Quercus palustris - Pin Oak (Fagaceae)

Quercus palustris is a very popular, symmetrical shade tree that can tolerate dry or wet sites, with characteristic downswept lower branches and ascending upper branches. When placed in the correct pH soils, Pin Oak can grow very rapidly and reach great heights at maturity.

FEATURES

Form
- Large shade tree
- Maturing at about 100’ tall x 40’ wide when healthy under urban conditions, but even larger than that in the wild
- Upright pyramidal growth habit in youth, becoming upright oval with age
- Medium to rapid growth rate (most rapid in acidic, permanently moist soils)

Culture
- Full sun to partial sun
- Performs best in full sun in continuously moist to wet, deep, acidic soils, but is adaptable to dry soils; however, it is usually exacting in its need for soils with an acidic pH (optimally between pH 5.0 and 6.5)
- Propagated by seeds
- No serious diseases or pests, but leaf yellowing (chlorosis) due to limited uptake of iron (and nitrogen) in alkaline soils can be a serious problem
- Commonly available in B&B form
- Member of the Red Oak group
- Cultural treatment for foliage chlorosis includes soil acidification (rarely successful), soil fertilization with chelated iron and other micronutrients (short term), or direct iron supplementation (iron sulfate or ferric ammonium citrate as pellets in capsule containers, deposited directly by boring into the sapwood of the tree trunk, which does work but needs to be repeated every 3-5 yrs.)

Foliage
- Alternate, medium to dark green, with an overall shape that is ovate and about 5” long, with 3-7 prominent bristle-tipped, incised, and relatively thin lobes having very deep “U”-shaped sinuses in-between
- Autumn color is usually an attractive red-brown to russet, but sometimes an outstanding crimson
- Most of the dead leaves on juvenile trees hang on throughout the winter whereas mature trees lose most or all of their foliage by winter

Flowers
- Yellow-brown pendulous male catkins are obvious and prominent in late Apr., but are ornamentally insignificant, as are the very small pistillate flowers

Fruits
- Mature in 2 seasons
- Fruit is a small acorn (0.25” long) with a cap covering only the very top of the small nut, on a short peduncle and often in clusters of 2 or 3

Twigs
- Greenish- to reddish-brown, turning gray by the second year and somewhat thin
- Pin Oak is perhaps the most twiggy of all the Oaks, and retains dead limbs (due to self-shading) in its interior and lower canopy for many years unless they are thinned out

Trunk
- Bark is medium gray, being lightly furrowed into middle age and beyond, and slowly becoming more deeply furrowed with a light reddish interior bark in old age
- Branches are characteristically descending (angled sharply downward) on the lower one-third of the trunk, horizontal in the middle one-third, and ascending on the upper one-third, sometimes breaking into co-dominant central leaders by middle age
- Branches arising directly from the trunk are numerous, thick, of relatively small caliper, and densely twiggy, adding to the medium texture of the tree in winter

USAGE

Function
- Shade tree for dry, moist, or wet sites, especially where a stately and symmetrical growth habit in a large deciduous tree is needed (in this case an upright pyramidal form, with downswept lower branches)

Texture
- Medium texture in foliage and when bare

Assets
- Formal pyramidal growth habit
- Most easily transplanted Oak (fibrous root system)
- Rapid growth and establishment (in acidic pH soils)
- Autumn color is often russet-brown to crimson
- Dry site or wet site tolerant
- Urban tolerant (heat, drought, pollution, thin soils)
- Fruits attract wildlife

Liabilities
- Leaf chlorosis and branch dieback when planted in high pH soils
- Fruit litter with age

Habitat
- Zones 5 to 8
- Native to the North and Eastern U.S.

SELECTIONS

Alternates
- Large shade trees (Acer saccharum, Fraxinus americana, Gymnocladus dioicus, Quercus alba, Quercus rubra, Ulmus americana, etc.)
- Trees that perform well in both dry and permanently moist to wet sites (Gleditsia triacanthos, Fraxinus pennsylvanica, Q. bicolor, Taxodium distichum, etc.)

Cultivars – Variants – Related species
- Quercus palustris 'Sovereign' - lower branches are horizontal to slightly downswept, instead of strongly downswept; this cultivar is not commonly available