

Inventory and Assessment Of
Sidalcea malachroides (Mapleleaf Checkerbloom)
Within the Coast Mountains
Of Southwest Oregon



Photo: Clint Emerson

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Executive Summary

Sidalcea malachroides (mapleleaf checkerbloom) is a vascular plant species within the Malvaceae (checkerbloom) family. It is a rare early seral species found in the fog soaked redwood (*Sequoia sempervirens*) forests of coastal northern California with two disjunct populations found by Lila Leach in the Pistol River watershed of Oregon in the early part of the 20th century. Only one of the two original sites found by Lila Leach has ever been relocated and was last seen by Veva Stansell in 1982. The Forest Service lists mapleleaf checkerbloom as a Region 6 Sensitive plant species. NatureServe and the Oregon Natural Heritage Information Center (ORNHIC) list this species as a G3/S1, ORNHIC List 1. This characterizes the conservation status of the species as globally rare, threatened or uncommon throughout its range (G3) and critically imperiled within the state of Oregon (S1). ORNHIC List 1 equates to the heritage program considering the species Threatened or Endangered throughout its range. In addition the species is listed federally as a Species of Concern (SOC) requiring additional data in order to determine if the species warrants a proposal for listing as Threatened or Endangered.

The main range of this species shares the range of the redwoods from Monterey to Humboldt Counties in Northern California. Habitat for mapleleaf checkerbloom often is characterized as somewhat disturbed often occurring with ruderal and invasive plants. Most commonly the plant is found in areas where recent disturbance within redwood forest has taken place, such as logging or burning.

The purpose of this project is two fold:

- 1) Relocate Lila Leach's original collections, with help from Veva Stansell at one of the locations.
- 2) Inventory new potential habitat to determine the extent of the species within the state of Oregon.

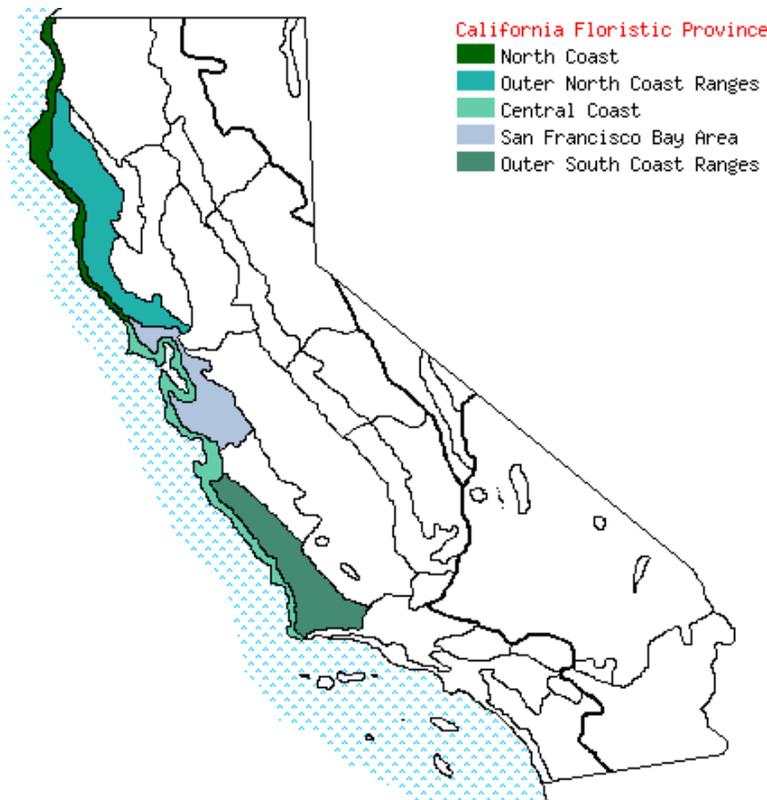
Intensive surveys of both of the Lila Leach collection sites did not result in the relocation of mapleleaf checkerbloom in either area. Inventory of an additional 306 acres of potential habitat did not result in any new element occurrences being located for mapleleaf checkerbloom. One of the potential reasons for not relocating the species at the Lila Leach sites is likely because of forest succession (Sholars and Golec, 2007). Dense canopy cover and increased competition from thick vegetation has likely changed the habitat significantly enough that mapleleaf checkerbloom is now excluded from the sites. Another factor that could lead to the extirpation of these sites is the reduction of pollen and pollen limitation within isolated populations and patches (Camper, 2007).

New potential habitat areas exist within southwest Oregon but are marginal candidates for supporting mapleleaf checkerbloom because of a lack of recent disturbance (Sholars and Golec, 2007; Camper, 2007). Plant surveys in the future may reveal new Oregon populations of mapleleaf checkerbloom. However, the conclusion of this inventory and assessment is that mapleleaf checkerbloom is no longer extant within the state of Oregon.

Introduction

The goal of this inventory and assessment is to determine the current distribution of *Sidalcea malachroides* (mapleleaf checkerbloom) within the state of Oregon. Four historic collections representing two element occurrences were made by Lila Leach in 1929 and 1938 in the Pistol River drainage of Curry County. For decades these sites were thought to represent the only populations of this plant in the state of Oregon. Additional potential habitat exists within the lower main stem and stream reaches of the Chetco and Winchuck River drainages in far southern Curry County but no element occurrences are yet known from these areas.

Sidalcea malachroides tends to be an early seral species taking advantage of openings in the canopy created by a variety of different disturbances (Sholars and Golec, 2007). The species range mostly follows the range of redwood (*Sequoia sempervirens*) forest along the central to northern California coast. The plant is known from as far south as Monterey County and occurs in every coastal county north to Del Norte County (see California distribution map below Figure 1). The sites in Oregon are unusual in that naturally occurring redwood forest is not present within the Pistol River watershed. However, there is a significant amount of redwood forest within the Chetco and Winchuck River drainages just to the south.



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Figure 1. Distribution of *Sidalcea malachroides* in California.

NatureServe and the Oregon Natural Heritage Information Center (ORNHIC) list this species as a G3/S1, ORNHIC List 1. This characterizes the conservation status of the species as globally rare, threatened or uncommon throughout its range (G3) and critically imperiled within the state of Oregon (S1). ORNHIC List 1 equates to the heritage program considering the species Threatened or Endangered throughout its range in Oregon. In addition the species is listed federally as a Species of Concern (SOC) requiring additional data in order to determine if the species warrants a proposal for listing as Threatened or Endangered. The California Natural Diversity Database (CNDDDB) lists the species as 4.2 which equates to the plant being limited in distribution (watch list) and “fairly endangered in California”. The state rank is S3S4.2 which equates to a range of threatened to fairly secure within the state. It seems there is some uncertainty and more information is needed to determine a specific conservation status in the state.

There are about 54 species, sub-species and varieties of the genus *Sidalcea* in North America with nearly all of them being endemic to the west coast states of California, Oregon and Washington. *Sidalcea malachroides* is one of only 3 *Sidalcea* species with white flowers as most species and varieties have pink to pale pink flowers. In general the genus is very difficult taxonomically making many of the sub-species and varieties difficult to key.

Study Area

Generally the study area covers the low elevation (<400 meters) portions of the Pistol, Chetco and Winchuck River watersheds in the furthest southwestern corner of Oregon bordering California. In the summers of 1929 and 1938 Lila Leach and her husband made plant collecting trips into the Siskiyou Mountains from their home in Portland. During those trips they collected hundreds of specimens of vascular plants some of them new species to science. Four of the collections they made from two sites represented a northern range extension of about 100 miles for the species *Sidalcea malachroides*. A distinctive white flowered *Sidalcea* species, with unusually shaped grape-leaf to maple-leaf cauline coarsely crenate leaves.

Table 1. Survey Area Information

Survey Area	Herbarium Collection Info*	Survey Area Size	Date Surveyed	Surveyor's	Species Located?
Site #1	<p>Collection #1) Trail from Ralph's Place to Pistol River, in damp woods and ferns, Curry Co., Collected June 19, 1929 - Mr. & Mrs. J.R. Leach 2421 - ORE accession no.60218</p> <p>Collection #2) Ralph's to Pistol Trail, Curry Co.; med. Dry woods, ferns. Elev. ca. 500 feet. June 19, 1929. Lilla Leach - no collection number - ORE accession number 60217 (this one is likely a duplicate of the other collection from this site)</p>	24 ac.	7/1/2008	Clint Emerson Thomas Delinks Josiah Stevens	No. The exact location of Leach's initial collection was located but no plants were present
Site #2	<p>Collection #1) Pistol River, road to Snow Camp, Curry Co. - collected 6/21/1938 – Lilla Leach 5262 - OSC accession no. 137955</p> <p>Collection #2) Snow Camp Road (not far in), Curry Co. - collected by Lilla Leach – no collection number or date of collection - ORE accession number 60426 (this one is likely a duplicate of the other collection from this site)</p>	13 ac.	7/7/08	Clint Emerson	No. The exact location of this collection is unknown but based on all the information available the most likely site the plant was collected from was surveyed.
Site #3	No collection ever made here.	11 ac.	7/8/08	Clint Emerson Josiah Stevens Thomas Delinks	No. There is good habitat within this small island of Forest Service land but no new sites were located.
Site #4	No collection ever made here.	23 ac.	7/10/08	Clint Emerson	No. Habitat is present but disturbance is minimal.
Site #5	No collection ever made here.	178 ac.	7/14-7/15	Clint Emerson Thomas Delinks Josiah Stephens	No. Habitat is present but because the area is on a ridge it may be too dry to support <i>Sidalcea malachorides</i> .

Site #6	No collection ever made here.	94 ac.	7/16-7/17	Clint Emerson Thomas Delinks	No. Very good habitat present but the lack of recent disturbance could exclude the species from the area.
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**This info was read from Lila Leach's voucher specimens directly to me by Richard Halse, Herbarium Curator at Oregon State University.*

Needless to say the collection records Lila left are sparse with regard to site specific location, and they do not provide enough information on their own to be able to relocate these sites. With the help of some local knowledge by a long time botanist in the area we were able to ascertain the exact location of the site referred to by Lila as “trail from Ralph’s place to Pistol River”. Veva Stansell, not entirely unlike Lila Leach, is and has been a wealth of local knowledge in the Siskiyou and Coast Mountains of southwest Oregon for decades. She is the last botanist in Oregon to see and photo document *Sidalcea malachroides* as part of the flora of the state. Her last trip to the site was in 1982 at which time she was guided by her brother. The site is on private timber lands very close to the Pistol River.

The Site #2 collection (“road to Snow Camp”) had to be interpreted and there is no guarantee that the correct area was re-surveyed during this inventory. Based on historical road information from Tex Martinek, the local Cultural Technician on the district, it was possible to narrow down the area that Lila was describing on her voucher specimens.

These two areas were the main focus of surveys in order to determine if any populations were still extant in the state. Directions from Veva Stansell were easy to understand and she delineated on a color aerial orthoquad GIS map exactly the site where she had seen the plant in 1982. She was able to articulate a specific landmark in the form of the ruins of what she called “the old Pistol River schoolhouse”. We were able to find a mound of dirt/rubble in the area she described, that was likely the old schoolhouse. From there she had said to walk straight down to the Pistol River and look for the old concrete footings of a bridge that spanned the river in the past. Across the river from the footings we were able to find the old road where the *Sidalcea malachroides* population grew. The other site proved much more difficult to pin point. Discussion with Tex Martinek led us to believe that the site must have been somewhere in the vicinity of the present day 1503-050 road system. It is impossible to know for sure if this area is where she collected the plant but based on habitat parameters it seemed the most likely area.

In addition to relocating the historic sites it was the intention of this project to survey new potential habitat to discover unknown populations of *Sidalcea malachroides*. Four additional areas were surveyed totaling about 300 acres. Survey areas were chosen based on several criteria. Redwood forest was the main habitat parameter considered when choosing survey sites. Areas lower in the watershed were targeted because of the association of *Sidalcea malachroides* with moist fog influenced conditions. Also nearly all known populations of the species occur below 500 meters elevation. Slope aspect and percent was also used to determine survey areas. This was helpful in determining areas where moist conditions are likely to persist like on north aspects above a stream. Redwood forest in Oregon is mostly confined to north/northwest slopes

at lower elevations within the watershed. Little habitat exists on private lands because most redwood forest has been clearcut and converted to pasture lands.

Methods

In order to better understand the preferred habitat of *Sidalcea malachroides* several known sites were visited in Humboldt County, California in mid June 2008. Local botanists, Tamara Camper and Jennifer Kalt, assisted with relocating known sites in Humboldt County and gave valuable information on habitat and associated plant species. Five known sites were visited but only four ended up being current extant sites. One site, which was known in the recent past as being a large vigorous population, was no longer extant. Another site which had been large and vigorous within only two years prior to our visit now only had two small plants present. In both cases it appeared that succession was the main reason both of the populations were impacted.

After developing a good search image during visits to known sites in California, the two historic sites in Oregon were surveyed. A pre-field assessment using GIS and known site information was conducted in order to pin point locations and begin data collection. The first site visited was the “trail from Ralph's place to Pistol River” location, collection #2421, referred to in this report as Site #1. The area was located fairly easily and completely surveyed. Based on information from Veva Stansell the population should have been growing in and along an old logging/jeep road that was located and surveyed during this inventory. Data was gathered on the site, a survey site form was prepared and the information was entered into the Natural Resource Information System (NRIS) database.

The other historic known site “Pistol River, road to Snow Camp” referred to as Site #2 was surveyed in the same way as the first. A complete inventory of the potential habitat at the site was optically observed. Data was gathered and reported on the survey site forms and entered into the NRIS database.

Four other survey areas (Sites #3, 4, 5 and 6) were delineated and inventoried for potential occurrences of *Sidalcea malachroides*. All four survey areas were inventoried as completely as possible for potential habitat within each area. Survey site forms were completed for each area and the data was entered into the NRIS database.

Inventory Results

Visiting known populations of *Sidalcea malachroides* in Humboldt County, California revealed habitat characteristics and nuances that otherwise would have been unknown to the surveyors. Dominant associated species at sites visited include redwood, big-leaf maple (*Acer macrophyllum*), myrtlewood (*Umbellularia californica*), red alder (*Alnus rubra*), thinleaf huckleberry (*Vaccinium membranaceum*), evergreen huckleberry (*Vaccinium ovatum*), thimbleberry (*Rubus parviflorus*), salmonberry (*Rubus spectabilis*), ocean spray (*Holodiscus discolor*), poison oak (*Rhus diversiloba*), swordfern (*Polystichum munitum*), yerba buena (*Satureja douglasii*), sweetgrass (*Hierachloe odorata*), taper fruit shortscale sedge (*Carex leptopoda*), starflower (*Trientalis latifolia*), redwood-sorrel (*Oxalis oregana*), stinging nettle (*Urtica dioica*), common madia (*Madia elegans*) and bleeding heart (*Dicentra formosa*). In

addition several non-native ruderal species tended to dominate some of the observed sites. Species such as oxeye daisy (*Leucanthemum vulgare*), smallflower buttercup (*Ranunculus parviflorus*), foxglove (*Digitalis purpurea*), narrowleaf plantain (*Plantago lanceolata*), orchard grass (*Dactylis glomerata*) and tall fescue (*Schedonorus phoenix*) were observed. Based on each population observed, information from local botanists and data from the California Natural Diversity Database (CNDDDB) it seems that *Sidalcea malachroides* is found almost exclusively in areas recently disturbed. The most common disturbance types observed were logging and road and trail building (Sholars and Golec, 2007; Camper, 2007). Three populations were in logged units and along landings and skid roads. One population visited was along a well used recreation trail.

A total of six areas were inventoried for *Sidalcea malachroides* on the Gold Beach Ranger District during early to mid July of 2008. Three survey areas are located along the Pistol River, one along the Chetco River and two within the Winchuck River watershed.

Survey site #1 is Lila Leach collection #2421, "trail from Ralph's place to Pistol River". Unfortunately it could not be relocated during our inventory. Based on directions to the site where Lila made her collection the area was easily located. The habitat at the site was similar to populations observed in California except that redwoods were mostly absent from the canopy. However, a few young redwoods were observed in the understory, but the question is whether or not they were planted after past logging. The natural range of redwoods is not currently considered to extend as far north as the Pistol River watershed so it is assumed the redwood trees were planted. Discussions with district personnel in the Silviculture department revealed that many past timber sales were replanted with offsite redwoods when it was thought that the species could persist and grow on a particular site. Other than the lack of redwoods as the dominant canopy tree, many of the plant species in the area were similar to the California populations. Dominant herbaceous species observed were redwood-sorrel, stinging nettle, Columbia brome (*Bromus columbiana*), foxglove, poison oak, swordfern, yerba buena and bleeding heart. Dominant shrub and understory trees include salmonberry, evergreen huckleberry, red alder and myrtlewood. Dominant canopy cover species were Douglas fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*). The area has been clearcut logged, possibly more than one time in the past. An old road bed is still present, and according to Veva Stansell it is within this roadbed where she observed the plants in 1982. The forest is approximately 30-50 years old and very dense with 70-90% canopy cover throughout. It seems likely that the extensive shade from canopy cover and dense vegetative competition are the main reasons *Sidalcea malachroides* could not be relocated at this historic site. Based on proximity to the coastline, the moist high humidity observed in the area and the assemblage of plant species it makes sense that *Sidalcea malachroides* was able to colonize this site at points in history.

Survey site #2 is Lila Leach collection # 5262, "Pistol River, road to Snow Camp". The collection could not be relocated during the inventory. The exact location of this historic collection was not known and may never be known. Using information from the herbarium label and discussions with local historians helped to focus our survey area and it seemed somewhat likely that we were in the general area. Habitat in the inventory is very similar to site #1 consisting mainly of mesic second growth Douglas fir and western hemlock forest with an understory of salmonberry, myrtlewood and red alder. Much of the area surveyed has been

disturbed by road building and cat line activities. Extensive logging has also occurred in the area. The forest is fairly young, estimated at 30-60 years old and the canopy is dense with the exception of edges along the road, landings, skid trails and the cat line that was created as a contingency fire line for the Biscuit Fire in 2002.

Survey site #3 was chosen because of its proximity and similar habitat to site #1. It lies only about .5 miles up river from the original collection from 1929. The habitat is fairly similar to site #1 but in general it is much steeper along the rivers edge not leaving a whole lot of flat ground to search. A grove of redwood trees, approximately 50 years old, was found on the subtle slope that leads down to the Pistol River. It was determined that this stand was planted after clearcut harvesting in the 1960's. Potential habitat was searched along a bench above the river. The dominant plant species observed were Douglas fir, redwood, western hemlock, tanoak, myrtlewood, red alder, poison oak, thimbleberry, salmonberry, swordfern, Columbia brome and evergreen huckleberry. Slopes in the surveyed area range from 0 to 30% and the aspect is flat to south or southeast. Canopy cover is mostly quite dense in the 80% range. The habitat was found to be suitable with extensive disturbed ground present, but no new sites of *Sidalcea malachroides* were located.

Survey site #4 encompasses a large portion of a small lowland island of Forest Service land along the Chetco River. It is an area of large old growth redwood forest that represents one of the furthest sites north of a natural redwood stand. Potential habitat was searched throughout the area paying extra attention to forest gaps and disturbed areas along the trail and road. Dominant plant species within the surveyed area include redwood, Douglas fir, evergreen huckleberry, salmonberry, thimbleberry, myrtlewood, swordern, salal, Oregon grape, big-leaf maple and tanoak. Much of the area is under a dense canopy but there are gaps created by snags and small land slide areas where potential habitat exists. The aspect of the survey area is east and northeast. There is a perennial stream that dissects the area surveyed, with a dense riparian area associated with it. The slope ranges from 10 to 70% throughout. No new sites of *Sidalcea malachroides* were located within survey site #4.

Survey site #5 was the largest area surveyed during this project. Most of the site encompasses what is known as Peavine Ridge and includes the Oregon Redwood trail. Peavine Ridge is a very long ridge system dominated by redwood forest making it the most substantial redwood stand in Oregon. The survey site is north of the California border by only about two air miles. Dominant species include redwood, Douglas fir, evergreen huckleberry, tanoak, myrtlewood, swordfern, salal and thin leaved huckleberry (*Vaccinium membranaceum*) within forested areas. In disturbed areas searched the dominant plants were tiger lily (*Lilium columbianum*), oxeye daisy, herb Robert (*Geranium robertianum*), Canada thistle (*Cirsium arvense*) and orchard grass. Most of Peavine Ridge is somewhat drier then typical redwood forest to the south, however the north, northeast and northwest flanking slopes of the ridge exhibit typical characteristics of low lying mesic redwood ecosystems. Canopy gaps and landslides within the otherwise dense forested area provided the highest potential habitat for *Sidalcea malachroides*. These areas were searched thoroughly for new occurrences but none were found. Though potential habitat exists on Peavine Ridge and its flanking slopes, the lack of large scale recent disturbance may be excluding the germination of *Sidalcea malachroides* in this area.

Survey site #6 encompasses a large area along Bear Creek east of Peavine Ridge about three miles. The largest and oldest redwood trees in Oregon can be found on the north and northeast facing slopes above Bear Creek. There are trees in the 10 to 15 foot DBH range in this area. Redwoods and Douglas fir dominant the overstory canopy while evergreen and thin leaved huckleberry dominate the understory. Swordfern, maidenhair fern and deer fern were common throughout, the latter especially common in seepy areas, which were abundant within this survey area. Potential *Sidalcea malachroides* habitat was found within site #6 as conditions were perfect within the high humidity low elevation redwood stand. Again, as in several other areas, the main ingredient missing was disturbance in the form of fire or other forms. Incidentally, the rare moss *Orthodontium pellucens*, was found on several red boles in this area. No *Sidalcea malachroides* sites were located during our survey of this site.



Figure 2. Photo example of *Sidalcea malachroides* habitat. Photo on the left is a known site from California. Photo on the right was taken at the historic site along the Pistol River in Oregon (Leach #2421)

Conclusion

The purpose of this inventory and assessment was to determine the conservation status of *Sidalcea malachroides* within its most northern range limit barely extending into the state of Oregon. It is still impossible to determine positively whether or not the species is extant within the state. Photo documentation exists for the most recently observed population in the state, which was seen 26 years ago by Veva Stansell. The population could not be relocated as a result of new inventories during this study though the site and adjacent areas were intensively searched. It is concluded that the population is no longer extant at this time. We attempted to locate the only other known site in Oregon which has not been seen since 1938 when Lila Leach made the original voucher specimen collection. The survey site was inferred based on historical information because the area where she collected from is not exactly known. Based on our surveys of this area we did not relocate any populations of *Sidalcea malachroides*. Four other areas were intensively surveyed and no element occurrences could be found.

Potential habitat for *Sidalcea malachroides* certainly still exists within the state of Oregon. The main issue appears to be the lack of recent disturbance which the plant may need in order for the

seed to germinate and then prosper under conditions with limited competition from other vegetation (Sholars and Golec, 2007). These conditions often are dynamic and relatively short lived meaning the species needs random and ongoing disturbance events in order to persist in perpetuity. The current management of fire does not allow for random disturbances to occur across the landscape therefore potentially precluding *Sidalcea malachroides* from new colonizing new sites (Sholars and Golec, 2007; Camper, 2007). As was seen in California on private lands, other disturbance from activities such as road and trail building and logging can create potential suitable habitat for *Sidalcea malachroides*. However, in Oregon nearly all the remaining redwood forest is currently under some sort of protection with most areas on the Rogue River-Siskiyou national Forest deemed as Botanical Areas.

Another potential issue for the conservation of *Sidalcea malachroides* in Oregon could be dispersal limitation. Studies found that this species experiences a reduction in pollen reception and an increase in pollen limitation when it occurs in isolated patches (Camper, 2007). The populations in Oregon were very isolated and small and therefore may have not attracted the seed weevil species necessary to help the species persist through dispersal of pollen.

The final conclusion of our inventory and assessment of *Sidalcea malachroides* in Oregon is that the species should be considered no longer extant in the state. The species was probably not extirpated directly by anthropogenic forces, but likely conceded to natural succession and the lack of dynamic random disturbances in a mosaic pattern across the landscape.

Recommendations

Based on our conclusion it seems the conservation of *Sidalcea malachroides* in Oregon has been jeopardized. Though anthropogenic actions may be only partially to blame due to fire exclusion. At this point it seems that human habitat management and reintroduction through cultural technique may be the only alternative to restore *Sidalcea malachroides* to its historic natural range.

Habitat creation and management activities such as prescribed burning, thinning and small opening creation in dense second growth forest areas could begin the process of restoring the species to its natural range.

Collecting seed, cuttings and root nodes from existing populations in northern California and propagating them in a horticultural setting would make available the plant stock necessary for dispersal into managed habitat areas thereby creating new populations of *Sidalcea malachroides*.

Monitoring and maintenance of the sites and a long term plan outlining a strategy that manages for disturbance patterns creating a mosaic landscape in a random and dynamic fashion will be key issues to address in the future.

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