

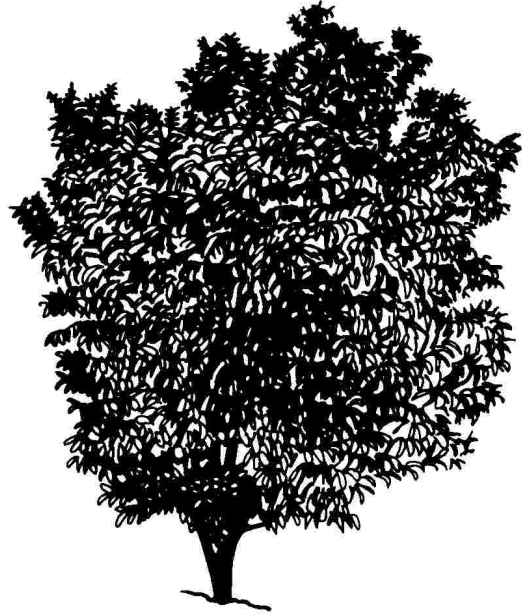
## ***Carya illinoensis*: Pecan<sup>1</sup>**

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Edward F. Gilman and Dennis G. Watson<sup>2</sup>

### **Introduction**

The state tree of Texas, this tree needs plenty of room (above and below ground) to grow. Pecan trees can reach up to 130 feet in height but will usually grow 70 to 100 feet tall with a spread of 40 to 75 feet. The largest of the hickories, this deciduous American native tree has a uniform, symmetrical, broadly oval crown and is massively-branched. Large major limbs grow up and out from the trunk in a distinctive upright, spreading fashion. On older trees, lower branches become wide-sweeping, with their tips almost touching the ground. Trunks can grow to six feet in diameter. The wood is used for flooring, cabinets, and furniture. The native sweet Pecan makes a good urban shade tree.



**Figure 1.** Young *Carya illinoensis*: Pecan

### **General Information**

**Scientific name:** *Carya illinoensis*

**Pronunciation:** KAIR-ee-uh ill-lin-no-EN-sis

**Common name(s):** Pecan

**Family:** *Juglandaceae*

**USDA hardiness zones:** 5B through 9A (Fig. 2)

**Origin:** native to North America

**Invasive potential:** little invasive potential

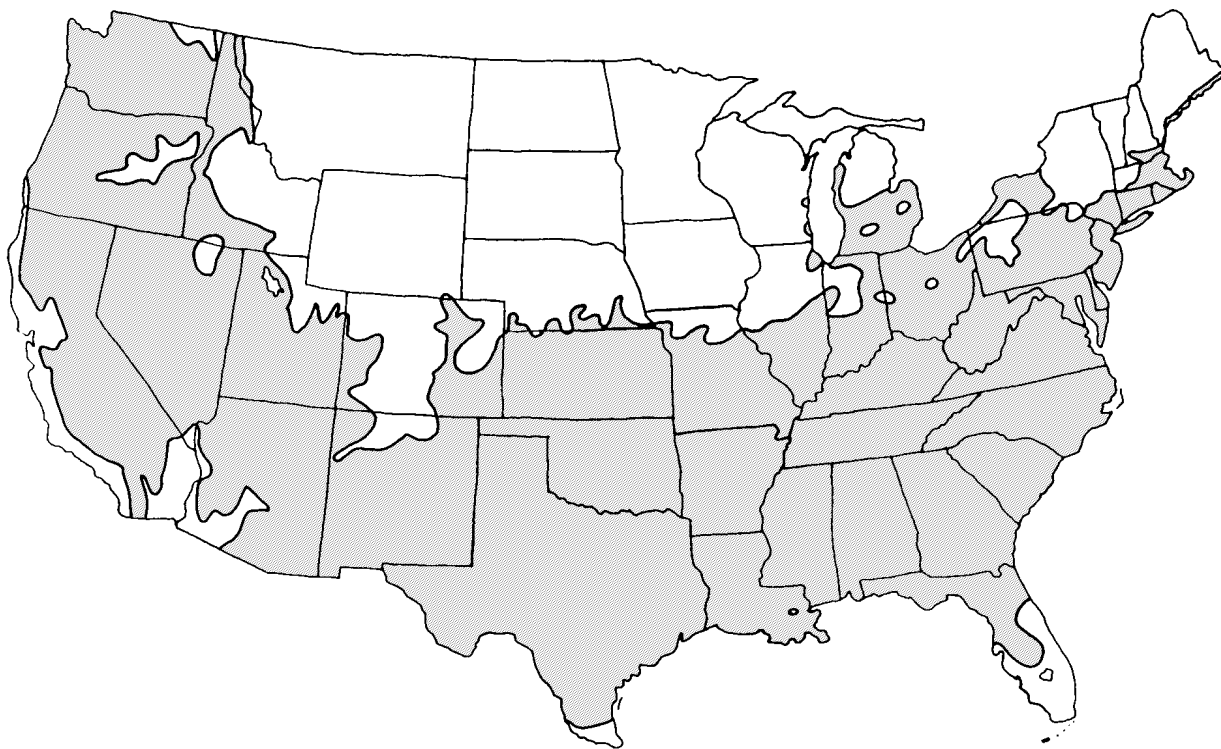
**Uses:** fruit

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**Availability:** not native to North America



**Figure 2.** Range

### Description

**Height:** 70 to 100 feet

**Spread:** 50 to 70 feet

**Crown uniformity:** irregular

**Crown shape:** round, oval

**Crown density:** open

**Growth rate:** moderate

**Texture:** coarse

### Foliage

**Leaf arrangement:** alternate (Fig. 3)

**Leaf type:** odd-pinnately compound

**Leaf margin:** serrate

**Leaf shape:** lanceolate

**Leaf venation:** pinnate

**Leaf type and persistence:** deciduous

**Leaf blade length:** 4 to 8 inches

**Leaf color:** green

**Fall color:** yellow

**Fall characteristic:** showy

### Flower

**Flower color:** yellow

**Flower characteristics:** not showy

### Fruit

**Fruit shape:** oval, round

**Fruit length:** 1 to 3 inches

**Fruit covering:** dry or hard

**Fruit color:** brown

**Fruit characteristics:** attracts squirrels/mammals; showy; fruit/leaves a litter problem

### Trunk and Branches

**Trunk/bark/branches:** branches don't droop; showy; typically one trunk; thorns

**Pruning requirement:** little required

**Breakage:** susceptible to breakage

**Current year twig color:** brown, gray

**Current year twig thickness:** thick

**Wood specific gravity:** 0.66

### Culture

**Light requirement:** full sun, partial sun or partial shade

**Soil tolerances:** clay; sand; loam; alkaline; acidic; extended flooding; well-drained

**Drought tolerance:** high

**Aerosol salt tolerance:** none

### Other

**Roots:** can form large surface roots

**Winter interest:** no

**Outstanding tree:** no

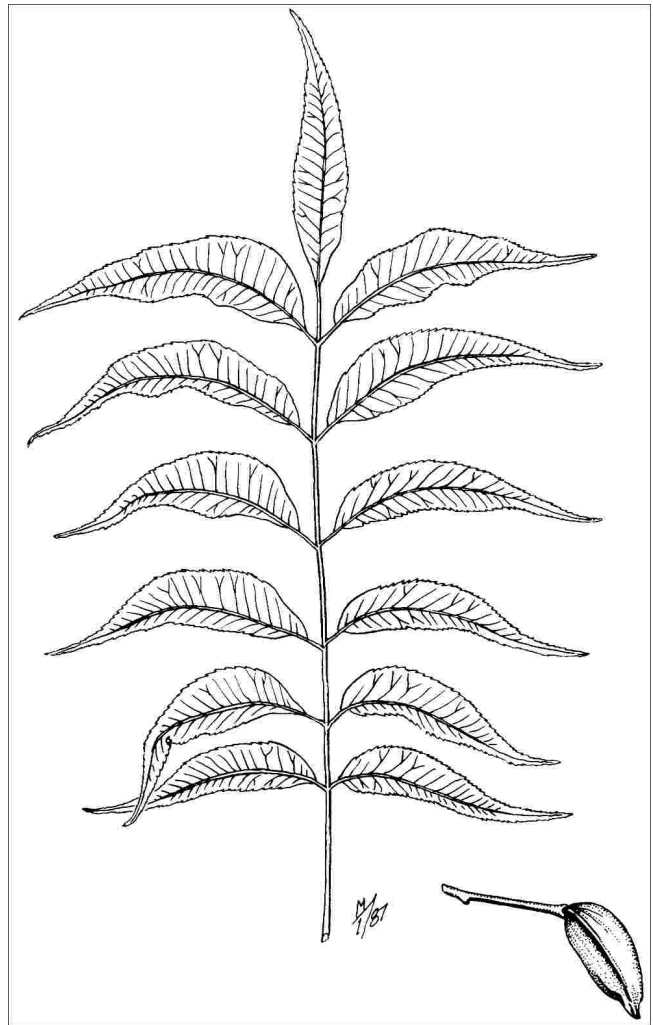
**Ozone sensitivity:** unknown

**Verticillium wilt susceptibility:** susceptible

**Pest resistance:** sensitive to pests/diseases

### Use and Management

Pecan trees are well-suited to large landscapes and natural settings where wildlife is greatly attracted by the fruit. Branches on the tree are sometimes rather brittle, breaking toward the base. Be sure to space major limbs along the trunk so they are not all originating from the same point on the trunk as seen in pecan groves. Prune to a central leader which can



**Figure 3.** Foliage

usually be identified if the tree has not been topped. This will add longevity and greater safety to the tree since well-spaced limbs are better-attached to the tree than those clustered together. Leaves sometimes drop during the summer due to insects or disease, stimulating the tree to initiate a new set of leaves in late summer.

Growing well in full sun or part shade locations, Pecan trees grow best on fertile, well-drained, acid or alkaline moist soil, and are not salt-tolerant. They grow, although more slowly, on droughty sandy soils and often defoliate early without irrigation. Care must be taken in locating this tree, not only due to its size and fruit drop but because the leaves and pecan husks release a substance which can stain clothes, pavements, and cars during rains. The falling pecans can also damage vehicles.

Numerous pest and disease problems make pecan a high-maintenance plant which often requires spraying in order to maintain a good-looking, clean tree. Pecan is subject to sudden summer limb drop, a phenomena characterized by branch failure in the middle of a large-diameter branch. This typically occurs on a very hot summer day with no wind. The best treatment is preventive pruning to eliminate some of the weight along major horizontal limbs. This thinning type of pruning should only be performed by a professional. Squirrels have also devastated trees in New Orleans and other areas by stripping off the bark.

Many selections are available for nut quality, disease resistance, and for specific regions. Be sure to select a cultivar suitable for your particular area of the country. Consult your county agricultural agent for the latest recommendations. Be sure to train and prune trees so branches are well-attached to the trunk so the heavy nut production will not cause branch failure. 'Desirable', 'Stuart', 'Moreland', 'Elliot', and 'Curtis' are among the most popular ones in Florida. 'Desirable', 'Cheyenne', 'Choctaw', 'Cape Fear', 'Shawnee', 'Oconee', and 'Caddo' are among those recommended in Texas. 'Cheyenne' has a semi-dwarf spreading form and medium to large fruit. 'Chickasaw' has a fine-textured, spreading form, disease resistance, and medium to large fruit. 'Elliot' has an upright habit of growth with fine texture, disease resistance, and small fruit. 'Owens' has compact growth and medium to large fruit. 'Shoshonii' has upright growth habit, strong branches, disease resistance, and large fruit. 'Stuart' has a vase-shaped form, is an old selection widely planted, with large fruit but is weak-wooded. 'Melrose', 'Candy', 'Elliot', and 'Sumner' have increased scab resistance.

Propagation is by budding or grafting.

### **Pests**

Aphids of various types feed on Pecan causing distorted and stunted growth. The hickory leaf stem gall phylloxera causes the formation of hollow green galls on leaves, stems, and twigs. The galls form in early summer turn black in mid-summer. The galls are up to a half inch in diameter. Trees are often

defoliated by aphids and sooty mold in mid-summer and put out a second flush of leaves in late summer.

Hickory bark beetles mine the bark and sapwood. The boring cause wilting of young twigs or trunks may be girdled and trees killed. Keep trees healthy by fertilizing regularly and by watering during dry weather.

The twig girdler larva girdles twigs causing weakened twigs to break off and drop. The larva is about a half-inch-long and rides the branch to the ground where it overwinters. Gather the fallen twigs and destroy them.

June beetles eat the leaves of Pecan at night. The injury is usually not severe but can be mysterious since no insects are seen during the day.

Caterpillars (including tent and fall webworm) of various types feed on Pecan.

Scales of various types attack Pecan but can be controlled with sprays of horticultural oil.

Spittlebugs can be a nuisance on Carya.

Pecan weevil.

### **Diseases**

Pecan trees are very susceptible to scab. It is best to plant only those cultivars resistant to this disease.

Hickory anthracnose or leaf spot is caused by a fungus. In wet years the disease causes severe defoliation. The symptoms are large reddish brown spots on the upper leaf surface but brown on the lower surface. The spots may not have distinct marginal markings. The disease overwinters on fallen diseased leaves so dispose of infected leaves in the fall.

A large number of fungi cause leaf spots on Pecan. Severe infections can cause defoliation. Many of the fungi overwinter on diseased leaves, dispose of infected leaves when they fall.

Powdery mildew causes a white powdery growth on the leaves. If the disease occurs late in the season, no chemical control will be needed.

Try to prevent cankers by keeping trees healthy through watering during dry weather and regular fertilization. Avoid wounding the trees unnecessarily and prune out weak or dead branches.

Verticillium wilt kills individual branches or sometimes entire sections of the tree. Foliage on affected branches wilts and later turns brown. Keep trees healthy and prune out small infected branches.

Minor element deficiencies, especially zinc, are evident on alkaline soils.