



Thuja plicata

Thuja plicata, commonly called western or Pacific redcedar, giant or western arborvitae, giant cedar, or shinglewood, is a species of *Thuja*, an evergreen coniferous tree in the cypress family *Cupressaceae* native to western North America. It is not a true cedar of the genus *Cedrus*.

Distribution

Thuja plicata is among the most widespread trees in the Pacific Northwest. It is associated with Douglas-fir and western hemlock in most places where it grows. It is found at the elevation range of sea level to a maximum of 2,290 m (7,510 ft) above sea level at Crater Lake in Oregon. In addition to growing in lush forests and mountainsides, western redcedar is also a riparian tree, growing in many forested swamps and streambanks in its range. The tree is shade-tolerant and able to reproduce under dense shade.

It has been introduced to other temperate zones, including western Europe, Australia (at least as far north as Sydney), New Zealand, the eastern United States (at least as far north as Central New York), and higher elevations of Hawaii.

The species is naturalized in Britain.

Description

Thuja plicata is a large to very large tree, ranging up to 65 to 70 m (213 to 230 ft) tall and 3 to 4 m (9.8 to 13.1 ft) in trunk diameter, exceptionally even larger. Trees growing in the open may have a crown that reaches the ground, whereas trees densely spaced together will exhibit a crown only at the top, where light can reach the leaves. It is long-lived; some individuals can live well over a thousand years, with the oldest verified being 1460 years.

The foliage forms flat sprays with scale-like leaves in opposite pairs, with successive pairs at 90 degrees to each other. The foliage sprays are green above and green marked with whitish stomatal bands below; they are strongly aromatic, with a scent reminiscent of pineapple when crushed. The individual leaves are 1 to 4 mm (0.039 to 0.157 in) long and 1 to 2 mm (0.039 to 0.079 in) broad on most foliage sprays, but up to 12 mm (0.47 in) long on strong-growing lead shoots.

The cones are slender, 10 to 18 mm (0.39 to 0.71 in) long, and 4 to 5 mm (0.16 to 0.20 in) broad, with 8 to 12 (rarely 14) thin, overlapping scales. They are green to yellow-green, ripening brown in fall about six months after pollination, and open at maturity to shed the seeds. The seeds are 4 to 5 mm long and 1 mm (0.039 in) broad, with a narrow papery wing down each side. The pollen cones are 3 to 4 mm (0.12 to 0.16 in) long, red or purple at first, and shed yellow pollen in spring.

Taxonomy and name

Thuja plicata is one of two *Thuja* species native to North America, the other being *Thuja occidentalis*. The species name *plicata* derives from the Latin word *plicare*, meaning "folded in plaits" or "braided," a reference to the pattern of its small leaves.

Most authorities, both in Canada and the United States cite the English name in two words as western redcedar, or occasionally hyphenated as western red-cedar to indicate it is not a true cedar (*Cedrus*),

One endonymous name for the tree is the Halkomelem word *xepá:y*, from the roots *xíp*, meaning "scratch" or "line", and *á:y*, "bark"; the former root may be in reference to both the lined or "folded/braided" appearance of the bark and the tree's ubiquity in carving and other forms of woodwork.

Notable specimens

The largest living specimen is the Cheewhat Giant, in Pacific Rim National Park Reserve on Vancouver Island, at 15,870 cubic feet (449 m³). The tallest known individual is the Willaby Creek Tree south of Lake Quinault, 195 feet (59 m) in height.

The "Quinault Lake Redcedar" was the largest known western redcedar in the world, with a wood volume of 17,650 cubic feet (500 m³). Located near the northwest shore of Lake Quinault north of Aberdeen, Washington, about 34 km (21 mi) from the Pacific Ocean,

A redcedar over 71 m (233 ft) tall, 4.5 m (15 ft) in diameter, and over 700 years old stood in Cathedral Grove on Vancouver Island, British Columbia, before it was set on fire and destroyed by vandals in 1972. That tree now lies in "Giant's Grave", a self dug grave created by the force of its own impact.

Uses

Timber

The soft red-brown timber has a tight, straight grain and few knots. It is valued for its distinct appearance, aroma, and its high natural resistance to decay, being extensively used for outdoor construction in the form of posts, decking, shingles, and siding.

Note that the wood typically used as an insect-repelling closet lining and to make cedar chests is a different species, *Juniperus virginiana* (also known as red cedar).

Its light weight, strength and dark warm sound make it a popular choice for guitar soundboards.

Cultivation

Like its relative *Thuja occidentalis* and many other conifer species, *Thuja plicata* is grown as an ornamental tree, and for screens and hedges, throughout the world in gardens and parks. A wide variety of forms, sizes, and colours is available.

Cultivars

The following cultivars have gained the Royal Horticultural Society's Award of Garden Merit:

- 'Atrovirens'
- 'Aurea'
- 'Stoneham gold'

Other uses

Thujaplicin, a chemical substance, is found in mature trees and serves as a natural fungicide, thereby preventing the wood from rotting. This effect lasts around a century even after the tree is felled. However, thujaplicin is only found in older trees. Saplings that do not produce the chemical often rot at an early stage, causing some trees to grow with a somewhat hollow, rotten trunk.

It is also widely used throughout Europe and America for making beehive frames.

Legal status

Western red cedar is export-restricted in the United States under the Export Administration Regulations.

Health and safety

Western red cedar is highly allergenic and woodworkers or loggers who work with it may have adverse reactions, including the development of occupational asthma, exacerbation of existing asthma, reduction of lung function, and eye irritation. Approximately 5% of workers are allergic to western red cedar. The US Occupational Safety and Health Administration has set a permissible exposure limit for red cedar dust of 2.5 mg/m³ as a time-weighted average over 8 hours.