

Plant Propagation Protocol for *Callitropsis nootkatensis*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2025/CANO9.pdf>

TAXONOMY	
Plant Family	<i>Cupressaceae</i> Gray
Scientific Name	<i>Callitropsis nootkatensis</i>
Common Name	Alaska-cedar, yellow-cedar
Species Scientific Name	
Scientific Name	<i>Callitropsis nootkatensis</i> (D. Don) Oerst. ex D.P. Little
Cultivars	Aurea, Aureovarigata, Compacta, Glauca, Green Arrow, Jubilee, Nidifera, Pendula, Pendula variegata, Pendula vera, Strict Weeper, Variegata [8, 11].
Common Synonym(s)	<i>Xanthocyparis nootkatensis</i> (D.Don) Farjon & D.K.Harder, <i>Chamaecyparis nootkatensis</i> (D. Don) Oersted ex D. P. Little, <i>Cupressus nootkatensis</i> D.Don
Common Name(s)	Alaska-cedar, nootka-cedar, yellow-cedar, Alaska yellow-cedar, Alaska cypress, nootka cypress, yellow cypress, Sitka cypress
Species Code (as per USDA Plants database)	CANO9
GENERAL INFORMATION	

Geographical range

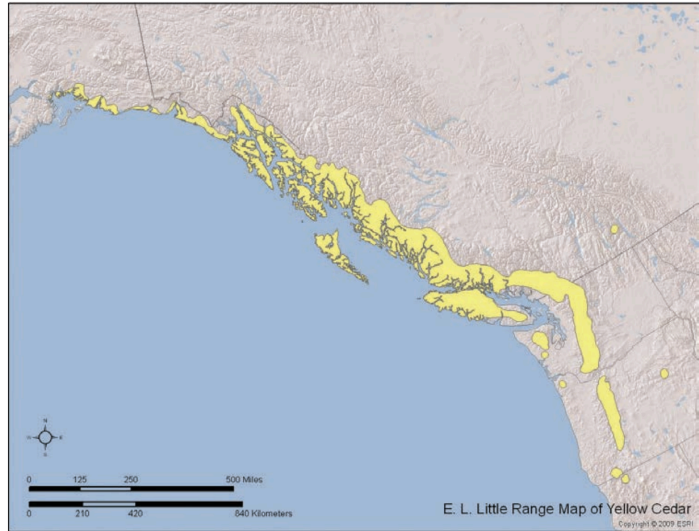


Figure 8—The Little Atlas distribution for yellow-cedar (Little 1972). Projection is North American Albers.

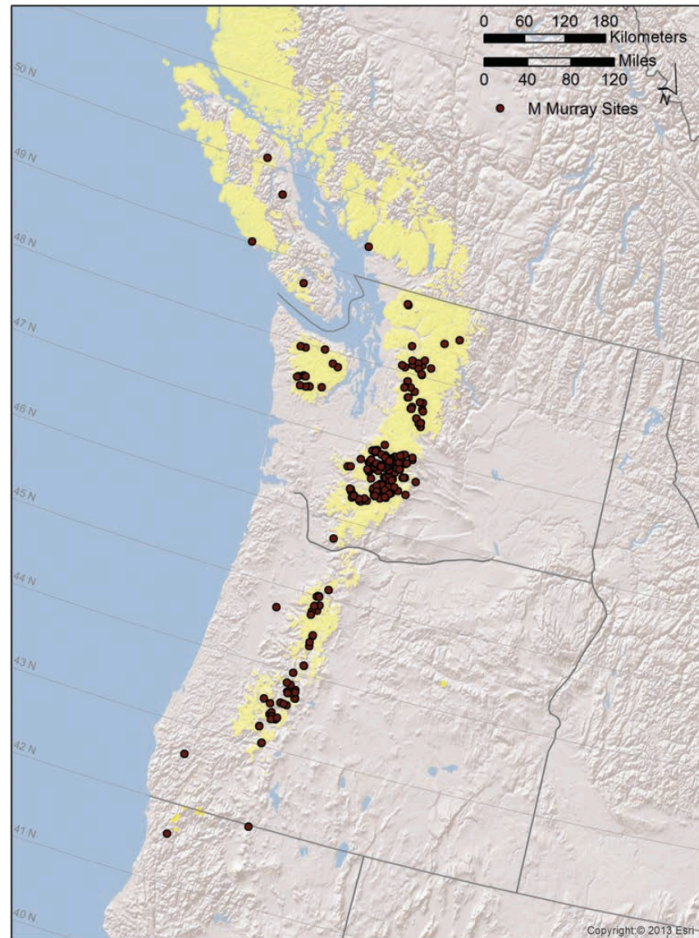
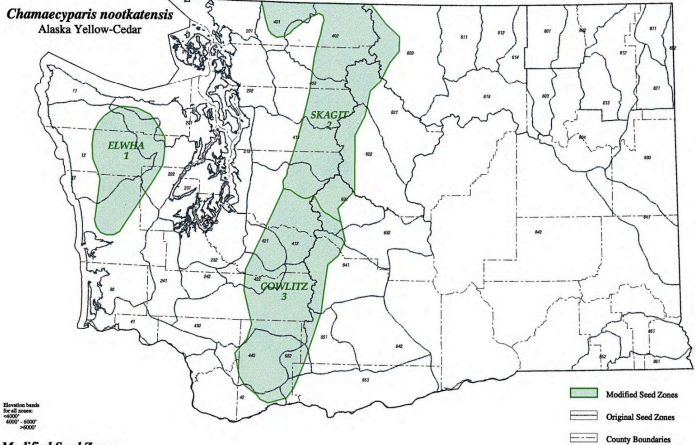


Figure 10—Occurrence of yellow-cedar (yellow shading) in California, Oregon, and Washington. This map was derived from specific locations in California given by Griffin and Critchfield (1972) and using a layer created by nearest neighbor imputation (Ohmann and Gregory 2002) that we modified. Ground observations of yellow-cedar by Murray (a subset of these were reported by Murray (2010)) are shown as dots and were independent from these sources.

[6]

Ecological distribution	Coastal mountain ranges from northern California to the Kenai peninsula in Alaska. Occurs on moist to wet, nutrient poor soils with good light availability [6].
Climate and elevation range	Mid to high elevation, up to 1500m but averages around 300m, found in lower elevations with increasing latitude. Cool and wet climate is a more important factor than elevation. It is found in areas with mean winter temperatures near or below freezing [6, 7, 4]. Moist areas where winter temperatures average around 28°F and summer around 55°F, around 100 inches annual precipitation [4].
Local habitat and abundance	Most commonly associated with Pacific silver fir and mountain hemlock zones in Washington and Oregon. Open canopy, moist areas of forests, ex. near meadows, streams, wetlands, avalanche chutes [6].
Plant strategy type / successional stage	It can outcompete other trees establishing as a pioneer species on nutrient poor sites provided enough moisture and light availability due to its increased calcium content that helps it to take up more nitrogen; litterfall from <i>C. nootkatensis</i> is an important source of calcium back to the forest floor. Has arbuscular mycorrhizal root association and dense root system, but no prominent taproot [6]. Competition on better sites pushes them out to shallow soil and/or poorer nutrients. Can also outlive dominant species as a strategy- can be over 2000 years old [1, 4].
Plant characteristics	Long lived but one of the slowest growing conifers in the northwest. Reaches 66-115 ft usually, can reach 170 ft tall and diameter of 6.6 ft. Similar in appearance to western redcedar, but grayish-brown bark when young and fibrous silvery bark when mature. Bark contains resin ducts, not found in western redcedar. Long pendulous foliage with flattened, scale-like needles. Seed production is low, also reproduces by layering of grounded branches. Seeds overwinter in the snowbank in many parts of its range. Pollen viability is potentially reduced by warm spring temperatures. Root systems can be shallow in wet conditions. Durable and valuable wood. Multistemmed forms from layering are frequent at high altitude sites or bog margins [5, 6, 4].

PROPAGATION DETAILS: FROM SEED	
Ecotype	B.C. Ministry of Forests Tree Seed Centre, Surrey, B.C., Canada (seed lots 42313 and 43697) (Raimondi 2004)
Propagation Goal:	
Propagation Method	Seed
Product Type	Plug
Stock Type	
Time to Grow	Feb 25- Dec 10; 9.5 months (Raimondi 2004)
Target Specifications	30-40 cm tall and 5-6 mm diameter stem trees 8 months after outplanting [9].
Propagule Collection Instructions	Be careful not to collect immature cones. Mature cones are farther back from branch tops, hard, yellow/reddish brown to gray, 4-6 scales [6]. Flowers in April-May, cones ripen September to October (2nd year after formation), seed dispersal happens October through spring [3].
Propagule Processing/Propagule Characteristics	Kiln dry cones at 90°F for 48 hours to open, then tumble to extract seeds. 10-20% unfilled seed depending on seedlot. Air screen with a 13 round top screen and 8 round bottom screen, finish using a gravity separator [3]. Chemical inhibition occurs in the megagametophyte surrounding the embryo and dormancy is difficult to break [6].
Pre-Planting Propagule Treatments	Soak seeds in 86°F running water for three days. Incubate in 70 mM 1-propanol solution at 25°C for one day, then in 150 mg/L gibberellic acid (GA ₃) at 77°F for two more days, both with agitation. Cold stratify at 40°F on moist chromatography paper on top of moistened Kimpak wadding in an enclosed container [9].
Growing Area Preparation / Annual Practices for Perennial Crops	Hand sow in PSB415B blocks with coarse young peat moss (pH 3.5-5.0) in late February [9].
Establishment Phase Details (cultural practices from seeding to germination)	Maintain in covered greenhouse at 80°F for two weeks [9].
Length of Establishment Phase (time from seeding to germination)	27 days
Active Growth Phase	Reduce to 68° and maintain for another 2 weeks or once initial growth spurt slows, lift greenhouse covers and maintain at natural photoperiod conditions for four months. 4 weeks after sowing, thin any extra seedlings [9].

Length of Active Growth Phase	3 months
Hardening Phase	Replace greenhouse covers in late September. Harden off at cool temperatures above 36°F prior to harvest [9].
Length of Hardening Phase	2-3 months
Harvesting, Storage and Shipping	Lift from containers mid december, cold store at 28°F for 11 weeks. (Note: different source says 33-38°F [2].) Pack in cardboard boxes lined with poly bags. Before planting, thaw slowly in a cool dry area for 2 weeks, then plant within 7 days [9].
Length of Storage	Up to 6 months at -2°C [9].
Guidelines for Outplanting / Performance on Typical Sites	84% survival after 8 months [9]. Microclimates with better light availability and higher forest floor moisture content will likely perform better [7].
Propagation by cuttings	Cuttings should be taken in late winter to early spring. Apply 8,000 or more ppm of indolebutyric acid (IBA) rooting hormone powder and grow in peat or perlite with mist and bottom heating [3].
Comments	 <p><i>Chamaecyparis nootkatensis</i> Alaska Yellow-Cedar</p> <p><i>C. nootkatensis</i> seed transfer zones in Washington. Oregon has two seed zones, North and South. Recommendations for elevation band groups: <4000 ft, 4000-6000 ft, >6000 ft [10].</p>

INFORMATION SOURCES

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