



## *Sophora japonica* 'Princeton Upright' 'Princeton Upright' Scholar Tree<sup>1</sup>

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

### INTRODUCTION

This cultivar of Pagoda Tree has a height of 40 to 50 feet and spread of 30 to 35 feet, forming a fine-textured, upright, rounded canopy even as a young tree (Fig. 1). The canopy of 'Princeton Upright' appears to be more dense than the species. It has a rapid growth rate and tolerates polluted city conditions, heat, and drought. The tree prefers a sunny, open location on any light soil. The very showy, greenish-white to yellow flowers are produced in mid to late summer and provide an airy feel to the tree for several weeks. A yellow dye can be made by boiling the dried flowers and buds in water. The young green twigs turn a dark grey with age. The species tree must be at least 10-years-old to bloom, but the cultivar 'Regent' blooms at six to eight-years-old.

### GENERAL INFORMATION

**Scientific name:** *Sophora japonica* 'Princeton Upright'

**Pronunciation:** sah-FOR-uh juh-PAWN-nih-kuh

**Common name(s):** 'Princeton Upright' Scholar Tree, 'Princeton Upright' Japanese Pagoda Tree

**Family:** *Leguminosae*

**USDA hardiness zones:** 6 through 8A (Fig. 2)

**Origin:** not native to North America

**Uses:** large parking lot islands (> 200 square feet in size); wide tree lawns (>6 feet wide); medium-sized parking lot islands (100-200 square feet in size); medium-sized tree lawns (4-6 feet wide); recommended for buffer strips around parking lots or for median strip plantings in the highway; near a deck or patio; shade tree; specimen; sidewalk cutout (tree

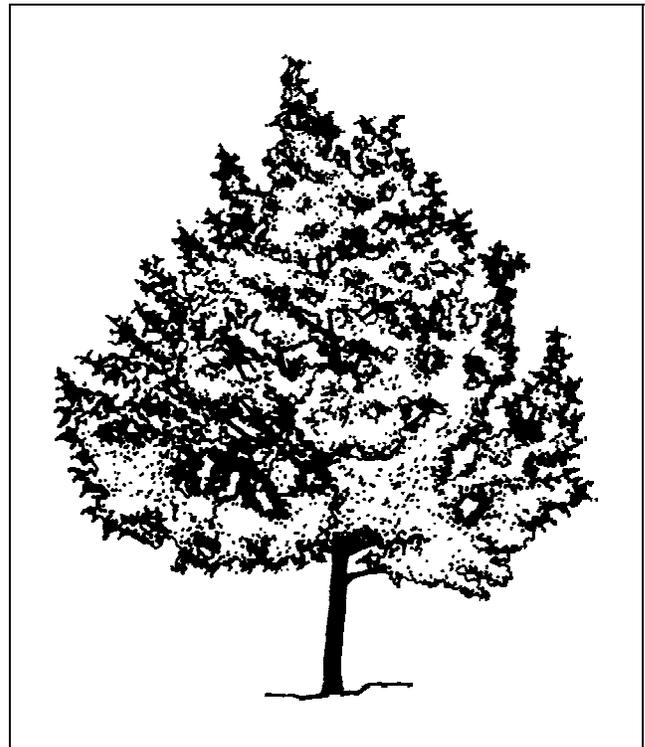


Figure 1. Middle-aged 'Princeton Upright' Scholar Tree.

pit); residential street tree; tree has been successfully grown in urban areas where air pollution, poor drainage, compacted soil, and/or drought are common  
**Availability:** somewhat available, may have to go out of the region to find the tree

1. This document is adapted from Fact Sheet ST-595, a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: October 1994.
2. Edward F. Gilman, associate professor, Environmental Horticulture Department; Dennis G. Watson, associate professor, Agricultural Engineering Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.



Figure 2. Shaded area represents potential planting range.

## DESCRIPTION

**Height:** 40 to 50 feet  
**Spread:** 30 to 35 feet  
**Crown uniformity:** symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms  
**Crown shape:** oval  
**Crown density:** moderate  
**Growth rate:** medium  
**Texture:** fine

## Foliage

**Leaf arrangement:** alternate (Fig. 3)  
**Leaf type:** odd pinnately compound  
**Leaflet margin:** entire  
**Leaflet shape:** ovate  
**Leaflet venation:** pinnate  
**Leaf type and persistence:** deciduous  
**Leaflet blade length:** less than 2 inches  
**Leaf color:** green  
**Fall color:** yellow  
**Fall characteristic:** not showy

## Flower

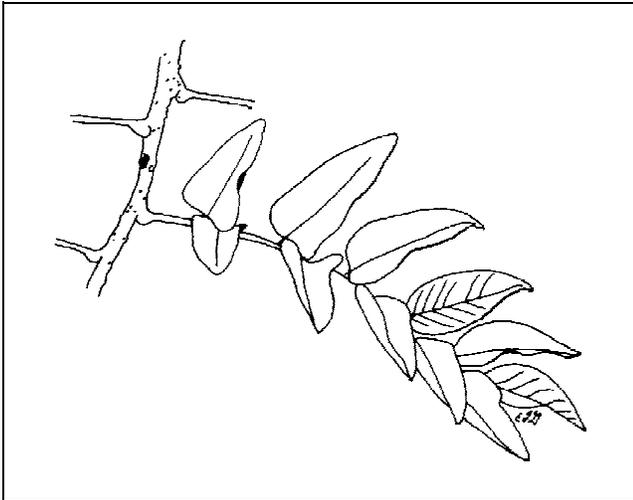
**Flower color:** white; yellow  
**Flower characteristics:** showy; summer flowering

## Fruit

**Fruit shape:** elongated; pod  
**Fruit length:** 6 to 12 inches; 3 to 6 inches  
**Fruit covering:** dry or hard  
**Fruit color:** brown; yellow  
**Fruit characteristics:** does not attract wildlife; fruit, twigs, or foliage cause significant litter; persistent on the tree; showy

## Trunk and Branches

**Trunk/bark/branches:** grow mostly upright and will not droop; not particularly showy; should be grown with a single leader; no thorns  
**Pruning requirement:** requires pruning to develop strong structure  
**Breakage:** susceptible to breakage either at the crotch due to poor collar formation, or the wood itself is weak and tends to break  
**Current year twig color:** green



**Figure 3.** Foliage of 'Princeton Upright' Scholar Tree.

**Current year twig thickness:** medium; thin

### Culture

**Light requirement:** tree grows in full sun

**Soil tolerances:** clay; loam; sand; acidic; occasionally wet; alkaline; well-drained

**Drought tolerance:** high

**Aerosol salt tolerance:** moderate

### Other

**Roots:** surface roots are usually not a problem

**Winter interest:** no special winter interest

**Outstanding tree:** tree has outstanding ornamental features and could be planted more

**Invasive potential:** little, if any, potential at this time

**Pest resistance:** long-term health usually not affected by pests

## USE AND MANAGEMENT

The tree drops flower petals creating a creamy white carpet for several weeks on the ground, but they can temporarily stain sidewalks. The yellow fruit pods form in late summer and are quite showy, dropping later in the winter and could be a nuisance to some people. But they are small and fairly easily washed away. The leaflets are small, creating light to moderate shade beneath the tree and are mostly washed away with rain or fall into shrub beds or between the grass blades.

Some trees come from the nursery with multiple trunks or branches clustered together at one spot on the trunk. Buy those with one central trunk growing up the center of the tree or prune the tree to a central

leader to create a strong, durable structure. Space branches along the central leader to ensure good branch attachment. It may take several prunings to train the tree to the proper form.

This urban-tough tree is highly recommended for urban street tree planting. Also makes a nice medium-sized patio tree and is well-suited for parking lot planting, creating shade without growing too large. Adapted to restricted soil spaces, tolerates salt spray, and tolerates drought in reasonable soil but grows poorly in wet sites. It is reported to be more resistant to insect and disease problems than the species. Best when planted in full sun.

*Sophora* species has a few other cultivars: 'Fastigiata' - upright habit; 'Pendula' - weeping habit; 'Regent' - oval crown and blooms at an early age, has glossy leaves which shed soot and dirt, readily available in nurseries.

### Pests

Potato leafhopper kills young stems causing profuse branching or witches broom on small branches. It usually is not a problem on larger trees.

### Diseases

*Sophora* species is generally pest- and disease-free.

Occasionally, Scholar Tree will get a fungus canker about two-inches or less across, have raised reddish brown margins and light brown centers. The infected stem is killed when the fungus girdles the stem. Another fungus is sometimes found on dead branches on *Sophora* species. Frost injury may give both fungi an entrance into the tree. Prune out dead, damaged, or diseased branches.

Twig blight or dieback can be a problem occasionally. Prune out infected branches and avoid unnecessary wounding. Keep trees vigorous by regular fertilization.

Powdery mildew forms a fungus mat which looks like a white coating on the leaves. The disease is usually not serious.