Plant Species Evaluation Form

Hemizonia congesta DC. **subsp.** *calyculata* Babc. & H.M. Hall

MENDOCINO TARPLANT

Family: Asteraceae (CNPS 2018) | **PLANTS Symbol:** HECOC5 (USDA 2018) | **Calif. Endemic:** Yes (CNPS 2018)

Synonyms/Other Names: *Hemizonia calyculata* (Babc. & H.M. Hall) D.D. Keck and *Hemizonia congesta* var. *calyculata* (Babc. & H.M. Hall) Jepson (Baldwin and Strother 2006; Baldwin 2012).

Identification Issues: There are six subspecies of *H. congesta*. Some collections of *H. congesta* within herbaria are mislabeled as incorrect subspecies (Baldwin and Strother 2006) – taxon has potential for mis-identification (Lazar pers. comm. 2018; Magnaghi pers. comm. 2018).

Taxonomy:

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

Species In Genus: 1 sp. Etymology: (Greek: 1/2 belt or girdle, fruit 1/2 enfolded by phyllary). Note: Other taxa in TJM (1993) moved to *Centromadia* (spiny-leaved taxa), *Deinandra*.

Species Description – Habit: Annual 5--80 cm, often aromatic. Stem: +- erect. Leaf: basal and cauline, proximal opposite or in rosette, sometimes persistent, most alternate, sessile, 5--18+ cm, 2--8(12) mm wide, narrowly elliptic to linear or lance-linear, minutely serrate or entire, generally puberulent or coarse- to silky-hairy, distal often also stalked-glandular. Inflorescence: heads radiate, 1 or in +- panicle-, raceme-, or spike-like clusters or in tight groups; involucre hemispheric to +- urn-shaped or spheric, 3--8+ mm diam (rarely subtended by calyx-like set of 5--7 bractlets); phyllaries 5--14 in 1 series, linear to lanceolate or oblanceolate, each generally 1/2 enveloping a subtended ray ovary, falling with fruit, 3.5--12 mm, coarse- or soft-hairy, stalked-glandular; receptacle flat to conic, glabrous; paleae fused, forming cells around each disk flower, scarious, +- liquifying. Ray Flower: 5--14; corolla white or yellow, ray 5--12 mm, often purple-veined abaxially. Disk Flower: 5--60+, staminate; corolla 2.5--3.5 mm, white or yellow, tube < throat, lobes deltate; anthers +- dark purple, tips widely ovate to ovate-deltate; style glabrous proximal to branches, tips lanceolate to awl-shaped, densely hairy.; anther bases cordate-sagittate to sagittate. Fruit: ray fruit 2--3.5 mm, nearly round in ×-section (except +- flattened adaxially) or +- 3- angled (abaxially generally +- widely 2-faced, adaxially +- flattened to slightly bulging), glabrous, black, tip sometimes beaked, beak inconspicuous, straight, diam > length, pappus 0; disk fruit 0, pappus 0. Chromosomes: 2n=28. Note: Self-sterile.

Subspecies Description – Leaf: scabrous-puberulent and generally +- coarsely hairy or bristly-ciliate, not glandular or with scattered, minute, sessile or stalked, +- yellow glands. Inflorescence: peduncle bracts scabrous-puberulent and generally +- coarse-hairy or bristly-ciliate, not glandular or with scattered, minute, sessile or stalked, +- yellow glands; involucre 3.5--5 mm; paleae lacking purple lines. Ray Flower: ray 2--3 mm. Disk Flower: anthers yellow or +- brown. Chromosomes: 2n=22. eFlora Treatment Author: Bruce G. Baldwin.

Status:

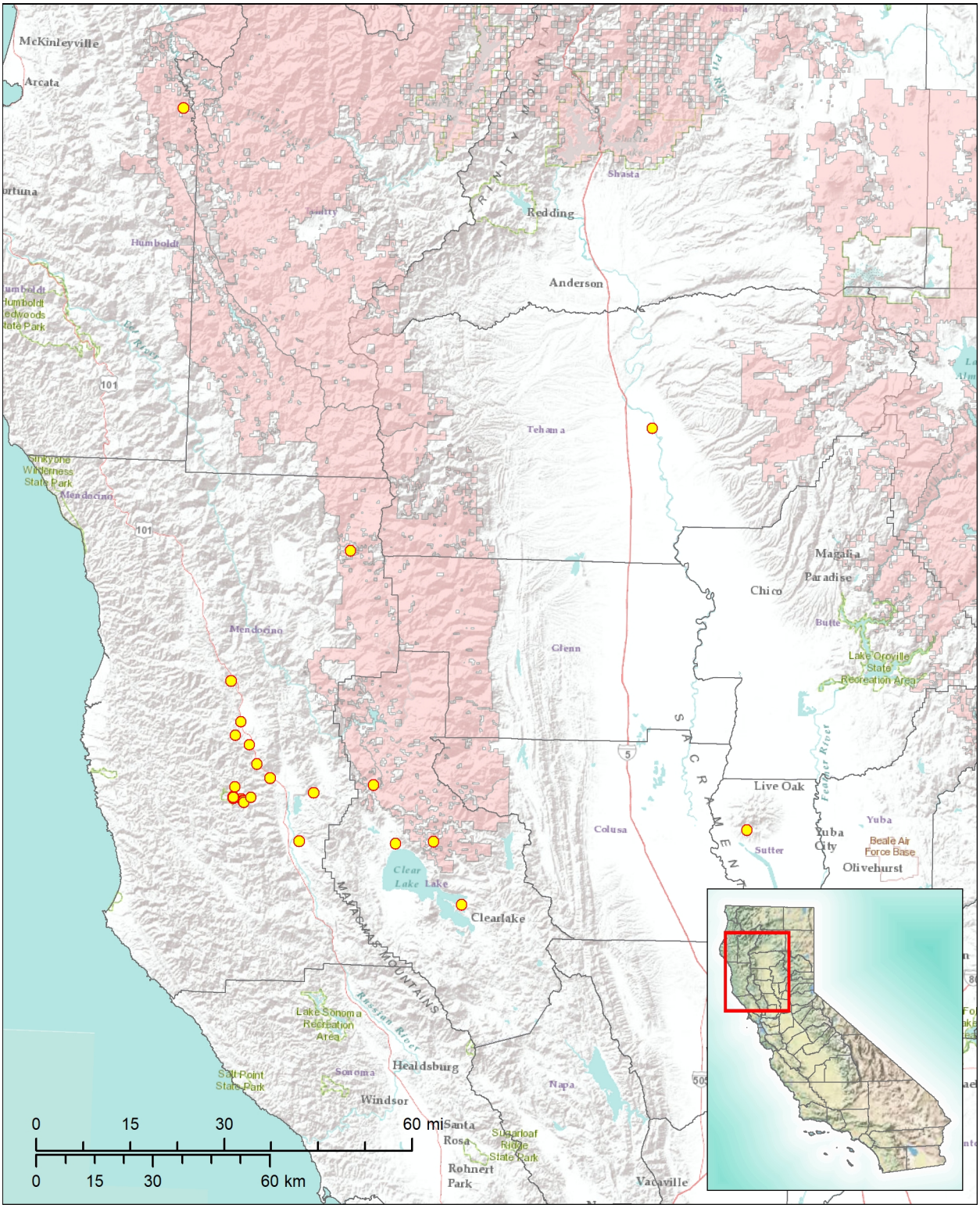
Note: Federally recognized Endangered, Threatened, Proposed, or Candidate species under the Endangered Species Act are omitted as they do not meet the definition of a Species of Conservation Concern (FSH 1909.12 § 12.52).

State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G5T4	CA: S4 NV: Not listed OR: Not listed	4.3	Not listed	Not listed	Not listed

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

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

Distribution: Western United States – endemic to northern California and found within the North Coast Ranges (NCoR) and Sacramento Valley (ScV) bioregions of Lake, Mendocino, Sutter, Tehama, and Trinity counties (Baldwin 2012; Baldwin and Strother 2006; Calflora 2017; CCH 2017). A total of three (3/20; 15%) occurrences are found on NFS lands within Mendocino NF (2/3; ~67%) and Six Rivers NF (1/3; ~33%). One vague and unreliable record was recovered from Shasta-Trinity NF within Shasta County. An additional record from Mendocino County was flagged and removed from primary assessment (CCH 2017).



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

Locations within California:

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

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	Sulphur Bank	Lake	Clearlake Highlands (3812286)	CCH, Jan 2017 (UC133119)	31-Oct-1900				
2	East of Ukiah (and south of hospital)	Mendocino	Ukiah (3912322)	CCH, Jan 2017 (DS671542)	13-Aug-1924				
3	2.1 mi. E. of Upper Lake	Lake	Upper Lake (3912228)	CCH, Jan 2017 (CAS211632)	9-Nov-1933				
3	2.1 mi. E. of Upper Lake	Lake	Upper Lake (3912228)	CCH, Jan 2017 (DS213792)	9-Nov-1933				
3	2.1 mi. E. of Upper Lake	Lake	Upper Lake (3912228)	CCH, Jan 2017 (GH414510)	9-Nov-1933				
3	2.1 mi e of Upper Lake	Lake	Upper Lake (3912228)	CCH, Jan 2017 (UC523525)	9-Nov-1933				
3	3 mi. E. of Upper Lake	Lake	Bartlett Mtn. (3912227)	CCH, Jan 2017 (GH414513)	9-Nov-1933				
4	Below Pinnacle Rock enroute to Sawmill Flat (on foot)	Lake	Bartlett Mtn. (3912227)	CCH, Jan 2017 (CAS489805)	5-Oct-1969			Mendocino NF	4300
5	Sacramento Valley Pass Road on the south side of Sutter Buttes, 6.9 miles west of Sutter	Sutter	Sutter Buttes (3912127)	CCH, Jan 2017 (UCR201780)	6-Oct-2008				276

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
5	Sacramento Valley: Pass Road on the south side of Sutter Buttes, 6.9 miles west of Sutter	Sutter	Sutter Buttes (3912127)	CCH, Jan 2017 (SD236196)	6-Oct-2008				276
5	Sacramento Valley: Pass Road on the south side of Sutter Buttes, 6.9 miles west of Sutter.	Sutter	Sutter Buttes (3912127)	CCH, Jan 2017 (SEINET1908658)	6-Oct-2008				275
6	e Orr's Hot Springs (12 mi by road w of Ukiah); ; E of Orr's Hot Springs, 12 mi. W of Ukiah, Mendocino Co.	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (UC231427)	13-Aug-1924				
6	5 km e of Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (UC406897)	13-Aug-1924				
6	'5 km E of Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (CAS671539)	13-Aug-1924				
6	Collection from the NCORI, along Orr Springs Road	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (CHSC94080)	18-Sep-2005				1500
6	Orrs Spring road, 8.8 miles west of Redwood Highway	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS671540)	3-Oct-1930				
6	5 miles east of Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (GH8952)	13-Aug-1924				
6	5 km. east of Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (NY179221)	13-Aug-1924				

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
6	5 km E of Orr's Springs.	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (POM194865)	13-Aug-1924				
7	Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (UC295866)	13-Aug-1924				
7	hills near Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (UC398663)	15-Sep-1917				
7	Orr's Hot Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (UC990588)	20-Jul-1909				
7	Orrs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (CAS11146)	27-Jun-1922				
7	Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (CAS249384)	15-Sep-1917				
7	Orrs Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (CAS8435)	30-Sep-1912				
7	Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS194593)	15-Sep-1917				
7	Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS3641)	20-Jul-1909				
7	Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS3642)	25-Jul-1903				
7	Orr Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS504904)	20-Jul-1909				
7	Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS671543)	15-Sep-1917				

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
7	Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (DS671545)	13-Aug-1924				
7	Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (GH414509)	15-Sep-1917				
7	hills near Orr's Springs	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (SBBG61007)	15-Sep-1917				
8	5 km e of Orr's Springs, Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (LA203723)	15-Sep-1917				
8	5 km e of Orr's Springs, Hills near Orr's Springs, near the type station	Mendocino	Orrs Springs (3912323)	CCH, Jan 2017 (LA36838)	15-Sep-1917				
9	12 mi. E. of Ukiah on road to Upper Lake	Mendocino	Ukiah (3912322)	CCH, Jan 2017 (CAS211634)	9-Nov-1933				
9	12 mi. E. of Ukiah on road to Upper Lake	Mendocino	Ukiah (3912322)	CCH, Jan 2017 (GH414511)	9-Nov-1933				
9	12 mi e of Ukiah; Road to Upper Lake	Mendocino	Cow Mountain (3912321)	CCH, Jan 2017 (UC523521)	9-Nov-1933				
10	Montgomery Woods	Mendocino	Laughlin Range (3912333)	Calflora, May 2017 (svy345)	1-Jan-2011	1+ individuals		Montgomery Woods SNR	
11	sw side Elk Mountains; North Coast Ranges	Lake	Elk Mountain (3912238)	CCH, Jan 2017 (UC197533)	27-Jul-1913			Mendocino NF	
11	Elk Mt.	Lake	Elk Mountain (3912238)	CCH, Jan 2017 (DS671526)	19-Jul-1937			Mendocino NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
12	Along Reeves Canyon Rd.	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (HSC83675)	7-Sep-1983				768
13	7.2 mi N of jct with Hwy 20 along Hwy 101	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (JEPS98919)	23-Aug-1986				
13	Mendocino County: 7.2 miles north of junction with California State Highway 20 along California State Highway 101	Mendocino	Willits (3912343)	CCH, Jan 2017 (UCD135805)	23-Aug-1986				
13	7.2 miles north of junction with California State Highway 20 along California State Highway 101	Mendocino	Willits (3912343)	CCH, Jan 2017 (CAS1014533)	23-Aug-1986				
14	5 mi. S. of Willits	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (DS213816)	8-Nov-1933				
14	5 mi s of Willits	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (UC523541)	8-Nov-1933				
14	5 mi. S. of Willits	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (DS671544)	8-Nov-1933				
14	5 mi. S. of Willits	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (GH414512)	8-Nov-1933				
15	Williams Ranch Road, 0.5 mi. from junction with Muir Mill Rd. S. of Willits, 2.0 mi. SW of Rte. 101	Mendocino	Laughlin Range (3912333)	CCH, Jan 2017 (CAS810131)	8-Jul-1982				2200

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
16	Willetts	Mendocino	Willits (3912343)	CCH, Jan 2017 (UC174169)					
16	Willits, (Highway 1 mi N.)	Mendocino	Willits (3912343)	CCH, Jan 2017 (DS671538)	12-Aug-1924				
17	1.6 km. NW of Rte. 101. Reeves Canyon Elev. given as 900 ft	Mendocino	Burbeck (3912344)	CCH, Jan 2017 (CAS809886)	20-May-1980				899
18	Mendocino Pass Road. Ca. 3 mi. E. of Eel River Ranger Station	Mendocino	Newhouse Ridge (3912371)	CCH, Jan 2017 (CAS809884)	11-Jul-1980				8530
18	Mendocino Pass Rd., 3 mi. E of Eel River Ranger Station	Mendocino	Newhouse Ridge (3912371)	CCH, Jan 2017 (HSC83676)	11-Jul-1980				2602
19	2.5 miles northeast of Proberta	Tehama	Gerber (4012212)	CCH, Jan 2017 (DS220647)	28-Sep-1930				
19	2.5 miles northeast of Proberta	Tehama	Gerber (4012212)	CCH, Jan 2017 (DS671541)	26-Sep-1930				
20	Six Rivers National Forest, Lower Trinity District, Hennessy Peak Quad, Forest Service Road 5N33, road to Ammon Ranch.	Trinity	Hennessy Peak (4012375)	CCH, Jan 2017 (HSC103265)	18-Oct-2012			Six Rivers NF	2221

Distribution on National Forest System (NFS) Lands:

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

National Forest System (NFS) lands	Record #s (from Locations table above)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 yrs.)	Historic (not seen in past 20 yrs.)	Most Recent Obs.	EOs/ Recs. (5 mile buffer)	Total Records on NFS lands
Angeles:	-	-	-	-	-	-	-	0
Cleveland:	-	-	-	-	-	-	-	0
Eldorado:	-	-	-	-	-	-	-	0
Inyo:	-	-	-	-	-	-	-	0
Klamath:	-	-	-	-	-	-	-	0
Lake Tahoe Basin MU:	-	-	-	-	-	-	-	0
Lassen:	-	-	-	-	-	-	-	0
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	4, 11	-	2	-	2	5-Oct-1969	2	2
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	1	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	20	-	1	-	1	18-Oct-2012	-	1
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	0	3	0	3	N/A	3	3

Demographic and Population Trends: *Hemizonia congesta* subsp. *calyculata* is known from approximately 20 occurrences based on 58 records (Calflora 2017; CCH 2017); number of occurrences for this taxon were estimated using GIS tools and methods described by Green and Sims (2018). *Hemizonia congesta* subsp. *calyculata* is an annual and likely experiences population size fluctuation between years (Levine et al. 2008). Population count and size estimate information is unknown for this taxon. A majority (16/20; 80%) of occurrences are historic and have not been documented in over 20 years (Calflora 2017; CCH 2017).

Life History: Herbaceous annual that blooms from July through November (CNPS 2018). All subspecies of *H. congesta* are self incompatible (Baldwin and Strother 2006). Plants in the genus

Hemizonia are visited by cuckoo bees, long-horned bees, mining bees, sweat bees, blister beetles, butterflies, bee flies, and syrphid flies (CPC 2018).

Diversity: *Hemizonia* is a member of subtribe Madiinae (Asteroideae – Madieae) alongside familiar alliances such as the tarweeds (incl. *Hemizonia, Calycadenia, Hemizonella*, *Centromadia, Deinandra, Holocarpha*, *Jensia, Madia, Blepharizonia, Anisocarpus, Carlquistia*, et al.) and the Hawaiian silverswords (*Debautia, Argyroxiphium*, and *Wilkesia*). Additional genera within subtribe Madiinae include *Lagophylla, Layia, Holozonia, Achyrachaena, Blepharipappus*, and *Raillardella* (Baldwin and Wessa 2000). The genus *Hemizonia* is represented by a single species partitioned into six morphologically distinct subspecies. Distributions of most subspecies overlap. Hybrids between certain subspecies are reported (Baldwin and Strother 2006).

Habitat: Clay soils (sometimes serpentine) in woodland openings, and valley and foothill grasslands (Baldwin 2012; CNPS 2018).

Habitat Status or Trend: The distribution of *H. congesta* subsp. *calyculata* overlaps with regions of California (notably the Mendocino Complex Fire, July 2018—459,123 acres) that have experienced substantial wildfire activity in recent years (CDF 2018).

Capacity for the Species to Disperse: Unknown. *Hemizonia congesta* lacks a pappus, a pappus is a feature known to increase the dispersal distance of some plants with this trait (Sheldon and Burrows 1973).

Threats: Unknown. Threats to this taxon remain undocumented (CNPS 2018; NatureServe 2018). Despite overall lack of threats, occurrences for this taxon are few in number.

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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.