

## **5-YEAR STATUS REVIEW**

**Species Reviewed:** Nelson’s checker-mallow (*Sidalcea nelsoniana*)

**Current Classification:** Threatened

### **GENERAL INFORMATION:**

**Date listed:** February 12, 1993

**FR citation(s):** Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Plant “*Sidalcea nelsoniana*” (Nelson’s Checker-mallow). Federal Register 58 FR 8235. February 12, 1993.

### **BACKGROUND:**

**Most recent status review:**

U.S. Fish and Wildlife Service [USFWS]. 2012. Nelson’s checker-mallow 5-year review: summary and evaluation. U.S. Fish and Wildlife Service, Portland, Oregon. 44 pp.

**FR Notice citation announcing this status review:**

Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 156 Species in Oregon, Washington, Hawaii, Palau, Guam, and the Northern Mariana Islands. Federal Register 83 FR 20088. May 7, 2018.

**Lead Region/Field Office:**

Interior Region 9, Portland Regional Office (PRO) / Oregon Fish and Wildlife Office (OFWO), Portland, Oregon.

**Name of Reviewer(s):** Jennifer Siani, OFWO.

Grant Canterbury, David Leonard, and Marilet Zablan, PRO.

### **ASSESSMENT:**

**Methodology used to complete this 5-year status review:**

In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a 5-year status review is to assess each threatened species and endangered species to determine whether its status has changed and it should be classified differently or removed from the Lists of Endangered and Threatened Wildlife and Plants. Threats and biological status of the species were evaluated with respect to current and future conditions in a species status assessment (SSA) (USFWS 2021, entire). In February 2021, Oregon Fish and Wildlife Office staff and management discussed the findings of the SSA to evaluate the status of the Nelson’s checker-mallow for its 5-year status review.

### **Application of the 1996 Distinct Population Segment (DPS) Policy:**

Not applicable, as DPS determinations may apply only to vertebrate taxa.

### **Review Analysis:**

Nelson's checker-mallow, an herbaceous perennial prairie plant, was listed as a threatened species in 1993. At the time of listing, the primary threats to the species were identified as land-use conversion, woody species encroachment following alteration of the historical fire regime, and the proliferation of nonnative invasive plant species. Although climate change is almost certain to affect prairie habitats, there is great uncertainty about the direction and specific effects of climate change on Nelson's checker-mallow and other listed prairie species (USFWS 2012, pp. 28-29). Detailed assessment of the biological status of Nelson's checker-mallow is provided in the SSA (USFWS 2021, entire), which we incorporate by reference here.

At the time of listing in 1993, plant numbers and distribution were limited. There were six population centers (geographic areas composed of historically interbreeding populations) of Nelson's checker-mallow: four in Oregon's Willamette Valley, one in the Oregon Coast Range, and one in Washington. These six population centers included 49 sites with an estimated total of 7,100 to 25,000 individual plants. The recovery plan (USFWS 2010, p. IV-6) emphasized maintaining large populations distributed across the species' historical geographic distribution with management plans focusing on protecting sites with high habitat heterogeneity and a range of elevations. The recovery plan also established seven recovery zones and five delisting criteria. The delisting criteria are:

**1. Distribution and abundance.** The distribution of populations should reflect the extent of the species' historical geographic distribution to the extent practicable. See Table IV-6 (USFWS 2010, p. IV-36) for distribution and abundance goals.

**2. Population trend and evidence of reproduction.** The number of individuals in the population (or area of foliar cover) shall have been stable or increasing over a period of at least 15 years. Stable does not mean that the population size is static over time; over a period of 15 years, the number of individuals in the population may exhibit natural year-to-year variability, but the trend must not be declining. Populations must show evidence of reproduction by seed set or presence of seedlings.

**3. Habitat quality and management.** Sites supporting populations of listed plants considered in Criterion 2 above must meet these criteria:

**a. Prairie quality.** Sites supporting populations of the listed plant species must be managed for high quality prairie habitat. High quality prairie habitat consists of a diversity of native, non-woody plant species, low frequency of aggressive non-native plant species and encroaching woody species, and essential habitat elements (*e.g.*, nest sites and food plants) for native pollinators.

**b. Security of habitat.** A substantial portion of the habitat for the populations should either be owned or managed by a government agency or private conservation organization that identifies maintenance of the species and the

prairie ecosystem upon which it depends as the primary management objective for the site, or the site must be protected by a permanent or long-term conservation easement or covenant that commits present and future landowners to the conservation of the species.

**c. Management, monitoring, and control of threats.** Each population must be managed appropriately to ensure the maintenance or restoration of quality prairie habitat for each species and to control threats to the species. Use of herbicides, mowing, burning or livestock grazing in management should be implemented with appropriate methods and timing to avoid impacts to listed plant species. Management should be coordinated with adjacent landowners to minimize effects of pesticide drift, changes in hydrology, timber harvest, or road/utility maintenance. Species that may hybridize with *Sidalcea nelsoniana* should be managed as appropriate to avoid contact with these taxa. Other potential threats relating to scientific research, overcollection, vandalism, recreational impacts, or natural herbivory/parasitism should be successfully managed so as not to significantly impair recovery of the species. Management and monitoring plans must be approved by the U.S. Fish and Wildlife Service, and should include standardized monitoring and performance criteria by which to assess their effectiveness following implementation and to allow for adaptive management, as necessary. Management plans should include a focus on protecting habitat heterogeneity within protected sites and across a range of elevations and aspects to buffer the potential effects of climate change.

**4. Genetic material is stored in a facility approved by the Center for Plant Conservation.** Stored genetic material in the form of seeds must represent the species' geographic distribution and genetic diversity through collections across the full range of the species.

**5. Post-delisting monitoring plans and agreements to continue post-delisting monitoring are in place and ready for implementation at the time of delisting.**

In 2012, the Service's 5-year status review (USFWS 2012) recommended that Nelson's checker-mallow remain listed as threatened due to not meeting the recovery criteria. In 2020, we evaluated the current condition of Nelson's checker-mallow populations in the SSA by analyzing (1) abundance, (2) habitat management, (3) habitat protection, and the following characteristics of (4) prairie habitat: woody cover, native cover, native richness, and invasive plant cover.

Currently, there are approximately 334,968 individual plants distributed across the historical range of the species (USFWS 2021, p. 15, Figure 2). Considering only sites that meet the minimum threshold of 200 individuals required to be considered a population, there are 332,935 individual plants, found in 42 populations at 66 sites distributed across 6 of the species' 7 recovery zones (Table 1). Of these, 62 percent of the populations (26 populations) and 51 percent of the plants (171,496 plants) are in public (federal, state, county, or municipal) ownership. Monitoring information indicates that

Table 1. Summary of recovery goals and current condition of known Nelson’s checker-mallow populations.

Recovery Zone	Delisting Goals		Current Condition*	
	Minimum Number of Populations per Zone	Target Number of Plants per Zone	Current Number of Populations per Zone	Current Number of Plants per Zone
SW Washington	2	10,000	2	2,235
Portland^	1	5,000	2	741
Coast Range	3	15,000	5	6,778
Salem East^	2	10,000	3	9,519
Salem West^	4	20,000	14	238,428
Corvallis East^	2	10,000	0	0
Corvallis West^	4	20,000	16	75,234
+ additional populations (may occur in any zone within the species range)	2	10,000	Yes	Yes
<b>Total</b>	<b>20</b>	<b>100,000</b>	<b>42</b>	<b>332,935</b>
* Includes only independent populations, defined in the Recovery Plan as those sites with greater than 200 individual plants. ^ Represents the Willamette Valley Green=meeting or exceeding criteria. Red=not meeting criteria.				

overall abundance is increasing and natural reproduction is occurring within each population throughout the recovery zones with the exception of the Corvallis East Recovery Zone.

Tracking trends for individual Nelson’s checker-mallow sites and populations over time is confounded by irregular surveys and varying methodologies. However, the overall abundance of Nelson’s checker-mallow has increased markedly since listing. Range-wide, the number of populations with greater than 200 plants, and the total number of plants, continues to increase. In addition, more sites have a large number of individuals. At the time of listing, 19 sites had more than 100 plants, and only 5 sites had more than 1,000 plants. In 2012, 26 sites had more than 100 plants and 4 had over 1,000 plants (USFWS 2012, pp. 17–19). Currently, 28 sites have more than 100 plants and 24 sites have more than 1,000 plants. This indicates an overall positive trend since the time of listing, as well as since the 2012 5-year review.

Distribution and abundance goals have been met in two recovery zones, partially met in four recovery zones, and not met in one recovery zone. Although we have not met all of the goals, since being listed in 1993 Nelson’s checker-mallow has increased from 6

population centers with relict remnant populations to 42 populations of at least 200 individual plants each, expanded from 49 to 66 sites, and increased from 25,000 to 334,968 plants (Table 2). Specifically, the species has increased from one to five populations in the Oregon Coast Range, from one to two in Washington, and from 4 to 35 populations in the Willamette Valley (representing five of the seven recovery zones). Thus, the Willamette Valley is well represented even though we do not have any plants in the Corvallis East recovery zone.

Table 2. Comparison of distribution and abundance between the time of listing under the Endangered Species Act and present day.

	At listing in 1993	As of 2020
Number of populations or population centers	6 population centers	42 populations
Number of sites	49	66
Number of sites with > 100 plants	19	28
Number of sites with >1,000 plants	5	24
Number of plants	7,100 to 25,000 estimated	334,968

In total, populations are at low abundance at 25 sites, moderate abundance at 26 sites, and high abundance at 15 sites. After integrating information on abundance, habitat quality, management, and protection, we generated an overall condition rank for each site, including sites that did not meet the population threshold of 200 individual plants (also see more detailed discussion in the SSA (USFWS 2021, pp. 18-26)). Of the 66 sites with sufficient data, 31 (47 percent) are in high condition, 29 (44 percent) are in moderate condition, and 6 sites (9 percent) are in low condition. This indicates that most populations have relatively high resiliency to withstand stochastic events. Redundancy is present, with multiple high or moderately resilient populations occurring in all but one of the recovery zones for the species. Representation is also robust, with populations occurring in varied geographical and ecological settings across a variety of prairie sites, growing in varied soil types and plant communities, across public and private ownerships.

The stored genetic material for Nelson’s checker-mallow represents the species’ geographic distribution and genetic diversity across the range of the species. Currently, genetic materials (*e.g.*, seeds) are stored in three locations – the Rae Selling Berry Seed Bank in Oregon (Berry Seed Bank), the Miller Seed Vault in Washington, and the National Laboratory for Genetic Resource Preservation (NLGRP) in Colorado. The Berry Seed Bank collection of Nelson’s checker-mallow material consists of 28,950 seeds collected between 1983 and 2013 from Lane, Linn, Benton, Marion, Polk, Yamhill and Tillamook Counties in Oregon, and Lewis County in Washington. The Miller Seed Vault collection contains 367 seeds from a 2006 collection, and 376 seeds from a 2020 collection. Both of these facilities have sent portions of their collection to NLGRP to provide a back-up of seeds. The NLGRP holds 8,461 seeds. Additionally, while not used for genetic storage, the Natural Resources Conservation Service’s Plant Materials Center (PMC) produces Nelson’s checker-mallow seed for use in habitat restoration. All the

PMC seeds will eventually be planted if viable; however, this facility could be a resource to replenish seeds stored to maintain genetic diversity that are no longer viable.

To assess the future viability of Nelson's checker-mallow, we assumed the continuation of conservation efforts at their current level (also see more detailed discussion in the SSA (USFWS 2021, pp. 26-29). We considered a worst-case scenario where all populations of Nelson's checker-mallow would be reduced by 50 percent within a period of 25 to 50 years due to climate change impacts. Applying the same methodology used for assessing current condition, 6 sites would move from moderate to low abundance for a total of 31 sites with low abundance, 20 sites with moderate abundance, and 15 sites with high abundance. Overall future condition would likely remain similar to current conditions with 6 sites in low condition, 35 in moderate, and 25 sites in high condition. Thus, 90 percent of sites would remain in moderate or high condition and would still be distributed throughout the species' range in 6 recovery zones. Because sites with low abundance are vulnerable to extirpation from stochastic events, the effects of climate change may result in the loss of some smaller extant sites (USFWS 2021, p. 29). However, these losses are expected to be small relative to overall abundance and distributed throughout the range of the species. Consequently, no single recovery zone or habitat will be disproportionately affected and no major changes in the species' ability to withstand stochastic or catastrophic events in the future is expected.

The results of the SSA indicate there has been a marked improvement in the status of the plant. Collaborative conservation partnerships have implemented habitat restoration projects, procured seeds and established plants, and protected habitat throughout the recovery zones. All of these efforts have led to increased security and management of habitat, as well as increased abundance, increased prairie quality, and decreased threats.

As per Delisting Criterion 1, the distribution of populations reflects the extent of the species' geographic distribution with 42 populations distributed across 6 recovery zones from southwest Washington to Benton and Linn Counties in Oregon. A marked improvement in the number of populations, sites, and individual plants has occurred since being listed in 1993, especially in the Willamette Valley. As per Delisting Criterion 2, populations show evidence of reproduction by seed set or presence of seedlings, although we do not have trend data for each population. Given that this species has gone from roughly 25,000 plants at listing in 1993 to 334,968 plants currently, many populations have likely experienced stable or increasing trends over the past 27 years. As per Delisting Criterion 3, we have secured a substantial portion of habitat (62 percent of the populations and 51 percent of the plants) in public (federal, state, county, municipal) ownership. These sites are being managed for high-quality prairie habitat and control of threats. As per Delisting Criterion 4, we have stored genetic material from across the species' range in three locations approved by the Center for Plant Conservation.

**Synthesis:**

We have reviewed the present and future viability of Nelson's checker-mallow in the SSA and have concluded the following for the species:



- (1) A substantial increase in Nelson’s checker-mallow populations (from 6 at the time of listing to 42 as of May 2021) and individual plants (from 25,000 to 334,968) due to habitat restoration, plant augmentation, and increased monitoring;
- (2) A pattern of population stability or increase across the species’ range;
- (3) An overall reduction in threats;
- (4) Significant contributions to recovery efforts by our partners and their ongoing commitment to management and protection of the species across its range; and
- (5) The species meets or exceeds many targets for delisting. Specifically, the species meets delisting goals for the number of populations per zone in 6 zones, and for the number of plants per zone in 2 zones. Although some individual zones have not met targets, rangewide the number of populations is more than twice the target, and the number of individual plants is more than three times the target. We have observed substantial positive trends in population and distribution, with broad representation across the Willamette Valley, Oregon Coast Range, and Washington. Therefore we believe that the population status is indicative of recovery.

We conclude that the status of Nelson’s checker-mallow has improved to the point where we no longer consider it to meet the definition of threatened. Therefore, it should be considered for delisting.

**Recommendations for Future Actions:**

Recommend delisting Nelson’s checker-mallow.  
Develop a post-delisting monitoring plan.

**References:**

U.S. Fish and Wildlife Service [USFWS]. 2010. Recovery plan for the prairie species of western Oregon and southwestern Washington. Pacific Region, U.S. Fish and Wildlife Service, Portland, Oregon. xi + 241 pp.

U.S. Fish and Wildlife Service [USFWS]. 2012. Nelson’s checker-mallow 5-year review: summary and evaluation. U.S. Fish and Wildlife Service, Portland, Oregon. 44 pp.

U.S. Fish and Wildlife Service [USFWS]. 2021. Species Status Assessment Report for Nelson’s Checker-mallow (*Sidalcea nelsoniana*) Version 1.0. Columbia Pacific Northwest Region, U.S. Fish and Wildlife Service, Portland, Oregon. 39 pp.

**U.S. FISH AND WILDLIFE SERVICE  
SIGNATURE PAGE for 5-YEAR STATUS REVIEW**

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

Pre-1996 DPS listing still considered a listable entity? N/A

**Recommendation resulting from the 5-Year Status Review:**

- Delisting
- Reclassify from Endangered to Threatened Status
- Reclassify from Threatened to Endangered status
- No Change in listing status

**Acting Field Supervisor, Oregon Fish and Wildlife Office**

Approve \_\_\_\_\_ Date \_\_\_\_\_

**Acting Assistant Regional Director, Ecological Services, Portland Regional Office**

Approve \_\_\_\_\_ Date \_\_\_\_\_