

Plant Propagation Protocol for *Sidalcea malviflora*
 ESRM 412 – Native Plant Production



Gary A. Monroe @ USDA-NRCS PLANTS Database (with kind permission).

TAXONOMY			
Family Names			
Family Scientific Name:	Malvaceae		
Family Common Name:	Mallow, Checker Mallow		
Scientific Names			
Genus:	<i>Sidalcea</i>		
Species:	<i>malviflora</i>		
Species Authorities:	(DC.) A. Gray ex Benth. <ul style="list-style-type: none"> • DC.: August Pyramus de Condolle (1778–1841) • A. Gray: Asa Gray (1810–1888) • Benth: George Bentham (1800–1884) 		
Variety:			
Sub-species, including authorities, species codes:	Symbol	Scientific Name (Authorities)	Common Name
	SIMA2	<i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth.	dwarf checkerbloom
	SIMAA	<i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. asprella (Greene) C.L. Hitchc.	dwarf checkerbloom
	SIMAC	<i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth.	California

	<p><i>ssp. californica</i> (<u>Nutt. ex Torr. & A. Gray</u>) <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAC3 <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>californica</i> (Nutt. ex Torr. & A. Gray) Jeps.</p> <p>SIMAC2 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. celata</i> (<u>Jeps.</u>) <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAC4 <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>celata</i> Jeps.</p> <p>SIMAD <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. dolosa</i> <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAE <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. elegans</i> (<u>Greene</u>) <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAL <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. laciniata</i> <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAL2 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. laciniata</i> <u>C.L. Hitchc.</u> var. <i>laciniata</i> checkerbloom</p> <p>SIMAS2 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. laciniata</i> <u>C.L. Hitchc.</u> var. <i>sancta</i> <u>C.L.</u> <u>Hitchc.</u> checkerbloom</p> <p>SIMAM <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. malviflora</i> checkerbloom</p> <p>SIMAN <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. nana</i> (<u>Jeps.</u>) <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAP <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> Siskiyou <i>ssp. patula</i> <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAP2 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. purpurea</i> <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAR2 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. rostrata</i> (<u>Eastw.</u>) <u>Wiggins</u> checkerbloom</p> <p>SIMAS <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. sparsifolia</i> <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAH <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. sparsifolia</i> <u>C.L. Hitchc.</u> var. <i>hirsuta</i> <u>C.L.</u> <u>Hitchc.</u> checkerbloom</p> <p>SIMAS3 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. sparsifolia</i> <u>C.L. Hitchc.</u> var. <i>sparsifolia</i> checkerbloom</p> <p>SIMAS4 <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. sparsifolia</i> <u>C.L. Hitchc.</u> var. <i>stellata</i> <u>C.L.</u> <u>Hitchc.</u> checkerbloom</p> <p>SIMAU <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. sparsifolia</i> <u>C.L. Hitchc.</u> var. <i>uliginosa</i> <u>C.L.</u> <u>Hitchc.</u> checkerbloom</p> <p>SIMAV <i>Sidalcea malviflora</i> (<u>DC.</u>) <u>A. Gray ex Benth.</u> dwarf <i>ssp. virgata</i> (<u>Howell</u>) <u>C.L. Hitchc.</u> checkerbloom</p> <p>SIMAV2 <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>virgata</i> (Howell) Dimling</p>
	(18)
Cultivar:	
Common Synonym(s) (include full	<ul style="list-style-type: none"> • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth.

<p>scientific names (e.g. <i>Elymus glaucus</i> Buckley), including variety or subspecies information)</p>	<p>ssp. <i>asprella</i> (Greene) C.L. Hitchc.</p> <ul style="list-style-type: none"> • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>californica</i> (Nutt. ex Torr. & A. Gray) C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>celata</i> (Jeps.) C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>dolosa</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>elegans</i> (Greene) C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>laciniata</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>laciniata</i> C.L. Hitchc. var. <i>laciniata</i> • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>laciniata</i> C.L. Hitchc. var. <i>sancta</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>malviflora</i> • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>nana</i> (Jeps.) C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>patula</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>purpurea</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>rostrata</i> (Eastw.) Wiggins • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>sparsifolia</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>sparsifolia</i> C.L. Hitchc. var. <i>hirsuta</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>sparsifolia</i> C.L. Hitchc. var. <i>sparsifolia</i> • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>sparsifolia</i> C.L. Hitchc. var. <i>stellata</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>sparsifolia</i> C.L. Hitchc. var. <i>uliginosa</i> C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. ssp. <i>virgata</i> (Howell) C.L. Hitchc. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>californica</i> (Nutt. ex Torr. & A. Gray) Jeps. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>celata</i> Jeps. • <i>Sidalcea malviflora</i> (DC.) A. Gray ex Benth. var. <i>virgata</i> (Howell) Dimling <p>(18)</p> <ul style="list-style-type: none"> • <i>Sida malviflora</i> DC. (17) • <i>Sidalcea malvaeflora</i> (15)
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	<ul style="list-style-type: none"> • <i>Sidalcea malviflora</i> (DC.) Gray ex Benth. var. <i>virgata</i> (T.J. Howell) Dimling (16) • <i>Sidalcea virgata</i> T.J. Howell [H&C] (16)
Common Name(s):	<p>Species</p> <ul style="list-style-type: none"> • checker bloom • checker mallow • checkerbloom • checkermallow • checker-mallow • dwarf checkerbloom • dwarf checkerbloom • Greek-mallow • prairie mallow • Sidalcea • virgate checkerbloom • wild hollyhock <p>(6, 15, 16, 17)</p> <p>Subspecies</p> <ul style="list-style-type: none"> • ssp. <i>californica</i>: chaparral checkerbloom, California checkerbloom • ssp. <i>dolosa</i>: Bear Valley checkerbloom • ssp. <i>laciniata</i>: geranium-leaved checkerbloom • ssp. <i>malviflora</i>: dwarf checkerbloom • ssp. <i>patula</i>: Siskyou checkerbloom • ssp. <i>purpurea</i>: purple-stemmed checkerbloom • ssp. <i>rostrata</i>: seacliff checkerbloom • ssp. <i>virgata</i>: virgate checkerbloom, rose checker mallow <p>(2, 20)</p>
Species Code (per USDA Plants database):	SIMA2
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	Washington, Oregon, California, Baja California.

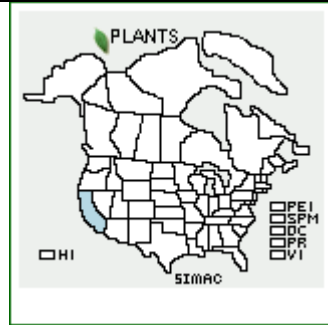


Figure 4: *S. malviflora* ssp. *californica* (California checkerbloom).

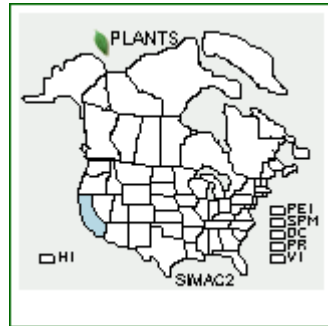


Figure 5: *Sidalcea malviflora* ssp. *celata* (dwarf checkerbloom).

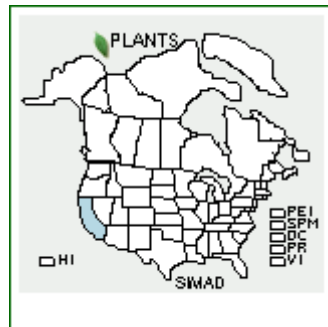


Figure 6: *S. malviflora* ssp. *dolosa* (dwarf checkerbloom).

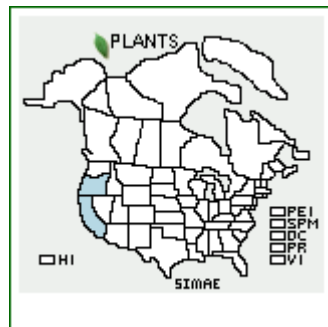


Figure 7: *S. malviflora* ssp. *elegans* (dwarf checkerbloom).

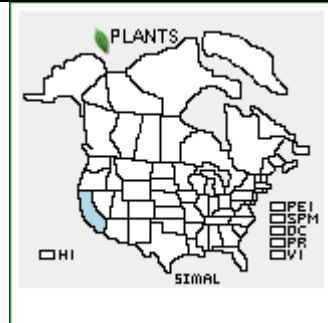


Figure 8: *S. malviflora* ssp. *laciniata* (dwarf checkerbloom).

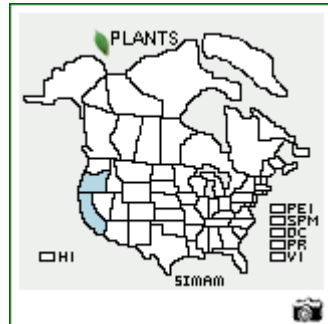


Figure 9: *S. malviflora* ssp. *malviflora* (dwarf checkerbloom).

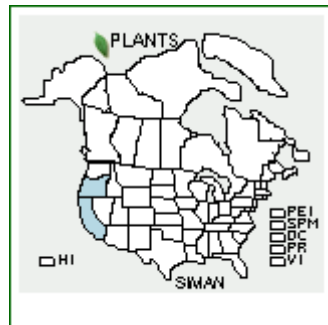


Figure 10: *S. malviflora* ssp. *nana* (dwarf checkerbloom).

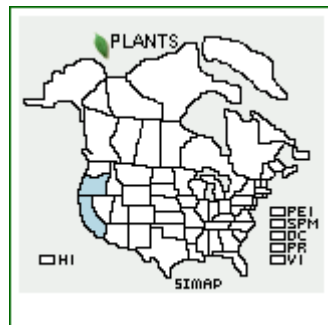


Figure 11: *S. malviflora* ssp. *patula* (Siskiyou checkerbloom).

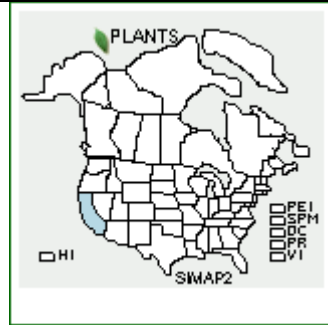
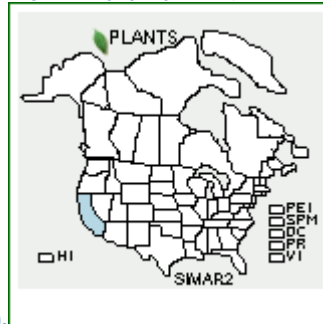


Figure 12: *S. malviflora* ssp. *purpurea* (dwarf



checkerbloom).

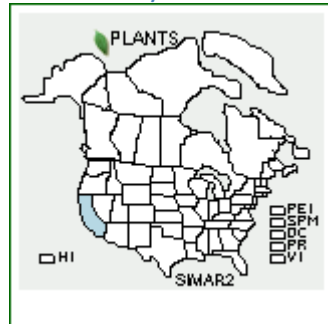


Figure 13: *S. malviflora* ssp. *rostrata* (dwarf checkerbloom).

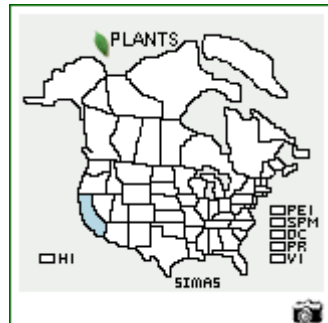
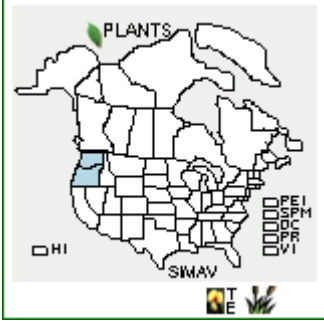


Figure 14: *S. malviflora* ssp. *sparsifolia* (dwarf checkerbloom).

	 <p>Figure 15: <i>S. malviflora</i> ssp. <i>virgata</i> (dwarf checkerbloom).</p>
<p>Ecological distribution (ecosystems it occurs in, etc):</p>	<p>(18)</p> <p>Coastal Prairie Foothill Woodland Mixed Evergreen Forest Oregon: EPA Coast Range Ecoregion Redwood Forest Valley Grassland Yellow Pine Forest (5, 14)</p>
<p>Climate and elevation range</p>	<p>0–7,545 feet (15)</p>
<p>Local habitat and abundance; may include commonly associated species</p>	<p>Habitat</p> <p>Found in diverse habitats, from fields to grassy hillsides, especially in moist meadows. Prefers cool summers and mild winters; deep, fertile, moist but well-drained soils in partial shade to sun (with protection as needed). (10, 8)</p> <p>Abundance</p> <ul style="list-style-type: none"> • Global status: Secure (common, widespread, abundant), with some subspecies critically imperiled, at very high risk of extinction or extirpation. • Federal status: Species of concern. • In Washington: Endangered—one plant along a fence in a Thurston County prairie that has produced self-pollinated seedlings. • In Oregon: Under review for endangered or threatened listing in Oregon. <p>(13, 19, 20)</p> <p>Alliances/associated species</p> <ul style="list-style-type: none"> • <i>Ambrosia psilostachya</i> Provisional Herbaceous Alliance (Western Ragweed Meadows): <i>Bromus hordeaceus</i>, <i>Ambrosia psilostachya</i>, <i>B. diandrus</i>, <i>Cynodon dactylon</i>, <i>Erodium</i> spp., etc.

	<ul style="list-style-type: none"> • Carex obnupta Herbaceous Alliance (Slough sedge swards): <i>Carex obnupta</i>, <i>Argentina egedii</i>, <i>Athyrium filix-femina</i>, <i>Cyosurus echinatus</i>, <i>Eleocharis macrostachya</i>, <i>Holcus lanatus</i>, etc. • Lasthenia californica–Plantago erecta–Vulpia microstachys Alliance (California Goldfields–Dwarf Plantain–Six-Weeks Fescue Alliance): <i>Hemizonia congesta</i>, <i>Poa</i> sp., <i>Aegilops triuncialis</i>, <i>Eriogonum nudum</i>. • Quercus douglasii Alliance (Blue Oak Associations): <i>Quercus douglasii</i>, <i>Quercus kelloggii</i>, <i>Briza maxima</i>, <i>Festuca</i> sp. • Other associates: <i>Dichelostemma capitatum</i> (Bluedicks), <i>Elymus multisetus</i> (Big Squirreltail), <i>Eschscholzia californica</i> (California poppy), <i>Hordeum jubatum</i> (foxtail barley), <i>Lepidum nitidum</i> (common peppergrass), <i>Linanthus parviflorus</i> (common linanthus), <i>Lupinus bicolor</i> (miniature lupine), <i>Plantago erecta</i> (California plantain), <i>Ranunculus californicus</i> (California buttercup), <i>Sisyrinchium bellum</i> (blue-eyed grass), etc. <p>(3, 14)</p>
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	<p>Form: Herbaceous perennial to 80 cm tall.</p> <p>Roots: with trailing, fibrous roots or strong taproot and short rootstocks.</p> <p>Stems: coarsely hairy below.</p> <p>Leaves: deeply lobed, with long petioles; hirsute below, stellate above.</p> <p>Flowers: in many-flowered racemes, pink to lilac, often with white veins.</p> <p>Fruit: a schizocarp; mericarps are 3-4 mm, coarsely reticulate.</p> <p>(8, 10)</p>
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	Fort Funston, California (21)
Propagation Goal (Options: Plants, Cuttings, Seeds,	Plants. (21)

Bulbs, Somatic Embryos, and/or Other Propagules):	
Propagation Method (Options: Seed or Vegetative):	<p>Seeds Direct-seed in spring at 50°F.</p> <p>Vegetative Divide into small clumps winter or spring. Strike success is good. Divisions mature in 3–6 months; can be divided in 1–2 years.</p> <p>Take basal stem cuttings in spring. (1, 4, 12, 21)</p>
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container (plug), pots, modules. (4, 21)
Stock Type:	Leach tube. (21)
Time to Grow (from seeding until plants are ready to be outplanted):	
Target Specifications (size or characteristics of target plants to be produced):	Firm plug in container. (21)
Propagule Collection (how, when, etc):	Collect seeds between May 1 and September 1. (21)
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	<p>Keep seeds dry in refrigerator. (21)</p> <p>In <i>Carex obnupta</i> slough sedge swards, seed is long-lived in soil. (Note: This information is generic to all dominant and codominant plants in the Carex obnupta slough sedge swards association.) (14)</p>
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	<p>Soak seed 6 hours in 180 °F water. (21)</p> <p>In <i>Carex obnupta</i> slough sedge swards, seed is germinated by inundation and winter stratification. (Note: This information is generic to all dominant and codominant plants in the Carex</p>

	obnupta slough sedge swards association.) (14)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Direct-seed the first of October 1 seed per 1.5” x 8” Leach Tube, containing a mix of peat moss, fir bark, perlite, and sand. Hand water; do not overwater. Propagate in fully controlled greenhouse. Germination is 60%. (21) Direct-seed in pots or modules containing soilless seed compost—peat or peat substitute. Top with vermiculite or perlite. Germinate in cold frame if needed. (<i>Note: This information may apply to Sidalcea sp. or to only Sidalcea x hybrid ‘Patty Girl.’ Source is unclear.</i>) (12)
Establishment Phase (from seeding to germination):	Seedlings prefer cool conditions. (21)
Length of Establishment Phase:	Establishment takes 2 to 3 weeks in cold frame (<i>Note: This information may apply to Sidalcea sp. or to only Sidalcea x hybrid ‘Patty Girl.’ Source is unclear.</i>) (12)
Active Growth Phase (from germination until plants are no longer actively growing):	
Length of Active Growth Phase:	
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	
Guidelines for Outplanting / Performance on Typical Sites (e.g., percent survival,	

height or diameter growth, elapsed time before flowering):	
Other Comments (including collection restrictions or guidelines, if available):	
INFORMATION SOURCES	
References (full citations):	<ol style="list-style-type: none"> 1. American Horticultural Society and Toogood, A. R. <i>Plant propagation</i>. New York: DK Pub, 1999. Print. 2. Baldwin, B. G. Goldman, D. H. & Vorobik, L. A. <i>The Jepson manual: Vascular plants of California</i>. Berkeley, CA: University of California Press, 2012. 3. Beidleman, L. H. and Kozloff, E. N. <i>Plants of the San Francisco Bay region: Mendocino to Monterey</i>. Berkeley, CA: University of California Press, 2003. Print. 4. Bryant, Geoff. <i>Gardens for free: a propagation handbook</i>. London: Frances Lincoln Ltd. 2003. Print. 5. Buck, Jennifer, and Julie Evens. "Classification of Vegetation Associations from the Marin County Open Space District in Marin County, California." Sacramento, CA: California Native Plant Society Vegetation Program, 1997. <i>In cooperation with Mischon Martin</i>. San Rafael, CA: Marin County Department of Parks and Open Space, March 2010. http://www.cnps.org/cnps/vegetation/pdf/marin_co_open_sp_vegreport.pdf. 6. <i>California Native Plant Link Exchange</i>. "Plant information: <i>Sidalcea malviflora</i>—Wild hollyhock." http://www.cnplx.info/nplx/species?taxon=Sidalcea+malviflora. 7. Hill, Steven R. "Notes on California Malvaceae Including Nomenclatural Changes and Additions to the Flora." <i>Madroño</i> (56.2: 104-111): 2009. Print. 8. Hitchcock, C. L. and Arthur Cronquist. <i>Vascular plants of the Pacific Northwest—part 3: Saxifragaceae to Ericaceae</i>. Seattle and London: University of Washington Press, 1977. Print. 9. Hitchcock, C. L. <i>Vascular plants of the Pacific Northwest</i>. Seattle, WA: University of Washington Press, 1995. Print. 10. Huxley, A. J. Griffiths, M. and Royal Horticultural Society (Great Britain). <i>The new Royal Horticultural Society dictionary of gardening</i>. New York: Grove's Dictionaries Inc. 1999. Print. 11. <i>Jepson Flora Project: Jepson Interchange for California Floristics</i>. "<i>Sidalcea malviflora</i> (DC.) A. Gray subsp. <i>laciniata</i> C. L. Hitchc." http://ucjeps.berkeley.edu/cgi-bin/get_cpn.pl?52986&expand=1. 12. McVicar, Jekka. <i>Seeds: The ultimate guide to growing</i>

successfully from seed /Jekka McVicar ; special photography by Marianne Majerus. Vancouver, BC: Whitecap, 2001. Print.

13. Oregon Biodiversity Information Center. "Rare, Threatened and Endangered Species of Oregon." Portland, OR: Institute for Natural Resources, Portland State University, Oct. 2010, 109 pp. <http://orbic.pdx.edu/documents/2010-rte-book.pdf>.
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