

TECHNICAL NOTES

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PLANT MATERIALS NO. 40 – Supplement A

Introduction to Nelson’s Checker-mallow, a Federally-listed Threatened Species, and a Key and Photo Guide to the Checker-mallow Species that Occur within its Range

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- Use of line drawing illustrations for all species courtesy of the University of Washington Press per C.L. Hitchcock and A. Cronquist. 1961. Vascular Plants of the Pacific Northwest. Part 3; Saxifragaceae to Ericaceae.
- Maps for Oregon populations from the Oregon Flora Project;
<http://www.oregonflora.org/atlas.php>
- Maps for Washington populations and photos of *Sidalcea hirtipes* from Joe Arnett, Washington Department of Natural Resources

The purpose of this technical note is to provide information about Nelson’s checker-mallow, a federal and state-listed Threatened species, and to provide information on how to identify the species from other co-occurring checker-mallow species within the species’ range.

A special thanks to all who contributed use of photographs for this publication including: Joe Arnett, Gerald D. Carr, Lee Ko, and Paul Slichter.

We welcome your comments for improving any of the content of this publication for future editions. Please contact kathy.pendergrass@or.usda.gov

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Brief Introduction to Nelson's checker-mallow:

Species Status: Nelson's checkermallow (*Sidalcea nelsoniana*) was federally listed as Threatened, without critical habitat, on February 12, 1993 (U.S. Fish and Wildlife Service 1993). A Recovery Plan was completed on September 30, 1998 (U.S. Fish and Wildlife Service 1998). A revised Final Recovery Plan is now available and supersedes the previous recovery plan (U.S. Fish and Wildlife Service 2010). The species is also State-listed as Threatened in both Oregon and Washington.

Threats: The U.S. Fish and Wildlife Service's Final Recovery Plan (2010) designated 24 distinct threats to species of western Washington and Oregon prairies. Habitat loss was deemed the largest and generally most irreversible cause of the species' decline. Although many populations of Nelson's checker-mallow occur in the Willamette Valley, most sites are located on private property and few are protected or managed to maintain the species over time. This species requires open prairie-like habitat to thrive. Cessation of Native American burning practices has resulted in succession toward woodland habitats and further habitat loss for this species.

Range of the Species: The species is distributed from Monroe, Oregon, northward to Kelso, Washington (see Figure 17). In Oregon, most populations are located in the Willamette Valley with scattered populations also found in the Coast Range Ecoregion. In Washington, it occurs in the Olympic Peninsula and Southwest Washington physiographic provinces. The species is known to occur in Benton, Clackamas, Linn, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill Counties in Oregon. In Washington, it is known to occur in Cowlitz and Lewis Counties.

Habitat: The likely historical habitat of this species is wetland prairie and emergent herbaceous wetlands. Today, it occurs in various sunny habitats, including margins of sloughs, drainage ditches, stream-sides, roadside ditches, fence rows, swales, and wetter portions of native prairie remnants. It is often found where prairie remnants or disturbed grasslands meet woodland habitats. It is found at sites with seasonally wet soils and within a hydrologic regime where reed canarygrass (*Phalaris arundinacea*) also thrives (e.g. saturated soils or standing water until June). It occurs on various soil types, but is often found on heavy, poorly draining alluvial clays with hydric characteristics.

Bloom Timing and Surveys: The species blooms anytime between May and September, reaching its peak blooming period between mid-June to mid-July. This peak blooming period is the best timeframe to conduct field surveys to determine its presence. For NRCS purposes, surveys for this species are only required where hydric soils occur.

Associated Species:

- Oregon ash (*Fraxinus latifolia*)
- Tufted hairgrass (*Deschampsia cespitosa*)
- Reed canarygrass (*Phalaris arundinaceae*)
- Common rush (*Juncus effusus*)
- Slough sedge (*Carex obnupta*)

IDENTIFYING SPECIES OF CHECKER-MALLOWS



Figure 1: Checker-mallows can have dramatically different flower sizes within a species because some plants may have perfect flowers (e.g. have male [stamens] and female [pistils] components) – these flowers/petals will be larger (perfect Nelson’s checker-mallow flowers in photo left); while other plants may have female-only flowers (with non-functional male staminoidea) – these flowers/petals will be smaller (female-only Nelson’s checker-mallow flowers in photo below).

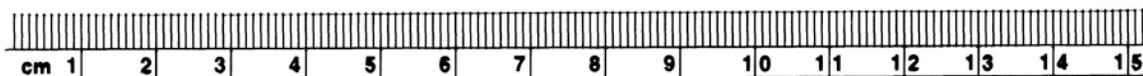


*Photos by
Gerald D. Carr*

PLANT KEY: SPECIES RELATED TO NELSON’S CHECKER-MALLOW

This key is provided to help identify checker-mallows to species within the range of where Nelson’s checker-mallow populations are known to occur. This is a dichotomous (two-way) key where you have a choice between two options (a couplet) at each entry of the key. You pick the best choice of each couplet (e.g. 1a versus 1b) that most accurately describes the unknown checker-mallow that you are trying to identify, then follow the next couplet and make your next best choice until you arrive at a species. For example, if 1b describes your species best, (between 1a and 1b), read couplets 3a and 3b to determine which one best fits your unknown checker-mallow and go to the next couplet below that choice (4a and 4b) until you arrive at a determined species. Refer to the following identification pages to see if your unknown plant actually matches (i.e. photos, descriptions, distribution) the species that you arrive at in this key.

Below is a millimeter ruler to measure your unknown plant.

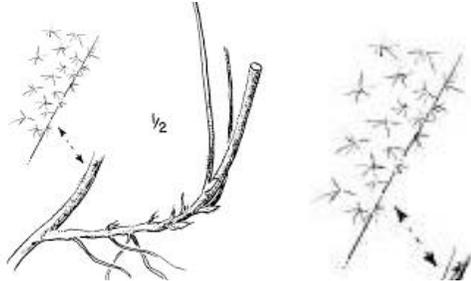


PLANT KEY

mm = millimeter; cm = centimeter (1 cm = 10 millimeters); dm = decimeter (1 dm = 10 centimeters)

1 inch = approximately 2.5 cm

- 1a. Hairs on lower portion of flowering stems generally radiating outward in a star-like arrangement from a central point (pubescence is stellate - similar to that in drawing below) **OR** hairs are absent.



- 2a. Hairs on lower portion of flowering stems with star-like hairs; flowering stems short (typically less than 5 dm [1.6 feet] height); plants often trailing/decumbent and freely rooting at the base; flowers usually medium pink and more widely spread along flowering stem, with 1-3 flowering branches; species found in Oregon and Washington
**Rose checker-mallow** (*Sidalcea. virgata* [= *S. malviflora* ssp. *virgata*])
- 2b. Flower stems glabrous (without hairs), or sometimes with sparse and short, star-like hairs that may be difficult to see; flowering stems taller (typically 7-16 dm [2.3- 5.2 feet]), plants upright; flowers are dark pink and extremely compact and multi-flowered with many flowering branches (candelabra-like; up to 20 branches) ending with blunt tips; species does not naturally occur in Washington.....**Cusick’s checker-mallow** (*Sidalcea. cusickii*)
- 1b. Hairs on lower portion of flowering stems simple and/or forked (one or two hairs seeming to originate from same point (similar to one or two hairs originating from a single pore on your skin), or hairs may be cross-like
 - 3a. Petals [usually] white to pale pink; lower portion of the stems usually with simple (single) to forked hairs; flower stems elongate and loosely flowered; at a typical height of 12.2-16.8 dm (4.0-5.5 feet); species does not naturally occur in Washington
**Meadow checker-mallow** (*Sidalcea campestris*)
 - 3b. Petals usually fairly deep pink to pinkish-orchid; racemes (flower stems) often closely-flowered and spikelike; plants generally shorter than 12.2 dm (4 feet).
 - 4a. Calyx lobes (the green, leaf-like bracts under the flower petals) short (4-6 mm long); flower stems closely-flowered and spike-like and tapering to a point (instead of a blunt tip compared to Cusick’s checker-mallow); flowering stem bases generally with short, appressed (pressed close to flower stems), simple (single) hairs; seeds lightly veined and pitted on the sides
 **Nelson’s checker-mallow** (*Sidalcea nelsoniana*)
 - 4b. Calyx lobes long (greater than 6 mm long); dense flower clusters at ends of flower stems, usually less than 8 cm long; flowering stems generally with stiff, simple or cross-like hairs 1-2.5 mm long; seeds prominently veined and pitted on the sides.....**Bristly-stem checker-mallow** (*Sidalcea hirtipes*)

Rose checker-mallow (*Sidalcea malviflora* ssp. *virgata* [= *Sidalcea virgata*])

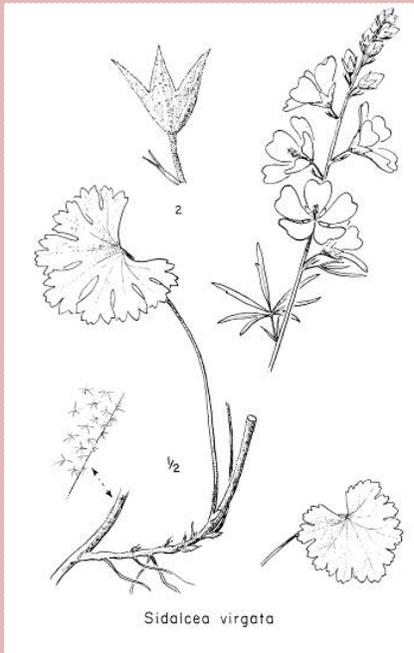


Figure 2
Rose checker-mallow illustration



Figure 4
Rose checker-mallow flowering stem Photo
by Steve Gisler

QUICK REFERENCE – KEY CHARACTERISTICS

Characteristic early-flowering, short-stature sprawling species with medium pink, large flowers; star-like pubescence at base of flower stems; and long narrow calyx lobes; typically occurring in dry habitats. This species is shorter, fewer-flowered, blooms earlier, has star-like stem hairs and generally occurs in drier habitats when compared to Nelson's checker-mallow.

IDENTIFYING CHARACTERISTICS

(* indicates key character)

1. STEMS

- *Hairs on lower portion of flowering stems radiate outward in a star-like arrangement (*pubescence is stellate - similar to that in Figure 3 below*)
- *Overall plant height (including flowering stems) is relatively short (2-10 dm [0.6-3.3 feet]; usually less than 5 dm [1.6 feet] height)
- Often trailing/decumbent and freely rooting at the base
- *Flower stems tend to be simple, or have very few (1-3) side branches
- Flowers often come off to one side of the stems (subtly 1-sided)
- Not thick or hollow

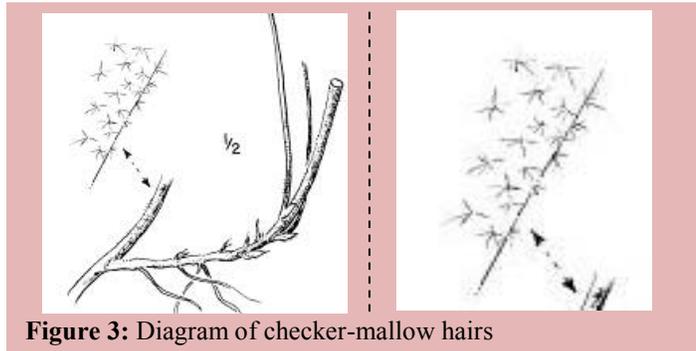


Figure 3: Diagram of checker-mallow hairs

2. FLOWERS

- *Typically medium pink to dark pink/magenta (*see Figure 4*), except around Eugene, where they can be pale pink to white
- *Few flowers per entire flowering stem (usually 5-30)
- Flowers moderately spaced along the flower stem; not densely clustered
- *Relatively large petals (perfect flowers range from 17-30 mm, female: 9-12 mm)



Figure 5
Entire plant, photo by Kathy Pendergrass

- e. Lower flowers often borne in axils of leaf-like bracts
- f. *Blooms April-June; is the earliest blooming of the checker-mallow species in western Oregon and Washington and will generally be finished blooming by the peak blooming of Nelson's checker-mallow blooms
- g. *Calyx lobes (leafy bracts beneath flower petals) are long (6-12 mm long) and narrow and tapering to a point, gradually rolling upon themselves and reflexing (turning backward) when in fruit

3. LEAVES: Basal leaves are usually densely and evenly hairy with short simple/forked hairs on upper surface, and dense star-like hairs on petioles (leaf stems)

4. SEEDS: Seeds (carpels) are large (3.5-4 mm,) and very rough, deeply reticulate-(net-veined)-pitted

5. HABITAT: Occupies moderately wet to very dry and upland (usually sloping) habitats. *Generally occupies the driest habitats of checker-mallows found in western Oregon and Washington

6. OTHER

- a. State-listed as Endangered in Washington
- b. **Note** - There is another form of this taxon more common north of Eugene, OR, that is 2-4 times larger, more upright, and has denser racemes and often fistulose (hollow) stems, nevertheless, this form still possesses the characteristic large flowers, star-like pubescence, and long narrow calyx lobes
- c. **ALTERNATIVE NAMES:** *Sidalcea virgata* is variously known as *Sidalcea malvaeflora* subspecies *virgata* and *Sidalcea malvaeflora* subspecies *asprella* variety *virgata*."

7. DISTRIBUTION IN OREGON AND WASHINGTON (see Figure 6)

Found throughout the interior valleys of western Oregon and Washington



Figure 6
Distribution maps for Oregon and Washington

Cusick's checker-mallow (*Sidalcea cusickii*)

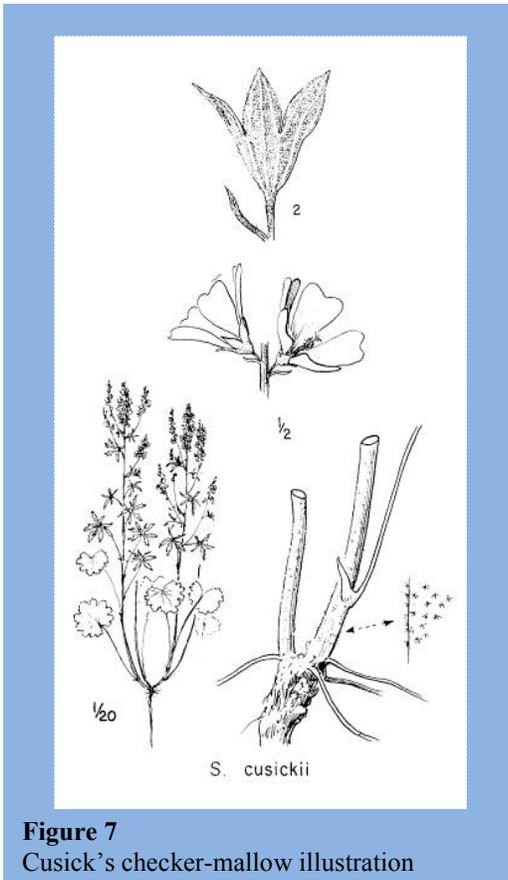


Figure 7
Cusick's checker-mallow illustration



Figure 8
Cusick's checker-mallow flowering stems,
photo by Steve Gisler

QUICK REFERENCE – KEY CHARACTERISTICS

Characteristic late-flowering, medium-statured species with deep pink, clustered candelabra-like flower clusters with blunt tops; lacking pubescence (or may be short-stellate) at base of flower stems; typically occurring in very wet habitats; species doesn't naturally occur in Washington. This species generally occurs south of Nelson's distribution.

IDENTIFYING CHARACTERISTICS

(*indicates key character)

1. STEM/PLANT

- a. *Lower portion of flowering stems generally completely glabrous (without hairs); or sometimes with very fine, sparse, and difficult to see star-like hairs
- b. Plants are relatively tall, typically 7-16 dm (2.3- 5.2 feet)
- c. Upright growth
- d. *Flowering stems usually highly compound, with many branches (candelabra-like – with as many as 20 branching flowering stems), with blunt appearance (not tapering like Nelson's checker-mallow) (see *Figures 7 and 8*)
- e. Stems often thick and hollow

2. FLOWERS

- a. *Typically dark pink to magenta (see *Figure 8*)
- b. *Extremely compact and many-flowered (as many as 175 flowers per entire flowering stem); many more flowers than Rose checker-mallow, and spike-like (not at all 1-sided)
- c. Petals relatively small (perfect flowers: 12-18 mm, female: 6-12 mm); similar size to Bristly, but slightly larger than Nelson's and smaller than in rose and meadow checker-mallows
- d. Blooms from June-July
- e. Unlike Rose checker-mallow, calyx lobes (leafy bracts beneath flower petals) do not gradually taper, but often (especially in fruit) widen slightly above the base and then abruptly taper
- f. Calyx lobes and upper stems often slightly to deeply purple tinged, frequently bearing prominent purple veins

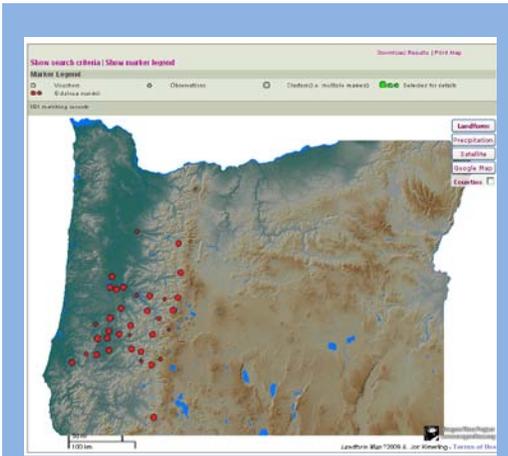


Figure 9
Distribution map for Oregon populations –
Does not naturally occur in Washington

3. LEAVES - Basal leaves usually only sparsely hairy, with very short simple and forked hairs, and petioles with sparse (if any), minute star-like hairs

4. SEEDS – Seeds (carpels) small (2-3 mm), and smooth (not reticulate)

5. HABITAT - *Occupies very wet to moderately wet, flat-lying valley bottom, meadow habitats. Occupies very similar wet habitats as Nelson’s checker-mallow although this species generally occurs south of known Nelson’s checker-mallow populations

6. OTHER

- a. **Note** -- Taxon may hybridize with Rose checker-mallow in some areas (mostly drainages south of Eugene), yielding intermediates that occupy drier habitats
- b. **BE CAREFUL**- of confusing populations around Lebanon, Oregon, that display characteristics between Meadow and Nelson’s checker-mallows. The range of Cusick’s checker-mallow is south of where Nelson’s checker-mallow occurs; so these intermediates don’t generally overlap in range
- c. **ALTERNATIVE NAMES:** *Sidalcea cusickii* sometimes split into varieties *cusickii* and *purpurea*

7. DISTRIBUTION (see Figure 9)

- a. Northern California northward to Junction City, OR
- b. Does not naturally occur in Washington

Meadow checker-mallow (*Sidalcea campestris*)

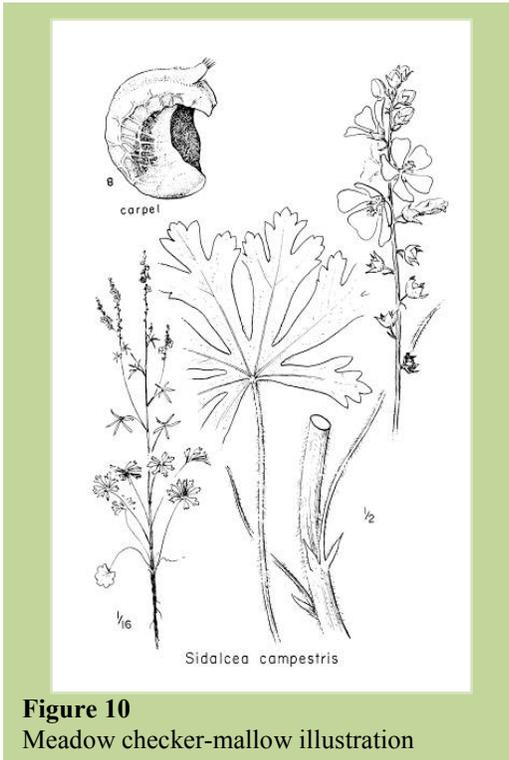


Figure 10
Meadow checker-mallow illustration

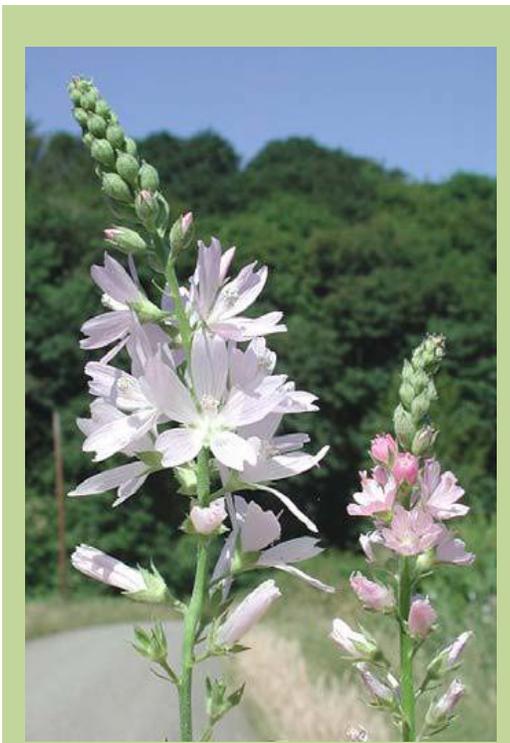


Figure 11
Meadow checker-mallow flowering stem,
perfect flowers on left stalk and female-only
flowers on right stalk, photo by Steve Gisler

QUICK REFERENCE – KEY CHARACTERISTICS

Characteristic mid-season flowering species with white to light pink, widely-spaced blossoms on tall flower stems; lacking pubescence (or simple and/or forked hairs) at base of flower stems; typically occurring in moderately-wet habitats; species does not naturally occur in Washington. It is taller, with paler and more widely-spaced flowers than Nelson's checker-mallow.

IDENTIFYING CHARACTERISTICS

(* indicates key character)

1. STEM

- a. *Lower portion of the stem usually with long, spreading, simple (single) and/or forked (two hairs from a single point) hairs
- b. *One of the tallest checker-mallows (8-22 dm; 2.5-7.2 feet)
- c. Upright growth
- d. *Flowering stems with few too many branches, though not so many as in Cusick's checker-mallow.
- d. Flower stems very thick though seldom hollow, very glaucous (blue-colored), and with a warty texture below

2. FLOWERS

- a. *Petals are usually white to pale pink (see *Figure 11*)
- b. *Flowers usually spaced widely from each other (loose) although sometimes more compact; usually spike-like but sometimes subtly 1-sided.
- c. *Flower petals are relatively large (petals of perfect flowers: 14-26 mm, female: 8-13 mm)
- d. Blooms May-July
- e. The calyx lobes (green, leaf-like bracts under petals) variable in taper and length, but never widening above the base

3. LEAVES - Basal leaves moderately to densely hairy, evenly over entire surface, with long forked/simple hairs, and petioles generally hairy

4. SEEDS – Seeds (carpels) are relatively large (3-3.5 mm) and deeply reticulate (veined), though not so much as in rose checker-mallow

5. HABITAT Occupies very wet to moderately dry habitats; often in dry fields and along roadsides



Figure 12
Entire plant in production field, photo by
Kathy Pendergrass

6. OTHER

- a. Confusing populations occur around Lebanon, Oregon where characteristics may vary between meadow and Nelson's checker-mallows

7. DISTRIBUTION (see Figure 13)

- a. From Cottage Grove north to Columbia River, and into the Cascade and Coast Range foothills in Oregon
- b. Does not naturally occur in Washington



Figure 13
Distribution map of Oregon habitat – Does
not naturally occur in Washington

Nelson's checker-mallow (*Sidalcea nelsoniana*)



Figure 14
Nelson's checker-mallow illustration



Figure 15
Nelson's checker-mallow flowering, female-only flowers on left stalk and perfect flowers on right stalk, photo by Steve Gisler

QUICK REFERENCE – KEY CHARACTERISTICS

Characteristic late flowering, medium-statured species with deep pink flower spikes; with short appressed, simple hairs (or without hairs) at base of flower stems; typically occurring in very wet habitats.

IDENTIFYING CHARACTERISTICS

(*indicates key character)

1. STEM

- a. *Flowering stem bases generally sparsely pubescent (with hairs), with short appressed (hairs pressed up against the stem), simple (may have forked) hairs; although sometimes glabrous (without hairs) to sparsely pubescent with short, mildly spreading simple hairs (see *Figure 16*)
- b. *Plants are medium in height (4-13 dm; 1.3-4.2 feet) compared to other checker-mallows; shorter than Meadow checker-mallow but taller than Rose or Bristled checker-mallows
- c. Upright but occasionally mildly decumbent (especially in Coast Range populations)
- d. *Flowering stems moderately branched
- d. Seldom hollow

2. FLOWERS (see *Figure 15*)

- a. *Flowers generally deep pink although sometimes paler
- b. Moderate number of flowers per flowering stem
- c. *Flowers moderately compact along flowering stem (though less than in Cusick's checker-mallow), spike-like and tapering to a point (not blunt); never 1-sided
- d. *Flowers relatively small (petals of perfect flowers: 9-14 mm, female: 4-9 mm)
- e. *Blooms between May and September, reaching its peak blooming period between mid-June to mid-July
- f. *Calyx lobes (leafy bracts beneath flower petals) short (4-6mm); lobes are neither narrowly tapering to a point or widening above the base, though often tinged purple in fruit

3. LEAVES - Basal leaves typically with no, or very few, scattered simple hairs on surface; the petioles (leaf stems) with few or no hairs; basal leaves tend to have a *much smoother*, more supple, and lighter green appearance than Rose or Meadow checker-mallows



Figure 16
Nelson's checker-mallow, showing hairs on flowering stem, photo by Paul Slichter

4. SEEDS - Seeds (carpels) lightly veined and pitted on the sides; 2.5-3.3 mm long

5. HABITAT * This species occupies very wet to moderately wet meadow habitats (see *Figure 17*)

6. OTHER

a. **BE CAREFUL**- of confusing populations around Lebanon, Oregon, that display characteristics between Meadow and Nelson's checker-mallows.

b. This species is Federally-listed as Threatened and State-listed as Threatened in both Oregon and Washington

7. DISTRIBUTION (see *Figure 18*)

a. Found just north of Monroe, Oregon, north to Kelso, Washington

b. Taxon also occurs in the Coast Range in meadows (from Grand Ronde north to Tillamook Co.), where it assumes a more decumbent and capitate (flowers clustered at ends of flower stems) form.



Figure 17
Typical Habitat – photos by Lee Ko (above) and Steve Gisler (below)

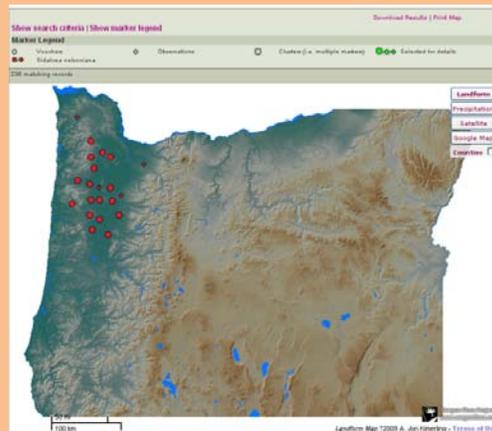


Figure 18
Distribution Maps in Oregon and Washington

Bristly-stem checker-mallow (*Sidalcea hirtipes*)

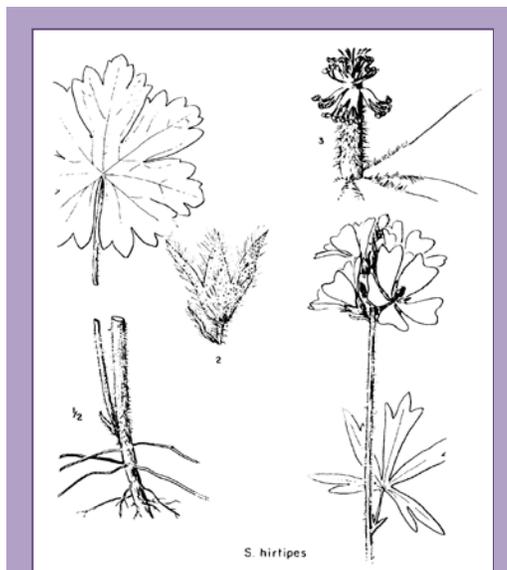


Figure 19
Bristly-stem checker-mallow illustration



Figure 20
Bristly-stem checker-mallow flowering stem, photo by Joe Arnett

QUICK REFERENCE – KEY CHARACTERISTICS

Characteristic mid-season flowering, short-statured species with deep pink, flowers all bunched together at the tops of the flower stems; with stiff, simple or cross-like hairs at base of flowering stems; with long calyx lobes; typically occurring in moderately wet habitats. It has a longer and fuzzier calyx, longer petals, and longer hair on the stem than Nelson's checker-mallow.

IDENTIFYING CHARACTERISTICS (*indicates key character)

1. STEM

- a. *Base of flowering stems with copious, rather stiff, simple or cross-like hairs 1- 2.5 mm long
- b. *Plants generally short; 7-13 dm. (2.3-4.2 feet) tall
- c. Upright from short thick rhizomes
- d. Flower stems moderately branched and spikelike
- e. Occasionally slightly hollow

2. FLOWERS

- a. *Petals are usually deep pink (*see Figure 20*)
- b. Moderate number of flowers per flowering stem
- c. *Flowers compactly clustered at the ends of the flower; flowering portion not greater than 8 cm long
- d. *Pedicels (stems of individual flowers) stout and 1-3 mm long
- e. Moderate-sized flowers (perfect flowers 10-20 mm)
- f. Blooms June-July
- g. *Calyx lobes long (9-15 mm) and enlarged considerably in fruit; and with star-shaped hairs and longer, often purplish hairs 1-2 mm long

3. SEEDS - Seeds (carpels) 3.5-4 mm. long; prominently reticulate-alveolate (veined and pitted) on the sides, the beak 0.6-0.8 mm. long

4. HABITAT - coastal mountain meadows to bluffs along the ocean, but not on tideflats. (Another species, Henderson's checker-mallow [*Sidalcea hendersonii*] occurs exclusive in coastal salt-marsh habitats and does not occur in the same regions as Nelson's checker-mallow)

5. OTHER - This species is State-listed as Endangered in Washington



Figure 21
Bristly-stem checker-mallow habitat, photo by Joe Arnett

6. DISTRIBUTION (see *Figure 22*)

- a. In Oregon, Northern Lincoln County to Tillamook and Clatsop counties; in Washington, Clark and Lewis counties
- b. Its range overlaps that of Nelson’s checker-mallow in the Coast Range and Lewis County, Washington

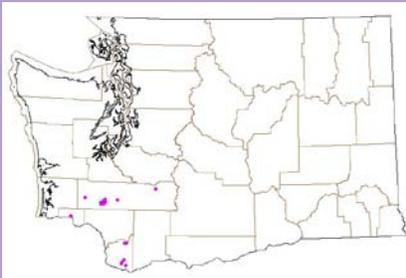


Figure 22
Distribution maps in Oregon and Washington



Figure 23. Rose checker-mallow, on left; and meadow checker-mallow, on right, in grow out at Heritage Seedling Farms, Salem, Oregon. Nelson's checker-mallow would be about intermediate in stature and would be close to same color as Rose checker-mallow shown here or a lighter pink, with very clustered flowers. Nelson's checker-mallow would be expected to still be in bud when the two species above would be in full bloom or past blooming, photo by Kathy Pendergrass.

Comparative eco-morphological attributes of checker-mallows in the range of Nelson's checker-mallow

	<i>Cusick's</i>	<i>Rose</i>	<i>Meadow</i>	<i>Nelson's</i>	<i>Bristly-stem</i>
<i>Stem pubescence (mid- to lower-stem)</i>	Sparse, minute star-like hairs (frequently nearly without hairs)	coarser, more dense star-like hairs, never glabrous	long, spreading, simple to forked hairs	short, appressed, simple hairs (sometimes forked)	stiff, simple to forked or cross-shaped hairs up to 2.5 mm long
<i>Petals</i>	pink to dark pink; perfect: 12-18 mm female: 6-12 mm	pink to magenta (sometimes white around Eugene); perfect: 17-30 mm; female: 9-12 mm	white to pale pink perfect: 14-26mm female: 8-13 mm	pale to dark pink perfect: 9-14 mm female: 4-9mm	dark pinkish-lavender, perfect: 10-20 mm
<i>Stems</i>	7-16 dm (2.3-5.2 feet); thick, often hollow	2-10 dm(0.6-3.3 feet); thin, never hollow	8-22 dm (2.6-7.2 feet); thick, warty below, rarely hollow	4-13 dm (1.3-4.3 feet); moderately thick, rarely hollow	7-13 dm (2.3-4.3 feet); thick; occasionally hollow
<i>Habit</i>	upright, short-rhizomatous	trailing to decumbent, rooting freely below, longer rhizomes	upright, short-rhizomatous	upright to slightly decumbent, moderately rhizomatous	upright, from short, thick rhizomes
<i>Calyx lobes</i>	Calyx 6-10 mm, widened above base, often deep purple veined	Calyx lobes long (6-12 mm), with uniformly finely star-like hairs; lobes not widened above base, narrowly tapering, rolling upon themselves and reflexing in fruit	not widened above base, moderate taper	short (4-6 mm), almost glabrous calyx lobes (sometimes with star-like hairs), purplish tinged, not widened above base, moderate taper	Calyx long (9-15 mm long), with fine, star-shaped hairs and longer often purplish hairs 1-2 mm long
<i>Flower denseness along flower stem; close=congested versus widely=loose/open</i>	extremely congested, many flowers (100-175)	usually loose, often 1-sided, very few flowers (5-30)	Generally loosely-flowered or open	moderately congested	extremely congested; usually < 8 cm long; pedicels stout and 1-3 mm long
<i>Inflorescence branching (entire flowering stem)</i>	highly compound (up to 20 branches), especially towards top, often deep purple tinged	rarely compound, or with 1-3 branches	less compound	moderately compound	Less compound
<i>Basal leaf pubescence (on upper surface)</i>	usually sparse, very short simple/forked hairs; few stellae on petioles	dense short hairs with longer simple or forked hairs; petioles with densely star-like hairs	moderately to densely hairy with simple/forked hairs; petioles moderately hairy	glabrous or with very sparse, scattered simple hairs; petioles glabrous	
<i>Carpels (seeds)</i>	small (2-3 mm) and smooth	large (3.5-4 mm) and very rough, deeply veined and pitted	relatively large (3-3.5 mm), moderately veined and pitted	moderately small (.5-3.3 mm), lightly veined and pitted	large (3.5-4mm) long; prominently veined and pitted on the sides
<i>Habitat</i>	Flat valley bottoms, very wet to moderately wet	often sloping, moderately wet to very dry	flat, wet to moderately dry	flat, very wet to moderately wet'	Flat to sloped, very wet to moderately wet
<i>Distribution</i>	Northern California northward to Junction City, OR; not in Washington	throughout western Oregon and Washington interior valleys and foothills	Cottage Grove northward through Willamette Valley and into foothills; not in Washington	Willamette Valley and Coast Range meadows, Junction City north to Kelso, WA	Generally in coastal habitats in western Oregon and Washington

References and for further information:

- Gisler, S. D. 2003. Reproductive isolation and interspecific hybridization in the threatened species, *Sidalcea nelsoniana*. Unpublished master's thesis, Oregon State University Department of Botany and Plant Pathology. 173 pp.
- U.S. Fish and Wildlife Service. 2010. Final Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington. U.S. Fish and Wildlife Service, Portland, Oregon.
<http://www.fws.gov/oregonfwo/Species/PrairieSpecies/Documents/PrairieSpeciesFinalRecoveryPlan.pdf>
- U.S. Fish and Wildlife Service. 1998. Recovery Plan for the Threatened Nelson's Checker-mallow (*Sidalcea nelsoniana*). Portland, Oregon. 61 pp.
http://ecos.fws.gov/docs/recovery_plans/1998/980930e.pdf
- U.S. Fish and Wildlife Service. 1993. Determination of Threatened Status for the Plant *Sidalcea nelsoniana* (Nelson's Checker-mallow). Federal Register 58:8235-8243.
<https://ecos.fws.gov/docs/frdocs/1993/93-3353.pdf>
- T&E Plant Survey Guide - use this to document Endangered Species compliance during conservation planning in Oregon (go to [eFOTG](#) click on map, go to Section II. G. Threatened & Endangered Species; 2. Conservation Planning Guidance)
- Flora Project – Rare Plant sheet on Nelson's checker-mallow:
<http://www.oregonflora.org/rarepdfs/sidnel.pdf>
- Oregon Natural Heritage website - specific information on individual plant species:
http://oregonstate.edu/ornhic/plants/view_plants2.php
- Oregon Field Office of U.S. Fish and Wildlife Service information:
<http://www.fws.gov/oregonfwo/Species/Data/NelsonsCheckerMallow/>
- Center for Plant Conservation information:
http://www.centerforplantconservation.org/ASP/CPC_ViewProfile.asp?CPCNum=3980
- State of Oregon Listed Plants: <http://oregon.gov/ODA/PLANT/CONSERVATION/statelist.shtml>
- Field Guide to Selected Rare Plants of Washington
<http://www1.dnr.wa.gov/nhp/refdesk/fguide/pdf/sine.pdf>
- Photos and distribution in Washington
<http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Sidalcea&Species=nelsoniana>
- Some research on the species: <http://oregonstate.edu/~wilsomar/Species/Sine.htm>
- Some beautiful photos: http://www.botany.hawaii.edu/Faculty/Carr/ofp/sid_nel.htm