Pinus rigida pitch pine

Dr. Kim D. Coder, Warnell School of Forestry & Natural Resources, UGA Dec. 2006

Pinus rigida (pitch pine) grows from Quebec to Georgia primarily in the mountains and foothills. *Pinus rigida* was first described as a species in 1768. The scientific name means a ìpine with stiff cone scale.î The common name comes from early colonists use of *Pinus rigida* for producing turpentine and pitch for sailing vessels.

The native range of *Pinus rigida* stretches from coastal and Eastern inland areas of Maine south to Delaware and then inland covering large portions of southern 2/3s of Pennsylvania, West Virginia, western Virginia, southern Ohio, eastern Kentucky, and the Tennessee / North Carolina border area. It grows into Georgia in the far northeast corner of the state. See the Georgia range map. The growth Hardiness Zone is 4a - 6b and the Heat Zone is 3-6. The lowest number of the Hardiness Zone tends to estimate the northern range limit of the tree and the largest Heat Zone number tends to estimate the southern end of the range. Coder Tree Grow Zone A.

Pinus rigida grows on dry rocky slopes, lower ridge tops, and well drained slopes along the middle elevations of the Appalachians mountains and their foot hills in the southern end of its range. It has been found on swampy areas and floodplain areas in the northern part of its range. *Pinus rigida* occupies and competes well on good sites but is usually found growing on sites which are dryer and more infertile. *Pinus rigida* has a medium growth rate and a medium life span of 100 years (maximum = 450 years).

A unique feature of *Pinus rigida* growth is its ability to sprout back after site and tree disturbance even into middle age. *Pinus rigida* is fire resistant with relatively thick and flaky bark. It generates sprouts from the stem base after fire has killed the upper portion of a young tree. *Pinus rigida* usually reproduces abundantly after site disturbances which expose mineral soil, like fire. Pitch pine does not tolerant competition well, and usually is most successful on more stressful sites where competing hardwoods are more limited.

Pinus rigida is a medium sized tree with a height range between 50 and 65 feet (maximum of 100 feet). *Pinus rigida* is usually found with a mature diameter of 1 - 2 feet (maximum of 3 feet). Crown form is highly variable, depending upon light competition, pest problems, and site stress levels. *Pinus rigida* crowns are usually composed of a number of large horizontal branches forming an open irregular crown. The stem and larger branches have a number of short shoots or tufts of needle bundles. Pitch pine is considered reasonably wind firm and tends to handle wind, ice and snow well.

Pinus rigida needles occur in bundles of 3. Rarely needles can be found on a tree in bundles of 4 or 5, and even more rarely in bundles of 2, but the predominant needle count per bundle is 3. Needle bundle count differences can be due in some areas to hybridization with shortleaf pine *Pinus echinata*. Needles are 2.2 - 5.3 inches long, thick, stiff, gently twisted, and dark yellow-green in color. The needles are held on the tree for 2 -3 years. Needles are clearly visible growing in tufts or short shots along the stem. An often cited characteristic is how needle bundles grow out perpendicular from twig and branch surfaces.

Pinus rigida becomes sexually mature early by 4 years of age. The mature female cones have a very short stalk. Cones are 1.4 - 3.2 inches long and are broadly egg-shaped. The cones are mostly open at maturity with some remaining closed for many years. The closed cones are opened by fire which releases seeds. The cones are a light yellowish brown to a creamy brown in color with a reddish tint. The end of the cone scales have a dark reddish brown border. The cone scales have a short, rigid, slender, sharp, curved

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prickle. Good seed crops occur every 5-7 years with the seeds being released over many months across fall and into late winter. Moist mineral soil is needed for successful seed germination and seedling growth.

Pinus rigida twigs are thick, stiff, rough, and grayish-green to grayish-brown in color with a touch of purple. The twigs age to a dark orange brown. Branches are rough with flaky, resinous brown colored bark. *Pinus rigida* is a poor self-pruner keeping living and dead branches on the stem for years and giving the crown an untidy appearance. *Pinus rigida* bark is thick, very scaly, and dark reddish brown in color on young trees. The bark on older tissue is rough and made of flat yellow-brown colored plates with brown inner layers separated by deep furrows.

Pinus rigida wood is knotty and the stem is usually of poor form. Pitch pine tend to easily form false rings (growth increments) on stressful sites and so tree aging can be a problem. The tradition and historic uses of *Pinus rigida* were lumber, ties, fuelwood, posts, resin products (naval stores), mixed pulp, charcoal, canoe building, and pine knot torches. The heartwood resists decay somewhat because of its resin content. The shorter needled trees have been used for Christmas tree culture. Historic medicinal uses of the tree were are for internal consumption of resins to treat rheumatism and constipation, and for external use applied to burns, cuts, and boils. The resin-rich heartwood and branch knots were burned and the smoke used as an insecticide.

Pinus rigida grows with several other pines which can lead to confusion in identification. Shortleaf pine *Pinus echinata* needles are not stiff or twisted, occur in a mix of 2 and 3 needles per bundle, have weak small cone scale prickles, a white colored coating on young twigs, and bark with small pitch pockets visible. Pitch pine tends to grow at higher elevations than shortleaf pine. *Pinus serotina* pond pine has been consider a coastal plain variety or subspecies of pitch pine. Pond pine has longer needles (4.8 - 8 inches long) which are held on the tree 3-4 years and have tightly closed cones. Table Mountain pine *Pinus pungens* has much shorter needles with heavy cones having cone scale with long, thick, curved, sharp prickles.

Pinus rigida hybridizes with shortleaf pine *Pinus echinata* (the hybrid showing intermediate characteristics), pond pine *Pinus serotina*, loblolly pine *Pinus taeda* (hybrid sometimes called *Pinus x rigitaeda* which is a commercial species in Korea), and table mountain pine *Pinus pungens*.

Native Range Of Growth For *Pinus rigida*: pitch pine

Native contiguous range derived from federal and state maps, herbarium samples and personal observations. The native range includes all areas north and east of the lines on the side of the lines with the arrows.

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