**Plant Propagation Protocol for *Sorbus sitchensis***

ESRM 412 – Native Plant Production

Protocol URL: https://courses.washington.edu/esrm412/protocols/SOSI2.pdf

*Image Credit: Walter Siegmund*

| **TAXONOMY** | |
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| Plant Family | |
| Scientific Name | Rosaceae |
| Common Name | Rose family |
| Species Scientific Name | |
| Scientific Name | *Sorbus sitchensis* M. Roem. |
| Varieties | *Sorbus sitchensis* M. Roem. var. *grayi* (Wenzig) C.L. Hitchc.<br>*Sorbus sitchensis* M. Roem. var. *sitchensis* |
| Subspecies | *Sorbus sitchensis* M. Roem. subsp. *californica* (Greene) Abrams<br>*Sorbus sitchensis* M. Roem. subsp. *grayi* (Wenzig) Calder & Roy L. Taylor |
| Cultivar | |
| Common Synonym(s) | *Sorbus occidentalis* (S. Watson) Greene |

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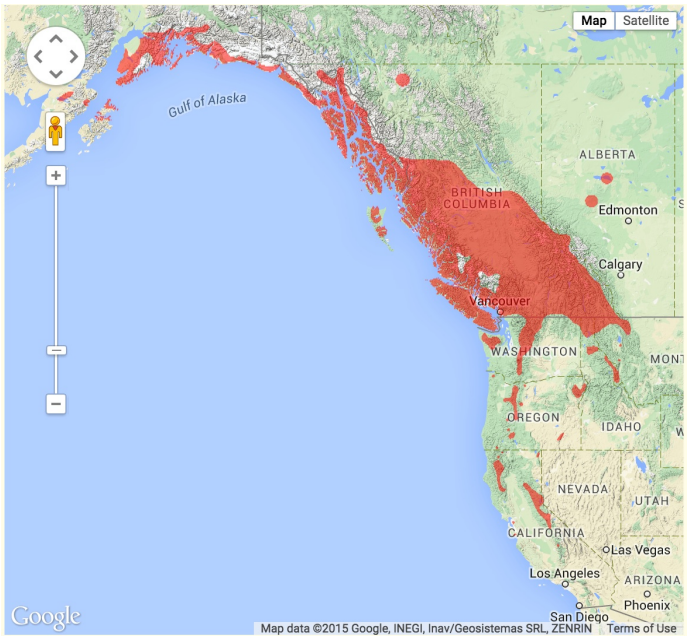
| | *Sorbus sitchensis* M. Roem. subsp. *grayi* (Wenzig) Calder & Roy L. Taylor |
| Common Name(s) | western mountain ash, sitka mountain ash, pacific mountain ash |
| Species Code (as per USDA Plants database) | SOSI2 |
| **GENERAL INFORMATION** | |
| Geographical range | *Sorbus sitchensis* is distributed throughout Alaska and south through the Cascade and Olympic Mountains to northern California, and east to Yukon, northern Idaho and northwestern Montana.[4]   *Image Credit: www.plantmaps.com* |
| Ecological distribution | *Sorbus sitchensis* prefers open, coniferous forests, streambanks, and clearings such as meadow edges and rockslides.[10] |
| Climate and elevation range | *Sorbus sitchensis* thrives at sea level in Alaska[2], and at 2000-10,000 feet elsewhere[4]. Generally speaking it can be found at middle to subalpine elevations[10]. Although it is shade tolerant[2], it thrives in partial to full sun with moderate moisture[8]. |

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| Local habitat and abundance | Locally *Sorbus sitchensis* may be found throughout the Olympic Peninsula, Western Washington, and parts of the Okanogan[1]. It is usually found on moist rich soils near streams or rocky hillsides in association with conifers such as Douglas-fir, Western White Pine, Sitka spruce, larch, hemlock, cedar, silver-fir, red-fir, and grand-fir[9]. |
| Plant strategy type / successional stage | *Sorbus sitchensis* is a facultative, seral species found mostly in climax forests[2]. |
| Plant characteristics | Native, deciduous shrub 4 to 8 ft tall or a small tree up to 20 ft tall[6]. It is USDA hardiness zone 4-8[9]. |
| **PROPAGATION DETAILS** | |
| Ecotype | |
| Propagation Goal | Plants |
| Propagation Method | Seed |
| Product Type | Container |
| Stock Type | |
| Time to Grow | *Sorbus sitchensis* may be planted after two years growth, once a root system is built[9]. |
| Target Specifications | |
| Propagule Collection Instructions | Sorbus spp. start to produce seed at about 15 years old and will generally produce a harvestable seed crop every year; fruits ripen from September to October and persist through late winter[6]. |
| Propagule Processing/Propagule Characteristics | Longevity: seeds have been kept viable for 2 to 8 years after cleaning[6]. Seed density: 140,000 seeds per pound[11]. |
| Pre-Planting Propagule Treatments | “Seeds sown in the spring require 60 or more days of previous stratification at 32 to 41 degrees Fahrenheit (0-5 deg C) in moist sand, moss, soil, or other medium. Unstratified seed should be sown in the fall or early winter. Germination is slower and |

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| | not as successful if seeds are not removed from the berries before sowing."[6] |
| Growing Area Preparation / Annual Practices for Perennial Crops | *Sorbus sitchensis* dislikes dry soils and needs to grow in moist sandy loam, mossy, or medium clay soils[2][7][9]. For 10 inch cubed containerized shrubs, it is recommended that they be planted 3 feet on-center[12]. *Sorbus sitchensis* is adapted to coarse, fine, and medium textured soils. It needs a pH between 6 and 7.2. It needs a minimum 16 inches to establish root depth. It is shade intolerant. It needs a minimum -28 degrees Fahrenheit[11]. |
| Establishment Phase Details | The seed is best sown in a cold frame; it is better to sow as early in the year as possible because they germinate better with two weeks warm then 14-16 weeks cold stratification[9]. |
| Length of Establishment Phase | |
| Active Growth Phase | This plant is very busy establishing a root system during the first two years, so they are slot to put on top growth[9]. |
| Length of Active Growth Phase | |
| Hardening Phase | |
| Length of Hardening Phase | |
| Harvesting, Storage and Shipping | |
| Length of Storage | |
| Guidelines for Outplanting / Performance on Typical Sites | Seedlings are very hardy and are generally not susceptible to insects or disease[2]. It will perform best in dry to moist, well-drained sandy loam or other doils. It usually occurs in mid- to upper-elevation coniferous forests and forest opening, especially from 3,00 to 5,000 feet on the western slope of the Cascade Range[6]. It may be best to transplant after two years growth, once a root system is built[9]. |

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| Other Comments | *Sorbus sitchensis* produces berries in the summer, which may be collected and thoroughly cleaned to collect the seeds[3]. |
| **INFORMATION SOURCES** | |
| References | 1. The Burke Museum of Natural History and Culture, Herbarium. http://biology.burke.washington.edu/herbarium. Retrieved April 13, 2006<br>2. Fire Effects Information System, USDA Forest Service. http://www.fs.fed.us/database/feis/index.html. Retrieved April 12, 2006.<br>3. Hansen, W. Native Plants of the Northwest. http://www.nwplants.com. Retrieved April 12, 2006.<br>4. Hitchcock, C.L. and Cronquist, A. Flora of the Pacific Northwest. University of Washington Press, 2001.<br>5. Jepson Horticultural Database. http://ucjeps.berkeley.edu/cgi-bin/get_hort. Retrieved April 12, 2006.<br>6. Matthews, Robin F. 1993. Sorbus sitchensis. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). http://www.fs.fed.us/database/feis/plants/shrub/sorsit/all.html Retrieved April 23, 2015.<br>7. Oregon State University, Department of Horticulture. http://www.oregonstate.edu/dept/ldplants/3plants.html. Retrieved April 12, 2006.<br>8. Permaculture Information Web. http://permaculture.info. Retrieved April 12, 2006. |

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| | 9. Plants for a Future. http://www.pfaf.org/user/Plant.aspx?LatinName=Sorbus+sitchensis. Retrieved April 26, 2015.<br>10. Pojar, J. and MacKinnon, A. Plants of the Pacific Northwest Coast. Lone Pine Publishing, Vancouver, B.C., 2004.<br>11. USDA, NRCS. 2006. *The Plants Database*, 6 March 2006 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. Retrieved April 23, 2015.<br>12. Washington Department of Fish and Wildlife, Planting Considerations and Erosion-Control Fabrics. http://wdfw.wa.gov/hab/. Retrieved April 12, 2006. |
| Other Sources Consulted | 1. Klinkenberg, Brian. (Editor) 2014. *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. [Accessed: 4/26/2015 2:04:53 PM ] |
| Protocol Author | Delaney Quick (*revision of previous protocol created by Joy Wood 4/24/06*) |
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