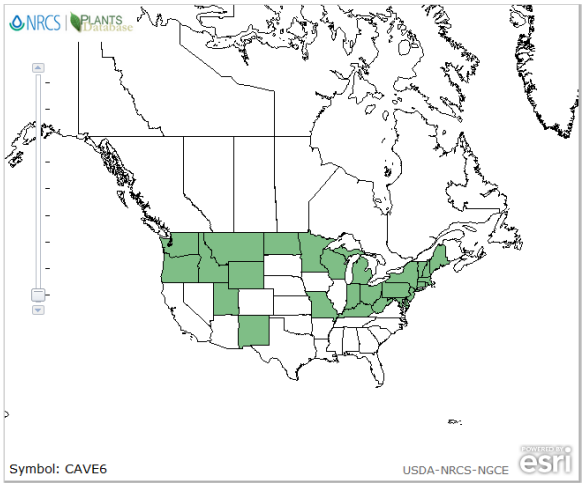
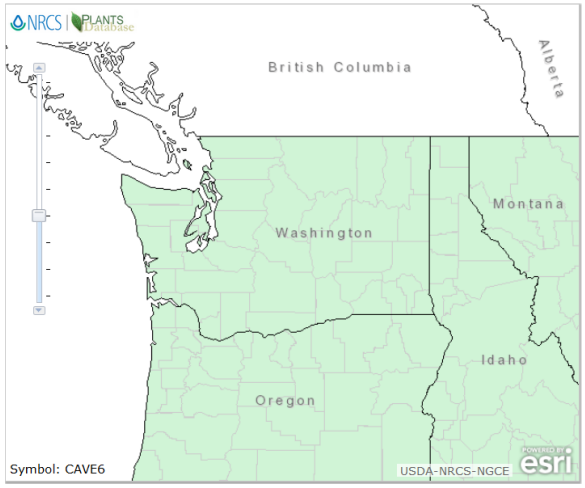
Plant Propagation Protocol for *Carex vesicaria*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/CAVE6.pdf
Spring 2016

North America Distribution



Washington Distribution



Source: USDA PLANTS Database

TAXONOMY	
Plant Family	
Scientific Name	*Carex vesicaria*
Common Name	Blister sedge
Species Scientific Name	
Scientific Name	*Carex vesicaria* Linnaeus
Varieties	*Carex vesicaria* L. var. *distenta* Fernald *Carex vesicaria* L. var. *jejuna* Fernald *Carex vesicaria* L. var. *laurentiana* Fernald *Carex vesicaria* L. var. *monile* (Tuck.) Fernald *Carex vesicaria* L. var. *raeana* (Boott) Fernald *Carex vesicaria* L. var. *vesicaria*[3]
Sub-species	
Cultivar	None
Common Synonym(s) (include full scientific names, including variety or subspecies information)	*Carex inflata* Huds. *Carex monile* Tuck. *Carex raeana* Boott
Common Name(s)	Blister sedge Inflated sedge Laurent's sedge Tufted lake sedge
Species Code (as per USDA Plants database)	CAVE6
GENERAL INFORMATION	

Geographical range	See above
Ecological distribution	Carex vesicaria occurs in wet ecosystems on the margins of lakes and streams.
Climate and elevation range	CAN N L48 N SPM N[8] 0–3300m[9]
Local habitat and abundance	Regularly occurring in every county in the State of Washington, blister sedge is a typical plant found along the perimeter of mesotrophic lakes, as well as on the margins of streams, ponds, lakes and canals.[2]
Plant strategy type / successional stage	Even though *Carex* are the dominant vegetation of sedge meadows of natural prairie wetlands, they are slow to return to restored wetlands. They are a rhizomatous weedy colonizer which spreads aggressively in early succession[10] but which don't do well in shade.
Plant characteristics	 Photo citation: Paul Slichter[11]  Photo citation: Richard Lansdown[7] Graminoid/Herbaceous, Perennial Grows to a height of 20–150cm when flowered.[4] Characteristic leaves consist of basal sheaths reddish brown to reddish purple in color. Flower is a conglomerate of dry, tear drop shaped seeds attached to the stalk by the rounded end. Male flowers tend to have three or so slender, silvery flower spikes at the top of the stalk, while female flowers are spirally arranged in much thicker, brown spikes below the male ones. Each teardrop flower cluster contains up to 150 developing fruits[1], each of which holds at the a tiny, three-angled seed, not splitting at maturity.[5] Flowers are present beginning in May and lasting in most regions through August.[2]

Propagation Details [6]Kettenring, K, Gardner, G, and Galatowitsch. "Effect of Light on Seed Germination of Eight Wetland *Carex* Species." *Annals of Botany* 98.4 (2006): 869–874. *PMC*. Web. 20, Apr. 2016. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2806167/	
Ecotype	Riparian
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	Clumps of triangular, sheathed stems.[1]
Time to Grow	Beyond scope of experiment.
Target Specifications	The purpose of the experiment was to test the effect of light variation on germination rates in 8 different *Carex* plant species from collected seed stock.
Propagule Collection Instructions	Seeds were collected from eight distinct *Carex* species at maturity were collected at maturity in Minnesota during the 2004 growing season.
Propagule Processing/Propagule Characteristics	One seed per pod, approximated 150 pods per cluster. Seed viability was measured at 82%.
Pre-Planting Propagule Treatments	Seeds were air dried at room temperature for 2 weeks before being tested for viability using tetrazolium procedures with batches of 200 seeds per species. Once tested seeds were counted into batches of 50, wrapped in damp filter paper, and placed in a growth chamber for a minimum of four months to allow sufficient stratification to occur.
Growing Area Preparation / Annual Practices for Perennial Crops	Seeds were buried in well-drained, sterilized wetland soil in pots and watered weekly to saturation.
Establishment Phase Details	Seeds were given same amount of water but varying lengths and ratios of white and red light.
Length of Establishment Phase	It was found that at least 15 days of continuous white light was required for *Carex* species germination.
Active Growth Phase	Beyond scope of experiment.
Length of Active Growth Phase	Beyond scope of experiment.
Hardening Phase	Beyond scope of experiment.
Length of Hardening Phase	Beyond scope of experiment.
Harvesting, Storage and Shipping	Beyond scope of experiment.
Length of Storage	Beyond scope of experiment.
Guidelines for Outplanting / Performance on Typical Sites	Beyond scope of experiment.
Other Comments	Germinated poorly in shady conditions.
INFORMATION SOURCES	
References	See below
Other Sources Consulted	Not Applicable
Protocol Author	Thomas Radon

Date Protocol Created or Updated	4/27/2016

[1] "Blister Sedge" California Native Plant Society. Web. Accessed 20, April 2016. http://calscape.org/Carex-vesicaria-%28Blister-Sedge%29?srchcr=sc57077b1d6f36c

[2] "*Carex vesicaria*" Encyclopedia of Life. Web. Accessed 20, April 2016. http://eol.org/pages/1123111/overview

[3] "*Carex vesicaria* L." ITIS Report. Web. Accessed 19, April 2016. http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=39467

[4] "*Carex vesicaria* Linnaeus" Flora of North America. Web. Accessed 19, April 2016. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242357616

[5] Conrad, J. "The Pond's Sedgy Banks" Backyard Nature. Web. Accessed 19, April 2016. http://www.backyardnature.net/n/h/bl-sedge.htm

[6] Kettenring, K, Gardner, G, and Galatowitsch. "Effect of Light on Seed Germination of Eight Wetland *Carex* Species." *Annals of Botany* 98.4 (2006): 869–874. *PMC*. Web. 20, Apr. 2016. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2806167/

[7] Lansdown, R.V. 2014. *Carex vesicaria*. The IUCN Red List of Threatened Species 2014. Web. Accessed 19, April 2016. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T167846A42370710.en

[8] "Plant Profile" USDA Natural Resources Conservation Service, Web. Accessed 20, April 2016. http://plants.usda.gov/core/profile?symbol=CAVE6

[9] Pojar, Jim, A MacKinnon, and Paul B. Alaback. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska*. Redmond, Wash: Lone Pine Pub, 1994. Print.

[10] Prairie Moon Nursery. North American Native Plants for Restoration and Gardening. Web. Accessed 20, April 2016. https://www.prairiemoon.com/seeds/grasses-sedges-rushes/carex-vesicaria-tufted-lake-sedge.html

[11] Slichter, P. "Blister Sedge, Inflated Sedge, Small Inflated Sedge" Web. Accessed 19, April 2016. http://science.halleyhosting.com/nature/gorge/sedge/carex/vesicaria.html