1. **Species:** *Raillardella pringlei* Green, showy raillardella

Photo Source: Rare Plant Treasure Hunt, CalPhotos
Photo Credits, clockwise from upper left: Aaron Sims, Julie Kierstead, Julie Kierstead

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

Table 1. Current status of showy raillardella

Entity	Status	Status Definition
NatureServe CA[a]	G2G3, S2S3	G2: Imperiled — At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors. G3: Vulnerable — At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. S2: Imperiled — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

		S3: Vulnerable — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
California Rare Plant Rank[b]	1B.2	1B: Plants rare, threatened, or endangered in California and elsewhere 0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
California State Listing[c]	Not listed	
USDA Forest Service[d]	S	Sensitive
USDI FWS[e]	Not listed	
USDI BLM[f]	S	Sensitive
NatureServe OR[g]	Not present	
Oregon State Listing[h]	Not present	
NatureServe NV[i]	Not present	
Nevada State Listing[j]	Not present	

[a] California Natural Diversity Database, California Dept. of Fish & Wildlife [CNDDB 2020]
[b] California Native Plant Society [CNPS 2020]
[c] California Department of Fish and Wildlife [CDFW 2020]
[d] US Forest Service Region 5 Forester's List [USDA] and Pacific NW Survey and Manage [USDA & BLM 2014]
[e] US Department of Interior Fish and Wildlife Service [USFWS 2020]
[f] US Department of Interior Bureau of Land Management [BLM 2015]
[g] Oregon Biological Information Center [ORBIC 2019]
[h] Oregon Department of Agriculture [ODA 2018]
[i] Nevada Natural Heritage Program [NNHP 2020]
[j] Nevada Division of Forestry [NDF 2012]
Note: Individual State Heritage Programs (CNDDB, ORBIC, NNHP) represent NatureServe and contain more up-to-date ranks for their state than NatureServe Explorer.

Showy raillardella was included in the first edition of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* in 1974 (CNPS 2020). In the 4th Edition (1988) it was placed in list 1B, and it has remained at that rank since that time.

2. **Taxonomy:** Table 2 summarizes this species or subspecies/variety's name status in key literature.

Table 2. Name status of showy raillardella

Entity	Name Status
CNDDB and CNPS	*Raillardella pringlei* Greene
Jepson eFlora	*Raillardella pringlei* Greene
Jepson Manual (1993)	*Raillardella pringlei* E. Greene

Flora of North America	*Raillardella pringlei* Greene
USDA NRCS[a] PLANTS	*Raillardella pringlei* Greene
[a] Natural Resources Conservation Service [NRCS]	

Synonymy: This taxon was originally described by Green (1882) as *Raillardella pringlei*. Jepson (1925) treated this entity as a subspecies of *R. scaposa* (*R. scaposa* Gray var. *pringlei* (Greene) Jepson). This was reversed in 1959 in Munz and Keck's *A California Flora*, and since that time, this entity has been recognized at the species level.

Jepson eFlora link: https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=4552

Type locality: In the original publication, Green (1882) cites an unnumbered C. G. Pringle specimen without citing a herbarium where it was seen or deposited. Green cites the specimen location as "High mountains west of Mount Shasta" (Green 1882). Duplicates of this collection can be found at the California Academy of Sciences, the Harvard University Herbaria, and the herbarium at the University of Notre Dame – E. L. Greene collection, among others (JSTOR Global Plants database, 2020). The duplicate at the University of Notre Dame has the location "Sacramento River head waters; mountains about the head waters of the river" and a date of August 19, 1881. A duplicate at the Gray Herbarium at Harvard University was chosen as the lectotype in 2018 (Baldwin 2018).

3. Distribution, abundance, and population trend on the planning unit [12.53.2,3,4]:
Table 3 summarizes the distribution and frequency of this species or subspecies/variety within National Forest System Lands in California. Table 4 lists all known occurrences of this species or subspecies/variety within California. Individual occurrences are defined as sites that contain an individual, population, or groups of populations of the plant that are located more than 0.25 miles apart from each other as defined by the CNDDB.

Table 3. Known Occurrence Frequency of showy raillardella within the Planning Area (NRIS, CNDDB, Calflora/CCH databases)

National Forest System (NFS) lands	Record #s (from Locations table below)	CNDDB EOs	Non-CNDDB Records	Recent (seen in past 20 years)	Historic (not seen in past 20 years)	Most Recent Obs. Date	Total Records on NFS lands
Klamath:	1, 22, 23, 24	4	0	4	0	1 Aug 2003	4
Shasta-Trinity:	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	20	0	7	13	3 Aug 2019	20

Table 3. Known Occurrence Frequency of showy raillardella within the Planning Area (NRIS, CNDDB, Calflora/CCH databases)							
National Forest System (NFS) lands	**Record #s (from Locations table below)**	**CNDDB EOs**	**Non-CNDDB Records**	**Recent (seen in past 20 years)**	**Historic (not seen in past 20 years)**	**Most Recent Obs. Date**	**Total Records on NFS lands**
Totals:	N/A	24	0	11	13	N/A	24

Table 4. Known Occurrences of showy raillardella within California (NRIS, CNDDB, Calflora/CCH databases). Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
1	CABIN MEADOW CREEK, BETWEEN CABIN MEADOW AND CABIN MEADOW LAKE, ABOUT 1.25 AIR MI NORTH OF CORY PEAK, SCOTT MOUNTAINS.	Siskiyou	South China Mtn. (4112235)	CNDDB, May 2020 (EO 1)	31-Jul-2003	ABOUT 100 PLANTS SEEN IN 1982. 850 PLANTS IN 1987 IN 3 PATCHES. 30 SEED HEADS SEEN AT CENTRAL COLONY IN 1998; PLANTS NOT COUNTED AT N COLONY. TOTAL OF 76 FLOWER HEADS SEEN AMONG TWO N COLONIES IN 2003.	LOGGED IN THE PAST; LAST GRAZED IN 1994. WATERWAY APPEARS TO HAVE CHANGED MANY TIMES. NO CURRENT THREATS.	Klamath NF, Private	6240
2	UPPER MIDDLE FORK SACRAMENTO RIVER AND TOAD LAKE CREEK, SOUTH OF MOUNT EDDY, TRINITY MOUNTAINS.	Siskiyou	Mount Eddy (4112234)	CNDDB, May 2020 (EO 2)	23-Aug-2011	10-20 PLANTS OBSERVED ALONG TOAD LAKE CREEK IN 1982. MORE THAN 500 PLANTS OBSERVED IN 1986; PLANTS ABUNDANT IN AND ALONG TOAD LAKE CREEK BELOW TOAD LAKE. TOTAL OF 205 FLOWERING STALKS SEEN IN 2011 E OF LAKE. INCLUDES FORMER OCCURRENCE #3.	MEADOW HEAVILY GRAZED BY CATTLE; PROPOSED TIMBER SALE. NO GRAZING IN MEADOWS AROUND TOAD LAKE IN 2011.	Shasta-Trinity NF	6800

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Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
3	UPPER REACHES OF THE NORTH FORK SACRAMENTO RIVER, AT THE BASE OF SOUTH SLOPE OF MOUNT EDDY, TRINITY MOUNTAINS.	Siskiyou	Mount Eddy (4112234)	CNDDB, May 2020 (EO 4)	28-Jul-1997	10-20 PLANTS SEEN IN 1981, PLANTS WERE MORE COMMON IN AREAS PROTECTED FROM CATTLE. ABOUT 6 PLANTS SEEN IN 1997 AT SMALLER EASTERN COLONY.	CATTLE GRAZING AND TRAMPLING. SURROUNDING FOREST HAS BEEN LOGGED.	Shasta-Trinity NF	6200
4	WEST OF THE PACIFIC CREST TRAIL, ABOUT 2 AIR MILES NORTH OF TANGLE BLUE LAKE, SCOTT MOUNTAINS, TRINITY ALPS WILDERNESS.	Trinity	Tangle Blue Lake (4112226)	CNDDB, May 2020 (EO 5)	13-Aug-2003	3 SMALL GROUPS OF PLANTS IN 1977. IN 1994 AT LEAST 100 FLOWER HEADS SEEN IN JULY, ONLY 22 SEEN IN AUGUST. SIGNS OF TRAMPLING AND GRAZING HAD GREATLY INCREASED. A 2003 TAYLOR COLLECTION IS ATTRIBUTED HERE. USFS POP. #14-5.	GRAZING AND TRAMPLING.	Shasta-Trinity NF	6500
5	FAWN CREEK, FROM COWHEAD PASS DOWNSTREAM ABOUT 1.7 MILES, NORTH OF BEAR RIDGE & SEVEN LAKES BASIN, SHASTA NAT'L FOREST.	Siskiyou	Seven Lakes Basin (4112224)	CNDDB, May 2020 (EO 6)	24-Aug-2011	3-5 PLANTS SEEN IN 1981 AT W END OF N POLYGON; 50 PLANTS SEEN AT E END IN 1982. 200 PLANTS IN 3 COLONIES AT CENTER OF N POLYGON IN 1997. APPROX 30 PLANTS IN SW POLYGON IN 2011. NO EVIDENCE OF RECENT GRAZING IN 2011. INCLUDES FORMER OCC #8.	SITES IN N POLY HAVE BEEN TRAMPLED & GRAZED IN THE PAST. MEADOW WAS BEING REHABILITATED IN 1997.	Shasta-Trinity NF	6200

Table 4. Known Occurrences of showy raillardella within California (NRIS, CNDDB, Calflora/CCH databases). Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
6	GUMBOOT LAKE, GUMBOOT MEADOW, AND GUMBOOT CREEK EXTENDING ABOUT 1 MILE DOWNSTREAM, NORTH OF MUMBO BASIN, TRINITY MTNS.	Siskiyou	Mumbo Basin (4112225)	CNDDB, May 2020 (EO 7)	18-Sep-2008	40-50 PLANTS SEEN IN 1982. PLANTS SEEN IN FLOWER, COMMON BUT SCATTERED IN 1986, NOT IN FLOWER IN 1987. FEWER THAN 100 PLANTS IN 1989. 25-75 PLANTS IN 1997. SEVERAL COLLECTIONS, OBSERVATIONS, AND PHOTOS ARE ATTRIBUTED HERE.	VERY CLOSE TO ROAD; CATTLE GRAZING & TRAMPLING.	Shasta-Trinity NF	6000
6	Gumboot Creek and meadow, the Eddys, Klamath Ranges	Siskiyou	Mumbo Basin (4112225)	Calflora, May 2020 (gp10530)	28-Jun-2018	101 - 1000 individuals		Shasta-Trinity NF	
6	Gumboot Creek and meadow, the Eddys, Klamath Ranges	Siskiyou	Mumbo Basin (4112225)	Calflora, May 2020 (gp18332)	28-Jul-2019	51-100 individuals		Shasta-Trinity NF	
7	LANDERS LAKE & LANDERS CREEK DOWN TO MUMFORD MEADOW AT SWIFT CREEK, TRINITY ALPS WILDERNESS.	Trinity	Caribou Lake (4112218)	CNDDB, May 2020 (EO 9)	11-Aug-1996	UNKNOWN NUMBER OF PLANTS OBSERVED DURING 1978 AND 1983 SURVEYS. A 1996 GAME PHOTO FROM "DAMP AREA NEAR THE EAST END OF MUMFORD MEADOW" IS ATTRIBUTED TO THIS OCCURRENCE.		Shasta-Trinity NF	6200

Table 4. Known Occurrences of showy raillardella within California (NRIS, CNDDB, Calflora/CCH databases). Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
8	WEST END OF PARKER MEADOW, ALONG TRIBUTARY TO SWIFT CREEK, IN TRINITY ALPS WILDERNESS AREA.	Trinity	Ycatapom Peak (4112217)	CNDDB, May 2020 (EO 10)	25-Aug-1980	FEWER THAN 50 PLANTS SEEN IN 1980.		Shasta-Trinity NF	5360
9	SANDY CANYON, IN TRINITY WILDERNESS AREA.	Trinity	Ycatapom Peak (4112217)	CNDDB, May 2020 (EO 11)	Unknown	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1979 MAP BY FERLATTE. DATE OF OBSERVATION IS UNKNOWN.		Shasta-Trinity NF	6400
10	HEAD OF UNION CREEK, ABOUT 1 AIR MILE SOUTHWEST OF FOSTER LAKE, TRINITY ALPS WILDERNESS AREA.	Trinity	Ycatapom Peak (4112217)	CNDDB, May 2020 (EO 12)	21-Jul-1979			Shasta-Trinity NF	6300
11	MARSHY CREEK, NORTH AND EAST OF MARSHY LAKES IN TANGLE BLUE DRAINAGE, NORTH OF BILLYS PEAK, TRINITY ALPS WILDERNESS.	Trinity	Billys Peak (4112227)	CNDDB, May 2020 (EO 13)	11-Aug-1982	ABOUT 20 PLANTS SEEN IN 1982. 64 FLOWER HEADS OBSERVED IN 1994; POPULATION WAS LARGER THAN PREVIOUSLY REPORTED DUE TO MORE THOROUGH SURVEY. THE RARE DARLINGTONIA CALIFORNICA ALSO OCCURS AT THIS SITE.	GRAZING; MANY PLANTS CROPPED IN 1994.	Shasta-Trinity NF	6300

Table 4. Known Occurrences of showy raillardella within California (NRIS, CNDDB, Calflora/CCH databases). Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
12	EAST OF SWIFT CREEK, NEAR CONFLUENCE WITH GRANITE CREEK, NORTH OF PREACHER MEADOW, TRINITY ALPS WILDERNESS AREA.	Trinity	Covington Mill (4012287)	CNDDB, May 2020 (EO 14)	15-Jul-1976	45 PLANTS SEEN IN 1976.		Shasta-Trinity NF	4250
13	MUMFORD BASIN, IN TRINITY ALPS WILDERNESS AREA.	Trinity	Siligo Peak (4012288)	CNDDB, May 2020 (EO 15)	Unknown			Shasta-Trinity NF	6150
14	LOWER SILIGO MEADOWS, HEADWATERS OF DEEP CREEK, ABOUT 1 MILE SSE OF SILIGO PEAK, TRINITY ALPS WILDERNESS AREA.	Trinity	Siligo Peak (4012288)	CNDDB, May 2020 (EO 16)	23-Jul-1994	MORE THAN 200 PLANTS OBSERVED IN 1994. THE RARE EPILOBIUM OREGANUM ALSO OCCURS AT THIS SITE IN SMALL MEADOWS ALONG SOUTH SIDE OF CREEK AND IN LOWER SILIGO MEADOWS.	POSSIBLE GRAZING BY PACK STOCK.	Shasta-Trinity NF	6150

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Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
15	PICAYUNE CREEK AND LITTLE PICAYUNE CREEK DRAINAGES, WEST OF THE EDDYS, SHASTA-TRINITY NATIONAL FOREST.	Trinity	South China Mtn. (4112235)	CNDDB, May 2020 (EO 17)	13-Sep-1990	100 PLANTS IN 1987 & 10-30 PLANTS (POSSIBLY ALL THE SAME PLANT?) IN 1988 AT N END OF SITE. ~5000 PLANTS IN 1990 IN THE SW HALF OF OCCURRENCE. PLANTS NOT FOUND IN LOGGED AREAS; STABLE AREAS OF CREEK HAVE DENSER POPULATIONS. NEED MAP DETAIL.	LOGGING, TRAILS, STREAMBANK EROSION, CATTLE TRAMPLING, OVERGRAZING.	Shasta-Trinity NF	
16	MOSQUITO LAKE DRAINAGE, MEADOWS ABOVE & BELOW LAKE, NORTH OF BILLYS PEAK, SCOTT MOUNTAINS.	Trinity	Tangle Blue Lake (4112226)	CNDDB, May 2020 (EO 18)	20-Jul-1990	28 FLOWER HEAD OBSERVED IN 1994. THE RARE DARLINGTONIA CALIFORNICA ALSO OCCURS AT THIS SITE.	MOST PLANTS GRAZED BY DEER; PLANTS APPEAR TO BE SELECTED BY DEER OVER SURROUNDING VEGETATION.	Shasta-Trinity NF, Private	6500
16	On or near streambanks of upper Mosquito Creek; Stream bank	Trinity		Calflora, May 2020 (po141446)	3-Aug-2019	11 - 50 individuals		Shasta-Trinity NF	
17	MUMBO CREEK, ABOUT 1.7-2.1 MILES DOWNSTREAM FROM MUMBO LAKE, WEST OF MUMBO BASIN, SHASTA NATIONAL FOREST.	Trinity	Mumbo Basin (4112225)	CNDDB, May 2020 (EO 19)	17-Jul-1987	50 PLANTS OBSERVED IN 1987 OVER A 1 ACRE AREA. THIS SITE IS AT A LOWER THAN NORMAL ELEVATION.	LOGGING, FLOODS, ROAD CONSTRUCTION, MODERATE TO LIGHT GRAZING, ANY ACTIVITY WHICH ALTERS HYDROLOGY OF THE MEADOW.	Shasta-Trinity NF	5400

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Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
18	ALONG TRIBUTARY TO M. FORK SACRAMENTO RIVER, BELOW PORCUPINE LAKE, 0.8 MILE SOUTH OF TOAD LAKE, SOUTH OF MOUNT EDDY.	Siskiyou	Mount Eddy (4112234)	CNDDB, May 2020 (EO 20)	29-Jul-1994	20-50 PLANTS OBSERVED IN 1987 OVER A 2 ACRE AREA.	HEAVY GRAZING.	Shasta-Trinity NF	6800
19	UPPER REACHES OF EDDY CREEK, EAST OF SOUTH CHINA MOUNTAIN, THE EDDYS, SHASTA NATIONAL FOREST.	Siskiyou	South China Mtn. (4112235)	CNDDB, May 2020 (EO 21)	21-Jul-1986	ABOUT 100 PLANTS OBSERVED IN 1986.	CATTLE GRAZING AND TRAMPLING, LOGGING AND ROADS.	Shasta-Trinity NF	5800
19	THE EDDYS, EDDY CREEK; PARKS CREEK ROAD TO THE TRAILHEAD FOR DEADFALLS/ MT.EDDY, ATTHE PARKING LOT START DOWN THE NE SIDE ALONG EDDY CREEK.	Siskiyou	South China Mtn. (4112235)	NRIS, Mar 2019 (RAPR05140004)	16-Jul-2013			Shasta-Trinity NF	

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Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
20	SOUTH OF TAMARACK FLAT, ALONG WEST PARKS ROAD, ABOUT 2.5 AIR MILES EAST OF SOUTH CHINA MOUNTAIN, THE EDDYS.	Siskiyou	South China Mtn. (4112235)	CNDDB, May 2020 (EO 22)	Jul-1988	10 PLANTS COUNTED IN 1988 SCATTERED OVER A TENTH OF AN ACRE. THERE MAY BE MORE PLANTS LOWER IN THE DRAINAGE.	GRAZING; LOGGING HAS CHANGED FLOW REGIME OF CREEK.	Shasta-Trinity NF	6500
20	PARKS CREEK ROAD, TURN LEFT ONTO 41N84. THE POPULATION IS WHERE THE ROAD MEETS THE CREEK.	Siskiyou	South China Mtn. (4112235)	NRIS, Mar 2019 (RAPR05140011)	5-Sep-2013	7 individuals		Shasta-Trinity NF	
20	PARKS CREEK ROAD. TURN LEFT ONTO 41N84. AT THE CREEK PARK AND HIKE ALONG THE STREAM UP HILL, THE PLANTS WILL BE IN A N AREA APPROX. 25 FEET FROM PARKS CREEK ROAD.	Siskiyou	South China Mtn. (4112235)	NRIS, Mar 2019 (RAPR05140011)	5-Sep-2013	7 individuals		Shasta-Trinity NF	

Table 4. Known Occurrences of showy raillardella within California (NRIS, CNDDB, Calflora/CCH databases). Duplicate records from the same site are given the same record number and are included in red. Rows containing questionable records are highlighted in red.

Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
21	BEAR CREEK AND MEADOWS AT HEAD OF BEAR CREEK, 1 MILE SOUTH OF DEADFALL LAKES, THE EDDYS, TRINITY MOUNTAINS.	Trinity	South China Mtn. (4112235)	CNDDB, May 2020 (EO 23)	10-Jul-2007	~300 PLANTS OBSERVED IN SE POLYGON IN 1987; PLANTS MOST LIKELY VISIBLE DUE TO LACK OF GRAZING. 3000 PLANTS SEEN BETWEEN BOTH POLYGONS IN 2007. ACCURACY OF POLYGONS NEEDS TO BE CONFIRMED.	CATTLE GRAZING & TRAMPLING.	Shasta-Trinity NF, Private	6600
22	CREEK FLOWING INTO EAST SIDE OF MILL CREEK LAKE, KLAMATH NATIONAL FOREST.	Siskiyou	Billys Peak (4112227)	CNDDB, May 2020 (EO 24)	11-Sep-2002	FIRST LOCATED IN 2001 BY VANSICKLE. MORE THAN 100 PLANTS (RHIZOMATOUS) OBSERVED IN 2002. THE CREEK WAS WALKED ALL THE WAY TO BASE OF FINAL STEEP RIDGE TOP. USFS POPULATION #5-3.	WITHIN ACTIVE CATTLE ALLOTMENT; SOME GRAZING OF PLANTS.	Klamath NF	6800
23	EAST BOULDER LAKE, APPROXIMATELY 0.5 AIR MILE NW OF SISKIYOU/TRINITY COUNTY LINE, KLAMATH NATIONAL FOREST.	Siskiyou	Billys Peak (4112227)	CNDDB, May 2020 (EO 25)	31-Jul-2003	FIRST OBSERVED IN ABOUT 2001 BY VANSICKLE. UNKNOWN NUMBER OF PLANTS OBSERVED IN 2003. USFS POPULATION #5-5.	WILDERNESS AREA. UNKNOWN PLANT RESPONSE TO DISTURBANCES (AREA GRAZED FOR >100 YRS; DAM ON LAKE).	Klamath NF	6700

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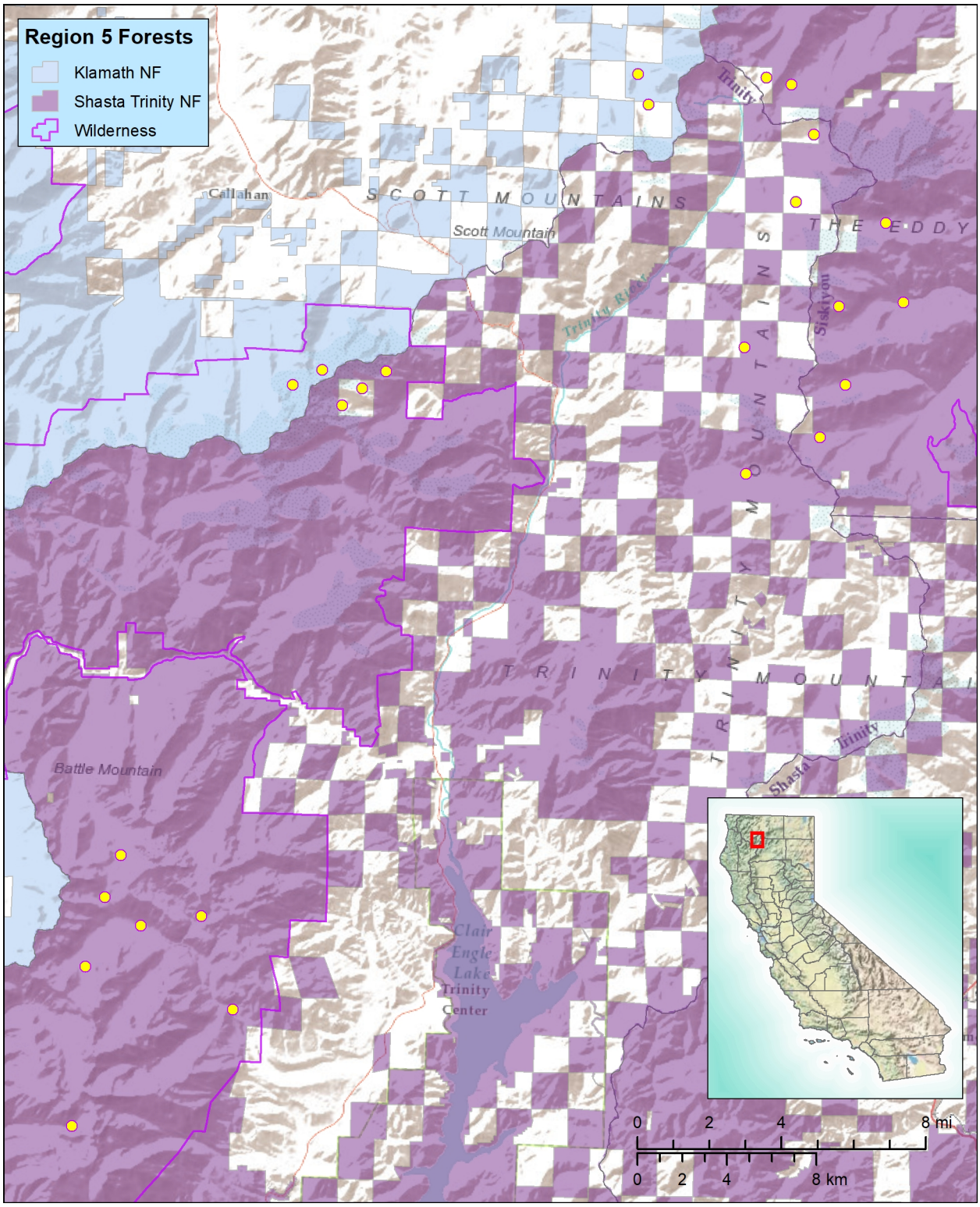
Rec. #	Locality	County	Quad	Ref. (Source)	Date Last Obs'd	Population Info	Threats	Land Mgr.	Elev. (ft.)
24	CABIN MEADOW CREEK, APPROXIMATELY 0.9 AIR MILE WEST OF SOUTH CHINA MOUNTAIN, KLAMATH NATIONAL FOREST.	Siskiyou	South China Mtn. (4112235)	CNDDB, May 2020 (EO 26)	1-Aug-2003	96 FLOWERING HEADS OBSERVED IN 2 CLUSTERS IN 2003, IN A 9 X 6 FT. AREA AND A 3 X 9 FT AREA. VISIBLE DISTURBANCES INCLUDE CHANGING WATERWAYS, FALLEN TREES, AND GRAZING IN ADJACENT MEADOWS. USFS POPULATION #5-6.	PAST LOGGING AREA. NO CURRENT THREATS OBSERVED.	Klamath NF	5950
25	ROAD FROM STEWART SPRINGS TO TRAILHEAD FOR DEADFALL LAKES, THE EDDYS.	Trinity	South China Mtn. (4112235)	CNDDB, May 2020 (EO 27)	7-May-2009	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 2009 BAZELL COLLECTION. NEEDS FIELDWORK.		Unknown	7000



Sources: *Distribution*: Calflora 2020; CNDDB 2020; NRIS 2020. *Baselayers*: 2013 National Geographic Society, i-cubed, Esri, Garmin, NOAA, NPS, USGS.

Showy raillardella was last updated in the CNDDB on July 29, 2013 (CNDDB 2020), and therefore all Calflora, CCH, and/or NRIS records prior to this date are assumed to have already been reviewed and entered into the CNDDB for this plant. Accordingly, only records from Calflora, CCH, and/or NRIS reported after this date have been reviewed for potential new or updated occurrence information and are included in Table 4 above as applicable.

Endemic to California, Showy raillardella is only known from the Trinity and Scott Mountains, the Trinity Alps, and the western slopes of Mount Eddy in Siskiyou and Trinity counties in the Klamath Ranges (KR) bioregion; specifically, the species is endemic to the geologic feature known as the Trinity Ultramafic Sheet (Kierstead 2020, pers. comm.). All but one of the 25 occurrences are at least partly found on Forest Service lands; 20 occurrences are found on the Shasta-Trinity National Forest, four are on the Klamath National Forest, and one ownership is unknown. Twelve occurrences are located in Wilderness Area. Eleven out of 25 occurrences are historical and have not been visited in over 20 years; only four occurrences were first discovered since the year 2000, and no new occurrences have been discovered in the past 10 years. When occurrences have been revisited, the species has always been found, indicating that the populations are somewhat stable (or were 20 years ago). The number of flowering individuals counted at 15 sites is 100 or fewer in most years (often less than 50), with only three occurrences (#6, #17, and #23) with population estimates in the thousands.

4. Brief description of natural history and key ecological functions [basis for other 12.53 components]:

Showy raillardella is a perennial, rhizomatous herb that blooms from July to September. Plants are found in fens, meadows, seeps, stream edges, and montane coniferous forest on mesic, serpentinite soils or related ultramafics, occurring at 1,200–2,290 m in elevation (CNPS 2020, Ferlatte 1978). Associates include fen and wet meadow herb species such as *Darlingtonia californica, Gentiana newberryi, Gentianella amarella, Gentianopsis simplex, Helenium bigelovii, Poa pratensis, Deschampsia caespitosa, Dodecatheon jeffreyi, Carex* and *Juncus*, as well as trees and shrubs such as *Pinus contorta* ssp. *murrayana, Pinus monticola, Pinus jeffreyi, Abies magnifica*, and *Rhododendron occidentale* (CNDDB 2020). Within the habitat types listed above, *Raillardella pringlei* occupies more open areas where the thick rhizomes are able to spread more easily. This includes the rocky edges of perennial streams, along the rocky shore of lakes, and adjacent to downed logs or recent erosion channels. This may indicate an avoidance of the thick herbaceous mats present in the meadows adjacent to occupied sites (Knorr pers. comm. 2020).

The genus *Raillardella*, with three species endemic to the western United States, is part of the tarweed tribe (Madiinae) of the Asteraceae (Baldwin & Wessa 2000, FNA 1993+). However within the tribe, the genus is considered to have retained ancestral characteristics in terms of perennial habit, high chromosome number (n = 17, 18), and montane habitat (Baldwin & Wessa 2000, Ferlatte 1978, FNA 1993+), and the other genera in the tribe are very different ecologically from *Raillardella*. The species of *Raillardella* are most similar to those of the genus *Arnica*, which is the closest relative (sister taxon) to the Madiinae tribe within the Asteraceae (Baldwin & Wessa 2000). The pappus on the fruits of *Raillardella*, which promotes wind dispersal, consists of flattened, plumose bristles, similar to *Arnica* (FNA 1993+). Although no pollinator observations have been reported for the genus *Raillardella*, the pollinators are assumed to be

bees or butterflies, and the plants are known to be self-incompatible (Les 2017); this is similar to the pollinators that visit *Arnica*, which include several genera of beetles, butterflies, and bees (CPC 2020).

5. Overview of ecological conditions for recovery, conservation, and viability [12.53 7, 9?, 10, 11, 12] including Threats and Risk Factors:

This species is restricted to wetlands on serpentine or other ultramafic-derived soils within a small area of the Klamath Ranges. Due to its narrow habitat requirements, this species has limited ability to migrate to new habitat. The region where showy raillardella occurs is relatively remote, with some populations located in Wilderness Areas. Ten out of 25 occurrences have a site quality ranking in the CNDDB: two are given the rank of excellent, six are ranked good, and two are ranked fair. Most population numbers reported to the CNDDB for showy raillardella are below one hundred plants, although three populations with over 1,000 individuals have been recorded. Given that many of the occurrences of showy raillardella are historical and have not been visited in over 20 years, it is difficult to know if the populations of this species are currently stable or declining.

Many of the older occurrence reports in the CNDDB list cattle trampling and grazing as threats. Livestock allotments administered by the Forest Service were active through the species' range in the twentieth century; those allotments are now closed, vacant, or inactive (Kierstead 2020 pers. comm.). Cattle often ate the flower heads, which negatively affected seed production. However, livestock trampling had positive impacts, as it opened bare ground for recruitment of seedlings; as noted above, this species does not compete well with sedge, rush, and grass turf and seeks open edges near channels, springs, ponds, downed logs and boulders (Kierstead 2020 pers. comm.). Since grazing ended, many more flower heads are left to produce seed (Kierstead 2020 pers. comm.).

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). In order for populations of showy raillardella to remain viable over time, the water sources that feed its wetland habitat will need to remain stable. These wetlands may be affected by future increases in wildfire incidence in positive and negative ways. The meadows themselves dry out in late summer/early autumn to the point where they can carry a ground fire, which may kill encroaching conifers (Kierstead 2020 pers. comm.). Showy raillardella, in its niches in the wettest parts of the meadows, and with its robust network of rhizomes, is likely to survive and resprout after fire. However, loss of large areas of adjacent forest can result in changes in hydrology (Kierstead 2020 pers. comm.). The Northwest Forest Plan (NWFP), via its Aquatic Conservation Strategy, places great value on maintenance and improvement of wetlands and riparian areas, and has steadily improved the health of these habitats since the NWFP was instituted in the mid-1990s (Kierstead 2020 pers. comm). Conservation of this species has begun with seed collections which are being banked at both the California Botanic Garden (former Rancho Santa Ana Botanic Garden) and the Rae Selling Berry Seed Bank (CNDDB 2020).

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