

## Changed from 1B to List 4 on 1 June 2006

### Rare Plant Status Review: *Sidalcea malachroides*

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#### Distribution

*Sidalcea malachroides* (maple-leaved checkerbloom) is a suffrutescent or shrub-like perennial member of the mallow family (Malvaceae). In California, it is known from Del Norte, Humboldt, Mendocino, Sonoma, Santa Cruz, Santa Clara, and Monterey counties. It historically also occurred in Oregon but is apparently extirpated from that state. The plant is much less frequent in the southern part of its range, with the majority of occurrences found in the more northern Sonoma, Humboldt and Mendocino counties.

#### Habitat

*Sidalcea malachroides* (hereafter abbreviated as SIMA) occurs in either open or semi-open canopy areas of various north coast forest types including broadleaved upland forest and North Coast coniferous forest (which include redwood forest and Douglas-fir forest types). It can also be associated with northern coastal scrub, riparian woodland, and coastal prairie. It grows from near sea level to about 730 m in elevation.

SIMA is often associated with recently disturbed openings such as road cuts, trail sides and even clear-cut areas. Although SIMA is also known from more shaded, undisturbed woodland situations, it frequently responds like an early successional species with its ability to colonize and persist in disturbed forest openings. However, total canopy removal in some exposed sites has resulted in the desiccation of plants. Also, road/skid trail sites are frequently invaded by weeds, which can outcompete SIMA. SIMA can be quite temporary at a given site, disappearing once conditions change. Some occurrences that pop up following logging are therefore not necessarily viable in the long-term.

#### Abundance and Status

Currently, SIMA is on CNPS List 1B as it was in the 6<sup>th</sup> (2001) and 5<sup>th</sup> (1994) editions of the CNPS Inventory. Prior to 2003, the CNDDDB ranked this plant as G2/S2.2; it is now ranked as G3/S3.2. The initial CNPS and CNDDDB rankings were based upon the previously available data, which suggested there were fewer than 20 viable sites in the world and in California.

However, following subsequent field surveys during 2000-2002, primarily by registered professional foresters, timber company botanists, and others, much additional data was received. In 2003, this prompted a review of the decision to downgrade the status of this plant to List 4. Comments were received via email, and a physical meeting was held in Eureka to facilitate the status review. The resulting consensus and decision was to retain SIMA's List 1B status, but change the CNDDDB rank to G3/S3.2. Although 159 occurrences were known in 2003, reviewers believed there were too few highly ranked occurrences (25) to justify downgrading. Also, the majority of the largest and most highly ranked occurrences were on one land ownership, Pacific Lumber Co. (PALCO), and one major watershed, managed for timber production. Reviewers called for more monitoring data to assess the effects of logging and post-harvest activities, particularly herbicide usage.

Since the 2003 review, a significant amount of data have been received, prompting a second round of status review for this plant. These data have not been entered into the CNDDDB, but we

evaluated all of the approximately 170 un-entered data sources to determine whether they represented new or existing sites. In addition, we analyzed a spreadsheet of occurrence monitoring data from PALCO. Fortunately, the unprocessed data contained some information on site re-visits so some rough trends could be discerned. Below is a summary table showing the current numbers of occurrences and their status in relation to the 2003 summary.

### SIMA SUMMARY TABLE

Based on data received by the CNDDDB as of 1/20/06  
(Numbers from 2/3/03 are in parentheses)

CNDDDB OCCURRENCE STATUS	NUMBER OF OCCURRENCES	
Excellent or Good Sites	(25)	<b>44</b> in 2006
Historical Sites	(30)	<b>25</b> in 2006
Fair to Poor Sites	(92)	<b>132</b> in 2006: 41 Fair, 91 Poor
Extirpated or Possibly Extirpated Sites	(1)	<b>23</b> in 2006
Unknown Rank for Site	(8)	<b>17</b> in 2006
Total Occurrences	(156)	<b>241</b> in 2006
Total Occurrences Presumed Extant	(155)	<b>218</b> in 2006
Total Plants Known to Date	(11,522)	<b>12,958</b> in 2006*

\*Note that many data sources lacked population size data, therefore the Total Plants Known to Date must represent an underestimate.

Currently, there are approximately 241 occurrences of SIMA known to CNDDDB and CNPS. Of these, a total of 218 are presumed extant. Historical sites are included in this case (we don't normally include them) because the forested habitats these occur on are more than likely still extant. Additionally, private timberlands are typically unsurveyed or under-surveyed and sometimes botanists neglect to submit field survey forms due to lack of time. Thus, it is quite likely that additional occurrences for this taxon remain undiscovered and/or unreported, and our estimate of total occurrences is lower than the actual number. Similarly, our estimate of total plant numbers is likely a low estimate.

Site rankings are based on a combination of field reporter opinion (what they indicated on the field survey form), number of plants, and habitat quality. In general, Excellent-ranked occurrences had high quality habitat and over 100 plants reported. Good-ranked sites had anywhere from 25-100's of plants reported but was influenced by the habitat quality rank given on the form. If no occurrence rank was suggested on the form, but there were 50-99 plants counted, the site was also ranked "Good." Fair-ranked sites generally have 10-49 plants and fair-poor site quality; and Poor-ranked sites had few plants, usually <10 and/or very poor site quality. Note that some Fair-ranked sites reported large numbers of plants, but the reporter provided a rank of "Fair," which we accepted.

To put the 241 occurrences in perspective, there are very few plants with over 100 occurrences in the CNDDDB and on CNPS List 1B. The threshold for List 1B is usually 50 occurrences unless there are significant threats or other factors as described below. There are a few plants in the CNDDDB with over 100 occurrences, but these are plants with extremely narrow distributions and/or

low population numbers, and plants occurring in fragile habitats, such as wetlands. Examples are *Downingia pusilla*, a vernal pool endemic with 114 occurrences and *Lilaeopsis masonii* from extremely narrow Sacramento Delta tidal habitats with 149 occurrences.

The larger concentrations of SIMA occur in Humboldt and Mendocino Counties. Most occurrences are located on private lands owned by timber companies or other private lands. Public land occurrences are few and generally poorly-ranked. A large number of occurrences are on PALCO lands. In fact, the majority (estimated 70-75%) of excellent to good occurrences occur on PALCO lands. These are recently (10 years or younger) harvested areas where second growth was logged (Maralyn Renner, pers. comm.). Many PALCO occurrences have been re-visited in 2003 and 2005 to monitor the effects of logging and associated disturbance. PALCO senior botanist Maralyn Renner noted the following trends in their monitoring data:

1. When plants are protected with Equipment Exclusion Zones, rebar, etc. the population generally declines.
2. Most occurrences that originally consisted of only one or a few plants seem to have a higher possibility of declining or disappearing than ones with more plants.
3. Most occurrences that were only partially protected show stable or increasing populations.
4. Some new populations have popped up in areas where no plants were before as a result of road construction or a clear-cut especially if it was also burned.
5. Numerous reports mention finding the plants only on roads, skid trails, landings, or in slash piles; sometimes in grassy openings (old landings?).

In PALCO's monitoring data, there were also many notes indicating situations where SIMA was found, apparently disappeared, then later reappeared in harvested areas, especially in areas with roads and skid trails. Occurrences tended to decline or disappear, at least temporarily, due to competing (native and non-native) vegetation. There was no obvious pattern indicating that different land treatments were better or worse for the species. For instance, in some cases, herbicide application resulted in an increase in plant numbers.

Over half of the total occurrences are ranked Fair to Poor. Some of the smaller Poor-ranked occurrences may have been distributed through grading and traffic, and are not necessarily viable occurrences. In addition, SIMA is functionally dioecious, so more plants per occurrence are needed for reproduction and occurrence viability (Clare Golec, pers. comm.). In fact, the increased number of extirpated sites in the current analysis results mostly from the loss of small occurrences previously ranked as Poor.

## Threats

The major activities within the center of SIMA's distribution and abundance are logging and related disturbances, such as road building. Timber harvest activities often are followed by other treatments, such as brushing, burning, and herbicide application. However, as discussed earlier, these activities do not appear to have had a uniformly negative impact to SIMA. An additional threat is the encroachment of its habitat by invasive, non-native species, particularly *Cortaderia jubata* (pampas grass). Infestations are exacerbated by disturbance, which is common along the roads and skid trails where SIMA is often found, so weeds represent a serious threat to the viability of occurrences. As forest succession occurs, SIMA occurrences can also decline due to competition with native understory vegetation. In addition, biologists have noticed that fruit predation by exotic weevils can cause significant seed loss (Clare Golec and Gordon Leppig, pers. comm.). Small populations are particularly vulnerable to threats because the plant can be effectively dioecious.

Although many species do poorly and disappear under disturbance, some observations indicate that SIMA is often able to tolerate it, and in some cases responds positively to it. For instance, the creation of small, open, sunny areas or disturbance of the soil and seed bank can lead to an increase in SIMA, at least from a local and short-term standpoint. Since the last status review, some Excellent to Good-ranked sites have persisted despite continued timberland management practices. However, more data and scientific research are necessary to fully understand the effects of natural versus artificial disturbance on this species in the long-term. The observations from PALCO's monitoring that were listed above provide some preliminary insights into the response of SIMA to disturbance associated with timberland management.

### **Recommended Possible Actions**

The high number of extant occurrences (218) and total plants (~12,958), the probability for more occurrences being found, and the apparent tolerance of some disturbance by SIMA suggest that a downgrade to CNPS List 4 and re-ranking to CNDDDB G4/S4.2 is warranted at this time. The threshold for CNPS List 1B is typically 50 occurrences, and the threshold for S3 is typically 21-80 occurrences and 3000-10,000 plants. Removal from the CNPS Inventory and CNDDDB is probably not appropriate because ongoing threats and the low number of public land occurrences give cause for concern about the long-term viability of SIMA.

**CNPS:** Downgrade to CNPS List 4.

**CNDDB:** Rerank to G4/S4.2.

**General:** Regardless of ranking, SIMA should be monitored at a number of sites under various management regimes and in various ecological situations to ensure the plant is not declining over time. SIMA habitat should be managed for long-term viability of the species and the ecosystem it depends on. Weed control, particularly for pampas grass, may be necessary following logging or other major land disturbances. Re-review of the plant's status can occur in a few years, particularly if monitoring indicates a significant decline of SIMA.