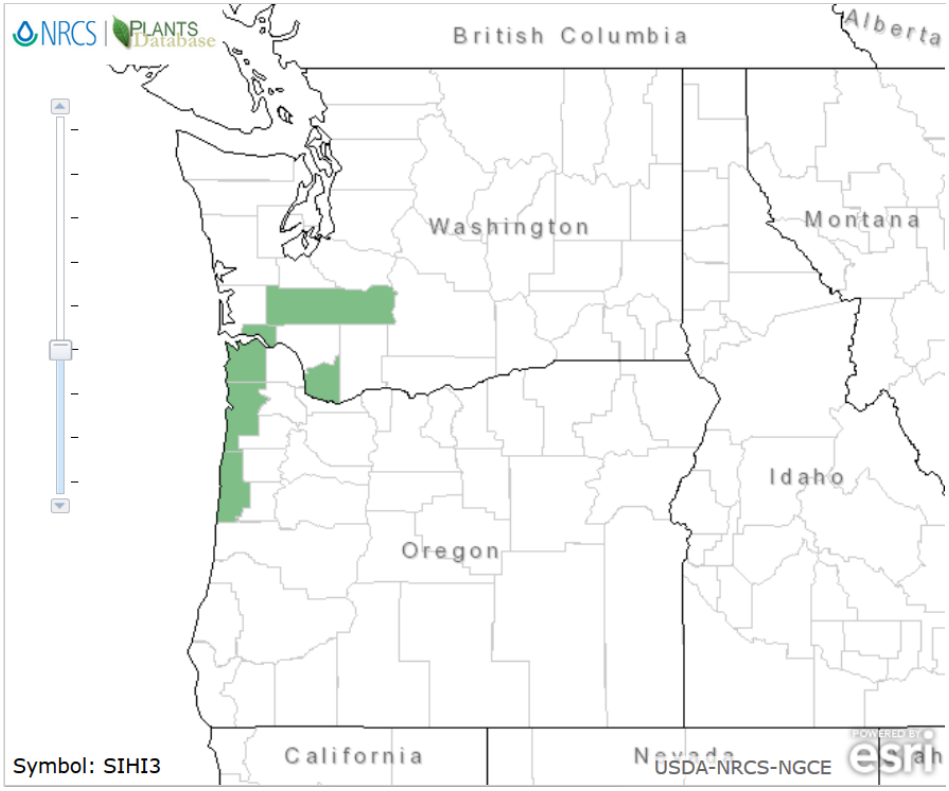
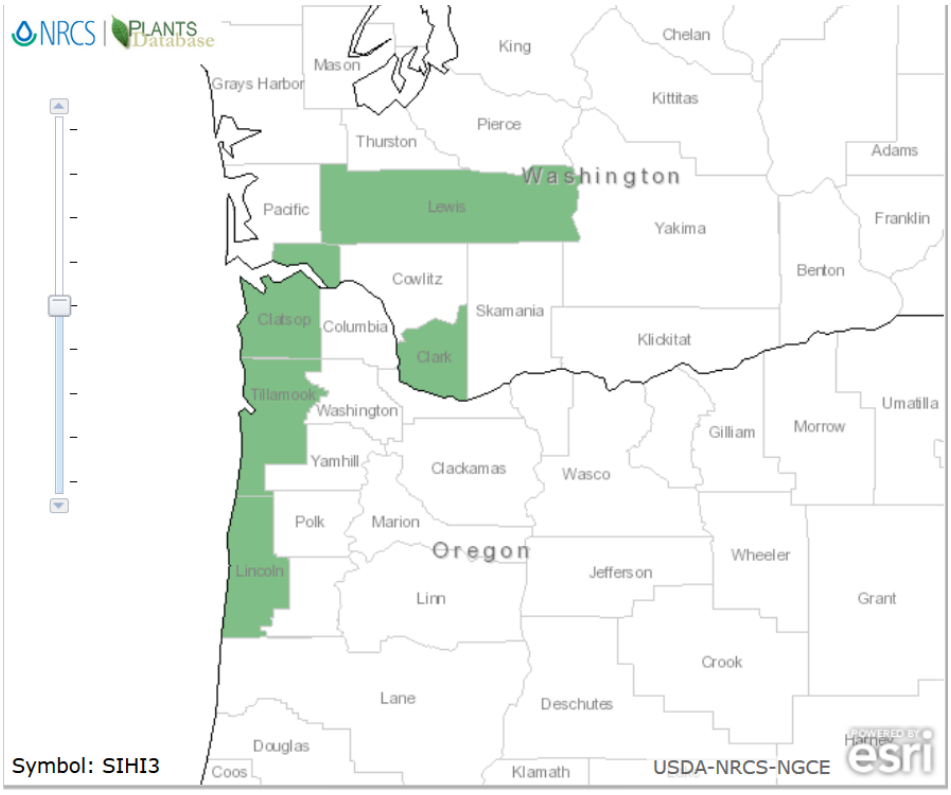
Plant Propagation Protocol for *Sidalcea hirtipes*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/SIHI3.pdf



United States Department of Agriculture and Natural Resource Conservation Service.



TAXONOMY	
Plant Family	
Scientific Name	Malvaceae
Common Name	Mallow Family
Species Scientific Name	
Scientific Name	*Sidalcea hirtipes* C.L. Hitchc.
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	N/A
Common Name(s)	bristlystem checkerbloom, bristly-stemmed checker-mallow, hairy-stemmed checker-mallow
Species Code (as per USDA Plants database)	SIHI3
GENERAL INFORMATION	
Geographical range	See above for geographical distribution. Found in Washington (Lewis, Clark, and Wahkiakum counties) and Oregon (Clatsop, Tillamook, and Lincoln counties).[8]
Ecological distribution	*Sidalcea hirtipes* can be found in the Coastal Range, Puget Sound Lowlands, and Western Cascade Lowlands and Valleys.[9]
Climate and elevation range	*S. hirpites* grows best in full sun to part shade, and prefers moist soils.[5] It typically grows from 60 meters (200 ft.) to 1,135 meters (3,750 ft) in elevation.[9]
Local habitat and abundance	*S. hirtipes* is restricted to prairie remnants, meadows, and coastal headlands.[9] It will not grow in tideflats. [7] It is also found along fencerows and roadside ditches, and is sometimes associated with wetter environments such as creeks or streams.[1]
Plant strategy type / successional stage	The life strategy of this plant is a weedy colonizer, spreading quickly in an area through rhizome networks. Colonizes primarily open spaces.[1] **Note:** This species has both female and hermaphroditic individuals within most populations; wide collections should be made to ensure enough of each sex is collected. [6a,6b]
Plant characteristics	Herbaceous perennial with short, thick rhizome structure. Stems are 3-7dm tall (30-70 cm) and covered in stiff hair. Leaves are alternate, Palmately lobed, and coarsely toothed, although the teeth have rounded edges.[7] Upper leaves are palmate and divided into narrow lobes. The inflorescence forms on a spike with compound racemes and flowers on small pedicels. The calyx has five lobes, and the five petals are pink or rose-purple in color. Petals are about 1.5cm long.[5] Flowers bloom early to mid-summer, from June - mid-July. Fruits are carpels about 4mm long, with prominent veining

	and pitting on the sides. The beak is 0.6-0.8mm long.[1] *S. hirtipes* is dioecious, although there are many hermaphroditic individuals mixed into the population.[9]
PROPAGATION DETAILS Propagation by seed in a nursery setting, complete with germination chambers. Information in this protocol was taken from an interview with Wendy Gibble: Director of the Washington Rare Plant Care Program (2017).	
Ecotype	Clark county- 500ft above sea level Wahkiakum county- 50 ft above sea level Lewis county- 3,700ft above sea level
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	4 inch pots
Time to Grow	Not Available
Target Specifications	Not Available
Propagule Collection Instructions	Collected in July/early-August for low elevation sites and September for high elevation sites.
Propagule Processing/Propagule Characteristics	Seeds were cleaned by hand.
Pre-Planting Propagule Treatments	Scarification by hand- nicked seed coat with a razor blade. Seeds set on wet germination paper in petri dishes and held in an incubation chamber set to 5°C constant temperature. Seeds were kept in the chamber for 8 weeks before being moved to a chamber set to 15.9°C day and 7.9°C night temperatures. *S. hirtipes* was later planted in rosette pots and moved to a greenhouse with temperatures ranging from 68-72°F. These steps resulted in 80-100% germination.
Growing Area Preparation / Annual Practices for Perennial Crops	Plant in Sunshine #4 potting soil. Use rosette pots or similarly small container.
Establishment Phase Details	Not Available
Length of Establishment Phase	Not Available
Active Growth	Not Available
Length of Active Growth Phase	Not Available
Hardening Phase	Not Available
Length of Hardening Phase	Typically 4-6 weeks
Harvesting, Storage and Shipping	Not Available
Length of Storage	Not Available
Guidelines for Outplanting / Performance on Typical Sites	Not Available
Other Comments	**WARNING:** This species of *Sidalcea* is listed on the **Endangered Species List** in the lower 48 states. Please make sure that any collections of this species have been

	permitted by the proper authorities. *S. hirtipes* has special value as a nectar source to native bees, please harvest responsibly. [3]
PROPAGATION DETAILS Propagation by seed in a nursery setting, complete with germination chambers. Information in this protocol was taken from a journal article[2] published in 2015 about the closely related *Sidalcea malviflora ssp. virgata.*	
Ecotype	Commercial source- collected in the Willamette Valley.
Propagation Goal	Seed Germinants
Propagation Method	Seed
Product Type	Not Available
Stock Type	Not Available
Time to Grow	Not Available
Target Specifications	Not Available
Propagule Collection Instructions	Not Available
Propagule Processing/Propagule Characteristics	Estimated 84% live seed
Pre-Planting Propagule Treatments	Scarification by hand- nicked seed coat with a razor blade. Cold stratification- placed seeds on wet germination paper in sealed, clear boxes inside a cold room held at 5°C. Germination rates were highest when seeds were kept in cold stratification for four or more weeks. After both cold stratification and scarification treatments were complete, seeds were moved to a chamber that alternated at 15 night /25 day °C for 8 hours of light and 16 hours of dark.
Growing Area Preparation / Annual Practices for Perennial Crops	Not Available
Establishment Phase Details	Not Available
Length of Establishment Phase	Not Available
Active Growth Phase	Not Available
Length of Active Growth Phase	Not Available
Hardening Phase	Not Available
Length of Hardening Phase	Not Available
Harvesting, Storage and Shipping	Not Available
Length of Storage	Not Available
Guidelines for Outplanting / Performance on Typical Sites	Not Available
Other Comments	**WARNING:** This species of *Sidalcea* is listed on the **Endangered Species List** in the lower 48 states. Please make sure that any collections of this species have been permitted by the proper authorities.

PROPAGATION DETAILS Propagation by seed in a garden setting. Information on this protocol was taken from the Portland Nursery website.[4] This information was listed for multiple *Sidalcea* sp.	
Ecotype	Not available
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Bareroot or mature plant
Stock Type	N/A
Time to Grow	N/A
Target Specifications	Not available
Propagule Collection Instructions	Collect in late summer or early fall.
Propagule Processing/Propagule Characteristics	Not available
Pre-Planting Propagule Treatments	No propagule treatments needed, sown directly into garden soil or flat.
Growing Area Preparation / Annual Practices for Perennial Crops	Not available
Establishment Phase Details	Seeds sown in soil should chill for a few weeks over winter and they will germinate the following spring.
Length of Establishment Phase	N/A
Active Growth Phase	N/A
Length of Active Growth Phase	N/A
Hardening Phase	N/A
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	N/A
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	Not available
Other Comments	**WARNING:** This species of *Sidalcea* is listed on the **Endangered Species List** in the lower 48 states. Please make sure that any collections of this species have been permitted by the proper authorities. [9] *S. hirtipes* has special value as a nectar source to native bees, please harvest responsibly. [3]
INFORMATION SOURCES	
References	[1]Department of Natural Resources. *Sidalcea hirtipes*. Retrieved from http://file.dnr.wa.gov/publications/amp_nh_sihi3.pdf. Accessed 24 April 2017. [2]Jones, K. D., & Kaye, T. N. (2015). Growing Native Seeds

	for Restoration: Seed Dormancy and Germination of Sidalcea malviflora ssp. virgata (Malvaceae). *Natural Areas Journal, 35*(1), 26-28. doi:10.3375/043.035.0105 [3]Lady Bird Johnson Wildflower Center through The University of Texas in Austin. Plant Database - *Sidalcea hirtipes*. Retrieved from http://www.wildflower.org/plants/result.php?id_plant=SIHI3. Accessed 24 April 2017. [4]Portland Nursery. Sidalcea: Checker Mallow. Retrieved from http://portlandnursery.com/plants/natives/sidalcea.shtml. Accessed 24 April 2017. [5]Robson, K. A., Richter, A., and Filbert, M (2005). *Encyclopedia of Northwest Native Plants for Gardens and Landscapes*. Portland, OR: Timber Press, Inc. [6a]Shultz, S. T. (2003). Sexual dimorphism in Gynodioecious *Sidalcea hirtipes* (Malvaceae). I. Seed, Fruit, and Ecophysiology. *International Journal of Plant Sciences, 164*(1), 165-173. doi: 10.1086/344550 [6b]Shultz, S. T. (2003). Sexual Dimorphism in Gynodioecious *Sidalcea hirtipes* (Malvaceae). II. Floral Traits. *International Journal of Plant Sciences, 164*(1), 175-180. doi: 10.1086/344550 [7]The Burke Museum of Natural History and Culture and The Washington Native Plant Society. *Sidalcea hirtipes*. Retreived from http://biology.burke.washington.edu/herbarium/imagecollection.php?SciName=Sidalcea%20hirtipes. Accessed 24 April 2017. [8]United States Department of Agriculture and Natural Resource Conservation Service. Plants Database: *Sidalcea hirtipes*. Retrieved from https://plants.usda.gov/core/profile?symbol=SIHI3. Accessed 24 April 2017. [9]USDA Forest Service Region 6 and USDI Bureau of Land Management, Oregon and Washington (2011, January). Conservation Assessment for Bristly-stemmed Checker-mallow *(Sidalcea hirtipes).* Swartz, L. and Stein, M.

Other Sources Consulted	Baskin, C. C., and Baskin, J. M (2014). *Seeds*. San Diego: CA, Elsevier, Inc. Franklin, J. F., and Dyrness, C. T (1973). *Natural Vegetation of Oregon and Washington*. Corvallis: OR, Oregon State University Press. Hartmann, H. T., Kester, D. E., Davies, F. T. Jr., and Geneve, R. L (2011). *Hartman and Kester's Plant Propagation*. Upper Saddle River: NJ, Pearson Education, Inc. Kruckeberg, A. R (1982). *Gardening with Native Plants of the Pacific Northwest*. United States of America, University of Washington Press. Pojar, J. and MacKinnon, A (1994). *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska*. Vancouver: British Columbia, Canada, Lone Pine Publishing. Reforestation, Nurseries, & Genetics Resources. USDA Forest Service and Southern Regional Extension Forestry. Propagation Protocols. Retrieved from https://npn.rngr.net/propagation/protocols. Accessed 26 April 2017. Turner, M. and Gustafson, P (2006). *Wildflowers of the Pacific Northwest.* Portland: OR, Timber Press, Inc.
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