

Plant Species Evaluation Form

Phacelia inundata J.T. Howell

PLAYA PHACELIA

Family: Hydrophyllaceae
(CNPS 2018)

PLANTS Symbol: PHIN3
(USDA 2018)

Calif. Endemic: No
(CNPS 2018)

Synonyms/Other Names: The original name for this taxon was *Emmenanthe parviflora* A. Gray. It was later changed to *Miltitzia parviflora* (A. Gray) Brand in 1913. This second name was then changed to its current name *Phacelia inundata* J.T. Howell (blocked by *Phacelia parviflora* Pursh) in 1944 (Tropicos 2018).

Identification Issues: *Phacelia inundata* keys within Group 2 of the *The Jepson Manual, Second Edition*. Group 2 is composed of annuals with slender taproots and leaves that are deeply lobed to compound. Attention to the corolla (deciduous/persistent) is important when the plant is in fruit. *Phacelia inundata* assumes a branching habit and has a yellow corolla (Walden et al. 2017).

Taxonomy:

Unless otherwise cited, the following description is taken directly from the *Jepson eFlora* and is used with permission from the Jepson Herbarium. Jepson Flora Project (eds.) 2018. *Jepson eFlora*, <http://ucjeps.berkeley.edu/eflora/>, accessed January 2018. Copyright © Regents of the University of California.

Species In Genus: +- 210 species: America; some cultivated for ornamental. Etymology: (Greek: cluster, from dense inflorescence). Toxicity: Dermatitis caused by contact with hairs, especially glandular, of *P. campanularia*, *P. crenulata*, *P. ixodes*, *P. minor*, *P. parryi*, *P. pedicellata* (Reynolds et al. 1986 Contact Dermatitis 14:39--44).

Genus Description – Habit: Annual to perennial herb, generally glandular-hairy, taprooted or from +- thick caudex. Leaf: generally cauline, generally alternate, simple to 2-pinnately compound, generally +- reduced upward. Inflorescence: cyme, generally dense, coiled, generally 1-sided; pedicels generally <= 5 mm, generally straight. Flower: sepals generally 5, generally fused at base, generally equal, generally +- alike, generally persistent, enlarging in fruit; corolla generally deciduous, at least some persistent and withering in fruit in some species, rotate to tubular or bell- or funnel-shaped, +- white, blue, purple, pink or yellow, tube and throat not always clearly differentiated, generally glabrous inside, scales of tube base 0 or free from or fused to filament bases, generally white, nectary gland on petal midvein generally 0, each petal with generally 0, sometimes 2--many translucent areas, 2 or 4 of which parallel; stamens generally attached at same level, generally equal, generally exerted, bases generally not wider, with 2 or generally 0 wings, filaments generally white, pollen generally tan; ovary chamber 1, sometimes appearing as 2 due to intrusion of the 2 placentas, placentas parietal, enlarging and meeting in fruit, style 2-lobed, generally hairy proximal to lobes, disk proximal to ovary generally inconspicuous. Fruit: capsule, oblong to spheric, generally rounded at base, generally

beaked. Seed: 1--many (number sometimes due to ovule abortion), oblong to spheric, generally brown; abaxially generally pitted or cross-furrowed.

Species Description – Habit: Annual 10--40 cm. Stem: spreading to erect, branched at base, short-stiff-hairy, glandular. Leaf: 10--30 mm; proximal crowded; blade = or > petiole, oblong to narrowly ovate, deeply lobed to +- compound, segments rounded. Flower: calyx lobes 3--4 mm, 5.5--8 mm in fruit, narrowly oblong, short-hairy; corolla persistent in fruit, 3--5 mm, +- narrowly bell-shaped, yellow, glabrous inside, scales +- 0; stamens 1.5--3 mm, included, glabrous, filaments, pollen yellow; style < 1.5 mm, included, cleft < 1/4, disk proximal to ovary conspicuous. Fruit: 4--7 mm, oblong, puberulent. Seed: 5--30, 1--1.8 mm, cross-striate, striae 12--14. Chromosomes: n=12. eFlora Treatment Author: Genevieve K. Walden, Robert Patterson, Laura M. Garrison & Debra R. Hansen.

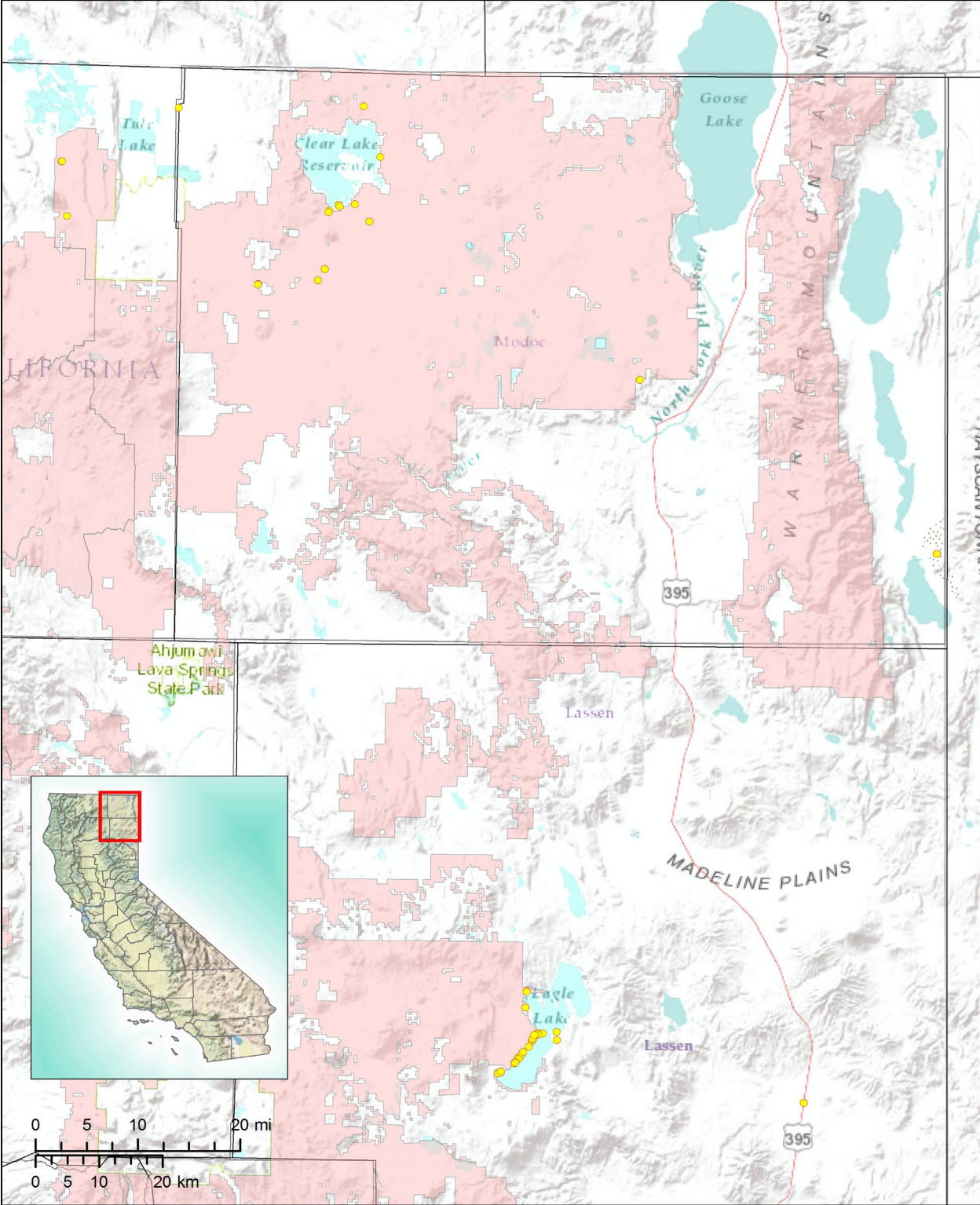
Status:

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	G2	CA: S2 NV: Not listed OR: S2	1B.3	Sensitive	Not listed	Sensitive
SWAP: Not listed	NNHP: Track all extant and selected historical EOs	NNPS: Not listed	ORBIC: 1: Threatened or Endangered Throughout Range	OCS: Not listed	IUCN: 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).

Distribution: Plants are found in the Modoc Plateau bioregion within Oregon, Nevada, and California (NatureServe 2018; Walden et al. 2017; USDA 2018). Plants within California are restricted to the northeast within Lassen, Modoc, and Siskiyou counties. A majority of California occurrences are associated with Clear Lake Reservoir (Modoc NF) and Eagle Lake (Lassen NF) (CNDDDB 2017; CCH 2017; NRIS 2017; Calflora 2017).



Sources: *Distribution:* Calflora 2017, CCH 2017, CNDDDB 2017, NRIS 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:

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 (CNDDDB) definition of Element Occurrences in California). Official Element Occurrence (EO) numbers for plants in California are determined solely by the CNDDDB and are included within the Reference (Source) column for CNDDDB 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	US HIGHWAY 395 S OF DEEP CREEK CROSSING, ABOUT 11.3 MILES N OF LITCHFIELD.	Lassen	Karlo (4012053)	CNDDDB, May 2017 (EO 1)	11-Jun-1980	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1980 COLLECTION BY HECKARD. NEEDS FIELDWORK.		California State Lands Commission	4430
1	along US 395 S Deep Creek crossing (11.3 mi n of Litchfield)	Lassen	Petes Valley (4012054)	CCH, Jan 2017 (JEPS7914 2)	11-Jun-1980			BLM	4800
1	U.S. Hwy 395 6.0 km N of railroad crossing and 20.1 km N of Litchfield	Lassen	Shaffer Mtn. (4012043)	CCH, Jan 2017 (CAS8890 55)	13-May-1993				4364
2	E SIDE OF EAGLE LAKE ABOUT 1 AIR MILE NNE OF EAGLE LAKE FIELD STATION.	Lassen	Troxel Point (4012066)	CNDDDB, May 2017 (EO 2)	18-Jun-2001	100+ PLANTS OBSERVED IN 1983. 1000 PLANTS OBSERVED IN S COLONY IN 1998. ~100 PLANTS OBSERVED IN N COLONY IN 2001.	GRAZING AND TRAMPLING.	BLM-SUSANVILLE RA	5100

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
2	E shore of Eagle Lake near Chico Biol. Station., T32N R11 E sec15	Lassen	Troxel Point (4012066)	Calflora, May 2017 (xr87714)	13-Jul-1983	1+ individuals		BLM	5144
3	W SHORE OF EAGLE LAKE FROM PELICAN POINT TO ABOUT 2.5 AIR MILES SW OF PELICAN POINT.	Lassen	Pikes Point (4012057)	CNDDDB, May 2017 (EO 3)	11-Aug-2005	40,000 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #8 & 9 IN 2005. TWO 1946 COLLECTIONS BY KIMSEY AND HOLT FROM PELICAN POINT ARE ALSO ATTRIBUTED TO THIS OCCURRENCE.	CATTLE GRAZING, SOME BULL THISTLE.	Lassen NF	5100
3	Pelican Point, Eagle Lake	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (CHSC5264)	10-Jun-1946			Lassen NF	5108
3	Lassen NF	Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-PHIN3-001R)	11-Aug-2005	individuals		Lassen NF	
3	Lassen NF	Lassen	Troxel Point (4012066)	NRIS, Feb 2017 (050658-PHIN3-001Q)	11-Aug-2005	individuals		Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
3	Lassen NF	Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-PHIN3-001P)	11-Aug-2005	individuals		Lassen NF	
3	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001M)	11-Aug-2005	individuals		Lassen NF	
3	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001J)	11-Aug-2005	individuals		Lassen NF	
3	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001K)	11-Aug-2005	individuals		Lassen NF	
3	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001L)	11-Aug-2005	individuals		Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
4	NW SHORE OF EAGLE LAKE BY SPALDINGS.	Lassen	Spalding Tract (4012067)	CNDDDB, May 2017 (EO 4)	5-Sep-1947	MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1947 COLLECTION BY GRANT. A 1934 HOWELL COLLECTION AND A 1946 CONSTANCE COLLECTION ALSO ATTRIBUTED TO THIS SITE. NEEDS FIELDWORK.		Lassen NF, PVT	5200
4	Spauldings Eagle Lake (W edge of lake)	Lassen	Troxel Point (4012066)	CCH, Jan 2017 (UC735052)	3-Jul-1946			Lassen NF	5600
4	W edge of Eagle Lake at Spaldings	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (GH402978)	3-Jul-1946			Lassen NF	
4	NW shore of lake by Sam Webb's place (Spaldings); Eagle Lake	Lassen	Troxel Point (4012066)	CCH, Jan 2017 (UC764434)	5-Sep-1947			Lassen NF	
4	NW shore Eagle Lake	Lassen	Troxel Point (4012066)	CCH, Jan 2017 (UC932054)	5-Sep-1947			Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
4	NW shore of Eagle Lake	Lassen	Troxel Point (4012066)	CCH, Jan 2017 (RSA83225)	5-Sep-1947			Lassen NF	
4	Spaldings Resort; Eagle Lake	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (RSA112694)	8-Jul-1934			Lassen NF	
4	Spaldings Resort; Eagle Lake	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (POM266183)	8-Jul-1934			Lassen NF	
4	Spalding's, Eagle Lake	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (CAS312412)	8-Jul-1934			Lassen NF	
4	Spaldings resort, Eagle Lake	Lassen	Spalding Tract (4012067)	CCH, Jan 2017 (DS298739)	8-Jul-1934			Lassen NF	
5	NW SIDE OF DRY LAKE, W OF PEREZ.	Modoc	Perez (4112163)	CNDDDB, May 2017 (EO 5)	9-Aug-1987	1000+ PLANTS OBSERVED IN 1987.		Modoc NF	4400
5	Dry Lake.	Modoc	Perez (4112163)	CCH, Jan 2017 (CAS781509)	9-Aug-1987			Modoc NF	4400

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
5	Dry Lake	Modoc	Perez (4112163)	CCH, Jan 2017 (JEPS91086)	9-Aug-1987			Modoc NF	4400
5	Dry Lake; T44N R6E S5	Modoc	Perez (4112163)	CCH, Jan 2017 (RSA502328)	9-Aug-1987			Modoc NF	4400
5	Dry Lake,	Modoc	Perez (4112163)	Calflora, May 2017 (gr7528)	9-Aug-1987	1+ individuals		Modoc NF	4144
5	Modoc NF	Modoc	Perez (4112163)	NRIS, Dec 2016 (050900E_PHIN3002_56)	9-Aug-1987	1000 individuals		Modoc NF	
6	SW SHORE OF CLEAR LAKE RESERVOIR, ABOUT 3 MILES NNE OF DOUBLE HEAD MOUNTAIN.	Modoc	Double Head Mtn. (4112172)	CNDDDB, May 2017 (EO 6)	11-Aug-1988	100+ PLANTS OBSERVED IN 1988.	AREA WAS HEAVILY GRAZED.	Modoc NF	4450
6	SW end Clear Lake	Modoc	Double Head Mtn. (4112172)	CCH, Jan 2017 (UC914300)	27-Aug-1947			Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
6	SW shore Clera Lake Reservoir.	Modoc	Double Head Mtn. (4112172)	CCH, Jan 2017 (CAS781544)	11-Aug-1988			Modoc NF	4469
6	Clear Lake Reservoir, S shore	Modoc	Double Head Mtn. (4112172)	CCH, Jan 2017 (JEPS101585)	11-Aug-1988			Modoc NF	4469
6	Clear Lake Reservoir, S shore	Modoc	Double Head Mtn. (4112172)	Calflora, May 2017 (xr169280)	11-Aug-1988	1+ individuals		Clear Lake NWR	4488
6	Clear Lake NWR	Modoc	Double Head Mtn. (4112172)	NRIS, Dec 2016 (050900E_PHIN3001_FWS)	11-Aug-1988	100 individuals		Modoc NF	
7	E SIDE OF EAGLE LAKE, NEAR EAGLE LAKE FIELD STATION.	Lassen	Gallatin Peak (4012056)	CNDDB, May 2017 (EO 7)	15-Jun-1986	PLANTS WERE COMMON ON ALKALINE FLAT IN 1986. ALSO SEEN HERE IN 1974 AND 1978 ACCORDING TO A 1978 OBSERVATION BY SCHLISING. NEEDS FIELDWORK.	AREA HEAVILY GRAZED AND TRAMPLED.	BLM	5200
7	Near Eagle Lake Biological Station	Lassen	Gallatin Peak (4012056)	CCH, Jan 2017 (CHSC48470)	15-Jun-1986			Eagle Lake Field Station	5200

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
8	W SHORE OF EAGLE LAKE, ABOUT 1.3 AIR MILES NE OF WILDCAT POINT.	Lassen	Pikes Point (4012057)	CNDDB, May 2017 (EO 8)	11-Aug-2005	40,000 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #3 & 9 IN 2005.	CATTLE GRAZING, SOME BULL THISTLE.	Lassen NF	5100
8	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001E)	11-Aug-2005	individuals		Lassen NF	
8	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001F)	11-Aug-2005	individuals		Lassen NF	
8	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001D)	11-Aug-2005	individuals		Lassen NF	
9	W SHORE OF EAGLE LAKE, ABOUT 0.7 AIR MILE NE OF WILDCAT POINT.	Lassen	Pikes Point (4012057)	CNDDB, May 2017 (EO 9)	11-Aug-2005	40,000 PLANTS OBSERVED BETWEEN THIS OCCURRENCE AND OCCURRENCE #3 & 8 IN 2005.	CATTLE GRAZING, SOME BULL THISTLE.	Lassen NF	5100

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
9	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001C)	11-Aug-2005	individuals		Lassen NF	
9	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001A)	11-Aug-2005	individuals		Lassen NF	
9	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001B)	11-Aug-2005	individuals		Lassen NF	
10	W SHORE OF EAGLE LAKE, FROM 0.5 TO 0.8 AIR MI E OF EAGLE LAKE RESORT.	Lassen	Pikes Point (4012057)	CNDDb, May 2017 (EO 10)	9-Aug-2005	59 PLANTS OBSERVED IN 2005.	GRAZING IN AREA, LOTS OF BULL THISTLE PRESENT.	Lassen NF	5100
10	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-002B)	9-Aug-2005	individuals		Lassen NF	
10	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-002A)	9-Aug-2005	individuals		Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
10	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-002C)	9-Aug-2005	individuals		Lassen NF	
11	NW SHORE OF EAGLE LAKE AT SPRING HIGH WATER MARK ON SANDY BEACH, ABOUT 1.3 AIR MI S OF LOWER SIGNAL BUTTE.	Lassen	Spalding Tract (4012067)	CNDDDB, May 2017 (EO 11)	9-Sep-2005	ONE PLANT OBSERVED IN 2005.	CATTLE GRAZING AND SCATTERED OHV TRACKS PRESENT.	Lassen NF	5100
11		Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-PHIN3-003)	9-Sep-2005	individuals		Lassen NF	
12	SURPRISE VALLEY, ABOUT 5 MILES E OF EAGLEVILLE, JUST W OF THE NEVADA BORDER.	Modoc	Eagleville (4112031)	CNDDDB, May 2017 (EO 12)	13-May-1995	ONLY SOURCES OF INFORMATION FOR THIS OCCURRENCE ARE THREE COLLECTIONS BY BARTHOLOMEW FROM 1991, 1993, AND 1995. NEEDS FIELDWORK.		BLM	4800

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
12	Surprise Valley, E of Eagleville at the Nevada State boundary.	Modoc	Hays Canyon (4111938)	CCH, Jan 2017 (CAS846972)	24-May-1991			BLM	4987
12	At the Nevada border directly E of Eagleville, E side of Surprise Valley.	Modoc	Duck Lake (4111918)	CCH, Jan 2017 (CAS889511)	10-May-1993			BLM	4987
12	At the Nevada border directly E of Eagleville, east side of Surprise Valley	Modoc	Hays Canyon (4111938)	CCH, Jan 2017 (NY1055163)	10-May-1993			BLM	4987
12	At the Nevada border directly E of Eagleville, E side of Surprise Valley. 41° 19' 0" N, 120° 0' 0" W	Modoc	Eagleville (4112031)	CCH, Jan 2017 (GH402977)	10-May-1993			BLM	4987
12	4.8 km W of Eagleville, E side of the S end of Surprise Valley.	Modoc	Eagleville (4112031)	CCH, Jan 2017 (CAS793660)	13-May-1995			BLM	4856
12	4.8 km W of Eagleville, E side of the S end of Surprise Valley	Modoc	Eagleville (4112031)	CCH, Jan 2017 (NY1055162)	13-May-1995			BLM	4856

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
13	RADAR SURVEY SITE, ABOUT 3.5 AIR MILES S OF DOUBLE HEAD MOUNTAIN.	Modoc	Rimrock Lake (4112162)	CNDDDB, May 2017 (EO 13)	13-May-1987	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1987 COLLECTION BY JOKERST. NEEDS FIELDWORK.		Modoc NF	4440
13	Radar Survey Site S of Doublehead Mtn., S of Clear Lake Reservoir, dry lake W and adjacent to N end of central sector	Modoc	Rimrock Lake (4112162)	CCH, Jan 2017 (CHSC671 14)	13-May-1987			Modoc NF	4439
14	RADAR SURVEY SITE, ABOUT 1 AIR MILE SE OF RIMROCK LAKE.	Modoc	Rimrock Lake (4112162)	CNDDDB, May 2017 (EO 14)	12-May-1987	ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1987 COLLECTION BY JOKERST. NEEDS FIELDWORK.		Modoc NF	4400
14	Radar Survey Site S of Doublehead Mtn., N end of central sector, NE of road	Modoc	Rimrock Lake (4112162)	CCH, Jan 2017 (CHSC671 13)	12-May-1987			Modoc NF	
15	SW SIDE OF SEASONAL RESERVOIR, ABOUT 1 AIR MILE SSW OF THE SW EDGE OF RED LAKE.	Modoc	Pinnacle Lake (4112171)	CNDDDB, May 2017 (EO 15)	20-Aug-2003	~2,000 PLANTS OBSERVED IN 2003.	CATTLE GRAZING.	Modoc NF	4540

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
15	Modoc NF	Modoc	Pinnacle Lake (4112171)	NRIS, Dec 2016 (050900E_PHIN3003_56)	20-Aug-2003	2000 individuals		Modoc NF	
16	S OF LOWER KLAMATH LAKE, 0.5 AIR MILE NNW OF LAIRD LAKE, 0.25 AIR MILE W OF USFS ROAD 47N17.	Siskiyou	Mount Dome (4112176)	CNDDDB, May 2017 (EO 16)	30-Aug-2005	UNSURE OF ID; UNKNOWN NUMBER OF PLANTS OBSERVED IN 2005. ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2009 SHAPEFILE SUBMITTED BY MODOC NF.		Modoc NF	4400
16	Marlin to Canby several mi N of Quarantine Station.	Modoc	Tulelake (4112184)	CCH, Jan 2017 (CAS312414)	14-Jun-1936			Modoc NF	
16	mdf-phin3-004;	Siskiyou	Mount Dome (4112176)	NRIS, Dec 2016 (050900E_PHIN3004_56)	6-Jun-2006	individuals		Modoc NF	
16	mdf-phin3-008;	Siskiyou	Mount Dome (4112176)	NRIS, Dec 2016 (050900E_PHIN3008_56)	26-Jun-2012	1000 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
17	mdf-phin3-009;	Modoc	Sagebrush Butte (4112181)	NRIS, Dec 2016 (050900E_PHIN3009_56)	11-Sep-2012	35 individuals		Modoc NF	
18	E side of Clear Lake.	Modoc	Pinnacle Lake (4112171)	CCH, Jan 2017 (CAS312413)	2-Jul-1934				
19	MDF-PHIN3-005;	Modoc	Double Head Mtn. (4112172)	NRIS, Dec 2016 (050900E_PHIN3005_56)	21-May-2009	1000 individuals		Modoc NF	
19	MDF-PHIN3-005; Doublehead Mountain, CA T 46 N, R 7 E, Sec. 27, 28	Modoc	Double Head Mtn. (4112172)	NRIS, Dec 2016 (050900E_PHIN3005_56)	3-Jun-2010	200 individuals	Cattle trampling, OHV tracks.	Modoc NF	
20	MDF-PHIN3-006; VP 426 AES pool	Modoc	Pinnacle Lake (4112171)	NRIS, Dec 2016 (050900E_PHIN3006_56)	2-Jun-2009	individuals	cattle.	Modoc NF	
21	Modoc NF From 2007 MDF	Modoc	Mahogany Ridge (4112055)	Calflora, May 2017 (ce913)	17-Mar-2014	1+ individuals		BLM	4662

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
22	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001I)	11-Aug-2005	individuals		Lassen NF	
23	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001G)	11-Aug-2005	individuals		Lassen NF	
23	Lassen NF	Lassen	Pikes Point (4012057)	NRIS, Feb 2017 (050658-PHIN3-001H)	11-Aug-2005	individuals		Lassen NF	
24	Lassen NF	Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-PHIN3-001O)	11-Aug-2005	individuals		Lassen NF	
25	Lassen NF	Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-PHIN3-001N)	11-Aug-2005	individuals		Lassen 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:	3, 4, 8, 9, 10, 11, 22, 23, 24, 25	6	4	9	1	9-Sep-2005	1	10
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	-	-	-	-	-	-	-	0
Modoc:	5, 6, 13, 14, 15, 16, 17, 19, 20	6	3	5	5	11-Sep-2012	2	9
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	-	-	-	-	-	-	-	0
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	12	7	14	6	N/A	3	19

Demographic and Population Trends: Just under half (11/25; 44%) of all occurrences have population count and size estimate information. Occurrence observations range in size from 1(+) to over 13,000 plants, with a median value of 1,000 plants. Three occurrences (EO 3, EO 8, and EO 9) were documented to have a combined total of 40,000 plants. Five of 11 (5/11; 45%) element occurrences were observed to have 100 plants or fewer. Over half (13/24; 54%) of all CNDDDB element occurrences are in Unknown (U) condition. Three element occurrences are

ranked in Excellent (A) condition, six in Good (B), and two are ranked in Fair (C) condition (CNDDDB 2017).

Life History: *Phacelia inundata* is an annual flowering plant that blooms from May through August and sometimes into September (CNPS 2018). *Phacelia inundata* has stems that are branched at the base with a sprawling to erect habit. Flowers are distributed on a helicoid cyme, with flowers loosely coiled along one side of the inflorescence. *Phacelia inundata* has a modest vestiture. A closely related species, *P. inyoensis*, with comparable epidermal features, is known to trap sand on its surface. This phenomenon is termed “psammophory” and is demonstrated to reduce damage imposed by mammalian herbivores (LoPresti and Karban 2016). A sister species within the same taxonomic section, *P. submutica* (sect. *Miltitzia*), occurs in similar habitat of alkaline substrate and produces seeds that disperse into cracks within dehydrated soils (Walden and Patterson 2012, USFWS 2017). These soils swell upon hydration, enclosing seeds which then remain covered until germination (USFWS 2017).

Diversity: *Phacelia* Juss. (Hydrophyllaceae) contains approximately 200 species distributed among North and South America. California is home to 93 taxa, 39 of which are endemic to the region (Gilbert et al. 2005). There are three subgenera (*Pulchellae*, *Microgenetes*, and *Phacelia*) within the genus *Phacelia* Juss. *Phacelia inundata* falls within *Phacelia* sect. *Miltitzia* of *Phacelia* subg. *Microgenetes* (Walden and Patterson 2012). *Phacelia* sect. *Miltitzia* is not monophyletic. *Phacelia* sect. *Miltitzia* and *Phacelia* sect. *Euglypta* form a monophyletic unit of taxa that occupy the Mojave Desert and Great Basin regions (Gilbert et al. 2005, Walden et al. 2014). Taxa in these respective subsections all have transversely corrugated seeds. This synapomorphy uniting both subsections had been identified by J.T. Howell in 1946, long before molecular phylogenetics demonstrated their recent common ancestry (Gilbert et al. 2005).

The onset of a seasonally dry, Mediterranean climate during the late Tertiary imposed a substantial adaptive force for many taxa. This evolutionary impetus is considered to have stimulated the radiation of *Phacelia* Juss. during this time (Raven and Axelrod 1978). The genus *Phacelia* Juss. represents a taxonomically vibrant group of plants with an assortment of distinct clades representing various life forms, habits, and adaptations (LoPresti and Karban 2016, Gilbert et al. 2005, Walden et al. 2014, Walden et al. 2017).

Habitat: *Phacelia inundata* is known to occur in alkaline flats and dry lake beds (Walden et al. 2017), i.e. seasonal wetlands. It is also known to occur in alkaline soils among Great Basin scrub, lower montane conifer forest, and playas (CNPS 2018). Records indicate that in California, *P. inundata* occurs alongside *Chrysothamnus nauseosus*, *Muhlenbergia asperifolia*, *Hordeum jubatum*, *Heliotropium* sp., *Distichlis spicata*, *Erythranthe guttata*, *Urtica dioica*, *Scirpus acutus*, *Epilobium brachycarpum*, *Cirsium vulgare*, *Erigeron* sp., *Amaranthus californicus*, *Elymus elymoides*, *Chenopodium* sp., and *Camissonia andina* (CNDDDB 2017).

Habitat Status or Trend: *Phacelia inundata* is considered imperiled (S2) in the state of Oregon (ORBIC 2016). Three EO’s from 2005 within Lassen NF have a combined occurrence of roughly 40,000 individuals. A single EO from 2003, in Modoc NF, had 2,000 plants. A substantial number of EO’s indicate that sites have been grazed or heavily grazed. Both long

term and short term trends are undetermined given the limited detail provided by the few documented occurrences. The earliest EO's date to 1947. Sparse and periodic information is reported up until the most recent EO in 2005, marking a 12-year reporting gap to date (CNDDDB 2017). Field work is needed.

Capacity for the Species to Disperse: Definitive information on the dispersal capacity of *Phacelia inundata* is unknown. Bird dispersal is unlikely among *Phacelia* spp., as the seeds are not known to be an avian food source (Gilbert et al. 2005). Field biologists report that it is well disperse along the shoreline of Eagle Lake in Lassen County (Sanger et al. pers. comm. 2017).

Threats: *Phacelia inundata* is possibly threatened by non-native plants (CNPS 2018). Cattle grazing, trampling, and off road vehicle use are other documented threats to *P. inundata* (CNDDDB 2017, CNPS 2018, NatureServe 2018). Diversion of surface water or over pumping of the shallow groundwater may indirectly reduce suitable habitat for similar hydrophytes (Magney, D. pers. comm. 2018).

Literature Cited

[BLM] Bureau of Land Management. 2010. Special Status Plants in California, Including BLM Designated Sensitive Species. February 8, 2010. Available at: <https://www.blm.gov/ca/dir/pdfs/2010/im/CAIM2010-008ATT2B.pdf> [accessed 25 May 2017].

Calflora. 2017. Information on wild California plants for conservation, education, and appreciation. Website <http://www.calflora.org/> [accessed 14 June 2017].

[CDFG] California Department of Fish and Game. 2013. 24K Quads, SDE Feature Class. Index for 1:24,000-scale (24K), 7.5-minute by 7.5-minute, paper U.S. Geological Survey maps in California.

[CDFW] California Department of Fish and Wildlife. 2015. California State Wildlife Action Plan, 2015 Update: A Conservation Legacy for Californians; Volume II, Appendix C: Species of Greatest Conservation Need. Gonzales, A. G. and J. Hoshi (eds.). Prepared with assistance from Ascent Environmental, Inc., Sacramento, CA. Available at: <https://www.wildlife.ca.gov/swap/final> [accessed 11 May 2017].

[CNDDDB] California Department of Fish and Wildlife, Natural Diversity Database. 2017. RareFind 5 [Internet application] and CNDDDB Maps and Data. Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data> [Government Version, May 2017].

[CDFW] California Department of Fish and Wildlife, Natural Diversity Database. 2018a. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication, January 2018. 127 pp. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383> [accessed 22 January 2018].

_____. 2018b. State and Federally Listed Endangered, Threatened, and Rare Plants of California. Last updated January 2018. 6 pp. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline> [accessed 22 January 2018].

[CDF] California Department of Forestry and Fire Protection. 2009. 1:24,000 County Boundaries (cnty24k09_1_poly) [shapefile]. California Department of Forestry and Fire Protection, California Department of Fish and Game. Berkeley Library Geodata. Available at: <https://geodata.lib.berkeley.edu/catalog/ark28722-s73w23> [10 December 2017].

[CNPS] California Native Plant Society, Rare Plant Program. 2018. *Inventory of Rare and Endangered Plants of California* (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 22 January 2018].

[CPAD] California Protected Areas Database. 2016. Version 2016b1. GreenInfo Network. Available at: <http://www.calands.org/>.

[CCH] Consortium of California Herbaria. 2017. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Website <http://ucjeps.berkeley.edu/consortium/> [accessed 16 May 2017].

Esri. 2012. World Reference Overlay [basemap overlay]. Scale Range: 1:591,657,528 down to 1:72,224. Esri, DeLorme, USGS, NPS. Updated 2 September 2017. Available at: <http://www.arcgis.com/home/item.html?id=9763d83ba63048da8a2e0a71ccea4416> [8 December 2017].

_____. 2017a. USA Topo Maps [basemap]. Scale Range: 1:591,657,528 down to 1:18,056. National Geographic Society, i-cubed, 2013. Updated 5 October 2017. Available at: <http://www.arcgis.com/home/item.html?id=99cd5fbd98934028802b4f797c4b1732> [8 December 2017].

_____. 2017b. World Terrain Base [basemap]. Scale Range: 1:591,657,528 down to 1:72,224. Esri, USGS, NOAA. Updated 9 February 2017. Available at: <http://www.arcgis.com/home/item.html?id=c61ad8ab017d49e1a82f580ee1298931> [8 December 2017].

Gilbert, C., J. Dempcy, and C. Ganong. 2005. Phylogenetic relationships within *Phacelia* subgenus *Phacelia* (Hydrophyllaceae) inferred from nuclear rDNA ITS sequence data. *Systematic Botany* 30: 627-634.

[IUCN] International Union for Conservation of Nature. 2017. The IUCN Red List of Threatened Species. Website <http://www.iucnredlist.org/> [accessed 26 May 2017].

LoPresti, E. F. and R. Karban. 2016. Chewing sandpaper: Grit, plant apparency, and plant defense in sand-entrapping plants. *Ecology* 97(4): 826-833.

NatureServe. 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Website <http://explorer.natureserve.org> [accessed 22 January 2018].

[NDF] Nevada Division of Forestry. 2012. NAC 527.010 List of fully protected species of native flora. April 2012. Available at: <https://www.leg.state.nv.us/NAC/NAC-527.html#NAC527Sec010> [accessed 12 May 2017].

[NNHP] Nevada Natural Heritage Program. 2017. Species Lists. Department of Conservation and Natural Resources. Available at: <http://heritage.nv.gov/species/lists.php> [accessed 25 May 2017].

[ODA] Oregon Department of Agriculture. 2014. Oregon listed and candidate plants - complete list. Native Plant Conservation Program. August 13, 2014. Available at: <https://data.oregon.gov/Natural-Resources/Oregon-listed-and-candidate-plants-complete-list/8s3k-ygh2> [accessed 25 May 2017].

[ODFW] Oregon Department of Fish and Wildlife. 2016. Oregon Conservation Strategy, Chapter 6: Strategy Species. Oregon Department of Fish and Wildlife, Salem, Oregon. PDF content last updated December 30, 2016. Available at: <http://oregonconservationstrategy.org/> [accessed 25 May 2017].

[ORBIC] Oregon Biodiversity Information Center. 2016. Rare, Threatened and Endangered Species of Oregon. Institute for Natural Resources, Portland State University, Portland, OR. 130 pp. Available at: <http://inr.oregonstate.edu/sites/inr.oregonstate.edu/files/2016-rte-book.pdf> [accessed 25 May 2017].

Tropicos. 2018. Missouri Botanical Garden. Website <http://www.tropicos.org> [accessed 22 January 2018].

[NRIS] U.S. Department of Agriculture Forest Service, Natural Resource Information System. 2017. Natural Resource Information System; Threatened, Endangered and Sensitive Plants—Invasive Plants [accessed December 2016 and February 2017].

[USDA] U.S. Department of Agriculture Forest Service, Pacific Southwest Region. 2013. Regional Forester Sensitive Species List. Available at: <http://www.fs.usda.gov/main/r5/plants-animals/plants> [accessed 9 May 2017].

[USDA] U.S. Department of Agriculture Forest Service and U.S. Department of Interior Bureau of Land Management. 2001. List of Survey and Manage Species in Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures; as amended by Annual Species Reviews 2001-2003. Available at: <https://www.blm.gov/or/plans/surveyandmanage/files/sm-fs-enc3-table1-1-dec2003wrtv.pdf> [accessed 12 September 2017].

[USDA] U.S. Department of Agriculture, Natural Resources Conservation Service. 2018. PLANTS Database. Website <http://plants.usda.gov/> [accessed 22 January 2018].

[USFWS] U.S. Fish and Wildlife Service. 2017. Species Profile for Debeque phacelia (*Phacelia submutica*). Retrieved from USFWS webpage at: <https://www.fws.gov>.

Walden, G. K., L. M. Garrison, G. S. Spicer, F. W. Cipriano, and R. Patterson. 2014. Phylogenies and chromosome evolution of *Phacelia* (Boraginaceae: Hydrophylloideae) inferred from nuclear ribosomal and chloroplast sequence data. *Madroño* 61(1): 16-47.

Walden, G. K. and R. Patterson. 2012. Nomenclature of subdivisions within *Phacelia* (Boraginaceae : Hydrophylloideae). *Madroño* 59(4): 211-222.

Walden, G. K., R. Patterson, L. M. Garrison, and D. R. Hansen. 2017. *Phacelia*. In: Jepson Flora Project (eds.), *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/eflora/>.

Persons Contacted:

Magney, D. 2018. Rare Plant Program Manager, California Native Plant Society, Sacramento, CA. Information provided as a reviewer of this document. Personal communication 16 March 2018.

Sanger, A., K. Bovee, D. Lepley, W. Boes, and H. Guenther. 2017. Lassen and Modoc National Forest botanists. Information submitted at Modoc/Lassen FS-SCC and IPA Workshop, Susanville, CA. Personal communication 25-26 July 2017.

Taylor, D. Wm. 2017. Environmental contractor, Aptos, CA. Information submitted at Modoc/Lassen FS-SCC and IPA Workshop, Susanville, CA. Contacted 25-26 July 2017.

Author(s) and Date:

Steven Serkanic, Assistant Rare Plant Botanist, California Native Plant Society, (916) 447-2677 x218, sserkanic@cnps.org;

Aaron E. Sims, Rare Plant Botanist, California Native Plant Society, (916) 324-3816, asims@cnps.org. March 19, 2018.

Reviewer(s) and Date:

David Magney, Rare Plant Program Manager, California Native Plant Society, (916) 447-2677 ext. 205, dmagney@cnps.org. March 16, 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.