

## Paulownia - *Paulownia tomentosa*

### Identification

Paulownia or Princess tree is a deciduous tree, growing up to 60 feet in height and 2 feet in diameter. The bark is light gray to tan, often somewhat shiny, with white lenticels, becoming rough and slightly fissured with age (Figure 27). The twigs are stout with large, circular leaf scars and chambered or hollow piths. Leaves are opposite, fuzzy, large (6 to 12 inches long), and heart-shaped (Figure 29). Flowers are showy, erect, and pale-violet in color (Figure 30). The pecan-shaped fruits occur in erect terminal clusters, leaving behind the split, thin fruit capsule well into winter (Figures 28, 29). The abundant seeds are minute and winged.

### Habitat and Distribution

Paulownia is native to eastern Asia and was first introduced into America in the early 1800s for ornamental purposes and as a potential export for carving wood (Figure 31). Paulownia can invade a variety of different habitats including roadsides, cliffs, riparian areas, open woods, highway embankments, stream banks, forest edges, landslides, burned-over areas, rocky out-croppings, mine spoils, old home sites, and other disturbed sites (Figure 32). It can tolerate infertile, shallow, rocky, alkaline to acidic, or very dry soils. It can even invade nearly vertical rock walls and cracks in concrete. Paulownia readily invades after fire or other types of soil disturbance. It is found throughout the Eastern United States. In the South, it is most problematic in the mountainous regions.

### Impact

The tiny, winged seeds of paulownia are easily dispersed long distances via the wind. Once established it is difficult to remove due to its ability to resprout vigorously and the prolific seed production. Its ability to colonize rocky or infertile sites, make paulownia a threat to some rare plants that require these marginal habitats. Its ability to resprout or colonize by seed quickly after a fire creates problems when managing species such as table mountain pine that require fire for regeneration.



Figure 27



Figure 28



Figure 29



Figure 30

### Response to Disturbance

Promoted by high light environments  
 Promoted by soil disturbance  
 Promoted by fire  
 Re-sprouts vigorously after being cut  
 Invades readily after disturbance  
 Rapid growth (roots sprouts can grow over 15 feet a year)  
 Invades quickly after fire or disturbance

### Reproduction

Primary means – seed  
 Time to maturity – 8-10 years  
 Abundant seed production (20 million/  
 plant)  
 Insect pollinated  
 Clonal from root sprouts

### Seed Dispersal

Wind-blown and water-dispersed seeds

### Growth Habits

Tree  
 Not very shade tolerant  
 Poor-soil tolerant  
 Flood tolerant  
 Drought tolerant  
 Prefers highly disturbed areas

### Response to Prescribed Fire

Not a control option  
 Not a fire hazard  
 Colonizes quickly after fire (particularly  
 spring fires)



Figure 31



Figure 32

### Control Recommendations

*Large trees.* Make stem injections using Arsenal AC or a glyphosate herbicide in dilutions and cut spacings specified on the herbicide label (anytime except March and April). For felled trees, apply these herbicides to stem and stump tops immediately after cutting.

*Saplings.* Apply Garlon 4 as a 20-percent solution in commercially available basal oil, vegetable oil, or crop oil (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to young bark as a basal spray.

*Resprouts and seedlings.* Thoroughly wet all leaves with one of the following herbicides in water with a surfactant (July to October): Arsenal AC as a 1-percent solution (4 ounces per 3-gallon mix); a glyphosate herbicide, Garlon 3A, or Garlon 4 as a 2-percent solution (8 ounces per 3-gallon mix).

(See **Herbicide Quick Reference page 40-42**)