



Pinus echinata shortleaf pine

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One of the most widespread pines of the Eastern United States is *Pinus echinata*, shortleaf pine. Shortleaf pine was identified and named in 1768. The scientific name means a “prickly pine cone tree.” Other common names for shortleaf pine include shortstraw pine, yellow pine, Southern yellow pine, shortleaf yellow pine, Arkansas soft pine, Arkansas pine, and old field pine. Among all the Southern yellow pines it has the greatest range and is most tolerant of a variety of sites. Shortleaf pine grows Southeast of a line between New York and Texas. It is widespread in Georgia except for coastal counties. Note the Georgia range map figure.

Pinus echinata is found growing in many mixtures with other pines and hardwoods. It tends to grow on medium to dry, well-drained, infertile sites, as compared with loblolly pine (*Pinus taeda*). It grows quickly in deep, well-drained areas of floodplains, but cannot tolerate high pH and high calcium concentrations. Compared with other Southern yellow pines, shortleaf is less demanding of soil oxygen content and essential element availability.

It grows in Hardiness Zone 6a - 8b and Heat Zone 6-9. 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-D (a multiple climatic attribute based map), and in the temperature and precipitation cluster based Coder Tree Planting Zone 1-6. Figure 2.

Shortleaf pine is a large tree usually with a tall straight trunk. It can reach 120 feet in height and 4 feet in diameter, but is usually seen around 85 feet tall and 30 inches in diameter. Shortleaf has a life span of approximately 140 years. Young shortleaf pine, unlike many pines, can sprout from the stem base if damaged.

Shortleaf pine needles occur in bundles of both 2 and 3, on the same tree and on the same branch. Needles stay on the twig for 2-4 years. Needles are 2.5 - 5 inches long, straight, and greyish to yellowish green in color. Needles are slender and flexible. Needles can be found growing from the stem.

Shortleaf pine becomes sexually mature by 15 years of age with large seed crops every 4-5 years. Female cones are narrowly egg-shaped and 1.5 - 2.5 inches long. Cones are reddish-brown in color aging to a dull grey-brown. Cone scales have a short, sharp, small prickle. Shortleaf pine cones have contrasting border colors on the cone scale tips. Cones open at maturity but stay attached to twigs and branches for 2-3 years, leaving the crown crowded with cones of various ages.

Shortleaf pine has flaky, scaly, black-purplish periderm which turns a reddish brown color with time. Periderm grows in large thin plates with resin holes or pockets visible on plate surfaces. A cross-section of older periderm plates show thin cream colored layers. Young twigs in shortleaf pine have a

white colored coating or bloom over the dark purple periderm. With age, young branch periderm loses the purplish coloration, changing to a reddish brown and then finally a rough grey brown color. A key identifier is periderm on older twigs being rough & flaky, while other species of Southern region pines (i.e. *glabra*, *virginiana*, and *clausa*) which could be mistaken for shortleaf pine, have rough not flaky twig periderm.

Shortleaf pine has a great deal of racial differences across its large range. It hybridizes with *Pinus elliottii*, *Pinus glabra*, *Pinus palustris*, *Pinus pungens*, *Pinus rigida*, *Pinus serotina*, *Pinus x sondereggeri* (itself a hybrid), and *Pinus taeda*. Shortleaf pine genes have been used in breeding programs to develop more fusiform rust resistance in other pine species. Shortleaf pine can be separated from *Pinus pungens*, *Pinus rigida*, and *Pinus virginiana* in the Northern areas of species overlap because shortleaf has flexible needles and no twist in its needles. In the Southern end of its range where it overlaps with *Pinus glabra*, shortleaf pine does not have dark brown, narrow, scaly periderm ridges (like spruce periderm).

Shortleaf pine is valuable for timber, plywood and pulp. It is also used for Christmas trees and naval stores (resin products). Medicinally shortleaf pine has been historically used to treat worms, induce vomiting, soothe back pain and swelling, and to build canoes.

Citation:

Coder, Kim D. 2021. *Pinus echinata* shortleaf pine. University of Georgia, Warnell School of Forestry & Natural Resources Outreach Factsheet WSFNR21-22C. Pp.4.

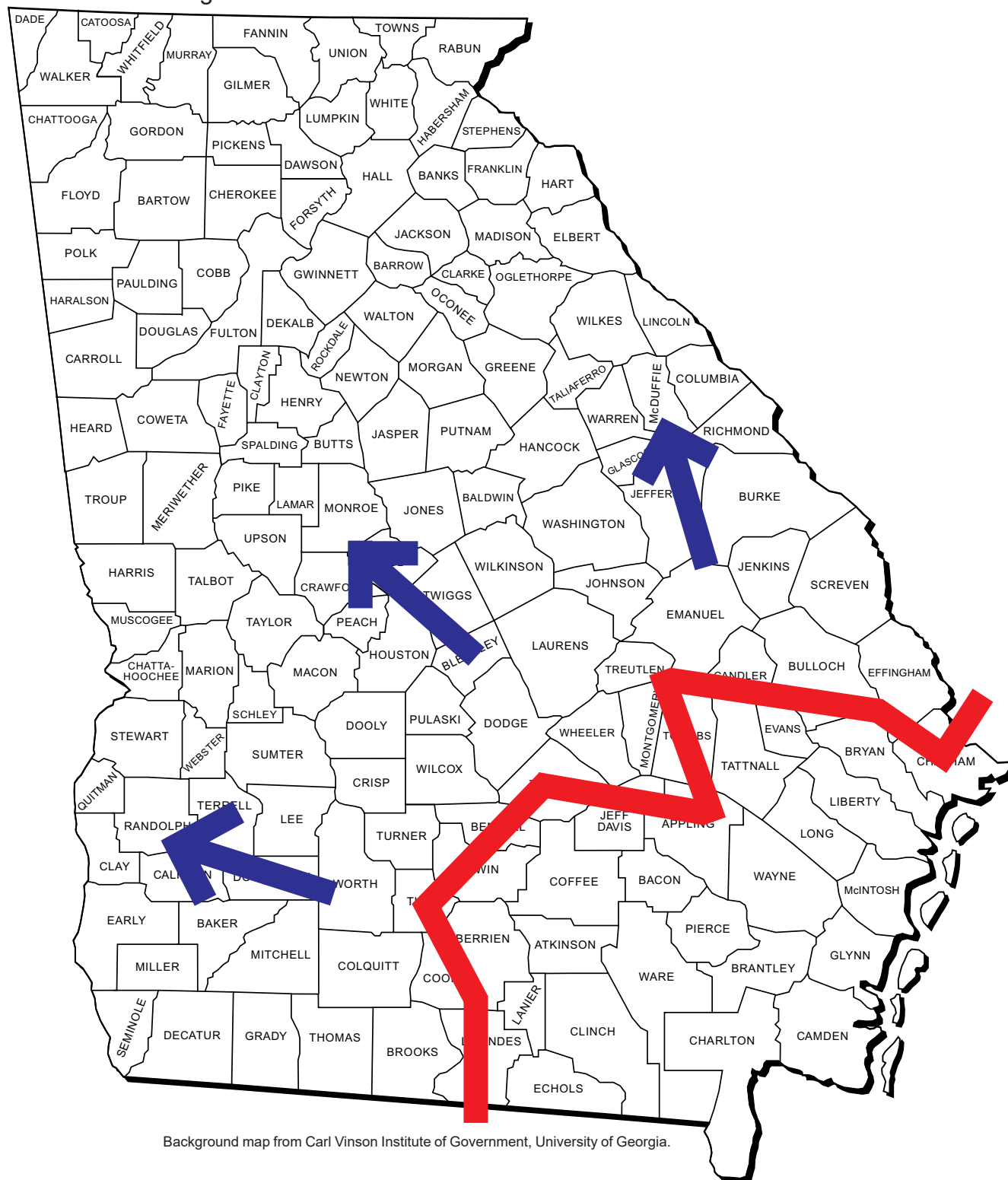
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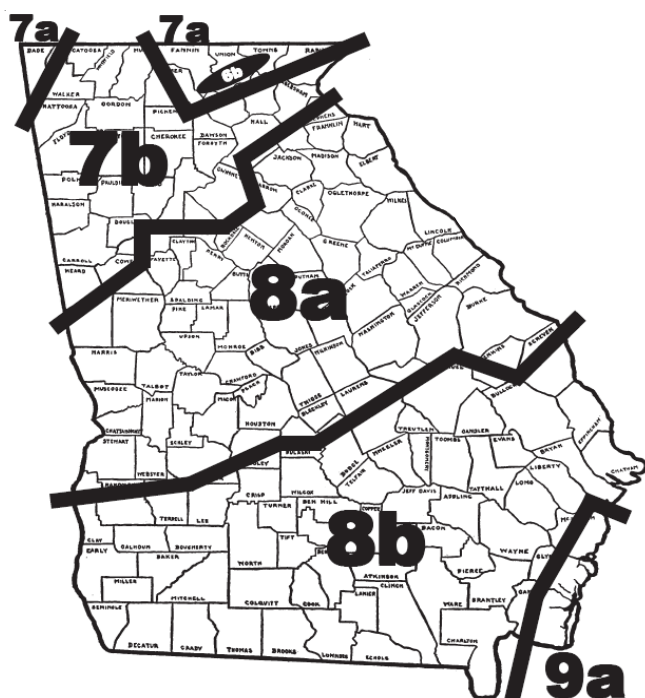
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Figure 1: Native range for *Pinus echinata* --
shortleaf pine in Georgia.

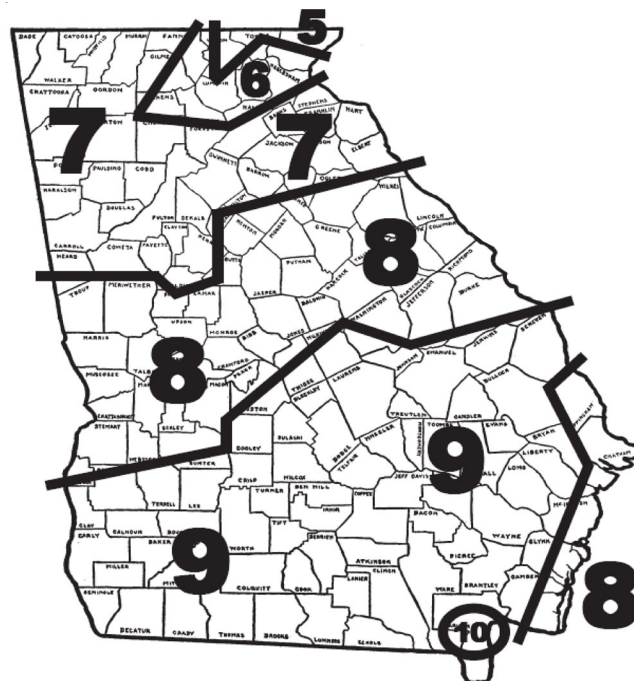
Native range from federal and state maps, herbarium samples and personal observations.

Native range includes all areas North and West of line on the side with arrows.

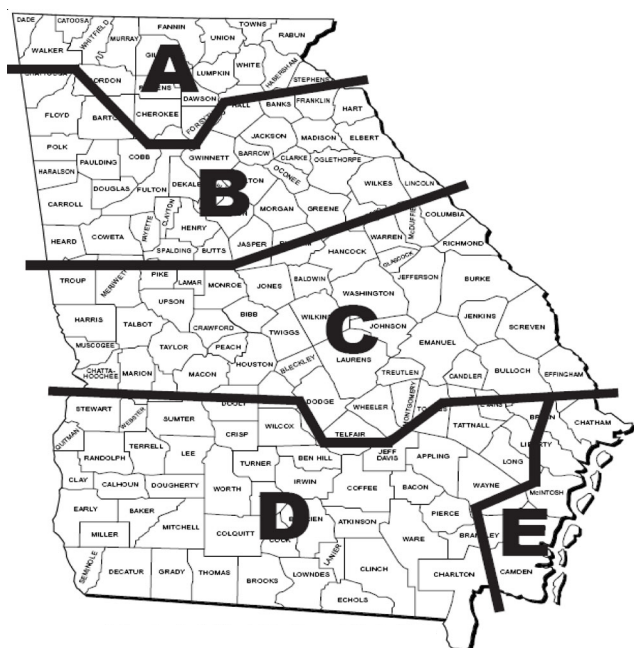




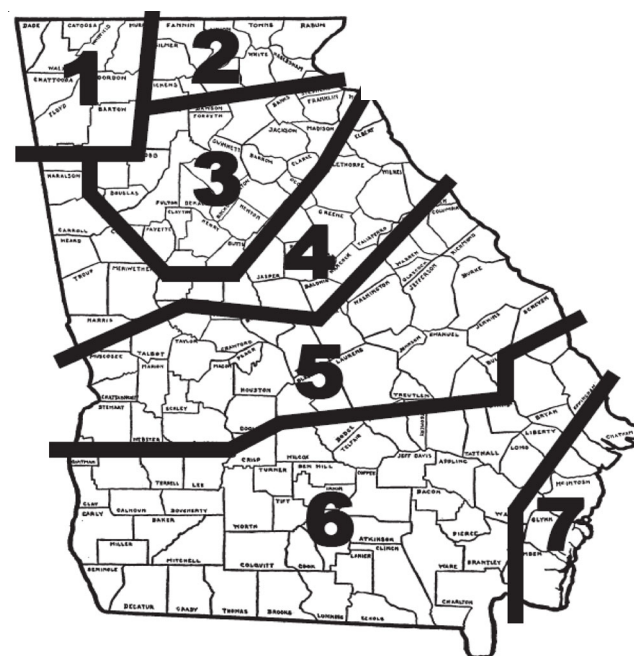
Georgia Hardiness Zones
(cold temperatures)



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.