

**Added to California Rare Plant Rank 4.3 of the CNPS Inventory on March 13, 2012**

**Rare Plant Status Review: *Mentzelia monoensis***  
**Proposed New Add to Rank 4.3, G3 / S3**  
Aaron Sims (CNPS) and Roxanne Bittman (CNDDDB)  
February 1, 2012

Changes made to the original document appear in blue text.

### **Background**

*Mentzelia monoensis* is an annual herb in the Loasaceae that is endemic to the Mono Craters region of Mono County, California. It is not included in *The Jepson Manual* (1993) and *The Jepson Manual, Second Edition* (the *Flora of North America* treatment for Loasaceae is not yet published). In her Ph.D. dissertation, Zavortink (1966) described what she dubbed “*M. monoensis*” as a single hexaploid population from Mono County, however, the name was never validly published (Brokaw and Hufford 2011). Recent molecular investigations by Brokaw and Hufford (2010) suggested a unique hybrid origin of “*M. monoensis*” and indicated that it is morphologically distinct from other species of section *Trachyphytum*. After field observations and inspection of herbarium specimens of all North American species of *Mentzelia* section *Trachyphytum*, Brokaw and Hufford (2011) formally described “*M. monoensis*” as a new species of *Mentzelia*. The molecular data provided by Brokaw and Hufford (2010) suggests “that *M. monoensis* was derived through allopolyploidization involving a diploid progenitor closely related to *M. dispersa* and a tetraploid progenitor closely related to *M. montana*” (Brokaw and Hufford 2011). *Mentzelia congesta* and *M. montana* are the only taxa in section *Trachyphytum* that have been found to co-occur with *M. monoensis*; its co-occurrence with the latter is of concern because *M. montana* and *M. monoensis* can be very difficult to distinguish (Brokaw and Hufford 2011). *Mentzelia monoensis* is most reliably distinguished from *M. montana* by comparing mature seeds under 10-20X magnification; “*Mentzelia monoensis* has a tan colored seed coat composed of cells that are rounded, appearing as shallow domes”, while “*M. montana* has a mottled seed coat with cells that stand out as rough, pointed knobs along edges of the seed” (Brokaw and Hufford 2011; see this reference for figures of scanning electron micrographs showing variation in seed coat and cell shape of *M. monoensis* and *M. montana*). In areas where both species occur, the grayish-green hue in leaves of *M. monoensis* may be apparent in the field compared to the lighter green in *M. montana*. Differences in flower bracts between *M. monoensis* and *M. montana* can also sometimes be used to separate the two species, however, both may exhibit the same characters in this regard (Brokaw and Hufford 2011). *Mentzelia monoensis* is also similar to *M. albicaulis*, which has approximately the same range of color and form of bracts found in *M. monoensis*, however, *M. albicaulis* can be separated based on differences in seed coat, and also occurs at a lower elevation (below 2,000 meters) compared to *M. monoensis* (Brokaw and Hufford 2011). *Mentzelia monoensis* is known to start flowering at lower elevations in late May, continuing through late July. Plants bearing both flowers and ripe capsules with mature seeds are most common in early to mid-July and most plants senesce and quickly disintegrate by early August (Brokaw and Hufford 2011).

*Mentzelia monoensis* occurs primarily on coarse, barren pumice soils and disturbed sites of Great Basin scrub and upper montane coniferous forest near the Mono Craters. It is especially associated with antelope bitter-brush and Jeffrey pine communities, and occurs at an approximate elevation of 2,005 to 2,480 meters (Brokaw and Hufford 2011).

*Mentzelia monoensis* is known from approximately 14 occurrences throughout the Mono Craters region of Mono County, California. All but one occurrence (*Thompson 1696, J. Zavortink 2640*) are recent, having been documented within the past 4 years (J. Brokaw pers. comm. 2012). Most of the occurrences of *M. monoensis* are in Inyo National Forest, with some occurrences to the north of Highway 120 on Bureau of Land Management (BLM) lands. Although *M. monoensis* occurs throughout a small range, it is relatively easy to find during a typical year and stopping randomly in the heart of its range along Highway 120 gives one a pretty good chance of finding it. It is also “not restricted to unusual soils any more than *M. montana* populations that mix with it in the same area around Mono Lake” (J. Brokaw pers. comm. 2012), further broadening its potential distribution. Moreover, *M. monoensis* (like others in *Mentzelia* section *Trachyphytum*) typically thrives in disturbed sites such as eroding hillsides, steep stream banks, and road cuts, which provide abundant habitat (J. Brokaw pers. comm. 2012). Fairly thorough searches were conducted near the borders of the known range of *M. monoensis* without finding additional populations, however, yearly climate variation will likely cause fluctuations in distributions, especially since it is an annual with particular germination preferences (J. Brokaw pers. comm. 2012). Owing to the above factors, in addition to its likelihood of being overlooked because of its high similarity with common *M. montana* ~~*monoensis*~~ and *M. albicaulis*, *M. monoensis* is expected to be found in more sites than are currently documented.

Threats to *M. monoensis* are currently unknown. Due to its relatively wide preferred habitat and inclination for disturbed sites, it is not expected to be threatened at this time.

Based on the available information, CNPS and CNDDDB recommend that *M. monoensis* be added to California Rare Plant Rank 4.3. If future surveys result in a limited number of additional occurrences, it will be re-evaluated at that time.

### **Recommended Actions**

CNPS: Add to CNPS 4.3

CNDDDB: Add to CNDDDB G3 / S3

### **Draft CNPS Inventory Record**

*Mentzelia monoensis* J.M. Brokaw & L. Hufford

Mono Craters blazing star

Loasaceae

Rank 4.3

Mono

Cowtrack Mountain (452A) 3711887, Indian Meadows (451B) 3711886, June Lake (453D) 3711971, Lee Vining (453A) 3711981, Lundy (470C) 3811912, Mono Mills (452B) 3711888, Mount Dana (453B) 3711982, Watterson Canyon (433B) 3711866

Element Code: ?

Great Basin scrub, upper montane coniferous forest / pumice, gravelly, disturbed areas; elevation 2005-2480 meters.

Annual herb. Blooms May-Jul.

Known only from the Mono Craters region. Similar to *M. albicaulis* and *M. montana*; known to co-occur with the latter. Not in *The Jepson Manual* (1993) and *TJM 2*. See *Madroño* 58(1):57-63 (2011) for original description.