**Plant Propagation Protocol for *Salix alaxensis***
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/*2023 /SALALA.pdf*

| **TAXONOMY** | |
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| Plant Family | Salicaceae |
| Scientific Name | *Salix alaxensis* |
| Common Name | Feltleaf willow, Alaska willow<br>  |
| Species Scientific Name | |
| Scientific Name | *Salix alaxensis* Anderss. Cov. (Salicaceae) |
| Varieties | Salix alaxensis var. alaxensis [17,76,113,128]<br>Salix alaxensis var. longistylus (Rydb.) Schneid. [17,76,113,128,141] |
| Sub-species | Salix alaxensis subsp. alaxensis [70]<br>Salix alaxensis subsp. longistylis (Rydb.) Hult. [70,73]<br>Salix longistylis Rydb.[113,141]<br>Salix speciosa Hoo |

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| Cultivar | N/A |
| Common Synonym(s) | Salix alaxensis subsp. alaxensis [70]<br>Salix alaxensis subsp. longistylis (Rydb.) Hult. [70,73]<br>Salix longistylis Rydb.[113,141]<br>Salix speciosa Hoo |
| Common Name(s) | |
| Species Code (as per USDA Plants database) | SALALA |
| **GENERAL INFORMATION** | |
| Geographical range |  |
| Ecological distribution | Flat to steep slopes in coastal to alpine zones in roughly neutral pH mineral soils that are aerated, nutrient-rich, and well-drained. Less common at high elevations, and is most common in gravel and sandy or silty soils. |
| Climate and elevation range | • Temperate & subarctic regions, coastal to alpine in eastern Siberia, Alaska, an Canada<br>• "Occurs on all aspects and on flat to steep slopes (0%-78%). It is very commo on floodplains, outwash fans, glacial moraines, and active sand dunes in the Low and High Arctic and Taiga" (USDA). |
| Local habitat and abundance | |
| Plant strategy type / successional stage | • Early-seral in riparian communities<br>• Shade intolerant (prefers full sun)<br>• "Abundant winter precipitation may benefit [it]" (USDA). |
| Plant characteristics | • Tree-shrub 2 to 33 feet tall that grows in clusters of 5 to 20 stems.<br>• Leaves are deciduous, alternate, and simple.<br>  ○ 2.0 to 4.3 inches long and 0.4 to 1.6 inches wide<br>• Catkins (males 1.2 to 2.0 inches, females 2.0 to 5.9 inches long)<br>• Dioecious<br>• May live over 80 years |

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| | • "Roots normally grow 2 inches deep in one growing season and may grow 11 inches deep in 2 growing seasons" (USDA). |
| **PROPAGATION DETAILS** | |
| Ecotype | N/A |
| Propagation Goal | Plants |
| Propagation Method | Seed<br>  <br>(Above: Male catkins)<br><br>  <br>(Above: female catkins in bloom)<br><br>(Photo credit for both is by iNaturalist) |
| Product Type | Bareroot (field grown) |
| Stock Type | Seeds in bareroot soil (field) |
| Time to Grow | 2 months |

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| Target Specifications | Established and well rooted; ideally 6-12 inches in above-ground height |
| Propagule Collection Instructions | Collect seeds from May through July (when the willows flower and disperse seeds) |
| Propagule Processing/Propagule Characteristics | Seeds may remain viable for up to 4 weeks in the field but may last longer if kept at 5 25 °C. Stratification is not required for germination, although continual freezing can prolong viability for at least 3 years (although the viability drops from about 94-97% to about 59-74%). |
| Pre-Planting Propagule Treatments | Seeds should be separated from catkins if not already separated.<br><br>If storage is required, store in cool, dry conditions. Seeds do not exhibit dormancy and have the highest germination rates as soon as 1 day following dispersal. |
| Growing Area Preparation / Annual Practices for Perennial Crops | For bareroot (field growing) area, flat ground of wet gravel or moist silt will suffice. Depending on microclimatic conditions or soil texture, one may additionally want to create small "valleys" or pits about 10-20 cm across and 10-15 cm deep to outplant th willows into, in order to retain water if drainage is high (i.e., water retention is low). |
| Establishment Phase Details | Keep soil moist (prevent desiccation) |
| Length of Establishment Phase | As quick as 24 hours in wet to moist mineral soil |
| Active Growth Phase | Keep soil moist to wet by watering every 1-3 days (which may vary depending on climate), preventing soil from drying. |
| Length of Active Growth Phase | About 2 months |
| Hardening Phase | As a very cold-hardy species, cold-hardening is not likely to be necessary. |
| Length of Hardening Phase | N/A |
| Harvesting, Storage and Shipping | Storage and shipping should ideally take minimal time to avoid the desiccation of the soil substrate of the seedlings to be outplanted. |
| Length of Storage | Minimal |
| Guidelines for Outplanting / Performance on Typical Sites | Seedlings should continue to grow rapidly, on average exceeding half a foot tall in roughly 2 months (after germination), and should grow to roughly 8 feet tall by the time they are 8 years old. |
| Other Comments | N/A |
| **INFORMATION SOURCES** | |
| References | "Alaska Willow (Salix Alaxensis)." *INaturalist*, www.inaturalist.org/taxa/168313-Salix-alaxensis. Accessed 31 May 2023.<br>Bishop S.C. & Chapin F.C. (1989) Establishment of Salix alaxensis on a gravel pad in Arctic Alaska. Journal of Applied Ecology, 26, 575-583.<br>dfg.webmaster@alaska.gov. "Willows and Moose, Alaska Department of Fish and Game." Www.adfg.alaska.gov, Sanna Sinddiqi, www.adfg.gov/index.cfm?adfg=wildlifenews.view_articicle&articles_id=103 Accessed 31 June 2023.<br>"Salix Alaxensis." Www.fs.usda.gov, www.fs.usda.gov/database/feis/plants/tree/salala/all.html. Accessed 3 May 2023. |
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| Protocol Author | Robin Swaii |
| Date Protocol Created or Updated | 06/01/23 |