

Plant Species Evaluation Form

Navarretia leucocephala Benth. subsp. *bakeri* (Mason) A.G. Day

BAKER'S NAVARRETIA

Family: Polemoniaceae
(CNPS 2018)

PLANTS Symbol: NALEB
(USDA 2018)

Calif. Endemic: Yes
(CNPS 2018)

Synonyms/Other Names: *Navarretia leucocephala* subsp. *bakeri* was originally described as *Navarretia bakeri* (basionym) in 1946. This taxon was then later described as a subspecies of *Navarretia leucocephala* in 1993 (Tropicos 2018).

Identification Issues: *Navarretia* spp. are regarded as difficult to key (D. Taylor pers. comm. 2017; Sanger et al. pers. comm. 2017). *Navarretia leucocephala* represents a group of five subspecies. Morphological intergradation is reported between *N. leucocephala* subsp. *bakeri* and *N. prostrata* (Spencer and Porter 1997). In addition, *N. leucocephala* subsp. *bakeri* is intermediate between subsp. *leucocephala* and subsp. *plieantha* (Johnson 2017). Noting the position of stamen attachment is useful in distinguishing subspecies.

Taxonomy:

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Species In Genus: +- 40 species: western North America, Argentina, Chile. Etymology: (F.F. Navarrete, Spanish physician,--1742) Relative positions of flower parts are as pressed, unless stated otherwise.

Genus Description – Habit: Annual, generally prickly. Stem: prostrate to generally erect; branches ascending or spreading; glabrous to generally hairy, often glandular. Leaf: simple, alternate (lowermost opposite), entire to generally deeply pinnate-lobed. Inflorescence: generally head-like, bracts pinnate- to palmate-toothed or -lobed, spine-tipped (flower 1--2, pedicels elongate, bracts entire, not spine-tipped). Flower: calyx lobes 4--5, equal, entire or toothed, or unequal, spine-tipped; corolla lobes 4--5; stigmas 2 or 3. Fruit: generally ovoid, chambers 1--3; dehiscent when wetted, seeds adherent to fruit and each other, or generally dehiscent at maturity, seeds free. Seed: 1--many per fruit, brown, gelatinous when wet. Chromosomes: 2n=18.

Species Description – Habit: Plant erect to prostrate, 1° axes 1--several. Stem: 3--15 cm, branches ascending to prostrate; puberulent or hairy below heads, hairs recurved. Leaf: 1--2-pinnate-lobed; lobes linear; lower leaves glabrous, upper hairy at base. Inflorescence: outer bracts leaf-like, lobes needle-like, 2--4-branched at base, lobes near tip 2, shorter, entire, ascending; inner bracts simpler, base membranous-winged, ciliate, wing width > midrib. Flower: calyx lobes glabrous or +- hairy, tapered, gland-dotted below, membranes truncate, ciliate; corolla 4--10 mm, lobes with 1 vein entering base; stamens exerted; stigmas 2, minute. Fruit: translucent, dehiscent when wetted. Note: Some subspecies intergrade. Variable with water level, duration.

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Subspecies Description – Stem: 2--10 cm, generally erect; branches ascending. Inflorescence: longer bracts < 2 × head, lobes 2--4-branched abaxially. Flower: calyx lobes +- hairy or not; corolla white, tube included, throat 1--2 mm wide, lobes linear, exserted; style exserted. Note: Intermediate between *Navarretia leucocephala* subsp. *leucocephala*, *Navarretia leucocephala* subsp. *plieantha*.

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	G4T2	CA: S2 NV: Not listed OR: Not listed	1B.1	Not listed	Not listed	Sensitive

SWAP: Strategy Species	NNHP: Do not track	NNPS: Not listed	ORBIC: Not listed	OCS: Not listed	IUCN: Not listed
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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).

Distribution: *Navarretia leucocephala* subsp. *bakeri* is endemic to California, and assumes a non-localized distribution with approximately 60 to 62 occurrences throughout northern California. Plants are generally found in the northern Coast Range, western Sacramento Valley, and northern San Francisco Bay Area. There is one record of *N. leucocephala* subsp. *bakeri* from the Klamath Mountains, and a few from the Cascade Range; all of which are suspected to be possible mis-identifications based on the typical range and habitat of this taxon, as well as through a comparison of duplicate collections and collections of other *Navarretia* taxa commonly made in their vicinity.

The record from the Klamath Mountains region (Record #62) is based on a 1901 collection from “Trinity Summit” (*M. H. Manning 99* and *s.n.*, UC60874 and POM73740 respectively) (CCH 2017), and is along the border of Six Rivers and Shasta-Trinity national forests. The locality Mrs. Manning gave to her collection is likely correct, as seen from additional collections she made during the same month and year from Trinity County and eastern Humboldt County (CCH 2017), though her collection of *N. leucocephala* subsp. *bakeri* is suspected to actually be *N. divaricata* based on a collection by her from the same month, year, and location that was annotated to *N. divaricata* in 1996 (*Manning 101*, UC133777) (CCH 2017).

Records from the Cascade Range include an observation by Dean Taylor (Calflora ID ce515) from Gasper Meadow, Modoc County (Calflora 2017), that is actually likely *N. leucocephala* subsp. *minima* based on verified specimens from the same area. Dean Taylor (pers. comm. 2018)

has corrected his determination in Calflora to reflect that it is not subsp. *bakeri*. This was previously the only documented occurrence of *N. leucocephala* subsp. *bakeri* from Modoc County, and it is currently suspected that all *N. leucocephala* plants from Modoc County are subsp. *minima*.

Two occurrences of *N. leucocephala* subsp. *bakeri* reported from Lassen County are both possible misidentifications of *N. leucocephala* subsp. *minima*. There are two 1958 records of *N. leucocephala* subsp. *bakeri* representing one occurrence from the Madeline Plains of Lassen County (*Tilden 1295*, SJSU11520, and *Fisher s.n.*, SJSU11519); these are likely actually subsp. *minima* based on five other collections from the same area that were collected as, or annotated to, subsp. *minima* (*Jokerst 1878* and *1882*, *Holmgren 9470*, and *Bacigalupi and Smith 6001* and *6002*; CCH 2017). Magney (pers. comm. 2018) recently collected *N. leucocephala* subsp. *minima* from Poison Lake on 24 July 2017 (*D.L. Magney 38-17 UCSB*¹) about 32 miles WSW of Madeline Plain while searching for var. *bakeri* in that area. The other occurrence from Lassen County (EO 51) is located on Lassen National Forest, and is based on a 1949 collection from the edge of Feather Lake (*Stebbins 4003b*, UC909068) (CNDDDB 2017). This collection is represented by two duplicates identified as subsp. *minima* that were given the same collection number, but with the letters “a” and “c” attributed to them (*Stebbins 4003a*, UC909096, and *4003c*, UC909067; CCH 2017; CNDDDB 2017). It is therefore likely that this single collection attributed to subsp. *bakeri* is actually subsp. *minima*, and verification of its identification is warranted. Magney and C. Curley collected *N. leucocephala* subsp. *leucocephala* (*D.L. Magney & Curley 40-17, 49-17, 59-17 UCSB*) in the Feather Lake flats on the east side of State Route 44 on 26 July 2017, while specifically looking for *N. leucocephala* subsp. *bakeri*.

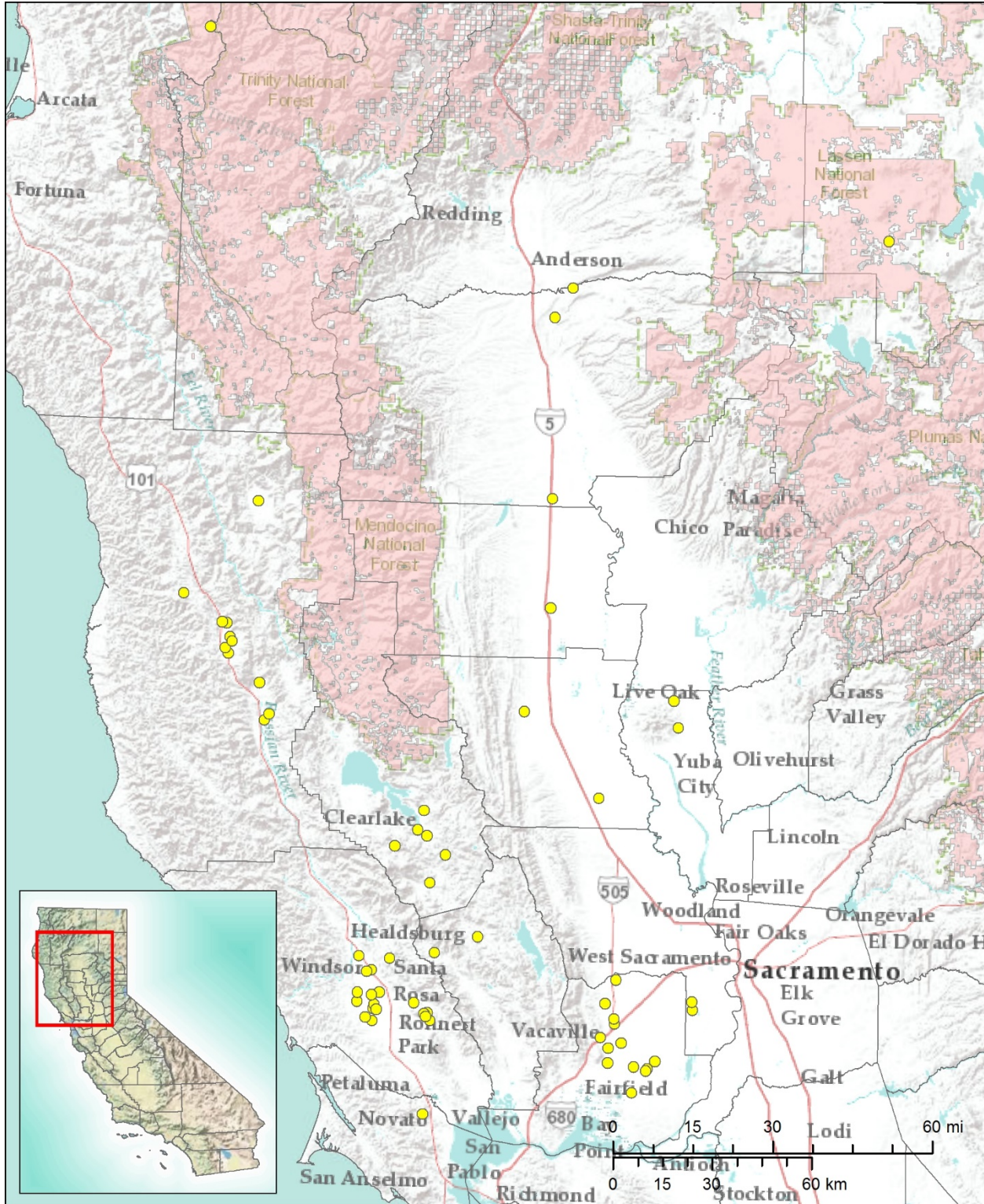
A 1928 collection of *N. leucocephala* subsp. *bakeri* from Humboldt County (*Tracy 8476*, JEPS70369) has been discounted, as a duplicate (UC907815) was annotated in 1997 to be *N. leucocephala* subsp. *minima* (CCH 2017). Similarly, a 1941 collection of *N. leucocephala* subsp. *bakeri* from Madera County (*Hoover 5273*, UC762141) is also discounted since a collection made by Hoover five years prior (in 1936) from the same location was annotated in 1996 and 2004 as subsp. *minima* (*Hoover 1253*, JEPS70377) (CCH 2017).

Lastly, a 1941 collection of *N. leucocephala* subsp. *bakeri* from Madera County (*Hoover 5273*, UC762141; CCH 2017) is approximately 125 air miles from the nearest populations in Solano County, and is likely a misidentification.

Although the only two records known to occur on NFS lands (EO 51 [*Stebbins 4003b*] and Record #62 [*Manning 99*]) are suspected to be misidentifications, they should be thoroughly verified by an expert in the group prior to their omission from occurring on these forests.

¹ Magney voucher specimens will be deposited into the UCSB Herbarium, but have not been deposited as of this date.

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Sources: *Distribution:* Calflora 2017; CCH 2017; CNDDDB 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).

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Locations within California:

Note: 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) definition of Element Occurrences in California). Official Element Occurrence (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 in meters from source were 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 verbatim from the original Reference (Source) unless additional citation is given.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	BENNETT VALLEY ROAD VERNAL POOL; N OF BENNETT VALLEY ROAD, 2.4 AIR MILES SW OF KENWOOD.	Sonoma	Kenwood (3812245)	CNDDB, May 2017 (EO 1)	12-May-2009	MENTIONED AS OCCURRING AT THE "BENNETT VALLEY VERNAL POOL" IN A 1977 HOOD REPORT. OBSERVED IN THIS POOL IN 2006 AND/OR 2007 (HERRICK 2010). 1974 RUBTZOFF AND 2009 SOLOMESHCH COLLECTIONS FROM BENNETT VALLEY ROAD ARE ALSO ATTRIBUTED HERE.		PVT	640
1	On Bennett Valley Road, 4.25 miles W of Glen Ellen	Sonoma	Kenwood (3812245)	CCH, Jan 2017 (CAS6129 94)	26-May-1974				
1	Sonoma County: Along Bennett Valley Road (between Santa Rosa and Glen Ellen)	Sonoma	Kenwood (3812245)	CCH, Jan 2017 (UCD8427 3)	12-May-2009				620

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	Along Bennett Valley Road, between Santa Rosa and Glen Ellen	Sonoma	Kenwood (3812245)	CCH, Jan 2017 (UCR2246 92)	12-May-2009				620
2	N SIDE OF TODD ROAD, 1.4 MILES FROM HIGHWAY 116 AND 0.6 MILE FROM LLANO ROAD, TODD ROAD WILDFLOWER PRESERVE.	Sonoma	Sebastopol (3812247)	CNDDDB, May 2017 (EO 2)	20-May-1978	MAIN SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE TWO RUBTZOFF COLLECTIONS FROM 1974 AND 1978. NEEDS FIELDWORK.	AREA IS LIGHTLY GRAZED.	DFG-Santa Rosa Plain ER	80
2	Todd Road 1.5 miles from Highway 116 and 0.5 mile from (W of) Llano Road	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (CAS6539 44)	26-May-1974				
2	Todd Road 1.4 miles from Highway 116 and 0.6 mile from Llano Road (off N side of the road, in Todd Road Wildflower Preserve)	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (CAS7474 89)	20-May-1978				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
3	LAGUNA DE SANTA ROSA, E OF GRATON BETWEEN OCCIDENTAL AND GUERNEVILLE ROADS.	Sonoma	Sebastopo 1 (3812247)	CNDDDB, May 2017 (EO 3)	7-May-1966	SPECIES NOT COLLECTED HERE BUT WAS REPORTED AS AN ASSOCIATE OF LASTHENIA BURKEI IN 1966 COLLECTION BY RUBTZOFF (#5716, UC). CONSIDERED EXTIRPATED IN 1994 REPORT BY PATTERSON.	AREA USED AS CORNFIELD SINCE 1985.	PVT	50
4	WRIGHT SCHOOL, W OF SANTA ROSA AIR CENTER.	Sonoma	Sebastopo 1 (3812247)	CNDDDB, May 2017 (EO 4)	23-May-1937	SITE BASED ON HISTORIC COLLECTIONS. GUGGLOZ (1992) NOTES THAT THIS SITE HAS BEEN EXTIRPATED.		Unknown	95
4	near Wright School (on Sebastopol road)	Sonoma	Sebastopo 1 (3812247)	CCH, Jan 2017 (UC702890)	13-May-1935				
4	along RR. tracks Wright School (on Sebastopol road)	Sonoma	Sebastopo 1 (3812247)	CCH, Jan 2017 (JEPS7038 1)	13-May-1935				
4	Along RR tracks, Wright School on Sebastopol road	Sonoma	Sebastopo 1 (3812247)	CCH, Jan 2017 (CAS2977 93)	13-May-1935				

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4	near Wright School	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (UC631637)	23-May-1937				
4	between Santa Rosa and Sebastopol	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (UC101999)	30-Jun-1905				
4	railroad track between Sebastopol Santa Rosa	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (UC52427)	6-May-1899				
5	SE CORNER OF INTERSECTION OF SHILOH ROAD AND HIGHWAY 101, NEAR TOWN OF SHILOH.	Sonoma	Healdsburg (3812257)	CNDDDB, May 2017 (EO 5)	29-Apr-1989	LARGE COLONY OBSERVED IN 1989. SITE EXTIRPATED IN 1990. A 1934 MASON COLLECTION FROM "HIGHWAY BETWEEN HEALDSBURG AND SANTA ROSA" AND A 1985 MCCARTEN COLLECTION ARE ALSO ATTRIBUTED TO THIS SITE.	DEVELOPMENT. SITE EXTIRPATED IN 1990 BY AGRICULTURAL LAND USE CHANGE.	PVT	120
5		Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (JEPS86299)	29-Apr-1989				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
6	N OF PROMENADE LANE A E OF HERB ROAD, ABOUT 2 MILES N OF WINDSOR.	Sonoma	Healdsburg (3812257)	CNDDDB, May 2017 (EO 6)	6-Apr-1990	SITE BASED ON A 1990 GUGGOLZ COLLECTION. VAGUE HISTORIC COLLECTIONS FROM "2 MILES NORTH OF WINDSOR" AND "NW OF WINDSOR" ARE ALSO ATTRIBUTED TO THIS SITE.	DEVELOPMENT.	PVT	135
6	2 miles N of Windsor	Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (CAS234579)	19-May-1936				
6	2 miles N of Windsor	Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (CAS280501)	6-Jul-1938				
6	about 1.25 mi NW old Windsor (n side Promenade Lane and E of Herb Lane [Road])	Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (JEPS86768)	6-Apr-1990				135
6	NW of Windsor (and just E of Calhoun Ranch)	Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (JEPS43458)	2-Jun-1921				
6	2 mi N Windsor	Sonoma	Healdsburg (3812257)	CCH, Jan 2017 (UC583200)	19-May-1936				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
7	1.5 MILES W OF LOWER LAKE.	Lake	Clearlake Highlands (3812286)	CNDDB, May 2017 (EO 8)	18-May-1996	TYPE LOCALITY. SITE BASED ON SEVERAL HISTORIC COLLECTIONS FROM 1.5 MILES WEST OF LOWER LAKE. A 1996 DE NEVERS COLLECTION FROM "JUST S OF ANDERSON MARSH STATE HISTORIC PARK" ALSO ATTRIBUTED HERE. NEEDS FIELDWORK. INCLUDES FORMER EO #7.		Unknown	1600
7	ca 1.5 mi from Lower Lake (Highway 53)	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (UC972196)	27-May-1952				
7	Hwy 53, 1.5 miles from Lower Lake	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (RSA74134)	27-May-1952				
7	Hwy 53, 1.5 miles from Lower Lake	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (RSA90510)	27-May-1952				
7	Just S of Anderson Marsh State Historic Park	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (CAS1091245)	18-May-1996				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
7	1.5 mi W Lower Lake	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (UC1178812)	30-May-1946				
7	1.5 mi W Lower Lake	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (UC1178919)	8-Jun-1953				
7	Lower Lake, behind schoolhouse Lower Lake	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (UC1094375)	9-Jun-1957				1348
8	UPPER LITTLE LAKE VALLEY, ~0.4 AIR MILE SSE OF THE INTERSECTION OF HWY 101 AND REYNOLDS HWY, 3 MILES N OF WILLITS.	Mendocino	Willits (3912343)	CNDDDB, May 2017 (EO 10)	25-May-2012	UNKNOWN NUMBER OF PLANTS OBSERVED IN 1999 AND 2001. 2,894,656 PLANTS SEEN IN 2 EASTERN POLYGONS IN 2003. 100S OF PLANTS SEEN IN WESTERN POLYGON IN 2012. COLLECTIONS FROM 1916, 1949, & 1983 ATTRIBUTED HERE. INCLUDES FORMER EO #19.	SITE IS GRAZED BY CATTLE LATER FROM JULY TO JANUARY, THOUGH GRAZING EVIDENT IN MAY 1999.	PVT, CalTrans	1400

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
8	Mendocino County: N end of Little Lake (Willits) Valley. About 350 feet E of Highway 101	Mendocino	Willits (3912343)	CCH, Jan 2017 (UCD1469 57)	25-May-2012				1319
8	Along jeep road in higher parts of Little Lake Valley, on private land along Reynolds Road, 8.0 km NE of Willits	Mendocino	Willits (3912343)	CCH, Jan 2017 (CAS7467 20)	23-Jun-1983				2923
8	3.5 mi N Willits	Mendocino	Willits (3912343)	CCH, Jan 2017 (UC796729)	28-May-1949				
9	SHERWOOD VALLEY, NW OF WILLITS.	Mendocino	Longvale (3912354)	CNDDDB, May 2017 (EO 11)	17-Jun-1899	OCCURRENCE IS BASED ON TWO 1899 COLLECTIONS BY DAVY AND DUDLEY. AREA SHOULD BE FIELD CHECKED FOR SUITABLE HABITAT.		Unknown	
9	Sherwood Valley North Coast Ranges	Mendocino	Longvale (3912354)	CCH, Jan 2017 (UC60882)	2-Jun-1899				
9	Sherwood Valley	Mendocino	Longvale (3912354)	CCH, Jan 2017 (DS64631)	17-Jun-1899				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
10	N AND E SIDES OF OLCOTT LAKE, 1 MILE SW OF DOZIER STATION, 12 MILES S OF DIXON.	Solano	Dozier (3812137)	CNDDDB, May 2017 (EO 12)	16-May-2002	UNKNOWN NUMBER OF PLANTS SEEN IN 2002. CRAMPTON COLLECTIONS FROM "1 MI SW OF DOZIER STATION" ATTRIBUTED TO THIS EO; MENTIONED AS COMMON TO ABUNDANT IN 1958, 1961, AND 1963. ALSO COLLECTED HERE IN 1971, 1972, 1978, 1981, AND 1985.		Solano Land Trust	15
10	1 mi SW Dozier Station (12 mi S of Dixon)	Solano	Dozier (3812137)	CCH, Jan 2017 (UC1151659)	1-Jul-1958			Jepson Prairie Preserve	
10	Solano County: 1 mile SW of Dozier Station, 1/2 mile S of Olcott (RR siding) common, edge of large alkaline playa	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD48320)	1-Jul-1958			Jepson Prairie Preserve	
10	1 mile SW of Dozier Station, 12 miles S of Dixon	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS447384)	1-Jul-1958			Jepson Prairie Preserve	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
10	12 mi S Dixon	Solano	Dozier (3812137)	CCH, Jan 2017 (UC1228172)	12-Jun-1961			Jepson Prairie Preserve	
10	Central Valley 12 miles S of city of Dixon, 1 mile SW of Dozier Station. Alkaline soil along margin of dry lake.	Solano	Dozier (3812137)	CCH, Jan 2017 (UCR119024)	12-Jun-1961			Jepson Prairie Preserve	200
10	Solano County, 12 miles S of city of Dixon, 1 mile SW of Dozier Station	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD37687)	12-Jun-1961			Jepson Prairie Preserve	
10	1 mi SW Dozier Station (12 mi S of Dixon)	Solano	Dozier (3812137)	CCH, Jan 2017 (UC1151615)	24-Jun-1963			Jepson Prairie Preserve	
10	Solano Co.: 12 miles S of Dixon	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD59429)	24-Jun-1963			Jepson Prairie Preserve	
10	Solano County, 12 miles S of Dixon, Rio Vista - Dixon road	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD34834)	24-Jun-1963			Jepson Prairie Preserve	
10	Solano County: 1 mile SW Dozier Station	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD48316)	28-Apr-1971			Jepson Prairie Preserve	1801

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
10	Solano County: 12 miles S of Dixon. E margin of large vernal lake	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD48318)	7-Apr-1972			Jepson Prairie Preserve	
10	Jepson Prairie, N side of Olcott Lake on W side of Cook Road	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS1089907)	13-Apr-1985			Jepson Prairie Preserve	
10	Cook Lane	Solano	Dozier (3812137)	CCH, Jan 2017 (UC1719852)	28-Sep-1978			Jepson Prairie Preserve	
10	Jepson Prairie area, W of Cook Lane, E of Sacramento Northern RR and N of Olcott Lake	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS855401)	15-Apr-1981			Jepson Prairie Preserve	
10	Jepson Prairie Preserve	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS1089910)	13-Apr-1985			Jepson Prairie Preserve	
10	Jepson Prairie	Solano	Dozier (3812137)	Calflora, May 2017 (jgr16815)	27-May-2000	1+ individuals		Jepson Prairie Preserve	20
10	Jepson Prairie	Solano	Dozier (3812137)	Calflora, May 2017 (jgr1776)	11-May-1997	1+ individuals		Jepson Prairie Preserve	20

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10	Jepson Prairie Preserve	Solano	Dozier (3812137)	Calflora, May 2017 (ce313)	1-Jan-2005	1+ individuals		Jepson Prairie Preserve	16
10	Jepson Prairie Preserve Central Valley Grasslands; S through Dixon off US 80 on Hwy 113 approx. 10 m.	Solano	Dozier (3812137)	Calflora, May 2017 (gr13929)	27-Jun-2009	1+ individuals		Jepson Prairie Preserve	16
10	3.5 miles N of Willits	Solano	Dozier (3812137)	CCH, Jan 2017 (RSA52648)	28-May-1949				
10	Willits	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS36323)	30-Jun-1906				
11	MOUNT BURDELL OPEN SPACE PRESERVE; HIDDEN LAKE, SW SLOPE OF MOUNT BURDELL, N OF NOVATO.	Marin	Petaluma River (3812225)	CNDDDB, May 2017 (EO 13)	19-May-2013	100,000+ PLANTS OBSERVED IN 2010. ALSO OBSERVED IN 1995, 2005, 2007, 2011, AND 2013. A 1989 SMITH COLLECTION FROM "SW SLOPE OF MT. BURDELL" IS ATTRIBUTED TO THIS SITE.	INVASIVE WEEDS (MENTHA PULEGIUM, CRYPISIS SCHOENOIDES, AGROSTIS AVENACEA) ARE THREATS. SOME MENTHA HAS BEEN REMOVED.	MRN County Open Space	200

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
11	Mt. Burdell area, in Hidden Lake.	Marin	Petaluma River (3812225)	CCH, Jan 2017 (JEPS116839)	6-May-2007			Mt. Burdell OSP	
11	SW slope of Mount Burdell	Marin	Petaluma River (3812225)	CCH, Jan 2017 (CAS811364)	1-Jun-1989			Mt. Burdell OSP	
11	SW slope of Mount Burdell	Marin	Petaluma River (3812225)	CCH, Jan 2017 (CAS815093)	28-May-1989			Mt. Burdell OSP	
11	Peripheral parts of Hidden Lake, Mount Burdell, Novato	Marin	Petaluma River (3812225)	CCH, Jan 2017 (CAS1034778)	2-Jun-1995			Mt. Burdell OSP	
11	Hidden Lake Mount Burdell	Marin	Petaluma River (3812225)	Calflora, May 2017 (gr7957)	15-Jun-2005	1+ individuals		Mt. Burdell OSP	902
11	SW of Middle Burdell FR	Marin	Petaluma River (3812225)	Calflora, May 2017 (mg26257)	15-Jun-2016	6 individuals		Mt. Burdell OSP	
11	Mount Burdell Preserve	Marin	Petaluma River (3812225)	Calflora, May 2017 (mg26275)	15-Jun-2016	10000 individuals		Mt. Burdell OSP	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
12	NEAR CALISTOGA.	Napa	Calistoga (3812255)	CNDDB, May 2017 (EO 14)	16-May-1903	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1903 COLLECTION BY TRACY. ACCORDING TO RUYGT (1999) SITE IS EXTIRPATED.		Unknown	300
12	near Calistoga; San Francisco Bay Region	Napa	Calistoga (3812255)	CCH, Jan 2017 (UC52368)	16-May-1903				299
13	2 MILES N OF MIDDLETOWN.	Lake	Middleton (3812275)	CNDDB, May 2017 (EO 15)	197X	ONLY SOURCE OF INFORMATION FOR THIS SITE IS SMITH COLLECTION, PROBABLY FROM THE EARLY 1970'S.		Unknown	1100
13	ca 2 mi N Middletown	Lake	Middleton (3812275)	CCH, Jan 2017 (UC1212030)					
14	NEAR COLLEGE CITY.	Colusa	Arbuckle (3912211)	CNDDB, May 2017 (EO 16)	17-Jun-1916	ONLY SOURCE OF INFORMATION ON THIS SITE IS 1916 COLLECTION BY STINCHFIELD. AREA NEEDS FIELDWORK TO DETERMINE IF SUITABLE HABITAT IS STILL PRESENT.		Unknown	60

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
14	Near College City	Colusa	Arbuckle (3912211)	CCH, Jan 2017 (DS72784)	17-Jun-1916				
15	8.5 MILES S OF CORNING.	Tehama	Kirkwood (3912272)	CNDDDB, May 2017 (EO 17)	12-Jun-1955	ONLY SOURCE OF INFORMATION ON THIS SITE IS 1955 COLLECTION BY HOWELL. COLLECTION LABEL SAYS "NAVARRETIA LEUCOCEPHALA, POSSIBLE VARIANT NEAR SSP. BAKERI."		Unknown	280
15	8.5 miles S of Corning	Tehama	Kirkwood (3912272)	CCH, Jan 2017 (CAS443546)	12-Jun-1955				
16	REDWOOD VALLEY. 4 MILES N OF CALPELLA.	Mendocino	Redwood Valley (3912332)	CNDDDB, May 2017 (EO 18)	30-May-1941	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1941 COLLECTION BY TRACY.		Unknown	850
16	Wet depression in field. Redwood Valley, 4 mis. NE of Calpella, Mendocino Co	Mendocino	Redwood Valley (3912332)	CCH, Jan 2017 (UCD48321)	30-May-1941				850
16	4 mi n Calpella; Redwood Valley	Mendocino	Redwood Valley (3912332)	CCH, Jan 2017 (UC906679)	30-May-1941				850

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
17	NW SANTA ROSA ALONG THE S SIDE OF PINER ROAD ABOUT 0.5 MILE E OF FULTON ROAD.	Sonoma	Sebastopo 1 (3812247)	CNDDDB, May 2017 (EO 20)	15-Jun-1905	ACTUAL DATE OF OBSERVATION IS BETWEEN 1989 AND 1993. THE NAVARRETIA HAS BEEN OBSERVED AS AN ASSOCIATE DURING SURVEYS FOR LASTHENIA BURKEI. FOCUSED SURVEY FOR THE NAVARRETIA NEEDED.	DEVELOPMENT, JUNK DUMPING, WEEDS, ALTERED HYDROLOGY, AND VEHICULAR USE THREATEN.	PVT	130
18	W OF FULTON ROAD AND BETWEEN OCCIDENTAL ROAD AND HALL ROAD, W OF SANTA ROSA.	Sonoma	Sebastopo 1 (3812247)	CNDDDB, May 2017 (EO 21)	16-Jun-1905	ACTUAL DATE OF OBSERVATION IS BETWEEN 1988 AND 1994. THE NAVARRETIA HAS BEEN NOTED AS AN ASSOCIATE DURING SURVEYS FOR LASTHENIA BURKEI AND LIMNANTHES VINCULANS. FOCUSED SURVEY FOR THE NAVARRETIA IS NEEDED.	DEVELOPMENT, RECREATION, GRAZING, AND DISKING.	SON Co., PVT	98
18	Fulton	Sonoma	Sebastopo 1 (3812247)	CCH, Jan 2017 (DS601227)	16-Jul-1906				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
18	Near Fulton	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (DS727144)	28-May-1909				
19	W SIDE OF ABRAMSON ROAD ABOUT 0.4 MILE N OF GUERNEVILLE ROAD, W OF SANTA ROSA.	Sonoma	Sebastopol (3812247)	CNDDDB, May 2017 (EO 22)	Unknown	PATTERSON NOTES THAT THIS OCCURRENCE IS HISTORICAL. SITE HAS APPARENTLY UNDERGONE MAJOR CHANGES. THE ASSOCIATED LASTHENIA BURKEI WAS EXTIRPATED BY 1991; PRESUMABLY THE HABITAT WHICH SUPPORTED THE NAVARRETIA WAS ALSO EXTIRPATED.	DEVELOPMENT, AGRICULTURE / CULTIVATION, INDUSTRIAL USE, AND FILL.	PVT	95
20	W OF SHILO, JUST S OF THE EASTERN END OF SAUNDERS ROAD.	Sonoma	Healdsburg (3812257)	CNDDDB, May 2017 (EO 23)	6-May-1992	COLLECTED HERE BY MCCARTEN IN 1992. ALSO LISTED AS AN ASSOCIATE OF LASTHENIA BURKEI BETWEEN 1984 AND 1993. FOCUSED SURVEY FOR NAVARRETIA NEEDED.	DEVELOPMENT, AGRICULTURE, INDUSTRIAL USE, FILL, GRADING, AND HORSE GRAZING.	PVT	110

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
21	PLOYEZ WINERY (FORMERLY STUERMER WINERY), W SIDE OF HWY 29, S OF LOWER LAKE AND N OF JCT W/SPRUCE GROVE ROAD.	Lake	Lower Lake (3812285)	CNDDB, May 2017 (EO 24)	14-May-1994	THOUSANDS OF PLANTS IN 1994.	HIGHWAY WIDENING WOULD DESTROY POPULATION.	PVT	1400
21	Lower Lake, S 1 mile (1.1 mile S of Hwy 53) on Hwy 29; W side of Hwy fenceline	Lake	Lower Lake (3812285)	CCH, Jan 2017 (RSA6425 73)	14-May-1994				
22	ABOUT 0.5 MI NNE OF TOWN OF POPE VALLEY & 0.5 MI W OF BURTON ROAD. NEAR BURTON CREEK; CLOSE TO FENCE.	Napa	St. Helena (3812254)	CNDDB, May 2017 (EO 25)	20-May-1999	AT LEAST 1000 PLANTS IN 1996 IN AN AREA APPROXIMATELY 170X65 FEET. MORE THAN 10,000 PLANTS OBSERVED IN 1998 AFTER A SEASON OF HIGH RAINFALL. 25 PLANTS SEEN IN 1999 AT NEW SOUTH COLONY.	LAND OWNED BY WINERY; CONVERSION TO VINEYARDS OR EXPANSION OF VINEYARDS COULD THREATEN. CATTLE.	PVT	660
22	between Barnett Rd and Pope Valley Rd	Napa	St. Helena (3812254)	CCH, Jan 2017 (JEPS9520 1)	19-May-1996				659

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
22	Between Barnett Road and Pope Valley Rd	Napa	St. Helena (3812254)	CCH, Jan 2017 (JEPS112560)	19-May-1996				659
23	FALSE LAKE MEADOW, ANNADEL STATE PARK, 1.3 MILES S OF MELITA, E OF SANTA ROSA.	Sonoma	Santa Rosa (3812246)	CNDDDB, May 2017 (EO 26)	7-May-2014	8,000 PLANTS OBSERVED IN 2000, 40,000 IN 2004, APPROXIMATELY 5,000 PLANTS IN 2014. MULTI-USE TRAIL THROUGH AREA NOW CLOSED. A 1976 COLLECTION BY RUBTZOFF IS ALSO ATTRIBUTED TO THIS OCCURRENCE.	MARGINS OF POOL INVADED BY MENTHA PULEGIUM, ALTHOUGH NOT IN THE MICRO-HABITAT OF THIS TAXON. WEEDS BEING MANAGED.	DPR-Annadel SP	740
23	False Lake Meadow area, Annadel State Park	Sonoma	Santa Rosa (3812246)	CCH, Jan 2017 (CAS653942)	18-Jun-1976			Annadel SP	
23	Not observed in 2012 on this date, location of previous observations in CNDDDB.	Sonoma	Santa Rosa (3812246)	Calflora, May 2017 (cbo6041)	27-Apr-2012	0 individuals		Annadel SP	735
23	Annadel State Park	Sonoma	Santa Rosa (3812246)	Calflora, May 2017 (jgr20903)	21-May-1988	1+ individuals		Annadel SP	932

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
24	GLIDE TULE ECOLOGICAL RESERVE, E OF THE SACRAMENTO NORTHERN CANAL, W EDGE OF THE YOLO BYPASS.	Yolo	Saxon (3812146)	CNDDDB, May 2017 (EO 27)	19-Apr-2009	MORE THAN 1000 PLANTS OBSERVED IN 2003. UNKNOWN NUMBER OF PLANTS OBSERVED IN 2009.		DFG-Yolo Bypass WA	15
24	DFG Tule Ranch vernal pools. Approximately 8 miles SE of Davis. SE of the junctions of County Roads 38 & 105	Yolo	Saxon (3812146)	CCH, Jan 2017 (UCD41027)	11-Apr-2003			Yolo Bypass Wildlife Area	16
25	APPROXIMATELY 2.5 AIR MILES W OF OLCOTT, 0.5 AIR MILE S OF RAILROAD.	Solano	Dozier (3812137)	CNDDDB, May 2017 (EO 28)	20-May-2003	100'S OF INDIVIDUALS OBSERVED IN 2003. ORCUTTIA INAEQUALIS, DOWNINGIA PUSILLA, ASTRAGALUS TENER VAR. TENER IN VICINITY.	GRAZING AND TRAMPLING BY CATTLE. MUZZY RANCH PROPOSED AS MITIGATION BANK.	PVT	40

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
26	0.25 MILE S OF N-END OF LESLIE ROAD, ON E SIDE OF ROAD, NE OF SHILOH RANCH.	Sonoma	Mark West Springs (3812256)	CNDDB, May 2017 (EO 29)	28-May-1986	MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1986 COLLECTION BY MCCARTEN. AN 1866 COLLECTION BY BOLANDER FROM MARK WEST CREEK IS ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Unknown	
26	Mark West Creek	Sonoma	Mark West Springs (3812256)	CCH, Jan 2017 (UC30204)	31-Dec-1866				
27	LITTLE OAK, NEAR VACAVILLE.	Solano	Elmira (3812138)	CNDDB, May 2017 (EO 30)	31-May-1884	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1884 COLLECTION BY JEPSON.		Unknown	120
27	Little Oak Vacaville	Solano	Elmira (3812138)	CCH, Jan 2017 (JEPS7036 1)	31-May-1884			Pheasant Country Park	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
28	WILLOWS, GLENN COUNTY.	Glenn	Willows (3912252)	CNDDDB, May 2017 (EO 31)	1-May-1899	ONLY SOURCE OF INFORMATION IS 1899 COLLECTION BY JEPSON. HISTORIC COLLECTION ON EDGE OF KNOWN RANGE FOR SPECIES. NEEDS FIELDWORK.		Unknown	
28	Willows	Glenn	Willows (3912252)	CCH, Jan 2017 (JEPS70358)	1-May-1899				
29	RANCHO LLANO DE SANTA ROSA; SE CORNER OF FINLEY AND WRIGHT AVENUES.	Sonoma	Sebastopol (3812247)	CNDDDB, May 2017 (EO 32)	4-May-1988	UNKNOWN NUMBER OF PLANTS OBSERVED IN 1988.		DOD-Santa Rosa Air Center	95
29	Rancho Llano de Santa Rosa; SE corner of Finley and Wright Avenues	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (JEPS86340)	4-May-1988				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
30	0.5 MILE SW OF ELMIRA, ALONG SOUTHERN PACIFIC RAILROAD RIGHT OF WAY.	Solano	Elmira (3812138)	CNDDDB, May 2017 (EO 33)	26-May-1962	MAIN SOURCE OF INFORMATION FOR THIS SITE IS A 1962 COLLECTION BY BACIGALUPI. A 1903 BAKER COLLECTION AND A 1909 BRANDEGEE COLLECTION FROM "ELMIRA" ARE ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		PVT	
30	0.5 mi sw Elmira (along Southern Pacific railroad right-of-way)	Solano	Elmira (3812138)	CCH, Jan 2017 (JEPS2969 8)	26-May-1962				
30	Elmira	Solano	Elmira (3812138)	CCH, Jan 2017 (UC75155)	6-May-1903				
30	Elmira	Solano	Elmira (3812138)	CCH, Jan 2017 (POM6513 1)	6-May-1903				
30	Elmira, not far above sea level	Solano	Elmira (3812138)	CCH, Jan 2017 (POM6502 7)	4-May-1909				
30	Elmira, not far above sea level	Solano	Elmira (3812138)	CCH, Jan 2017 (DS25027)	31-May-1909				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
30	Elmira, not far above sea level	Solano	Elmira (3812138)	CCH, Jan 2017 (DS138936)	31-May-1909				
31	MARYSVILLE BUTTES, ABOUT 5 MILES W OF LIVE OAK; THE VERY BEGINNING OF THE FOOTHILLS ON THE NE SIDE OF BUTTES.	Sutter	Pennington (3912137)	CNDDDB, May 2017 (EO 34)	9-May-1936	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1936 COLLECTION BY LEE. NEEDS FIELDWORK.		PVT	100
31	about 5 mi W Live Oak (the very beginning of foothills on NE side of Buttes); Marysville Buttes	Sutter	Pennington (3912137)	CCH, Jan 2017 (JEPS78684)	9-May-1936				98
32	WOLFSKILL STATION, NW SOLANO COUNTY.	Solano	Winters (3812158)	CNDDDB, May 2017 (EO 35)	10-Jun-1953	SITE BASED ON A 1924 JEPSON COLLECTION. 1953 CRAMPTON COLLECTION FROM "5 MILES NW OF DIXON" ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Unknown	
32	5 miles NW of Dixon	Solano	Winters (3812158)	CCH, Jan 2017 (RSA91815)	10-Jun-1953				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
32	Wolfskill sta., NW Solano Co.	Solano	Winters (3812158)	CCH, Jan 2017 (JEPS70364)	8-May-1924				
33	ANNADEL STATE PARK; ON A HILLTOP UNDER A MAJOR POWER LINE, E OF BENNETT MOUNTAIN.	Sonoma	Kenwood (3812245)	CNDDDB, May 2017 (EO 36)	20-May-1990	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1990 COLLECTION BY GUGGOLZ & GUGGOLZ.		DPR-Annadel SP	1320
33	Anadel State Park	Sonoma	Kenwood (3812245)	CCH, Jan 2017 (JEPS86767)	20-May-1990			Annadel SP	1319
34	ON THE N SIDE OF THE LAGUNA (DE SANTA ROSA), JUST E OF SEBASTOPOL.	Sonoma	Sebastopol (3812247)	CNDDDB, May 2017 (EO 37)	12-May-1988	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1988 COLLECTION BY GUGGOLZ & GUGGOLZ.		DFG-Laguna WA	70
34	D. Carinalli property, on the N side of the laguna	Sonoma	Sebastopol (3812247)	CCH, Jan 2017 (JEPS86365)	12-May-1988			Laguna Wildlife Area	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
35	1.2 AIR MILES ENE OF DOZIER. GRIDLEY RANCH.	Solano	Dozier (3812137)	CNDDDB, May 2017 (EO 38)	26-Apr-2002	UNKNOWN NUMBER OF PLANTS OBSERVED IN 2002. 2002 SOLOMESHCH COLLECTION FROM "GRIDLEY RANCH, 1 MILE N FROM INTERSECTION OF HASTING RD. AND SALEM RD." ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.	THE SITE IS GRAZED BY SHEEP.	Unknown	10
35	Solano County: Gridley Ranch. 1 mile N from intersection of Hasting Rd. and Salem Rd	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD23114)	26-Apr-2002				
36	N END OF LEDSON MARSH (BENNET MOUNTAIN LAKE) ON BENNETT MOUNTAIN, ANNADEL STATE PARK.	Sonoma	Kenwood (3812245)	CNDDDB, May 2017 (EO 39)	18-Jun-1963	PREVIOUSLY ID'ED AS SSP. PLIEANTHA (OCCURRENCE #7). NOW CONSIDERED SSP. BAKERI WITH TENDENCIES TOWARD PLIEANTHA BY A. DAY. PLANTS NOT FOUND IN 1974 OR 1985.	MARGIN OF LAKE BADLY DAMAGED BY HORSEBACK RIDERS / WILD PIGS.	DPR-Annadel SP	1150

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
36	Bennett Mountain Lake	Sonoma	Kenwood (3812245)	CCH, Jan 2017 (CAS544234)	22-Jul-1961			Annadel SP	
37	0.5 AIR MILE SSE OF LEDSON MARSH (BENNETT MOUNTAIN LAKE), ANNADEL STATE PARK.	Sonoma	Kenwood (3812245)	CNDDDB, May 2017 (EO 40)	28-May-1905	PREVIOUSLY ID'ED AS SSP. PLIEANTHA (OCCURRENCE #13). PLANTS IN THIS AREA CONSIDERED TO BE SSP. BAKERI WITH TENDENCIES TOWARD PLIEANTHA BY A. DAY.		DPR-Annadel SP	1100
38	VACAVILLE.	Solano	Elmira (3812138)	CNDDDB, May 2017 (EO 41)	22-Apr-1916	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1916 COLLECTION BY JEPSON.		Unknown	175
38	Vacaville	Solano	Elmira (3812138)	CCH, Jan 2017 (JEPS70365)	22-Apr-1916				174
39	NEAR VANDEN.	Solano	Elmira (3812138)	CNDDDB, May 2017 (EO 42)	30-May-1930	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS 1930 HOWELL COLLECTION.		Unknown	
39	Near Vanden	Solano	Elmira (3812138)	CCH, Jan 2017 (CAS179838)	30-May-1930				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
39	Near Vanden. Type region.	Solano	Elmira (3812138)	CCH, Jan 2017 (POM180633)	30-May-1930				
40	5 MILES S OF WINTERS.	Solano	Allendale (3812148)	CNDDDB, May 2017 (EO 43)	10-Jun-1940	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS 1940 COLLECTION BY EASTWOOD & HOWELL. NEEDS FIELDWORK.		Unknown	
40	5 miles S of Winters	Solano	Allendale (3812148)	CCH, Jan 2017 (CAS280484)	10-Jun-1940				
41	LOCH LOMOND.	Lake	Whispering Pines (3812276)	CNDDDB, May 2017 (EO 44)	26-Jun-1956	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS 1956 CRAMPTON COLLECTION. NEEDS FIELDWORK; I WONDER IF THIS WAS MISIDENTIFIED AND SHOULD BE <i>N. LEUCOCEPHALA</i> SSP. <i>PLIEANTHA</i> ?		Unknown	2806
41	Loch Lomond	Lake	Whispering Pines (3812276)	CCH, Jan 2017 (RSA113804)	26-Jun-1956				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
42	1.1 AIR MILES NW OF MORRIS DAM, SE OF WILLITS.	Mendocino	Laughlin Range (3912333)	CNDDB, May 2017 (EO 45)	20-Jun-2006	5 PLANTS OBSERVED IN 2006.	HIGHWAY 101 CONSTRUCTION AND WILLITS BYPASS CONSTRUCTION ARE THREATS.	CalTrans	1540
43	0.3 AIR MILE SSW OF THE INTERSECTION OF CEMETARY LANE AND EAST HILL ROAD, WILLITS.	Mendocino	Willits (3912343)	CNDDB, May 2017 (EO 46)	19-Jun-2006	OBSERVED IN 2006 (ONE FIELD SURVEY FORM SAYS 50 PLANTS, THE OTHER FIELD SURVEY FORM FROM SAME DATE SAYS 600 PLANTS). THE RARE ALISMA GRAMINEUM OCCURS FURTHER WEST A FEW HUNDRED FEET.	WILLITS BYPASS PROJECT; PLANTS ARE OUTSIDE "PERMANENT IMPACT AREA" FOR PROJECT.	PVT	1400
44	YOLO BYPASS WILDLIFE AREA; JUST S OF JUNCTION OF ROAD 38 (COUNTY ROAD 106) AND COUNTY ROAD 105, ~1 MILE SW OF SAXON.	Yolo	Saxon (3812146)	CNDDB, May 2017 (EO 47)	13-Jun-2005	OBSERVED IN 2005 DURING A VEGETATION SURVEY; 7% COVER OF NAVARRETIA LEUCOCEPHALA SSP. BAKERI IN PLOT.	LOW LEVEL OF GRAZING IMPACT.	DFG-Yolo Bypass WA	20

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
45	N SIDE OF VACA VALLEY PARKWAY; 0.1 MILE W OF ITS JUNCTION WITH CRESCENT DRIVE, NE OF VACAVILLE.	Solano	Allendale (3812148)	CNDDDB, May 2017 (EO 48)	4-May-2010	SITE BASED ON A 2010 HELMKAMP & HELMKAMP COLLECTION; MENTIONED AS "SCARCE" IN 2010.	AREA SURROUNDED BY DEVELOPMENT.	Unknown	100
45	Sacramento Valley just NE of Vacaville, N side of Vaca Valley Parkway, 0.1 mile west of its junction with Crescent Drive	Solano	Allendale (3812148)	CCH, Jan 2017 (UCR2169 27)	4-May-2010				115
46	EASTERN LITTLE LAKE VALLEY; ABOUT 0.8 AIR MILE NW OF THE JUNCTION OF VALLEY ROAD AND EASTSIDE ROAD, E OF WILLITS.	Mendocino	Willits (3912343)	CNDDDB, May 2017 (EO 49)	1-Jun-2008	A SINGLE POPULATION WAS OBSERVED IN 2008.	WATERCOURSE DIVERSION AND NEIGHBORING DEVELOPMENT ARE THREATS.	PVT	1360

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
47	ABOUT 0.5 AIR MILE SW OF THE JUNCTION OF VALLEY ROAD AND EASTSIDE ROAD, E OF WILLITS.	Mendocino	Willits (3912343)	CNDDDB, May 2017 (EO 50)	1-Jun-2008	A SINGLE POPULATION WAS OBSERVED IN 2008.	WATERCOURSE DIVERSION AND NEIGHBORING DEVELOPMENT ARE THREATS.	PVT	1393
48	FEATHER LAKE, BETWEEN SUSANVILLE AND MCARTHUR.	Lassen	Pine Creek Valley (4012151)	CNDDDB, May 2017 (EO 51)	6-Aug-1949	ONLY SOURCE OF INFO FOR SITE IS A 1949 STEBBINS COLLECTION. POSSIBLY A MIS-ID; STEBBINS #4003A & #4003C ARE IDENTIFIED AS N. L. SSP. MINIMA, STEBBINS #4003B IS IDENTIFIED AS N. L. SSP. BAKERI. ID NEEDS CONFIRMATION; POSSIBLY OUT OF RANGE.		Lassen NF	5500
48	between Susanville and McArthur (edge of Feather Lake); Feather Lake	Lassen	Pine Creek Valley (4012151)	CCH, Jan 2017 (UC909068)	6-Aug-1949			Lassen NF	5499

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
49	GRAVEL PITS 10 MILES OUT FROM SUISUN ALONG RIO VISTA-SUISUN ROAD.	Solano	Birds Landing (3812127)	CNDDB, May 2017 (EO 52)	28-Apr-1944	"DENSE COLONIES" OBSERVED IN 1944. ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1944 COLLECTION BY ALEXANDER & KELLOGG. NEEDS FIELDWORK.		Unknown	
50	S SIDE OF GIBSON CANYON CREEK, E OF HIGHWAY 505, ABOUT 1.2 AIR MILES WNW OF VACA DIXON SUBSTATION.	Solano	Allendale (3812148)	CNDDB, May 2017 (EO 53)	24-May-2011	8000 PLANTS OBSERVED IN 2011. MITIGATION LAND MANAGED BY THE CENTER FOR NATURAL LANDS MANAGEMENT.		PVT	100
51	LAGUNA DE SANTA ROSA, NE OF GRATON AT END OF PINER ROAD.	Sonoma	Sebastopol 1 (3812247)	CNDDB, May 2017 (EO 54)	4-Jul-1966	ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE TWO 1966 COLLECTIONS BY RUBTZOFF. NEEDS FIELDWORK.	2012 AERIAL PHOTOGRAPHY SHOWS AGRICULTURE AND DEVELOPMENT IN VICINITY.	Unknown	60
51	Laguna de Santa Rosa NE of Graton, at end of Piner Road	Sonoma	Sebastopol 1 (3812247)	CCH, Jan 2017 (CAS540143)	4-Jul-1966				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
52	3.5 MILES N OF LOWER LAKE.	Lake	Lower Lake (3812285)	CNDDDB, May 2017 (EO 55)	22-Jun-1945	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1945 COLLECTION BY HOWELL. NEEDS FIELDWORK.		Unknown	
52	3.5 miles N of Lower Lake	Lake	Lower Lake (3812285)	CCH, Jan 2017 (CAS327770)	22-Jun-1945				
53	JUST INSIDE FIRST GATE TO THE DEAN RANCH, SUTTER BUTTES.	Sutter	Sutter (3912126)	CNDDDB, May 2017 (EO 56)	20-Jun-1982	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1982 COLLECTION BY AHART, PLANTS NOTED AS COMMON. NEEDS FIELDWORK.		Unknown	115
53	Just inside first gate to the Dean Ranch, Sutter Buttes	Sutter	Sutter Buttes (3912127)	CCH, Jan 2017 (CAS669753)	20-Jun-1982				115
54	S SIDE OF STANDARD ROAD, 0.2 MILE W OF MILLS ORCHARDS ROAD, NW OF WILLIAMS.	Colusa	Manor Slough (3912223)	CNDDDB, May 2017 (EO 57)	6-May-1985	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1985 COLLECTION BY MCCARTEN. NEEDS FIELDWORK.	BASED ON 2012 AERIAL PHOTO, THE MAJORITY OF THIS SITE HAS BEEN CONVERTED TO AGRICULTURE	Unknown	160

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
54	S side of Standard Road, 0.2 mile W of Mills Orchards Road NW of Williams	Colusa	Manor Slough (3912223)	CCH, Jan 2017 (CAS750615)	6-May-1985				
55	W OF COYOTE DAM AT LAKE MENDOCINO, S OF THE FISH HATCHERY.	Mendocino	Ukiah (3912322)	CNDDDB, May 2017 (EO 58)	24-Jun-2010	APPROXIMATELY 800 PLANTS OBSERVED IN 2010.	NON-NATIVE WEEDS ARE ABUNDANT IN ADJACENT GRASSLAND.	US Army Corps of Engineers	620
56	SW SIDE OF OLCOTT LAKE, JEPSON PRAIRIE.	Solano	Dozier (3812137)	CNDDDB, May 2017 (EO 59)	4-May-1985	MAIN SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1985 DAY COLLECTION. A 1978 CRAMPTON COLLECTION FROM "OLCOTT LAKE, LAKE BED SURFACE, NE CORNER OF SECTION 23" IS ALSO ATTRIBUTED TO THIS OCCURRENCE. NEEDS FIELDWORK.		Solano Land Trust	20
56	Solano County: Olcott Lake T5N R1E Sect. 23 very NE corner lake bed surface	Solano	Dozier (3812137)	CCH, Jan 2017 (UCD48319)	14-Jul-1978			Jepson Prairie Preserve	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
56	Jepson Prairie, SW side of Olcott Lake	Solano	Dozier (3812137)	CCH, Jan 2017 (CAS1089909)	4-May-1985			Jepson Prairie Preserve	
57	NW OF JELLY'S FERRY ROAD APPROXIMATELY 1.5 MILES SW OF SACRAMENTO RIVER.	Tehama	Bend (4012232)	CNDDDB, May 2017 (EO 60)	1-Apr-1979	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1979 COLLECTION BY HOLLAND. NEEDS FIELDWORK.		Unknown	375
57	NW of Jelly's Ferry Road ca 1.5 miles SW of Sacramento River	Tehama	Bend (4012232)	CCH, Jan 2017 (CAS855382)	30-Apr-1979				
58	S OF SPRING BRANCH ROAD, S OF BATTLE CREEK, APPROXIMATELY 15 AIR MILES NNE OF RED BLUFF.	Tehama	Balls Ferry (4012242)	CNDDDB, May 2017 (EO 61)	15-May-1993	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1993 COLLECTION BY ERTTER. NEEDS FIELDWORK.		BLM	600
58	BLM land; S of road; Spring Branch Road S of Battle Creek ca 15 air miles NNE of Red Bluff	Tehama	Balls Ferry (4012242)	CCH, Jan 2017 (UC1950115)	15-May-1993			BLM	600

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
59	Round Valley	Mendocino	Covelo East (3912372)	CCH, Jan 2017 (DS267973)	2-Jun-1938				1391
60	Lake Mendocino, within USCOE area	Mendocino	Ukiah (3912322)	Calflora, May 2017 (ce550)	1-Feb-2011	1+ individuals		Lake Mendocino	741
61	Lake County, 9.4 miles NE of Middletown, 7.4 miles SSE of Lower Lake, Steinhart Lake above Spruce Grove Road	Lake	Middleto wn (3812275)	CCH, Jan 2017 (UCD37271)	19-Aug-1958				
61	Stienhart Lake, 6 miles SE of Lower Lake	Lake	Middleto wn (3812275)	CCH, Jan 2017 (UCD48315)	26-Jun-1966				
62	Trinity Summit	Trinity	Trinity Mtn. (4112314)	CCH, Jan 2017 (UC60874)	30-Jun-1901			Six Rivers NF	
62	Trinity Summit	Trinity	Trinity Mtn. (4112314)	CCH, Jan 2017 (POM73740)	30-Jun-1901			Six Rivers NF	

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)	CNDDDB EOs	Non-CNDDDB 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:	48	1	0	-	1	6-Aug-1949	0	1
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	-	-	-	-	-	-	-	0
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	62	0	1	-	1	30-Jun-1901	0	1
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	1	1	0	2	N/A	0	2

Demographic and Population Trends: A limited number of occurrences (12/62; ~19%) have population count and size estimate information. At least six occurrences (6/12; 50%) are estimated to have over 1,000 plants each. A total of four occurrences were documented to have an estimated 10 or fewer individuals. A single element occurrence (EO 10) was reported to have “2,894,656” plants in 2003 (CNDDDB 2017; CCH 2017). It remains unknown how this figure was calculated.

Life History: *Navarretia leucocephala* subsp. *bakeri* is a low growing and often branching herbaceous annual. It blooms from April until July and has a considerable affinity for vernal pool

habitat (CNDDDB 2017, CNPS 2018). Growth is limited during winter months while plants are underwater. Growth continues to maturity as pools reduce in size and begin to dry. The longer bloom period is a function of its growing conditions and the extended periods of water access. This species lacks glandular trichomes, a trait that is found in most *Navarretia* spp. and is considered a mechanism for dealing with herbivory. Its small seeds are typically released after hard rains when seeds expand from the uptake of water and fruit break open. The overall habit and morphology of *N. leucocephala* subsp. *bakeri* is considered a function of its adaptations to vernal pools (Spencer and Rieseberg 1998).

Diversity: *Navarretia* (Polemoniaceae) is a group of roughly 40 annual species that are largely restricted to North America. A limited number of disjunct species are found in Argentina and Chile that are considered to have migrated via long-distance dispersal. Most *Navarretia* spp. occupy open habitats with rocky or clay-rich soil. Three taxa are serpentine endemics. Serpentine endemism has evolved independently within the genus and is not a result of a single radiation. A number of taxa are vernal pool endemics. A phylogenetic analysis based on nrDNA (ITS+5.8S, 638bp) demonstrated that vernal pool species form a monophyletic group, suggesting their recent origin from a single radiation event during the onset of a Mediterranean climate. This same study incorporated morphological data and found intergradation between *N. prostrata* and *N. leucocephala* subsp. *bakeri* (Spencer and Porter 1997).

Navarretia leucocephala is a complex of five subspecies that frequently occur in vernal pool habitats (Spencer and Rieseberg 1998). Vernal pool specialists of the genus *Navarretia* are all members of the monophyletic sect. *Navarretia* (Spencer and Porter 1997). Vernal pool specialists within sect. *Navarretia* all share a recent common ancestor and likely arose during a single radiation event. The vernal pool habitat is considered to have arisen recently in evolutionary time (Stebbins 1976, Raven and Axelrod 1978). *Navarretia leucocephala* subsp. *bakeri* is one such taxon that arose during the radiation of *Navarretia* into these novel habitats. This particular section also contains a single amphitropical disjunct that occurs in ephemeral pools in South America. Amphitropical disjunctions of this nature are considered to have occurred during the late Cenozoic, during the initial development of Mediterranean conditions in the respective regions (Baldwin 2014). The monophyly and vernal pool association of sect. *Navarretia* has yielded fruitful evolutionary insights. Studies on trait associations have demonstrated that vernal pool specialists of this group are generally outcrossers, are less spiny, initially exhibit an *Isoetes*-like growth form, and lack inflorescences that shatter easily (Spencer and Rieseberg 1998).

Reports of hybridization exist among subspecies of *N. leucocephala*. *Navarretia leucocephala* subsp. *bakeri* and *N. leucocephala* subsp. *plieantha* (CRPR 1B.2) are reported to hybridize with *N. leucocephala* subsp. *pauciflora* (CRPR 1B.1) (USFWS 1997). It is noteworthy to mention that vernal pool specialists, like *N. leucocephala* subsp. *bakeri*, evolved from terrestrial plants, and do not share recent common ancestors with aquatic plant lineages (Spencer and Rieseberg 1998).

Habitat: *Navarretia leucocephala* subsp. *bakeri* has a considerable affinity to vernal pool habitat (CNDDDB 2017; CNPS 2018). In addition, this taxon occurs in mesic areas of cismontane woodland, lower montane conifer forest, meadows, seeps, foothill grasslands, and valley

grasslands. Many records indicate that *N. leucocephala* subsp. *bakeri* grows alongside *N. cotulifolia*, *Gratiola ebracteata*, *Juncus bufonius*, *Limnanthes vinculans*, *Pogogyne douglasii*, *Holocarpha virgata*, *Lasthenia burkei*, *Lupinus bicolor*, *Quercus douglasii*, *Downingia concolor*, *Camassia quamash*, *Perideridia kelloggii*, *Eryngium aristulatum*, *Mentha pulegium*, *Crassula aquatica*, *Plagiobothrys leptocladus*, *Phyla nodiflora*, *Psilocarphus brevissimus*, *Eleocharis macrostachya*, *Isoetes howellii*, *Ranunculus lobbii*, *Hemizonia congesta*, *Trifolium grayi*, *Alopecurus saccatus*, *Callitriche marginata*, *Luzula comosa*, *Holcus lanatus*, *Asclepias speciosa*, and *Downingia* spp. (CNDDDB 2017).

Habitat Status or Trend: Ten EO's are either extirpated or possibly extirpated. The 48 remaining EO's in the CNDDDB (2017) are presumed extant and indicate established locations for *Navarretia leucocephala* subsp. *bakeri*. A short term decline of 10-30% of its known occurrences is documented for this taxon based on the status of ten sites being extirpated or possibly extirpated (NatureServe 2018).

Capacity for the Species to Disperse: *Navarretia leucocephala* subsp. *bakeri* produces indehiscent fruit. Seeds are dispersed after heavy rains when seeds absorb water and break open fruit. Unlike many *Navarretia* taxa, *N. leucocephala* subsp. *bakeri* produces an inflorescence that does not shatter at maturity. These traits are conducive to local dispersal (Spencer and Rieseberg 1998).

Threats: Development, grazing, trampling by cattle, agriculture, dumping, and recreation are documented threats to *Navarretia leucocephala* subsp. *bakeri* (CNDDDB 2017, NatureServe 2018). Non-native plant species are also a potential threat (CNPS 2018).

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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. March 12, 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.