

# Arboretum Review



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LEON C. SNYDER

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## Miscellaneous Shade Trees

The interest in large shade trees is growing rapidly. With the loss of elms from the Dutch Elm Disease, landscapers want to know the best species and cultivars to plant as replacements. Actually, a variety of tree species should be planted, rather than a single species. Many large shade trees have been discussed in other Arboretum Reviews. The genera considered here are those having relatively few species and cultivars.

**Acer spp.** (See Arboretum Review No.4—Maples).

**Aesculus arguta (Texas Buckeye).** This species is closely related to the Ohio Buckeye. In its native habitat in southern Oklahoma and eastern Texas, this is a small tree or large shrub. In trials at the arboretum, it has grown at about the same rate as does the Ohio Buckeye. Although it has been hardy, it does not have particular merit.

**Aesculus x carnea 'Briot' (Red Horse-chestnut).** Our plants were propagated from a tree growing in North Oaks, north of St. Paul. In North Oaks, the tree has done well and has bloomed with large, showy red flowers. Our trees, planted in 1971, are now well-established. It is too soon to say whether this tree will be hardy, except in very sheltered locations. This hybrid resulted from a cross between *A. hippocastanum* x *A. pavia*. Since *A. pavia* is tender, this tree may be less hardy than is the common horse-chestnut.

**Aesculus glabra (Ohio Buckeye).** This tree has been fully hardy. The fall color is a good golden yellow. The summer foliage has been light green, possibly indicating a nitrogen deficiency.

**Aesculus glaucescens (Georgia Buckeye).** This small tree is native to Georgia. The species has been fully hardy. The flowers are similar to those of the Ohio Buckeye.

**Aesculus hippocastanum (Common Horse-chestnut).** This species has shown no winter injury in the arboretum plantings. Generally in Minnesota, the Horse-chestnut has been less hardy than has been the Ohio Buckeye. The leaves may burn marginally in hot weather and in the fall. Plants at the arboretum have not flowered.

**Aesculus neglecta (Painted Buckeye).** The plants at the arboretum have all done well, but one plant has been exceptional in its growth and in its dark green summer foliage and bright red autumn color. This tree has been propagated and is being tested under a variety of conditions. This one tree may be of hybrid origin.

**Aesculus octandra (Yellow Buckeye).** Although this species has been hardy, it is not superior to the Ohio Buckeye. Marginal leaf browning has been a problem some years. The scaling bark of mature trees is attractive.

**Aesculus parviflora (Bottlebrush Buckeye).** This is more of a shrub than a tree. Most years, it shows considerable dieback. This year, for the first time, it bloomed in August, with long, slender spikes of greenish-white flowers.

**Aesculus pavia (Red Buckeye).** Several cultivars of this species have been tested; so far, none have proven hardy. Most winters, the plants die back to the snow line.

**Alnus glutinosa (European Alder).** The European Alder is a fast-growing, medium-height tree with a fairly dense crown. The trees have been fully hardy and have made good growth. This species tolerates wet soils and may have a place on such sites.

**Alnus incana (Manchurian Alder)** We have just one plant of this species obtained from the USDA Plant Introduction Station, Glenn Dale, Md., as PI 317354. The plant appears to be hardy, but it is too soon to say whether it will be suitable for landscape planting.

**Alnus japonica (Japanese Alder).** Some winters, this species has had considerable dieback. The tree is of medium height and has dark green foliage, but the dead wood resulting from winter injury is objectionable.

**Alnus rugosa americana (Speckled Alder).** This native plant normally grows as a large, multi-stemmed shrub, although it might be trained as a small tree. It prefers wet soils and is growing well along our bog trail.

**Alnus tenuifolia (Thinleaf Alder).** Our plants, obtained from British Columbia, have not done well. The leaves have shown scorched margins, and a white fungus growth has developed on the trunk. A cottony, scale insect has inflicted this and other alders.

**Carya spp.** (See Arboretum Review No.12—Nut Trees).

**Castanea spp.** (See Arboretum Review No.12—Nut Trees).

**Catalpa bignonioides (Southern Catalpa).** This large-leaved tree has done surprisingly well, but has shown some dieback. The trees at the arboretum have not produced flowers. The cultivar 'Aurea' is doing well.

**Catalpa bungei (Manchurian Catalpa).** This forms a small, pyramidal tree. Our plants have made satisfactory growth, but have developed some dead wood.

**Catalpa ovata (Chinese Catalpa).** This tree has grown quite well, but has shown some tip kill in severe winters. It flowers in July and August, with spikes of ivory-white flowers that are spotted with brown specks.

**Catalpa speciosa (Northern Catalpa).** This is the hardiest of the catalpas, but even it has shown some tip kill. The large flowers are white with purple and orange spots.

**Celtis australis (European Hackberry).** This species has had poor growth; it shows some sunscald and dieback most winters. Unless a hardier strain is found, this species offers little for Minnesotans.

**Celtis occidentalis (Common Hackberry).** This very hardy species has good tree habit. It produces a dense oval crown, and the bark is characteristically ridged. Its chief enemies are a nipple midge gall on the leaves and witches' broom. Large trees are difficult to transplant. This species is a good replacement for the elm.

**Celtis pumila (Dwarf Hackberry).** This shrubby-type hackberry is native to the area from New Jersey to Florida and westward to Colorado. Our plants, obtained as seed from the Dominion Arboretum in Ottawa, have not been hardy. Some dieback has occurred each winter. Based on our experience, this species has little merit.

**Celtis reticulata (Netleaf Hackberry).** This native of the southwestern United States has been surprisingly hardy. Some tip kill has occurred most winters, but growth has been satisfactory. Small trees planted in 1964 are now about 20 feet tall. The tree has a wide-spreading branching habit. The leaves are susceptible to the same midge gall that affects our Common Hackberry.

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***Cercidiphyllum japonicum* (Katsura Tree).** The Katsura tree is rather upright when young, but may be quite broad if allowed to develop with several trunks. The leaves are small and heart-shaped, resembling those of the redbud. This tree suffers from summer drought; if planted at all, it should be planted in a sheltered location. The soil should not be allowed to dry out. Several of these trees have been lost in the arboretum, but a tree is still doing well which was planted in 1955 at the Horticultural Research Center 1 mile away.

***Fraxinus* Spp.** (See Arboretum Review No. 10—Ash).

***Ginkgo biloba* (Ginkgo).** This is often referred to as a living fossil. Geological records show that this species was living on the North American Continent 150 million years ago. It disappeared from this continent, but has persisted in the Orient. It was reintroduced some 200 years ago and is now widely planted. The bilobed leaves turn golden yellow in the fall. The fruits—which resemble a plum—have an offensive odor. Only male trees should be planted. Several of these ginkgo trees have been planted in the arboretum, and they are all doing well. The cultivars 'Autumn Gold,' 'Fairmont,' 'Fastigiata,' and 'Lakeview' have been planted.

***Gleditsia aquatica* (Water Locust).** This native of the southeastern United States has not been sufficiently hardy. Trees planted in 1964 were discarded in 1973.

***Gleditsia japonica* (Japanese Honeylocust).** This thorny tree is lacking hardiness and should not be planted. Ours show considerable dieback, with resulting suckering from the base.

***Gleditsia triacanthos inermis* (Thornless Honeylocust).** The species has large, forked thorns. Except for a barrier planting, only the thornless forms should be planted. The typical selection grows to be a medium-sized tree from 40 to 50 feet tall. The foliage is open and allows sunlight to filter through. We have tested several cultivars, including 'Browni,' 'Green Glory,' 'Imperial,' 'Majestic,' 'Maxwell,' 'Ruby Lace,' 'Shademaster,' 'Skyline,' and 'Sunburst.' We also have promising selections from Billings, Mont., and Mandan, N.D. 'Browni,' 'Skyline,' and 'Sunburst' have been best in our trials. 'Ruby Lace' has been disappointing.

***Gymnocladus dioica* (Kentucky Coffeetree).** The Kentucky Coffeetree, although native in this area, has never been widely planted. In addition to the species which grows into a large, wide-spreading tree, the arboretum has an unnamed selection which is narrow and upright and one that is globe-shaped. The trees are remarkably free from insect and disease problems. The leaves are twice compound, dark green, and very large. The winter aspect of the tree is interesting, with deeply furrowed bark and stout twigs. Large seed pods are produced on female trees.

***Juglans* spp.** (See Arboretum Review No. 12—Nut Trees).

***Magnolia acuminata* (Cucumbertree Magnolia).** This is the only one of the magnolias that might qualify as a large tree. Plants at the arboretum are still quite small, but sizeable trees are growing in Como Park in St. Paul and in Lyndale Gardens in Minneapolis. This is one of the hardiest of the magnolias.

***Ostrya virginiana* (Hop Hornbeam).** This native tree is abundant in the arboretum. It has a well-rounded crown and can be grown either with a single stem or as a clump. Mature trees are about 40 feet tall. This tree produces hoplike fruits. Few insects or diseases bother this species.

***Phellodendron amurense* (Amur Corktree).** This is a round-headed tree that grows quite rapidly when young. The bark is spongy, prompting the common name "corktree." Our trees have developed a few dead twigs, but this may be from drought rather than winter injury. The female trees produce black berries that persist into winter or until they are eaten by birds. This is the only one of the corktrees that is generally available in the nursery trade.



*Ginkgo biloba* (Ginkgo) is often referred to as a living fossil. Fossil records show that this tree was native to North America 100 million years ago.



***Phellodendron chinense* (Chinese corktree).** This species resembles the Amur Corktree and does not appear to be any better. It has been fully hardy.

***Phellodendron japonicum* (Japanese corktree).** It is similar to the Amur corktree and is certainly no better. The trees at the arboretum have shown some dieback.

***Phellodendron piriforme* (Pearfruit corktree).** This tree of uncertain origin resembles the Amur Corktree. Our trees were grown from seed obtained from Leningrad, U.S.S.R.

***Phellodendron sacchalinense* (Sakhalin corktree).** Our trees were grown from seeds obtained from the Morton Arboretum at two different times. The plants from the two seed lots are quite different. One is probably the true Sakhalin corktree, and the other is probably the hybrid. The one that is probably the hybrid has grown much faster than has the Amur Corktree and appears to be far superior as a shade tree. We are investigating various methods of propagation and plan to test it under several conditions, hoping it may prove worthy of introduction as a cultivar.

***Populus* spp.** (See Arboretum Review No. 28—Poplars and Willows).

***Quercus* spp.** (See Arboretum Review No. 17—Oaks).

***Robinia pseudoacacia* (Black Locust).** The Black Locust and several of its cultivars have been planted in the arboretum. In most cases, the trees became infested with the locust borer and had to be removed.

***Salix* spp.** (See Arboretum Review No. 28—Poplars and Willows).

***Trilia* spp.** (See Arboretum Review No. 21—Lindens).

***Ulmus americana* (American Elm).** Dutch Elm Disease has started to take its toll; most of our native trees will probably be lost. Several cultivars, including 'Augustine,' 'Moline,' and 'Washington' are growing in our elm collection.

***Ulmus carpinifolia* 'Garcilis.'** This cultivar of the smoothleaf Elm was obtained from the University of Washington Arboretum. It has shown some dieback, and the leaves have been chlorotic.

***Ulmus glabra* 'Camperdown.'** Two attempts to establish the Camperdown elm have ended in failure. Both times, the trees failed to start into growth. Other Camperdown elms in the Twin Cities area show some dead wood, indicating a lack of complete hardiness.

***Ulmus glabra* 'Exoniensis.'** This plant was obtained from the USDA Plant Introduction Garden at Ames, Iowa. It has not proven to be sufficiently hardy.

***Ulmus x hollandica.*** This hybrid elm (*U. carpinifolia* x *U. glabra*) was obtained from the USDA Plant Introduction Station at Geneva, N.Y. It is being tested for possible resistance to Dutch elm disease. It is too soon to say whether the trees will prove hardy.

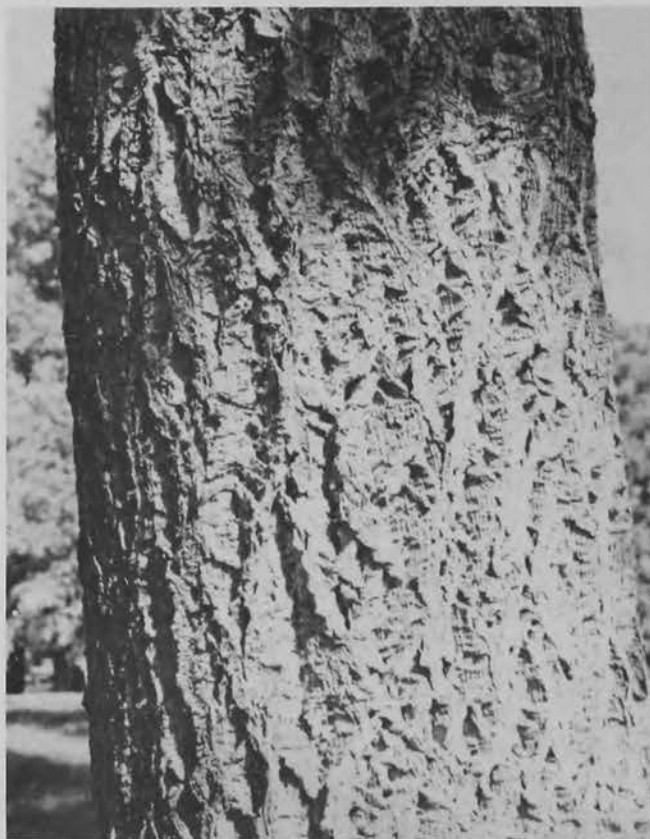
***Ulmus japonica* (Japanese Elm).** This has been the most promising of the introduced elms. Trees propagated from scions obtained from Mandan, N.D., in 1962 are now 40 feet tall and are well-formed. Winter injury has been nonexistent or very slight. This species reportedly has some resistance to the Dutch elm disease.

***Ulmus laevis* (Russian Elm).** Our trees, obtained from the National Arboretum in 1966, have not grown well. Winter injury varies from none to severe. A plant of *U. laevis*, obtained as PI 260883, proved to be *U. carpinifolia*.

***Ulmus parviflora* (Chinese Elm).** The true Chinese elm has generally been lacking in hardiness. Plants obtained from the USDA Plant Introduction Station at Ames, Iowa, have wintered with less than the usual amount of injury for this species. This fall-blooming species of elm has very small leaves; it would be a useful ornamental if a hardy strain could be found.



*Phellodendron sacchalinense* (Sakhalin corktree) is a vigorous shade tree which appears to be resistant to insect and disease problems.



**Ulmus procera** 'Christine Buisman.' This cultivar has been reported resistant to the Dutch elm disease. Our results have varied. Usually, the trees live for a few years with varying amounts of winter injury and then suddenly die. Our latest planting, made in 1960, contains trees that are now 30 or more feet tall.

**Ulmus pumila** (Siberian Elm). This species, usually sold as Chinese elm, varies in hardiness. Plants grown from seeds collected near the northern limit of its range are fully hardy. The branches are subject to storm damage. Our plants, obtained from several sources, have shown varying degrees of winter injury.

**Ulmus rubra** (Slippery Elm). This native elm is fully hardy and grows to be a large tree. It is easily recognized by its winter buds covered with reddish hairs.

**Ulmus sukaczewii**. This species, obtained from Leningrad, USSR, appears to be fully hardy. Trees grown from seeds planted in 1964 are now over 30 feet tall.

**Ulmus thomasi** (Rock Elm). This is another native species with corky bark on young branches. Our trees, planted in 1962, are now about 40 feet tall.

**Ulmus hybrids**. Many elm hybrids have been offered for sale with the claim that they are resistant to Dutch elm disease. Most are hybrids of U. pumila x U. rubra. They do show hybrid vigor and may be of value for a fast-growing tree. There is no proof of resistance to Dutch elm disease.

**Ulmus (Dutch Elm Resistant Selections)**. The arboretum is cooperating with the Plant Introduction Stations as well as the USDA Tree Breeding Station in Delaware, Ohio, in testing their disease resistance. It is too soon to report on any of these selections.

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