Plant Species Evaluation Form

Sidalcea hickmanii Greene **subsp.** *pillsburiensis* S.R. Hill

LAKE PILLSBURY CHECKERBLOOM

Family: Malvaceae (CNPS 2018)

PLANTS Symbol: Unassigned (USDA 2018)

Calif. Endemic: Yes (CNPS 2018)

Synonyms/Other Names: *Sidalcea hickmanii* was described at the species level in the year 1887 by Edward Lee Greene (Tropicos 2018). This particular taxon was discovered in 2003 and described as a distinct subspecies in 2008 (Hill 2008).

Identification Issues: Members of the genus *Sidalcea* can be highly variable (Hill 2018). Details about fruit and habit of plants are generally needed for identification. Seven subspecies of *S. hickmanii* are recognized. In general, *S. hickmanii* is distinguished by its cauline leaves (many *Sidalcea* species have predominately basal leaves), fruit segments that lack beaks (mucro), three involucellar bractlets attached to the calyx, and leaves that are roughly the same size and shape throughout the stem. Taxa within *S. hickmanii* are segregated primarily upon inflorescence characters. *Sidalcea hickmanii* subsp. *pillsburiensis* is noted for its gray-canescent vestiture, its densely stellate-puberulent calyx, and deeply cordate leaves (largest leaves). Plants resemble *S. hickmanii* subsp. *viridis*, but may be distinguished by a dwarf habit, open inflorescence, and bracts and bracteoles that are smaller in size. Plants also have leaves smaller in size than subspecies viridis, in addition to stellate-appressed hairs of the upper stem that are tufted in the latter subspecies (Hill 2008, 2016, 2018). FINISH REVIEWING TRACK CHANGES

Taxonomy:

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Species In Genus: +- 27 species: western North America: Alaska, Canada, to Mexico. Etymology: (Greek: combination of Sida, Alcea, 2 other names for mallows). Note: Some species highly variable, especially in leaves, growth stage; mature plants with fruit minimize considerable problems in identification, as does knowledge of plant base, underground parts; needs study.

Genus Description – Habit: Annual, perennial herb; with taproot, clustered fleshy roots, caudex, adventitious roots, or occasionally shallow rhizome. Stem: +- decumbent or generally erect, some occasionally stolon-like; erect stem, branches terminating in inflorescence. Leaf: generally fewer above, occasionally +- rosetted; petioles below generally >> petioles above; blades below generally crenate to shallowly lobed, blades above often deeply palmate-lobed or -divided; stipules generally persistent. Inflorescence: head, spike, or raceme, in panicle or not, generally more open in fruit; bracts 2, generally stipule-like, occasionally involucre-like, united at base to +- entirely; bractlets 0(3), generally not in involucel. Flower: flowers generally bisexual, protandrous, occasionally functionally unisexual (occasionally, plants with either bisexual or pistillate flowers in a given sp.); calyx lobes >= tube; petals spreading or erect, purple or rose-pink to white, generally with some pale veins, base generally also paler than tips (occasionally darker), tip +- notched or fringed, petals on pistillate flowers shorter, darker, often <= 10 mm; filament tube generally stellate-puberulent, anthers near top, in generally 2 concentric series, generally pink, +- purple, or white; stigmas linear, on inner side of style branches, conspicuous in pistillate flowers. Fruit: segments generally 5--10, indehiscent, puberulent, glandular, or

glabrous, beaked or not, side walls generally +- thin. Seed: 1, generally filling chamber, reniform, glabrous.

Species Description – Habit: Perennial herb from woody caudex, rhizome 0. Stem: 1--8 dm, coarsely, generally densely stellate-canescent. Leaf: generally all along stem, generally alike in size, shape; blade coarsely crenate to generally shallowly or deeply lobed, width 1--6 cm, generally > length. Inflorescence: bracts generally stipule-like; flowering stalks generally 1--4 mm; bractlets 3, 2--12 mm. Flower: generally bisexual; calyx lobes 3--10 mm, stellate-puberulent, bristly or not; petals 5--18 mm, pale pink to pink-lavender. Fruit: segments generally 6--10, (1)2--2.5 mm, glabrous, sides generally smooth, thin, outer edges, back generally net-veined, transversely ridged, back generally with medial ridge, beak 0.

Subspecies Description – Habit: Plant (5)10--30(40) cm, 10--20 cm wide. Stem: several, green, +- densely stellate-canescent, upper stem hairs appressed, generally 0.2--0.5 mm. Leaf: blade 6--12 mm, 12--22 mm wide, coarsely crenate. Inflorescence: open, unbranched, generally < 10-flowered; bracts +- 3 mm, << calyx, +- 1.2 mm wide, oblong, cupped, narrowest at base; bractlets 3 mm, < calyx, 0.8--1 mm wide. Flower: calyx 4--5 mm, to 5.5 mm in fruit, lobes 3--4 mm, 1.8--2.3 mm wide, generally with 3 faint veins, hairs +- equal in length; petals 8--9 mm, +- 4 mm wide, pale pink. eFlora Treatment Author: Steven R. Hill.

Status:

Note: Federally recognized Endangered, Threatened, Proposed, or Candidate species under the Endangered Species Act are omitted as they do not meet the definition of a Species of Conservation Concern (FSH 1909.12 § 12.52).

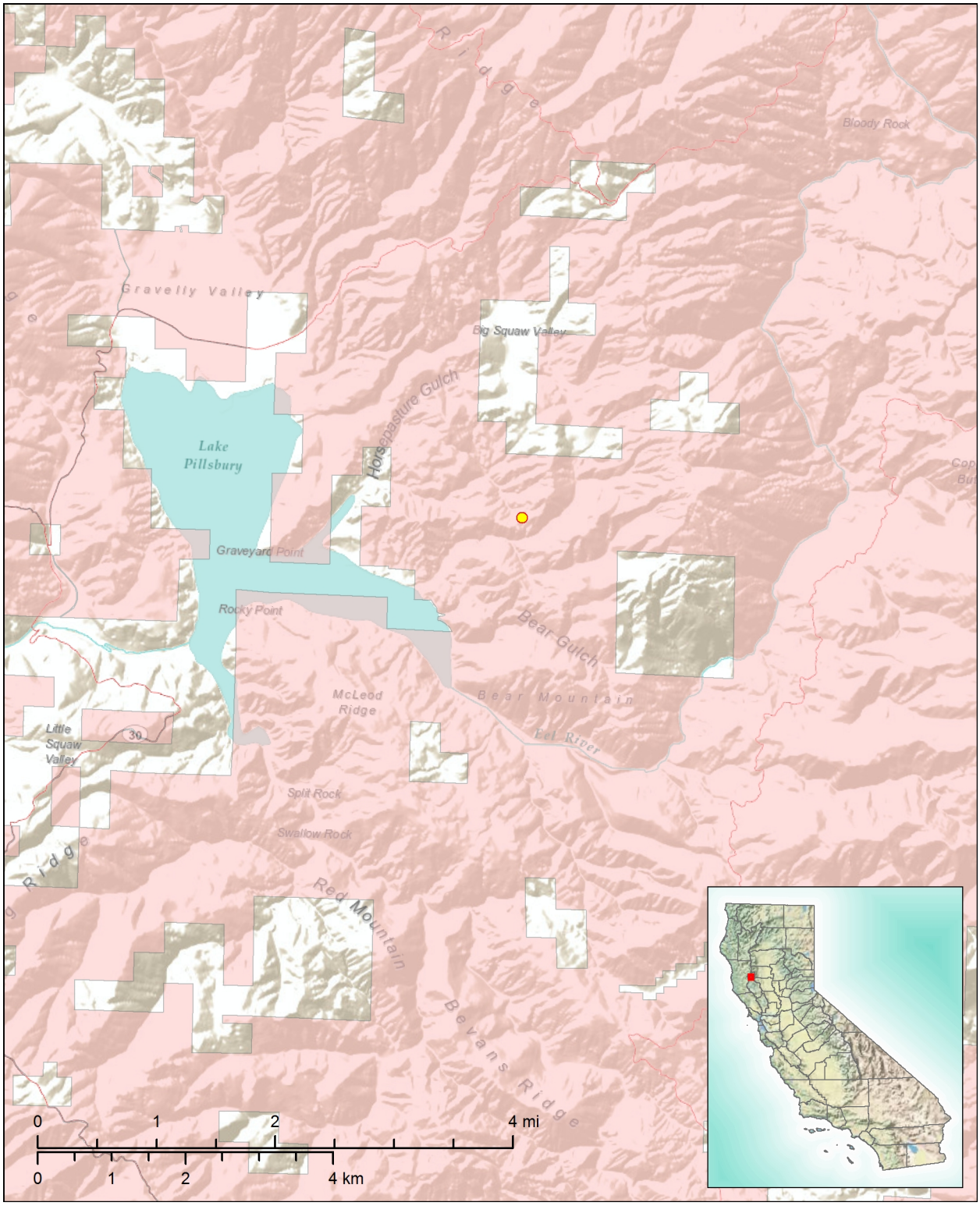
State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G3T1	CA: S1 NV: Not listed OR: Not listed	1B.2	Sensitive	Not listed	Not listed

SWAP:	NNHP:	NNPS:	ORBIC:	OCS:	IUCN:
Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Expanded abbreviations and citations: State Listing=California Endangered Species Act Listing (CDFW 2018b), Nevada Division of Forestry Fully Protected Plant Species (NAC 527) (NDF 2012), Oregon Department of Agriculture Listed Plants (ODA 2014); G-rank=Global Conservation Status (CDFW 2018a; NatureServe 2018); S-rank=Subnational (state or province-level) Conservation Status (CDFW 2018a; NatureServe 2018; NNHP 2017; ORBIC 2016); CRPR=California Rare Plant Rank (CNPS 2018); R5 FSS=USDA Forest Service Region 5 Regional Forester Sensitive Plant Species List (USDA 2013); NFP SM=Forest Service and Bureau of Land Management Northwest Forest Plan Survey and Manage Species (USDA 2001); CA BLM=California Bureau of Land Management Designated Sensitive Species (BLM 2010); SWAP=California State Wildlife Action Plan Status (CDFW 2015); NNHP=Nevada Natural Heritage Program Status (NNHP 2017); NNPS=Nevada Native Plant Society Status (NNHP 2017); ORBIC=Oregon Biological Information Center Status (ORBIC 2016); OCS=Oregon Conservation Strategy Species (ODFW 2016); IUCN=International Union for Conservation of Nature Red List Status (IUCN 2017).

All six subspecies of *S. hickmanii* represented in California assume a California Rare Plant Rank (CRPR) 1B status. This taxon was added to the CNPS *Inventory* in 2009 (Jensen and Bittman 2008; CNPS 2018), within a year of it being originally described by Hill (2008). Its status as a California Rare Plant Rank (CRPR) 1B.2 taxon has remained unchanged since (CNPS 2018).

Distribution: All seven subspecies of *S. hickmanii* are restricted to western North America. Most taxa (6/7 subspecies) are found entirely within California, from San Bernardino County in the south, to Lake County in the north. A single subspecies is restricted to Oregon (Hill 2016). *Sidalcea hickmanii* subsp. *pillsburiensis* is known from only a single occurrence, east of Lake Pillsbury in the High North Coast Ranges (NCoRH) of Lake County within Mendocino NF (CCH 2017; CNDDB 2017; Hill 2008, 2018).



Sources: *Distribution*: CCH 2017, CNDDB 2017. *Layers*: USDA Forest Service, Pacific Southwest National Forests: CPAD 2016. California counties: CDF 2009. *Basemaps*: California inset map: © 2013 National Geographic Society, i-cubed (Esri 2017a). Main map: Esri, DeLorme, USGS, NPS (Esri 2012) and Esri, USGS, NOAA (Esri 2017b).

Locations within California:

Record numbers indicate sites that contain an individual, population, or groups of populations located within ¼ mile of each other, per the California Natural Diversity Database (CNDDB 2017) definition of Element Occurrences (EOs) in California. Official EO numbers for plants in California are determined solely by the CNDDB and are included within the Reference (Source) column for CNDDB data. Duplicate records from the same site are given the same record number and included in red. The Population Info column includes total number of individuals and total number and size of populations/sub-populations when provided. Elevations provided in meters from source have been converted to feet. If not provided in original source, Land Manager information was obtained using the California Protected Areas Database (CPAD 2016) and Quad information was obtained using 24K Quads, SDE Feature Class (CDFG 2013). All other information is directly from the Reference (Source) unless additional citation is given.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	VICINITY OF LAKE PILLSBURY; SALT SPRING CREEK DRAINAGE. IN TRACTOR TRAIL JUST UNDER 2 MILES SOUTH OF BIG SQUAW VALLEY.	Lake	Lake Pillsbury (3912248)	CNDDB, May 2017 (EO 1)	2006	TYPE LOCALITY. UNKNOWN NUMBER IN 2005, 24 LARGE ENOUGH TO BE PROTECTED FROM BROWSING ANIMALS WITH MESH CAGES. ADDITIONAL PLANTS PRESENT, BUT NOT COUNTED.	MAY BE THREATENED BY FIRE LINE MAINTENANCE.	Mendocino NF	2300
1	In Tractor Trail, just under 2 miles south of Big Squaw Valley, Lake County, CA.	Lake	Lake Pillsbury (3912248)	CCH, Jan 2017 (JEPS113056)	12-Jul-2005				

Distribution on National Forest System (NFS) Lands:

(Please see Reference column of Locations table above for references pertaining to Record Numbers indicated on NFS lands.)

National Forest System (NFS) lands	Record #s (from Locations table above)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 yrs.)	Historic (not seen in past 20 yrs.)	Most Recent Obs.	EOs/ Recs. (5 mile buffer)	Total Records on NFS lands
Angeles:	-	-	-	-	-	-	-	0
Cleveland:	-	-	-	-	-	-	-	0
Eldorado:	-	-	-	-	-	-	-	0
Inyo:	-	-	-	-	-	-	-	0
Klamath:	-	-	-	-	-	-	-	0
Lake Tahoe Basin MU:	-	-	-	-	-	-	-	0
Lassen:	-	-	-	-	-	-	-	0
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	1	1	-	1	-	2006	-	1
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	-	-	-	-	-	-	-	0
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	1	0	1	0	N/A	0	1

Demographic and Population Trends: This taxon is represented by a single occurrence at the location of its type locality. Plants were last seen in 2006 and are reported in Fair (C) condition. At least 24 plants are large enough to be protected with cages from browsing animals (CNDDB 2018).

Life History: Herbaceous perennial that blooms from July through August (CNPS 2018). Plants emerge from a small and branched caudex with a taproot (Hill 2016, 2018). Many species of *Sidalcea* are gynodioecious and developmentally protandrous, with female flowers being substantially smaller than bisexual counterparts (Andreasen and Baldwin 2003). The few collections of *S. hickmanii* subsp. *pillsburiensis* have entirely bisexual flowers (Hill 2008). This is consistent with the remainder of *S. hickmanii* subspecies, which infrequently produce pistillate flowers (Hill 2016). Filaments are united into two concentric, inner and outer, groups of stamens.

Like other members of Malvaceae, these filaments are united, forming an androecium that completely surrounds the developing style (Hill 2016).

Diversity: Malvaceae is a large group of 5,100 species divided into nine subfamilies. Within subfamily Malvoideae (incl. *Hibiscus, Abutilon, Sphaeralcea, Gossypium, Thespia*, et al.), the genus *Sidalcea* represents a group of taxa within the tribe Malveae, alongside the familiar genera *Alcea, Callianthe, Sida, Malva, Abutilon*, and others (Mabberly 2017). Between 20 and 31 species are recognized within *Sidalcea*, depending on the source (Hill 2016; Mabberly 2017). Taxonomic boundaries are not always clear given complex morphological patterns and putative hybridization activity (Andreasen and Baldwin 2003). In addition, considerable phenotypic plasticity is seen among taxa, especially within the *S. oregana* and *S. malviflora* groups. Many species are gynodioecious, with bisexual flowers being larger than strictly pistillate counterparts. This pattern is reportedly uncommon in *S. hickmanii*. *Sidalcea hickmanii* accounts for seven western North American subspecies, six of which occur in California and are of conservation concern (CNPS 2018; Hill 2016). Subspecies of *S. hickmanii* are considered relictual members of a formerly widespread and more common species. Occurrences of *S. hickmanii* are scattered in isolated populations from southern California to southwestern Oregon (Hill 2016). Alongside *S. malachroides* and *S. stipularis*, the *S. hickmanii* group is sister to the rest of the genus *Sidalcea*, which all together form a group regarded as the "basal perennials" (Andreasen and Baldwin 2003).

Habitat: Plants are found in openings on Franciscan soils in chaparral (CNPS 2018). The single occurrence of *S. hickmanii* subsp. *pillsburiensis* found in Lake County is in scrub oak-chamise chaparral, in association with *Acmispon denticulatus, Adenostoma fasciculatum, Arctostaphylos patula, Baccharis pilularis, Camissonia hirtella, Ceanothus foliosus, Deschampsia elongata, Epilobium munitum, Erythranthe moschata, Galium nuttallii, Madia minima, Nemacladus capillaris, Pedicularis densiflora, Penstemon heterophyllus, Polygala californica, Drymocallis* cf. *glandulosa, Pinus attenuata*, and *Quercus berberidifolia* (CNDDB 2018; Hill 2008).

Habitat Status or Trend: The single occurrence of *S. hickmanii* subsp. *pillsburiensis* is found east of Lake Pillsbury within Mendocino NF. Ongoing trends and the status of this habitat remains unknown.

Capacity for the Species to Disperse: The allied taxon *S. malviflora* exhibits local seed dispersal (Graff 1999). Both *S. malviflora* and *S. oregana* subsp. *eximia* produce schizocarps of similar size and shape (Hill 2016).

Threats: Plants may be threatened by fire-line maintenance, and appear to be vulnerable to heavy foraging by deer (CNDDB 2018; NatureServe 2018). Cages were reportedly established around 24 plants in order to defend against foraging deer, a problem known at the single occurrence prior to this taxon's original publication (Hill 2008).

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Reviewer(s) and Date:

David Magney, Rare Plant Program Manager, California Native Plant Society, (916) 447-2677 ext. 205, dmagney@cnps.org. September 24, 2018.

Formatting: Form is set up as 508 compliant. Please use the "styles" if further formatting is necessary.

Purpose: This is to maintain the best available science on a species that could be used by the Forest Service in a variety of functions. Specifically, there would be additional steps and evaluations to determine whether or not this species would be considered a Species of Conservation Concern under the 2012 Planning Rule or a Sensitive Species under the 1982 Planning Rule.

Additional Considerations at the Forest Level: Habitat amount and juxtaposition of both the species and habitat locations.