

Added to California Rare Plant Rank 2.1 on February 8, 2012

Rare Plant Status Review: *Ephedra torreyana*

Proposed New Add to Rank 2.1, G5? / S1

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Changes made to the original document appear in blue text.

Background

Ephedra torreyana is a perennial shrub in the Ephedraceae family that grows from Texas south to Chihuahua, Mexico, and as far west as California's Great Basin Desert (NatureServe 2011, Kearney and Peebles 1951). It had not been known from California until it was found during off-site surveys for the Hidden Hills Solar Energy Generating System (HHSEGS) project in Inyo County in May of 2011 (Garcia and Associates survey data 2011). *Ephedra torreyana* is often confused with *Ephedra trifurca*. *Ephedra torreyana* differs in that its cones are always sessile, while cones of *E. trifurca* usually have short, scaly peduncles and are rarely sessile. Also, the seeds of *E. torreyana* are scabrous, while those of *E. trifurca* are smooth (Kartezs 1988).

Ephedra torreyana was found in California in a Great Basin Desert scrub community, in a valley bottom with silty soils. The populations range in elevation from 765 to 810 meters.

Five occurrences of *E. torreyana* were found on the HHSEGS off-site surveys, consisting of a total of 234 plants (Garcia and Associates survey data 2011). They are all located on lands managed by the Bureau of Land Management (BLM), and are within about 2 km of the border with Nye County, Nevada. The occurrences are located approximately 1 km west of the western edge of the project site (CH2MHill 2011), and extend to about another 10 km further to the north (Garcia and Associates survey data 2011). Voucher specimens were collected (A.C. Sanders 39453 – UCR225407; plus several others). One additional specimen from Riverside County was annotated to *E. torreyana* in 2002 (Ferris 13264 - NY70649), but duplicates (e.g., DS391807, JEPS20738) and other collections from roughly the same locality (e.g., C.B. Wolf 3122, 3123) are treated as *E. trifurca*. Also, the specimen at the New York Botanical Garden Herbarium may have been difficult to identify, given that it consists of "young growth" (Consortium of California Herbaria 2011). CNPS and CNDDDB credit this occurrence to *E. trifurca*, not *E. torreyana*.

It is almost certain that *E. torreyana* is present within the solar project site. The core area of the project site was surveyed at the beginning of the survey period when the *Ephedra* plants had no cones, and they were all mistaken for the common 3-leaved *E. funerea*. Later, when surveys were conducted in buffer areas, the cones had developed and it was immediately apparent that *E. torreyana* was present, but it was unfortunately too late to resurvey the core area to correct any mis-identifications. It appeared that *E. funerea* was mostly higher up on more rocky surfaces, with *E. torreyana* occurring as

the most common (or only) *Ephedra* spp. on the sandy/silty flats; and it is expected that most or all of the 3-leaved *Ephedra* shrubs on the site were *E. torreyana*. (A. Sanders pers. comm. 2012).

Ephedra torreyana is found in Arizona, Colorado, Nevada, New Mexico, Texas and Utah, and is not ranked in any of those states (NatureServe 2011).

The *Ephedra torreyana* occurrences from California within the project site are not directly threatened by the construction activities associated with the HHSEGS, as construction equipment will not leave the site and temporary construction area. However, Furthermore, the project can potentially introduce noxious weeds into the site through disturbance and addition of excess water (from washing the heliostats) into the ecosystem. A Noxious Weed Control Plan will be prepared prior to construction to address these issues (CH2MHill 2011). Also, unauthorized off-road vehicle use in the area potentially threatens the plants (Garcia and Associates survey data 2011). Based on the available information, CNPS and CNDDDB recommend that *Ephedra torreyana* be added to California Rare Plant Rank 2.1. If current records in California are later found to be an under-representation of its actual distribution and frequency, it will be re-evaluated by CNPS at that time.

Recommended Actions:

CNPS: Add to CNPS 2.1

CNDDDB: Add to CNDDDB G5? / S1

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

Ephedra torreyana S. Watson

Torrey's Mormon-tea

Ephedraceae

Rank 2.1

Inyo

Arizona, Colorado, Nevada, New Mexico, Texas, Utah

Mound Spring (297C) 3611518, Nopah Peak (298D) 3611611, [Calvada Springs \(274B\) 3511588](#), [Stump Spring, Nev \(274A\) 3511587](#)

Great Basin scrub; elevation 810 meters.

Perennial shrub.

Discovered in CA in 2011; known in CA only from Pahrump Valley. Potentially Threatened by solar energy development. Potentially threatened by noxious weeds, and vehicles. Similar to *E. phedra trifurca* (and also to *E. funerea* when cones are not present). Not in *The Jepson Manual* (1993) and *TJM 2*. See *Proceedings of the American Academy of Arts and Sciences* 14:299-300 (1879) for original description.