Plant Propagation Protocol for *Salix lemmonii*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/2026/SALE.pdf

Image 1: North America & Canada Distribution

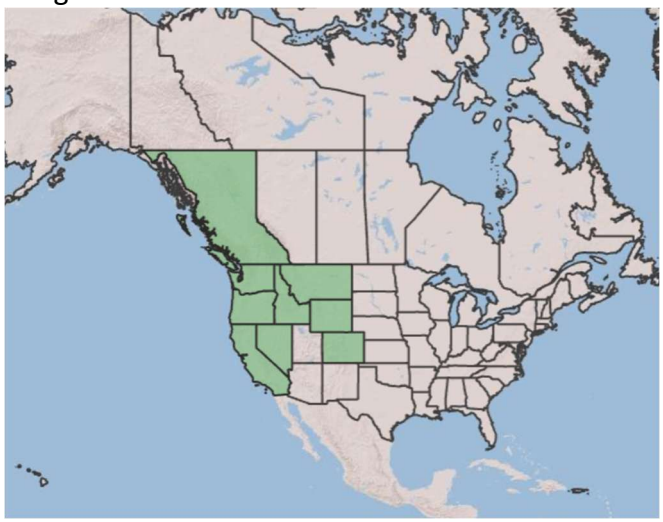

Image 2: WA & OR County Level

TAXONOMY	
Plant Family	
Scientific Name	Salicaceae[6]
Common Name	Willow family[6]
Species Scientific Name	
Scientific Name	*Salix lemmonii* Bebb[6]
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	*Salix austinae* Bebb *Salix lemmonii* Bebb var. *austinae* (Bebb) C.K. Schneid. *Salix lemmonii* Bebb var. *macrostachya* *Salix lemmonii* Bebb var. *melanopsis* *Salix lemmonii* Bebb var. *sphaerostachya*[6]
Common Name(s)	Lemmon's willow[6]
Species Code (as per USDA Plants database)	SALE[6]
GENERAL INFORMATION	
Geographical range	As seen on Image 1: North America & Canada Distribution and Image 2: WA & OR County Level, *Salix lemmonii* is native to British Columbia and western

	North America ranging from the Sierra-Cascade region of California to the Hood River County, Oregon, along the eastern side of the Cascade Mountains and onto Idaho, Montana, Nevada, and Colorado.[3]
Ecological distribution	Occurs in riparian ecosystems including streambanks, wet meadows, and subalpine pine forests.[2,6]
Climate and elevation range	The plants occurs at elevations between 4,400 feet and 11,482 feet.[3] The elevational range for California is between 5,000 feet and 10,000 feet. The elevational range for Oregon is between 4,400 feet and 6,300 feet.[3]
Local habitat and abundance	Found on well-drained gravelly or sandy soils near low-gradient streams and rivers. The commonly associated species include: Geyer willow *(Salix geyeriana)*, Drummond willow *(Salix drummondiana),* planeleaf willow *(Salix planifolia)*, wolf willow *(Salix wolfii)*, bog birch *(Betula glandulosa)* and Kentucky bluegrass *(Poa pratensis)*.[3]
Plant strategy type / successional stage	*Salix lemmonii* is an early-seral riparian colonizer. Following fire disturbance, *Salix lemmonii* readily establishes through resprouting from the root crown or stem base as well as through wind-dispersed seeds.[3]
Plant characteristics	Deciduous shrub that is multi-stemmed. On average, *Salix lemmonii* grows from 3 to 10 feet, but can grow up to 14 feet tall at maturity. The leaves are alternate, simple, pinnately veined, entire or inconspicuously toothed. The leaves are green and shiny above, with a pale glaucous underside. Male and female flowers occur separately in catkins on different plants. Male catkins are characteristically smaller than the female catkins.[1]
PROPAGATION DETAILS: VEGETATIVE ****There is very limited information on *Salix lemmonii* and no specific propagation methodology for nursery conditions. *Salix lemmonii* can be propagated through seeds as well as hardwood cuttings. The species most taxonomically similar with existing propagation protocols are *Salix drummondiana* Barratt. and *Salix commutata* Bebb.[1] Both species are members of the willow family and are propagated vegetatively. The following protocol for *Salix lemmonii* will primarily use information from the *Salix drummondiana* Barratt. RNGR propagation protocol and the USDA Forest Service *Salix lemmonii* fact sheet. ****	
Ecotype	The cuttings for *Salix drummondiana* Barratt. were collected in the subalpine streambank of Oberlin Bend. The elevation at this location is 6,627 feet.[5]

	The cuttings for *Salix lemmonii* can be collected from any riparian habitat where the species natively occurs.
Propagation Goal	Plants[5]
Propagation Method	Vegetative[5]
Product Type	Container (plug) [5]
Stock Type	3 L (1 gallon) containers[5]
Time to Grow	1 year[5]
Target Specifications	Firm plug in 3 L containers with established root systems.[5] The roots should grow 0.8 to 1.2 inches (2-3 cm) in length.[3]
Propagule Collection Instructions	The unrooted hardwood stem cuttings (slips) should be collected in the spring from dormant 2- to 4-year-old wood that is greater than 0.4 inches (1 cm) in diameter. The slips should be taken from native stands and measure between 12 and 30 inches (30-50 cm) long.[3]
Propagule Processing/Propagule Characteristics	The cuttings should be kept moist and refrigerated prior to pre-planting treatments to prevent desiccation.[5]
Pre-Planting Propagule Treatments	The cuttings should be treated with 1000 ppm liquid IBA rooting hormone and inserted into the media with at least 2 nodes below the surface. The cuttings should be grown in the mistbed with bottom heat for 2 to 4 weeks.[5]
Growing Area Preparation / Annual Practices for Perennial Crops	The mistbeds operate on an automatic intermittent mist schedule for 6 second intervals every 6 minutes. This was the schedule for the *Salix drummondiana* Barratt. protocol, but the frequency should be adjusted according to daily outdoor temperature and wind. The bottom heat of the mistbeds were kept at 21°C, which again could be adjusted. The rooting media is 50% perlite and 50% sand. Mistbeds should be covered with shadecloth during rooting.[5]
Establishment Phase Details	A 20-inch (50 cm) cutting should be planted to a depth of 12 inches (30 cm), with 8 inches (20 cm) left above ground.[3] The cuttings should remain in the mistbed until adequate root systems have formed.[5] The roots should reach approximately 2-3 cm in length.[3]
Length of Establishment Phase	4 weeks[5]
Active Growth Phase	After root systems have formed, the cuttings should be transplanted into 3 L containers with a growing media that is 6:1:1 milled sphagnum peat, perlite, and

	vermiculite with controlled-release fertilizer. The cuttings should be irrigated after transplanting and then moved to the shade house for 4 weeks. Then, the plants should be moved to an outdoor nursery where they have full sun exposure. [5]
Length of Active Growth Phase	8 weeks[5]
Hardening Phase	Irrigation should be reduced gradually during September and October to prepare for winterization. [5]
Length of Hardening Phase	8 weeks[5]
Harvesting, Storage and Shipping	The total time to harvest is 1 year if the plants are harvested in July. Plants should be irrigated prior to shipment in containers that are designed to protect their root systems. The containerized stock can be winterized in an outdoor nursery under insulating foam and snow. [5]
Length of Storage	5 months[5]
Guidelines for Outplanting / Performance on Typical Sites	
Other Comments	
INFORMATION SOURCES	
References	[1] Schneider, Camillo. 1920. *Notes on American Willows. X.* Journal of the Arnold Arboretum, Vol. 2, No. 2, pp. 65-90. JSTOR. JSTOR Article [2] Boyter, M.J., Brummer, J.E., and Leininger, W.C. 2009. *Growth and Metal Accumulation of Geyer and Mountain Willow Grown in Topsoil versus Amended Mine Tailings.* Water, Air, and Soil Pollution, Vol. 198, pp. 17-29. Springer Article [3] Uchytil, Ronald J. 1989. *Salix lemmonii, Lemmon's willow.* In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. FEIS Species Review [4] Evans, Jeff; Wick, Dale; Hosokawa, Joy. 2008. Propagation protocol for production of Container (plug) *Salix commutata* Bebb plants 800 ml containers; USDI NPS - Glacier National Park, West Glacier, Montana. In: Native Plant Network. U.S. Department of Agriculture, Forest Service, National Center for

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Other Sources Consulted	
Protocol Author	Laura Moravec
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