Pinus strobus fastigiata* / (*Pinus strobus pyramidalis*) which is a highly upright form, *Pinus strobus nana* Carr. which is a dwarf compact bush form with dwarf needles, *Pinus strobus umbraculifera* Carr. / (*Pinus strobus nana* Gord. not the species above) which is a dwarf umbrella shaped form with dwarf needles, and *Pinus strobus prostrata* which is a dwarf ground cover form with dwarf needles. There are no known natural hybrids with other native pines of the Southeastern United States.

Pinus strobus was a standard wood of commerce up to the early part of the 1900s. Traditional uses for white pine came about because it is soft, easy to machine, relatively strong for its density, and easy to carve. It has been extensively used for interior trim, paneling, cabinets, furniture, matches, general construction lumber, pulp, sashes, door trim, veneers, and canoes. It has been grown for Christmas trees, its pitch used for water proofing, and its foliage used as a mattress stuffing.

Pinus strobus has been used for millennia as a medicine tree. Different methods of using white pine parts internally include treatments for coughs, kidney problems, lung problems, rheumatism, stomach cramps, typhoid, sore throats, tuberculosis, chest pine, scurvy, headache, backache, and to cause vomiting. External use of white pine parts include sauves, poultices, and rubs for colds, cuts, wounds, inflammation, pain relief, boils, poison ivy, and venereal disease sores. Smoke from needles were used to cleanse houses. Young male cones were used for seasoning stewed meat.

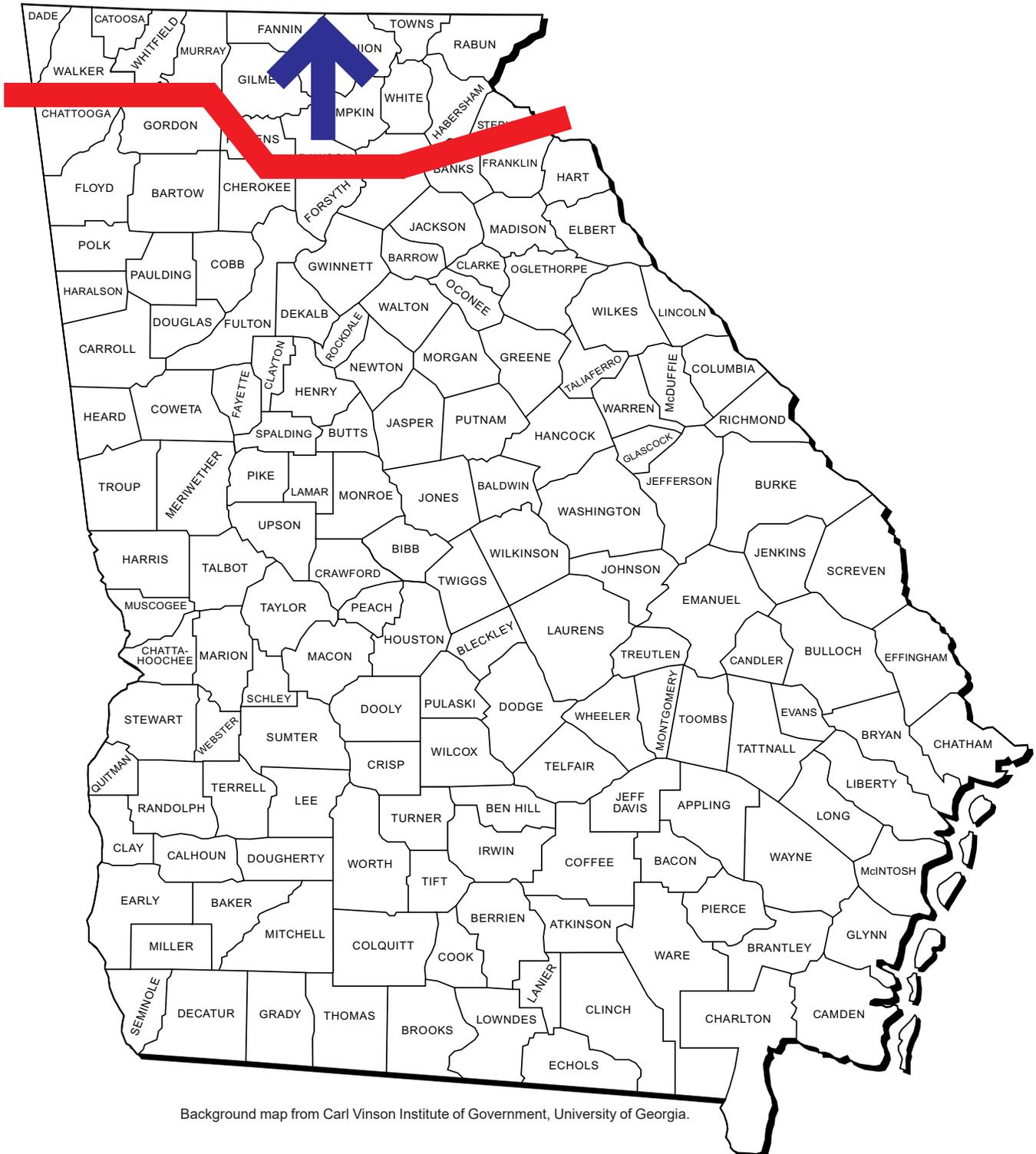
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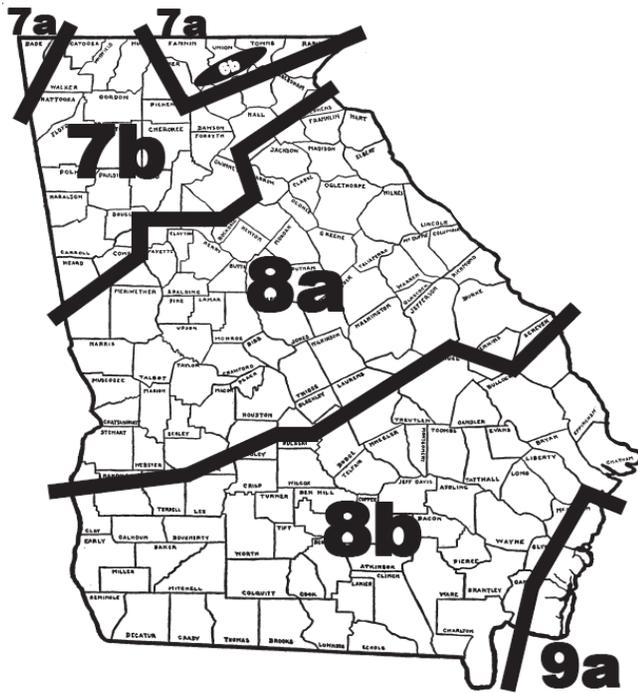
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Figure 1: Native range for *Pinus strobus* -- Eastern white pine in Georgia.

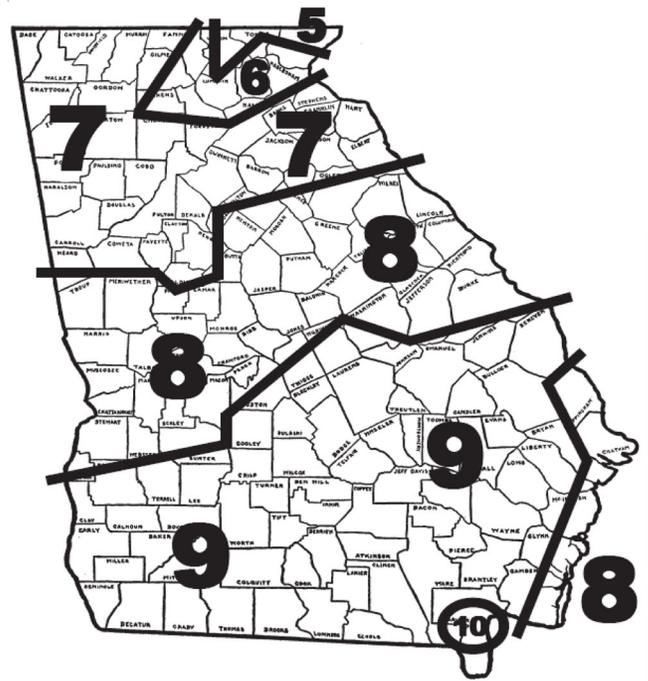
Native range from federal and state maps, herbarium samples and personal observations. Native range includes all areas North of line.



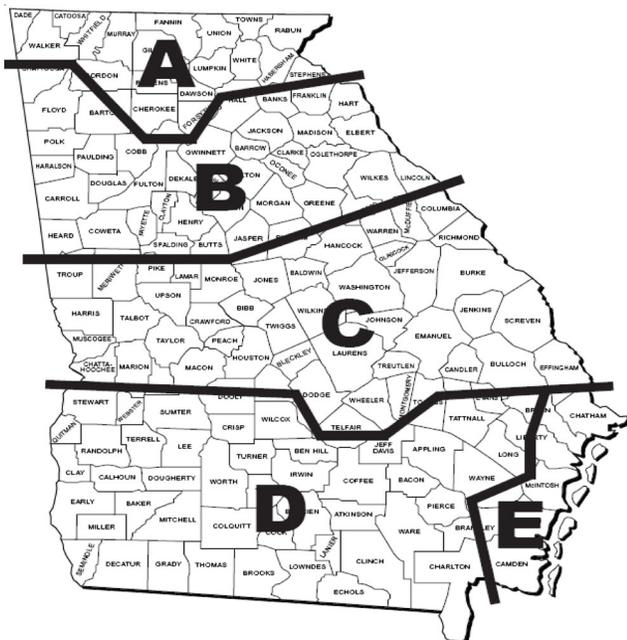
Background map from Carl Vinson Institute of Government, University of Georgia.



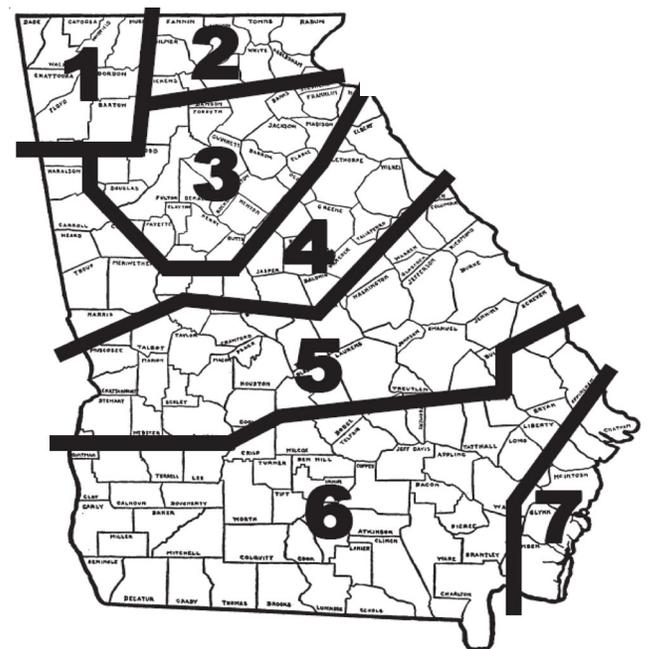
Georgia Hardiness Zones
(cold temperatures)



Georgia Heat Zones
(number of hot days)



Coder Tree Grow Zones
(multiple climatic attributes)



Coder Tree Planting Zones
(temperature & precipitation clusters)

Figure 2: Four types of tree growth zone maps for Georgia.