

THE BEST ARBORVITAE

by Edward Hasselkus, Clark West, and Mark Zampardo

Arborvitae—called the “tree of life” due to its 200-300 year old life expectancy—is the least well known of the four workhorses of the garden conifer world—the other three being yews, spruce, and pine. Most people think arborvitae to be prosaic and dull, but there are now many unique and worthy cultivars of arborvitae that gardeners should consider including in their landscapes.

Arborvitae is the ideal screening plant. It retains its lower branches indefinitely and adapts to mass-plantings better than most conifers. Even if space is limited, an effective year-round screen can be created by planting columnar or small-scale cultivars of *Thuja* (pronounced thu-ya). Arborvitae responds well to shearing if a formal hedge is desired. Additionally, they are versatile: unlike juniper, larch, pine, and spruce which require full sun, Arborvitae can take sun or tolerate part-shade. It does, however, share with fir a dislike of full shade. Lastly, all arborvitae are aromatic when their stems are crushed—they smell sweetly of citrus.

Three Species of Garden Arborvitae

There are three main species of arborvitae: *Thuja occidentalis* (also called the American arborvitae, northern white cedar, or eastern white cedar), *Thuja orientalis* or *Platycladus orientalis* (the Oriental arborvitae native to China and Korea) and *Thuja pli-*

cata (the western red cedar or giant arborvitae, which is the huge timber tree native to the Pacific Northwest). All arborvitae belong to the Cypress (*Cupressaceae*) family.

Cultivars have been selected from all three major species of arborvitae, although there are only 17 cultivars of the western red cedar. The World Conifer Data Pool lists 36 cultivars of *Thuja orientalis* and 105 of *Thuja occidentalis*. Other species of *Thuja* include the Korean arborvitae (*T. koraiensis*) which has only one cultivar to date and the Japanese arborvitae (*T. standishii*) with none.

Upper Midwest Cultivar Evaluation

Over 100 cultivars of *Thuja occidentalis* and *Thuja plicata* have been under evaluation in the Longnecker Gardens of the University of Wisconsin Arboretum-Madison since 1969. (Longnecker is in USDA hardiness zone 5a.) Other observations have been made at the Chicago Botanic Garden, The Morton Arboretum, Bickelhaupt Arboretum in Clinton, Iowa, Hidden Lake Gardens in Tipton, Michigan, and in Spring Grove

Cemetery in Cincinnati, Ohio. As a result of our observations, we have selected what we feel are the best arborvitae cultivars available, and we are pleased to present them here.

The Western Red Cedar (*Thuja plicata*)

It is unfortunate that *Thuja plicata* and its cultivars are so rarely incorporated into landscapes in the east and Midwest. In the West, *Thuja plicata* is very well known because it is the number one timber wood for roof shingles.

Large specimens of this tree can be seen at Spring Grove Cemetery in Cincinnati, Ohio, where several trees were planted more than 50 years ago. Why these trees are so scarce in the landscape trade is not clear, especially considering that it has a high degree of resistance to deer browse. It is also more shade tolerant and more likely to develop a dominant central leader than *Thuja occidentalis*. We hope this tree will become a more common sight in midwestern landscapes. It certainly deserves it. Indeed, renowned tree expert Mike Dirr comments that it is an “extremely handsome conifer—probably better than *T. occidentalis* from an ornamental standpoint.”

[TWG Editor: An excellent photograph of a hedge of *Thuja plicata* is in the Winter 99 edition of the *Wayside Gardens* catalog.]

Cultivars of *Thuja plicata* that have performed



ARBORVITAE CAN BE USEFUL AND EFFECTIVE IN VARIOUS FORMS
1. As a hedge. 2. A sheared, pyramidal specimen for lawn or background. 3. Even old, neglected trees have a quaint homely character.

well include 'Excelsa', 'Fastigiata' and 'Virescens'. 'Excelsa' has grown well for 16 years. It is a compact, narrow cultivar with glossy, dark green foliage. A specimen of 'Excelsa' has been growing for 16 years at Longnecker Gardens. It is a compact, narrow cultivar with glossy, dark green foliage and more horizontal branching than the species. Likewise, 'Fastigiata' gets good marks after 20 years. It is broadly columnar, with dense foliage of a handsome, glossy dark green color and a finer texture than the species. 'Virescens' has been observed now for 5 years. It has a very narrow habit with bright, glossy green foliage year round. Use it as a screen, large hedge, or specimen. In ten years, each of these cultivars will grow to about 6' from a cutting.

Thuja plicata 'Atrovirens' sets the standard in the trade. Once established, it is an outstanding cultivar. There is a striking example of this plant at The Morton Arboretum. 'Atrovirens' has a strong central leader, a narrow upright form, and shining, dark green foliage. Established plants have been hardy to -25 degrees (although a recently transplanted specimen was winter-injured at -30).

The golden- and variegated foliage cultivars of *Thuja plicata* are very nice plants. Unfortunately, they have not proven hardy in Madison, WI, but they will do quite well for gardeners in Cincinnati.

Thuja plicata has a high degree of deer resistance to deer browse, is more shade tolerant, and is more likely to develop a dominant trunk than *Thuja occidentalis*. For these reasons it is likely to become a more common sight in Midwestern landscapes.

The Oriental Arborvitae (*Thuja orientalis*)

The Oriental arborvitae is not quite as hardy as the other two species; you'll see it planted a lot in the south and west. It does well in Zone 6, but in Zone 5 it can get large patches of winter burn in occasional years. The burned areas usually recover and fill in during the next 1-2 growing seasons. For those gardeners who are adventurous and will take a risk—or those who live where winters are less severe—the cultivars of *Thuja orientalis* have attractive forms and interesting foliage. *Thuja orientalis* generally has a more vertical branching pattern than *Thuja occidentalis*, which creates a somewhat formal appearance. Because many people are attracted to their stylized form, *Thuja orientalis* is widely sold in the spring by national chain stores. These plants are not totally hardy in our area and should not be purchased unless you live in (warmer) central or southern Illinois, Indiana, or Ohio.

The Northern White Cedar (*Thuja occidentalis*)

Known in northern and eastern Wisconsin as the Northern white cedar or American arborvitae, *Thuja occidentalis* is a native conifer found growing with hemlock along streams, swampy woods, and cliffs of the North Woods and in isolated pockets of Illinois and Indiana. Adapted to a wide range of soil pH, the tree tolerates soggy, poorly-drained soils.

Because it resists decay so well, old lumber camps often used arborvitae for roof shingles. Since this wood is also very light and tough, but splits easily, native Americans often used it for canoe frames.

In the landscape, small transplants tolerate planting into wet soil conditions where they adapt through development of surface roots (they stay at the surface where oxygen is more plentiful). However, larger b&b (balled & burlapped) or containerized plants will fail unless planted on a well-drained site or berm. [TWG Editor: According to TWG subscriber and garden writer Nell Prince, one amazing feature of *Thuja occidentalis* is that if one root dies, the remainder of the tree continues to grow and actually enjoys a small growth spurt. This ability to "wall off" injury, along with its symbiosis with nitrogen-fixing algae and fungi, allow this tree to dwell in cliffs for vast periods of time.]

In the suburban landscape, *Thuja occidentalis* is the true workhorse of the arborvitae family. Many cultivars of *T. occidentalis* are nothing like the species. In the wild, the species grows 30-50' tall by 15' wide (although the U.S. champion is 113' tall!). [TWG Editor: Nell Prince also reports that the oldest known *Thuja occidentalis* found so far in Canada was 1,653 years old when it died in A.D. 1082!]. *Thuja occidentalis* should not be confused with the southern or Atlantic white cedar, *Chamaecyparis thyoides*.

Just when cultivars began to be introduced is not recorded. According to den Ouden and Boom in the *Manual of Cultivated Conifers*, members of Cartier's Canadian expedition were saved from scurvy by drinking arborvitae tea, and brought this "wonder tree" to France in 1534. By 1855, several cultivars had been selected as noted by Carriere in a book, *Traite General des Coniferes*.

Upright Cultivars

Thuja occidentalis 'Degroot's Spire' is a relatively new introduction that has a columnar form. In a somewhat sheltered location with good sun exposure, it will achieve at least ten feet in height but may be less than a foot in diameter. It is not only thinner than most columnar arborvitae but its outline is much more interesting than most other *T. occidentalis*. It will be 4' tall and about 20" wide in ten years.

Thuja occidentalis 'Hetz Wintergreen' is noted for its fast growth rate, dark green winter color, columnar form, and dominant central trunk. This tree is an ideal choice for a quick screen where space is limited: it will be 8' tall and 3' wide in ten years. In addition, it is less likely to be damaged by ice or snowloads than the other upright cultivars of arborvitae.

Thuja occidentalis 'Holmstrup' is a Dutch introduction with a compact habit, slow growth, and finely-textured, dark green foliage. The vertically-arranged foliage is tightly bunched, creating a unique texture. The tree maintains its green color in the winter and has a more refined look than the other upright cultivars. In ten years, it will be 5' tall and 2' wide. Although recommended for hedges and screens, it could also serve very well as a specimen. It is widely available in Europe and increasingly popular in the United States.

'Nigra' is a favorite of landscape professionals. It has a straight-sided columnar form and a dark green winter color. It is cold hardy and works well as a screen or hedge, growing to 6' in ten years. 'Pyramidalis Compacta' has a narrow conical shape and differs from 'Nigra' by having coarser textured foliage and greater ultimate height, reaching 30 feet.

Thuja occidentalis 'Sherwood Moss' was introduced by Sherwood Nursery in Gresham, Oregon. The bright green summer foliage is lacy; in fact, it's almost feathery in appearance. Its habit is cone-shaped, dense, and symmetrical; in ten years it will be 6' tall. It tends to turn bronze in the winter.

'Smaragd' ('Emerald Green') is a compact conical tree brought here from Denmark. The rich emerald green foliage is somewhat vertical. It's cold hardy, holding its good green color in the winter, and it's also heat tolerant. 'Smaragd' is an attractive conifer, useful in any garden.

'Techny' is also known as 'Mission' Arborvitae, and was introduced by Brother Charles Reckamp, a monk who lived at Techny, adjacent to Glenview, IL, and who became equally well known for his daylily introductions. Like 'Nigra', it is also a favorite with professional landscapers. 'Techny' has the form and ultimate spread of the species (6' tall and 4' wide in ten years) in contrast to the straight-sided columnar forms such as 'Nigra'. It maintains its dark green color in the winter, and is very useful in groups, as a screen, or as a dark green background for a garden.

'Unicorn' has a dense spire-like habit and very dark green foliage, becoming dark olive in winter. It was introduced by Sheridan Nurseries in Ontario, Canada. A 10-year old plant is four feet tall with an 18" spread. If the ultimate height proves significantly less than the similar 'Degroot's Spire', it would be a valuable addition to our list of best garden conifers.



Drawings by Paul Landacre

Globe Cultivars

There are large globes, and small, slow-growing globes of arborvitae. Among the large ones are *T. occidentalis* 'Umbraculifera', 'Woodwardii', and 'Little Champion'. The last two are similar, growing to about 4' high and wide. 'Umbraculifera' develops an umbrella shape and has foliage which is more gray than other arborvitae. It grows less than 2" per year but has eventually attained a height of 8' and a spread of 15'. The other two may have similar size potentials, given enough time.

The smaller globes are compact and slower-growing and may be more suitable for the landscape. 'Hetz Midget' is one that will bronze in winter. Its summer foliage is rich green with a fine texture. It's very attractive. Unfortunately, with age it has been severely damaged by snow and ice. 'Little Gem' is a dense-mounded dwarf with dark green foliage. Its mature size is 3' tall and 5-6' wide. *T.o.* 'Tiny Tim', among the smallest and slowest-growing globes, is one of the best. Its small, bun-like habit is excellent for the rock garden, and its bronze winter color is handsome.

Thuja occidentalis 'Mr. Bowling Ball' was selected by conifer collector Joe Stupka of Ohio from a witches' broom. It's a perfect ball shape with a 2-3' diameter and fine-textured, sage-green juvenile foliage. It's a new introduction by (wholesale) Lake County Nursery in Perry, OH. *Thuja occidentalis* 'Recurva Nana' is not really a globe, but a dense, low-mounded bun shape with interesting recurved foliage and twisted branches. A 22-year old plant measures 2.5' high with a spread of 6'. It has not suffered ice or snow load damage.

Where to See Conifers In the Wild

White Pines State Park
Mt. Morris, IL 61054
(815) 946-3717

Starved Rock State Park
Utica, IL 61373
(815) 667-4726

Turkey Run State Park
Marshall, IN
(765) 597-2635

Indiana Dunes National Seashore
(219) 926-7561

Where to See Conifers In Garden Settings

Bickelhaupt Arboretum
Chicago Botanic Garden
Cooley Gardens, Lansing, MI
Dubuque Arboretum
Hidden Lake Gardens, Tipton, MI
Missouri Botanic Garden, St. Louis
The Morton Arboretum
Stanley Rowe Arboretum, Cincinnati
Dawes Arboretum, Newark, OH
The Holden Arboretum, Kirtland, OH
Univ. of WI, Longnecker Gardens
& the newest collection
is at

Lincoln Park Conservatory, Chicago
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American Conifer Society

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Golden Foliage Cultivars of the American Arborvitae

The most striking members of the arborvitae genus are those with yellow foliage, but gardeners tend to love these plants or hate them. Some people think they look chlorotic. Nonetheless, *T.o.* 'Pumila Sudworth' is a vigorous globe that may become treelike. It turns a copper-bronze in winter, but is bright yellow in spring and summer. While *T.o.* 'Rheingold' has become widely available to gardeners because it is one of the most attractive golden arborvitae, it has been regularly browsed by rabbits and suffered malformation at Longnecker Gardens. That said, it is an attractive tree that may slowly exceed three feet in height. Its foliage is orange-yellow in summer and copper yellow in winter, and will brighten any garden location.

T.o. 'Yellow Ribbon', a 1983 Dutch introduction, has been available in North America during the past decade. This neat, slim arborvitae with bright yellow foliage makes a striking hedge. An outstanding display can be seen at the Missouri Botanical Garden in St. Louis.

Cultivars with Variegated Foliage

The green- and white variegated foliage cultivars have a light, dull green appearance from a distance. When viewed at close range, however, we find that 'Sherwood Frost', 'Snow Tip', and 'Wandsdyke Silver' are indeed quite attractive. All are vigorous growers. 'Sherwood Frost' has an upright growth habit and green foliage that's spotted with white. The new growth of upright 'Snow Tip' is a good white and creates an interesting

effect up close; at a distance, it's dusty green. 'Wandsdyke Silver' is a dwarf pyramid with very dense foliage and a slow growth rate. Its foliage is variegated silvery white throughout the year.

In many parts of the country, cultivars of *Thuja occidentalis* are the most satisfactory of the evergreens. The selection of new cultivars—most of which come from seedbeds rather than witches' brooms—has the potential to contribute greatly to effective landscape design.

We urge gardeners and landscape professionals to begin to incorporate more varieties of arborvitae into garden designs. They are tough, aromatic, and historical trees which perform very well in a variety of landscape settings.



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