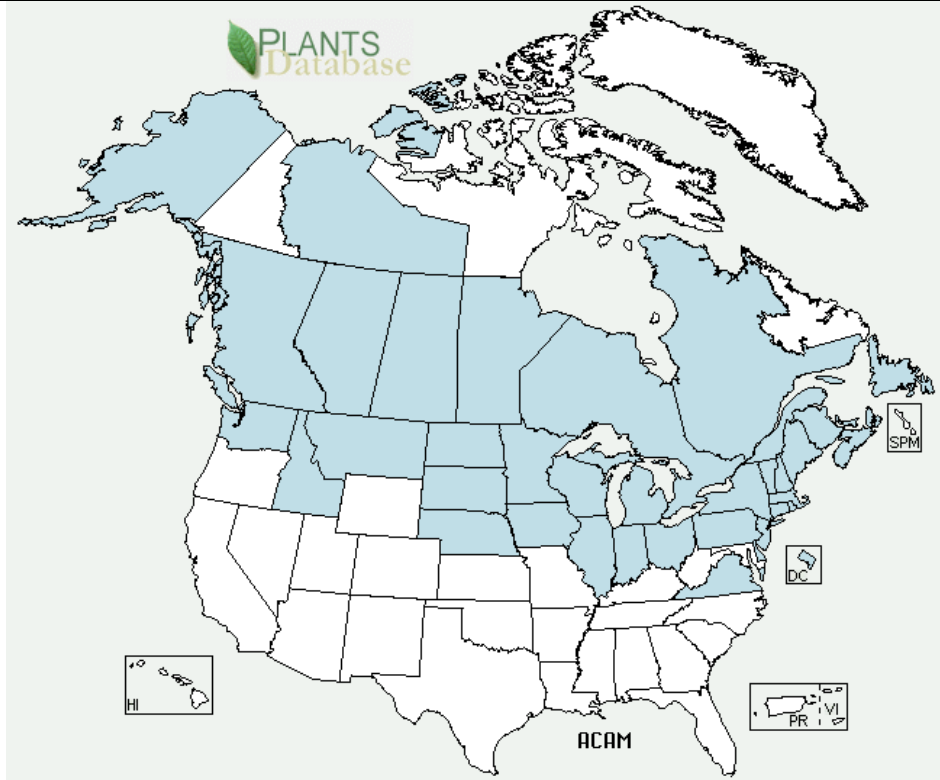


**Plant Propagation Protocol for *Acorus americanus***

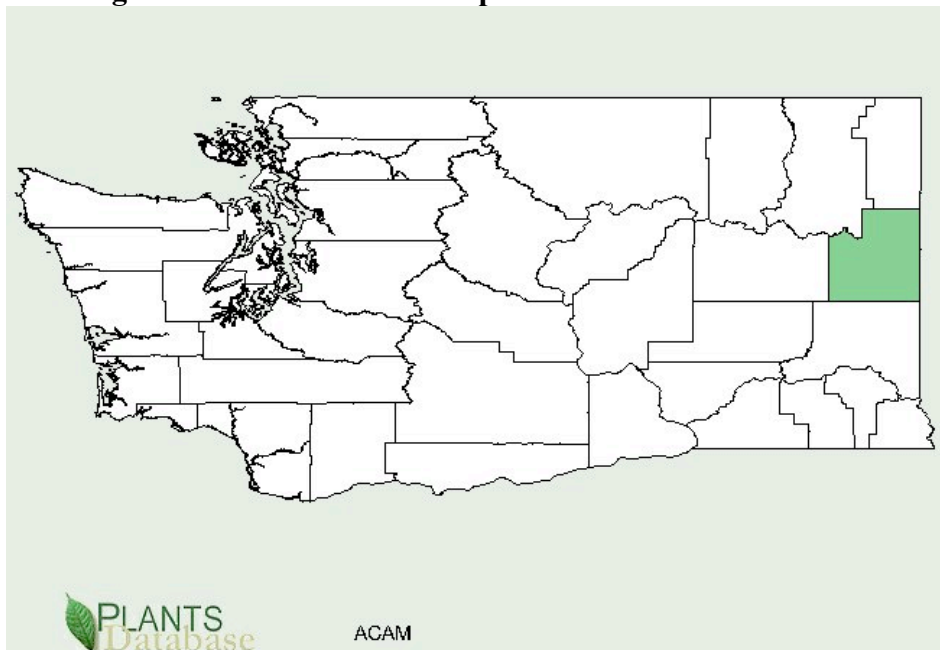
ESRM 412 – Native Plant Production

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

<b>TAXONOMY</b>	
<b>Plant Family</b>	
Scientific Name	Acoraceae (USDA)
Common Name	Alum or Calla Lily Family (Hitchcock and Cronquist)
<b>Species Scientific Name</b>	
Scientific Name	<i>Acorus americanus</i> (Raf.) Raf (USDA)
Varieties	
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<p><i>Acorus calamus</i> L. var. <i>americanus</i> (Raf.) H.D. Wulff. (USDA)</p> <p><i>Acorus calamus</i> auct. non L. (USDA)</p> <ul style="list-style-type: none"> <li>Though <i>Acorus calamus</i> has long been synonymous with <i>A. americanus</i> and thought to be an introduced species, recent chemical and morphological evidence suggests that <i>A. calamus</i> (a sterile triploid (Wenzel)) is the introduced Eurasian species and <i>A. americanus</i> is native to North America (Rook), (Wenzel).</li> </ul>
Common Name(s)	Sweetflag (USDA), Calamus, Flagroot, Myrtle Flag, Sweet Sedge (Rook), Sweet Calomel (Prairie Moon Nursery).
Species Code (as per USDA Plants database)	ACAM
<b>GENERAL INFORMATION</b>	
Geographical range	<p><b>Current USDA Distribution Maps:</b></p> <p> <input type="checkbox"/> Native                    <input type="checkbox"/> Introduced                    <input type="checkbox"/> Absent/Unreported             </p>



**Washington State Distribution Map:**



Ecological distribution	Almost always occurs in wetlands (USDA). A hardy perennial in swamps and bogs (North Creek Nurseries). May grow in up to 1' of water (Wenzel).
Climate and elevation range	Hardy in zones 3 – 6 (North Creek Nurseries).

Local habitat and abundance	This plant attracts muskrats; they often eat the roots, possibly due to their cinnamon scent (Prairie Moon Nursery).
Plant strategy type / successional stage	<p>Rhizomatous plant adapted to fine and medium textured soils with pH of 5.6 – 7.2 with high moisture. Not shade, fire, or salinity tolerant. Moderate vegetative spread rate, slow seed spread rate. (USDA)</p> <p>“Vigorous spreader” in wet soils, excellent for soil retention on water edges. Can tolerate some dry periods but appearance may suffer in long droughts. “Open pollinator” (North Creek Nurseries)</p>
Plant characteristics	<p>Forb/herb, monocot, perennial, 3.9 ft mature height (USDA).</p> <p>Flowers: Appear June to July (North Creek Nurseries). Aromatic, but not skunky. Perfect and alike, yellow or brownish, on an elongated spadex (5-8 cm x almost 1 cm at anthesis) with a green, leaf-like, linear, spathe (bract) of equal or greater length that seems to be an elongation of the naked scape. Spadex appears laterally inserted. 6 sepals, 6 stemen; ovary 2-3 celled. (Cronquist, Hitchcock and Ownbey), (Frye, PhD and Rigg, A.M.), (Hitchcock and Cronquist)</p> <p>Fruit: dark berries (North Creek Nurseries), dry inside and jelly-like inside (Rook),</p> <p>Seeds: 1-3 seed, tan, narrowly oblong to obovate 3 – 4 mm (Cronquist, Hitchcock and Ownbey), (Frye, PhD and Rigg, A.M.), (Hitchcock and Cronquist), (Rook).</p> <p>Leaves: 5 – 20 dm x 1 – 2.5 cm linear, with the midvein usually significantly off center. (Hitchcock and Cronquist), (Frye, PhD and Rigg, A.M.) Sword shaped, bright yellow-green, white with pink or red at base (Rook). Leaves have sweet, spicy scent (Rook), (North Creek Nurseries). “<i>Acorus americanus</i> can be distinguished from the European <i>A. calamus</i> quite easily. <i>Acorus calamus</i> has a single distinct mid rib, while <i>A. americanus</i> has several indistinct ribs” (North Creek Nurseries).</p> <p>Rootstalk: 1” – 2” thick, can spread several feet in mature plant, brownish-red bark, fleshy inside (Rook).</p>
Other Comments	<p>Deer resistant (North Creek Nurseries).</p> <p>The plant is important for many Native American tribes, boh medicinally and spiritually.</p> <p>Several tribes use the root, leaves, and/or stalks for food or to make beverages.</p> <p>The ground root may be mixed with other plants to make decoction or infusions for gas, stomach pain, laxative, cough, cold, fever, menopause,</p>

	<p>post childbirth, coughing up blood, anti-convulsive, drops used for ear ache, etc. Poultices for soar throat, toothaches, muscle pain, joint pain, and rheumatism. Root chewed and liquid swallowed for headache, soar throat, stimulant. Plant may also be smoked for many ailments or simply enjoyment as well.</p> <p><i>(This information is not a recommendation for any medical treatments. It is strictly provided as ethno botanical information.)</i></p> <p>Root may be carried by adults or children to ward off illness, night spirits, ghosts. The Ponca, Omaha, and Winnebago use the blades of grass for garlands in mystery ceremonies. Cheyenne use it in sweat lodge ceremony. Chippewa use a root decoction to charm fish nets. Dakota warriors would rub a paste from the root stock to prevent excitement or fear. Iroquois use the plant to “detect bewitchment.” Chippewa use a root decoction to “charm the rattlesnakes away.”</p> <p>The Omaha would also use the leaves as wreaths or around neck for their pleasant odor. (Moerman)</p> <p>Can be used as antibiotic and insecticide. Leaves can be used as a substitute for vanilla pods and stored with dry goods to prevent weevils. Also nice in potpouri. (Rook)</p> <p>Recent DNA evidence shows that Acorus is the oldest surviving line of monocots, an important group for paleontologists to see how the earliest monocots may have appeared, despite the sparse fossil record (Rook), (Wenzel).</p> <p>Propagation by sprig mentioned, but no further instructions. Endangered status in Pennsylvania (USDA).</p>
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**PROPAGATION DETAILS**

***Propagation by Division***

Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative - rhizome division (Rook)
Product Type	N/A
Stock Type	N/A
Time to Grow	N/A
Target Specifications	N/A
Propagule Collection Instructions	N/A
Propagule	N/A

Processing/Propagule Characteristics	
Pre-Planting Propagule Treatments	N/A
Growing Area Preparation / Annual Practices for Perennial Crops	Full sun and permanently wet soils for cultivation (Rook).
Establishment Phase Details	N/A
Length of Establishment Phase	N/A
Active Growth Phase	“Spring and Summer” (USDA)
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	Moist to wet soils in full sun or bright shade, 12 inch spacing. Great for stabilizing pond edges or filling boggy areas (North Creek Nurseries).
Other Comments	N/A
<b>PROPAGATION DETAILS</b>	
<i>Propagation by Seed</i>	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	N/A
Stock Type	N/A
Time to Grow	N/A

Target Specifications	Mature plant is 2' tall (Prairie Moon Nursery), (Rook).
Propagule Collection Instructions	N/A
Propagule Processing/ Propagule Characteristics	6,600 seeds/ounce (Prairie Moon Nursery).
Pre-Planting Propagule Treatments	Seeds require cold-moist stratification unless fall/frost planting. "Mix seeds in suitable seeding media" and store in refrigerator for 60 days. Monitor seeds and if they begin to sprout, plant immediately. (Prairie Moon Nursery)
Growing Area Preparation / Annual Practices for Perennial Crops	Wet to Wet Mesic locations (Prairie Moon Nursery)
Establishment Phase Details	N/A
Length of Establishment Phase	N/A
Active Growth Phase	"Spring and Summer" (USDA)
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	Moist to wet soils in full sun or bright shade, 12 inch spacing. Great for stabilizing pond edges or filling boggy areas (North Creek Nurseries).
Other Comments	N/A

## INFORMATION SOURCES

References	<ul style="list-style-type: none"> <li>• Cronquist, Arthur, et al. <u>Vascular Plants of the Pacific Northwest</u>. Vol. I. Seattle: University of Washington Press, 1959. V vols.</li> <li>• Frye, PhD, Theodore C. and George B. Rigg, A.M. <u>Elementary Flora of the Northwest</u>. New York: American Book Company, 1914.</li> <li>• Hitchcock, C. Leo and Arthur Cronquist. <u>Flora of the Pacific Northwest, An Illustrated Manual</u>. Seattle: University of Washington Press, 1973.</li> <li>• Moerman, Daniel E. <u>Native American Ethnobotany</u>. Portland: Timber Press, 1998.</li> <li>• North Creek Nurseries. <u>Acorus americanus, sweetflag</u>. 19 May 2014 &lt;<a href="http://www.northcreeknurseries.com/index.cfm/fuseaction/plants.plantDetail/plant_id/490/index.htm">http://www.northcreeknurseries.com/index.cfm/fuseaction/plants.plantDetail/plant_id/490/index.htm</a>&gt;.</li> <li>• Prairie Moon Nursery. <u>Acorus americanus (Sweet Flag)</u>. 19 May 2014 &lt;<a href="http://www.prairiemoon.com/seeds/wildflowers-forbs/acorus-americanus-sweet-flag.html">http://www.prairiemoon.com/seeds/wildflowers-forbs/acorus-americanus-sweet-flag.html</a>&gt;.</li> <li>• Rook, Earl J.S. <u>Acorus americanus</u>. 14 April 2004. 19 May 2014 &lt;<a href="http://www.rook.org/earl/bwca/nature/aquatics/acorus.html">http://www.rook.org/earl/bwca/nature/aquatics/acorus.html</a>&gt;.</li> <li>• USDA. <u>Plant Profile - Acorus americanus (Raf.) Raf, Sweetflag</u>. NRCS. 18 May 2014 &lt;<a href="http://plants.usda.gov/core/profile?symbol=ACAM">http://plants.usda.gov/core/profile?symbol=ACAM</a>&gt;.</li> <li>• Wenzel, Brandee. <u>Plant of the Week, Sweet Flag (Acorus americanus (Raf.) Raf.)</u>. Forest Service. 19 May 2014 &lt;<a href="http://www.fs.fed.us/wildflowers/plant-of-the-week/acorus_americanus.shtml">http://www.fs.fed.us/wildflowers/plant-of-the-week/acorus_americanus.shtml</a>&gt;.</li> </ul>
Other Sources Consulted	<ul style="list-style-type: none"> <li>• Deur, Douglas and Nancy J. Turner. <u>Keeping it Living: Traditions of Plant Use and Cultivation on the Northwest Coast of North America</u>. Ed. Douglas Deur and Nancy J. Turner. Seattle: University of Washington Press, 2005.</li> <li>• Dirr, Dr. Michael A. and Dr. Charles W. Heuser, Jr. <u>A Reference Manual of Woody Plant Propagation: From Seed to Tissue Culture</u>. Portland: Timber Press, Inc., 2006.</li> <li>• Franklin, Jerry F. and C.T. Dyrness. <u>Natural Vegetation of Oregon and Washington</u>. Corvallis?: Oregon State University Press, 1988?</li> <li>• Leigh, Michael. <u>Grow Your Own Naive Landscape: A Guide to Identifying, Propagating, and Landscaping with Western Washington Native Plants</u>. Ed. Michael Leigh. Washington State University, Cooperative Extension/Thurston County, 1996.</li> <li>• Rose, Robin, Caryn E.C. Chachulski and Diane L. Haase. <u>Propagation of Pacific Northwest Native Plants</u>. Corvallis: Oregon State University Press, 1998.</li> <li>• Young, James A. and Cheryl G. Young. <u>Collecting, Processing and Germinating Seeds of Wildland Plants</u>. Portland: Timber Press, 1988.</li> </ul>
Protocol Author	Amanda Pole

Date Protocol Created or Updated	Created: 5/19/14 Updated: 6/9/14
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