

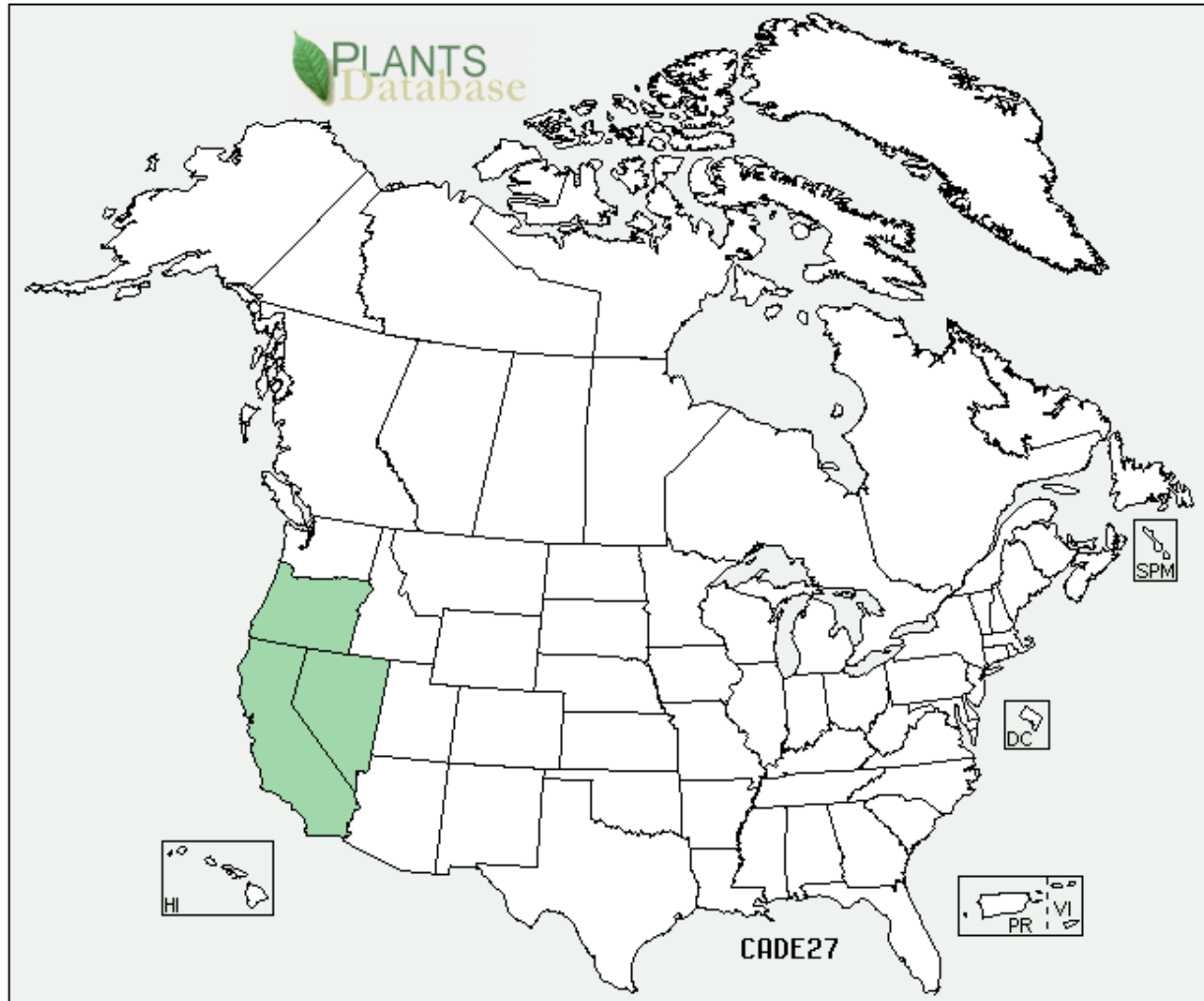
**Plant Propagation Protocol for *Calocedrus decurrens***  
 ESRM 412 – Native Plant Production

<b>TAXONOMY</b>	
<b>Family Names</b>	
Family Scientific Name:	Cupressaceae
Family Common Name:	
<b>Scientific Names</b>	
Genus:	<i>Calocedrus</i>
Species:	<i>decurrens</i>
Species Authority:	Torr
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s) (include full scientific names, including variety or subspecies information)	<i>Heyderia decurrens</i> (Torr.) K. Koch <i>Libocedrus decurrens</i> Torr.
Common Name(s):	Incense cedar
Species Code (USDA Plants database):	CADE27
<b>GENERAL INFORMATION</b>	

Geographical range  
(distribution maps  
for North America  
and Washington  
state)

**Distribution:**

*Calocedrus decurrens* (Torr.) Florin



[View Native Status](#)

Present Absent

Not present in Washington state.

Ecological distribution (ecosystems it occurs in, etc):	Montane and mixed conifer forests [FEIS] Moist – dry sites [FEIS]
Climate and elevation range	Northern range: 50-2,010m [FEIS] Southern range: 910-2,960m [FEIS]
Local habitat and abundance; may include commonly associated species	<p><b>Oregon:</b></p> <ul style="list-style-type: none"> <li>• Douglas-fir-incense-cedar association</li> <li>• Douglas-fir-incense-cedar-Jeffrey pine association</li> <li>• Douglas-fir-incense-cedar/pinemat manzanita (<i>Arctostaphylos nevadensis</i>) association</li> <li>• Douglas-fir-incense-cedar/Piper's Oregon-grape (<i>Berberis piperiana</i>) association</li> <li>• incense-cedar/common whipplea (<i>Whipplea modesta</i>) community type</li> <li>• incense-cedar/little prince's pine (<i>Chimaphila menziesii</i>) community type</li> <li>• Jeffrey pine-incense-cedar-Douglas-fir association</li> <li>• Jeffrey pine-incense-cedar/huckleberry oak (<i>Q. vaccinifolia</i>) association</li> <li>• Jeffrey pine-incense-cedar/whiteleaf manzanita (<i>A. viscida</i>) association</li> <li>• western hemlock-incense-cedar-salal (<i>Gaultheria shallon</i>) association</li> <li>• white fir-incense-cedar/dwarf Oregon-grape (<i>B. nervosa</i>) association</li> <li>• white fir-incense-cedar/western starflower (<i>Trientalis latifolia</i>) association</li> <li>• white fir-ponderosa pine-incense-cedar/serviceberry (<i>Amelanchier</i> spp.) forest type</li> </ul> <p><b>California:</b></p> <ul style="list-style-type: none"> <li>• Douglas-fir-incense-cedar/purple needlegrass (<i>Nassella pulchra</i>) association</li> <li>• Douglas-fir-incense-cedar-California black oak/purple needlegrass association</li> <li>• white alder (<i>Alnus rhombifolia</i>)-Douglas-fir-incense-cedar/Himalayan blackberry (<i>Rubus discolor</i>) association</li> </ul> <p>[FEIS]</p>
Plant strategy type / successional stage	Shade, drought and heat tolerant [FEIS] Will not tolerate flooding [FEIS]

(stress-tolerator, competitor, weedy/colonizer, seral, late successional)	<p>Can form part of understory or overstory [FEIS]</p> <p>Can be pioneer species. [FEIS]</p>
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	<p>Evergreen tree</p> <p>20-57 m tall [FEIS]</p> <p>Fibrous bark sheds. Bark generally 5-8cm. [FEIS]</p> <p>Wind pollinated [FEIS]</p> <p>Monoecious [FEIS]</p> <p>Commonly produce around 186,000 seeds per acre [FEIS]</p> <p>Seeds are wind dispersed [FEIS]</p> <p>Leaves: scalelike, flat sprays [FEIS]</p>
<b>PROPAGATION DETAILS</b>	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	BLM [NPN]
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Seeds [NPN]
Propagation Method (Options: Seed or Vegetative):	<p>Seeds: 20% - 40% of seeds will germinate on bare soil, mineral soil, or light litter [FEIS]</p> <p>Vegetative: cuttings [USDA]</p>
Product Type (options: Container)	Bareroot, container [USDA]

(plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	
Stock Type:	1, 2, 3, 4, 8 gallon containers [NPN]
Time to Grow (from seeding until plants are ready to be outplanted):	No information found
Target Specifications (size or characteristics of target plants to be produced):	1 year or when roots have filled container, but are not rootbound [NPN]
Propagule Collection (how, when, etc):	Seeds collected in winter, stored in freezer [NPN]
Propagule Processing/Propagule Characteristics (including seed density, seed longevity, etc):	14400 seeds per pound [USDA]
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Stratification improves germinations. Temperatures should be between 3-5°C for 8 weeks [FEIS]. Temperatures should be at 20° C for germination [FEIS] Do not expose the seeds to high temperatures. Do not remove wings from seeds. Screening will remove most debris. Air stream or gravity separators will separate viable seeds. [WPSM]
Growing Area Preparation /	No information found

Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	
Establishment Phase (from seeding to germination):	From late winter until spring, seedlings can be transplanted into larger pots. [NPN]
Length of Establishment Phase:	1 month [NPN]
Active Growth Phase (from germination until plants are no longer actively growing):	Seedlings do not grow fast. They are known to reach 15 cm after 5 years of growing [FEIS] Incense cedars can grow faster in optimal growing conditions in a green house. [FEIS] Irrigation should happen in the morning [NPN]
Length of Active Growth Phase:	3 months [NPN]
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	Reduction of irrigation in summer [NPN]
Length of Hardening Phase:	3 months [NPN]
Harvesting, Storage and Shipping (of seedlings):	Seedlings are shipped in their containers[NPN]

Length of Storage (of seedlings, between nursery and outplanting):	No information found
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	Plant in the early spring [NPN]
Other Comments (including collection restrictions or guidelines, if available):	Growing phase is between 91 and 146 days [FEIS]

### INFORMATION SOURCES

References (full citations):	<p>[USDA] <i>USDA Plant Database</i>. Web. &lt;<a href="http://plants.usda.gov/java/nameSearch?keywordquery=calocedrus+decurrens&amp;mode=sciname&amp;submit.x=0&amp;submit.y=0">http://plants.usda.gov/java/nameSearch?keywordquery=calocedrus+decurrens&amp;mode=sciname&amp;submit.x=0&amp;submit.y=0</a>&gt;.</p> <p>[FEIS] "Calocedrus Decurrens." <i>US Forest Service - Caring for the Land and Serving People</i>. Web. 19 May 2010. &lt;<a href="http://www.fs.fed.us/database/feis/plants/tree/caldec/all.html">http://www.fs.fed.us/database/feis/plants/tree/caldec/all.html</a>&gt;.</p> <p>[NPN] "Untitled Page." <i>About the Native Plant Network</i>. Web. 19 May 2010. &lt;<a href="http://www.nativeplantnetwork.org/network/ViewProtocols.aspx?ProtocolID=1644">http://www.nativeplantnetwork.org/network/ViewProtocols.aspx?ProtocolID=1644</a>&gt;.</p> <p><i>USDA Plants Database</i>. Web.</p> <p>[WPSM] &lt;<a href="http://plants.usda.gov/java/nameSearch?keywordquery=calocedrus+decurrens&amp;mode=sciname&amp;submit.x=0&amp;submit.y=0">http://plants.usda.gov/java/nameSearch?keywordquery=calocedrus+decurrens&amp;mode=sciname&amp;submit.x=0&amp;submit.y=0</a>&gt;. <i>WOODY PLANT SEED MANUAL</i>. Web. 19 May 2010. &lt;<a href="http://www.nsl.fs.fed.us/wpsm/Calocedrus.pdf">http://www.nsl.fs.fed.us/wpsm/Calocedrus.pdf</a>&gt;.</p>
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<p>Other Sources          Consulted (but that          contained no          pertinent          information) (full          citations):</p>	<p>"Calocedrus Decurrens, Oregon State Univ., LANDSCAPE PLANTS." <i>Oregon State University</i>. Web. 19 May 2010. &lt;<a href="http://oregonstate.edu/dept/ldplants/cade.htm">http://oregonstate.edu/dept/ldplants/cade.htm</a>&gt;.</p> <p><i>USDA Plant Database</i>. Web. &lt;<a href="http://plants.usda.gov/java/charProfile?symbol=CADE27">http://plants.usda.gov/java/charProfile?symbol=CADE27</a>&gt;.</p> <p>"Untitled Page." <i>About the Native Plant Network</i>. Web. 19 May 2010. &lt;<a href="http://www.nativeplantnetwork.org/Network/ViewProtocols.aspx?ProtocolID=3402">http://www.nativeplantnetwork.org/Network/ViewProtocols.aspx?ProtocolID=3402</a>&gt;.</p> <p>"NPIN: Calocedrus Decurrens (Incense Cedar)." <i>Lady Bird Johnson Wildflower Center - The University of Texas at Austin</i>. Web. 19 May 2010. &lt;<a href="http://www.wildflower.org/plants/result.php?id_plant=CADE27">http://www.wildflower.org/plants/result.php?id_plant=CADE27</a>&gt;.</p> <p>"Calocedrus Decurrens (Incense Cedar, California Post Cedar) Catalog." <i>Wallace W Hansen Native Plants of the Northwest</i>. Web. 19 May 2010. &lt;<a href="http://www.nwplants.com/plants/trees/cup_cal_dec_index.html">http://www.nwplants.com/plants/trees/cup_cal_dec_index.html</a>&gt;.</p> <p>MacKinnon, A., Jim Pojar, and Paul B. Alaback. <i>Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia &amp; Alaska</i>. Vancouver: Lone Pine Pub., 2004. Print.</p> <p>Brenzel, Kathleen Norris. <i>Sunset Western Garden Book</i>. Menlo Park, CA: Sunset Pub., 2007. Print.</p> <p>Robson, Kathleen A., Alice Richter, and Marianne Filbert. <i>Encyclopedia of Northwest Native Plants for Gardens and Landscapes</i>. Portland, Or.: Timber, 2008. Print.</p>
<p>Protocol Author          (First and last          name):</p>	<p>Stephanie Grubb</p>
<p>Date Protocol          Created or Updated          (MM/DD/YY):</p>	<p>May 18, 2010</p>

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