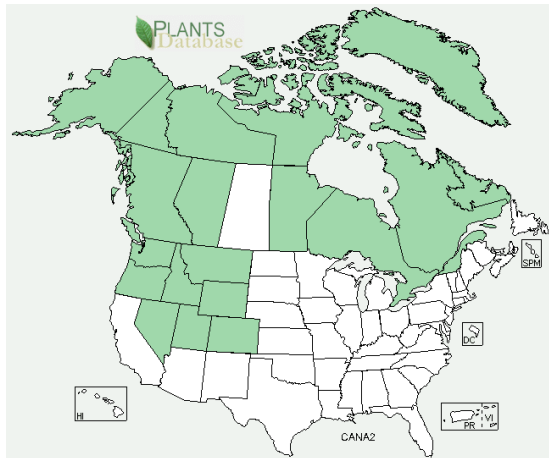


Plant Propagation Protocol for *Carex nardina*

ESRM 412 – Native Plant Production

Spring 2012

North American Distribution



Washington Distribution



TAXONOMY

Family Names	
Family Scientific Name:	Cyperaceae
Family Common Name:	Sedgefamily
Scientific Names	
Genus:	<i>Carex</i>
Species:	<i>nardina</i>
Species Authority:	Fr.
Variety:	<i>hepburnii</i> <i>nardina</i>
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	(Boott) Kük.
Common Synonym(s) (include full scientific names (e.g., <i>Elymus glaucus</i> Buckley), including variety or subspecies information)	<i>Carex nardina</i> Fr. var. <i>hepburnii</i> (Boott) Kük. <i>Carex nardina</i> Fr. var. <i>nardina</i> ⁵
Common Name(s):	Spikenard sedge, spike sedge ⁵
Species Code (as per USDA Plants database):	CANA2

GENERAL INFORMATION

Geographical range (distribution maps for North America and Washington state)	Mostly in and east of the B.C. Coast Mountains and the Cascades. Rare on Vancouver Island and in the Olympic Mountains ³ . See map above for distribution in North America and Washington state.
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Ecological distribution (ecosystems it occurs in, etc.):	Montane ²
Climate and elevation range	Not likely to be found below about 1220 m ²
Local habitat and abundance; may include commonly associated species	Dry, windswept ridges, talus slopes, ledges; common in alpine zone ³ .
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc.)	Dwarf, densely tufted. The stems are wiry, 2-15 cm tall, and about as long as the leaves. The perigynia is elliptical to narrowly egg-shaped, about 4mm long, short-stalked, hairless, straw-colored; tapering to a finely saw-toothed beak. The scales are brownish, wider and about as long as perigynia; 2 or 3 stigmas ³ .
PROPAGATION DETAILS	
Propagation by Seeds (general for the genus Carex) ¹	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Seeds
Propagation Method (Options: Seed or Vegetative):	Seed
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Propagules (seeds, cuttings, poles, etc.)
Propagule Collection (how, when, etc.):	Collected at the Alpine Visitor Center (98-211s) on 8/17/98; Alpine Visitor Center (98-217s) on 9/12/98.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc.):	N/A
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc.):	Strip seeds from head; seeds may be planted as is, or may need the perigymon removed. To do this, crush with hands or use sandpaper blocks.
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Greenhouse, 65-70°F day; 55°F night. Propagated under tent with misters set 8 am-8 pm, with 10 sec/15 min watering intervals. One week after germination, seedlings were moved to mister area without tent. Sown in small pots, for ease of divisions later.

	Germination media: Fafard Germinating Mix (superfine). Growing media: Fafard Growing Mix 2.
Establishment Phase (from seeding to germination):	Variable. Time to potting: Not necessary if original planting is into small pots. Lake Irene (98-161s) sowed on 12/17/98; Alpine Visitor Center (98-211s) sowed on 1/20/99; Alpine Visitor Center (98-217s) sowed on 1/20/99.
Length of Establishment Phase:	N/A
Active Growth Phase (from germination until plants are no longer actively growing):	N/A
Length of Active Growth Phase:	N/A
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	N/A
Length of Hardening Phase:	N/A
Harvesting, Storage and Shipping (of seedlings):	Seed stored in the greenhouse (Alpine seed stored in refrigerator).
Length of Storage (of seedlings, between nursery and outplanting):	N/A
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	N/A
Other Comments (including collection restrictions or guidelines, if available):	
Propagation by Division (general for the genus Carex) ⁴	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
Propagation Method (Options: Seed or Vegetative):	Vegetative
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container (plug)
Propagule Collection (how, when, etc):	Divide in spring; when doing divisions make sure to have more root than shoot, cut away excess foliage, keep the divisions moist and sheltered until established.

Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	N/A
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	N/A
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Pot or grow on single rooted shoots in nursery bed
Establishment Phase (from seeding to germination):	N/A
Length of Establishment Phase:	N/A
Active Growth Phase (from germination until plants are no longer actively growing):	N/A
Length of Active Growth Phase:	N/A
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	N/A
Length of Hardening Phase:	N/A
Harvesting, Storage and Shipping (of seedlings):	Sow short-lived seeds in autumn if possible, or in spring at 59°F.
Length of Storage (of seedlings, between nursery and outplanting):	N/A
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	N/A
Other Comments (including collection restrictions or guidelines, if available):	
INFORMATION SOURCES	
References (full citations):	<p>¹Butler, Jennifer; Frieswyk, Christin. 2001. Propagation protocol for production of <i>Carex</i> seeds; USDI NPS - Rocky Mountain National Park, Estes Park, Colorado. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 16 May 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.</p> <p>²Hitchcock, C L. <i>Vascular Plants of the Pacific Northwest</i>. Seattle: University of Washington</p>

	<p>Press, 1955, pp. 312.</p> <p>³Pojar, Jim, A MacKinnon, and Paul B. Alaback. <i>Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska</i>. Redmond, Wash: Lone Pine Pub, 1994, pp. 391.</p> <p>⁴Toogood, Alan R. <i>Plant Propagation</i>. New York: DK Pub, 1999. Print.</p> <p>⁵“U.S. Department of Agriculture.” <i>Plants Profile</i>. NCRS. Web. 15 May 2012. <http://plants.usda.gov/java/profile?symbol=CANA2></p>
Other Sources Consulted (but that contained no pertinent information) (full citations):	<p>⁶Dumroese, R K, Tara Luna, and Thomas D. Landis. <i>Nursery Manual for Native Plants: A Guide for Tribal Nurseries</i>. Washington, D.C.: U.S. Dept. of Agriculture, Forest Service, 2009.</p> <p>⁷Govaerts, Rafaël, David A. Simpson, and Jeremy Bruhl. <i>World Checklist of Cyperaceae: Sedges</i>. Kew: Royal Botanic Gardens, 2007.</p> <p>⁸Leigh, Michael. <i>Grow Your Own Native Landscape: A Guide to Identifying, Propagating & Landscaping with Western Washington Native Plants</i>. Olympia, Wash: Native Plant Salvage Project, Washington State University Cooperative Extension, Thurston County, 1999, pp. 83.</p>
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Date Protocol Created or Updated (MM/DD/YY):	05/16/2012

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