Plant Species Evaluation Form

Wyethia longicaulis Gray

HUMBOLDT COUNTY WYETHIA

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

Synonyms/Other Names: *Wyethia longicaulis* was described by Asa Gray in 1883. The name has remained unchallenged since then, and no synonyms exist (Tropicos 2018).

Identification Issues: Within *Wyethia*, *W. longicaulis* is characterized by radiate heads, the presence of basal leaves on flowering stems, and hairless, narrow outer phyllaries on glabrous stems. This combination of character states is robust; provided that flowering material is available, identification is straightforward (Keil 2012).

Taxonomy:

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Species In Genus: 10 species: western North America. Etymology: (Nathaniel J. Wyeth, American explorer, 1802-1856). Note: Some species sometimes treated in *Agnorhiza*.

Habit: Plant 2-5(6) dm, glabrous or puberulent, +- gland-dotted. Leaf: basal blades 10-25(40) cm, oblong-oblanceolate, glabrous, gland-dotted, appearing varnished. Inflorescence: heads 1-4; peduncle 3-8 cm; involucre 15-30 mm diam, bell-shaped; phyllaries +- equal, 15-30 mm, lanceolate to ovate, barely leaf-like, glabrous or puberulent, margins occasionally +- puberulent; paleae 15-17 mm. Ray Flower: 5-10; ray 20-30 mm. Disk Flower: corolla 10-11 mm. Fruit: 6-10 mm, glabrous or distally puberulent; pappus scales < 1 mm, obtuse. eFlora Treatment Author: David J. Keil.

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).

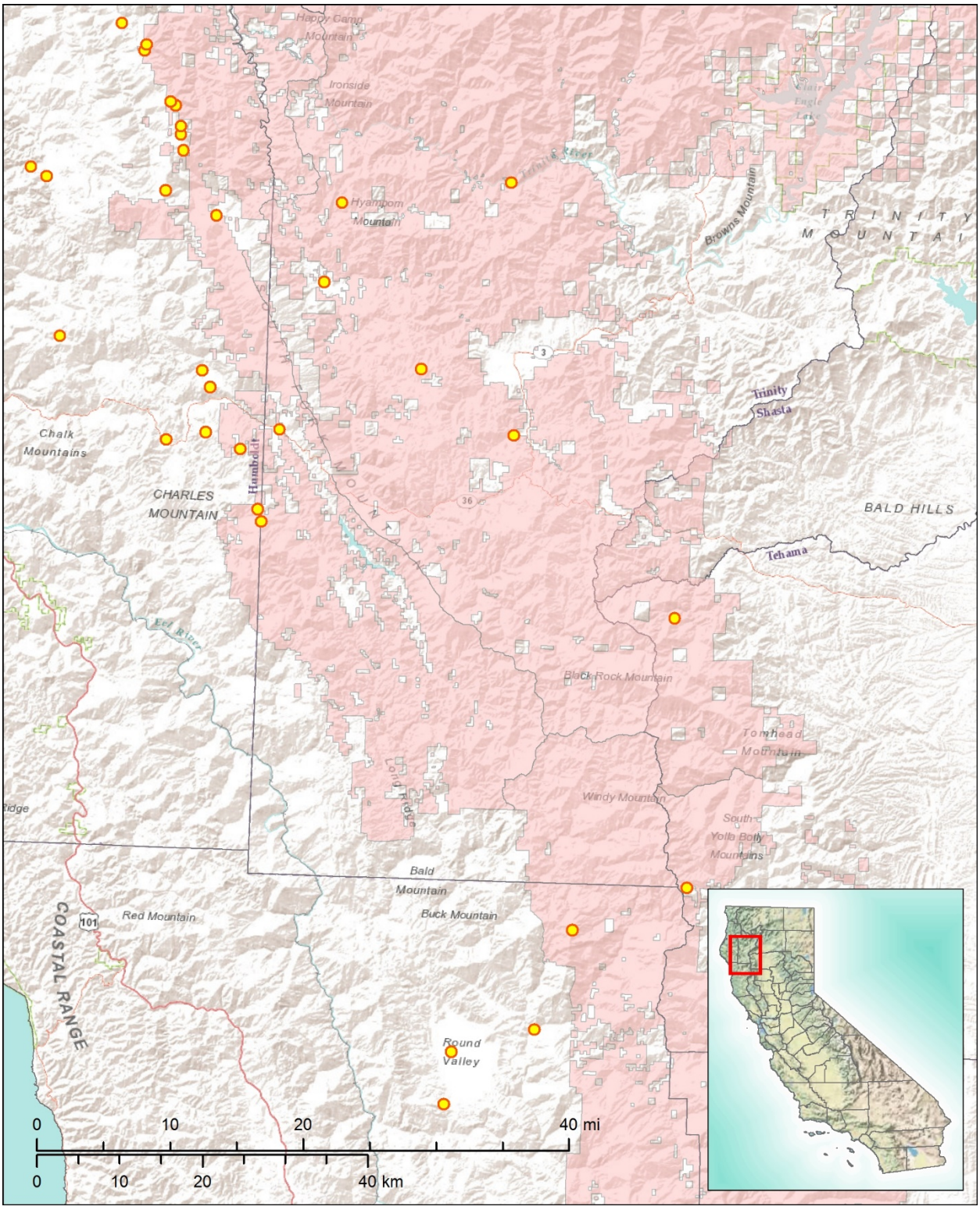
State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G4	CA: S4 NV: Not listed OR: Not listed	4.3	Not listed	Not listed	Not listed

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: This species is a California endemic, which occurs in the Klamath Ranges (KR) and northern North Coast Ranges (n NCoR) bioregions of Humboldt, Mendocino and Trinity counties (CNPS 2018, Keil 2012). National Forest Service-administered lands on which *W.*

longicaulis has been documented include Mendocino NF, Shasta-Trinity NF, and Six Rivers NF (Calflora 2017, 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	4.8 miles S of Covelo on road from Dos Rios to Mina	Mendocino	Dos Rios (3912363)	CCH, Jan 2017 (RSA79082)	11-May-1952				
2	Near Covelo	Mendocino	Covelo East (3912372)	CCH, Jan 2017 (CAS158705)	5-Jun-1928				
3	Mts. east of Round Val.	Mendocino	Covelo East (3912372)	CCH, Jan 2017 (DS12325)					
4	Mendocino National Forest--North Coast Ranges. Upper Middle Fork Eel River Watershed. Near Pothole Creek headwaters. LEST #11 site; cobbly knoll	Mendocino	Leech Lake Mtn. (3912381)	CCH, Jan 2017 (CHSC92675)	15-Jul-1997			Mendocino NF	6240
5	Mendocino National Forest--North Coast Ranges. Thomes Creek Watershed. Jct on rd to green sprg and S of jct .3 mi. On N bank of H-spur of 23N21.4 to Green Springs. NW1/4 of SW1/4 Sec. 36 = .3 mi up jct to Green Sprgs on E edge of 23N06	Tehama	Buck Rock (3912288)	CCH, Jan 2017 (CHSC92869)	12-Jul-2000				5960
6	Stuart Gap Road (FR 41) 19.7 mi south of Hwy. 36	Tehama	Platina (4012238)	CCH, Jan 2017 (CHSC78238)	17-May-2000			Shasta-Trinity NF	3950
7	The Lassics - Senteney Rock	Trinity	Black Lassic (4012335)	Calflora, May 2017 (jgr16847)	24-Jun-1990	1+ individuals		Six Rivers NF	5151
7	Near Senteney Rock.	Trinity	Black Lassic (4012335)	CCH, Jan 2017 (HSC66870)	10-Jul-1980			Six Rivers NF	627
7	Between 1S07 and Senteney Rock, along Swayback Ridge.	Trinity	Black Lassic (4012335)	CCH, Jan 2017 (HSC32095)	14-Jun-1972			Six Rivers NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
7	Prairie area between 1SO7 and Senteney Rock, along Swayback Ridge, 4 wheel drive road.	Trinity	Black Lassic (4012335)	CCH, Jan 2017 (RSA249395)	14-Jun-1972			Six Rivers NF	
8	Along Rd. 5E27	Trinity	Black Lassic (4012335)	CCH, Jan 2017 (HSC35945)	20-Jul-1975				5000
9	Along Swayback Ridge 4-wheel drive road, 1.25 mi. S of junction with Forest Service road.	Humboldt	Dinsmore (4012345)	CCH, Jan 2017 (HSC82033)	10-Jun-1980				4902
10	Laribee Valley	Humboldt	Larabee Valley (4012346)	CCH, Jan 2017 (POM192569)	31-May-1930				
10	Laribee Valley	Humboldt	Larabee Valley (4012346)	CCH, Jan 2017 (UC1541467)	31-May-1930				
10	Laribee Valley	Humboldt	Larabee Valley (4012346)	CCH, Jan 2017 (UC419036)	31-May-1930				
11	Burr Valley, on Buck Mountain	Humboldt	Larabee Valley (4012346)	CCH, Jan 2017 (GH414710)	17-Jun-1936				
12	South Fork Mountain: near summit on road to Low Gap of Mad River	Trinity	Dinsmore (4012345)	CCH, Jan 2017 (POM126135)	1-Jul-1923			Six Rivers NF	3501
12	South Fork Mountain: near summit on road to Low Gap of Mad River	Trinity	Dinsmore (4012345)	CCH, Jan 2017 (POM160896)	1-Jul-1923			Six Rivers NF	3501
13	Rattlesnake Road 0.73 to 1.5 miles southwest of Peanut	Trinity	Dubakella Mtn. (4012342)	CCH, Jan 2017 (CAS647017)	19-May-1980			Shasta-Trinity NF	2700
13	Rattlesnake Road 0.73 to 1.5 miles southwest of Peanut	Trinity	Dubakella Mtn. (4012342)	CCH, Jan 2017 (CAS647018)	19-May-1980			Shasta-Trinity NF	2700
13	2.2 km west-southwest of Peanut on Rattlesnake Road, Philpot Creek drainage.	Trinity	Dubakella Mtn. (4012342)	CCH, Jan 2017 (CDA8992)	19-May-1980			Shasta-Trinity NF	2802
13	2.2 km west-southwest of Peanut on Rattlesnake Road, Philpot Creek drainage.	Trinity	Dubakella Mtn. (4012342)	CCH, Jan 2017 (CDA8993)	19-May-1980			Shasta-Trinity NF	2802

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
13	Across from entrance to Philpot Campground, on the Peanut to Forest Glenn Rd.	Trinity	Dubakella Mtn. (4012342)	CCH, Jan 2017 (HSC38735)	23-Jun-1975			Shasta-Trinity NF	2900
14	near summit of ridge between Van Duzen and Mad Rivers (Dinsmore Ranch)	Humboldt	Blake Mountain (4012355)	CCH, Jan 2017 (JEPS32115)	21-Jun-1923				3500
15	11 mi northeast of Bridgeville near Six Rivers National Forest	Humboldt	Showers Mtn. (4012356)	CCH, Jan 2017 (UC1096426)	6-Aug-1957				4250
16	ca. 75 ft N of FS Rd. 3N08 ca. 1/2 mi NE of jct with FS Rd. 2N10, Butter Creek watershed Shasta-Trinity National Forests, Hayfork Ranger District	Trinity	Halfway Ridge (4012353)	CCH, Jan 2017 (JEPS98742)	21-Jun-1995			Shasta-Trinity NF	3478
16	ca. 75 ft N of FS Rd. 3N08 ca. 1/2 mi NE of junction with FS Rd. 2N10 Shasta-Trinity National Forests, Hayfork Ranger District (Butter Creek watershed)	Trinity	Halfway Ridge (4012353)	CCH, Jan 2017 (JEPS98766)	21-Jun-1995			Shasta-Trinity NF	3478
17	Valley of South Yager Creek	Humboldt	Yager Junction (4012357)	CCH, Jan 2017 (UC582640)	26-Jun-1932				2500
18	Hyampam	Trinity	Hyampom (4012354)	CCH, Jan 2017 (UC34284)					
19	Near Last Chance Ridge.	Humboldt	Sims Mountain (4012365)	CCH, Jan 2017 (HSC73870)	14-Jul-1980				3999
20	Along road 4N25 (Clark Creek Loop) at junction with road 4N25C 2 miles south of junction with road 60 (Underwood Mountain Road, Shasta-Trinity National Forest	Trinity	Hyampom Mtn. (4012364)	CCH, Jan 2017 (CAS701652)	30-May-1980			Shasta-Trinity NF	3500
20	Shasta-Trinity National Forest, along FS Rd. 4N25 (Clark Creek Loop) at junction with FS Rd. 4N25C, 2 mi. S of junction with Rd. 60 (Underwood Mtn. Rd.)	Trinity	Hyampom Mtn. (4012364)	CCH, Jan 2017 (HSC67393)	30-May-1980			Shasta-Trinity NF	3501
21	White Oak Opening.	Humboldt	Board Camp Mtn. (4012366)	CCH, Jan 2017 (HSC98513)	21-May-2007			Six Rivers NF	4124

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
22	Mad River	Humboldt	Mad River Buttes (4012367)	CCH, Jan 2017 (DS12324)					
23		Humboldt	Iaqua Buttes (4012368)	CCH, Jan 2017 (GH14115)					
23		Humboldt	Iaqua Buttes (4012368)	CCH, Jan 2017 (GH14116)					
24	Salmon Mountains, Big Flat Camp	Trinity	Hayfork Bally (4012362)	CCH, Jan 2017 (UCR4843)	22-Jul-1966				1312
25	Summit near Clear Lake where the Friday Ridge Road comes to the top of Grouse Mountain Ridge.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (RSA167419)	1-Jul-1950				
25	near Clear Lake (summit where the Friday Ridge Road comes to the top of Grouse Mountain ridge); Grouse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UC1223295)	1-Jul-1950				
25	Grouse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (DS267964)	7-Jul-1938				5000
25	Grouse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UC604675)	7-Jul-1938				5000
26	Spike Buck Mountain. Forest Service Road 5N18. Near intersection with National Forest 1.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (HSC99010)	1-Jul-2008				4797
27	Six Rivers National Forest - Buck Flat	Humboldt	Grouse Mtn. (4012376)	Calflora, May 2017 (jgr28718)	19-Jun-2009	1+ individuals			5102
27	Buck Flat.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (HSC98069)	19-Jul-2007				4862
27	Horse Mtn. Buck Flat, Titlow Hill Rd., at Ammon Ridge Rd.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (HSC93595)	1-Jun-1998				5000
27	Humboldt County: Horse Mountain. Buck Flat, Titlow Hill Rd. At Ammon Ridge Rd	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UCD137002)	1-Jun-1998				5000

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
27	Humboldt County: Horse Mountain. Buck Flat, Titlow Hill Rd. At Ammon Ridge Rd	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UCD137004)	1-Jun-1998				5000
27	Near Buck Flat.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (HSC71800)	8-Jun-1980				5098
28	Near Black Rock, close to the town of Willow Creek.	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (HSC76215)	24-Jul-1979			Six Rivers NF	5098
29	near "Clear Lake"; North Coast Ranges, Grouse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UC1199273)	25-Jul-1933			Six Rivers NF	5000
30	Horse Mountain, along Titlow Hill Road 0.4 miles north from the junction with the road to the mountain summit	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (CHSC98382)	24-Jun-2004				4300
30	Horse Mountain, along Titlow Hill Road 0.4 miles north from the junction with the road to the mountain summit	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (JEPS109808)	24-Jun-2004				4300
31	Horse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (JEPS13755)	29-May-1939			Six Rivers NF	3000
31	Horse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UC1199272)	14-Jun-1934			Six Rivers NF	4500
31	Horse Mountain Northern Coast Ranges	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (UC302182)	20-Jun-1926			Six Rivers NF	4500
31	Horse Mountain	Humboldt	Grouse Mtn. (4012376)	CCH, Jan 2017 (DS160709)	9-Jun-1926			Six Rivers NF	4000
32	near Horse Mt. Pass (on Trinity Highway); Northern Coast Ranges, Horse Mountain	Humboldt	Lord-Ellis Summit (4012387)	CCH, Jan 2017 (UC302180)	30-May-1926				2900

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	0	1	0	1	15-Jul-97	2	1
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	6, 13, 16, 20	0	4	1	3	17-May-00	4	4
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	7, 12, 21, 28, 29, 31	0	6	1	5	21-May-07	11	6
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	0	11	2	9	N/A	17	11

Demographic and Population Trends: The total number of occurrences for this taxon were estimated using GIS tools and methods described by Green and Sims (2018). None of the 32 records in the combined dataset contain information related to population size or demographic trends (Calflora 2017, CCH 2017). In an early report of the United States National Herbarium, reference is made to *W. longicaulis* covering "...whole acres of valley land in Round Valley" where it was "...common everywhere in grassy openings and forests". While little to no quantitative data are available, it can be inferred that this species was once quite common in at least part of its range (Smithsonian 1902).

Life History: *Wyethia longicaulis* is a perennial herb, which blooms from May to July (CNPS 2018). While pollination data are not available for *W. longicaulis* specifically, its congeners are principally pollinated by Hymenoptera (Apidae and Megachilidae) and Lepidoptera (Nymphalidae, Papilionidae and Pieridae); Diptera and Coleoptera have been observed as occasional visitors (CPC 2018). Bees of the genus *Osmia* appear to be especially important pollinators in *Wyethia* and allied plant genera (Cane 2005).

Diversity: The genus *Wyethia* consists of 10 to 14 species, comprising a well-supported clade sister to *Balsamorhiza* in the subtribe Engelmanniinae (Heliantheae). This subtribe consists of 10 genera, most of them herbaceous perennials, distributed across North and Central America. Hybridization is very common in the group, leading to often indistinct species boundaries except in cases where diversification is the result of polyploidization (Moore and Bohs 2007). Bees of the genus *Osmia* have been observed moving pollen freely between *Balsamorhiza* species, suggesting that intergrading species boundaries in Engelmanniinae are partly the result of imprecise pollen vectoring (Cane 2011). Morphological intermediates occur in *Wyethia* where species ranges overlap, but the hybrid origin of these intermediates has not been confirmed. As traditionally defined, *Wyethia* consists of three sections: *Agnorhiza, Alarconia,* and *Wyethia,* all occurring only in western North America. Taxa of the latter two sections often possess large cauline leaves, giving the genus its common name of "mule's ears". Molecular phylogenetic evidence revealed that *Balsamorhiza* is nested within *Wyethia*, and that the latter consists of two groups: a monophyletic assemblage dubbed the *W. amplexicaulis* clade, which contains the large-leaved taxa and is sister to *Balsamorhiza*; and the paraphyletic *W. scabra* grade, containing the remaining *Wyethia* species. In lieu of taxonomic reorganization, the two genera are referred to as the *Balsamorhiza*/*Wyethia* clade (Moore and Bohs 2007). Members of this clade are characterized by large taproots, and by the production of aromatic resins, which made them important economic plants in native American cultures. *Wyethia longicaulis* was both a food source and a medicine; young leaves and stems were eaten fresh, and the seeds were used in the production of pinole. The resinous root was used to produce a strong emetic, and cooked to make a poultice for rheumatism and eye complaints (Smithsonian 1902). Aboriginal peoples in California made extensive use of fire to improve the quality and productivity of *Wyethia* and other wild-cultivated plants (Anderson and Moratto 1996).

Habitat: This species occurs in a range of habitats, including coastal prairie, broadleaf upland forest and lower montane coniferous forest, at elevations between 750 and 1,525 meters. It exhibits a preference for open sites (Keil 2012) and is occasionally found on roadsides (CNPS 2018). F requently co-occurring woody species include *Pinus jeffreyi, P. ponderosa*, and *Pseudotsuga menziesii* (NatureServe 2018).

Habitat Status or Trend: The Klamath Ranges (KR) and adjacent northern North Coast Ranges (n NCoR) bioregions have played host to a remarkable diversification in plant species, as a consequence of complex geology and a long history of isolation (Whittaker 1960). The area is one of six globally important temperate forest biodiversity hotspots, having served as a climatic refugium during the Pleistocene. More than a century of land use, including logging, mining, grazing and modification of fire regimes, has significantly altered much of the region. Only 28% of the old-growth forest remains, and ongoing human impacts continue to degrade wild communities, especially in mesic lowland and mid-elevation areas, encompassing the elevation range of *W. longicaulis*. The scale and speed of anthropogenic climate change might exceed the capacity of the Klamath region to provide refugia for taxa of low mobility and narrow ecological requirements, though careful management may partially mitigate this risk (Olson et al. 2012).

Capacity for the Species to Disperse: The achenes of *Wyethia* are large, with a proportionally small pappus and no obvious mechanism of dispersal (Keil 2012). The species exhibits dramatic increases in flowering after fire, with peak seedling densities achieved in the following year. The majority of these seedlings emerge directly beneath parent plants, and little

to no long-lasting seed bank exists. Between fires, persistence is assured by an extensive system of resprouting rhizomes (Ayres 2009). At least some members of Engelmanniinae are capable of self-fertilization (Cane 2005), conferring an advantage in the colonization of new sites after improbable dispersal events (Baker 1955).

Threats: *Wyethia longicaulis* is threatened by road construction and maintenance, as well as by impacts associated with timber extraction (CNPS 2018). The abundance of this species across its range is unknown, and the threats facing it are accordingly hard to gauge (NatureServe 2018). At least some species of *Wyethia* were actively managed by indigenous peoples in California, using fire; recent shifts in fire severity and return intervals may negatively impact these species (Anderson and Moratto 1996).

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Reviewer(s) and Date:

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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.