

## Garden And Landscape Section

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### CHINESE ELM: A SOURCE OF CONFUSION FOR NURSERYMEN AND LANDSCAPERS

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**Abstract.** *Ulmus parvifolia* Jacq. selections have been extremely popular as landscape specimen trees throughout Florida. The species is known as Lacebark elm or Chinese elm. Selections include 'Drake', 'True Green', and 'Sempervirens'. The species and selections are described.

Elms are central to the design of many Florida landscapes. As with other genera, *Ulmus* has those species which are clearly superior. *Ulmus parvifolia* is the elm species of choice for the southeast.

Elm comes from the Latin word for elm, *Ulmus*. Taxonomically, the elm is a member of the order Urticales (nettles), which is comprised of four families: Cannabinaceae (hemps) Moraceae (mulberries), Urticaceae (nettles), and Ulmaceae (elms).

Ulmaceae includes more than 15 genera of usually deciduous trees and shrubs. Generally cultivated as ornamentals are *Ulmus*, *Zelkova*, *Planera*, *Hempitelea*, *Celtis*, *Trema*, *Holoptelea*, and *Aphananthe*. In *Ulmus*, all are usually deciduous trees or shrubs. Leaves are alternate, simple, often asymmetrical at the base, petioled and with stipules. Flowers are inconspicuous, bisexual, appearing in the spring in most species (*Ulmus parvifolia* is a notable exception.). The seed is a flat 1-celled, 1-seeded samara with the wing surrounding the nutlet and usually notched at the apex, maturing a few weeks after flowering (2).

According to the Compendium of Elm Diseases, 32 species are known in the northern hemisphere. Europe has 5, North America 8, and Asia 23, with new species still being found in central China. Two species are native in the tropics. Elms hybridize readily, further contributing to taxonomic confusion (6).

Elm distribution and habitat is remarkable. They are found at elevations from sea level to over 12,000 feet. Geographically there are species found from the tundra to the tropics. They are native on four continents and have been planted extensively beyond their native ranges, becoming naturalized in some regions (6).

Until recently "elm" automatically brought to mind the stately American elm (*U. americana* L.). Its graceful vase shape was ideal for street tree planting. Perhaps too ideal, since root grafting made transmission of the deadly Dutch elm disease (DED) even easier. Coupled with phloem necrosis, the result has been death of thousands of trees throughout the world. Horticulturists have been seeking replacement for this highly prized specimen and street tree. Scientists are looking for a tree that grows fast on a variety of sites, is easy to transplant, endures damage from

lopping or root pruning, and tolerates much soil compaction.

The list of elms showing resistance to DED includes two which have been used extensively in the United States, *Ulmus pumila* L. (Siberian elm) and *Ulmus parvifolia* (Chinese elm) (1). Dirr (4) states the confusion between the species "represents the greatest case of misidentification since 'The Prince and the Pauper'." The nursery industry should bear much of the blame since it sold and promoted *Ulmus pumila* as such an ideal tree. This tree is a pitiful, much inferior tree to the true Chinese elm, *Ulmus parvifolia*.

The Siberian elm was introduced into North America early in this century. Almost immediately nurserymen promoted its use as a rapid growing tree that would tolerate a wide range of soil and environmental conditions. Wholesale use of this tree from the plains of the Dakotas to the condominiums of Florida is evident (4). While resistant to DED and phloem necrosis, this elm provides the elm leaf beetle a steady diet and elm bark beetle a welcome refuge for breeding and development. It also has been responsible for providing financial assistance for educating the offspring of many arborists, as well as a plentiful supply of firewood.

It is not a difficult task for nurserymen and landscapers to distinguish Siberian and Chinese elms. Siberian elm (*U. pumila*) bears seed in the spring while Chinese elm (*U. parvifolia*) bears seed in the fall. However, the difference in bark is useful year round. Chinese elm bark is relatively smooth and sheds in patches to produce a mottled effect. Siberian elm bark is deeply furrowed and often shows signs of the elm bark beetle. This confusion between the inferior Siberian elm and the excellent Chinese elm has led at least one author to use the common name Lacebark elm for *Ulmus parvifolia* (7).

Seedlings of the Chinese elm are extremely variable. Specimen trees may have forms from upright spreading to weeping. Hardiness of the species is evidently confusing as well. Dirr (3) and Whitcomb (7) list Zone 4, Monrovia Nursery Catalog, Zone 6, Sunset Western Garden Book (1), Zone 8.

Selections of Chinese elm have been made and promoted by nurserymen, particularly in California. Many landscape architects specify 'Drake' elm. Although *Ulmus parvifolia* 'Drake' is correct, the name *U. sempervirens* 'Drake'; is used as is *U. parvifolia sempervirens* 'Drake' (7). It is confusing.

The popularity of 'Drake' elm, at least in some parts of the country, can be attributed to its use by landscape architects of Walt Disney in both the Florida and California projects. These trees, lighted and in raised planters, are truly beautiful.

Other selections sold by nurseries are 'Sempervirens' (also called Weeping) and 'True Green'. Monrovia Nursery

catalog uses the following descriptions which are very similar to descriptions by Dirr (3) and Whitcomb (7).

*“Ulmus parvifolia sempervirens.* Chinese evergreen elm. Zone 6. Excellent medium size, round headed shade trees. Graceful, broadly arching branches with weeping habit are clothed with deep green finely toothed small leaves.

*Ulmus parvifolia sempervirens* 'Drake'. Zone 6. Rich dark green foliage on spreading branches that grow more upright than regular evergreen elm. Attractive, round headed form of medium size for lawn or street tree use.

*Ulmus parvifolia sempervirens* 'True Green'. Zone 7. More evergreen variety of elm. Small leaves are very glossy and deep green. Graceful round headed small lawn or street tree for quick shade.” (Monrovia Nursery Catalog).

It should be noted that all these selections or cultivars must be propagated asexually. Usually this is accomplished by rooting cuttings. Dirr (3) states that high concentrations of IBA are required for good success. Fog has been used successfully by some central Florida nurserymen with cuttings removed from the propagation house 8 weeks after sticking. (Jeff Stabler, Winter Haven Nurseries, personal communication).

Two problems encountered by most producers are the branch like habit of the rooted cutting and slow development of stem caliper. The majority grow out of the branch like character after two or three years. Lack of stem strength and rapid growth mandate staking which further retards development of caliper. Recently a *Phytophthora* spp. fungus has caused some problem for producers in the

Tampa Bay area. (Roger Newton, Horticulture Agent, personal communication). The reasons for this recent outbreak are under investigation and the long term ramifications are unknown. Verticillium wilt may also be a problem.

Chinese elm appears to be a species which should warrant further investigation for selections which overcome some of the disadvantages of the currently available selections. Criteria for selection should include easy rooting, early development of stem strength and caliper, tree-like vs. branch-like form, and retention of resistance to DED and phloem necrosis. Should superior selections be found, the cooperation of nurserymen, landscape designers and contractors will be needed to make these introductions successful.

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### TRANSPLANTING A 50 FOOT LIVE OAK

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*Additional index words.* *Quercus virginiana*.

**Abstract.** A *Quercus virginiana* Mill. measuring 50 feet tall by 60 feet wide with a trunk circumference of 8.75 feet was transplanted to a site 150 feet away. The rootball of the tree measured 22 feet in diameter by 3.5 feet deep. Methods and materials used for precare, preparation, lifting, transplanting, replanting, stabilizing and aftercare are discussed.

Preservation of desirable trees in the landscape is important especially in intensive building areas. This sometimes requires relocation of existing trees on a site. Transplanting many species of small trees is routinely accomplished. Moving large, mature trees such as the *Quercus virginiana* requires much more preparation and care to insure successful results.

The live oak discussed in the paper was moved approximately 150 feet to accommodate construction of a residence along the eastern shore of the Indian River in Indian River County.

The tree measured approximately 50 feet tall by 60 feet wide with a trunk circumference of 8.75 feet. Estimates of the age of this tree exceed 150 years.

The oak had reached its large size in a natural sandy shell soil (elevation approximately 4 feet above average median high tide) before 3 to 4 feet of sand was placed on top of the original soil surface. The sand fill created a 4 feet downslope to the new planting site.

#### Tree & Site Preparation

The new site was established with fill to a plus seven feet above the median high tide plateau. A pit in the sand was dug out 4 feet deep from around the tree trunk to a radius of approximately 17 feet to make room for the root-pruning equipment at the original soil level. This digging also removed weight atop the rootball.

The tree canopy was thinned and shaped in late summer 1984. No major limbs (above 3-inch diameter) were cut. This trimming was done to reduce transpiration in an effort to compensate for root loss during rootpruning.

The oak tree was rootpruned to stimulate foliage loss beyond normal shedding, to stimulate growth of feeder roots within the rootball, and to facilitate moving the tree.