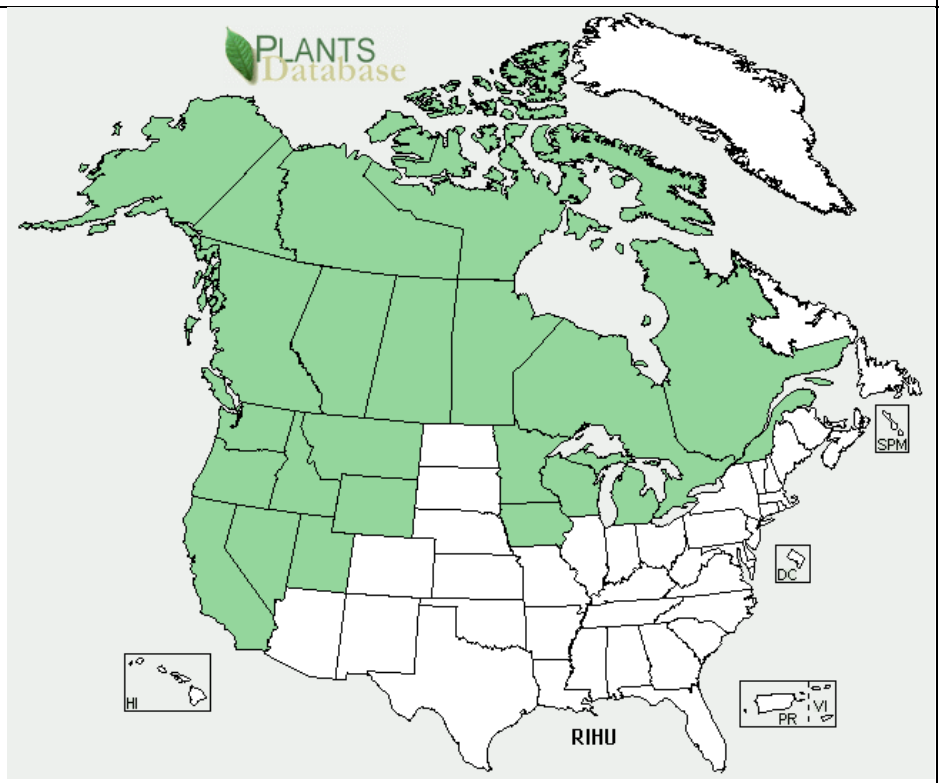
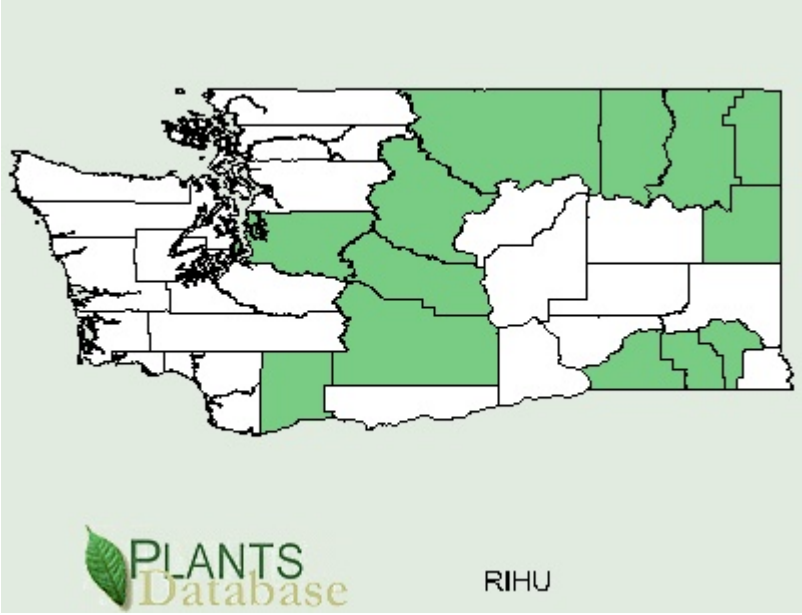
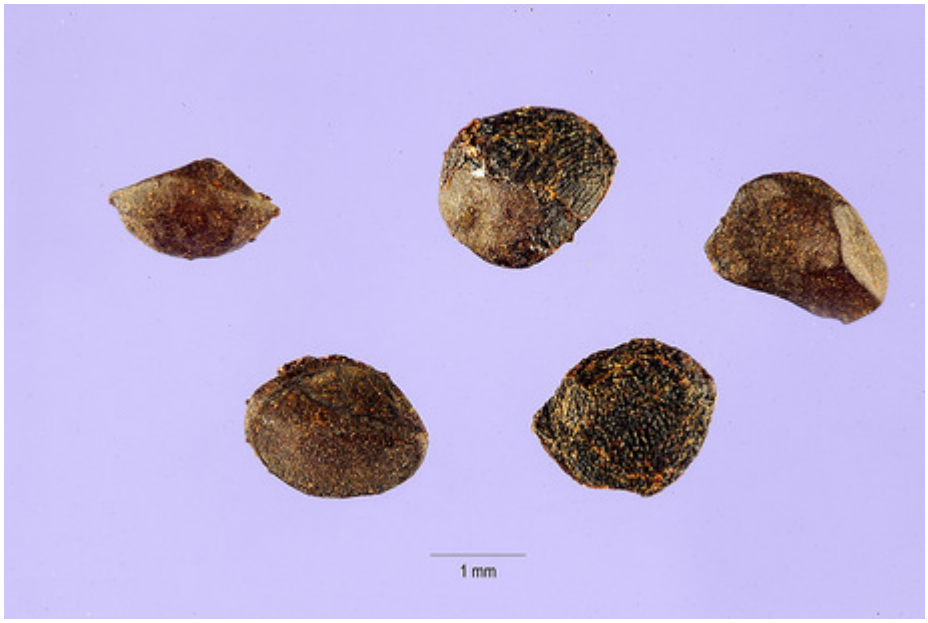
Plant Propagation Protocol for Ribes Hudsonianum
ESRM 412 – Native Plant Production
Spring 2009

Figure 1: Ribes Hudsonianum Richardson (Courtesy of Emmet J. Judziewicz) (Robert W. Freckmann Herbarium)

TAXONOMY	
Family Names	
Family Scientific Name:	Grossulariaceae
Family Common Name:	Currant family
Scientific Names	
Genus:	*Ribes*
Species:	*hudsonianum*
Species Authority:	Richardson
Variety:	Variety *Ribes hudsonianum* Richardson var. *hudsonianum* – Hudson Bay currant Variety *Ribes hudsonianum* Richardson var. petiolare (Douglas) Jancz. – western black currant (United States Department of Agriculture, 2009)
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)	Northern black currant Canadian black currant (Robert W. Freckmann Herbarium)
Common Name(s):	Hudson's Bay Currant, Northern Black Currant
Species Code (as per USDA Plants database):	RIHU
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	 **Figure 2: Ribes Hudsonianum. Distribution in North America. Shaded – present, white – absent (Courtesy (United States Department of Agriculture, 2009)** NORTHERN AMERICA Subarctic America: Canada - Northwest Territory, Yukon Territory; United States - Alaska Eastern Canada: Canada - Ontario, Quebec [w.] Western Canada: Canada - Alberta, British Columbia, Manitoba,

	Saskatchewan Northeastern U.S.A.: United States - Michigan [n.] North-Central U.S.A.: United States - Iowa [n.e.], Minnesota [n.], Wisconsin Northwestern U.S.A.: United States - Idaho, Montana, Oregon, Washington, Wyoming [c. & w.] Southwestern U.S.A.: United States - California [n.], Nevada [n.], Utah [n.] (United States Department of Agriculture, Agricultural Research Service, Beltsville Area, 29) Distribution in Washington State  **Figure 3: Ribes Hudsonianum. Distribution in Washington State. Shaded - present, white - absent (Curtesy of (United States Department of Agriculture, 2009)**
Ecological distribution (ecosystems it occurs in, etc):	Habitat: streambanks, moist woods and margins of meadows in mountains. (Flora of the Inland Pacific Northwest, 2000)
Climate and elevation range	Ecology: Streamsides Elevation: 1500 m above the sea level. (The University and Jepson Herbaria, University of California at Berkeley , 2009)
Local habitat and abundance; may include commonly associated species	Moisture Requirements: Dry, Normal Light Requirements: Sun, Partial Shade Soil Requirements: Loam CaCO3 Tolerance: Low
Plant strategy type / successional stage (stress-tolerator,	

competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	A decidious shrub growing to 1m. It is in flower in May, and the seeds ripen from July to August. The flowers are hermaphrodite (have both male and female organs) and are pollinated by Insects. For the most part, western black currant occurs as scattered individuals or in small patches, its distribution being local rather than general (United States Department Of Agriculture, 1988).
PROPAGATION DETAILS (Forest Service, 1948) (if other is not noted)	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
Propagation Method (Options: Seed or Vegetative):	Seed  Figure 4: R. Hudsonianum seeds. (Courtesy of (Encyclopedia of Life, 2009) Note: Plant could be propagated by Bare Root, Container and Seed.
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field	Container (plug)

grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	
Stock Type:	
Time to Grow (from seeding until plants are ready to be outplanted):	The plants should be 5-6 cm in 6-7 weeks after germination. Prick out the seedlings into individual pots when they are large enough to handle and grow them on in a cold frame for their first winter, planting them out in late spring of the following year. (Plants For A Future, 2000)
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	To minimize consumption by birds the fruit should be picked or stripped from the branches as soon as possible after ripening. The fruit should be spread out to dry. To prevent overheating the fruit should be spread out into shallow layers.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	To extract seeds one should macerate the berries in water. The empty seeds and pulp should flow away, while the filled seeds should be dried and run through the fan to remove any debris. The best way to store the seeds: low initial moisture content, at low temperature and in the sealed containers. Stored seed requires 4 - 5 months cold stratification at between 0 to 9°c and should be sown as early in the year as possible (Baskin & Baskin, 1998). Under normal storage conditions the seed can remain viable for 17 years or more.
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	
Establishment Phase (from seeding to germination):	Natural germination occurs in the following spring after dispersal. Germination could be increased by cold stratification in sand or peat preceded by stratification at warm temperatures. It is alos

	possible to scarify the seeds mechanically or use a short period acid treatment.
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):	
PROPAGATION DETAILS (Young & Young, 1992)	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
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.))	Bareroot (field grown)
Stock Type:	
Time to Grow (from seeding until plants are ready to be outplanted):	Seeds are usually sown in the fall at the rate of 630 to 840 per m^2 and covered with 0.6 cm of soil. From a kilogram of seed about 400 seedlings are produced.
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	To minimize the loss to the birds the fruit should be collected as soon as they are ripe. The fruit can be macerated and the seeds recovered by flotation.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Seeds density: 2130 seeds/gram
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	The seeds are highly dormant and require warm stratification for 60 to 120 days after prolonged prechilling. Prechilling could be for up to 6 month.
Growing Area	

Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	
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	*Ribes Hudsonianum* flowers in May-July. Mature tree is about 2 m height. Fruit are smooth and black.

restrictions or guidelines, if available):	
PROPAGATION DETAILS (US Department of Agriculture, 1974)	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
Propagation Method (Options: Seed or Vegetative):	Seeds
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Bareroot (field sown)
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):	The fruit should be picked or stripped from the branches as soon as possible after ripening to minimize consumption by birds. Unless the seed is to be extracted immediately, it should be spread out to dry. To prevent overheating the fruit should be spread out into shallow layers.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Density: the 12 samples of seed collected in Idaho had shown 630,000-1,226,000 seed per pound, therefore setting the average of 965,000 seeds per pound. If the air dried seed is stored at 70°F after 17 years of storage it has shown 40% viability.
Pre-Planting Propagule	To extract seeds one should macerate the berries in water. A fast

Treatments (cleaning, dormancy treatments, etc):	method: put small quantities of the berries in the kitchen blender, cover the berries with water, and run blender for 15 to 45 seconds. The blender should run long enough to separate the sound seed from the pulp. Then one should add more water and allow the sound seed to settle. The empty seeds and pulp should flow away, while the filled seeds should be washed into a funnel lined with filter paper. Then the seed should be dried. In the laboratory *R. Hudsonianum* showed to be fast to germinate relatively to the other *Ribes* seeds. Even though, germination could be increased by cold stratification in sand or peat, or in a mixture of these media preceded by stratification at warm temperatures. It is also possible to scarify the seeds mechanically or use a short period acid treatment. Without any pregermination treatment *R. Hudsonianum* has shown 85% germination capacity in 116 samples.
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	The best seedbed appears to be mineral soil well supplied with humus. Seeds should be sown at the rate of 60-80 seeds per square foot or 40 viable seeds per lineal foot in rows and covered to a depth of 1/8 to ¼ inch.
Establishment Phase (from seeding to germination):	Usually *Ribes* seed are sown in the fall, but it also could be stratified and sown in the spring. *R. Hudsonianum* has shown to be the one of the species , which could be sawn in spring without stratification. Nonetheless the general recommendation is to fall-saw whenever possible.
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):	*Ribes Hudsonianum* flowers in May-July. Mature shrub is about 1-6 feet tall. It was first cultivated in 1899.
PROPAGATION DETAILS **Other methods - Cuttings** (Hunt, 2008) (if other is not noted)	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Cutting
Propagation Method (Options: Seed or Vegetative):	Vegetative
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container.
Stock Type:	
Time to Grow (from seeding until plants	Currants are propagated by collecting hardwood cuttings 20 to 25 cm (8 to 10 in) long in late fall, stored in moist sand, sawdust, or peat moss

are ready to be outplanted):	at about 2°C for precallusing them at low temperatures over the winter, and then planted in the spring. The plants can be transplanted to theor permanent location in one or two years, depending upon their growth (Hartmann, Kestler, Davies, & Geneve, 2002).
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	It is recommended to take cutting in about October or November. Choose a good strong branch that has just grown in the current year (See below) It is a good idea to choose a branch that anyway would be removed while pruning. This one was chosen to remove to create an airy centre to the bush, allowing air to circulate around a blackcurrant bush so as to prevent diseases.  **Figure 5: Choosing the cutting (Courtesy of Dave Hunt).** One should cut the branch off just below a bud, making a horizontal cut. It is important to have a good set of pruners so as not to tear the fibers thus preventing infection of the bush (see below).

Figure 6: Cutting the branch (Courtesy of Dave Hunt)

The cutting should be about 1ft (30cm) long.

Figure 7: Cutting (Courtesy of Dave Hunt)

Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Then you cut off the top piece of the branch, making a diagonal cut. Thought, the cut should not be too steep, in order not to increase the area of exposed branch and this too can cause infection.  **Figure 8: Cutting the top bud (Courtesy of Dave Hunt)**
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Pot (see below) Here used a mixture of old potting compost and garden soil.

	 **Figure 9: Planting a cutting (Courtesy of Dave Hunt)** Bury the cutting to a depth of about 4 inches or 10cm, covering some buds in the process. This encourages growing out from the ground more than one stem.
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):	
INFORMATION SOURCES	
References (full citations):	See Below
Other Sources Consulted (but that contained no pertinent information) (full citations):	See Below
Protocol Author (First and last name):	Yana Kazak
Date Protocol Created or Updated (MM/DD/YY):	4/28/2009

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