Plant Propagation Protocol for *Ribes inerme*
ESRM 412 – Native Plant Production

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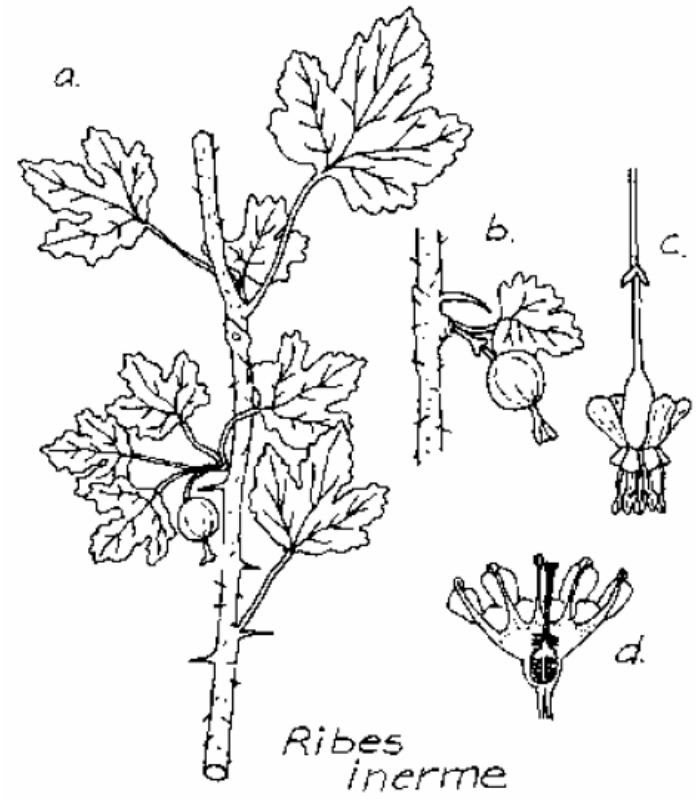
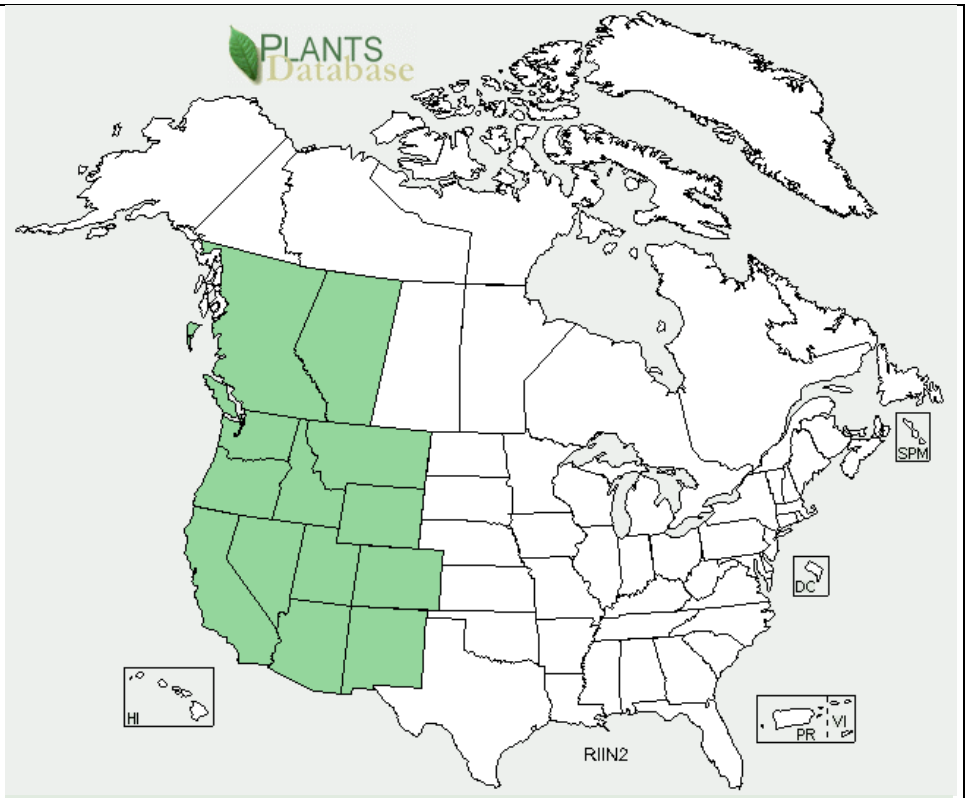


a. stem with nodal spines and intermodal bristles, leaf 3-lobbed; **b.** fruit, a smooth berry; **c**. flower with reflexed sepals and stamens extending about twice as long as petals; **d**. dissected flower with pilose pistil. (Van Arsdel)

TAXONOMY	
Family Names	
Family Scientific Name:	Grossulariaceae
Family Common Name:	Currant
Scientific Names	
Genus:	*Ribes*
Species:	*inerme*
Species Authority:	Rydb. (USDA)
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)	*Grossularia inermis* (Rydb.) Coville & Britt. (ITIS) *Grossularia inermis* var. *pubescens* Berger (ITIS) *Ribes divaricatum* var. *inerme* (Rydb.) McMinn (ITIS) *Ribes inerme* var. *subarmatum* M.E. Peck (ITIS) *Ribes valicola* Greene ex Rydb. (ITIS) *Ribes purpusii* Koehne ex Blank. (Bonner)
Common Name(s):	Whitestem gooseberry, Whitestem currant (USDA) White-stemmed gooseberry (Bonner)
Species Code (as per USDA Plants database):	RIIN2
GENERAL INFORMATION	

Geographical range (distribution maps for North America and Washington state)	  (USDA)
Ecological distribution (ecosystems it occurs in, etc):	Is found in wetland-riparian areas (calflora)
Climate and elevation range	Requires a minimum of 130 frost free days (USDA) Found at elevations between 3937 and 10827 feet (calflora)

Local habitat and abundance; may include commonly associated species	Adapted to coarse and medium soils. (USDA)
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	Utilizes dense Summer foliage porosity for success. Able to resprout readily. (USDA)
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Shrub, at 8 feet when mature. Has green flowers and ded edible fruit. Can persist for a long lifespan. (USDA) The seed is redish purple, smooth, and .6cm in diameter. (Bonner)
PROPAGATION DETAILS	
Bonner – Woody Plant Seed Manual for Ribes and USDA PLANTS Database	
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 (Bonner)
Propagation Method (Options: Seed or Vegetative):	Seed. Most species of *Ribes* can be propagated readily from hardwood cutting taken in autumn. (Bonner)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Bare root, container, and seed (USDA)
Stock Type:	

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):	Fruit/Seed in Spring (USDA) Fruit Ripening May/June. The fruits should be picked or stripped from the branches as soon as they are ripe to preclude loss to birds. Unless the seeds are to be extracted immediately, fruits should be spread out in shallow layers to prevent overheating. (Bonner)
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	354000 – 398000 seeds/lb (Idaho and California, 5 samples) Maceration and washing are used to separate the seeds from the pulp. Dried fruits should first be soaked in water before cleaning. Small quantities of berries can be cleaned in a kitchen blender. The berries are covered with water and ground in the blender for 15 to 45 seconds. After the seeds have separated from the pulp, additional water is added to allow the sound seeds to settle. The pulp, empty seeds, and excess water can then be decanted. Seeds may be washed using a funnel lined with filter paper and then dried on the filter paper. Seeds stored dry at 21C maintained 80% viability after 11 years. (Bonner)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	54 samples with cold stratification at 0°C for 120-200 days resulted in 60% germination. A second wet chilling under the same circumstances resulted in 74% germination. (Bonner)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Mineral soil, well supplied with humus. Germination rate and total can be increased by wet prechilling in sand, peat, or vermiculite or in a mixture of these media. Seed losses from damping-off fungi can be prevented by applying 646 mg of copper oxalate per 100 cm^2 of culture surface. (Bonner)
Establishment Phase (from seeding to germination):	Fall sowing is recommended. If fall-sowing is not possible, the seeds should be stratified before spring-sowing. Seeds should be sown at a rate of 646 to 860/m^2 (60 to 80/ft^2) (NBV 1946) or 130 viable seeds/m of row (40/ft) and covered to a depth of 3 to 6 mm (1/8 to 1/4 in). Exhibits epigeal growth. (Bonner)
Length of Establishment Phase:	

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):	
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):	Planting density per acre: 700 – 1200 (USDA)
Other Comments (including collection restrictions or guidelines, if available):	
PROPAGATION DETAILS	
Butler in the Native Plant Network	
Ecotype (this is meant primarily for experimentally	Colorado, Endovalley (Butler)

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 (Butler)
Propagation Method (Options: Seed or Vegetative):	Vegetative (Butler)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container (plug) (Butler)
Stock Type:	
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):	
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	
Pre-Planting Propagule Treatments (cleaning,	Vegetative material is treated with a rooting hormone. (Butler)

dormancy treatments, etc):	
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Grown in peat/perlite media, 0% root, located under mister. (Butler)
Establishment Phase (from seeding to germination):	
Length of Establishment Phase:	
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):	
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 guidelines, if available):	Hard wood. (Butler)
INFORMATION SOURCES	
References (full citations):	Bonner, Franklin T.; Karrfalt, Robert P., eds. 2008. The Woody Plant Seed Manual. Agric. Handbook No. 727. Washington, DC. U.S. Department of Agriculture, Forest Service. Pfister RD and Sloan JP. Section: *Ribes L*. pp961-8. Butler, Jennifer; Frieswyk, Christin. 2001. Propagation protocol for vegetative production of container *Ribes inerme* plants; USDI NPS - Rocky Mountain National Park, Estes Park, Colorado. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 17 May 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. *CalFlora: Information on California plants for education, research and conservation*. The CalFlora Database, Berkeley. (accessed 17 May 2012) http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=7120 easterncoloradowildflowers.com, Retrieved 20 May, 2012 from http://www.easterncoloradowildflowers.com/Ribes%20inerme.htm ITIS. Retrieved 17 May, 2012, from the Integrated Taxonomic Information System on-line database, http://www.itis.gov. USDA, NRCS. 2012. The PLANTS Database (http://plants.usda.gov, 18 April 2012). National Plant Data Team, Greensboro, NC 27401-4901 USA. http://plants.usda.gov/java/charProfile?symbol=RIIN2 Van Arsdel EP, Geils BW. The *Ribes* of Colorado and New Mexico and Their Rust Fungi. USDA Forest Health Technology Enterprise Team 2003. FHTET 04-13.
Other Sources Consulted (but that contained no pertinent	Stidham ND, Ahring RM, Powell J, and Claypool PL. Chemical Scarification, Moist Prechilling, and Thiourea Effects on Germination of 18 Shrub Species. 1980. *Journal of Range Management.* 33(2) pp 115-8. -Looked at *Ribes aureum*

information) (full citations):	Hancock JF. Temperate Fruit Crop Breeding: Germplasm to Genomics. Brennan RM. Chapter 6, Currants and Gooseberries. 2008. Springer Sheat, Wilfred G. Propagation of trees, shrubs and conifers. 1948 Macmillan, London. Wochok ZS. The role of tissue culture in preserving threatened and endangered plant species. 1981. *Biological Conservation* 20 pp 83-9.
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