

## Plant Propagation Protocol for *Downingia elegans*

ESRM 412 – Native Plant Production

URL: [https://courses.washington.edu/esrm412/protocols/2026/\[DOEL.pdf\]](https://courses.washington.edu/esrm412/protocols/2026/[DOEL.pdf])

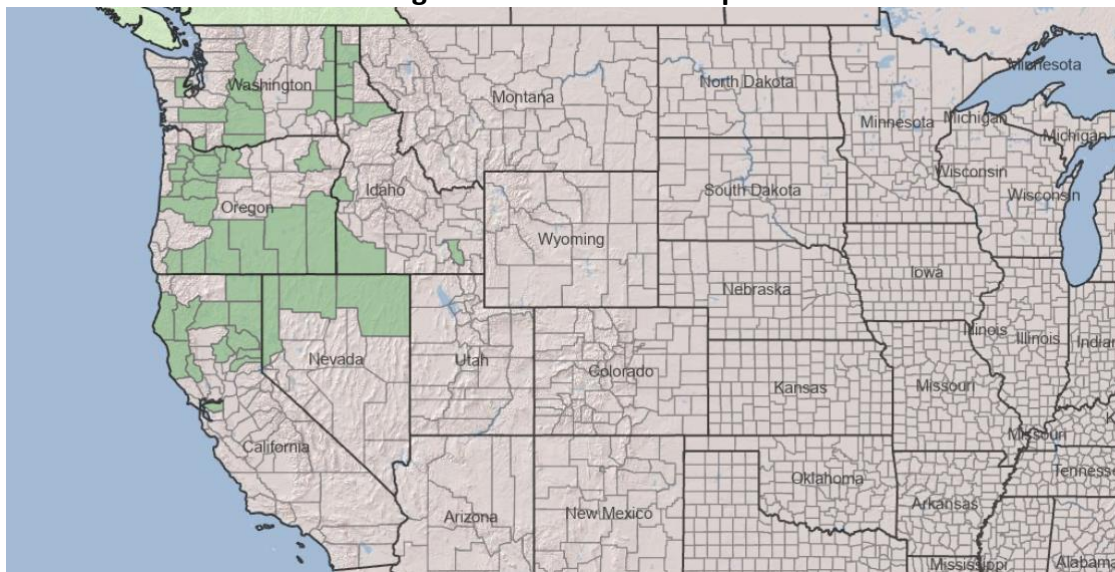
<b>TAXONOMY</b>	
<b>Plant Family</b>	
Scientific Name	Campanulaceae
Common Name	Bellflower
<b>Species Scientific Name</b>	
Scientific Name	<i>Downingia elegans</i> (Douglas ex Lindl.) Torr.
Varieties	<i>Downingia elegans</i> (Douglas ex Lindl.) Torr. var. <i>brachypetala</i> (Gandog.) McVaugh <i>Downingia elegans</i> (Douglas ex Lindl.) Torr. var. <i>corymbosa</i> (A. DC.) A. Gray <i>Downingia elegans</i> (Douglas ex Lindl.) Torr. var. <i>elegans</i>
Sub-species	n/a
Cultivar	n/a
Common Synonym(s)	<i>Bolelia elegans</i> (Douglas ex Lindl.) Greene. <i>Downingia elegans</i> var. <i>brachypetala</i> (Gand.) <i>Lobelia douglasii</i> <i>Downingia corymbosa</i>
Common Name(s)	elegant calicoflower, California lobelia, showy calicoflower, elegant downingia
Species Code (as per USDA Plants database)	DOEL
<b>GENERAL INFORMATION</b>	
Geographical range	Found sparsely across Washington state, Oregon, California, Nevada, Idaho, and British Columbia <sup>6</sup> . Refer to Figure 1. Distribution Map
Ecological distribution	Wetlands, vernal pools, bogs, wet meadows, alongside lakes and ponds <sup>10</sup> .
Climate and elevation range	Thrives in moderate to high moisture environments with minimal shade <sup>10</sup> .  USDA Hardiness zone of Zn5b -10 <sup>o</sup> -15 <sup>o</sup> F <sup>7</sup>  Occurs at elevations below 2000 meters <sup>5</sup> , most commonly in the 50-1600 meter range <sup>10</sup> .
Local habitat and abundance	Found in the Columbia basin, the Coast Range ecoregion, and the East Cascades Slopes and Foothills ecoregion <sup>4</sup> .

	Located across multiple counties across Washington. Refer to Figure 2. Washington Distribution Map
Plant strategy type / successional stage	Annual plant; fast growing, highly water tolerant, low shade tolerance, early successional species <sup>10</sup> .
Plant characteristics	Annual forb that blooms in April-July <sup>10</sup> .  Fully grown specimen can be up to 12 inches tall <sup>10</sup> , and have alternate leaves that range from 0.2-0.8 inches long. During blooming season, they have small sessile flowers with 5 purple and white petals ranging from 0.3-0.7 inches <sup>3</sup> . Refer Figure 3. Blooming Specimen  Fruits are small, capsules that are 0.8 to 2 inches long <sup>3</sup> .  Downingia elegans acts as a pollinator for many native species to Oregon, and is a food source for the endangered Fender's Blue Butterfly, which is endemic to Willamette Valley in Oregon <sup>10</sup> .
<b>PROPAGATION DETAILS: FROM SEED</b> Bartow, Amy protocol on Downingia Elegans <sup>2</sup>	
Ecotype	None
Propagation Goal	Seeds
Propagation Method	Seed
Product Type	Container (plug), propagules
Stock Type	Plugs
Time to Grow	10-14 weeks
Target Specifications	Established specimen in plugs to be transplanted into a field with weed fabric.
Propagule Collection Instructions	After transplanting, allow pods to drop seeds. Ripening occurs in late July-August <sup>1</sup> . Plants can be cut and put through a brush machine to remove the seeds from the stem. To avoid losing any seeds and collect shattered seeds, vacuum the weed fabric after collection.
Propagule Processing/Propagule Characteristics	4,000,000 seeds/pound <sup>1</sup> .
Pre-Planting Propagule Treatments	Clean debris off seeds using a small air machine.  Seeds are non-dormant, and can germinate in warm or cool temperatures.
Growing Area Preparation / Annual Practices for Perennial Crops	Use cone-shaped containers and sow seeds in a soil-less, peat based media such as Sunshine #1. Ensure

	soil is moist-wet and kept at sufficient moisture levels <sup>10</sup> . Addition of micro-nutrients and a slow/controlled release fertilizer is recommended.
Establishment Phase Details	No information found.
Length of Establishment Phase	No specific time range found; however, annual plant, likely short duration >4 weeks.
Active Growth Phase	No information found.
Length of Active Growth Phase	<i>Downingia sp.</i> typically flower within 7 weeks of germinating <sup>8</sup> .
Hardening Phase	No information found.
Length of Hardening Phase	No information found.
Harvesting, Storage and Shipping	No information found.
Length of Storage	No information found.
Guidelines for Outplanting / Performance on Typical Sites	<p>Transplant in mid-March onto fields with weed fabric with holes spaced 1ft by 1ft apart. Establishment rate is expected to be high if plugs were used and specimen are not directly seeded<sup>1</sup>.</p> <p>Soil at outplanting site should be high in moisture and the site should have plentiful access to sunlight<sup>10</sup>.</p>
Other Comments	Planting depth should be surface to very shallow <sup>10</sup> .
<b>INFORMATION SOURCES</b>	
References	<p><sup>1</sup>Bartow, Amy, et al. Native Seed Production Manual for the Pacific Northwest. USDA Natural Resources Conservation Service, Corvallis Plant Materials Center, 2015.</p> <p><sup>2</sup>Bartow, Amy. "Downingia (elegans)." Reforestation, Nurseries, &amp; Genetic Resources, 2007, <a href="https://nnp.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=campanulaceae-downingia-3460">https://nnp.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=campanulaceae-downingia-3460</a></p> <p><sup>3</sup>Giblin, David. "Downingia Elegans." Burke Herbarium Image Collection, Burke Herbarium, <a href="http://burkeherbarium.org/imagecollection/taxon.php?Taxon=Downingia+elegans">burkeherbarium.org/imagecollection/taxon.php?Taxon=Downingia+elegans</a>. Accessed 13 May 2026.</p> <p><sup>4</sup>Meyers, Stephen C., et al. Flora of Oregon: Volume 2, Dicots A-F. Vol. 2, Botanical Research Institute of Texas Press, 2020.</p> <p><sup>5</sup>Turner, Mark. "Downingia Elegans." Turner Photographics - Wildflowers, <a href="http://www.pnwflowers.com/flower/downingia-elegans?from=family%2Fcommon%2Fharebell">www.pnwflowers.com/flower/downingia-elegans?from=family%2Fcommon%2Fharebell</a>. Accessed 13 May 2026.</p>

	<p><sup>6</sup>“Downingia Elegans (Douglas Ex Lindl.) Torr.” USDA Plants Database, <a href="https://plants.sc.egov.usda.gov/plant-profile/DOEL">plants.sc.egov.usda.gov/plant-profile/DOEL</a>. Accessed 12 May 2026.</p> <p><sup>7</sup>“Downingia Elegans.” Xera Plants, 7 Feb. 2023, <a href="https://xeraplants.com/plants/downingia-elegans/">xeraplants.com/plants/downingia-elegans/</a>.</p> <p><sup>8</sup>“Downingia.” Yolo Basin Foundation, <a href="https://yolobasin.org/downingia/">yolobasin.org/downingia/</a>. Accessed 14 May 2026.</p> <p><sup>9</sup>“Elegant Calicoflower.” Calscape, California Native Plant Society, <a href="https://calscape.org/Downingia-elegans-()">calscape.org/Downingia-elegans-()</a>. Accessed 12 May 2026.</p> <p><sup>10</sup>“Elegant Calicoflower.” Sparrowhawk Native Plants, <a href="https://sparrowhawknativeplants.com/products/elegant-calicoflower">sparrowhawknativeplants.com/products/elegant-calicoflower</a>. Accessed 13 May 2026.</p>
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Date Protocol Created or Updated	05/14/26

**Figure 1. Distribution Map**



Source: Esri, 2014 USDA Plants Database

**Figure 2. Washington Distribution Map**



*Source: Esri, 2014 USDA Plants Database*

**Figure 3. Blooming Specimen**



*Source: David Giblin, 2014 | Burke Herbarium*