

# Yellow cedar (Yc) - *Chamaecyparis nootkatensis*

Tree Species > Yellow cedar



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# Geographic Range and Ecological Amplitudes

## Description

Yellow cedar is a coastal, high-elevation, tree species. It is a medium-sized (rarely >40 m tall), evergreen, scale-leaved conifer, at maturity often with a slightly twisted (buttressed in old trees) stem, drooping leader, flattened, vertically hanging branches, and thin, grayish-brown bark that, with age, separates into narrow, intersecting ridges. It is one of the slowest growing but most valuable conifers owing to the unique colour, texture, and durability of its wood.

## Geographic Range

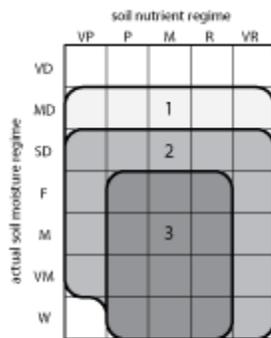
Geographic element:

Western North American/Pacific and less Cordilleran

Distribution in Western North America:

north and central in the Pacific region; central (and south) in the Cordilleran region

## Ecological Amplitudes



generalized edaphic amplitude of Alaska yellow-cedar according to actual soil moisture and nutrient regimes

### Climatic amplitude:

subalpine boreal - cool temperate - cool mesothermal

### Orographic amplitude:

submontane - **montane** - subalpine

Occurrence in biogeoclimatic zones:

**MH**, (ESSF), hypermaritime, upper, and northern CWH

### Edaphic Amplitude

Range of soil moisture regimes:

(moderately dry) - slightly dry - **fresh** - **moist** - **very moist** - **wet**

Range of soil nutrient regimes:

very poor - **poor** - **medium** - **rich** - very rich

The nutritional requirements of yellow-cedar are comparable with those of western redcedar, even though yellow-cedar is a little more tolerant of the soils

derived from those igneous rocks in which calcium and magnesium rich minerals are almost lacking, but potassium feldspars are present. As in the case of western redcedar, nitrates are a better source of nitrogen for the growth of yellow-cedar (Krajina 1969).

## Tolerance and Damaging Agents

### Root System Characteristics

In freely drained soils yellow-cedar develops a dense, profuse root system, with a non-existent or poorly defined taproot, similar to that of western redcedar. Fine roots form a very dense mat in the surface organic layer. Roots are mycorrhizal of the vesicular arbuscular type.

### Tolerances

tolerance to	tolerance class	comments
Low light	H	As tolerant as Pacific silver fir.
Frost	L	Absent where the soil is not protected by snow from freezing.
Heat	L	Insolated sites are infrequent
Water deficit	M	Frequent on fragmental soils (talus).
Water surplus	H	Frequent on waterlogged sites.
Nutrient (mainly N) deficiency	H	Frequent on very poor sites.

### Damaging Agents

damaging agent	resistance class	comments
Snow	M	Less resistant, more resilient; protection-requiring on high snowpack sites.
Wind	M	Less resistant on rock outcrops and waterlogged sites
risk class		
Fire	L	Not a serious and major concern in maritime wet (snowy) climates.
Insect	L	Not a serious and major concern in maritime wet (snowy) climates.
Fungi	L	Resistant to fungal attack.
Other agents	L	Reported dieback in southeastern Alaska, cause unknown.

**Associated tree species and successional role**

In British Columbia, yellow-cedar grows in uneven-aged, mixed-species stands, rarely in pure or even-aged stands. It is often a pioneer species on colluvial and wetland sites, and is present in early, mid-, and late stages of secondary succession; a major component in old-growth stands in the hypermaritime CWH subzones and MH zone.

associated tree species	occurrence class	major area of occurrence
Mountain hemlock	H	One of the most common associates in MH.
Western hemlock	M	Hypermaritime and montane CWH.
Pacific silver fir	M	One of the common associates in MH and montane CWH.
Western redcedar	L	Hypermaritime and montane CWH.
Western white pine	L	Southern MH.
Sitka spruce	L	Northern hypermaritime MH and CWH.
Lodgepole pine	L	Mainly in hypermaritime CWH

**Silvical Characteristics**

characteristic	interpretive class	comments
Reproduction capacity	L	The proportion of filled seeds in mature cones is low; frequent reproduction by layering.
Seed dissemination capacity	M	Seed dispersion <150 m from the parent tree.
Potential for natural regeneration in low light	M	Lower when compared to Pacific silver fir; most of natural regeneration occurs by dispersal into open areas
Potential for natural regeneration in the open	H	A long regeneration period on low-elevation sites
potential initial growth rate (<5 years)	L - M	<10 cm/yr; higher on low-elevation sites.

Response of advance regeneration to release	H	advance regeneration is rarely present in forest understories
Self-pruning capacity in dense stands	H	Providing that initial stand density is high; dense, yellow-cedar stands are very infrequent.
Crown spatial requirements	L	Varies with stand density
Light conditions beneath closed-canopy, mature stands	M	closed canopy, yellow-cedar stands are very infrequent
Potential productivity	L - M	Decreases with increasing elevation; site index functions for B.C. are not available; productivity comparable to that of mountain hemlock in the MH zone, and to western redcedar in the CWH zone.
Longevity	H	Frequently >1,000 years, possibly >2,000 years.

## Genetics and Notes

### Genetics

Information on genetic variation of yellow-cedar is not available; however, 15 horticultural varieties are recognized.

### Notes

Interest in management of yellow-cedar to assure its continuous supply is relatively recent, and information on growth and yield of second-growth stands is not yet available. However, it is a very promising species when considering its ecological, silvical, and timber values. More detailed silvics information is given by:

Harris, A.S. 1990. *Chamaecyparis nootkatensis*. Pp. 97-102 in R.M. Burns and B.H. Honkala (technical coordinators) *Silvics of North America*, Vol. 1. Agri. Handbook 654, USDA For. Serv., Washington, D.C.

Lousier, J.D. (compiler and editor) 1991. *Yellow cypress: can we grow it? Can we sell it?* FRDA Report 171, B.C. Min. For., Victoria, B.C. 57 pp.