

## Plant Propagation Protocol for *Lilium columbianum*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/LICO.pdf>

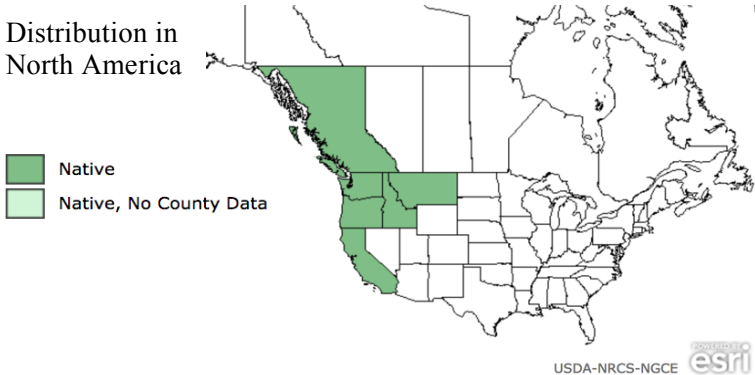
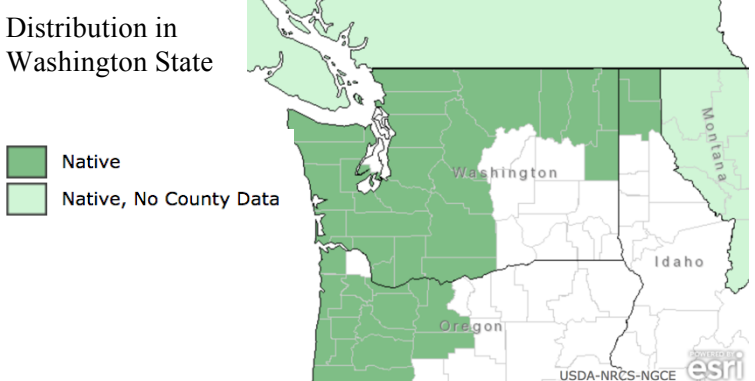


Image Source:

<http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Lilium&Species=columbianum>

TAXONOMY	
Plant Family	
Scientific Name	Liliaceae
Common Name	Lily Family
Species Scientific Name	
Scientific Name	<i>Lilium columbianum</i> Leichtlin
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	<i>Lilium canadense</i> L. <i>Lilium canadense</i> L. var. <i>parviflorum</i> Hook. <i>Lilium lucidum</i> Kellogg <i>Lilium parviflorum</i> (Hook.) Holzinger
Common Name(s)	Columbia lily, Columbia tiger lily, tiger lily, Oregon lily
Species Code (as per USDA Plants database)	LICO

## GENERAL INFORMATION

<p>Geographical range</p>	<p>Distribution in North America</p>  <p>Distribution in Washington State</p>  <p>Map Source:  <a href="https://plants.usda.gov/core/profile?symbol=lico">https://plants.usda.gov/core/profile?symbol=lico</a></p>
<p>Ecological distribution</p>	<p><i>Lilium columbianum</i> can be found in a variety of ecosystems such as meadows, prairies, thickets, woods, open forests and clearings (Giblin 2018; Pojar and MacKinnon 1994).</p>
<p>Climate and elevation range</p>	<p><i>L. columbianum</i> occurs in mesic to drier environments, from sea level to subalpine elevations (Giblin 2018; Pojar and MacKinnon 2013).</p>
<p>Local habitat and abundance</p>	<p>The conservation status of <i>L. columbianum</i> is abundant, or of no concern (Giblin 2018).</p>
<p>Plant strategy type / successional stage</p>	<p>As <i>L. columbianum</i> frequently occurs in open areas with little upper canopy it is presumed to be an early successional species. Having the ability to reproduce vegetatively, <i>L. columbianum</i> may behave as a competitor.</p>
<p>Plant characteristics</p>	<p><i>L. columbianum</i> is a perennial forb/herb that grows from a fleshy-scaled bulb (Pojar and MacKinnon 2013; USDA, NRCS 2018). Flowering stems are 40-120 cm tall, with several-leaved whorls of lance-shaped leaves, 4-10 cm long (Pojar and MacKinnon 2013). Flowers are bright yellow-orange to reddish-orange, 4-6 cm long, and strongly bent back (Pojar and MacKinnon 2013). The</p>

	seeds are numerous and flattened (Pojar and MacKinnon 2013).
<b>PROPAGATION DETAILS</b>	
Ecotype	
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	
Time to Grow	The seeds require six months to germinate, and flowers take three to four years to bloom (Mirro 2013).
Target Specifications	Flowers developed, with container full of roots.
Propagule Collection Instructions	Seeds should be collected as they begin to dry out in late fall to early winter (GOERT 2018).
Propagule Processing/Propagule Characteristics	
Pre-Planting Propagule Treatments	Stored seeds require a warm-cold-warm cycle of stratification, with each period lasting about two months (Lilium 2018).
Growing Area Preparation / Annual Practices for Perennial Crops	A potting mix of 50% sphagnum peat and 50% perlite, and containers at least 3 inches deep should be used (Mirro 2013).
Establishment Phase Details	<i>L. columbianum</i> has distinct above and below ground germination phases, requiring warm-cold-warm stratification cycles (Lilium 2018). It requires three months at 60-70°F, then three months of chilling (Mirro 2013). Seeds can be sown in the fall to break dormancy naturally, although germination may not occur for two years (GOERT 2018).
Length of Establishment Phase	Six months to two years
Active Growth Phase	
Length of Active Growth Phase	
Hardening Phase	
Length of Hardening Phase	
Harvesting, Storage and Shipping	Care should be taken in harvesting the seedlings (Lilium 2018). Keep seedlings moist, but avoid overwatering. Do not expose seedlings to full sun (Mirro 2013).
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	It typically takes three to four years for <i>L. columbianum</i> to bloom (Mirro 2013).
Other Comments	
<b>PROPAGATION DETAILS</b>	
Ecotype	
Propagation Goal	Bulbs
Propagation Method	Vegetative

Product Type	Containers with bulb divisions or bulbets
Stock Type	
Time to Grow	At least one year (Lilium 2018).
Target Specifications	Flowers developed, with container full of roots.
Propagule Collection Instructions	Divide bulbs (remove bulb scales or bulbets from bulbs) when dormant - in autumn, once leaves have died down (Lilium 2018).
Propagule Processing/Propagule Characteristics	The bulbs are deep-seated, oval, and white, with thick fleshy scales (Pojar and MacKinnon 1994; Pojar and Mackinnon 2013).
Pre-Planting Propagule Treatments	Divisions should be replanted immediately (Lilium 2018). If bulb scales are kept in a bag of peat moss, in a warm, dark place, they will produce bulbets.
Growing Area Preparation / Annual Practices for Perennial Crops	A potting mix of 50% sphagnum peat and 50% perlite should be used (Mirro 2013). Plant bulbs 10-15 cm deep (Lilium 2018).
Establishment Phase Details	
Length of Establishment Phase	
Active Growth Phase	
Length of Active Growth Phase	
Hardening Phase	
Length of Hardening Phase	
Harvesting, Storage and Shipping	
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	In areas with cool temperatures, early to mid autumn is the best time for outplanting the bulbs. In warmer areas, they can be outplanted until late autumn (Lilium 2018).
Other Comments	

### INFORMATION SOURCES

References	<p>Giblin, D. 2018. <i>Lilium columbianum</i>: Columbian lily. WTU Herbarium Image Collection. Burke Museum of Natural History and Culture. Accessed: 24 April 2018.  <a href="http://biology.burke.washington.edu/herbarium/ima/gecollection.php?Genus=Lilium&amp;Species=columbianum">http://biology.burke.washington.edu/herbarium/ima/gecollection.php?Genus=Lilium&amp;Species=columbianum</a></p> <p>GOERT. 2018. Native Plant Propagation Guidelines: <i>Lilium columbianum</i> (tiger lily). Garry Oak Ecosystems Recovery Team Society. Accessed: 14 May 2018.  <a href="http://www.goert.ca/propagation_guidelines/forbs/lilium_columbianum">http://www.goert.ca/propagation_guidelines/forbs/lilium_columbianum</a></p> <p><i>Lilium Columbianum</i> Columbia Tiger Lily, Columbia lily, Oregon lily, tiger lily: PFAF Plant Database. Plants for a Future. Accessed: 24 April 2018.</p>
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	<p><a href="https://www.pfaf.org/User/Plant.aspx?LatinName=Lilium+columbianum">https://www.pfaf.org/User/Plant.aspx?LatinName=Lilium+columbianum</a></p> <p>Mirro, G. 2013. Growing Lily Species in the Pacific Northwest. In: Mitchell A, editor. Lilies and Related Plants. London, UK: RHS Lily Group. p. 48-54. Accessed: 24 April 2018. <a href="http://www.rhslilygroup.org/2013-2014_LR.pdf">http://www.rhslilygroup.org/2013-2014_LR.pdf</a></p> <p>Pojar J, MacKinnon A. 2013. Alpine Plants of the Northwest: Wyoming to Alaska. Alberta, Canada: Lone Pine Publishing.</p> <p>Pojar J, MacKinnon A. 1994. Plants of the Pacific Northwest Coast. Vancouver, British Columbia, Canada: Lone Pine Publishing.</p> <p>TWC. 2015. Lilium columbianum (Columbia lily): NPIN. Plant Database. Lady Bird Johnson Wildflower Center. Accessed: 24 April 2018. <a href="https://www.wildflower.org/plants/result.php?id_plant=lico#">https://www.wildflower.org/plants/result.php?id_plant=lico#</a></p> <p>USDA, NRCS. 2018. The PLANTS Database. National Plant Data Team, Greensboro, NC. Accessed 24 April 2018. <a href="https://plants.usda.gov/core/profile?symbol=lico">https://plants.usda.gov/core/profile?symbol=lico</a></p>
Other Sources Consulted	<p>Bressette, DK. 2018. Native Plants PNW: An Encyclopedia of the Cultural and Natural History of Northwest Native Plants. Accessed: 24 April 2018. <a href="http://nativeplantspnw.com/">http://nativeplantspnw.com/</a></p> <p>Franklin JF, Dyrness CT. 1988. Natural Vegetation of Oregon and Washington. Oregon State University Press: Corvallis, OR.</p> <p>USDA Forest Service, Southern Regional Extension Forestry. Native Plant Network: Propagation Protocol Database. Accessed: 24 April 2018. <a href="https://npr.rngr.net/npr/propagation">https://npr.rngr.net/npr/propagation</a></p>
Protocol Author	Beth Fancher
Date Protocol Created or Updated	04/24/18

## Appendix

Original Protocol:

### *Lilium columbianum* Columbia lily (Liliaceae)



Brother Alfred Brousseau @ USDA-NRCS PLANTS Database

Range: Northern California through British Columbia. Both sides of the Cascades to northern Idaho and Nevada.

Climate, elevation: Prairies, thickets and coniferous forests up to about 1900 m in elevation.

Associated species: *Festuca idahoensis*, *Achillea millefolium*.

Hitchcock and Cronquist caution against the transplantation of native stock as the species does not survive the disturbance satisfactorily, a tendency noted by other gardeners (e.g. the Royal British Columbia Museum).

Growing this lily from seed requires patience – from seed to flower will take 3-5 years.

The plant flowers from July to August, with the seeds ripe from August to September. Collect seed pods as they begin to dry out.

Sow dry seeds in well drained, humus rich soil in late fall or early winter (cold stratification required). Sowing seeds in flats following collection is probably the easiest method of stratification. Otherwise, stratify for about two months. Seeds germinate in spring. Keep seedlings moist. Transplant young bulbs (1-2 years old) to their final location. Avoid transplanting mature bulbs. Mature bulbs do have bulblets that can be split off and planted, however.

Plants require moist soil and can tolerate some shade. While growing plants to flowering size, keep soil moist. Plants can withstand dry conditions, especially when mature, but will stop growing for the season when conditions become dry. For production of large flowers, continue to water during the summer months.

## References

Hebda, R. Natural History: Tiger Lily (*Lilium columbianum*). Royal BC Museum.  
[http://www.royalbcmuseum.bc.ca/nh\\_papers/nativeplants/lilicolu.html](http://www.royalbcmuseum.bc.ca/nh_papers/nativeplants/lilicolu.html)

Hitchcock, C. L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. Seattle, Washington, USA.

Pojar, J. and A. MacKinnon. 1994. *Plants of the Pacific Northwest Coast*. Lone Pine Publishing. Vancouver, British Columbia, Canada.

USDA, NRCS. 2006. *The PLANTS Database*, 6 March 2006 (<http://plants.usda.gov>). Data compiled from various sources by Mark W. Skinner. [National Plant Data Center](#), Baton Rouge, LA 70874-4490 USA.

Data compiled by James A. Lutz, 2006.