**Plant Propagation Protocol for *Scirpus microcarpus***
ESRM 412 – Native Plant Production

| **TAXONOMY** | |
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| Family Names | |
| Family Scientific Name: | Cyperaceae |
| Family Common Name: | Sedge Family (University of Wisconsin) |
| Scientific Names | |
| Genus: | *Scirpus* |
| Species: | *microcarpus* |
| Species Authority: | J. Presl & C. Presl |
| Variety: | - |
| Sub-species: | - |
| Cultivar: | - |
| Authority for Variety/Sub-species: | - |
| Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information) | *Scirpus microcarpus* J. Presl & C. Presl var. *longispicatus* M. Peck<br>*Scirpus microcarpus* J. Presl & C. Presl var. *rubrotinctus* (Fernald) M.E. Jones<br>*Scirpus rubrotinctus* Fernald (Barner) |
| Common Name(s): | Panicled bulrush, small-fruited bulrush, mountain bog bulrush. |
| Species Code (as per USDA Plants database): | SCMI2 |
| **GENERAL INFORMATION** | |

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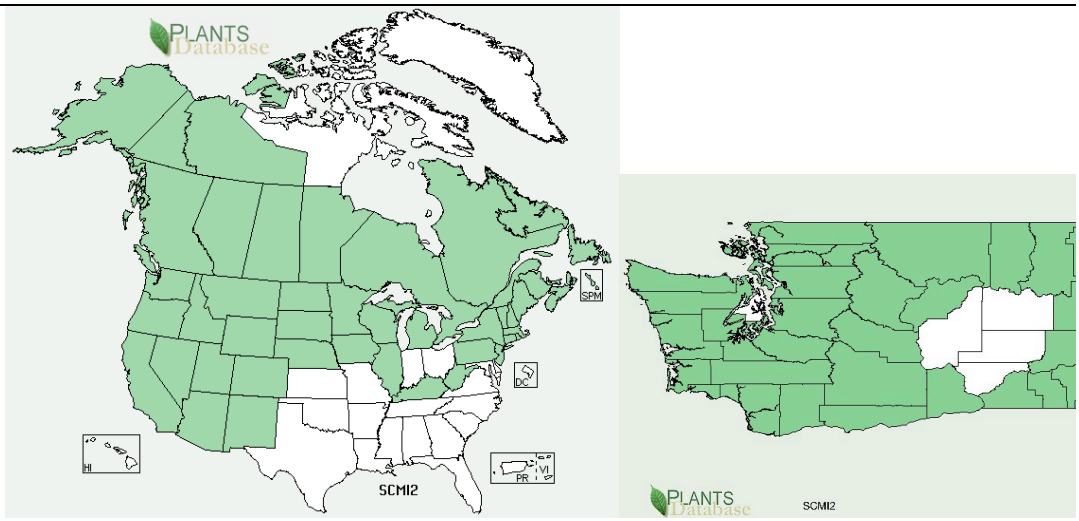
| Geographical range (distribution maps for North America and Washington state) |  <br>Green=Present<br>White=Absent |
| Ecological distribution | Found naturally in wet environments throughout the temperate region of North America. The entire west coast, throughout Canada, and the northeast of USA. Found in wetlands, artificial ditches, wet clearings. Tolerates shade but more often found in open areas. (WSU) |
| Climate and elevation range | Mid to low elevations (WNPS) |
| Local habitat and abundance | Common in wetlands as well as streams. Common associate species are Rubus spectabilis, *Lysichiton americanus, and Carex obnupta (Stevens).* |
| Plant strategy type / successional stage | -Tolerates fluctuating water levels (Leigh).<br>-Tolerates saturated soils (Leigh).<br>-Can live under shade or in open. (WSU)<br>-Found in plant communities in various states of succession (Leigh). |
| Plant characteristics | -Perennial graminoid (grass).<br>-Monocot<br>(USDA) |
| **PROPAGATION DETAILS** | |
| Ecotype | "BLM, Medford District, Chinquapin Mountain, Medford, Oregon" (native plant network) |
| Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules): | Seeds (Barner) |
| Propagation Method | Seed (Barner) |

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| (Options: Seed or Vegetative): | |
| Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.)) | - Seed (Barner).<br>- Sprigs/rhizome (Stevens). |
| Stock Type: | -For sprigs: a single stem, or collection of leaves, with their (soilless) roots. (Stevens)<br>-For seedlings: transplant when 2 inches tall. (Leigh) |
| Time to Grow (from seeding until plants are ready to be outplanted): | - |
| Target Specifications (size or characteristics of target plants to be produced): | - |
| Propagule Collection (how, when, etc): | - Collection for sprigs is best in winter, when the plant is in dormancy. (Stevens)<br>- Collection of seed late summer/early autumn (USDA).<br>- |
| Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc.): | Seed density: 2,835,000 seeds per pound, 94% purity, 92% viable (Barner). |
| Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc.): | - Successful machine cleaning accounts with a Westrup Model LA-H laboratory brush machine (Barner).<br>- Removal of soil from sprigs (Stevens).<br>- Cold storage of seeds in 32-38 degrees Fahrenheit (Stevens).<br>- Cold stratification of seeds necessary, 2 to three months in moist conditions (WSU). |
| Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of | - Sprigs can be cultivated in peat-pots (High survival rates).<br>- Sprigs can be directly sowed (lower survival rates) (Stevens) |

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| containers, etc.): | |
| Establishment Phase (from seeding to germination): | - Germinate seeds in 3 cm of water (PFAF).<br>- Direct seed in flats (Leigh). |
| Length of Establishment Phase: | - Quick establishment of seeds germinated in 3 cm of water in flats (PFAF |
| Active Growth Phase (from germination until plants are no longer actively growing): | - |
| Length of Active Growth Phase: | - |
| 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): | - |
| Length of Hardening Phase: | - |
| Harvesting, Storage and Shipping (of seedlings): | - Harvesting sprigs directly from sight can be transported bare root, or cultivat in peat pots and transported (Stevens). |
| Length of Storage (of seedlings, between nursery and outplanting): | - |
| Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering): | - Plant Propagules 12” to 18” apart.<br>- Plant when Propagules reach 6” (Stevens). |
| Other Comments (including collection restrictions or guidelines, if available): | - |

| INFORMATION SOURCES | |
|---|---|
| References (full citations): | Barner, Jim 2007. Propagation protocol for production of *Scirpus microcarpus* J K. Presl seeds; USDA FS - R6 Bend Seed Extractory, Bend, Oregon. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 16 Apri 2012). Moscow (ID): University of Idaho, College of Natural Resources, Fores Research Nursery.<br>C. Presl. "Scirpus microphyllus". Plants for a Future. 2010. Plants for a Future. April, 12 2012. http://www.pfaf.org/user/Plant.aspx?LatinName=Scirpus+microcarpus<br>Leigh, Michael. Grow Your Own Native Landscape. Native Plant Salvage Project, WSU Cooperative Extension-Thurston County. Revised edition, June 1999<br>Stevens, M. and R. Vanbianchi. 1993. Restoring Wetlands in Washington: A Guidebook for Wetland Restoration, Planning and Implementation. Washington State Department of Ecology Publication 93-17, 110 p.<br>University of Wisconsin Botany Plant Growth Facilities. 2004. University of Wisconsin-Madison. April 16, 12. http://botany.wisc.edu/garden/UW-Botanical_Garden/Cyperaceae.html<br>USDA, NRCS. 2002. The PLANTS Database, Version 3.5 **(http://plants.usda.gov)**. **National Plant Data Center**, Baton Rouge, LA 70874-4490 USA.<br>WSU College of Agricultural resources. 2007. Kathleen Duncan. April 16, 12. http://cahedb.wsu.edu/nativePlant/scripts/webDisplayPlant.asp?ID=nv07 |
| Other Sources Consulted (but that contained no pertinent information) (full citations): | Calflora. 2012. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/ (Accessed: Apr 16, 2012).<br>Green King Country. 2008. King County Washington. April 16, 2012. http://green.kingcounty.gov/gonative/Plant.aspx?Act=view&PlantID=102<br>WNPS. 2007. Washington Native Plant Society. April 16, 2012. http://www.wnps.org/landscaping/herbarium/pages/scirpus-microcarpus.html |
| Protocol Author (First and last name): | Justin Bettis |
| Date Protocol Created or Updated (MM/DD/YY): | 4/28/2012 |

Appendix: *Scirpus microcarpus* protocol (Crystal Elliot, 6/3/03)

## Small-fruited bulrush, *Scirpus microcarpus*

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Range

- Western, north central, and northeast United States; also along the coast of British Columbia (3 and 5)

Climate, elevation

- Moist, mild climate; low to middle elevations (3)

Local occurrence (where, how common)

- Often grows in marshes, lake edges, swamps, wet meadows, forested wetlands, sloughs, stream banks (1 and 3)

Habitat preferences

- Often in mucky soils (1)
- Tolerates shade, and can also be found in clearings (1)

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

- Can tolerate fluctuating water levels and prolonged soil saturation (2)
- Tolerates shade
- Can be found in communities of varying successional stages

Associated species

- *Carex obnupta* , *Juncus effuses*, *Cornus stolonifera, Equisetum arvense, Rubus spectabilis, Lysichitum americanum* (1 and 4)

May be collected as: (seed, layered, divisions, etc.)

- Seed (1)
- Rhizomes (4)

## Collection restrictions or guidelines

- Collect seeds in late summer or early fall
- Harvest rhizomes while plant is dormant in the winter (4)

## Seed germination (needs dormancy breaking?)

- Cold stratification for 2-3 months under moist conditions (4)

## Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.)

- Sow seeds into flats, transplant when seedlings are two inches tall (2)
- Rhizomes can be planted immediately on-site, or can be potted and grown for later division (4)

## Soil or medium requirements (inoculum necessary?)

- Silty/mucky soil with high water holding capacity (2)

## Installation form (form, potential for successful outcomes, cost)

- Rhizomes (2 and 4)
- Direct seeding (2)
- Established seedlings

## Care requirements after installed (water weekly, water once etc.)

- Soil should be kept consistently moist (4)

## Sources cited


1. Guard, B. Jennifer. Wetland Plants of Oregon and Washington. Lone Pine Publishing. Vancouver, B.C. 1995.

2. Leigh, Michael. Grow Your Own Native Landscape. Native Plant Salvage Project, WSU Cooperative Extension-Thurston County. Revised edition, June 1999.

3. Pojar, Jim and Andy MacKinnon. Plants of the Pacific Northwest Coast-Washington, Oregon, British Columbia and Alaska. B.C. Minisrty of Forest and Lone Pine Publishing. 1994.

4. Stevens, M. and R. Vanbianchi. 1993. Restoring Wetlands in Washington: A Guidebook for Wetland Restoration, Planning and Implementation. Washington State Department of Ecology Publication 93-17, 110 p.

5. USDA, NRCS. 2002. The PLANTS Database, Version 3.5 **(http://plants.usda.gov)**. **National Plant Data Center**, Baton Rouge, LA 70874-4490 USA.

Data compiled by:
Crystal Elliot, 6/3/03