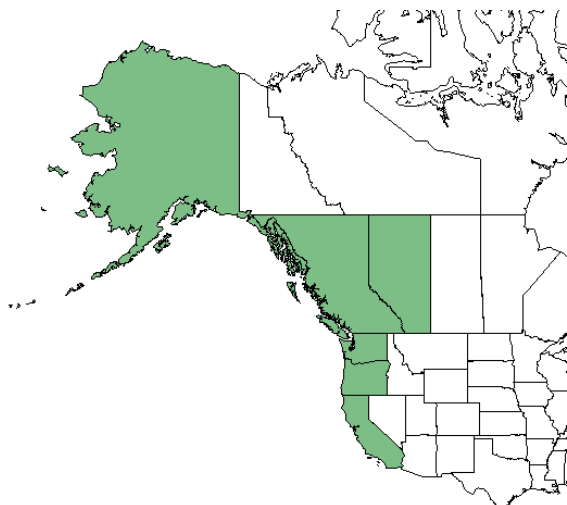


## Plant Propagation Protocol for *Angelica genuflexa*

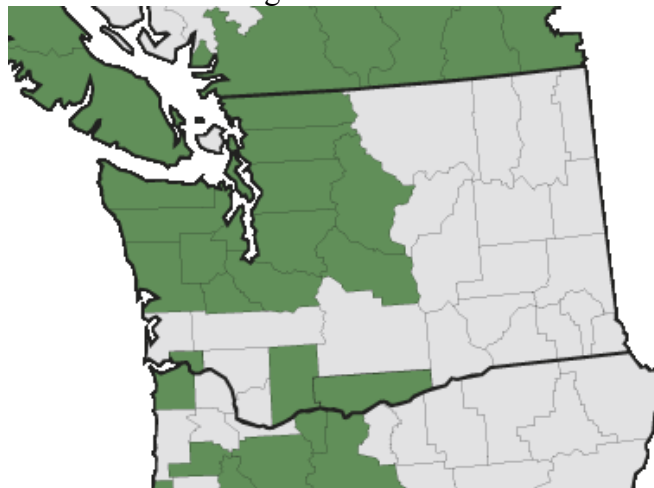
ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/ANGE2.pdf>

North American Distribution<sup>1</sup>



Washington Distribution<sup>2</sup>



### TAXONOMY

<b>Plant Family</b>	
Scientific Name	<i>Apiaceae / Umbelliferae</i>
Common Name	Carrot Family
<b>Species Scientific Name</b>	
Scientific Name	<i>Angelica genuflexa</i> Nutt.
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	N/A
Common Name(s)	Kneeling Angelica
Species Code (as per USDA Plants database)	ANGE2

### GENERAL INFORMATION

Geographical range	Found West of the Cascades in Washington, in Alaska to down South in California. Also found in West Canada <sup>3</sup> . Maps are also above.
Ecological distribution	Found in wet ecosystems: meadows, coasts, stream banks, and wetlands <sup>2</sup> .
Climate and elevation range	Grows in mid to low elevations <sup>3</sup>
Local habitat and abundance	Associated with Mountain hemlock, Pacific silver fir, and Western hemlock forests <sup>7</sup> . Grows moist areas: swamps, stream banks, and flooded or ponded marshes <sup>7</sup> .

Plant strategy type / successional stage	Is moderately shade tolerant, can thrive in stable communities <sup>7</sup> .
Plant characteristics	<p>A stout perennial herb. Grows 1-1.5 meters tall<sup>4</sup>. Features a hollow, that is often purple and shiny stem<sup>2</sup>. Stalk is bent, giving its name.</p> <p>Grows from a tap root<sup>5</sup>.</p> <p>Leaves are pinnately compound, with the first pair of leaflets being bent back at stem. Leaflets are ovate to lanceolate, coarsely toothed, and 1-4 inches long<sup>2</sup>.</p> <p>Flowers are clustered, contains up to 50 rays, each ray containing its own smaller cluster of white or pink flowers<sup>5</sup>.</p>
<b>PROPAGATION DETAILS</b>	
Ecotype	N/A
Propagation Goal	Seeds
Propagation Method	Seeds
Product Type	Seeds
Stock Type	N/A
Time to Grow	Late summer to winter.
Target Specifications	Until seedlings are large enough to handle <sup>6</sup> .
Propagule Collection Instructions	<p>Collect seeds when slightly green, before they fall off<sup>7</sup>. A bag is put over flowers to collect seeds<sup>8</sup>.</p> <p>Seeds are collected during late summer to early fall<sup>7</sup>. Flower and fruit bloom late July to August.</p>
Propagule Processing/Propagule Characteristics	N/A
Pre-Planting Propagule Treatments	Seeds require cold stratification for germination <sup>7</sup> .
Growing Area Preparation / Annual Practices for Perennial Crops	Plant may take up to two or more seasons to produce seed <sup>7</sup> .
Establishment Phase Details	When seedlings are large enough to be handled <sup>6</sup> .
Length of Establishment Phase	Late summer to winter.
Active Growth Phase	When seedlings are large enough, put into individual pots and prepare for the first winter. Keep soil moist. Needs light.
Length of Active Growth Phase	Two growing seasons <sup>7</sup> .
Hardening Phase	N/A
Length of Hardening Phase	N/A

Harvesting, Storage and Shipping	Seeds are harvested at peak of ripening stage <sup>7</sup> . Sown shortly after to prepare for cold season.
Length of Storage	No storage, viability and germination rates of seeds are low <sup>7</sup> .
Guidelines for Outplanting / Performance on Typical Sites	As a perennial, may take up to two growing seasons to flower <sup>7</sup> .  Seeds have low viability, are sown in cold frame <sup>9</sup> .
Other Comments	N/A
<b>INFORMATION SOURCES</b>	
References	See below
Other Sources Consulted	See below
Protocol Author	Kelly Au Vu
Date Protocol Created or Updated	04/27/16

#### References

<sup>1</sup> Plants Profile for *Angelica genuflexa* (kneeling angelica). (n.d.). Retrieved April 27, 2016, from <http://plants.usda.gov/core/profile?symbol=ANGE2>

<sup>2</sup> Wildflowers of the Pacific Northwest. (n.d.). Retrieved April 27, 2016, from <http://www.pnwflowers.com/flower/angelica-genuflexa>

<sup>3</sup> Giblin, D. (n.d.). WTU Herbarium Image Collection - Burke Museum. Retrieved April 27, 2016, from <http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Angelica>

<sup>4</sup> Evergreen State College: *Angelica genuflexa*. (n.d.). Retrieved April 27, 2016, from <http://academic.evergreen.edu/projects/gardens/longhouse/monographs/angelica1.htm>

<sup>5</sup> California Native Plant Society: Kneeling Angelica. (n.d.). Retrieved April 27, 2016, from [http://calscape.org/Angelica-genuflexa-\(Kneeling-Angelica\)?srchr=sc572008b0aea40](http://calscape.org/Angelica-genuflexa-(Kneeling-Angelica)?srchr=sc572008b0aea40)

<sup>6</sup> Practical Plants. (n.d.). Retrieved April 27, 2016, from [http://practicalplants.org/wiki/Angelica\\_genuflexa](http://practicalplants.org/wiki/Angelica_genuflexa)

<sup>7</sup> US Forest Service. (n.d.). Retrieved April 27, 2016, from <http://www.fs.fed.us/pnw/pubs/gtr513/gtr513b.pdf>  
pg. 25-26

<sup>8</sup> Carroll, J. (2012). *Angelica Propagation*. Retrieved April 27, 2016, from <http://www.gardeningknowhow.com/edible/herbs/angelica/propagating-angelica-plants.htm>

<sup>9</sup> Medicinal Herbs. (n.d.). Retrieved April 27, 2016, from <http://www.naturalmedicinalherbs.net/herbs/a/angelica-genuflexa=kneeling-angelica.php>

#### Other Sources Consulted

King County: Native Plant Guide. (n.d.). Retrieved April 27, 2016, from <https://green2.kingcounty.gov/gonative/Plant.aspx?Act=view>

NPIN: Native Plant Database. (n.d.). Retrieved April 27, 2016, from [http://www.wildflower.org/plants/result.php?id\\_plant=ANGE2](http://www.wildflower.org/plants/result.php?id_plant=ANGE2)

Above is revised version of protocol below.

Found at: [http://depts.washington.edu/proplnt/Plants/Kneeling\\_angelica.htm](http://depts.washington.edu/proplnt/Plants/Kneeling_angelica.htm)

Species: *Angelica genuflexa*

Commonly called Kneeling Angelica



#### Range

*Angelica genuflexa* is found in North America from Alaska south to northern California, west of the Cascade range in the United States, and west of the Selkirk Mountains in British Columbia.

#### Climate, elevation

This particular species is found west of Cascades below 2500' ft.

#### Local occurrence

Found in wet locations particularly bogs. It is a rare species in Washington, found more commonly in British Columbia.

### Habitat preferences

Kneeling angelica may be found in moist soils such as along stream banks, in wet meadows, marshes and at the base of waterfalls

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

### Associated species

Kneeling Angelical is found in Boreal White and Black Spruce Forests. It is also found in both coastal and interior Western Hemlock and Douglas fir forests.

### May be collected as

This species may be collected as seeds. No other information available.

### Seed germination

Seeds need 3-6month stratification prior to planting. Seeds also require light in order to germinate.

### Seed life

Seeds should be planted out immediately in order to stratify then germinate in the spring.

### Recommended seed storage conditions

Seeds can not be stored.

### Propagation recommendations

The only information available currently is propagation from seed.

### Installation form

Recommend installation be in the form of seeds planted out in the fall.

### Care requirements after installed

This species requires moist to wet site. It is recommended that the seeds be planted out in the fall in an appropriate location.

### Normal rate of growth or spread; lifespan

Kneeling Angelica is a perennial.

### Sources cited

<http://www.hylebos.org/statepark/Angelica.htm>

<http://ghs.gresham.k12.or.us/science/ps/nature/gorge/5petal/pars/angelica/genuflexa.htm>

Flora of Mt Rainier by Dave Biek

Vascular Plants of British Columbia by Roy Taylor and Bruce MacBryde

Forest Plant Associations of Olympic National Forest

Data compiled by (student name and date)

Nancy Toenyan May 24, 2006