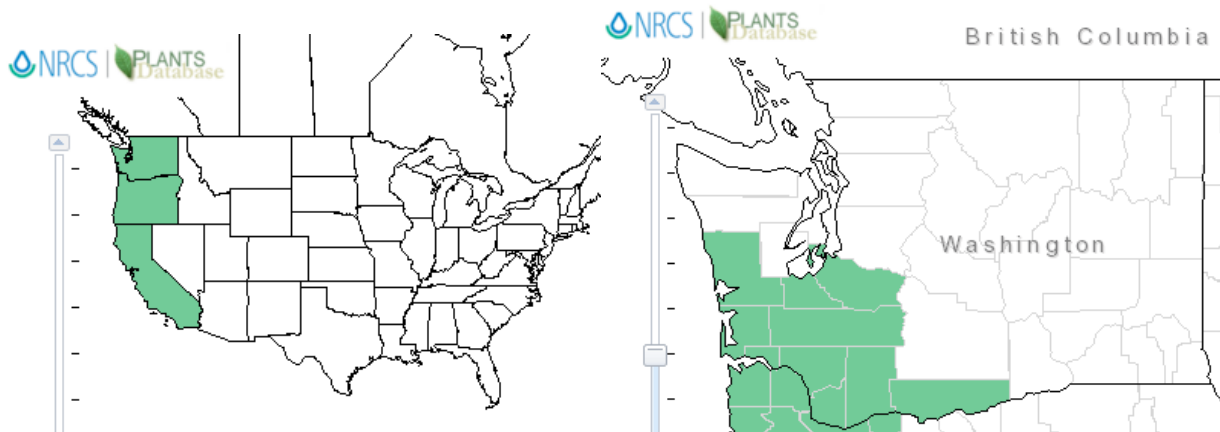


Plant Propagation Protocol for *Vancouveria hexandra*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/VAHE.pdf>



TAXONOMY^[1,2,3,4]

Plant Family	
Scientific Name	Berberidaceae
Common Name	Barberry
Species Scientific Name	
Scientific Name	<i>Vancouveria hexandra</i> (Hook.) C. Morren & Decne.
Varieties	None
Sub-species	None
Cultivar	None
Common Synonym(s)	<i>Vancouveria brevicula</i> Greene <i>Vancouveria parvifolia</i> Greene <i>Vancouveria picta</i> Greene
Common Name(s)	White insideout flower Inside-out flower Northern inside-out flower American barrenwort Rökblad Duck's foot
Species Code (as per USDA Plants database)	VAHE
GENERAL INFORMATION	
Geographical range	Found in Washington, California, and Oregon. ^[1]
Ecological distribution	Grows in old-growth and coniferous forests ^[8] , particularly redwood and Douglas-fir forests, in deep shade. ^[5]
Climate and elevation range	Occupies elevations from 100-1700m. ^[5] Survives in USDA Hardiness Zones 5-8. ^[7]
Local habitat and abundance	In Washington, found in Pierce, Pacific, Lewis, Grays Harbor, Klickitat, Skamania, Clark, Cowlitz, and Wahkiakum county. ^[1] Locally abundant. ^[10]

	Associated with ants and yellow jacket wasps, which disperse its seeds. ^[9]
Plant strategy type / successional stage	Shade-tolerant ground-cover. ^[6]
Plant characteristics	Perennial herb. ^[1] Leafless flower stalk grows up to 12 inches in height. Deciduous. Flowers are small, white, and appear “inside out” because of how the petals and sepals are angled backwards and away from the stamens and pistil. Leaves are basal, large, and erect, and fall when fruit matures. ^[5] Fruits are brown and 10-15mm across. ^[6] Blooms from May to July. ^[7]
PROPAGATION DETAILS	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed or vegetative (rhizome)
Product Type	N/A
Stock Type	7 cubic inch Ray Leach Conetainers, then up-potted to d19 Deepots or 4 inch pots, and later gallon pots if desired. ^[3]
Time to Grow	At least 1 year in the nursery before outplanting. Can be grown for a second year in the nursery to achieve gallon pot size. ^[3]
Target Specifications	N/A
Propagule Collection Instructions	Collect seed pods from the plant by hand in Spring or Summer when the seeds are brown. If propagating by rhizome division, remove rhizomes by hand in Fall or Spring. ^[3]
Propagule Processing/Propagule Characteristics	250 seeds per gram. When ready to plant, pop the seeds out of the pods and sow immediately. ^[3]
Pre-Planting Propagule Treatments	Unknown
Growing Area Preparation / Annual Practices for Perennial Crops	Requires full to partial shade. ^[7] Plant in soil that is loamy, moist, cool, rich, acidic, and well-drained. ^[8] Humus-rich soils are best. ^[7] In the Spring, cut back any winter-damaged leaves to make room for new growth. ^[4]
Establishment Phase Details	Plant seeds or rhizomes in your containers or in the field in the fall. ^[3] When planting in the field, plant 10 to 12 inches apart. ^[8] If planting in containers, leave them in an unheated greenhouse over the winter. ^[3]
Length of Establishment Phase	Seeds begin germinating the March after they are planted, and continue germinating through May. ^[3]
Active Growth Phase	Keep soil moist and protect plants from drying winds. ^[8] Fertilize with liquid fertilizer every other week. Up-pot in late Summer. Reduce fertilizer in late Summer and stop by September so plants can harden off. ^[3]
Length of Active Growth Phase	May to September. ^[3]
Hardening Phase	Unknown

Length of Hardening Phase	Starts in September. ^[3]
Harvesting, Storage and Shipping	Unknown
Length of Storage	Unknown
Guidelines for Outplanting / Performance on Typical Sites	Plant in a shaded, cool, and moist area, with well-draining acidic soil. ^[7,8]
Other Comments	More information is forthcoming from Bridget McNassar of Oxbow Nursery. Protocol will be updated with this information when it comes.
INFORMATION SOURCES	
References	<p>[1] "Plants profile for <i>Vancouveria hexandra</i> (white insideout flower)." <i>USDA Natural Resources Conservation Service</i>. 19 May 2017. https://plants.usda.gov/core/profile?symbol=VAHE</p> <p>[2] "<i>Vancouveria hexandra</i>." <i>Missouri Botanical Garden</i>. 19 May 2017. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=277782&isprofile=0&</p> <p>[3] Bridget McNassar, Native Plant Nursery Manager at Oxbow Farm & Conservation Center, personal communication. 23 May 2017.</p> <p>[4] "VANCOUVERIA HEXANDRA: Inside-Out Flower." <i>Portland Nursery</i>. 19 May 2017. http://portlandnursery.com/plants/natives/vancouveria.shtml</p> <p>[5] "<i>Vancouveria hexandra</i>." <i>eFlora</i>. 19 May 2017. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=233501341</p> <p>[6] "<i>Vancouveria hexandra</i>." <i>Lady Bird Johnson Wildflower Center</i>. 19 May 2017. http://www.wildflower.org/plants/result.php?id_plant=VAHE</p> <p>[7] "<i>Vancouveria hexandra</i>." <i>Sevenoaks Nursery</i>. 19 May 2017. https://www.sevenoaksnativenursery.com/native-plants/perennials-and-bulbs/vancouveria-hexandra/</p> <p>[8] "<i>Vancouveria hexandra</i>." <i>Washington Native Plant Society</i>. 19 May 2017. http://www.wnps.org/landscaping/herbarium/pages/vancouveria-hexandra.html</p> <p>[9] Jules, E. S. 1996. Yellow Jackets (<i>Vespula vulgaris</i>) as a</p>

	<p>Second Seed Disperser for the Myrmecochorous Plant, <i>Trillium ovatum</i>. The American Midland Naturalist 135:367-369.</p> <p>[10] Turner, M. and P. Gustafson. Wildflowers of the Pacific Northwest. Portland: Timber Press, 2006.</p>
Other Sources Consulted	<p>Strickler, D. Forest wildflowers: showy wildflowers of the woods, mountains, and forests of the northern Rocky Mountain states. Flower Press, 1988.</p> <p>Darling, C. A. Handbook of the Wild and Cultivated Flowering Plants. Syracuse and New York: The Mason-Henry Press, 1912.</p>
Protocol Author	Natalia Hamilton
Date Protocol Created or Updated	05/23/17

OLD PROTOCOL

Plant Data Sheet

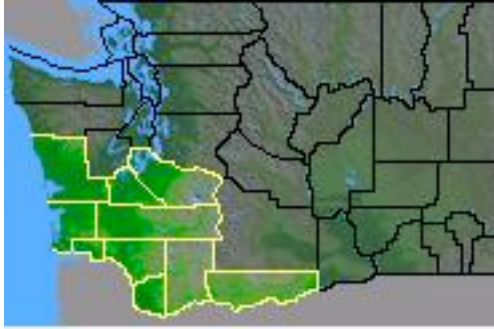


Species: Inside out flower, *Vancouveria hexandra*



Range: Oregon, Washington,
and California.(4)(5)

Climate, elevation: Moist and Dry forests at elevation below 1500m.Hardy to -
15C.(3)



Local occurrence (where, how common): Very common perennial groundcover in the Douglas fir forests. Grays Harbor, Thurston, Pierce, Pacific, Lewis, Wahkiakum, Cowlitz, Clark, Skamania, and Klickitat Counties.(2)

Habitat preferences: Moist, shady woods, woodland, shaded rockery. (3,5)

Plant strategy type/successional stage: Dominant understory perennial ground cover in late successional Douglas fir forest. Tolerates some drought in summer.(3,6)

Associated species: A close relative of epimediums. Family Berberidaceae (4)

May be collected as: May be collected as seed in late July, or by division in early spring. (5)

Collection restrictions or guidelines: Information not available.

Seed germination (needs dormancy breaking?): Information not available.

Seed life (can be stored, short shelf-life, long shelf-life): Information not available.

Recommended seed storage conditions: Information not available.

Propagation recommendations: Sow seeds as soon as ripe and division in early spring.(5)

Soil or medium requirements: Humus rich, well-drained soil. It grows in acid soil. (5,1)

Installation form: Good for woodland restoration. It is clumpy at the beginning, but then it spreads out. (1) Cost range from \$ 3.00 – \$12.00 dollars. (1) Once established, it can tolerate dry spells. (6)

Recommended planting density: Plant 1 1/2 feet apart.(6)

Care requirements after installed (water weekly, water once etc.): Side dressing of compost in spring or fall. Requires consistently moist soil; should receive supplemental water for at least the first season while they become established in the garden.(5)

Normal rate of growth or spread; lifespan : It spreads by slowly creeping rhizomes. Perennial.(5)

Sources cited:

1. Big dipper farm. Grown on the third planet from the sun.Cited April 9, 2006. Available at http://www.bigdipperfarm.com/cgi-bin/cart/cart.pl?db=stuff.txt&method=all_words&search=Vancoveria%20hexandra
2. Burke Museum of Natural History and Culture. WTU Image collection. Cited April 8, 2006. Available at <http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Vancoveria&Species=hexandra>
3. Groothuis, Marianne. Dunedin Botanic Garden. This week at the garden. 20 Dec 2004. Cited April 8, 2006. Available at www.cityofdunedin.com/city/?MIvalObj=bg_pow_20041220&MItypeObj=application/pdf&ext=.pdf
4. USDA plants. Plant Data base. Cited April 9, 2006. Available at <http://plants.usda.gov/java/nameSearch>
5. Rainy Side Gardens in the Pacific North West. Plant Gallery and growing guide. Native plants (internet). Cited April 8, 2006. Available at http://www.rainyside.com/features/plant_gallery/nativeplants/Vancoveria_hexandra.html
6. Van Cleef Linda. Green Gardener. Native ground covers the perfect glove and east bay gardeners. Cited April 8 2006. Available at <http://www.sfgate.com/cgi-bin/article.cgi?file=/gate/archive/2003/06/04/greeng.DTL>

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Mercedes Mijares

April 13, 2006.