Plant Propagation Protocol for *[Lomatium ambiguum]*

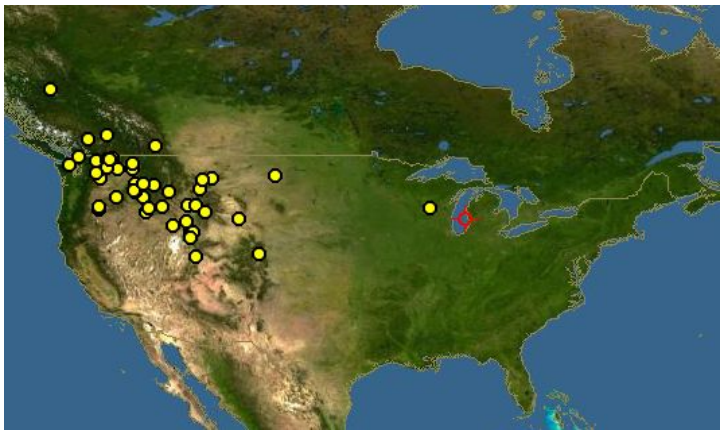
ESRM 412 – Native Plant Production

Spring 2017

Yang Zhou

TAXONOMY	
Plant Family	Apiaceae
Scientific Name	*Lomatium ambiguum* (Nutt.) J.M. Coult. & Rose
Species Name	Peucedanum ambiguum (Nutt.) Nutt. ex Torr. & A. Gray
Varieties	Lomatium nevadense var. parishii, Lomatium marginatum var. purpureum, Lomatium scabrum var. tripinnatum, Lomatium bicolor var. leptocarpum, Lomatium simplex var. simplex, Lomatium farinosum var. farinosum, Lomatium triternatum var. brevifolium, Lomatium farinosum var. hambleniae, Lomatium triternatum var. macrocarpum All of the varieties were recognized by J.M. Coult. &

	Rose
Sub-species	Lomatium dasycarpum ssp. dasycarpum, Lomatium foeniculaceum ssp. fimbriatum, Lomatium mohavense ssp. longilobum Lomatium dasycarpum ssp. tomentosum, Lomatium foeniculaceum ssp. foeniculaceum, Lomatium mohavense ssp. mohavense. All of the sub-species were recognized by J.M. Coult. & Rose
Cultivar	Represented by 125 different types of plants
Common Synonym(s)	*Cogswellia ambigua* (Nutt.) M.E. Jones *Peucedanum ambiguum* (Nutt.) Nutt. ex Torr. & Gray (The PLANTS Database, 2010).
Common Name(s)	Wyeth biscuitroot
Species Code (as per USDA Plants database)	LoAM
GENERAL INFORMATION	
Geographical range	U.S. Washington, Lincoln, Asotin, Whatcom, Pend Orielle Columbia Grant, and Chelan Counties; more commonly seen in the eastern parts of the Coast-Cascade Mountains, and also in the steps and

	mountains of Indiana, Montana, Oregon, Wyoming, and Utah (Brian, 2017). The plant could be also found on the west coast of Canada and the islands of the Pacific Coast as shown in the map below (Brian, 2017).  Key: ● Lomatium ambiguum
Ecological distribution	Could be found in desert, forest, and grassland ecosystems (Brian, 2017).
Climate and elevation range	Grasslands, dry and rocky slopes, shrublands in Montana and steppe zones
Local habitat and abundance	Lomatium ambiguum could be found in multiple inhabitants together with other representatives of the family such as Lomatium dissectum and Lomatium triernatum (Apiaceae and Araliaceae of North America database, 2011).
Plant strategy type / successional	The plant has shown a high tolerance to stressful

stage	weather and environmental conditions, as it could be mostly found in deserts and high mountain territories. Nevertheless, its complete properties were not investigated thoroughly (The PLANTS Database, 2011).
Plant characteristics	**General** The plant is represented as a glabrous, stout perennial herb that has a round, thick and often slender and prolongate taproot and in most of the cases grows up to 80 cm tall, however the smallest size was 10 cm. It has shown to grow erect and sometimes gives branches. Leaves (Coult. & Rose,1996) It has glabrous, basal, and dissected leaves that are narrow and are mostly leaflike and thin, less than 5 mm in width (ITIS Report). **Fruits** Are mostly oblong and narrow or linear and appear to be 3-8 times longer than wider. **Flowers** The plant grows flowers in the form of compound umbels that are yellow, however in some plants could

	also be found white or purple.
PROPAGATION DETAILS	
Ecotype	Best grown in low moist soils in desert areas.
Propagation Goal	Seeds and roots are considered the best ways to propagate the plant.
Propagation Method	Seeds
Product Type	Seeds are kept in a cold frame, however best sown when they are ripe. There is a possibility to also sown roots of the plant separately.
Stock Type	
Time to Grow	Approximately 12 months to germinate when sown in the springtime.
Target Specifications	Plants grown from 10 cm to 80 cm.
Propagule Collection Instructions	First the seeds should be sown in nurseries and grown until the appearance of a single leave. When the plant is strong enough it could be replanted to the field in spring, autumn, or summer period. Fresh seed is usually sown in situ as soon as possible.
Propagule Processing/Propagule Characteristics	No information is given regarding the topic.
Pre-Planting Propagule Treatments	The plant is not demanding regarding soil preparation. Nevertheless, it requires dry soils with medium

	elevation levels.
Growing Area Preparation / Annual Practices for Perennial Crops	Desert areas of Washington, Utah, Wyoming.
Establishment Phase Details	The establishment phase takes place after the seeds have been sown into their individual pots as they start developing the embryo. Post dispersal seed predators can remove about 98.5 % of seeds that do not germinate within one year (Thompson, 1985). Under normal conditions the seeds are subjected to live under dry and warm environment during the summer season , chilling temperatures during winter season and moist conditions during the autumn. They geminate during early spring or late winter.
Length of Establishment Phase	Several weeks
Active Growth Phase	It is a perennial plant, however the period of flowering is mostly in June. The active growth phase is also interdependent on the period of establishment, which would approximately take up to 3 months.
Length of Active Growth Phase	Up to 2 months.
Hardening Phase	The hardening phase takes place at the end of the growing season.
Length of Hardening Phase	Limited data is available.

Harvesting, Storage and Shipping	The Lomatium ambiguum is a perennial crop it flowers in the month of (June and Cronquist, 1978). The seedlings are collected from their individual packages and are planted in the dry soil as soon as possible. Other seeds are dried and grinded into flour. Some Americans grind its seeds into a mush and shape the mush into cakes which are stored for later consumption. The seeds can be stored in a cool dry place and later shipped to other countries such as china, Pakistan, Europe and Asia (June and Cronquist, 1978).
Length of Storage	Several weeks
Guidelines for Out planting / Performance on Typical Sites	Flowering takes place in late spring and early summer, thus the process is interdependent without planting.
Other Comments	The plant has been researched in a limited way, however it has been established that it is potentially suitable for human consumption and is generally safe. The infusion of its upper leaves and flowers have shown potential in treating bacterial and viral infections of the upper respiratory tract. The roots of the plant could be cooked and were often used by Indian tribes of the North America. The quality properties of the plan are compared with celery. Upper

	leaves and flowers could be used for flavoring soups, salads, and other foods.
INFORMATION SOURCES	
References	Klinkenberg, Brian. (2017) *E-Flora BC: Electronic Atlas of the Plants of British Columbia*[eflora.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. Thompson, J.N. (1985). "Post dispersal seed predation in Lomatium spp. (Umbelliferae): Variation among individuals and species." Ecology 66: 1608-1616. JSTOR. Web. 15 Apr. 2012. <http://www.jstor.org/stable/1938023> Hitchcock, C. Leo., and Arthur Cronquist (1978). Flora of the Pacific Northwest: An Illustrated Manual. Seattle, WA: University of Washington. Print. J.M. Coult. & Rose(1996). Lomatium ambiguum Wyeth biscuitroot USDA. ITIS Report. Lomatium ambiguum (Nutt.) J.M. Coult.

	& Rose. https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=503531#null/.
Other Sources Consulted	Apiaceae and Araliaceae of North America Update, database (2011); Updated for ITIS by the Flora of North America Expertise Network, in connection with an update for USDA PLANTS (2007-2010) https://www.itis.gov/servlet/SingleRpt/RefRpt?search_type=source&search_id=source_id&search_id_value=542. The PLANTS Database, (2011). National Plant Data Center, NRCS, USDA. Baton Rouge, LA 70874-4490 USA. http://plants.usda.gov. The PLANTS Database, (2010); National Plant Data Center, NRCS, USDA. Baton Rouge, LA 70874-4490 USA. http://plants.usda.gov.
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