Plant Species Evaluation Form

Galium glabrescens (Ehrend.) Dempster & Ehrend. **subsp.** *modocense* Dempster & Ehrend.

MODOC BEDSTRAW

Family: Rubiaceae (CNPS 2017)

PLANTS Symbol: GAGLM (USDA 2017)

Calif. Endemic: Yes (CNPS 2017)

Synonyms/Other Names: No synonyms or other names are known to have been used for this taxon.

Identification Issues: No identification issues are known or expected to occur with this taxon.

Taxonomy:

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Species In Genus: +- 650 species: worldwide, especially temperate. Etymology: (Greek: milk, from use of some species for curdling) Note: Ovary and fruit generally +- equally hairy on a pl; staminate plants generally identified by vestigial ovaries, pistillate plants generally by vestigial anthers.

Habit (*G. glabrescens*): Perennial herb, ascending, 5--31 cm, generally green, +- glabrous to puberulent, base +- woody; dioecious. Leaf: in whorls of 4, ovate to obovate. Inflorescence: narrow, leafy, flowers few on short, axillary branchlets, little-exserted from leaves. Flower: corolla generally rotate (shallowly bell-shaped), +- yellow to +- red. Fruit: nutlets; hairs long, straight, spreading.

Habit (subsp. *modocense*): Plant puberulent. Stem: 8--31 cm. Leaf: 7--20 mm, ovate, tip acute to acuminate. Flower: corolla rotate, cream, glabrous to sparsely hairy. Fruit: 4--5 mm including hairs, hairs long, spreading. Chromosomes: 2n=66.

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).

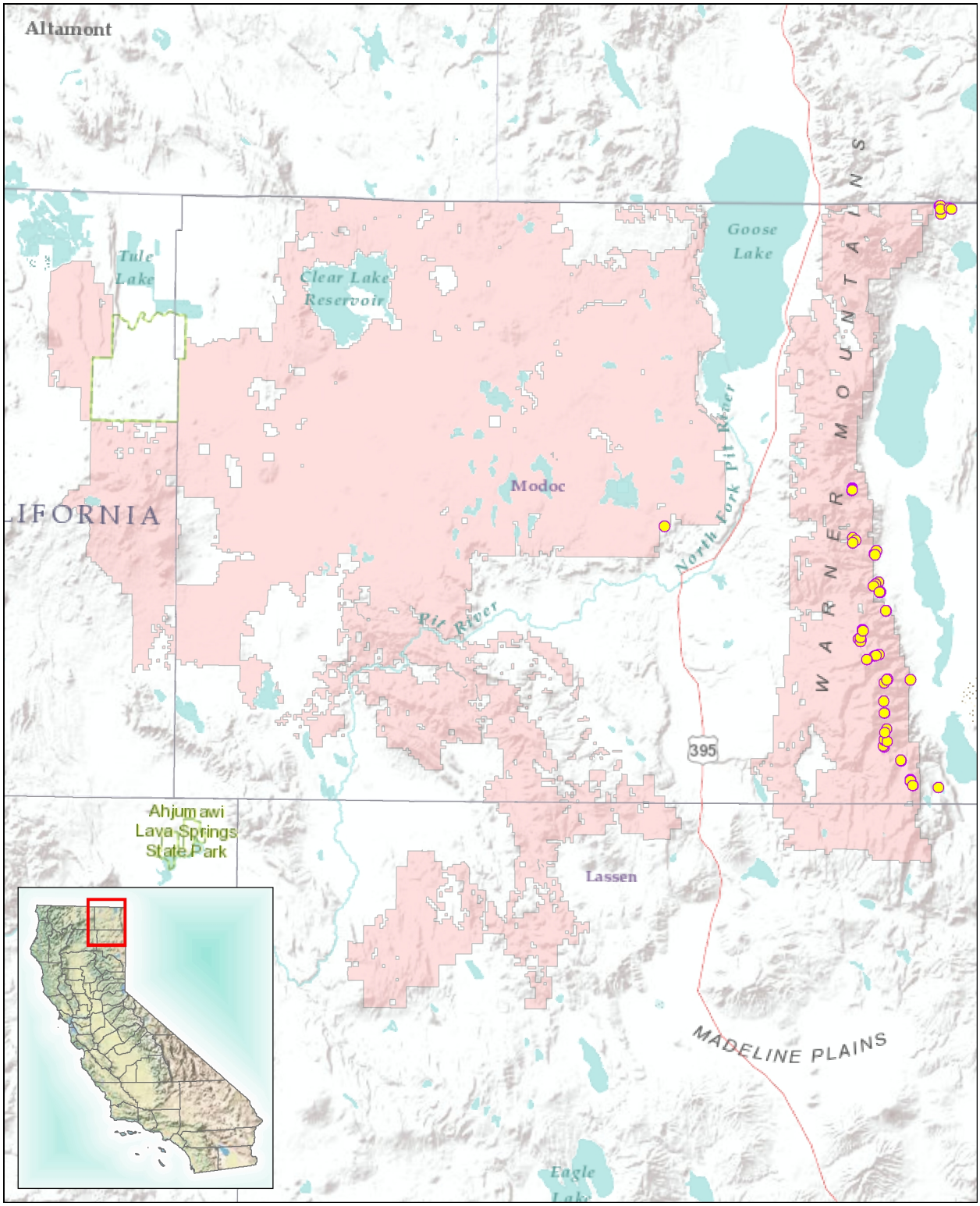
State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G4T3	CA: S3 NV: Not listed OR: Not listed	1B.2	Sensitive	Not listed	Not listed

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

Expanded abbreviations and citations: State Listing=California Endangered Species Act Listing (CDFW 2017b), 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 Ranks (CDFW 2017a; NatureServe 2017); S-rank=Subnational (state or province-level) Conservation Status Ranks (CDFW 2017a; NatureServe 2017; NNHP 2017; ORBIC 2016); CRPR=California

Rare Plant Rank (CNPS 2017); 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); NPPA=Native Plant Protection Act Status (CDFW 2017b); 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: Northeastern California, Modoc County; southeastern Warner Mountains at Cedar Pass and Horse Mountain (NatureServe 2017). Over 65% (15 of 23) of its occurrences are distributed solely in Modoc National Forest. Its other occurrences are located mostly on BLM land (7 occurrences), with a single occurrence having an unknown landownership (CNDDB 2017).



Basemap Sources: Main map: Esri, DeLorme, USGS, NOAA, NPS. California inset map: © 2013 National Geographic Society, i-cubed.

Locations within California:

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

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	SLOPE WEST OF TENMILE CREEK AND EAST OF BARBED WIRE FENCE, JUST SOUTH OF CALIFORNIA-OREGON BORDER.	Modoc	Lake Annie (4112081)	CNDDB, May 2017 (EO 1)	14-Sep-1987	FEWER THAN 50 PLANTS IN 3 CLUMPS IN 1983. MORE THAN 100 PLANTS IN 1980 AND 1984. MORE THAN 1000 PLANTS IN 1985. UNKNOWN NUMBER OF PLANTS SEEN IN 1987. 1979 SCHOOLCRAFT COLLECTION IS ALSO ATTRIBUTED TO THIS SITE.	AREA GRAZED BY CATTLE, BUT GRAZING IS MONITORED AND IS NOT A THREAT.	BLM	5900
1	10 mile Creek Area., T48N R16 E sec36	Modoc	Lake Annie (4112081)	Calflora, May 2017 (xr87232)	9-Aug-1979	1+ individuals		BLM	5912
1	Twelve Mile Creek area., T48N R16 E sec36	Modoc	Lake Annie (4112081)	Calflora, May 2017 (xr85342)	21-Jul-1980	1+ individuals		BLM	5912
1	BLM	Modoc	Lake Annie	NRIS, Dec 2016	12-Aug-	1000 individuals		BLM	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
			(4112081)	(050900E_GAGLM_BLM6)	1985				
1	at base of large rocks w Ten Mile Creek (n of drainage to w)	Modoc	Lake Annie (4112081)	CCH, Jan 2017 (UC1446111)	9-Aug-1979			BLM	5801
2	RIDGE NORTH OF MOUTH OF GRANGER CANYON, APPROXIMATELY 3.5 AIR MILES SSW OF CEDARVILLE.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 2)	13-Aug-1985	4 POPULATIONS WITH 50-100 PLANTS EACH OBSERVED IN 1981. NO NOTICABLE CHANGE IN 1985. INCLUDES FORMER OCCURRENCE #3.		BLM-Cedarville RA, PVT	5400
2	BLM	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM_BLM3)	13-Aug-1985	300 individuals		BLM	
2	BLM	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM_BLM4)	13-Aug-1985	100 individuals		BLM	
2	S facing ridge, N of Granger Canyon.	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (CAS8150	11-Jun-1981			BLM	5400

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
				79)					
3	ABOUT 2 MILES WEST OF SURPRISE VALLEY ROAD AT OVERTON, SOUTH OF GRANGER CREEK.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 4)	26-Aug-1993	TWO POPULATIONS WITH 50-100 PLANTS EACH IN 1981, AND 100-500 PLANTS SEEN IN 1993.		BLM-Cedarville RA	5500
3	BLM	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM_BLM7)	26-Aug-1993	200 individuals		BLM	
3	BLM	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM_BLM1)	1-Jan-1981	200 individuals		BLM	
3	Granger Canyon., T42N R16 E sec30	Modoc	Warren Peak (4112042)	Calflora, May 2017 (xr85162)	16-Jun-1981	1+ individuals		BLM	5272
4	1.5 MILES WEST OF SURPRISE VALLEY ROAD, ALONG	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 5)	Jun-1981	3 POPULATIONS WITH 50-100 PLANTS EACH OBSERVED IN 1981.		BLM-Cedarville RA	5300

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
	MILK CREEK.								
4	BLM	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM_BLM5)	1-Jan-1981	300 individuals		BLM	
5	FROM 0.5 MILE SOUTHWEST TO 1.5 MILES SOUTH OF SQUAW PEAK, ALONG AND EAST OF SUMMIT TRAIL SOUTH TO COTTONWOOD CREEK.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 6)	16-Sep-2002	5000+ SEEN IN ENTIRE SOUTHERN POLY IN 1996, AND NORTHERN PORTION OF IT SEEN IN 2002 (50 PLANTS). TWO 1980 RIEGEL COLLECTIONS AND A 1991 BARTHOLOMEW COLLECTION ARE ALSO ATTRIBUTED HERE. INCLUDES FORMER OCCURRENCES #7 AND #11.	TRAIL USE AND MAINTENANCE MIGHT THREATEN A PORTION OF THIS OCCURRENCE.	Modoc NF	8100
5	1 mi s Squaw Pk. (1/4 mi e of Summit Trail); Modoc National Forest, S Warner Mt. Wilderness	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (UC1485929)	25-Aug-1980			Modoc NF	7999

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
	Area								
5	Summit Trail between Squaw Peak and Cottenwood Lake along crest of Warner Mts.	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (CAS858450)	5-Aug-1991			Modoc NF	8301
5	3/4 mi s Squaw Peak (1/4 mi e of Summit Trail); Modoc Nat. Forest, S Warner Mt. Wilderness Area	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (UC1485931)	22-Aug-1980			Modoc NF	6841
5	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM002_53)	29-Jul-1996	5000 individuals		Modoc NF	
5	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM002_53)	25-Aug-1980	5000 individuals		Modoc NF	
5	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E	22-Aug-1980	50 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
				_GAGLM 007_53)					
5	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E _GAGLM 007_53)	16-Sep-2002	50 individuals		Modoc NF	
6	FROM 0.2 MILE WEST OF LINDERMAN LAKE TO 0.5 MILE NORTHEAST, ON SOUTH AND EAST SLOPES OF PEAK 8778.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 8)	11-Aug-1997	AT WESTERN POLYGON, 200+ PLANTS SEEN IN 1997. AT EASTERN POLYGON, ABOUT 100 PLANTS SEEN IN 1980 AND 200+ SEEN IN 1997. IN SOUTH WARNER WILDERNESS. EASTERN POLY MAY CONTINUE DOWNSLOPE TO SE. INCLUDES FORMER OCCURRENCE #12.	WESTERN POLY WITH SHEEP GRAZING, AND MAY BE SUSCEPTIBLE TO FIRE DUE TO DENSE BRUSH. NO THREATS NOTED AT EASTERN POLY.	Modoc NF	8300
6	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E _GAGLM 008_53)	11-Aug-1997	200 individuals		Modoc NF	

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6	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM008_53)	28-Aug-1980	200 individuals		Modoc NF	
6	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM004_53)	11-Aug-1997	200 individuals		Modoc NF	
6	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM004_53)	28-Aug-1980	200 individuals		Modoc NF	
6	1/2 mi e Owl Creek Trail (near summit); Modoc Nat. Forest, S Warner Mt. Wilderness Area	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (UC1485928)	28-Aug-1980	Coordinates from source were corrected by CNPS.		Modoc NF	8241
6	S Warner Mtns., S Warner Wilderness Area	Modoc	Warren Peak (4112042)	CCH, Jan 2017 (HSC80868)	28-Aug-1980	Coordinates from source were corrected by CNPS.		Modoc NF	8780
7	1 MILE WEST OF CEDARVILLE	Modoc	Cedarville (4112052)	CNDDB, May 2017 (EO 9)	Jun-1981	ABOUT 50-100 PLANTS OBSERVED IN 1981.		BLM-Cedarville RA	5700

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
	AND 0.75 MILE SOUTH OF HIGHWAY 299.								
7	On ridgetop, S of Hwy 299, 0.5 mi. W of Cedarville.	Modoc	Cedarville (4112052)	CCH, Jan 2017 (CAS815080)	23-Jun-1981			BLM	5299
7	BLM	Modoc	Cedarville (4112052)	NRIS, Dec 2016 (050900E_GAGLM_BLM2)	1-Jan-1981	100 individuals		BLM	
8	EAST OF CEDAR PASS ON ROAD TO CEDARVILLE.	Modoc	Cedarville (4112052)	CNDDB, May 2017 (EO 10)	18-Jun-1961	SITE IS BASED ON TWO 1961 COLLECTIONS BY HARDHAM AND DEMPSTER AND A 1964 DEMPSTER MAP. NOTE ATTACHED TO DEMPSTER COLLECTION STATES "IN 1972 THE WHOLE AREA WAS HEAVILY GRAZED;" UNKNOWN IF PLANTS ALSO SEEN IN 1972.	HEAVILY GRAZED.	Modoc NF	5500

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
8	3.2 miles east of Summit of Cedar Pass	Modoc	Cedarville (4112052)	CCH, Jan 2017 (RSA165568)	18-Jun-1961			Modoc NF	
8	3.2 mi E of summit of Cedar Pass	Modoc	Cedarville (4112052)	CCH, Jan 2017 (SBBG22425)	18-Jun-1961			Modoc NF	
8	Modoc NF	Modoc	Cedarville (4112052)	NRIS, Dec 2016 (050900E_GAGLM006_53)	1-Jan-1964	0 individuals		Modoc NF	
8	Modoc NF	Modoc	Cedarville (4112052)	NRIS, Dec 2016 (050900E_GAGLM006_53)	1-Jan-1972	0 individuals		Modoc NF	
9	0.3 TO 0.5 MILE SOUTHWEST OF NORTH EMERSON LAKE, JUST EAST OF PEAK 8742, SOUTH WARNER WILDERNESS.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 13)	1-Aug-1996	ABOUT 100 PLANTS OBSERVED IN 1980 IN EASTERN POLYGON AND MORE THAN 500 PLANTS SEEN IN 1996 IN WESTERN POLYGON.		Modoc NF	8300

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
9	In vicinity of pass at junction of N Emerson Lake Trail and Owl Creek Trail, on Cole Peak side of pass.	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (CAS832131)	28-Jun-1990			Modoc NF	8501
9	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM009_53)	1-Aug-1996	500 individuals		Modoc NF	
9	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM009_53)	3-Sep-1980	500 individuals		Modoc NF	
10	ABOUT 0.1 MILE NORTHEAST AND 0.3 MILE NORTHWEST OF NORTH EMERSON LAKE, SOUTHEAST OF COLE PEAK.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 14)	31-Jul-1996	FEWER THAN 50 PLANTS OBSERVED IN SOUTHEASTERN POLYGON IN 1980. MORE THAN 1000 PLANTS OBSERVED IN NORTHWESTERN POLYGON IN 1996. A 1990 VASEY COLLECTION AND TWO 1995 BARTHOLOMEW COLLECTIONS ARE	TRAIL USE & MAINTENANCE, LIVESTOCK GRAZING (1996).	Modoc NF	8200

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
						ALSO ATTRIBUTED TO THIS OCCURRENCE.			
10	Vicinity of pass between North Emerson Lake and Eagle Basin, E side of Warner Mountains	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (GH417007)	3-Sep-1995			Modoc NF	
10	Vicinity of pass between North Emerson Lake and Eagle Basin, E side of Warner Mountains.	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (CAS793564)	3-Sep-1995			Modoc NF	7907
10	Steep sagebrush covered slope NW of North Emerson Lake, E side of Warner Mountains.	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (CAS794012)	3-Sep-1995			Modoc NF	7874
10	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM010_53)	31-Jul-1996	1000 individuals		Modoc NF	
10	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016	3-Sep-1980	1000 individuals		Modoc NF	

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				(050900E_GAGLM010_53)					
10	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM001_53)	3-Sep-1980	50 individuals		Modoc NF	
11	AT HEAD OF WATERBOX CANYON, EAST SIDE OF HORSE MOUNTAIN, WARNER MOUNTAINS.	Modoc	Emerson Peak (4112022)	CNDDB, May 2017 (EO 15)	26-Jul-1996	TYPE LOCALITY. MORE THAN 1000 PLANTS SEEN IN 1996. INCLUDES COLLECTIONS FROM HORSE MOUNTAIN FROM 1946 (ALEXANDER #5071) AND 1959 (EHRENDORFER #5909).	NONE. HANG GLIDING OCCURS OFF HORSE MOUNTAIN, BUT LITTLE POTENTIAL TO CAUSE IMPACTS.	Modoc NF	8300
11	House Mountain, Warner Mts.	Modoc	Emerson Peak (4112022)	CCH, Jan 2017 (DS338333)	14-Jul-1946			Modoc NF	
11	Warner Mountains. Horse Mountain, near the top	Modoc	Emerson Peak (4112022)	CCH, Jan 2017 (SD70497)	28-Jun-1959	Coordinates from source were corrected by CNPS.			8501

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
11	Warner Mountains, Horse Mountain, near the top	Modoc	Emerson Peak (4112022)	CCH, Jan 2017 (RSA202644)	28-Jun-1959	Coordinates from source were corrected by CNPS.			8501
11	Modoc NF	Modoc	Emerson Peak (4112022)	NRIS, Dec 2016 (050900E_GAGLM011_53)	26-Jul-1996	1000 individuals		Modoc NF	
11	Modoc NF	Modoc	Emerson Peak (4112022)	NRIS, Dec 2016 (050900E_GAGLM011_53)	28-Jun-1959	1000 individuals		Modoc NF	
12	ALONG BEARCAMP FLAT TRAIL, ABOUT 0.8 MILE ENE OF EMERSON PEAK, WARNER MOUNTAINS.	Modoc	Emerson Peak (4112022)	CNDDB, May 2017 (EO 17)	21-Jul-1997	MORE THAN 400 PLANTS SEEN IN 1997.	TRAIL USE AND MAINTENANCE.	Modoc NF	7500
12	Modoc NF	Modoc	Emerson Peak (4112022)	NRIS, Dec 2016 (050900E_GAGLM019_53)	21-Jul-1997	400 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
13	ABOUT 0.7 MILE NORTHWEST OF COLE PEAK, SOUTH OF EAGLE CREEK.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 18)	10-Aug-1997	MORE THAN 400 PLANTS SEEN IN 1997. IN SOUTH WARNER WILDERNESS. RARE PLANTS PHACELIA SERICEA VAR. CILIOSA AND DELPHINIUM STACHYDEUM ALSO OCCUR HERE.	GRAZING, TRAIL USE AND MAINTENANCE (ABOUT 50 PLANTS IN OR NEAR TRAIL IN 1997).	Modoc NF	7400
13	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM018_53)	10-Aug-1997	400 individuals		Modoc NF	
14	ABOUT 2.1 MILES NNW OF COLE PEAK, BETWEEN HIGH ROCK CREEK AND NORTH FORK EAGLE CREEK, ABOUT 0.8 MILE WEST OF PEAK 7543.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 19)	10-Aug-1997	MORE THAN 500 PLANTS SEEN IN 1997. IN SOUTH WARNER WILDERNESS.	TRAIL USE AND MAINTENANCE (ABOUT 20 PLANTS IN OR NEAR TRAIL IN 1997). NO GRAZING NOTED IN 1997.	Modoc NF	7850
14	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E	10-Aug-1997	500 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
				_GAGLM 016_53)					
15	ALONG SOUTH FORK RAIDER CREEK, ABOUT 0.8 MILE EAST OF PEAK 9054, 1.5 MILES SSE OF DUSENBURY PEAK.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 20)	11-Aug-1997	MORE THAN 50 PLANTS SEEN IN 1997. IN SOUTH WARNER WILDERNESS. EXTENSIVE EROSION LIMITS HABITAT; PLANTS ONLY FOUND ON MORE STABLE PARTS OF SLOPE.	TRAIL USE AND MAINTENANCE (ABOUT 25 PLANTS SEEN IN OR NEAR TRAIL IN 1997).	Modoc NF	7400
15	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E _GAGLM 017_53)	11-Aug-1997	50 individuals		Modoc NF	
16	ABOVE SURPRISE VALLEY, 0.7 MILE NW OF INTERSECTION OF HORNBACK CREEK AND SURPRISE VALLEY RD, EAST SLOPE WARNER	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 21)	9-Jun-1999	ABOUT 100 PLANTS SEEN IN 1999.		BLM	5100

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
	MOUNTAIN.								
16	Lower slopes of Warner Mtns. about 2.5 mi. n. of Eagleville, CA., T40N R16 E sec11	Modoc	Eagle Peak (4112032)	Calflora, May 2017 (xr87444)	9-Jun-1999	1+ individuals. Coordinates from source were corrected by CNPS.			4580
16	About 2.5 mi N of Eagleville	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (CHSC77231)	9-Jun-1999	Coordinates from source were corrected by CNPS.			5200
17	ABOUT 1.0 MILES NORTHEAST OF DUSENBURY PEAK, AROUND PEAK 7831 ON RIDGE BETWEEN LITTLE OWL CREEK AND HORNBACK CREEK.	Modoc	Eagle Peak (4112032)	CNDDB, May 2017 (EO 22)	11-Aug-1997	MORE THAN 500 PLANTS SEEN IN 1997. RARE PLANT PHLOX MUSCOIDES ALSO OCCURS NEARBY.	NONE.	Modoc NF	7600
17	1/3 mi sw N Emerson Lake (below rock outcrop on talus	Modoc	Eagle Peak (4112032)	CCH, Jan 2017 (UC14859	3-Sep-1980			Modoc NF	8120

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
	slope); Modoc Nat. Forest, S Warner Mt. Wilderness Area			30)					
17	Modoc NF	Modoc	Eagle Peak (4112032)	NRIS, Dec 2016 (050900E_GAGLM015_53)	11-Aug-1997	500 individuals		Modoc NF	
18	ESE OF PATTERSON LAKE, ABOUT 0.5 MILE WEST OF WARREN PEAK.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 23)	30-Jul-1996	MORE THAN 500 PLANTS SEEN IN 1996. IN SOUTH WARNER WILDERNESS.	NONE.	Modoc NF	9150
18	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM013_53)	30-Jul-1996	500 individuals		Modoc NF	
19	SQUAW PEAK, JUST WEST OF SUMMIT.	Modoc	Warren Peak (4112042)	CNDDB, May 2017 (EO 24)	31-Jul-2003	50+ PLANTS SEEN IN 1996, AND 12 IN 2003. IN SOUTH WARNER WILDERNESS.	NONE. IN WILDERNESS AREA, AND INACCESSIBLE TO STOCK.	Modoc NF	8520
19	Modoc NF	Modoc	Warren Peak	NRIS, Dec 2016	31-Jul-2003	12 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
			(4112042)	(050900E_GAGLM012B_53)					
19	Modoc NF	Modoc	Warren Peak (4112042)	NRIS, Dec 2016 (050900E_GAGLM012A_53)	29-Jul-1996	50 individuals		Modoc NF	
20	1.6 MILES EAST OF BALD MOUNTAIN, AT HEAD OF SIMPSON CANYON.	Modoc	Cedarville (4112052)	CNDDB, May 2017 (EO 25)	25-Jun-2002	<300 PLANTS SEEN IN 1997. UNKNOWN NUMBER OF PLANTS SEEN IN 2001 AND 2002. 1995 BARTHOLOMEW COLLECTION ALSO ATTRIBUTED HERE. RARE PLANTS DIMERESIA HOWELLII, PHLOX MUSCOIDES, LOMATIUM RAVENII, AND ERIOGONUM PROCIDUUM ALSO OCCUR NEARBY.	ONLY SLIGHT DISTURBANCE FROM CATTLE GRAZING.	Modoc NF	7200
20	E of Bald Mt., on the E side of the Warner Mountains	Modoc	Cedarville (4112052)	CCH, Jan 2017 (CAS1032019)	24-Jun-2002			Modoc NF	6988

Galium glabrescens (Ehrend.) Dempster & Ehrend. subsp. *modocense* Dempster & Ehrend.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
20	Top of a rocky knob, E of Bald Mountain, E side of the Warner Mts.	Modoc	Cedarville (4112052)	CCH, Jan 2017 (CAS793931)	31-Jul-1995			Modoc NF	7087
20	Modoc NF	Modoc	Cedarville (4112052)	NRIS, Dec 2016 (050900E_GAGLM014_53)	23-Jun-1997	300 individuals		Modoc NF	
20	Warner Mountains - ~ 1.25 mi E of Bald Mt. End of dirt rd. 44N30.	Modoc	Cedarville (4112052)	Calflora, May 2017 (jgr19197)	9-Jun-2001	1+ individuals. Coordinates from source were corrected by CNPS.		Modoc NF	7805
21	SOUTH OF TWELVEMILE MEADOW, ABOUT 0.5 MILE SOUTH OF CALIFORNIA-OREGON BORDER.	Modoc	Lake Annie (4112081)	CNDDB, May 2017 (EO 26)	25-Aug-1999	ABOUT 300 PLANTS SEEN IN 1999.		BLM	5700
21	Lower east slope of Warner Mountains near OR stateline	Modoc	Lake Annie (4112081)	CCH, Jan 2017 (UC1776689)	25-Aug-1999				5699

Galium glabrescens (Ehrend.) Dempster & Ehrend. subsp. *modocense* Dempster & Ehrend.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
21	Lower east slope of Warner Mtns. near OR stateline., T48N R17 E sec31	Modoc	Lake Annie (4112081)	Calflora, May 2017 (xr87792)	25-Aug-1999	1+ individuals. Coordinates from source were corrected by CNPS.			5909
22	SNAKE LAKE.	Modoc	Snake Lake (4112021)	CNDDB, May 2017 (EO 27)	6-Aug-1989	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1989 COLLECTION BY TAYLOR & CLIFTON. NEEDS FIELDWORK.		Unknown	5150
22	Snake Lake	Modoc	Snake Lake (4112021)	CCH, Jan 2017 (RSA530114)	6-Aug-1989	Coordinates from source were corrected by CNPS.			5151
23	NORTH SIDE OF SNOWSLIDE CANYON, APPROXIMATELY 0.8 AIR MILE NORTHEAST OF COLD SPRING, HORSE MOUNTAIN.	Modoc	Emerson Peak (4112022)	CNDDB, May 2017 (EO 28)	26-Sep-2012	MORE THAN 200 PLANTS OBSERVED IN 2012.	EROSION, TRAMPLING.	Modoc NF	7895

Galium glabrescens (Ehrend.) Dempster & Ehrend. subsp. *modocense* Dempster & Ehrend.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
23	mdf-gaglm-020;	Modoc	Emerson Peak (4112022)	NRIS, Dec 2016 (050900E_GAGLM020_53)	26-Sep-2012	200 individuals		Modoc NF	
24	Modoc NF From 2007 MDF	Modoc	Mahogany Ridge (4112055)	Calflora, May 2017 (ce913)	17-Mar-2014	1+ individuals		BLM	4662

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:	-	-	-	-	-	-	-	0
Modoc:	5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 23	15	0	4	11	26-Sep-12	9	15
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	-	-	-	-	-	-	-	0
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	15	0	4	11	N/A	9	15

Demographic and Population Trends: Over 13,200 individual plants have been observed from 22 occurrences from 1981 to 2012. One occurrence (EO 4) had an estimated increase from 100-200 plants in 1981 to 100-500 plants observed in 1993. Another occurrence (EO 1) was known from fewer than 50 plants in 1983 and increased to more than 1,000 plants observed in

1987. Element occurrence two (EO 2) had four populations observed with 50-100 plants each in 1981 with no noticeable change in 1985. Element occurrence 24 had more than 50 plants observed in 1996, and only 12 seen in 2003. Of the 21 occurrences with population/count information, the average total number of individuals observed is approximately 630 plants, with most ranging from around 300-500 plants. Occurrence six (EO 6) has the largest number of plants observed at more than 5,000 individuals, and occurrences one and 15 have the next largest number of individuals observed at 1,000 each (CNDDB 2017).

Life History: Blooms from June to August (CNPS 2017).

Diversity: Based on a molecular phylogenic study of the tribe Rubieae, Soza and Olmstead (2010a) supported seven major clades, and also strongly supported relationships within and between major clades. They used three chloroplast regions from 126 Old and New World taxa (including *Galium glabrescens* subsp. *modocense*), and estimated the molecular phylogeny using parsimony and Bayesian analyses. *Galium glabrescens* subsp. *modocense* is in one of seven clades with other *Galium* taxa that nearly all have leaves in whorles of four (excluding *G. lilloi*, a species from Argentina (Tropicos 2017) that has leaves in whorles of two), and is within a clade with 15 other taxa that share a more recent, North American ancestry. A later study of New World *Galium* by Soza and Olmstead (2010b) found that *G. glabrescens* subsp. *modocense* shares a common anscestor with *G. multiflorum*, a taxon that also occurs in Modoc County (CCH 2017); there is no indication to suspect that the two are sympatric and/or difficult to differentiate from one another. Interestingly, their later study indicates that *Galium glabrescens* subsp. *glabrescens* shares a common anscestor with 12 other *Galium* taxa (including subsp. *modocense*), and the two subspecies do not share a recent common anscestor. Soza and Olmstead (2010b) also determined that although fruit characters have been traditionally used in the taxonomy of New World *Galium*, fruit characters have arisen multiple times and are not reliable indicators of shared evolutionary history.

A study of the genetic diversity of *Galium catalinense* subsp. *acrispum* after demographic recovery could possibly give insite to genetic factors that may impact other *Galium* species. Riley et al. (2009) found that there was little evidence of genetic bottlenecks or substantial inbreeding within populations of *G. catalinense* subsp. *acrispum*, even though it went through major population declines, concluding that it is unlikely to be endangered by genetic factors. *Galium catalinense* subsp. *acrispum* is a perennial shrub that is within a separate, southern California to Baja California, clade from *G. glabrescens* subsp. *modocense* (Soza and Olmstead 2010b), however, so one cannot infer that genetic factors do not play an important role in the conservation of subsp. *modocense*.

Habitat: *Galium glabrescens* subsp. *glabrescens* occurs in sandy or clay soil of Great Basin scrub, along gravelly or rocky slopes and talus under the edges of rocks (CNDDB 2017, CNPS 2017). It is also cited to occur in volcanic soils (Soza 2017). *Galium glabrescens* subsp. *glabrescens* has been observed to be associated with *Cercocarpus ledifolius, Artemisia tridentata* subsp. *vaseyana, Holodiscus microphyllus, Eriophyllum lanatum, Elymus elymoides, Lupinus* sp., *Hackelia micrantha, Eriogonum heracleoides, Phlox* sp., *Castilleja applegatei, Crepis* sp.,

Symphoricarpos sp., *Wyethia mollis*, and/or *Monardella odoratissima* and others (CNDDB 2017).

Habitat Status or Trend: The specific habitat status or trend for *Galium glabrescens* subsp. *glabrescens* is currently not known; however, D. Taylor (pers. comm. 2017) notes that it is probably stable.

Capacity for the Species to Disperse: Schizocarp seed dispersal or rhizome growth is bedstraw's method of spread (Cronquist et al. 1984; Great Plains Flora Association 1986; Hitchcock et al. 1959). In a species richness of insects study, a single collection of insects on northern bedstraw (*Galium boreale*) plants yielded sic (6) total insect species, three (3) of which were unique to northern bedstraw (Reed 1995), suggesting that pollination of bedstraw is insect mediated.

Threats: Trail use and maintenance are the most commonly noted threats (six element occurrences), with severe to minor cattle/livestock grazing also noted in five occurrences. Other possible threats are fire due to dense brush (one occurrence) and trampling and erosion (one occurrence) (CNDDB 2017).

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September 12, 2017

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.