**Plant Propagation Protocol for *[Eriophorum angustifolium]***
ESRM 412 – Native Plant Production

| **TAXONOMY** | |
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| Family Names | |
| Family Scientific Name: | *Cyperaceae* |
| Family Common Name: | Sedge family |
| Scientific Names | |
| Genus: | *Eriophorum* L. – cottongrass |
| Species: | *Eriophorum angustifolium* Honck. – tall cottongrass |
| Species Authority: | __ |
| Variety: | |
| Sub-species: | -*Eriophorum angustifolium* Honck. ssp. *angustifolium* – tall cottongrass<br>-*Eriophorum angustifolium* Honck. ssp. *triste* (Th. Fr.) Hultén – tall cottongrass |
| Cultivar: | |
| Authority for Variety/Sub-species: | Hultén, Kartesz & Gandhi |
| Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information) | -*Eriophorum angustifolium* Honck. ssp. *scabriusculum* Hultén<br>- *Eriophorum angustifolium* Honck. ssp. *subarcticum* (Vassiljev) Hultén ex Kartesz & Gandhi |
| Common Name(s): | narrowleaf cottonsedge, tall cotton-grass, tall cottongrass |
| Species Code (as per | ERAN6 |

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| USDA Plants database): | |
| **GENERAL INFORMATION** | |
| Geographical range (distribution maps for North America and Washington state) |  |
| Ecological distribution (ecosystems it occurs in, etc): | -Fens, bogs, wet ditches; scattered at low to middle elevations ( Pojar & Mackinnon)<br>-Substrate wet meadows, around the margins of ponds, marshes, river terraces, tundra; aquatic (emergent), imperfectly drained, on seepage slopes, solifluction slopes; calcareous; sand, silt (often in fluvial materials), moss, gravel, rock (bouldery rubble); with high organic content, or peat. (Aiken, Boles, and Dallwitz) |
| Climate and elevation range | Grows at high elevations and in lowlands (Horwood)<br>Occurs in areas of dense humidity and high levels of rainfall- over 100 inch (Phillips) |
| Local habitat and abundance; may include commonly associated species | -In marshes with sedges and orchids of a less special nature (Horwood)<br>-Does not do well on slopes<br>-Usually grows in acid peat soils but also in mineral soils<br>-Commonly associated species: *Potentilla palustris, Menyanthes trifoliata and Carex rostrata.* (Phillips) |
| Plant strategy type / successional | -Best known as “colonizer of bare peat” (Phillips) |

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| stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional) | |
| Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc) | "Culms to 100 cm × (0.8–)1–1.2 mm distally. Leaves: blades flat, tip trigonous, channeled in cross section, to 40 cm × 1.5–6(–8) mm; distal leaf blade much longer than sheath. Inflorescences: blade-bearing involucral bracts 1–3, proximally blade, often sheath black, leaflike, longest 1–12 cm. Spikelets (1–) 2–10, in subumbels, patent or pendent, ovoid, 10–20 mm in flower, 20–50 mm in fruit; peduncles 5–60 mm, smooth or scabrous; scales lanceolate or ovate, 5–10 mm, with prominent midrib fading proximal to tip, apex ± acute; proximal scales without lateral ribs. Flowers: perianth bristles 10 or more, white or pale yellow brown, 15–30 mm, smooth; anthers 2–5 mm. Achenes black, oblanceoloid, 2–5 mm." - (Flora of North America) |
| **PROPAGATION DETAILS** | |
| Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from): | __ |
| Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules): | -Colonizer plant- "is able to form dense cover and build-up a critical standing crop" (Lanta, Doležal & Šamata)<br><br>-"nurse plant effect" (Callaway & Walker 1997, Groeneveld & Rochefort 2002).<br><br>-Has a positive impact on the thriving of peat mosses during the restoration of ombotrophic peatlands. (Aiken, Boles, and Dallwitz)<br><br>- Easy transplantation and propagation (Aiken, Boles, and Dallwitz)<br><br>-Helps best with recolonization of *Sphagnum* diaspores. (Aiken, Boles, and Dallwitz) |

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| Propagation Method (Options: Seed or Vegetative): | -Air propagation- the fruits dropped out in the air after being carried by perianth with long hair (Phyllis)<br><br>-"radially spreading phalanx" plant (Lanta, Doležal & Šamata) |
| Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.)) | Bare Root, Seed, Sprigs |
| Stock Type: | |
| Time to Grow (from seeding until plants are ready to be outplanted): | -Growth begins in first warm weather of Spring- March or April (Phillips)<br>-Only etiolated leaves are formed early in the season. Carotenoids and antioxidants protect photosynthetic membranes when they appear. (Aiken, Boles, and Dallwitz) |
| Target Specifications (size or characteristics of target plants to be produced): | 2 feet tall at full maturity- Flowering stem should be taller than leaves |
| Propagule Collection (how, when, etc): | Wind Dispersion because of perianth with long hair (Phillys) |
| Propagule Processing/Propagule Characteristics (including | Seed density: 160000 seeds per pound<br>Seed spread rate is slow (USDA) |

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| seed density (# per pound), seed longevity, etc): | |
| Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc): | - Moist soil conditions<br>- Peat soil |
| Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc): | - Moist soil conditions<br>- Peat soil<br>-No salinity<br>- No shade<br>-If potted , the plant should be planted in a medium pot and with up to 3 inches of water over the crown (thewatergardenshop.com) |
| Establishment Phase (from seeding to germination): | Long life span- it will reach 2 feet high at maturity (gardengides.com) |
| Length of Establishment Phase: | Can live for about 20 years. (gardengides.com) |
| Active Growth Phase (from germination until plants are no longer actively growing): | -Starts blooming in late spring<br>-Produces fruit and seeds during the summer (USDA)<br>Planting instructions:<br>-Germination takes about 2 to 6 weeks under temperature of 15 degrees C<br>- The plant can be potted and kept in a cold frame<br>-When the plant is large enough for the pot, prick the seedlings out into individual pots<br>-Plant seedlings out during the Summer (Plants for the Future) |
| Length of Active Growth Phase: | From late Spring into the Summer season- 2 to 6 weeks (Plants for the Future) |
| Hardening Phase (from | In late October – December, leaves change from green to red then wither; the triangular shaped leaves change color before the channeled blades. |

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| 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: | October to December |
| Harvesting, Storage and Shipping (of seedlings): | -Cold stratification not required for seed germination (gardengides.com)<br>-Plant cannot survive exposure to temperatures below -43°F (gardengides.com) |
| 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 cannot survive exposure to temperatures below -43°F (gardengides.com)<br>- Thrives in damp soils<br>- Transfer potted plants outdoors during the summer |
| Other Comments (including collection restrictions | -High fire tolerant<br>- Not drought tolerant<br>- Can withstand temperature as low as -43 degrees F<br>- Gives Habitat opportunities (Water Side Nursery)<br>Alternative uses: ( Plants for a Future) |

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| or guidelines, if available): | - Grass's long white tuff of hair is used to make pillows<br>- Used in attempt to substitute cotton under name "Arctic Wool"<br>- Used to make candle wicks<br>- Used to make mats, covers and papers |

## INFORMATION SOURCES

References (full citations):


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- *Flora of North America* online: Volume 23 : Eriophorum, Accessed 18 April 2011 from http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=112065 (p 21)

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| | - V. Lanta, J. Doležal & J. Šamata , . "Vegetation patterns in a cut-away peatland in relation." Suoseura — Finnish Peatland Society, 2004. Web. 20 Apr 2011. <http://www.butbn.cas.cz/dolezal/publikace/SUO2004.pdf>. (p.36) |
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| Protocol Author (First and last name): | R. Nelli Newport |
| Date Protocol Created or Updated (MM/DD/YY): | 04/18/11 |

Note: This template was modified by J.D. Bakker from that available at:
http://www.nativeplantnetwork.org/network/SampleBlankForm.asp