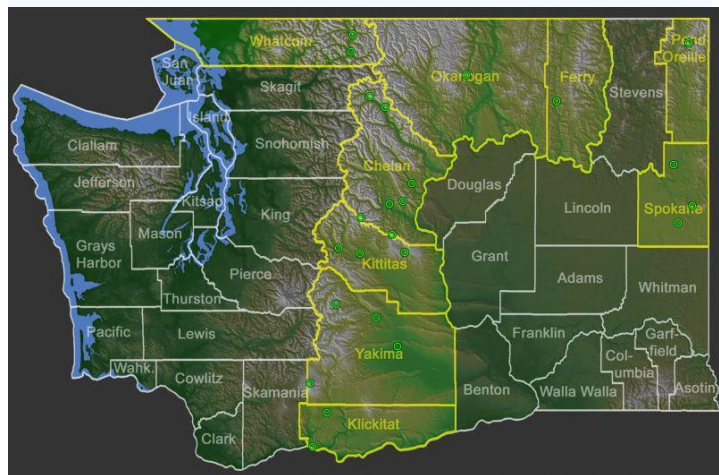
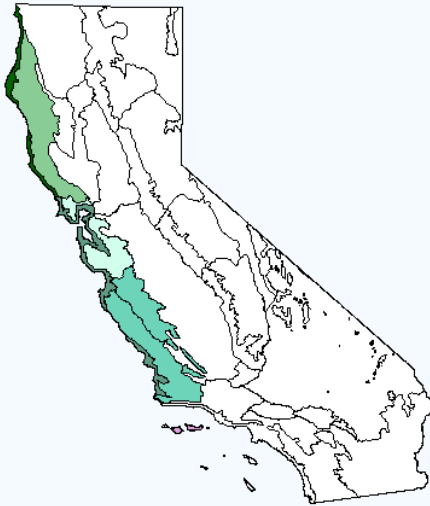


Plant Propagation Protocol for [*Calamagrostis rubescens*]
ESRM 412 – Native Plant Production

TAXONOMY	
Plant Family	
Scientific Name	Poaceae
Common Name	Grass family
Species Scientific Name	
Scientific Name	Calamagrostis rubescens
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	N/A
Common Name(s)	Pinegrass
Species Code (as per USDA Plants database)	CALRUB

GENERAL INFORMATION (1)(2)

Geographical range



Picture from Burke Museum

Ecological distribution	Lodgepole pine forest, Ponderosa pine forest or dry coniferous forest
Climate and elevation range	From sea level to 10000ft, like warm dry south side high elevation
Local habitat and abundance	Dry and warm high elevation open pine forest
Plant strategy type / successional stage	N/A
Plant characteristics	Long flat leaves about 4 to 12 in, common height are 20 to 45 in,
PROPAGATION DETAILS (3)(4)(5)(6)(7)	
Ecotype	Open pine forest
Propagation Goal	Seed
Propagation Method	Seed
Product Type	Propagule
Stock Type	Container
Time to Grow	12 weeks
Target Specifications	About 15 true leaves and 10 in height.
Propagule Collection Instructions	Seed collect in August when florets turn color and easily to stripe out of florets. Spread seed on open area and dry seeds.
Propagule Processing/Propagule Characteristics	Seeds clean use huller and fanning mill. Storage seed in 3 to 5C seed bank and at least 10 years.
Pre-Planting Propagule Treatments	Seeds germinate at 21C and require higher presence of light.
Growing Area Preparation / Annual Practices for Perennial Crops	Growing medium used is 70% 6:1:1 milled sphagnum peat, perlite, and vermiculite and 30% sand with <u>Osmocote</u> controlled release fertilizer (13N:13P2O5:13K2O; 8 to 9 month release rate at 21C) and <u>Micromax</u> fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 1 gram of <u>Osmocote</u> and 0.20 gram of <u>Micromax</u> per 172 ml container. Temperature at 21 to 25C daytime and 16 to 18C at night. Seeds keep in greenhouse until May and then move to outdoor.
Establishment Phase Details	Medium that use during germination needs to be moist and after seedling they need to be dry down slightly
Length of Establishment Phase	14 days
Active Growth Phase	Root and shoot development
Length of Active Growth Phase	10 weeks
Hardening Phase	Plants are fertilized with 10-20-20 liquid NPK at 200 ppm during August and September
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	Total harvest time 4 months Storage in low temperature and dry area
Length of Storage	5 months

Guidelines for Outplanting / Performance on Typical Sites	N/A
Other Comments	N/A
INFORMATION SOURCES	
References	<p>(1) Parish, Roberta, Ray Coupe and Dennis Lloyd (ed.). 1996. Plants of Southern Interior British Columbia. Lone Pine Publishing</p> <p>(2) U.S. Department of Agriculture, Forest Service. 1937. Range plant handbook. Washington, DC</p> <p>(3) Flora of the Pacific Northwest, Hitchcock and Cronquist, 7th edition, University of Washington Press, 1973.</p> <p>(4) Seeding Rate Statistics for Native and Introduced Species, Hassell, Wendel, U.S.D.I. and U.S.D.A., April 1996.</p> <p>(5) Growing Colorado Plants From Seed, A State of the Art. Vol. 2: Grasses, U.S. Fish and Wildlife Service, NTIS General Technical Report, 1982.</p> <p>(6) Glacier National Park Native Plant Nursery Propagation Records, unpublished.</p> <p>(7) Propagation of Pacific Northwest Native Plants, Rose, R., Chachluski, C., and Haase, D. Oregon State University Press, 1998.</p>
Other Sources Consulted	N/A
Protocol Author	Tianyang Xu
Date Protocol Created or Updated	2015/5/17