

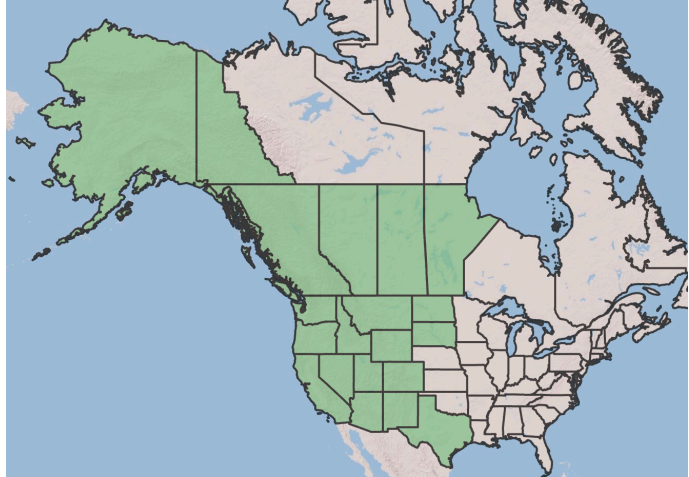
Plant Propagation Protocol for *Carex athrostachya*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2022/CAAT3.pdf>



Rober L. Carr, 2013.



USDA, 2014.

TAXONOMY

Plant Family	
Scientific Name	Cyperaceae (Jepsum E-Flora, 2022).
Common Name	Sedge family (USDA, 2014.)
Species Scientific Name	
Scientific Name	<i>Carex athrostachya</i> Olney (USDA, 2014).
Varieties	No current recognized varieties (USDA, n.d.)
Sub-species	No current recognized varieties (USDA, n.d.)
Cultivar	No cultivars found (USDA, n.d.)
Common Synonym(s)	<i>Carex atherostachya</i> (sometimes misspelled as) (Burke Herbarium Image Collection, n.d.)
Common Name(s)	Slenderbeak sedge, long-bracted sedge (Jepsum E-Flora, 2022), jointed-spike sedge (Montana Field Guide, n.d.)

Species Code (as per USDA Plants database)	CAAT3 (USDA, n.d)
GENERAL INFORMATION	
Geographical range	<i>C. athrostachya</i> range spans across the western United States and Canada. It is most prevalent in Washington, Oregon, California, Idaho, and Montana, and southern British Columbia, and is also found in parts of Alaska, southern Saskatchewan, Manitoba, Ontario and Alberta, parts of Colorado, Nevada, Utah, Arizona, North Dakota, South Dakota, Texas, New Mexico and Wyoming (E-Flora BC, n.d) (USDA, 2014)
Ecological distribution	<i>C. athrostachya</i> occurs commonly in wetland ecosystems, marshes, wet meadows. (Montana Field Guide, n.d.) (Jepsum E-Flora, 2022).
Climate and elevation range	<i>C. athrostachya</i> generally occur between an elevation of 400-3200 meters, in steppe zones, mountainous regions, and lowland areas (E-Flora BC, n.d.) (Jepsum E-Flora, 2022)
Local habitat and abundance	<i>C. athrostachya</i> occur in areas with sufficient seasonal moisture, commonly marshes, meadows, and moist open forest areas (Jepsum E-Flora, 2022) (E-Flora BC, n.d).
Plant strategy type / successional stage	No information available.
Plant characteristics	<i>C. athrostachya</i> is a perennial graminoid. (USDA, n.d) It blooms in late spring, producing fruits spring to summer, and often grows in dense spiky clumps with upright stalks (Jepsum E-Flora, 2022) (E-Flora BC, n.d.) (Montana Field Guide, n.d.).
PROPAGATION DETAILS	
Ecotype	Camas area of Glacier National Park (Scianna, 2003).
Propagation Goal	Seeds (Scianna, 2003).
Propagation Method	Seed (Scianna, 2003). Additionally, rhizome cuttings are an appropriate way to vegetatively propagate <i>C. athrostachya</i> . (Leigh, 2013)

Product Type	Propagules, including seeds, poles, cuttings (Scianna, 2003).
Stock Type	Seeds (Scianna, 2003).
Time to Grow	The length of 1 year (Scianna, 2003).
Target Specifications	No information available.
Propagule Collection Instructions	The seeds may be collected by hand, or a swather may be used to mechanically collect the seeds, as long as the seed heads are hand harvested post collection. (Scianna, 2003).
Propagule Processing/Propagule Characteristics	After they have been harvested, the seeds may be laid out in a dry and warm place. The ripened seeds can be shaken from the dried seed heads to remove them. A hammermill may be utilized, especially in a nursery production setting, but is not strictly necessary. After the ripening process, a fanning mill may then be used to thoroughly clean the seed, removing remaining chafe and other debris. (Scianna, 2003).
Pre-Planting Propagule Treatments	Seeds require cold stratification first; 60 to 90 days of cold moist stratification is appropriate for freshly harvested seeds (Scianna, 2003).
Growing Area Preparation / Annual Practices for Perennial Crops	For container planting, the site may be prepped pre planting by rototilling, digging or drilling holes for the planting, or digging a trench for the plantings. Seedlings should be 1 feet apart within each row, and the rows should be 3 feet apart; pockets of air within the soil should be avoided for plant health, so irrigation may be used during the planting process to minimize this risk. (Scianna, 2003).
Establishment Phase Details	No information available.
Length of Establishment Phase	No information available.
Active Growth Phase	No information available.
Length of Active Growth Phase	No information available.
Hardening Phase	No information available.
Length of Hardening Phase	No information available.

Harvesting, Storage and Shipping	According to the propagation protocol created by Joe Scianna (2003), amount of seed produced was “[a]bout 500, 1-0 plants yielded 5 g of seed at the end of the first field season, 1.271 kg the second year, and 0.674 kg the third year” (Scianna, 2003). There was no experimentation done with long term or artificial storage, but it was assumed likely that <i>C. athrostachya</i> , under appropriate storage and shipping conditions, would be successful. (Scianna, 2003).
Length of Storage	No information available.
Guidelines for Outplanting / Performance on Typical Sites	No information available.
Other Comments	An additional comment was that <i>C. athrostachya</i> was “[e]asy to grow from seed, one of the better <i>Carex</i> we've worked with for seed production based on plant stature, habit, ease of propagation, and seed production” (Scianna, 2003).

INFORMATION SOURCES

References

- Burke H. 2013. Burke Herbarium Image Collection. Washington.edu. [accessed 2022 May 10]. <https://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?Taxon=Carex%20athrostachya>.
- Carr, R. L. 2013. wtu051618,Carex athrostachya. [accessed 2022 May 21]. <https://biology.burke.washington.edu/herbarium/imagecollection/photo.php?Photo=wtu051617&Taxon=Carex%20athrostachya&SourcePage=taxon>. Carex athrostachya in Flora of North America @ efloras.org. [www.efloras.org](http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242357056). [accessed 2022 May 10]. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242357056.
- CPNWH Database Search. www.pnwhherbaria.org. [accessed 2022 May 25]. <https://www.pnwhherbaria.org/data/results.php?DisplayAs=WebPage&ExcludeCultivated=Y&GroupBy=ungrouped&SortBy=Year&SortOrder=DESC&SearchAllHerbaria=Y&QueryCount=1&IncludeSynonyms1=Y&SciName1=Carex%20athrostachya&Zoom=4&Lat=55&Lng=-135&PolygonCount=0>.
- E-Flora BC Atlas Page. linnet.geog.ubc.ca. [accessed 2022 May 10]. <https://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Carex+athrostachya>.
- Hurd, E., Shaw, N., Mastrogiuseppe, J., Smithman, L., & Goodrich, S. (1998). *Field Guide to Intermountain Sedges*. https://www.fs.fed.us/rm/pubs/rmrs_gr010.pdf
- Jepson E-flora. 2022. Carex athrostachya. [accessed 2022 May 9]. https://ucjeps.berkeley.edu/flora/flora_display.php?tid=17271.
- Leigh, M., & Washington State University. Cooperative Extension. Thurston County. (2013). Grow your own native landscape : a guide to identifying, propagating & landscaping with western Washington native plants. Native Plant Salvage
- Project, Washington State University Cooperative Extension, Thurston County.
- Scianna, Joe. 2003. Propagation protocol for production of Propagules (seeds, cuttings, poles, etc.) Carex athrostachya Olney seeds Seeds; USDA NRCS - Bridger Plant Materials Center Bridger, Montana. In: Native Plant Network. URL: <https://NativePlantNetwork.org> (accessed 2022/05/25). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.
- USDA Plants Database. plants.sc.gov.usda.gov. [accessed 2022 May 10]. <https://plants.sc.gov.usda.gov/home/plantProfile?symbol=CAAT3>
- USDA. 2014. [accessed 2022 May 22]. <https://plants.usda.gov/home/plantProfile?symbol=CAAT3>.
- Montana Field Guide (n.d.). *Jointed-spike Sedge - Montana Field Guide*. Fieldguide.mt.gov. Retrieved May 10, 2022, from <https://fieldguide.mt.gov/speciesDetail.aspx?elcode=PMCY03170>
- NatureServe Explorer 2.0*. (n.d.). Explorer.natureserve.org. Retrieved May 10, 2022, from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.145275/Carex_athrostachya
- Wilson B. L., Brainerd R. E., Lytjen D., Newhouse B., Otting N., Carex Working Group. 2014. Field Guide to Sedges of the Pacific Northwest: Second Edition. [accessed 2022 May 22]. https://osupress.oregonstate.edu/sites/default/files/sedges_website.pdf.

Other Sources Consulted	Pojar, J., Mackinnon, A., Alaback, P. B., & Service, F. (2016). Plants of the Pacific Northwest coast : Washington, Oregon, British Columbia & Alaska. Lone Pine.
Protocol Author	Zoe Buck
Date Protocol Created or Updated	05/25/22