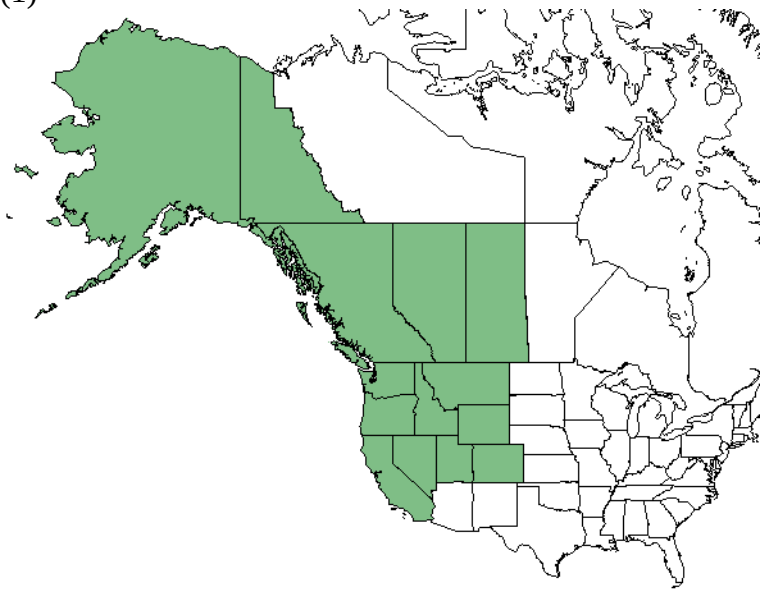
Plant Propagation Protocol for *Carex pachystachya*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/CAPA14.pdf

(3)

TAXONOMY	
Plant Family	
Scientific Name	Cyperaceae (1)
Common Name	Sedge family (1)
Species Scientific Name	
Scientific Name	*Carex pachystachya* Cham. ex Steud. (1)

Varieties	• *Carex festiva* Dewey var. *gracilis* Olney • *Carex festiva* Dewey var. *pachystachya* (Cham. ex Steud.) L.H. Bailey • *Carex macloviana* d'Urv. ssp. *pachystachya* (Cham. ex Steud.) Hultén • *Carex macloviana* d'Urv. var. *pachystachya* (Cham. ex Steud.) Kük. • *Carex multimoda* L.H. Bailey • Carex pachystachya Cham. ex Steud. var. gracilis (Olney) Mack • *Carex pachystachya* Cham. ex Steud. var. *monds-coulteri* L. Kelso • *Carex pyrophila* Gandog. (6)(1)(8)
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	Chamisso Sedge, *Carex pachystachya* Cham. ex Steud. (9)
Common Name(s)	• Chamisso sedge • Thick-head sedge (3) (2)
Species Code (as per USDA Plants database)	CAPA14 (1)
GENERAL INFORMATION	
Geographical range	(1) 

	 (3)
Ecological distribution	• Plant is widespread in mesic transition zones between wet and dry habitat • Moist meadows • Wet prairie • Marsh edges • Forest edges • Roadsides (4)
Climate and elevation range	Common at low elevations but extends to higher elevations as well (4)
Local habitat and abundance	• Plant can be found from Alaska to California and as far west as Colorado • This species is usually found in large patches • Heads must be collected individually because they grow intermixed with other species, plant resembles other native sedges (4)
Plant strategy type / successional stage	• Grows up to 3.5 feet tall • Flower color is red • Fruit/seed color is brown • Has a high fire tolerance • Moisture tolerance is medium (1)
Plant characteristics	Sedge (1)
PROPAGATION DETAILS	
Ecotype	• Mt Rainier National park at 4,600 feet elevation • Crater Lake National park at 6,000 feet elevation (5)

Propagation Goal	Seeds (5)
Propagation Method	Seed (5)
Product Type	Propagules (seeds, cuttings, poles, etc.) (5)
Stock Type	Seed (5)
Time to Grow	None (5)
Target Specifications	• Clean seed • Seed averages about 1,375,000 per lb. (5)
Propagule Collection Instructions	• When seed heads are mature, brown, and starting to shatter they can be clipped or hand stripped • Seed heads can be held in cloth sacks for air-drying • Keep out of direct sunlight (5)
Propagule Processing/Propagule Characteristics	• Hulls can be removed by running through an oat dehuller • Threshing with a geared-down hammermill and 3/16" screen • Rough scalping with office clipper 1/14" screen, low air • Seed run briefly through a lab-scale oat dehuller • Rescreened with office clipper using a 1/20" screen and moderately low air flow • Any smutted seeds can be scalped off with the proper screen size. (5)
Pre-Planting Propagule Treatments	Dehulling has been shown to enhance germination from 14% to 84% for dehulled seed (5)
Growing Area Preparation / Annual Practices for Perennial Crops	• Fall-sowing with Carbon-banding • Seed is sown into a finely tilled, firm seed bed with a Hege precision seeder • 30 " rows, 100 seeds per foot rows • Overspray the seed with activated charcoal slurry (carbon-banding) followed • Field application of Karmex broad spectrum pre-emergent herbicide at 2.2 lbs ai/ acre • The system consists of a tank with mechanical agitator to keep the charcoal in solution and an impeller pump connected to tubing with large-diameter nozzles directed over the seeding row to deposit the slurry in a 1/8 to 1/4 inch band directly over the seeded row • The system is front-mounted on the tractor while seeding equipment is pulled behind ▪ (5)
Establishment Phase Details	• Weed control can be achieved over the winter with broad spectrum herbicides

	• When seedling emergence starts, weed control can be done by spot checking with Round-up, mechanical hoeing, and cultivation between rows • Apply Tilt and Bravo fungicides during late winter and spring the first and second year to control rusts and other foliage diseases (5)
Length of Establishment Phase	6 months (5)
Active Growth Phase	• Initially, plant will grow slowly • Crowns will develop faster as the soil warms in spring • Little seed is produced during the first year of stand establishment • Seed harvest really begins in the second year • When established, stands remain fairly healthy when rusts and fungi are controlled in the spring and weeds are kept in check (5)
Length of Active Growth Phase	3 months (5)
Hardening Phase	No mention of hardening phase found. Even with like-species. (10)
Length of Hardening Phase	No mention of hardening phase found. Even with like-species. (10)
Harvesting, Storage and Shipping	• Seed heads can be clipped in late May or early June • Seeds can be easily shaken loose from the heads • Large plots done with mechanical harvest • Take to a greenhouse in June and spread out on tarps to dry • Seed shatter easily from the drying seed heads and can be collected (5)
Length of Storage	• Store at least 5 years • Seed is plentiful during most collection years • Seedlings easily established in "conetainers" (5)
Guidelines for Outplanting / Performance on Typical Sites	No outplanting done; just seed production
Other Comments	None
INFORMATION SOURCES	
References	(1) United States Department of Agriculture. (n.d.). Retrieved May 24, 2017, from https://plants.usda.gov/core/profile?symbol=CAPA14 (2) (n.d.). Retrieved May 24, 2017, from http://biology.burke.washington.edu/herbarium/imagecollection.php?SciName=Carex pachystachya

	(3) Burke Museum. Retrieved May 24, 2017, from http://biology.burke.washington.edu/herbarium/imagecollection.php?SciName=Carex pachystachya (4) Native Plant Network — Reforestation, Nurseries and Genetics Resources. (n.d.). Retrieved May 24, 2017, from https://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=cyperaceae-carex-4019 (5) Native Plant Network — Reforestation, Nurseries and Genetics Resources. (n.d.). Retrieved May 24, 2017, from https://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=cyperaceae-carex-2394 (6) E-Flora BC. (n.d.). Retrieved May 24, 2017, from http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Carex%2Bpachystachya (7) Calflora. (n.d.). Retrieved May 24, 2017, from http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Carex%2Bpachystachya (8) (n.d.). Retrieved May 24, 2017, from http://science.halleyhosting.com/nature/plants/sedge/carex/pachystachya.html (9) NatureServ. (n.d.). Retrieved May 24, 2017, from http://explorer.natureserve.org/servlet/NatureServe?searchName=Carex pachystachya (10) Tilley, Derek James 2010. Propagation protocol for production of container Carex rostrata Stokes plants (10 cubic inch conetainer); USDA NRCS - Aberdeen Plant Materials Center, Aberdeen, Idaho. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 7 October 2010). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.
Other Sources Consulted	N/A
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