

Rare Plant Status Review:
Penstemon bicolor* ssp. *roseus
Proposed List Change from List 2.3 to 1B.1
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Penstemon bicolor ssp. *roseus* is a perennial herb in the Plantaginaceae (previously included in the Scrophulariaceae). In 1939, Clokey and Keck named two subspecies of *P. bicolor*: ssp. *bicolor* with yellow flowers, and ssp. *roseus* with rose-colored flowers. To date, only the rose-colored (ssp. *roseus*) form of *P. bicolor* has been documented in California. According to Frank Smith (2005, Current Knowledge and Conservation Status of *Penstemon bicolor* (Brandegees) Clokey and Keck (Plantaginaceae), the two-tone beardtongue), "recent data on pollination and genetics...indicate that there are no significant differences between the subspecies." *P. bicolor* ssp. *roseus* is treated as a synonym of *P. bicolor* (subspecies are not recognized) in the *Jepson Manual* (1993) and the *Jepson Desert Manual* (2002). Additionally, the *Jepson Manual* (2nd Edition) will continue to not recognize subspecies of *P. bicolor*. Contrarily, according to Jim Morefield (pers. comm. 2009), "there is significant geographic and ecologic differentiation between the two color forms," and the Nevada Heritage Program continues to track both subspecies of *P. bicolor*. Consequently, it seems reasonable for CNPS to continue to recognize *P. bicolor* ssp. *roseus*. **Please indicate in your comments if you agree with this decision.**

In California *P. bicolor* ssp. *roseus* is known from just two occurrences in eastern San Bernardino County. Both of the California occurrences are located in the Castle Mountains. The report of *P. bicolor* ssp. *roseus* east of Keany Pass in the Clark Mountains is erroneous (Jim Andre, pers. comm. 2009). In Nevada, *P. bicolor* (both subspecies) is known from approximately 80 occurrences in Clark and Nye counties (Smith 2005). At least 10 of these occurrences are considered extirpated or possibly extirpated. Of the 70 presumed extant occurrences of *P. bicolor*, approximately 2/3 (46 occurrences) are *P. bicolor* ssp. *roseus*. In Arizona, *P. bicolor* ssp. *roseus* is known from approximately 10 "sites" in northwestern Mojave County. The population size of *P. bicolor* is estimated at 7000 individuals in Nevada and 500 individuals in Arizona. The population size of *P. bicolor* ssp. *roseus* in the Castle Mountains is estimated at 50 individuals.

P. bicolor ssp. *roseus* was first added to the 6th Edition of the CNPS Inventory (2001). It is globally-ranked as G3?T3Q by NaturServe and is state-ranked S1 in California, S2 in Arizona, and S3 in Nevada. Both subspecies of *P. bicolor* are included on the state list of species fully protected under Nevada state law (Smith 2005). The regulatory status of *P. bicolor* ssp. *roseus* in Arizona is not currently known.

Most occurrences of *P. bicolor* in California, Arizona, and Nevada occur on lands managed by state or federal agencies (specifically the BLM). Threats to *P. bicolor* in Nevada include urban development, road construction and maintenance, and off-road vehicles. Approximately 9% of the Nevada occurrences of *P. bicolor* are now considered extirpated. Another factor threatening *P. bicolor* in Nevada is hybridization with *P. palmeri*, a species which has been intentionally planted along road and utility corridors (Smith 2005). In California, ongoing mining operations threaten *P. bicolor* ssp. *roseus* in the Castle Mountains. A newly-emerging threat to *P. bicolor* across its entire range is renewable energy development projects sited on BLM land. Proposed wind and solar energy projects are likely to impact multiple occurrences of *P. bicolor* in the near future. California occurrences of *P. bicolor* ssp. *roseus* in the Castle Mountains are threatened by proposed wind energy projects (Jim Andre, pers. comm. 2009).

CNPS List 1B (plants rare, threatened or endangered in California and elsewhere) typically includes taxa with 50 or fewer occurrences ranked as either good or excellent by CNDDDB. *P. bicolor* ssp. *roseus* is a plant that is globally rare with a narrow range in four counties within three states. There are approximately 60 extant occurrences of *P. bicolor* ssp. *roseus*. Its rarity and the high level of threats across its range lead us to recommend that *P. bicolor* ssp. *roseus* be re-ranked to CNPS List 1B.1.

Recommended Action

CNPS: Re-rank from CNPS List 2.3 to List 1B.1

CNDDDB: Keep on CNDDDB G4T2T3, S1

Revised CNPS *Inventory* record:

Penstemon bicolor (Brandege) Clokey and Keck ssp. *roseus* Clokey and Keck
rosy two-colored beardtongue

Plantaginaceae (Scrophulariaceae)

List 1B.1

San Bernardino; Arizona, Nevada

Homer Mountain (198C) 3511418, Hart Peak (224D) 3511531, Clark Mountain (249D) 3511555

Joshua tree "woodland" (JTWld), Mojavean desert scrub (MDScr)/rocky or gravelly, sometimes disturbed areas; Elevation 700-1500 meters.

Perennial herb, blooms May.

Threatened by mining, renewable energy development, and hybridization with *P. palmeri*. See *Bulletin of the Southern California Academy of Sciences* 38(1):8 (1939) for original description.