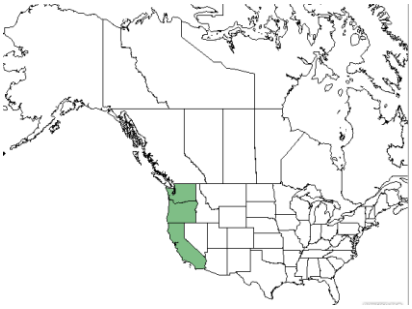
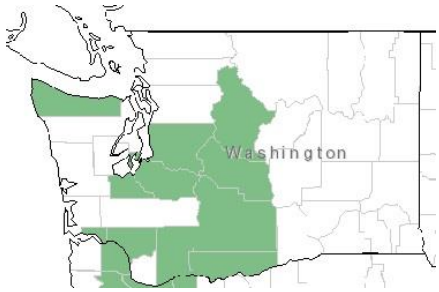
Plant Propagation Protocol for *Lathyrus polyphyllus*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/LAPO3.pdf

North America Distribution



Washington Distribution



Source: USDA PLANTS Database

TAXONOMY	
Plant Family	
Scientific Name	*Fabaceae*
Common Name	Pea family
Species Scientific Name	
Scientific Name	*Lathyrus polyphyllus* Nuttall
Varieties	None
Sub-species	None
Cultivar	None
Common Synonym(s)	*Lathyrus polyphyllus* Torr. & A.Gray *Lathyrus polyphyllus* Nutt. Ex Torr. & A.Gray (3)
Common Name(s)	leafy pea, Oregon pea (4)
Species Code (as per USDA Plants database)	LAPO3
GENERAL INFORMATION	
Geographical range	*L. polyphyllus* is located in northern California, Washington, and Oregon, west of the Cascade Range. See maps above for distribution in North America and Washington state (1, 5).
Ecological distribution	Found in Douglas-fir forests, North Coastal Coniferous forests, open Yellow Pine forests, and coastal prairies (2). Common in the *Tsuga heterophylla* zone of the western Oregon Cascade Range (8).
Climate and elevation range	Coastal and lowland zone. Can be found as far up as prairie sites and mid-elevation open forest (6).
Local habitat and abundance	Abundant, and commonly found on sandy coastal areas with moist soil and good drainage, but also found in

	open forests and prairies up through open mountainsides, west of the Cascades. These plants are associated with Douglas-fir (*Pseudotsuga menziesii)*, Orcutt's brome (*Bromus orcuttianus*), Cascade Oregon-grape (*Berberis nervosa*), dwarf rose (*Rosa gymnocarpa*), trailing blackberry (*Rubus ursinus*), snow queen (*Syntheris reniformis*), and ocean spray (*Holodiscus discolor*) (7, 8).
Plant strategy type / successional stage	This plant is early successional, as well as fire and drought tolerant. It requires well-drained, coarse to medium-textured soils (9). It is also a nitrogen fixer (1).
Plant characteristics	It is a rhizomatous semi-erect perennial herb with intermediate shade tolerance and moderate lifespan. *L. polyphyllus* can reach a height of 2.7 feet at maturity (1). It has 10-16 oval-shaped leaflets that are 2.5-6 cm long, and tendrils that are small and coiled. Stipules are over a centimeter wide and saggitate-ovate. The plant produces an inflorescence in May through July of up to a dozen purple flowers arranged in a line along the stem. Reproduction is amphimictic. It fruits in July and August, producing a dehiscent legume pod, about 4-7 cm long and 4-9 mm broad (6, 10).
PROPAGATION DETAILS Propagation protocol for production of container (plug) *Lathyrus polyphyllus* plants by the Corvallis Plant Materials Center. Follow-up details to the study provided in a document by the Willamette National Forest (5, 11).	
Ecotype	
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	Not Applicable
Time to Grow	Approximately 5-8 months (1, 5, 11).
Target Specifications	"Well-developed crowns, roots and rhizomes filling soil profile in container" (5).
Propagule Collection Instructions	Collected from wild seed.
Propagule Processing/Propagule Characteristics	No information is currently available on seed longevity or processing requirements. Seed density is 12,000 seeds per pound (1).
Pre-Planting Propagule Treatments	No information or data reported.
Growing Area Preparation / Annual Practices for Perennial Crops	Growing media not described; containers described as plug trays.
Establishment Phase Details	*L. polyphyllus* is most likely to germinate after exposure to cool and moist stratification. Experimental results suggest that the most success occurs after exposure to cold/moist stratification for 45 to 90 days in order to break seed dormancy (5). Seeds were

	stratified beginning in February 2011, but no data is given on stratification temperature and moisture. The experiment was temporarily disrupted and all seeds and germinants had to be moved in March 2011 (see "Other Comments" section).
Length of Establishment Phase	Germinants developed over 45-90 days.
Active Growth Phase	No information or data reported. However, based on the timeline of when the germinants were moved to the Corvallis Plant Materials Center and when they were planted (fall 2011), the establishment phase lasted approximately from April through September 2011.
Length of Active Growth Phase	Approximately 4-5 months.
Hardening Phase	Beyond scope of experiment.
Length of Hardening Phase	Beyond scope of experiment.
Harvesting, Storage and Shipping	Beyond scope of experiment.
Length of Storage	Beyond scope of experiment.
Guidelines for Outplanting/ Performance on Typical Sites	Outplanting occurred in fall of 2011 with the few *Lathryrus polyphyllus* that successfully germinated. It was reported that seed produced after outplanting will be used for a native wildlife mix, but no follow-up report or documentation was ever produced (11).
Other Comments	Little information exists about germination requirements for *Lathryrus polyphyllus*, and further experimentation should be done to reassess seed cleaning, stratification, germination, and growth requirements before outplanting. The scant information available from this study is pieced together from an experiment done from the now-defunct Horning Native Plant Program, through the Willamette National Forest, funded by the Forest Service. When the Horning Native Plant Program folded, the germinants were moved to the Corvallis Plant Material Center where germination, establishment, and outplanting were completed. The majority of the data recovered was recorded by the Native Plant Network. This appears to be the only propagation data on this species.
INFORMATION SOURCES	
References	See list below.
Other Sources Consulted	Broich, S. L.. "Chromosome Numbers of North American Lathyrus (Fabaceae)". *Madroño* 36.1 (1989): 41–48. Web. 17 May 2016. <http://www.jstor.org/stable/41424727> Halpern, Charles B. "Twenty-one years of secondary succession in Pseudotsuga forests of the western Cascade Range." (1987): 239. Corvallis, OR: Oregon

	State University. Ph.D dissertation. Print.
Protocol Author	Ada Beale
Date Protocol Created or Updated	05/17/2016

Works Cited

(2): "Calflora: Lathyrus Polyphyllus." *Calflora: Lathyrus Polyphyllus*. The Calflora Database, 2015. Web. 17 May 2016. <http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Lathyrus polyphyllus>.

(10): "Lathyrus Polyphyllus." *Calscape*. California Native Plant Society. Web. 17 May 2016. <http://calscape.org/Lathyrus-polyphyllus-()?srchcr=sc56f13c935fd4c>.

(7): Dyer, C. T., and S. A. Acker. "Ecology of Common Understory Plants in Northwestern Oregon and Southwestern Washington Forests." Oregon State, 2010. Web. 17 May 2016. <Ecology of Common Understory Plants in Northwestern Oregon and Southwestern Washington Forests>.

(8): Franklin, Jerry F., and C. T. Dyrness. *Natural Vegetation of Oregon and Washington*. Corvallis: Oregon State University Press, 1988. Print.

(6): Giblin, David. "Lathyrus Polyphyllus." *WTU Herbarium Image Collection - Burke Museum*. Burke Museum of Natural History and Culture. Web. 17 May 2016. <http://biology.burke.washington.edu/herbarium/imagecollection.php?SciName=Lathyrus polyphyllus>.

(4): "Lathyrus Polyphyllus Nutt." *ITIS Report*. Integrated Taxonomic Information System. Web. 17 May 2016. <http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN25873>.

(3): "Lathyrus Polyphyllus Nutt." *Lathyrus Polyphyllus Nutt.* Global Biodiversity Information Facility, 7 May 2016. Web. 17 May 2016. <http://www.gbif.org/species/102288706>.

(1): "Plants Profile for Lathyrus Polyphyllus (leafy Pea)." *Plants Profile for Lathyrus Polyphyllus (leafy Pea)*. USDA. Web. 17 May 2016. <http://plants.usda.gov/core/profile?symbol=LAPO3>.

(5): "Protocol Information for Lathyrus (polyphyllus)." *Reforestation, Nurseries, and Genetic Resources*. Native Plant Network, 2015. Web. 17 May 2016. <http://npn.rngr.net/npn/propagation/protocols/fabaceae-lathyrus-4045?>.

(9): Stuart, John D., Michael C. Grifantini, and Lawrence Fox, III. "Early Successional Pathways Following Wildfire and Subsequent Silvicultural Treatment in Douglas-Fir/Hardwood

Forests, NW California." *Forest Science* 39.3 (1993): 561-72. *Ingenta*. Web. 17 May 2016. <http://www.ingentaconnect.com/content/saf/fs/1993/00000039/00000003/art00012>.

(11): "Willamette National Forest 2011 Native Plant Material Accomplishments." *USDA Forest Service*. USDA Forest Service. Web. 17 May 2016. <http://www.fs.fed.us/wildflowers/Native_Plant_Materials/documents/npmreports/fy2011/R6/18_NatPlant_Rpt_WIL_FY11.pdf>.