

Plant Propagation Protocol for *Salix drummondiana*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2022/SADR.pdf>



Bud Kovalchik, WTU Image collection

Burke Herbarium Distribution Map

TAXONOMY	
Plant Family	
Scientific Name	Salicaceae
Common Name	Willow Family
Species Scientific Name	
Scientific Name	<i>Salix drummondiana</i> Barratt ex Hook
Varieties	No current recognized varieties listed (USDA Plants Database)
Sub-species	No current recognized subspecies listed (USDA Plants Database)

Cultivar	<i>Salix drummondiana</i> ‘Curlew’, or ‘Curlew’ Drummond’s willow (USDA NRCS)
Common Synonym(s)	<i>Salix bella</i> Piper, <i>Salix subcoerulea</i> Piper, <i>Salix subcoerulea</i> , <i>Salix drummondiana</i> subsp. <i>subcaerulea</i> (Piper) E Murr. <i>Salix colvillei</i> Eastw. <i>Salix drummondiana</i> var. <i>Bella</i> (Piper) Ball, <i>Salix drummondiana</i> var. <i>subcaerulea</i> (Piper) Ball, <i>Salix pachnophora</i> Rydb, <i>Salix drummondiana</i> Barratt ex Hook. ssp. <i>subcaerulea</i> (Piper) A.E. Murray (E-Flora BC) (USDA Plants Database)
Common Name(s)	Drummond’s willow, blue willow, beautiful willow, handsome willow (USDA NRCS)
Species Code (as per USDA Plants database)	SADR (USDA Plant Database)
GENERAL INFORMATION	
Geographical range	<i>S. drummondiana</i> is found in western North American, ranging from New Mexico, Colorado, Wyoming, Utah, Nevada, the Sierra Nevada range of California, Idaho, Montana, the Wallowa and Steens Mountains in Oregon, eastern Washington, British Columbia, Alberta, and southern parts of the Yukon Territory, in appropriate habitat. (USDA Plants Database) (USDA NRCS)
Ecological distribution	<i>S. drummondiana</i> is found in alpine, sagebrush, mountain grasslands, lodgepole pine, fir-spruce, ponderosa pine and Douglas fir ecosystems (USDA, & US Forest Service FEIS)
Climate and elevation range	<i>S. drummondiana</i> occurs in middle elevation areas, foothills, sometimes open slopes, subalpine and moderate to high mountainous areas. (USDA NRCS) (Lunaet al, 2001)

Local habitat and abundance	<i>S. drummondiana</i> can be found on stream banks, rivers, wet meadows and flood planes, and open slopes, foothills, and subalpine areas. (Burke Herbarium) (USDA NRCS) <i>S. drummondia</i> occurs in shrubby plant communities and is associated with shrubs such as <i>Salix boothi</i> , <i>Cornus sericea</i> (red-osier dogwood), <i>Ribes montigenum</i> (mountain gooseberry) and herbs such as <i>Carex rostrata</i> (beaked sedge) and <i>Deschampsia caespitosa</i> (tufted hairgrass) among others. (USDA, & US Forest Service FEIS) (USDA NRCS)
Plant strategy type / successional stage	<i>S. drummondiana</i> are usually found in seral communities. These communities are generally stable, with seasonal water availability via flooding or similar hydrological events. Appropriate conifers or upland shrubs may successionaly replace <i>S. drummondia</i> if the site becomes drier, or sedges if the site becomes wetter. <i>S. drummondiana</i> is not classified as weedy. (USDA, & US Forest Service FEIS)
Plant characteristics	<i>S. drummondiana</i> is a multi stemmed shrub, between 2 to 4 meters tall generally, though sometimes reaching a height of 6 meters. <i>S. drummondiana</i> can be long lived and flowers yellow in early spring . It can create dense thickets and provide key wildlife habitat and prevent stream bank erosion (USDA, & US Forest Service FEIS) (USDA Plants Database).

PROPAGATION DETAILS

Ecotype	In a plant protocol prepared for <i>S. drummondiana</i> by Tara Luna, Jeff Evans, Dale Wick, and Joy Hosoka in 2001 on the Native Plant Network RNGR, material was taken from subalpine stream bank at 2020m elevation, Oberlin Bend (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Propagation Goal	Plants (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Propagation Method	Vegetative propagation (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)

Product Type	Container (plugs) (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Stock Type	3 L containers (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Time to Grow	Length of 1 year (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Target Specifications	In this practice, the stock type used was container cutting. The height was 20 cm, caliper 6mm, and the root system was “firm plug” in a 3L container. (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Propagule Collection Instructions	Pre-rooting vegetative propagation method can used, if spring hardwood cuttings are collected before the buds break, and summer softwood stem cuttings can be harvested once flowers had been produced (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Propagule Processing/Propagule Characteristics	Once the cuttings are collected, they must kept appropriately moist, and at appropriately refrigerated temperatures (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Pre-Planting Propagule Treatments	Cuttings may be 15 to 20 cm in length with 7mm caliper, according to T. Luna, J. Evans, D. Wick and J. Hosokawa (2001). A brief fungicide may be used to remove contaminants. Liquid 1000 ppm IBA may be used, and cuttings may be struck into mistbed, with acre taken to have at least 2 nodes below the surface of the media, followed by 2 to 4 week span in mistbed with bottom heat. According to T. Luna, J. Evans, D, Wick and J. Hosokawa (2001) 98% to 100% of <i>S. Drummondiana</i> cuttings were successfully produced following this method. (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)

<p>Growing Area Preparation / Annual Practices for Perennial Crops</p>	<p>Growing area preparation includes an automatic mistbed, with frequent enough misting to keep the cuttings moist without overmisting, and potentially causing cutting failure due to decay and rot. In the practice prepared by Luna, T. Evans, J. Wick, D. And Hosokawa, J (2001) the misting frequency was every 6 minutes, at 6 second intervals. Bottom heat can be applied to the cuttings, with the propagation practice by Luna, T. Evans, J, Wick, D and Hosokawa J. (2001) having a consistent temperature of 21C, in rooting media composed of 1:1 perlite and sand. Shadecloth may be used to protect cuttings from drying out. Once the cuttings have been re-potted, they may be moved to a shade house for 4 weeks before being moved to an outdoor nursery. In the propagation practice by Luna, T, Evans, J, Wick, D, and Hosokawa J (2001), the newly potted plants, once moved to the outdoor nursery, were irrigated automatically in the morning. The growing season spans from roughly late April to mid October. (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)</p>
<p>Establishment Phase Details</p>	<p>The time to transplant generally takes 2 to four weeks. Once appropriate roots systems had formed, the cuttings can be removed from the mist bed (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)</p>
<p>Length of Establishment Phase</p>	<p>Length of 4 weeks (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)</p>

Active Growth Phase	Once the cuttings are removed from the mistbed, they may be potted into 3L containers. An example of growing media used by Luna, T. J. Evan, D. Wick and J. Hosokawa (2001) was a ratio of “[...] 6:1:1 milled sphagnum peat, perlite, and vermiculite with Osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8 to 9 month release rate at 21C) and Micromax fertilizer (12%S ,0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 4 grams of Osmocote and 2 grams of Micromax per container.[...] (Luna, T. Evans, J. Wick, D. Hosokawa, J., 2001). The cuttings may be irrigated post-potting, and moved to a shadehouse. After 4 weeks roughly, the plants can be moved to an outdoor nursery (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001).
Length of Active Growth Phase	Length of 8 weeks (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Hardening Phase	Leading up to the hardening phase, irrigation can be reduced in fall (September and October) before winterization occurs. One final irrigation can take place before winterization. (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Length of Hardening Phase	Length of 8 weeks (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Harvesting, Storage and Shipping	The harvest date in was July, with total time to harvest being 1 year. The plants were stored, overwintered, in a nursery that was outdoors, under snow and insulated foam. (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Length of Storage	5 months long (Luna, T.; Evans, J.; Wick, D.; Hosokawa, J. 2001)
Guidelines for Outplanting / Performance on Typical Sites	No information
Other Comments	No information
INFORMATION SOURCES	

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