Species: *Sparganium natans* L., small bur-reed

Photo Source: CalPhotos 2021

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Status

Table 1 summarizes the current status of this species or subspecies/variety by various ranking entities and defines the meaning of the status.

Table 1. Current status of small bur-reed.

Entity	Status	Status Definition
NatureServe CA[a]	G5 S3	G5: Secure — Common; widespread and abundant. S3: Vulnerable — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

California Rare Plant Rank[b]	4.3	4: Plants of limited distribution. 0.3: Not very threatened in California. This taxon was added to the *CNPS Inventory of Rare and Endangered Plants of California* in 1988 as *Sparganium minimum* and has undergone no changes in rank since that time.
California State Listing[c]	Not listed	
USDA Forest Service[d]	Not listed	
USDI FWS[e]	Not listed	
USDI BLM[f]	Not listed	
NatureServe OR[g]	Not listed	
Oregon State Listing[h]	Not listed	
NatureServe NV[i]	Not present	
Nevada State Listing[j]	Not present	

[a] California Natural Diversity Database, California Dept. of Fish & Wildlife [CNDDB 2021, 2021a]
[b] California Native Plant Society [CNPS 2021]
[c] California Department of Fish and Wildlife [CDFW 2021]
[d] US Forest Service Region 5 Forester's List [USFS 2013] and Pacific NW Survey and Manage [USFS & BLM 2014]
[e] US Department of Interior Fish and Wildlife Service [USFWS 2021]
[f] US Department of Interior Bureau of Land Management [BLM 2020]
[g] Oregon Biodiversity Information Center [ORBIC 2019]
[h] Oregon Department of Agriculture [ODA 2018]
[i] Nevada Natural Heritage Program [NNHP 2021]
[j] Nevada Division of Forestry [NDF 2012]
Note: Individual State Heritage Programs (CNDDB, ORBIC, NNHP) represent NatureServe and contain more up-to-date ranks for their state than NatureServe Explorer.

Distribution, abundance, and population trend on the planning unit[1]

Table 2 summarizes the distribution and frequency of this species or subspecies/variety within National Forest System Lands in California. Table 4 in Appendix 1 lists all known occurrences of this species or subspecies/variety within California. Individual occurrences are defined as sites that contain an individual, population, or groups of populations of the plant that are located more than 1/4 (0.25) of a mile apart from each other as defined by the CNDDB.

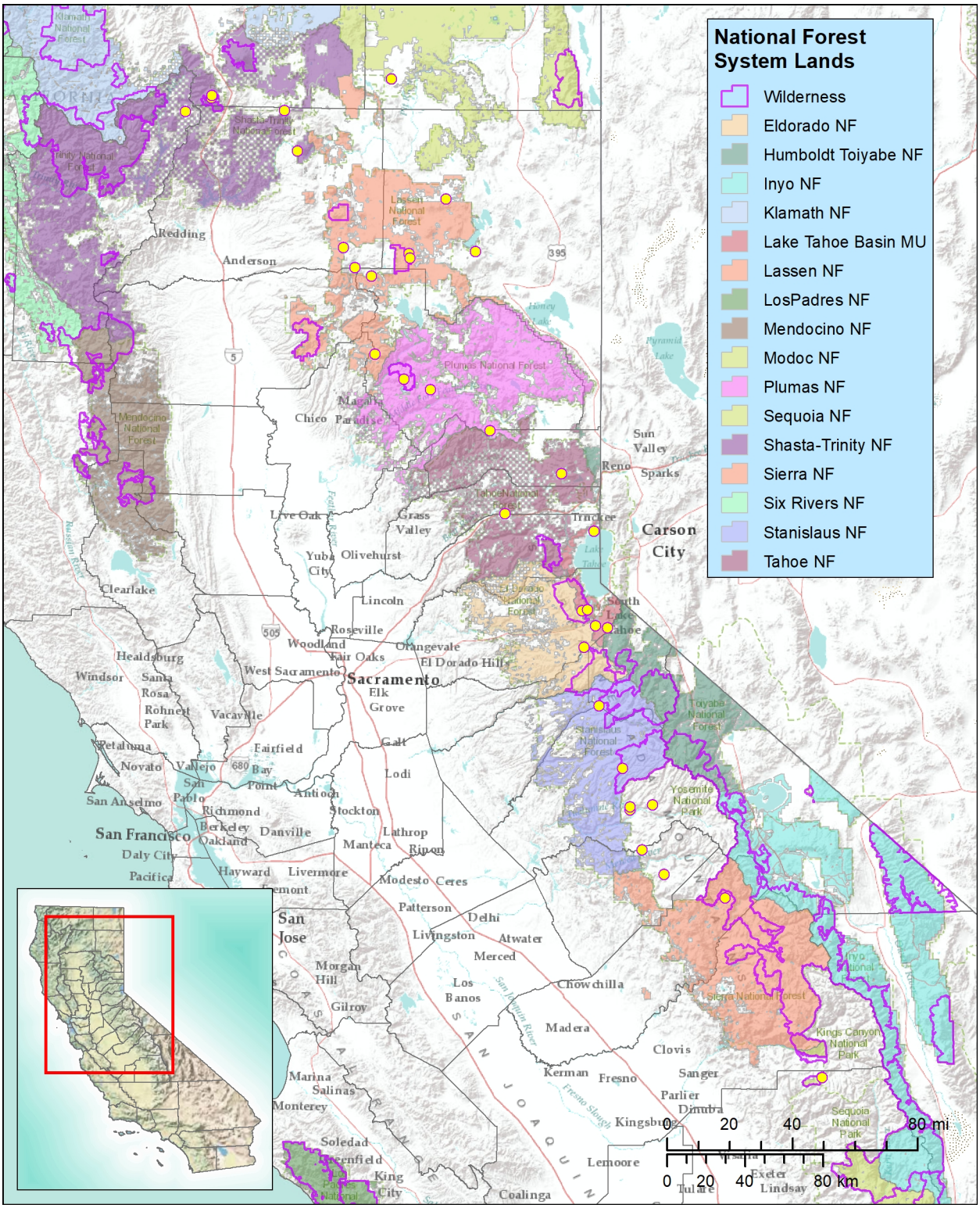
Table 2. Known occurrence frequency of small bur-reed within the planning area (NRIS, CNDDB, Calflora/CCH databases).

National Forest System (NFS) lands in California	Record #s (from Table 4)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 years)	Historical (not seen in past 20 years)	Most Recent Obs. Date	Total Records on NFS lands
Eldorado:	10	0	1	0	1	10-Aug-1981	1

[1] 1909.12 Chapter 10, Section 12.53, components 2, 3, and 4.

Table 2. Known occurrence frequency of small bur-reed within the planning area (NRIS, CNDDB, Calflora/CCH databases).

National Forest System (NFS) lands in California	Record #s (from Table 4)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 years)	Historical (not seen in past 20 years)	Most Recent Obs. Date	Total Records on NFS lands
Lake Tahoe Basin MU:	11, 12, 13, 14	0	4	0	4	4-Sep-1982	4
Lassen:	20, 23, 24, 33	0	4	2	2	31-Jul-2012	4
Plumas:	17, 18, 19	0	3	0	3	24-Aug-1994	3
Sequoia:	1	0	1	1	0	7-Aug-2012	1
Shasta-Trinity:	26, 29, 30	0	3	2	1	30-Jun-2019	3
Sierra:	2	0	1	0	1	16-Sep-1995	1
Stanislaus:	8, 9	0	2	1	1	9-Sep-2004	2
Tahoe:	16	0	1	0	1	28-Jun-1972	1
Totals:	N/A	0	20	6	14	N/A	20



Sources: *Distribution*: CCH2 2020, Calflora 2021, Green pers. comm. 2021. *Baselayers*: 2013 National Geographic Society, i-cubed, Esri, Garmin, NOAA, NPS, USGS.

In California, small bur-reed is found in the eastern Klamath Ranges (KR), High Cascade Ranges (CaRH), High Sierra Nevada (SNH), and Modoc Plateau (MP) bioregions of Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Sierra, Nevada, Placer, El Dorado, Alpine, Amador, Tuolumne, Mariposa, Madera, and Tulare counties (CNPS 2021, JEPS 2021, Green pers. comm. 2021). Outside of California, this species has a circumboreal distribution (Bainbridge 2017, JEPS 2021). Small bur-reed has 34 location records in California, 20 of which occur on National Forest lands: four each on the Lassen National Forest and in the Lake Tahoe Basin Management Unit, three each on the Shasta-Trinity National Forest and Plumas National Forest, two in the Stanislaus National Forest, and one each in the Eldorado, Sequoia, Sierra, and Tahoe National Forests. Five of these records are found in Wilderness areas: Record #1 in the Jennie Lakes Wilderness, #8 in the Emigrant Wilderness, #13 in the Desolation Wilderness, #19 in Bucks Lake Wilderness, and #29 in the Castle Crags Wilderness. Five additional records (record #s 3, 4, 5, 6, and 7) are from Yosemite National Park, and three records are located in Lassen Volcanic National Park (record #s 21, 22, and 25). Record #15 is on land managed by the California Tahoe Conservancy and record #34 is on land managed by Sierra Pacific Industries. Record # 32 is on land owned by UC Davis that is not currently managed as a research or conservation area. The remaining three records are on land of unknown ownership. Twenty-two records are historical, including one site that was last visited over 100 years ago (record # 31) and six records that have not been visited in over 50 years (CCH2 2020, Calflora 2021, Green pers. comm. 2021).

Only five records have quantitative population data, ranging between one and 267 individuals (CCH2 2020, Calflora 2021, Green pers. comm. 2021). Eight locations have been visited at least twice, but only three of these records include revisits within the last 20 years. This suggests that populations of small bur-reed can persist over time, more information is needed to determine overall population trends (CCH2 2020, Calflora 2021, Green pers. comm. 2021).

Brief description of natural history and key ecological functions[2]

Small bur-reed is a perennial, aquatic herb that grows to 60 cm in height and flowers from June to September. It is grass-like, with limp strap-shaped leaves that float on the water surface. The inflorescence is emergent with separate pistillate and staminate inflorescences (FNA 1993+ CNPS 2021, JEPS 2021.)

Small bur-reed is found in wetlands, particularly in cool, still and either slightly acidic or basic waters, up to 1 meter deep, between 600 and 2400 m in elevation (FNA 1993+, Calflora 2021, CNPS 2021, JEPS 2021). In California, it usually grows at the edges of lakes or ponds and occasionally in bogs or still, marshy areas of creeks. It is also increasingly found in constructed ponds (Lindstrand pers. comm. 2021). The wetland habitats that support small bur-reed also support a wide diversity of other plant species, including *Arnica chamissonis*, *Carex aquatilis*, *C. comosa* (CRPR 2B.1), *C. utriculata*, *C. vesicaria*, *Eleocharis bella*, *Glyceria borealis*, *Hippuris vulgaris*, *Hymenoxys* spp., *Isoetes* spp., *Juncus balticus*, *Kalmia polifolia*, *Limosella acaulis*, *Menyanthes* spp., *Myriophyllum verticillatum*, *Nuphar polysepala*, *Potamogeton* spp. including *P. epihydrus* (2B.2) and *P. natans*, *Rhododendron columbianum*, *Sagittaria* spp., *Salix*

[2] Basis for other 1909.12 Chapter 10, Section 12.53 components.

eastwoodiae, *S. lasiandra*, *Sphagnum* spp., *Typha latifolia*, and *Utricularia* spp. including *U. macrorhiza* (Calflora 2021, CCH2 2021, Green pers. comm. 2021).

The genus *Sparganium* is circumboreal, and consists of 14 species. *Sparganium* species are usually found in cool, temperate climates, though they often extend their range further south along mountain ranges, including the Cascades and Sierra Nevada in California (Sulman et al. 2013). Small bur-reed, like other *Sparganium* species, is wind pollinated and each female flower produces one oval-shaped seed which is buoyant and capable of long-distance dispersal (FNA 1993+, Sulman et al. 2013). Reproduction is both sexual and clonal in *Sparganium*, and small bur-reed can spread clonally via rhizomes or stolons. *Sparganium* species provide shelter and food for waterfowl and other wildlife and help stabilize streambanks and shorelines (Sulman et al. 2013, Ito and Cato-Sanchez 2014). Where they are plentiful, *Sparganium* species can also be useful for cattle forage in the dry season (Sulman et al. 2013). *Sparganium* species have also been used to treat blood circulation disorders and as a food source for humans (Sulman et al. 2013, Ito and Cato-Sanchez 2014).

Overview of ecological conditions for recovery, conservation, and viability[3] including Threats and Risk Factors

Habitat quality ranks or descriptions have only been assessed for four records of small bur-reed, three of which were ranked as excellent and one of which was ranked as good. There are not enough data to determine population trends for this species, though observations have increased the number of occurrences and expanded the range in California since the 1950s (CCH2 2020, Calflora 2021, Green pers. comm. 2021, Lindstrand pers. comm. 2021). Outside of California, small bur-reed has been ranked by NatureServe (2021) as Presumed Extirpated (SX) from two states (Indiana and Pennsylvania), Critically Imperiled (S1) in five states (Connecticut, Illinois, Massachusetts, New Jersey, and Utah), Imperiled (S2) in two states (New Hampshire and New York), Vulnerable (S3) in three states (California, Wisconsin, and Wyoming), and either Imperiled or Vulnerable (S2S3) in Vermont.

There is very little information about how disturbance affects small bur-reed, however it is often recorded in human-created ponds, and at record # 24 this species was found both before and after habitat restoration activities (CCH2 2020, Green pers. comm. 2021). This suggests that small bur-reed can recover or colonize areas after disturbance. Wetlands, in particular fens and bogs, are vulnerable to physical disturbance (Sikes et al. 2013). Grazing and recreation (both motorized and non-motorized) can disturb wetlands by exposing peat to oxygen, which increases its rate of decay, and by changing the flow patterns of surface water (Sikes et al. 2013). In Europe, *Sparganium* species are threatened by changes in hydrology and eutrophication, and it seems likely that small bur-reed may be similarly threatened in California (Bainbridge 2017). Climate change and other human disturbances affect water levels, soil moisture and water quality, and wetlands are particularly vulnerable to these changes, especially in semi-arid climates (Sikes et al. 2013). Drought, wildfire, and human activities (such as groundwater

[3] 1909.12 Chapter 10, Section 12.53, components 7, 9, 10, 11 and 12, as appropriate.

pumping or building drainage ditches) can all reduce the availability and quality of suitable habitat for aquatic plants like small bur-reed by changing hydrology (Sikes et al. 2013, Rhoades et al. 2019). Agricultural and municipal runoff can increase nutrient content in wetlands, and wildfire can change sediment and nutrient loads and pH in water bodies (Sikes et al 2013, Rhoades et al. 2019).

Taxonomy[4]

Table 3 summarizes this species or subspecies/variety's name status in key literature.

Table 3. Name status of small bur-reed.

Entity	Name Status
CNDDB and CNPS	*Sparganium natans* L.
Jepson eFlora	*Sparganium natans* L.
Jepson Manual (1993)	*Sparganium natans* L.
Flora of North America	*Sparganium natans* Linnaeus
USDA NRCS[a] PLANTS	*Sparganium natans* L.

[a] Natural Resources Conservation Service [NRCS 2021]

Synonymy: *Sparganium minimum* Fries (Tropicos 2021).

Jepson eFlora link (JEPS 2021): https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=77043

Type locality: "Habitat in in Europae borealis lacubus, paludibus" (Linnaeus 1753). Lectotype: *Ammann 31* in the Linnaean Herbarium (LINN 1095.2), designated by Cook (1985).

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Author(s) and Date:

Molly S. Wiebush, California Native Plant Society, Rare Plant Botanist Coordinator, 19 July 2021; finalized 1 October 2021.

Reviewer(s) and Date:

Aaron E. Sims, California Native Plant Society, Rare Plant Program Director, 27 September 2021; Julie Ann Kierstead, USDA Forest Service Region 5, Ecosystem Planning, 30 September 2021

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.

Appendix 1: Known Occurrences

Table 4. Known occurrences of small bur-reed within California (NRIS, CNDDB, Calflora/CCH databases).

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
1	Sequoia National ForestLarge meadow at head of Gannon Creek, just off the trail to Seville Lake.; Mt. Silliman 7.5 Quad.	Tulare	Mt. Silliman (3611866)	CCH2, Nov. 2020 (LeRoy Gross 5772)	7-Aug-2012			Sequoia NF	9003
2	in ca. 10 acre pond along Forest Rd 5S30 0.9 road mi w junction with Forest Rd 4S60 ((ca. 1 mi n of Clover Meadow), upper San Joaquin River watershed); Sierra National Forest, Granite Creek drainage	Madera	Timber Knob (3711953)	CCH2, Nov. 2020 (JEPS90443)	16-Sep-1995			Sierra NF	7199
3	WESTFALL MEADOW, YOSEMITE NATIONAL PARK	Mariposa	El Capitan (3711966)	CCH2, Nov. 2020 (YOSE117670)	17-Aug-2003			Yosemite NP	7126
4	GIN FLAT, YOSEMITE NATIONAL PARK	Mariposa	Ackerson Mtn. (3711977)	CCH2, Nov. 2020 (YOSE118022)	18-Jul-2004			Yosemite NP	6782

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
5	w side Hetch Hetchy Dam (Swamp Lake); Sierra Nevada, Yosemite National Park, Swamp Lake	Tuolumne	Lake Eleanor (3711987)	CCH2, Nov. 2020 (UC1102973)	9-Aug-1958			Yosemite NP	5197
5	Hetch Hetchy to Hog Ranch	Tuolumne	Lake Eleanor (3711987)	CCH2, Nov. 2020 (JEPS32225)	30-Jul-1909			Yosemite NP	
5	just s Miguel Meadows (Swamp Lakes, n of Hetch Hetchy Dam); Sierra Nevada, Yosemite National Park, Swamp Lakes; Marsh Plant Survey	Tuolumne	Lake Eleanor (3711987)	CCH2, Nov. 2020 (UC1099811)	22-Jul-1937			Yosemite NP	5197
6	Yosemite National Park, Gravel Pit Lake,	Tuolumne	Lake Eleanor (3711987)	CCH2, Nov. 2020 (YOSE231674)	16-Jul-2008			Yosemite NP	
7	Tiltill Valley Sierra Nevada, Yosemite National Park (Rancheria Mountain Trail)	Tuolumne	Hetch Hetchy Reservoir (3711986)	CCH2, Nov. 2020 (UC1056963)	1-Aug-1938			Yosemite NP	5499
8	Chain Lakes, centralmost lake (elongated lake lying almost entirely on the Copper Peak quadrangle)	Tuolumne	Cooper Peak (3811927)	CCH2, Nov. 2020 (JEPS109890)	9-Sep-2004			Stanislaus NF	7579

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
9	Utica Reservoir, west shore of the lake in a ca. 5 acre small attendent lake	Alpine	Tamarack (3812041)	Calflora, Jan. 2021 (xr167939)	7-Oct-1997	1+ individuals		Stanislaus NF	
9	Utica Reservoir, west shore of the lake	Tuolumne	Tamarack (3812041)	CCH2, Nov. 2020 (JEPS96830)	17-Sep-1999			Stanislaus NF	6818
9	Utica Reservoir, west shore of the lake	Tuolumne	Tamarack (3812041)	Calflora, Jan. 2021 (xr168224)	17-Sep-1999	1+ individuals		Stanislaus NF	
10	Sierra Nevada. Small lake on south side of Hwy 88, just west of Carson Spur; 1 mile west of road to Lake Kirkwood, 3.6 miles west of Silver Lake (bridge). T10N R17E S21	Amador	Caples Lake (3812061)	CCH2, Nov. 2020 (CHSC089519)	10-Aug-1981			Eldorado NF	7901
10	Amador County: Carson Spur, State Highway 88.	Amador	Caples Lake (3812061)	CCH2, Nov. 2020 (W. R. Russell s.n.)	28-Aug-1969			Eldorado NF	7989
10	Sierra Nevada; Shallow lake by CA-Highway 88 at Carson Spur.	Amador	Caples Lake (3812061)	CCH2, Nov. 2020 (SFV116111)	28-Aug-1969			Eldorado NF	7993
11	just n Luther Pass (on Highway 89); Grass Lake	El Dorado	Freel Peak (3811978)	CCH2, Nov. 2020 (JEPS19916)	16-Jul-1957			Lake Tahoe Basin Management Unit	7697

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
11	just n Luther Pass (on Highway 89); Grass Lake	El Dorado	Freel Peak (3811978)	CCH2, Nov. 2020 (UC1060650)	16-Jul-1957			Lake Tahoe Basin Management Unit	7697
12	Benwood Meadow; Sierra Nevada	El Dorado	Echo Lake (3812071)	CCH2, Nov. 2020 (JEPS73093)	27-Aug-1964			Lake Tahoe Basin Management Unit	7199
13	Grass Lake, 6 miles south on HWY 89 from HWY 50, south of Lake Tahoe	El Dorado	Echo Lake (3812071)	CCH2, Nov. 2020 (UCSB019549)	4-Sep-1982			Lake Tahoe Basin Management Unit	
13	Grass Lake; approximately 6 mi South on Hwy 89 from Hwy 5D; South of Lake Tahoe.	El Dorado	Echo Lake (3812071)	CCH2, Nov. 2020 (UCSB045873)	16-Aug-1982			Lake Tahoe Basin Management Unit	7701
14	Lily Lake	El Dorado	Emerald Bay (3812081)	CCH2, Nov. 2020 (JEPS73092)	23-Aug-1972			Lake Tahoe Basin Management Unit	6798
15	n end Lake Tahoe (marsh between beach and Agate Bay)	Placer	Kings Beach (3912021)	CCH2, Nov. 2020 (UC1099927)	21-Aug-1949			California Tahoe Conservancy	
15	Placer County: Between Sandy Beach and Agate Bay, N end of Lake Tahoe.	Placer	Kings Beach (3912021)	CCH2, Nov. 2020 (Malcolm A. Nobs 1509)	21-Aug-1949			California Tahoe Conservancy	

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
16	7 mi n Hobart Mills (on Highway 89, Kyburz Flat); Kyburz Flat	Sierra	Sardine Peak (3912052)	CCH2, Nov. 2020 (JEPS78091)	28-Jun-1972			Tahoe NF	5998
16	7 mi n Hobart Mills (on Highway 89, Kyburz Flat); Kyburz Flat	Sierra	Sardine Peak (3912052)	CCH2, Nov. 2020 (JEPS78092)	28-Jun-1972			Tahoe NF	5998
17	Grass Lake located just W of Lakes Basin Campground, ca. 5 mi (air) SSW of Graeagle via Gold Lake Forest Hwy. (County Rd. 519). At the W end of the lake. T21N R12E S07 NE1/4 of NE1/4	Plumas	Gold Lake (3912066)	CCH2, Nov. 2020 (CHSC058543)	1-Jul-1992			Plumas NF	6319
18	Northern High Sierra Nevada. Shallow pond in South Fork Rock Creek at Deanes Valley Campground. T23N R09E S06 NW1/4 of NW1/4 USGS Quadrangle: Meadow Valley 1:24,000	Plumas	Meadow Valley (3912181)	CCH2, Nov. 2020 (CHSC090293)	24-Aug-1994			Plumas NF	4259

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
18	Northern High Sierra Nevada. Shallow pond in South Fork Rock Creek at Deanes Valley Campground	Plumas	Meadow Valley (3912181)	CCH2, Nov. 2020 (JEPS108158)	24-Aug-1994			Plumas NF	4259
19	Buck's Lake. T24N R07E S15	Plumas	Bucks Lake (3912182)	CCH2, Nov. 2020 (CHSC021184)	5-Aug-1975			Plumas NF	
20	Green Island Lake located ca. 7 mi (air) se of Jonesville. On the north edge of the lake. T25N R06E S06	Plumas	Belden (4012113)	CCH2, Nov. 2020 (CHSC049688)	23-Aug-1988			Lassen NF	6099
21	Little Willow Lake on the s edge of Lassen Volcanic National Park, ca. 11 mi (air) nw of Chester. T30N R05E S35 SW1/4 of SE1/4	Plumas	Reading Peak (4012144)	CCH2, Nov. 2020 (CHSC046717)	24-Aug-1989			Lassen Volcanic NP	6001
21	Lassen National Park, Little Willow Lake,	Plumas	Reading Peak (4012144)	CCH2, Nov. 2020 (JEPS101258)	10-Aug-1990			Lassen NF	6149

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
22	Crumbaugh Lake, Lassen Volcanic Park. At a number of places along the edge of the lake. T30N R04E S24 NW1/4	Shasta	Reading Peak (4012144)	CCH2, Nov. 2020 (CHSC046 718)	24-Jul-1989			Lassen Volcanic NP	7202
22	Lassen Volcanic National Park, Crumbaugh Lake	Plumas	Reading Peak (4012144)	Calflora, Jan. 2021 (po94513)	26-Aug-2018	1 individuals		Lassen Volcanic NP	
23	Lassen National Forest, Almanor Ranger District. 0.25 miles west of Forest Service road 10 on Forest Service road 31N24.	Lassen	Bogard Buttes (4012152)	CCH2, Nov. 2020 (438841)	Jul-2007			Lassen NF	6500
24	Modoc Plateau. Papoose Meadows located ca. 2 mi S of Gallatin Beach at Eagle Lake, NW of Susanville. In Papoose Creek where it leaves the meadow. T31N R11E S20 NE1/4 of SW1/4	Lassen	Pikes Point (4012057)	CCH2, Nov. 2020 (CHSC066 424)	15-Jun-1996			Lassen NF	5361
24	Northern end of Papoose Meadows	Lassen	Pikes Point (4012057)	CNDDB, Green pers. comm. 2021	7-Jul-2014	267 individuals		Lassen NF	5330

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
25	margin of Lily Pond; Lassen Volcanic National Park, Manzanita Lake Area	Shasta	Manzanita Lake (4012155)	CCH2, Nov. 2020 (JEPS28721)	4-Aug-1957			Lassen Volcanic NP	5850
26	Pit River Canyon, pond in old partially forested borrow pit along road to Pit No. 5 dam about 2 miles southeast from Big Bend and 1 mile southeast of Pit No. 5 dam	Shasta	Chalk Mountain (4012187)	CCH2, Nov. 2020 (UC1735830)	13-Aug-1999			Shasta-Trinity NF	2047
27	T38N R6W NW1/4 Sec. 13, 5880 ft, Yellow Pine Forest. Forest Rd. 26 (to Mt. Shasta), 3.7 mi N of Castle Creek Rd. (Forest Rd. 25), W of Dunsmuir	Trinity	Mumbo Basin (4112225)	CCH2, Nov. 2020 (JEPS95368)	11-Jul-1994			unknown	5880
27	Forest Rd. 26 (to Mt. Shasta), 3.7 mi N of Castle Creek Rd. (Forest Rd. 25), W of Dunsmuir. In a pond in a meadow. T38N R06W S13 NW1/4	Trinity	Mumbo Basin (4112225)	CCH2, Nov. 2020 (CHSC063368)	11-Jul-1994			unknown	5880
28	Stouts Meadow, headwaters McCloud River,	Shasta	Grizzly Peak (4112128)		15-Aug-1987	1+ individuals		Private-Hearst Corp. unknown	

Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.									
Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
28	between Pit River and McCloud River (Stouts Meadow, on watershed divide); Stouts Meadow	Shasta	Grizzly Peak (4112128)	CCH2, Nov. 2020 (UC1540163)	5-Aug-1987			unknown	5397
29	Heart Lake, in the water	Siskiyou	Seven Lakes Basin (4112224)	Calflora, Jan. 2021 (po93918)	15-Aug-2018	11 - 50 individuals		Shasta-Trinity NF	
29	Heart Lake, (Siskiyou County, California, US)	Siskiyou	Seven Lakes Basin (4112224)	CalPhotos 2020	30-Jun-2019			Shasta-Trinity NF	
30	Castle Lake; Klamath Ranges.	Siskiyou	Seven Lakes Basin (4112224)	CCH2, Nov. 2020 (JEPS129485)	5-Aug-2018			Shasta-Trinity NF	5440
31	Egg Lake	Modoc	Egg Lake (4112133)	CCH2, Nov. 2020 (UC441314)	12-Aug-1899			unknown	
32	small unnamed lake, 0.1 miles east of Crystal Lake	Nevada	Cisco Grove (3912035)	CNDDB, Green pers. comm. 2021	11-Aug-2014			UC Davis	6000
33	Northern spur of Cooper Swamp, east of Silver Lake and Road 32N10	Lassen	Red Cinder (4012142)	CNDDB, Green pers. comm. 2021	31-Jul-2012		no disturbance, no imminent or apparent threats	Lassen NF	6440

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Rec. #	**Locality**	**County**	**Quad**	**Ref. (Source)**	**Date Last Obs'd**	**Population Info**	**Threats**	**Land Mgr.**	**Elev. (ft.)**
34	Mosquito Flat, approximately 5.7 miles SW of Slate Mountain and 2.9 miles NE of Ashurst Mountain, Lassen County, constructed pond in a meadow area	Lassen	Bullard Lake (4012078)	CalPhotos 2020, Lindstrand pers. Comm. 2021, CNDDB, Green pers. Comm. 2021	22-Jul-2020	106 individuals		Sierra Pacific Industries	6200

Appendix 2: Additional Considerations at the Forest Level

<This section, including the next 5 subheadings, would be filled out by **Forest Service botanists**.>

<Forest Name>

Geographic distribution within the Forest

A. Scarce or isolated
B. Patchy or gaps
C. Contiguous

<Select a geographic distribution rank and provide references or cite 'specialist expertise, <name>' where appropriate.>

Abundance of the species on the Forest

A. Rare – current abundance is low enough that stochastic and other factors could lead to potential imperilment.
B. Uncommon – current abundance is large enough that demographic stochasticity is not likely to lead to rapid local extinction, but, in combination with highly variable environmental factors, could pose a threat.
C. Common – current abundance is large enough that species persistence is not threatened by demographic stochasticity in combination with environmental variation.
D. Insufficient information to draw inferences about criterion.

<Select a species abundance rank and provide references or cite 'specialist expertise, <name>' where appropriate.>

Population trend on the Forest

A. Significant downward or suspected downward population trend.
B. Stable population.
C. Upward population trend.
D. Insufficient information to draw inferences about criterion.

<Select a population trend rank and provide references or cite 'specialist expertise, <name>' where appropriate.>

Habitat trend on the Forest

A. Decline in habitat quality or quantity.
B. Stable amounts of suitable or potential habitat, relatively unchanged habitat quality.
C. Improving habitat quality or increasing amounts of suitable or potential habitat.
D. Insufficient information to draw inferences about criterion.

<Select a habitat trend rank and provide references or cite 'specialist expertise, <name>'where appropriate.>

Vulnerability of habitat on the Forest

A. Substantial modification of habitat has occurred or is anticipated with conditions departing from expectations based on NRV, and/or habitat is impacted by modern stressors such as drought, climate change, high intensity wildfire and wildfire suppression disturbances, loss of natural openings due to historical wildfire suppression, nonnative invasive species, water impoundments and diversions, and recreation, etc.
B. Habitat modification is likely to result in ecological patterns similar to the range of historical conditions, but is being impacted by modern stressors.
C. Habitat resilient, changes are similar in frequency and intensity to those expected from NRV, and modern stressors not significant.
D. Insufficient information to draw inferences about criterion.

<Select a habitat vulnerability rank and provide references or cite 'specialist expertise, <name>'where appropriate.>

Additional Forest specific information related to the SCC determination

<This section is provided for Forest botanists to add additional Forest specific information that is not captured in the section above, if necessary. Provide a narrative description here of the additional relevant information. State "No additional information" if this section is not used.>