

**Rare Plant Status Review: *Mammillaria grahamii* var. *grahamii*
Proposed New Add to List 2.2, G4T2 S2**

Nicholas Jensen (CNPS), Belinda Lo (CNPS), and Roxanne Bittman (CNDDDB)
February 18, 2009

Background

Mammillaria grahamii var. *grahamii* is a stem succulent in the Cactaceae. It is included in the *Flora of North America* (Vol. 4), and will be included in the *Jepson Manual* (2nd Edition). In the *Jepson Manual* (1993), *M. grahamii* was included as *M. milleri*. Currently it is named *M. grahamii* var. *grahamii* in the *Jepson Manual* (2nd edition, available online at <http://ucjeps.berkeley.edu/tjm2/review/treatments/cactaceae.html#61746>) and *M. grahamii* in *Flora of North America* (Vol. 4, available online at http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415357).

“*Mammillaria grahamii* is geographically variable” (*Flora of N. A.* Vol. 4), and there are many names for this taxon to distinguish these variations. The only relevant names or synonyms (cited by the *Jepson Manual* 2nd edition) for the California populations of *M. grahamii* are *M. milleri* and *M. microcarpa* (unabridged). *M. microcarpa* is a misapplied or invalid name (Jepson 1993), resulting from “past attempts to distinguish larger or western individuals [which] have proved arbitrary (*Flora of N.A.* Vol. 4n).”

Additional synonyms recognized by the PLANTS Database and various floras and literature include: *Neomammillaria milleri* for one of the stout or larger forms (*Arizona Flora, The Cactaceae* 4: 156 (1923)); *M. milleri* for plants with dimorphic fruits (Bradleya 1985); *M. oliviae*, *N. oliviae* and *M. grahamii* var. *oliviae* for plants with short straight central spines that are rarely hooked (*Flora of N. A.* Vol. 4, *Arizona Flora*); *M. microcarpa* var. *auricarpa* for the golden-fruited form (Bradleya 1985).

M. grahamii var. *grahamii* is differentiated from other species of *Mammillaria* based on its number of radial spines, its seed lacking a corky aril, and the lack of axillary bristles. According to Stephen Ingram (*Cacti, Agave, and Yuccas of California and Nevada*, 2008), when *M. grahamii* is “not showing off its bowl-shaped pink flowers it can be difficult to distinguish from California’s other two mammillarias.” *M. grahamii* var. *grahamii* flowers between April and September. “Individuals may flower 3 or 4 times per year, with robust individuals producing more than 40 flowers per year” (Ingram 2008).

In California, *M. grahamii* var. *grahamii* is known from sandy, gravelly or rocky canyons, washes, and plains sometimes associated with creosote-bush scrub habitat from 300 to 900 meters in elevation. According to Ingram (2008), “In the Whipple Mountains, Graham fishhook cactus is found on igneous gravelly slopes and rocky hillsides. It frequently grows within the shade cast by burrobush or

paloverde, but also occurs in the open alongside desert barrel cactus and buckthorn cholla.”

In California, *M. grahamii* var. *grahamii* is known from approximately 10 occurrences in southeast San Bernardino County in the Sonoran Desert. To date, in California, it has only been documented from the Whipple Mountains. Ingram (2008) speculates that, “it could be awaiting discovery in other mountain ranges of eastern Riverside or Imperial counties.” It is ranked as a G4T4 taxon by NatureServe. It is also found in Arizona, New Mexico, Texas (where it is ranked S1) and the states of Chihuahua and Sonora, Mexico (Ingram 2008).

M. grahamii was considered for CNPS List 2 in 2000, but at that time there were no specimens documenting its presence in California, and it was rejected.

There are no documented threats to occurrences of *M. grahamii* var. *grahamii* but occurrences could be threatened by collectors for its horticultural value. The population size, population trends, area of occupancy, and land ownership at occurrences of *M. grahamii* var. *grahamii* are not well known.

In California, *M. grahamii* var. *grahamii* is found in a very small geographic area (4 quads in one county). It has a wide range, and is more common outside of California. Based on this information, CNPS and CNDDDB recommend that *M. grahamii* var. *grahamii* should be added to List 2.2, G4T4 S2.

Recommended Actions

CNPS: Add to CNPS List 2.2

CNDDDB: Add to CNDDDB as G4T2 / S2

Please review the draft CNPS Inventory record below, respond Yes or No on the proposal to add this species to the Inventory and CNDDDB, and provide any edits/comments. If responding No, please provide supporting information.

Draft CNPS Inventory Record

Mammillaria grahamii Engelm. var. *grahamii*

Graham fishhook cactus

Cactaceae

List 2.2

San Bernardino

Gene Wash 120C (34114C2), Savahia Peak 122D (34114C5), Whipple Mts SW 121C (34114C4), Whipple Wash 121D (34114C3)

Sonoran desert scrub / gravelly or rocky. 300-900 meters

Stem succulent. Blooms April-September.