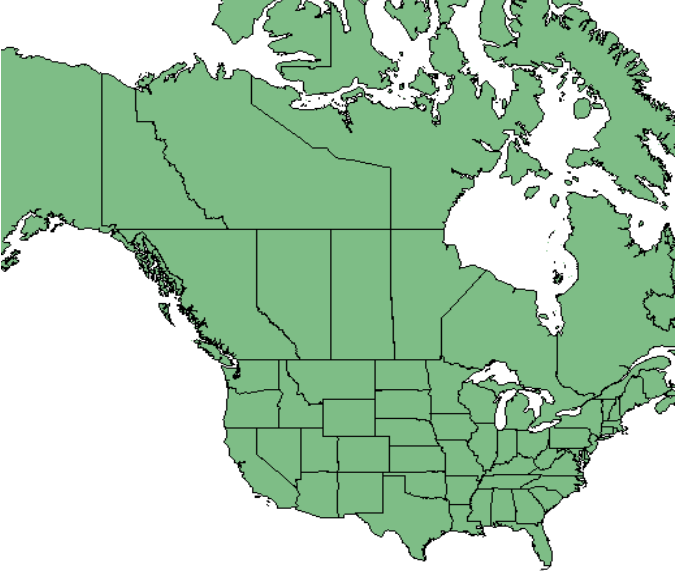
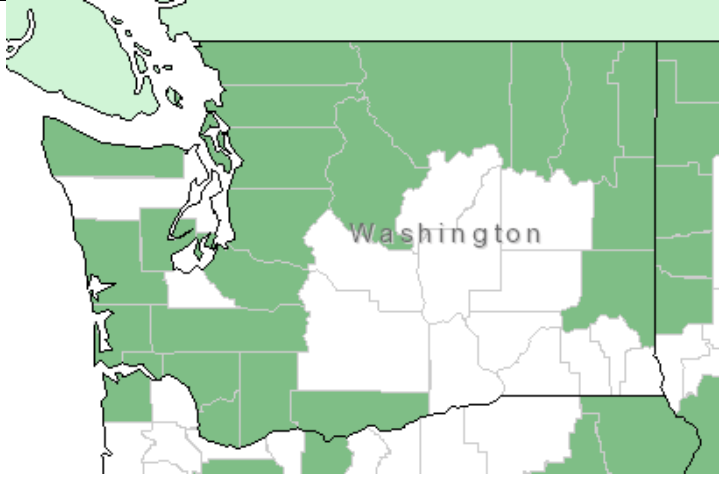


## Plant Propagation Protocol for [*Nuphar lutea*]

ESRM 412 – Native Plant Production

Protocol URL: [https://courses.washington.edu/esrm412/protocols/\[NULU.pdf\]](https://courses.washington.edu/esrm412/protocols/[NULU.pdf])

TAXONOMY	
Plant Family	
Scientific Name	Nymphaeaceae <sup>5</sup>
Common Name	Water-lily family <sup>5</sup>
Species Scientific Name	
Scientific Name	<i>Nuphar lutea</i> Smith <sup>5</sup>
Varieties	None <sup>5</sup>
Sub-species	<i>Nuphar lutea</i> ssp. <i>advena</i> (Aiton) Kartesz & Gandhi <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>orbiculata</i> (Small) E.O. Beal <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>polysepala</i> (Engelm.) E.O. Beal <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>pumila</i> (Timm) E.O. Beal <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>rubrodisca</i> (Morong) Hellquist & Wiersema <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>sagittifolia</i> (Walter) E.O. Beal <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>ulvacea</i> (G.S. Mill. & Standl.) E.O. Beal <sup>5</sup> <i>Nuphar lutea</i> ssp. <i>variegata</i> (Durand) E.O. Beal <sup>5</sup>
Cultivar	None <sup>5</sup>
Common Synonym(s)	None <sup>5</sup>
Common Name(s)	yellow pond-lily, brandy-bottle, bullhead lily, spatterdock, yellow cowlily <sup>2, 5</sup>
Species Code (as per USDA Plants database)	NULU <sup>5</sup>
GENERAL INFORMATION	
Geographical range	

	
Ecological distribution	Grows in slow streams and ponds, usually shallow water but up to 2 meters. <sup>2</sup>
Climate and elevation range	Found in a wide variety of climates, Sea level to 1500 feet in elevation
Local habitat and abundance	Found commonly within King County along freshwater shorelines
Plant strategy type / successional stage	Competitor <sup>3</sup>
Plant characteristics	Forb with small yellow cup shaped flower (approximately 20 petals) compared to size of leaves. Floating leaves are up to 40 cm long and 30 cm wide with smaller underwater leaves attached to rhizome. Rhizome grows up to 15 feet long and 6 inches thick. Flowers bloom May to October <sup>4</sup>
<b>PROPAGATION DETAILS</b>	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative or Seeds <sup>4</sup>
Product Type	Bareroot (field grown) <sup>4</sup>
Stock Type	N/A
Time to Grow	Rhizomes are ready immediately; seeds require storage over winter. <sup>3</sup>
Target Specifications	N/A
Propagule Collection Instructions	Divide rhizomes in the spring and immediately replant them. Collect seeds in the summer or autumn, they will germinate in the following spring. <sup>3</sup>
Propagule Processing/Propagule Characteristics	Propagation by seed is much more difficult than by rhizome, but both require ample amounts of space between plants. <sup>3</sup>
Pre-Planting Propagule Treatments	Store seeds in cold water as to best mimic the conditions they would experience over the winter before they germinate.

	Rhizomes can be grown in submerged pots in water with fertilizer tabs in the base of pots, but this is not necessary and requires additional labor to remove the pots. <sup>4</sup>
Growing Area Preparation / Annual Practices for Perennial Crops	The rhizome can be directly planted in the desired final location. Pick an area with half to full sun and little to no water movement. Soil quality has little effect on the success of the plant. <sup>4</sup>
Establishment Phase Details	Once the rhizome has been planted in a substrate, there are no additional steps to manage this plant. <sup>3</sup>
Length of Establishment Phase	N/A
Active Growth Phase	N/A
Length of Active Growth Phase	N/A
Hardening Phase	N/A
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	N/A
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	This species is very simple to grow, expect it to succeed with little help and rhizomes can be out planted immediately.
Other Comments	Be careful where this plant is grown as the rhizomes are incredibly tricky to completely remove and an established population with be nearly impossible to remove. <sup>3</sup>
<b>INFORMATION SOURCES</b>	
References	<ol style="list-style-type: none"> <li>1. King County. (2016, July 28). Aquatic Plant Management. Retrieved May 1, 2019, from <a href="https://www.kingcounty.gov/services/environment/water-and-land/lakes/facts/plant-management.aspx">https://www.kingcounty.gov/services/environment/water-and-land/lakes/facts/plant-management.aspx</a></li> <li>2. Missouri Botanical Garden. (n.d.). Nuphar lutea. Retrieved May 1, 2019, from <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a651">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a651</a></li> <li>3. Mühlberg, H. (1982). <i>The Complete Guide to Water Plants</i>. Wakefield: EP Publishing.</li> <li>4. Nash, H., &amp; Stroupe, S. (1998). <i>Aquatic Plants &amp; Their Cultivation</i>. New York: Sterling Pub.</li> <li>5. Plant Profile for Nuphar lutea. (n.d.). Retrieved May 1, 2019, from <a href="https://plants.sc.egov.usda.gov/core/profile?symbol=NULU">https://plants.sc.egov.usda.gov/core/profile?symbol=NULU</a></li> </ol>

Other Sources Consulted	<p>Central Coast Biodiversity. (2013). Yellow pond lily • Nuphar polysepala. Retrieved May 1, 2019, from <a href="https://www.centralcoastbiodiversity.org/yellow-pond-lilybull-nuphar-polysepala.html">https://www.centralcoastbiodiversity.org/yellow-pond-lilybull-nuphar-polysepala.html</a></p> <p>Lady Bird Johnson Wildflower Center. (2015, October 2). Nuphar lutea. Retrieved May 1, 2019, from <a href="https://www.wildflower.org/plants/result.php?id_plant=nulu">https://www.wildflower.org/plants/result.php?id_plant=nulu</a></p> <p>Plants for a Future. (2011). Nuphar lutea. Retrieved May 1, 2019, from <a href="https://pfaf.org/user/plant.aspx?latinname=Nuphar+lutea">https://pfaf.org/user/plant.aspx?latinname=Nuphar lutea</a></p> <p>Pojar J., McKinnon A. (1994). <i>Plants of the Pacific Northwest</i>. Canada: B.C. Ministry of Forests and Lone Publishing.</p> <p>USDA. (2012). USDA Plant Hardiness Zone Map. Retrieved May 1, 2019, from <a href="https://planthardiness.ars.usda.gov/PHZMWeb/">https://planthardiness.ars.usda.gov/PHZMWeb/</a></p>
Protocol Author	Henry Bates
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