Plant Propagation Protocol for *Polystichum lemmonii*
ESRM 412 – Native Plant Production


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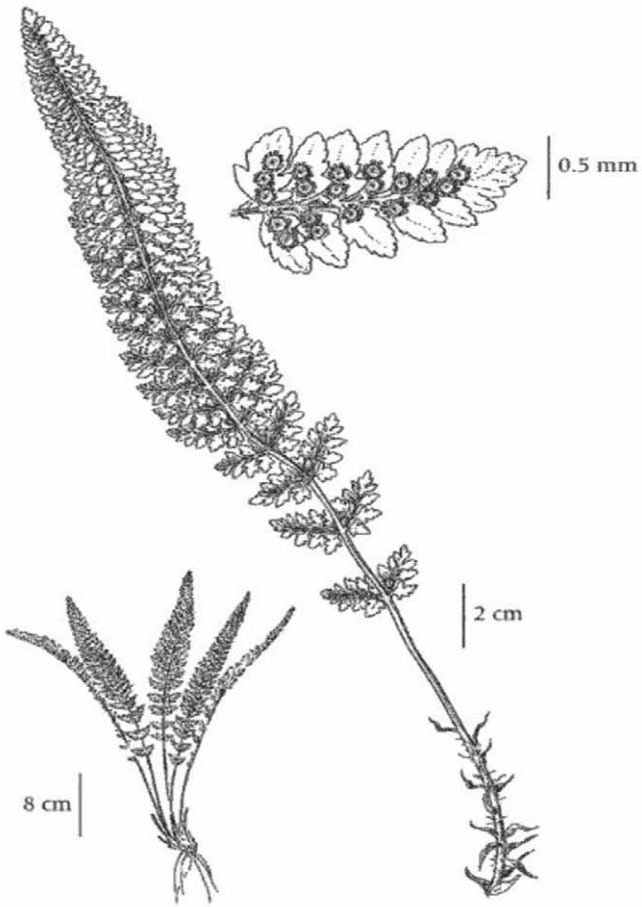
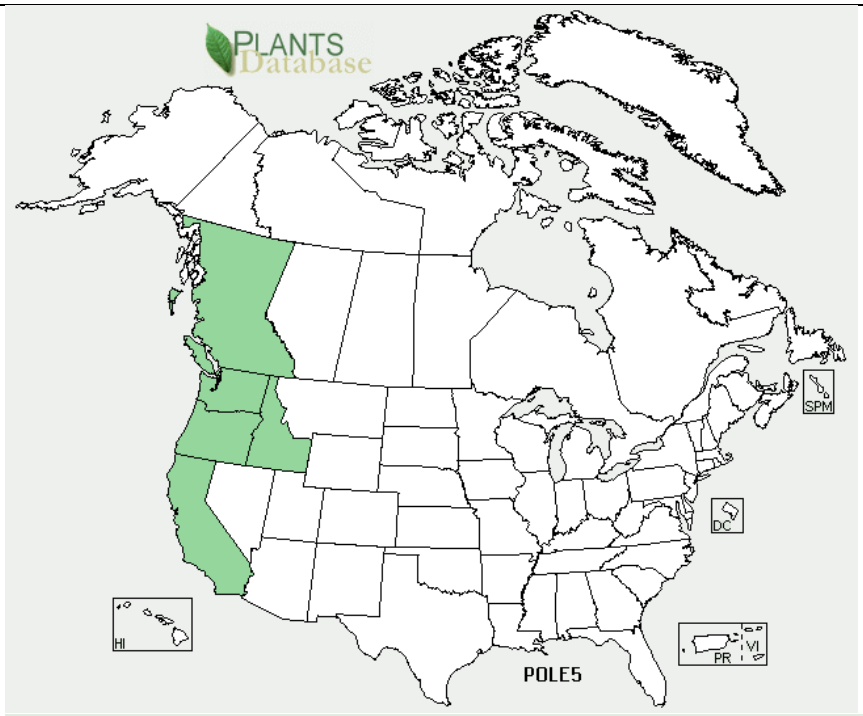
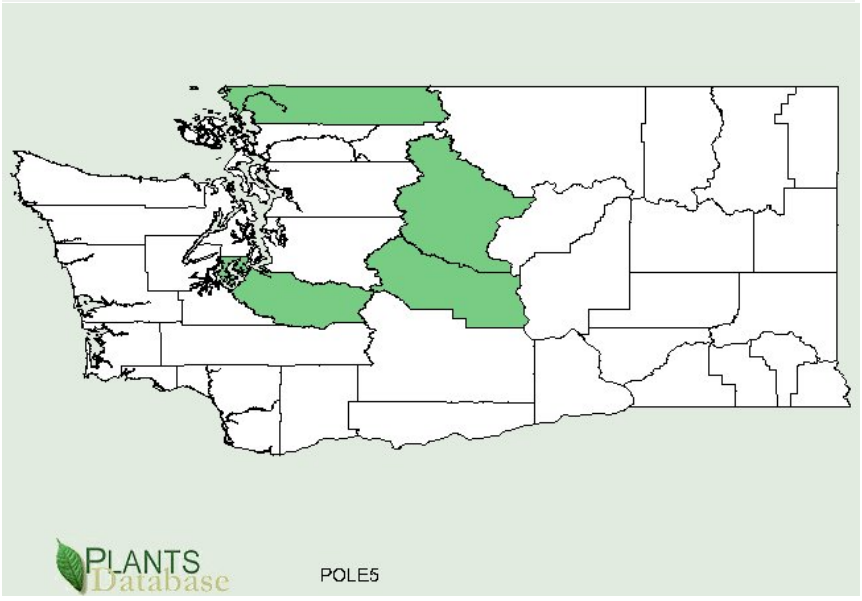


(Southern)

TAXONOMY	
Family Names	
Family Scientific Name:	Dryopteridaceae
Family Common Name:	Wood Fern Family (USDA)
Scientific Names	
Genus:	*Polystichum*
Species:	*lemmonii*
Species Authority:	Underw.
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)	POMO9 *Polystichum mohrioides* auct. non (Bory) C. Presl (USDA)
Common Name(s):	Lemmon's hollyfern (USDA) Shasta (holly)fern (Flora)
Species Code (as per USDA Plants database):	POLE5
GENERAL INFORMATION	

Geographical range (distribution maps for North America and Washington state)	  (USDA)
Ecological distribution (ecosystems it occurs in, etc):	Dry to mesic, ultramafic rock outcrops in the montane zone; rare in BC, known only from the Mt. Baldy area; S to ID and CA. (Douglas 1998)
Climate and elevation range	Found between 1200 - 2400 m (Flora)
Local habitat and abundance; may include commonly associated species	Found on rocky serpentine slopes (Flora) Prefers part shade, dry, magnesium rich rocks (Lady Bird)

Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	An evergreen, drift-forming, Lemmon's holly fern with relatively soft, 4-8 in. long, bipinnate fronds. The pinnae are neatly scalloped and arranged in a tightly overlapping pattern. (Lady Bird) Stems decumbent to ascending. Leaves erect, 1-3.5 dm; bulblets absent. Petiole 1/5-1/4 length of leaf, sparsely scaly; scales pale tan, abruptly diminishing in size distally. Blade narrowly lanceolate, 2-pinnate, scarcely narrowed at base. Pinnae ovate, overlapping, folded inward and twisted horizontally, 0.5-2 cm; base truncate to oblique, proximal acroscopic pinnules not enlarged; apex broadly acute; microscales narrowly lanceolate, with few projections, sparse, confined to costa of both surfaces. Pinnules stalked, rounded, acroscopic auricle not well developed, margins entire to weakly dentate, apex rounded. Indusia entire or minutely dentate-erose. Spores dark brown to blackish. 2 n = 82. (Flora)
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):	
Propagation Method (Options: Seed or Vegetative):	Can be propagated by spore or vegetative (Douglas)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules	

(seeds, cuttings, poles, etc.))	
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):	Sporophytes often retain significant numbers of mature spores over Winter, to be released the following Spring. It also grows vegetatively by subterranean rhizome elongation, resulting in large clumps of clones. (Southern)
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Commonly reproduces through a rhizomatous propagule (Douglas)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	
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):	Suited to ultramafic habitats, adapted to tolerate low levels of calcium, nitrogen, phosphorus, and molybdenum and high levels of magnesium, iron, chromium, and nickel. (Southern) Bright light in milder regions of the Pacific Northwest. (Cullina)
Other Comments (including collection restrictions or guidelines, if available):	Some genetic information is available for the species. Polystichum lemmonii is a tetraploid (2n = 82) and thought to be one of the parents of both P. kruckebergii and P. scopulinum. (Douglas)
INFORMATION SOURCES	
References (full citations):	CalPhotos. 2012. Regents of the University of California, Berkeley. Accessed on 16 May, 2012. Available online at: http://calphotos.berkeley.edu/. Cullina, William Native Ferns, Moss and Grasses. 2008. Houghton Mifflin Harcourt. Boston, MA. Douglas, G.W. 2003. COSEWIC status report on Lemmon's holly fern

	Polystichum lemmonii in Canada, in COSEWIC assessment and status report on Lemmon's holly fern Polystichum lemmonii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 1-13 pp. Douglas, G.W., G.B. Straley, D.V. Meidinger, and J. Pojar (editors). 1998. *Illustrated Flora of British Columbia. Volume 1: Gymnosperms and Dicotyledons (Aceraceae Through Asteraceae)*. B.C. Ministry of Environment, Lands & Parks and B.C. Ministry of Forests. Victoria. 436 Flora of North America, eFloras.org. Accessed on 19 May, 2012. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200004601 Lady Bird Johnson Wildflower Center © 2012 (Accessed 22 May, 2012) http://www.wildflower.org/plants/result.php?id_plant=POLE5 Southern Interior Rare Plants Recovery Implementation Group. 2007. Recovery strategy for the Lemmon's holly fern (*Polystichum lemmonii*) in British Columbia. Prepared for the B.C. Ministry of Environment, Victoria, BC. 14pp. USDA, NRCS. 2012. The PLANTS Database (http://plants.usda.gov, 15 May 2012). National Plant Data Team, Greensboro, NC 27401-4901 USA. http://plants.usda.gov/java/charProfile?symbol=POLE5
Other Sources Consulted (but that contained no pertinent information) (full citations):	B.C. Conservation Data Centre. 2012. Species Summary: *Polystichum lemmonii*. B.C. Minist. of Environment. Available: http://a100.gov.bc.ca/pub/eswp/ (accessed May 24, 2012). Kruckeberg, Arthur R. Geology and Plant Life: The Effects of Landforms and Rock Types on Plants. 2004. University of Washington Press. Seattle, WA. Lane, B. C. (1981). "A procedure for propagating ferns from spores using a nutrient-agar solution.". *Combined Proceedings, International Plant Propagators' Society*, 30, p. 94. Pamela S. Soltis, Douglas E. Soltis, Paul G. Wolf and Jill M. Riley. Electrophoretic Evidence for Interspecific Hybridization in Polystichum. *American Fern Journal* , Vol. 79, No. 1 (Jan. - Mar., 1989), pp. 7-13
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Date Protocol Created or Updated	06/08/12

(MM/DD/YY):	

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