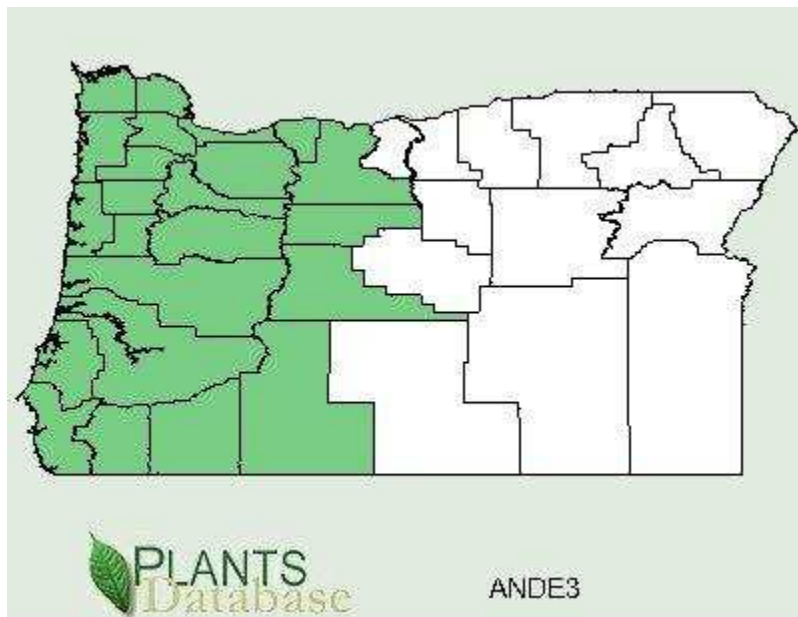
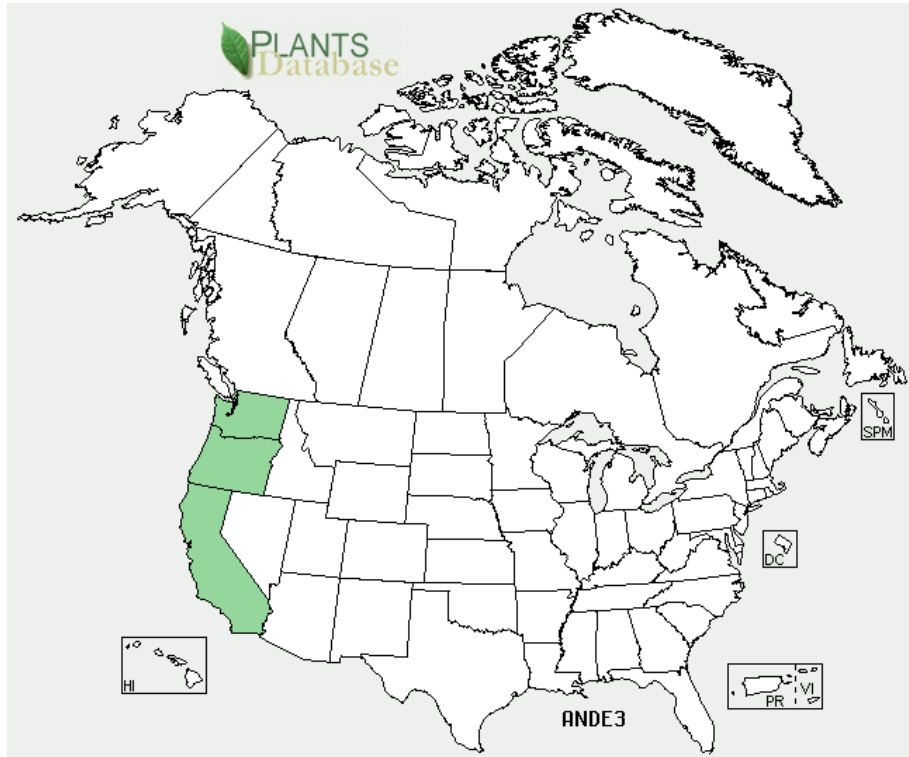


**Plant Propagation Protocol for *Anemone deltoidea***  
ESRM 412 – Native Plant Production



<b>TAXONOMY</b>	
Family Names	
Family Scientific Name:	<i>Ranunculaceae</i>
Family Common Name:	Buttercup

<b>Scientific Names</b>	
Genus:	<i>Anemone</i> L.
Species:	<i>deltoidea</i>
Species Authority:	Hook
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s):	<i>Anemone deltoidea</i> Hook
Common Name(s):	Columbian windflower, western white anemone (5), three-leaved anemone (4), glade anemone (6).
Species Code:	ANDE3
<b>GENERAL INFORMATION</b>	
Geographical range:	CA, OR, and WA. See distribution maps above. (8)
Ecological distribution:	Dry to moist wooded areas of western Cascades and from Puget Sound to northern California. (5)
Climate and elevation range	Zones 6b to 9b. Low to mid elevation. (5)
Local habitat and abundance; may include commonly associated species	Western Cascades (5), Rainier, Olympic mountains (4)
Plant strategy type / successional stage:	Shade tolerant, non-aggressive (5).
Plant characteristics:	Perennial herb with basal leaves, usually solitary, growing from the rhizomes. Leaves are made up of three oval leaflets, which are coarsely toothed and 5cm in length. Showy, white flowers with five sepals grow singly on long stalks (4-6cm wide). (4)
<b>PROPAGATION DETAILS</b>	
Ecotype:	NA
Propagation Goal:	Plants
Propagation Method:	NA *General propagation of <i>Anemone</i> can be done by seed and requires cool, moist stratification. The seeds have limited long term viability and should be sown soon after collecting. Also, <i>Anemone spp.</i> are rhizomatous and are easily propagated by splitting the rhizome up during late winter to early spring. (1,3,5)
Product Type:	No standard available, but container and field production are both viable.
Stock Type:	NA
Time to Grow:	NA
Target Specifications:	10-30cm tall.
Propagule Collection:	NA *Generally seeds of <i>Anemone</i> are ripe in late summer or early fall. Dividing the rhizome is best done in late winter to early spring (5).
Propagule Processing/Propagule	NA * <i>Anemone</i> seeds are achene, ripe when they come

Characteristics:	loose easily from the plant, and have brief longevity (2). Hydrophilic seeds should be sown once they are ripe, but some species have seeds that can be stored for six months. After six months they begin to lose viability. (3)
Pre-Planting Propagule Treatments:	<p>NA *Following is the procedure for <i>Anemone cylindrical</i> as described by Armitage (2006):</p> <p>“Seed heads need to be cleaned and chaff removed. Seeds could be damp stratified by mixing them with equal amounts of damp vermiculite and peat moss; keep the see mixture in plastic bag or container at 34-36F for three to four months. After the cold treatment, place mix in containers and germinate at 70-80F. Using this method, expect germination of approximately 75% in two to three weeks.”</p> <p>Propagation by division is the easiest method and requires no additional preparation. Should be done when the plant is dormant; dig up the rhizome, separate the separate the mass in portions, and replant. (1)</p>
Growing Area Preparation / Annual Practices for Perennial Crops:	Potting soil, kept moist. Naturally occurring in loose humus soil in forests. (2)
Establishment Phase:	NA *Seeding can be done during cold stratification phase if conditions permit. (3)
Length of Establishment Phase:	NA
Active Growth Phase:	NA
Length of Active Growth Phase:	NA
Hardening Phase:	NA
Length of Hardening Phase:	NA
Harvesting, Storage and Shipping:	NA
Length of Storage:	NA *Similar species require cold, moist stratification. Storage should be under similar conditions and seeds must be sown fresh. (3)
Guidelines for Outplanting / Performance on Typical Sites:	<p>Second year of growth for flowering if propagated by seed.</p> <p>*<i>Anemone</i> are considered hardy and should perform well in shady moist conditions. (2)</p>
Other Comments:	There is very little in the literature covering <i>Anemone deltoidea</i> , but there are a few other species with very similar ranges of occurrence, which may provide helpful hints for propagation: <i>A. lyallii</i> , <i>A. oregano</i> , and <i>A. occidentalis</i> . (8)
<b>INFORMATION SOURCES</b>	
References:	1. Armitage, A. M. (2006). <i>Armitage's native plants for North American gardens</i> . Portland, Or: Timber

	<p>Press.</p> <p>2. Boyce, P., Jelitto, L., Schacht, W., &amp; Fessler, A. (1992). Review of Hardy Herbaceous Perennials, Vol. I A - K &amp; Vol. II L - Z. <i>Kew Bulletin</i>. 47 (1), 155-156.</p> <p>3. Cullina, W. (2000). <i>The New England Wild Flower Society guide to growing and propagating wildflowers of the United States and Canada</i>. Boston: Houghton Mifflin.</p> <p>4. MacKinnon, A., Pojar, J., &amp; Alaback, P. B. (2004). <i>Plants of the Pacific Northwest coast: Washington, Oregon, British Columbia &amp; Alaska</i>. Vancouver: Lone Pine Pub.</p> <p>5. Robson, K. A., Richter, A., &amp; Filbert, M. (2008). <i>Encyclopedia of northwest native plants for gardens and landscapes</i>. Portland, Or: Timber Press.</p> <p>6. Roy, Douglass F. 1966. Silvical characteristics of redwood (<i>Sequoia semper-virens</i> [D. Don] Endl.). Berkeley, Calif., Pacific SW. Forest &amp; Range Exp. Sta. 20 pp., illus. (U.S. Forest Serv. Res. Paper PSW-28)</p> <p>7. Snyder, L. C., &amp; Isaacson, R. T. (1991). <i>Native plants for northern gardens</i>. [Minnesota]: Andersen Horticultural Library, University of Minnesota Libraries, Minnesota Landscape Arboretum.</p> <p>8. USDA Natural Resources Conservation Service. (2010 April, 20<sup>th</sup>). Plants profile: <i>Anemone deltoidea</i> Hook. Columbian windflower. Retrieved from <a href="http://plants.usda.gov/java/profile?symbol=ANDE3">http://plants.usda.gov/java/profile?symbol=ANDE3</a>.</p>
Other Sources Consulted:	
Protocol Author (First and last name):	Matthew Flora-Tostado
Date Protocol Created or Updated (MM/DD/YY):	4/21/2010

\* - These inclusions are from accounts of the genus and may not apply to the species *deltoidea*.