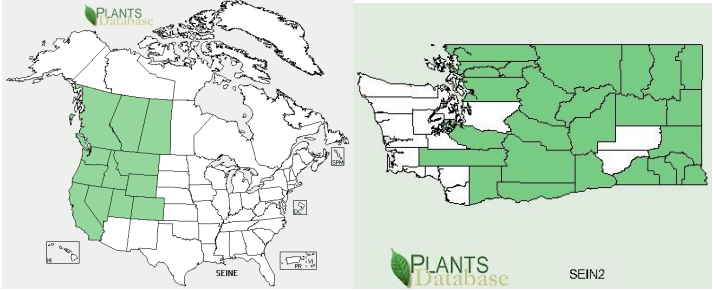


Plant Propagation Protocol for *Senecio integerrimus*
ESRM 412 – Native Plant Production



TAXONOMY	
Family Names	
Family Scientific Name:	Asteraceae
Family Common Name:	Aster
Scientific Names	
Genus:	<i>Senecio</i>
Species:	<i>integerrimus</i>
Species Authority:	Nutt.
Variety:	<i>exaltatus</i>
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	Nutt. (Cronquist)
Common Synonym(s) (include full scientific names (e.g., <i>Elymus glaucus</i> Buckley), including variety or subspecies information)	SECO12 <i>Senecio columbianus</i> Greene SEEX2 <i>Senecio exaltatus</i> Nutt. SEHO3 <i>Senecio hookeri</i> Torr. & A. Gray SEINV2 <i>Senecio integerrimus</i> Nutt. var. <i>vaseyi</i> (Greenm.) Cronquist SELUE2 <i>Senecio lugens</i> Richardson var. <i>exaltatus</i> (Nutt.) A. Gray SEVA2 <i>Senecio vaseyi</i> Greenm.
Common Name(s):	<u>Columbia Ragwort</u> , Western Groundsel(5), and Columbia mountain butterweed
Species Code (as per USDA Plants database):	SEINE

GENERAL INFORMATION

Geographical range (distribution maps for North America and Washington state)	 <p>Throughout much of Western United States, Washington to Kansas and Minnesota (1)</p>
Ecological distribution (ecosystems it occurs in, etc):	wetland-riparian (3)
Climate and elevation range	This species is equally likely to occur in wetlands or non wetlands between 4593 and 10499 feet (3)
Local habitat and abundance; may include commonly associated species	Open areas from the valleys to near timberline (4) are the common habitats of Columbia Ragwort.
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Lambstongue are Forbs/herbs, Biennial/perennials, active growth in spring summer, C:N ratio High, Yellow flower on dark green erect plant form, Adapted to fine, medium or coarse soil, , medium seed vigor, blooming in midsummer, (2).

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):	Plants Propagated by seed only.(2)
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.))	Container plugs are grown from seed.(6)
Stock Type:	
Time to Grow (from seeding until plants are ready to be outplanted):	2 years (7)

Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	Mid to late summer.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	400,000 seeds/pound(2)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	No cold stratification is required. (2) Seeds exhibit physiological dormancy. Pre-Planting Treatments: Seeds are placed in cold moist stratification for 112 days. Germination occurs at 2 C.(6) 45 days stratification, cool moist, then outdoor germination created 56 % survival. (7)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	
Establishment Phase (from seeding to germination):	Germination begins in March and may take 2-4 weeks.
Length of Establishment Phase:	Plant will have green leaves as summer approaches and temps rise.(7)
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):	Outdoor growing requires no extra hardening treatment.
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	Stored in lathe houses, allowing protection from extreme cold Remove mulch in late winter early spring as temperatures rise.(7)
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):	
Other Comments (including collection restrictions or	Some insect damage noted, no diseases, and good seed production for up to 4 years.(7)

guidelines, if available):	
INFORMATION SOURCES	
References (full citations):	<ol style="list-style-type: none"> 1. Map: http://plants.usda.gov/maps/large/SE/SEINE.png 2. http://plants.usda.gov/java/profile?symbol=SEINE 3. Photo: http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=7504 4. http://biology.burke.washington.edu/herbarium/imagecollection.php?Page=nomatch.php?Genus=Senecio&Species=integerrimus 5. Parish, Robert. Ray Coupe, and Dennis Lloyd. <u>Plants of Southern Interior British Columbia and the Map Inland Northwest</u>. Vancouver, B.C. Lone Pine Publishing, 1996 6. http://www.nativeplantnetwork.org/network/view.asp?protocol_id=1506&referer=wildflower 7. http://nativeplants.for.uidaho.edu/network/view.asp?protocol_id=2839 8. http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Senecio%20integerrimus
Other Sources Consulted (but that contained no pertinent information) (full citations):	<ol style="list-style-type: none"> 1. Pojar, J. and A MacKinnon. 1994. <u>Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska</u>. B.C. Ministry of Forest and Lone Pine Publishing. Vancouver, British Columbia 2. Taylor, Ronald J. <u>Sagebrush Country A wild Flower Sanctuary</u>. Mountain Press Publ. Co. 1992
Protocol Author (First and last name):	Ron M. Gehret
Date Protocol Created or Updated (MM/DD/YY):	05/25/09

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