Plant Species Evaluation Form

Erythranthe inflatula (Suksd.) G.L. Nesom

EPHEMERAL MONKEYFLOWER

Family: Phrymaceae (CNPS 2017)	**PLANTS Symbol:** (USDA 2017)	**Calif. Endemic:** No (CNPS 2017)

Synonyms/Other Names: *Erythranthe inflatula* (Suksd.) Nesom was originally described as *Mimulus inflatulus* Suksdorf in 1927. In 1995, Robert J. Meinke described *Mimulus evanescens* as a new species. It was later determined that this newly described entity is a taxon formerly regarded as *Mimulus inflatus* Suksdorf (Nesom 2012). *The Jepson Manual, 2nd Edition* (Thompson 2012) and *Jepson eFlora* (Thompson 2017) refer to this entity as *Mimulus evanescens*. It is important to note that the USDA PLANTS Database considers the name *Mimulus inflatulus* Suks. a synonym for *M. breviflorus* Piper (USDA 2017). This is not correct, and it may elicit confusion given that *M. inflatulus* (*Erythranthe inflatula*) is considered a hybrid (morphological and molecular evidence – Beardsley et al. 2004), and that *Mimulus breviflorus* (*Erythranthe breviflora*) is a putative parent with close morphological affinities (Nesom 2012).

Identification Issues: The biosystematic community has widely recognized the segregation of Phrymaceae into 13 segregate genera (Barker et al. 2012). These changes, and subsequent taxonomic insights have yet to be reflected in California's regularly updated and widely used *Jepson eFlora* (Thompson 2017). In addition, these changes were established after *The Jepson Manual, 2nd Edition* (Thompson 2012) was printed and released. Morphological and molecular data suggest that *Erythranthe inflatula* is a hybrid between *E. breviflora* (*Mimulus breviflorus*) and *E. latidens* (*M. latidens*) (Beardsley et al. 2004; Nesom 2012). There is also substantial morphological overlap between *E. inflatula* and *E. breviflora* – two taxa that can also occur in sympatry (Meinke 2007). *Erythranthe breviflora* and *E. inflatula* both produce an inflated and plicate calyx during fruit. This fruiting calyx is more plicate and exceeds the length of the mature capsule in *E. inflatula*. The fruiting calyx of *E. breviflora* is less plicate and is roughly the same length as the mature capsule. Also, the overall stature and vegetative features of *E. inflatula* are larger than *E. breviflora*. *Erythranthe inflatula* has leaves that are ovate to broadly lanceolate, compared to the rhombic-ovate to narrowly lanceolate leaves of *E. breviflora*. Only the lowest leaves of *E. inflatula* are petiolate (abruptly), whereas *E. breviflora* has leaves that narrow into an evident petiole, even at distal nodes. *Erythranthe floribunda, E. patula*, and *E. pulsiferae* are three additional small-flowered annual taxa that may be confused with *E. inflatula*. Of these three taxa, only *E. floribunda* has an inflated calyx in fruit. All three have bilabiate corollas and distal leaves that are petiolate (Meinke 2007).

Taxonomy:

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Species In Genus: +- 100 species: North America, Chile, eastern Asia, southern Africa, New Zealand, Australia. Etymology: (Latin: little mime or comic actor, from face-like corolla of some species) Note: Limb width measured between most distant points across corolla face.

Genus Description Habit: Glabrous to hairy. Stem: generally erect. Leaf: opposite, generally +- sessile, generally toothed or entire, generally green or +- red. Inflorescence: raceme, bracted, or flowers generally 2 per axil. Flower:occasionally cleistogamous; calyx generally green, lobes 5, generally << tube, generally unequal; corolla generally deciduous, white to red, maroon, purple, gold, or yellow, lower lip base occasionally swollen, +- closing mouth, tube-throat floor generally with 2 longitudinal folds; anther sacs spreading; placentas 2, axile or parietal; stigma lobes generally flat, generally included. Fruit: generally ovoid to fusiform, generally upcurved if elongate, generally +- fragile, loculicidal near tip (hard, indehiscent), chambers 1--2. Seed: many, generally < 1 mm, ovoid, +- yellow to dark brown.

Species Description Habit: Annual 6--25 cm, glandular-puberulent. Leaf: 1--4 cm, broadly ovate to +- lanceolate, lowest not in basal rosette, sessile except at plant base. Flower: pedicel 8--18 mm, generally < leaves, calyx 3.5--6.5 mm, 7--11 mm and swollen in fruit, tube glabrous, lobes equal, 0.8--1.6 mm in fruit, ciliate; corolla yellow, tube-throat 4--9.5 mm; placentas axile. Fruit: 5--9 mm. eFlora Treatment Author: David M. Thompson.

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).

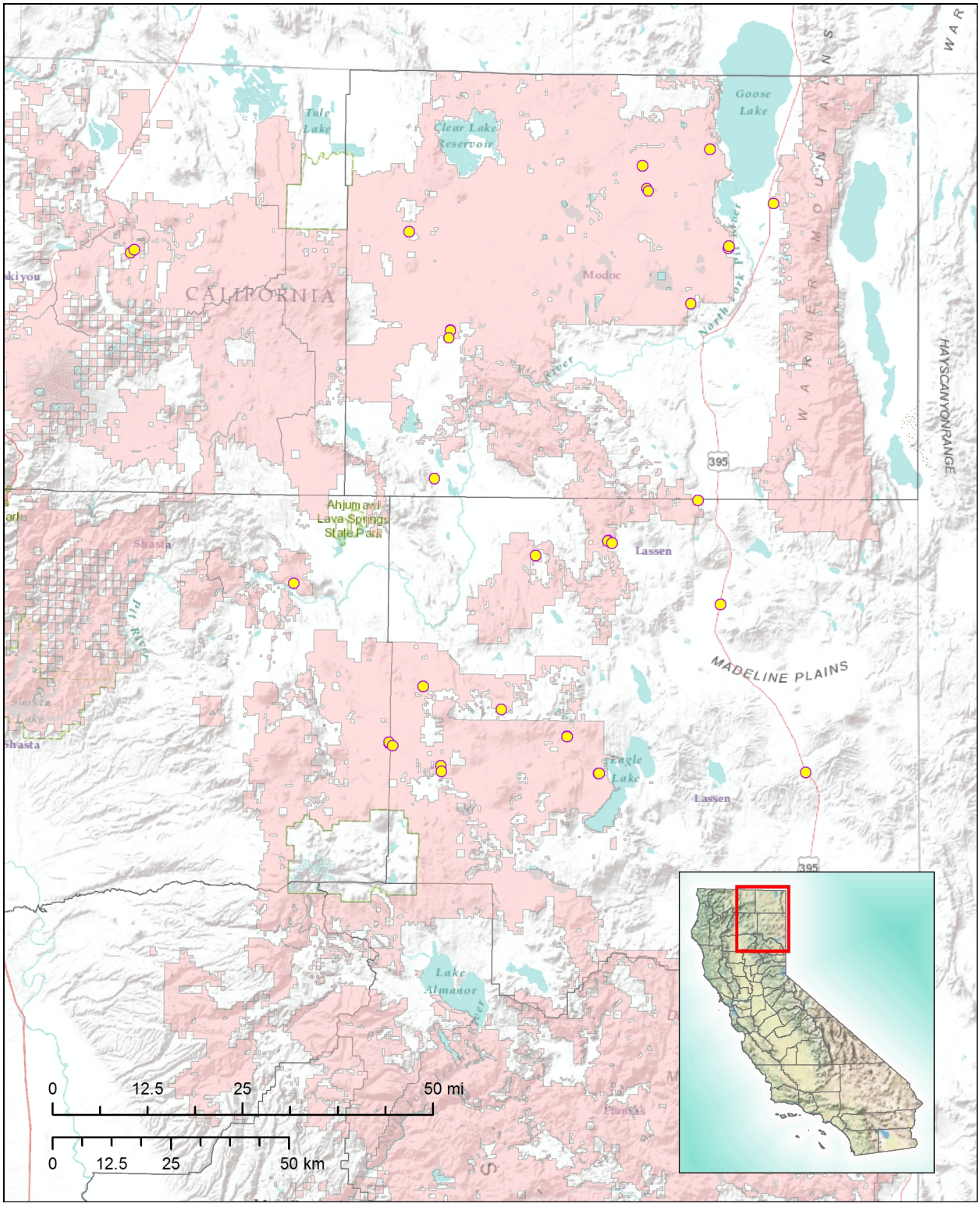
State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: C	G3	CA: S2 NV: Not listed OR: S2	1B.2	Not listed	Not listed	Not listed

SWAP:	NNHP:	NNPS:	ORBIC:	OCS:	IUCN:
Not listed	Not listed	Not listed	1: Threatened or Endangered Throughout Range	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 (CDFW 2017a; NatureServe 2017); S-rank=Subnational (state or province-level) Conservation Status (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); 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 taxon has a historic range from Idaho, Oregon, and northeastern California. Today it is found in Lake County (Oregon) and northeastern California. There are four historical collections from Oregon (Crook, Gilliam, Grant, and Harney counties), and one from Owyhee

County, Idaho (NatureServe 2017). Plants within California are found in Lassen, Shasta, Modoc, and Siskiyou counties. A total of 23 out of 31 (~75%) California occurrences are found on NFS lands (two on Klamath NF; nine on Lassen NF; 12 on Modoc NF). An additional six occurrences are found within five miles of the Modoc NF (CNDDB 2017; NRIS 2017; CCH 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	10.0 MILES S OF RAVENDALE.	Lassen	Snowstorm Mtn. (4012063)	CNDDB, May 2017 (EO 1)	09-Jun-1940	UNKNOWN NUMBER OF PLANTS SEEN IN 1940. NEEDS FIELDWORK.		BLM	5200
2	4.8 MILES S OF MADELINE.	Lassen	McDonald Peak (4012084)	CNDDB, May 2017 (EO 2)	17-Jun-1958	UNKNOWN NUMBER OF PLANTS SEEN IN 1958. NEEDS FIELDWORK.		Unknown	5250
3	NE SIDE OF POISON LAKE, JUST N OF POWERLINE CROSSING.	Lassen	Poison Lake (4012162)	CNDDB, May 2017 (EO 3)	13-Jul-1998	ABOUT 1000 PLANTS SEEN IN 1998.		Lassen NF	5570
4	ON BUTTE CREEK 0.5 MILE W OF USFS ROAD 36N18, APPROX. 1.3 MILES N OF MOUNTAIN HOME.	Shasta	Swains Hole (4012163)	CNDDB, May 2017 (EO 4)	15-Jun-1999	ABOUT 2000 PLANTS SEEN IN 1999 AT THIS SITE AND AT A SITE TO THE SE (EO #5). NO VISIBLE CATTLE SIGN IN 1999.	GRAZING.	Lassen NF	5150

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
4	On Butte Creek and small reservoir just W of FS road 36N18. Approximately 3/4 mile N of Mountain Home and just W of the Butte Creek Rim. Approximately 3 miles E of Coyote Spring. In both Section 20 and 21.	Shasta	Swains Hole (4012163)	NRIS, Feb 2017 (050658-MIEV-002)	15-Jun-1999	2000 individuals	no visible cattle sign from this year.	Lassen NF	
4	Butte Creek; Burnt Corral Reservoir is just below (W of) Butte Creek Rim about 3/4 mile N of Mountain Home. Creekbed runs NW of reservoir, a little E of Road 33N32; about 0.8 mile, it intersects Rd 36N18D.	Shasta	Swains Hole (4012163)	NRIS, Feb 2017 (050658-MIEV-002)	23-Jun-2010	individuals		Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
5	ON BUTTE CREEK AND SMALL RESERVOIR, 0.2 MILE W OF FS ROAD 36N18, APPROX. 0.75 MILE N OF MOUNTAIN HOME.	Lassen	Swains Hole (4012163)	CNDDB, May 2017 (EO 5)	15-Jun-1999	ABOUT 2000 PLANTS SEEN IN 1999 AT THIS SITE AND AT A SITE TO THE NE (EO #4). NO VISIBLE CATTLE SIGN IN 1999.	GRAZING.	Lassen NF	5150
6	NW OF ASH VALLEY, W SIDE OF MOLL RESERVOIR.	Lassen	Lane Reservoir (4112017)	CNDDB, May 2017 (EO 6)	28-Jun-2002	TYPE LOCALITY. ABOUT 300 PLANTS SEEN IN 1996, 50-100 PLANTS AND ABOUT 1000 SEEN IN TWO REPORTS IN 1998, AND 5000 SEEN IN 2002. THE RARE PLANT POGOGYNE FLORIBUNDA ALSO OCCURS HERE.	GRAZING AND SOME TRAMPLING NEAR SHORELINE. INVASION BY MEDUSAHEAD (TAENIATHERUM CAPUT-MEDUSAE).	Modoc NF, BLM, PVT	5270
6	Moll Reservoir in Ash Valley SE of Adin. Along upper edge of the reservoir	Lassen	Lane Reservoir (4112017)	CCH, Jan 2017 (CHSC71394)	13-Jul-1998			Modoc NF	5299
6	Modoc NF	Lassen	Lane Reservoir (4112017)	NRIS, Dec 2016 (050900E_MIEV001_54)	01-Jan-1990	5000 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
6	Modoc NF	Lassen	Lane Reservoir (4112017)	NRIS, Dec 2016 (050900E_MIEV001_54)	28-Jun-2002	5000 individuals		Modoc NF	
6	Southwest shore of Moll Reservoir.	Modoc	Lane Reservoir (4112017)	CCH, Jan 2017 (CDA41438)	05-Jul-1998			BLM	4921
6	SW shore of Moll Reservoir, 2 meters from water's edge	Modoc	Lane Reservoir (4112017)	CCH, Jan 2017 (CHSC79576)	05-Jul-1998			BLM	4921
6	Moll Reservoir (ca.10 air miles E of Adin), W side of the reservoir	Lassen	Lane Reservoir (4112017)	CCH, Jan 2017 (RSA824949)	06-Jun-2012			BLM	5259
6	SW shore of Moll Reservoir, 2 meters from water's edge.	Lassen	Lane Reservoir (4112017)	CCH, Jan 2017 (UC1778583)	05-Jul-1998			BLM	4921
6	Modoc County: SW shore of Moll Reservoir, 2 meters from water's edge	Modoc	Lane Reservoir (4112017)	CCH, Jan 2017 (UCD122535)	05-Jul-1998			BLM	4921

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
7	NEAR LITTLE BALD MOUNTAIN.	Lassen | Modoc	Likely (4112025)	CNDDB, May 2017 (EO 7)	XXXXXXXX	ONLY INFORMATION FOR THIS SITE IS 1998 CORRESPONDENCE BY CLIFTON. UNKNOWN NUMBER OF PLANTS SEEN OR DATE OF SITE VISIT. NEEDS FIELDWORK.		BLM	5800
8	N END OF BISHOP LAKE, ABOUT 1.2 MILES NNE OF DAVIS CREEK (TOWN).	Modoc	Sugar Hill (4112073)	CNDDB, May 2017 (EO 8)	26-Jun-2003	ABOUT 200 PLANTS SEEN IN 2002, AND ABOUT 1000 SEEN IN 2003.	GRAZING & TRAMPLING BY CATTLE AS OF 2003. PLANTS GROWING IN & AROUND HOOF PRINTS.	Modoc NF	4900
8	Modoc NF	Modoc	Davis Creek (4112063)	NRIS, Dec 2016 (050900E_MIEV003_53)	26-Jun-2003	1000 individuals		Modoc NF	
8	Modoc NF	Modoc	Davis Creek (4112063)	NRIS, Dec 2016 (050900E_MIEV003_53)	16-Jul-2002	1000 individuals		Modoc NF	
9	NE EDGE OF DRY LAKE.	Modoc	Perez (4112163)	CNDDB, May 2017 (EO 9)	11-Aug-1998	51-100 PLANTS SEEN IN 1998.	GRAZING.	Modoc NF, PVT	4100

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
9		Modoc	Perez (4112163)	NRIS, Dec 2016 (050900E_MIEV002_56)	11-Aug-1998	100 individuals		Modoc NF	
10	NE OF WEED, E OF GRASS LAKE, & W OF BRAY, 0.8 MILE E OF TENNANT ROAD.	Siskiyou	Bray (4112168)	CNDDB, May 2017 (EO 10)	21-Jul-1998	ABOUT 1000 PLANTS SEEN IN 1998. PER 2001 SURVEY, PLANTS HAVE NOT BEEN SEEN AT THIS LOCATION SINCE OSWALD'S SIGHTING IN 1998. NO FS BOTANISTS HAVE SEEN IT AT THIS SITE. PER MILLER, SPRING/SUMMER 2001 MOISTURE LEVELS WERE QUITE LOW.	GRAZING.	Klamath NF	4650
10	Klamath NF	Siskiyou	Bray (4112168)	NRIS, Oct 2016 (0505_57_MIEV-5-1)	21-Jul-1998	individuals		Klamath NF	
10	NE of Weed, east of Grass Lake, and W of Bray on Old State Highway 0.8 mi E of Tennant Rd	Siskiyou	Bray (4112168)	CCH, Jan 2017 (CHSC71502)	21-Jul-1998			Klamath NF	4649

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
11	W OF EAGLE LAKE AND SPALDING, ALONG PINE CREEK NEAR RANKIN FLAT.	Lassen	Spalding Tract (4012067)	CNDDB, May 2017 (EO 11)	17-Jun-2003	"MANY THOUSANDS" SEEN IN 2003. PLANTS PROBABLY CONTINUE UPSTREAM (ACCORDING TO GEHRUNG); 2003 SURVEYS ENDED AT WEST EDGE OF SECTION 1.	NO DISTURBANCE NOTED IN 2003, EXCEPT SOME GRAZING ON NEARBY ASPENS.	Lassen NF	5200
11	Lassen NF	Lassen	Spalding Tract (4012067)	NRIS, Feb 2017 (050658-MIEV-003)	17-Jun-2003	individuals		Lassen NF	
12	S OF LONG VALLEY, E END OF SCHOONAMAKER LAKE.	Lassen	Straylor Lake (4012171)	CNDDB, May 2017 (EO 12)	23-Jun-2004	UNKNOWN NUMBER OF PLANTS SEEN IN 2004.		Lassen NF	5410
13	E SHORE OF MCCLELLAND RESERVOIR.	Lassen	Letterbox Hill (4112018)	CNDDB, May 2017 (EO 13)	01-Aug-2003	100 PLANTS SEEN IN 2003.	GRAZING AND TRAMPLING BY CATTLE. DEEP HOOFPRINTS AND SEVERE SOIL COMPACTION EVIDENT IN 2003.	Modoc NF	5300

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
13	Modoc NF	Lassen	Letterbox Hill (4112018)	NRIS, Dec 2016 (050900E_MIEV004_54)	01-Aug-2003	100 individuals		Modoc NF	
14	W EDGE OF UPPER MUD LAKE.	Modoc	Spaulding Butte (4112152)	CNDDB, May 2017 (EO 14)	02-Aug-2003	ABOUT 3000 PLANTS SEEN IN 2003.	TRAMPLING BY LIVESTOCK.	Modoc NF	4650
14	Modoc NF	Modoc	Spaulding Butte (4112152)	NRIS, Dec 2016 (050900E_MIEV005_56)	29-Jul-2003	3000 individuals		Modoc NF	
15	E SIDE OF POISON LAKE, ABOUT 1.9 ROAD MILES N OF HIGHWAY 44 AND 0.6 MILE S OF POWERLINE CROSSING.	Lassen	Poison Lake (4012162)	CNDDB, May 2017 (EO 15)	11-Jun-2003	CONSIDERED "LOCALLY ABUNDANT" IN 1993 AND 1998, 200-300 PLANTS SEEN IN 1999, FEW IN 2000 (DRY YEAR), AND 5000+ IN 2003. NONE NOTED IN 2004, BUT SURVEYS PERHAPS TOO EARLY (HIGH WATER).	NO THREATS NOTED IN 2003.	Lassen NF	5600
15	Pittville Rd. (Lassen 111, 36N01) 1.9 mi N of Hwy. 44, on the SE edge of Poison Lake	Lassen	Poison Lake (4012162)	CCH, Jan 2017 (CHSC60923)	08-Jul-1993			Lassen NF	5610

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
15	Pittville Rd. (Lassen 111, FS 36N01) on the SE edge of Poison Lake 1.9 mi N of Hwy. 44. On the bank of a pond on the E side of the railroad, which parallels the lake shore at this point	Lassen	Poison Lake (4012162)	CCH, Jan 2017 (CHSC71395)	13-Jul-1998			Lassen NF	5610
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	13-Jul-1998	individuals		Lassen NF	
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	08-Jun-1999	individuals		Lassen NF	
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	24-May-2000	individuals		Lassen NF	
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	15-May-1999	individuals		Lassen NF	
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	11-Jun-2003	individuals		Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
15	Lassen NF	Lassen	Poison Lake (4012162)	NRIS, Feb 2017 (050658-MIEV-001)	08-Jun-2004	individuals		Lassen NF	
16	NE OF CHAMPS FLAT, WHERE USFS ROAD 34N03 CROSSES A TRIBUTARY TO PINE CREEK, ~0.3 MILE ESE OF JCT RD 34N03 & RD 33N59.	Lassen	Champs Flat (4012068)	CNDDB, May 2017 (EO 16)	21-Jun-2006	40 PLANTS OBSERVED IN 2006. THE RARE SENECIO HYDROPHILOIDES OCCURS ~0.75 MILES UPSTREAM.	NEAR ROAD AND CULVERT; SURROUNDING LAND USE INCLUDES GRAZING AND TIMBER HARVEST.	Lassen NF	5700
16	Lassen NF	Lassen	Champs Flat (4012068)	NRIS, Feb 2017 (050658-MIEV-004)	21-Jun-2006	individuals		Lassen NF	
17	W SHORE OF LAUER RESERVOIR, E OF NORTH MOUNTAIN.	Modoc	Lauer Reservoir (4112064)	CNDDB, May 2017 (EO 17)	08-Aug-2005	2000 PLANTS OBSERVED IN 2005. NEEDS FIELDWORK.	CATTLE.	Modoc NF	5000
17	mdf-miev-009	Modoc	Lauer Reservoir (4112064)	NRIS, Dec 2016 (050900E_MIEV008_55)	08-Aug-2012	2000 individuals		Modoc NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
18	ALONG EDGE OF POINTDEXTER RESERVOIR, APPROXIMATE-LY 1 AIR MILE SW OF MCLAIN SPRING.	Modoc	McGinty Reservoir (4112075)	CNDDB, May 2017 (EO 18)	09-Jul-2008	UNKNOWN NUMBER OF PLANTS OBSERVED IN 2008.	CATTLE AND WILD HORSES.	Modoc NF	5100
18	mdf-miev006	Modoc	Mcginty Reservoir (4112075)	NRIS, Dec 2016 (050900E_MIEV006_55)	09-Jul-2008	individuals		Modoc NF	
19	W SIDE OF TELEPHONE FLAT RESERVOIR WHERE SPUR ROAD COMES TO WATER.	Modoc	South Mountain (4112076)	CNDDB, May 2017 (EO 19)	21-May-2004	UNKNOWN NUMBER OF PLANTS OBSERVED IN 2004. NEEDS FIELDWORK.	ROAD, FIRE RING.	Modoc NF	5000
20	Lassen NF	Lassen	Corders Reservoir (4012172)	CNDDB, July 2017 (EO 20)	13-Jul-2010			Lassen NF	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
20	Eastisde underburn;	Lassen	Corders Reservoir (4012172)	NRIS, Feb 2017 (050653-MIEV-005)	13-Jul-2010	individuals	The relative small size of the population increases its vulnerability to local extirpation from both intrinsic and extrinsic stochastic factors.	Lassen NF	
21		Modoc	Lookout (4112122)	CNDDB, July 2017 (EO 21)	19-May-2016			PVT-Sierra Pacific	
22		Modoc	Lookout (4112122)	CNDDB, July 2017 (EO 22)	19-May-2016			PVT-Sierra Pacific	
23		Modoc	Lookout (4112122)	CNDDB, July 2017 (EO 23)	22-Jun-1995			Unknown	
23	Between Day and Lookout, just W of Burlington Northern Railroad track on County Road 94.	Modoc	Lookout (4112122)	CCH, Jan 2017 (CAS793678)	22-Jun-1995				4167
24		Modoc	Donica Mtn. (4112132)	CNDDB, July 2017 (EO 24)	04-Jun-2013			PVT-Sierra Pacific	

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
25	Modoc NF	Modoc	Crank Mountain (4112142)	CNDDB, July 2017 (EO 25)	23-Jun-2009			Modoc NF	
25	MDF-MIEV-009; Stock pond not more than 1/10 mile from road 42N12 that goes by Mud Lake (southern arm of lake).	Modoc	Crank Mountain (4112142)	NRIS, Dec 2016 (050900E_MIEV009_56)	23-Jun-2009	400 individuals	sheep grazing/trampling	PVT-Sierra Pacific	
26	Modoc NF	Modoc	South Mountain (4112076)	CNDDB, July 2017 (EO 26)	21-Jun-2016			Modoc NF	
26	MDF-MIEV-010;	Modoc	South Mountain (4112076)	NRIS, Dec 2016 (050900E_MIEV010_55)	21-Jun-2016	150 individuals		Modoc NF	
27	Ne of Weed, E of Grass Lake, and W of Bray on Old State Highway 0.8 mi E of Tennant Road; Old State Highway	Siskiyou	Bray (4112168)	CCH, Jan 2017 (JEPS93896)	21-Jul-1998			Klamath NF	4649
28	Modoc NF From 2007 MDF	Modoc	Mahogany Ridge (4112055)	Calflora, May 2017 (ce913)	17-Mar-2014	1+ individuals		BLM	4662

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
29	ponds ca. 1.2 mi N of Lake Britton and 1 mile W of Warner Grade Reservoir, just E of PG&E natural gas pipeline	Shasta	Dana (4112115)	Calflora, May 2017 (gr12464)	12-Jun-1991	1+ individuals		Lassen NF	2982
30	Moll Reservoir W of Ash Valley, T38N R10 E Sec25	Lassen	Lane Reservoir (4112017)	Calflora, May 2017 (xr85182)	17-Jul-1996	1+ individuals		Modoc NF	5236
31	mdf-miev-007;	Modoc	South Mountain (4112076)	NRIS, Dec 2016 (050900E_MIEV007_55)	20-Jun-2016	1000 individuals		Modoc NF	
31	mdf-miev-007;	Modoc	South Mountain (4112076)	NRIS, Dec 2016 (050900E_MIEV007_55)	21-May-2004	individuals		Modoc NF	

Distribution on National Forest System (NFS) Lands:

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

National Forest System (NFS) lands	Record #s (from Locations table above)	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:	10,27	1	1	2	-	21-Jul-1998	-	2
Lake Tahoe Basin MU:	-	-	-	-	-	-	-	0
Lassen:	3,4,5,11, 12,15,16, 20,29	8	1	8	1	13-Jul-2010	-	9
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	-	-	-	-	-	-	-	0
Modoc:	6,8,9,13, 14,17,18, 19,25,26, 30,31	10	2	11	1	21-Jun-2016	6	12
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	-	-	-	-	-	-	-	0
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	19	4	21	2	N/A	6	23

Demographic and Population Trends: Occurrences of this taxon are notably scattered and patchy, rarely exceeding 10 square meters, and ranging in size from ten to several thousand individuals (Meinke 2007). Over 27,000 plants have been seen among all California occurrences since the earliest observations in 1940. A single occurrence (EO 3) had ~1,000 plants in 1998.

Additional occurrences (EO 4 and EO 5) had a total of 2,000 plants in 1999 between the two sites. Occurrences from the type locality had about 300 plants in 1996, 1,000 in 1998, and 5,000 seen in 2002. At element occurrence eight (EO 8), nearly 200 plants were seen in 2002, and up to 1,000 in 2003. Between 51 and 100 plants were seen at element occurrence nine (EO 9) in 1998. About 1,000 plants were seen in 1998 at the site of element occurrence 10 (EO 10). Many "thousands" of plants were seen at element occurrence eleven (EO 11) in 2003. In 2003, about 3,000 plants were seen at another occurrence (EO 14). At the site of element occurrence 15 (EO 15), plants were "locally abundant" in 1993 and 1998. Roughly 200-300 plants were seen here in 1999, few in 2000, and 5,000+ in 2003. Nearly forty plants were observed at element occurrence 16 (EO 16) in 2006. Exactly 2,000 plants were reported from another occurrence (EO 17) in 2005. Element occurrence 25 (EO 25) had 400 plants in 2009. Element occurrence 26 (EO 26) had 150 plants in 2016. An additional 1,000 plants were spotted at element occurrence 31 (EO 31) the same year (NRIS 2017; CNDDB 2017).

Life History: *Erythranthe inflatula* is an annual herb that blooms from May until August (CNPS 2017). Members of *Mimulus* s.l. have thigmotropic stigmas that close after being touched. This mechanism is thought to limit selfing, as pollinators are unable to deposit self-pollen as they exit the corolla. Stigmatic surfaces generally remain closed after pollen is deposited (Carlson 2002). Germination occurs in late winter to early spring. *Erythranthe inflatula* is an autogamous species with a notably small corolla. This small corolla is a character that is consistent with other self-pollinating taxa. Greenhouse studies have confirmed the efficiency of this taxon's self pollinating abilities. Insect visitation is seldom reported. Seed set greater than 90% has been documented in the field among 15 randomly sampled individuals. Phenology and reproductive timing is dependent upon soil moisture and spring/summer temperatures at given sites. *Erythranthe inflatula* is known to produce seed from late May until July. Hundreds to thousands of tiny seeds are produced by each plant. These seeds remain dormant until dormancy is broken by cold and wet conditions. It is probably subject to local dispersal by water. It is also probable that wind contributes to the dispersal of *E. inflatula* and its small seeds. Seeds remain submerged throughout the winter. Submersion in cold water ensures its winter dormancy. Seeds that germinate near the high-water mark are subject to rapid drying as water subsides. Plants that deposit in saturated and heavy soils among semi-aquatic vegetation are at risk of not germinating or surviving. Animal dispersal has not been observed (Meinke 2007).

Diversity: The genus *Erythranthe* is a member of the Phrymaceae, a group of unexpectedly related taxa in the Lamiales that were discovered, in recent decades, to all be related (Stevens 2001). At one time, the Phrymaceae was considered a monotypic family represented by the genus *Phryma*. The onset of the molecular era yielded insights demonstrating that a number of genera formerly in the Scrophulariaceae (*Mimulus, Glossostigma, Elacholoma, Peplidium, Uvedalia, Hemichaena*, and others) are aligned with *Phryma* and the Phrymaceae. The Phrymaceae was later modified to reflect these insights, creating a single family with thirteen genera and 188 species in total (Barker et al. 2012). During this taxonomic revision, California *Mimulus* s.l. were segregated into the genera *Diplacus* (46 species – short pedicels and parietal placentation) and *Erythranthe* (111 species – long pedicels and axile placentation). Both genera

embody different clades within the former *Mimulus* s.l., representing entirely separate radiations within the Phrymaceae (Beardsley et al. 2004; Barker et al. 2012). *Erythranthe inflatula* is aligned with the widespread *E. pulsiferae*. *Erythranthe pulsiferae* is a member of the *E. moschatus* alliance. This small alliance of 13 closely related species has a considerable number of rare entities. Homoplasy is well documented in the group. Nearly half of the morphological characters associated with this alliance were demonstrated to have evolved independently (Whittall et al. 2006). *Mimulus* s.l., including this alliance, has been a fruitful source of biosystematic inquiry into patterns of evolution in flowering plants (Whittall et al. 2006; Beardsley et al. 2004). Both morphological and molecular evidence indicate that *E. inflatula* is a hybrid between *E. breviflora* and *E. latidens*. A principal component analysis of 18 morphological characters from 38 populations demonstrated *E. inflatula* as directly intermediate between *E. breviflora* and *E. latidens* (Meinke 1995; Beardsley et al. 2004). *Erythranthe inflatula* and *E. breviflora* share the same ITS (internal transcribed spacer region of nrDNA) and trnL/F (intron and spacer region of cpDNA) haplotypes. In addition, *Erythranthe inflatula* and *E. latidens* share the same ETS (external transcribed spacer region of nrDNA) haplotype, indicating a mosaic of sequence motifs representing both putative parents within the genome *E. inflatula* (Beardsley et al. 2004).

Habitat: *Erythranthe inflatula* grows in gravelly/rocky and vernally mesic substrates among Great Basin scrub, lower montane coniferous forests, and pinyon/juniper woodland (CNPS 2017). Specifically, California occurrences have been documented in vernally wet meadows among scrub and ponderosa pine, the edges of a braided stream, edges of a dry lakebed, a moist and rocky reservoir shoreline, and other seasonally wet conditions among Great Basin vegetation. Reports associated with these California occurrences document *E. inflatula* occurring alongside *Artemisia cana, Poa secunda* subsp. *juncifolia*, *Juncus bufonius, Navarretia leucocephala* subsp. *minima, Erythranthe pulsiferae, E. breweri, E. pilosus, E. suksdorfii, Plagiobothrys* sp., *Bromus tectorum, Veronica peregrina* subsp. *xalapensis, Gratiola* sp., *Juncus balticus, Rorippa sinuata, Eryngium mathiasiae, Rumex crispus, Epilobium densiflorum, Lythrum tribracteatum, Gnaphalium palustre, Artemisia tridentata, Juniperus occidentalis, Artemisia tridentata, Grindelia nana, Poa pratensis, Purshia tridentata, Downingia* sp., *Brodiaea coronaria, Salix lemmonii, Taraxia tanacetifolia, Populus tremuloides, Pinus ponderosa*, and *Cirsium vulgare* (CNDDB 2017).

Habitat Status or Trend: Habitat quality is dependent on proper hydrological regimes and the maintenance of a moisture ecotone, as the timing of the rising and lowering of water is critical to the persistence of these annual plant populations (Meinke 2007).

Capacity for the Species to Disperse: Hundreds to thousands of tiny seeds are produced by each plant. It is probably subject to local dispersal by water. It is also probable that wind contributes to the dispersal of *Erythranthe inflatula* and its small seeds. Animal dispersal has not been observed (Meinke 2007).

Threats: Grazing activity is a widely cited concern for *Erythranthe inflatula* (CNPS 2017; Meinke 2007; CNDDB 2017; NatureServe 2017). Competition with non-native taxa, OHV use,

and alteration of hydrological regimes are also considered threats to *E. inflatula* (NatureServe 2017; CNPS 2017).

Literature Cited

Barker, B. R., G. L. Nesom, P. M. Beardsley, and N. S. Fraga. 2012. A taxonomic conspectus of Phrymaceae: A narrowed circumscription for Mimulus, new and resurrected genera, and new names and combinations. *Phytoneuron* 39: 1–60.

Beardsley, P. M., S. E. Schoenig, J. B. Whittall, and R. G. Olmstead. 2004. Patterns of evolution in western North American *Mimulus* (Phrymaceae). *American Journal of Botany* 91(3): 474–489.

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

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

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

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

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

[CDFW] California Department of Fish and Wildlife, Natural Diversity Database. 2017a. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 126 pp.

____. 2017b. State and Federally Listed Endangered, Threatened, and Rare Plants of California. July 2017. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline [accessed 11 September 2017].

[CNPS] California Native Plant Society, Rare Plant Program. 2017. *Inventory of Rare and Endangered Plants of California* (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed May 17, 2017].

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

Carlson, M. L. 2002. Evolution of mating system and inbreeding depression in the *Mimulus moschatus* (Scrophulariaceae) alliance (Doctoral dissertation; Univ. Alaska Fairbanks).

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

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

Meinke, R. J. 1995. *Mimulus evanescens* (Scrophulariaceae): A new annuals species from the northern Great Basin. *Great Basin Naturalist* 55(3): 249–257.

Meinke, R. J. 2007. Site management plan for *Mimulus evanescens* (disappearing monkeyflower). Submitted to Lakeview BLM District, Klamath Falls Resource Area.

NatureServe. 2017. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Website http://explorer.natureserve.org [accessed 17 May 2017].

Nesom, G. L. 2012. Taxonomy of *Erythranthe* Sect. Mimulosma (Phrymaceae). *Phytoneuron* 41: 1–36.

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

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

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

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

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

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

Stevens, P. F. 2001. Angiosperm Phylogeny Website. Version 14, July 2017 [and more or less continuously updated since]. Website http://www.mobot.org/MOBOT/research/APweb/.

Thompson, D. M. 2012. *Mimulus* in Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.), *The Jepson Manual: Vascular Plants of California*, second edition. University of California Press, Berkeley, CA.

____. 2017. *Mimulus* in Jepson Flora Project (eds.), *Jepson eFlora*. Website http://ucjeps.berkeley.edu/eflora/ [accessed 19 September 2017].

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

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

[USDA] U.S. Department of Agriculture, Natural Resources Conservation Service. 2017. PLANTS Database. Website http://plants.usda.gov/ [accessed 16 May 2017].

Whittall, J. B., M. L. Carlson, P. M. Beardsley, and R. J. Meinke. 2006. The *Mimulus moschatus* alliance (Phrymaceae): Molecular and morphological phylogenetics and their conservation implications. *Systematic Botany* 31(2): 380–397.

Persons Contacted:

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

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

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December 22, 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.