

CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Phacelia stellaris*

COMMON NAME: Brand's phacelia

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 3, 2003

STATUS/ACTION:

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

90-day positive - FR date: _____

12-month warranted but precluded - FR date: ____

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: _____

Candidate removal: Former LP: ____

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Hydrophyllaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: California and Estado de Baja California, Mexico

CURRENT STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: California and Estado de Baja California, Mexico

LEAD REGION CONTACT (Name, phone number): Diane Elam (CNO), 916-414-6464; Scott McCarthy (RO), 503-231-6131

LEAD FIELD OFFICE CONTACT (Office, name, phone number): CFWO: Gary D. Wallace, 760-431-9440

BIOLOGICAL INFORMATION:

Taxonomy

Brand's phacelia (*Phacelia stellaris*) was originally described by Vasey and Rose (1889) as *P. palmeri*, based on a specimen collected at San Quintin, Baja California, Mexico, by Edward Palmer in 1889. Because this name had already been used in the genus, another name had to be selected. *P. stellaris* was described by Brand (1913) to include the Palmer specimen. In the same publication, Brand (1913) also described a new variety, *P. douglasii* var. *cryptantha*, and cited a specimen collected by Marcus Jones at San Diego. In his treatment of the taxa related to *P. douglasii*, Howell (1945) included Brand's *P. douglasii* var. *cryptantha* as a synonym of *P. stellaris*. *P. stellaris* was the only name available at the specific rank for the combined taxa. *P. stellaris* was recognized as distinct by Lee (1986) in his study of the systematics of the *P. humiles* group. This treatment has been followed in the most recent floristic treatment of California (Wilken et al. 1993).

Description

P. stellaris (Brand's phacelia) is an annual species in the Hydrophyllaceae (water-leaf family). The genus *Phacelia* consists of about 200 species. *P. stellaris* plants are spreading to erect, 6 to 25 centimeters [2.5 to 10 inches (in)] tall. The leaves are basal, deeply lobed, and 5 to 70 millimeters (mm) (0.2 to 3 in) long. The lower pedicels are generally longer than the upper ones and recurved. The calyx lobes are 3 to 4 mm (0.12 to 0.15 in) long in flower and 5 to 8 mm (0.19 to 0.31 in) long in fruit. The corolla is 3 to 5 mm (0.12 to 0.19 in) long with corolla scales up to 0.5 mm long (0.02 in). *P. stellaris* may be distinguished from similar co-occurring taxa by its pinnately deeply lobed leaves, calyx lobes that are 3 to 4 mm (0.12 to 0.15 in) long in flower, small [under 5 mm (0.19 in) long] generally deciduous corollas, corolla scales under 0.5 mm (0.02 in) long, and coarsely pitted seeds. This species is known from coastal dunes and sandy washes in Diegan sage scrub. Zedler et al. (1997) described *P. stellaris* as a sensitive plant associated with the southern Fore dune community. Commonly associated species along the coast include: *Abronia umbellata*, *Lotus nuttallianus*, *Nemacaulis denudata* var. *denudata*, *Agave shawii*, *Camissonia lewisii*, *Dudleya attenuata*, *Carpobrotus edulis*, and *C. chilensis* (Zedler et al. 1997).

Distribution

P. stellaris was historically found in Los Angeles, Riverside and San Diego counties, and in coastal northern Baja California, Mexico. A significant portion of the linear extent of the coastal occurrences of this species has been lost, likely from urbanization and habitat degradation. Only 3 of the 15 sites in the United States ever known to support this species are still extant. The historical localities listed below are based on herbarium specimens from California Academy of Sciences, San Diego Museum of Natural History, University of California, Berkeley, and Rancho Santa Ana Botanic Garden. All five of the occurrences of *P. stellaris* in Los Angeles County are historical; near Redondo last documented in 1897, the cemetery in Downey last documented in 1923, Bryant Ranch near Long Beach last documented in 1932, east of El Monte last documented in 1935, and Playa del Rey last documented in 1943. This species was also documented from Riverside County in Fairmont Park based on a specimen collected in 1925. *P. stellaris* was first collected in San Diego County in 1881. Six historical occurrences are known

from San Diego County, San Diego in 1882, the San Diego River last documented in 1882, Crown Point last collected in 1935, Old San Diego last collected in 1881, North Coronado last collected in 1891, and Silver Strand last collected in 1935. Three herbarium specimens document the occurrence of this species in Mexico, Tijuana last documented in 1882, Ensenada last documented in 1937, and Punta Banda last documented in 1973. The species has been collected near San Quintin as recently as 1988. *P. stellaris* may also persist nearby southeast of Santa Maria where it was last collected in 1975.

Status

Two of the three known extant populations in the United States are from coastal San Diego County. One site, discovered in 1993 on Federal lands at Marine Corps Base Camp Pendleton (MCBCP), supported 88 plants in an area of 35 square meters (sq.m) [376 square feet (sq.ft)] (California Natural Diversity Data Base (CNDDB) 1993). In the Coastal Dunes Vegetation Study on the Marine Corps Base, Camp Pendleton (MCBCP) [The Nature Conservancy (TNC) 1994a], this population was subsequently reported to consist of 88 plants in an area of 45 sq.m (484 sq.ft) for 1993 and decreased to 50 plants in 1994. *P. stellaris* was addressed as “Clearly the most significant finding within the study area . . .” in the initial dunes vegetation study of MCBCP (TNC 1994a). Apparently, this species was also not found in 1997 surveys reported in the Final Biological Survey Report for Rare Plants at MCBCP (RECON 1999). The 2000 rare plant survey of MCBCP (Davis and Kellogg 2000) reported finding 14 live plants and 101 small dead plants, presumably from the previous year, in May and June of 2000. The data from this report may be questionable because the photographs included in the report apparently depict a different and more common species of *Phacelia*. In 2002, the presence of *P. stellaris* on MCBCP at this site was reconfirmed by biologists from the base and the Service (G. Wallace, Service, pers. comm., 2002).

Another presumed extant site is on State lands at Border Field State Park within a few hundred yards of the border fence. This occurrence, consisting of a few plants in sandy soil, is recorded by CNDDB (2000) and is based on a specimen collected in 1985 housed at the herbarium of the San Diego Museum of Natural History. This site reportedly supported about 80 plants during a March 2002 survey (K. Marsden, California State Parks, pers. comm., 2002). The occurrence consisted of two areas, one 4 sq.m (43 sq.ft) and another 6 sq.m (64.5 sq.ft). Both of these sites were along a sandy trail used by ATVs and foot traffic (K. Marsden, pers. comm., 2002).

Recently, Andy Sanders (University of California, Riverside, pers. comm., 2001) verified a specimen of *P. stellaris* collected in 2000 by Oscar Clark about 0.6 kilometers (1 mile) southwest of Fairmont Park in western Riverside County. This specimen is housed at the University of California, Riverside. This is near the area where previously a collection was made in the 1930s. This occurrence on County lands is persisting at a site overlaying an abandoned asphalt road. Potentially, at least two occurrences remain in Mexico, and one of these occurrences has not been verified since 1975.

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

A significant portion of the linear extent of the coastal occurrences of this species has been lost, presumably to urbanization and habitat degradation. The extant habitat at the remaining three population sites easily could be destroyed by unregulated human foot traffic. Given the sandy substrates and small size of the three known extant occurrences, vehicular traffic, although not likely to occur within the fenced California least tern (*Sterna antillarum*) colony at MCBCP, may significantly damage these populations. Although beneficial to this plant in the long run, thinning and removal of some non-native plant cover to improve habitat for the California least tern at MCBCP may have affected plants and habitat for *P. stellaris*. As a result of recent surveys, MCBCP realigned the existing tern colony fence to protect the small extant population of *P. stellaris* at the Santa Margarita River mouth.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Not known to be a factor for this species.

C. Disease or predation.

Not known to be a factor for this species.

D. The inadequacy of existing regulatory mechanisms.

P. stellaris is included as a List 1B plant, (rare, threatened, or endangered in California and elsewhere) in the California Native Plant Society's (CNPS) Inventory but is not listed by the State as Endangered or Threatened (CNPS 2001). Thus, the California Endangered Species Act (CESA) and Native Plant Protection Act do not provide any protection for this species. The California Department of Fish and Game recognizes that the majority of the plants on List 1A, 1B, and 2 of the CNPS Inventory would normally qualify for listing under the State CESA. Under the California Environmental Quality Act (CEQA), impacts to List 1B plants are considered significant and must be addressed. CEQA obligates disclosure of environmental resources within proposed project areas and may enhance opportunities for conservation efforts. However, CEQA does not guarantee that such conservation efforts will be implemented. Protection of listed species through CEQA is dependent upon the discretion of the lead agency involved. No specific protections or management plan exist for *P. stellaris* at Border Field State Park. There are no fences around the areas of suitable habitat to prevent trampling by foot traffic. This species was not evaluated for coverage under the Multiple Species Conservation Plan (MSCP) in San Diego County.

E. Other natural or manmade factors affecting its continued existence.

The plants at Border Field State Park occur in a sandy opening and are threatened by trampling from foot traffic of visitors and illegal immigrants (Reiser 1996; CNDDDB 2000) and patrol activities along the international border, as well as from ATV use on the trail where the plants are found (K. Marsden, pers. comm., 2002).

The site on MCBCP is threatened by trampling during monitoring and management activities, but is at greater risk from the invasive spread of iceplant (*Carpobrotus edulis*) (CNDDDB 2000). Iceplant is recognized as a significant adverse impact to the population on the north side of the Santa Margarita River at MCBCP (TNC 1994b). A work plan for enhancement efforts on MCBCP was proposed for *P. stellaris* to reduce the amount of iceplant in the area (TNC 1994b). However, this plan did not address other threats to the species such as trampling, disturbance, and habitat curtailment that may occur during maintenance or monitoring activities associated with the California least tern nesting area. Herbicide is applied to the invasive exotic iceplant in the area; however, herbicide applicators are to avoid the pinflags that mark the location of *P. stellaris* (D. Bieber, MCBCP biologist, pers .comm., 2001). The nature and extent of the onsite seed bank for this species, and potential effects of the herbicide applications in the area, are unknown.

The occurrence in Riverside County is subject to impacts from farming and recreational activities. It is not known how much plant habitat was lost to farming on adjacent lands. The Riverside site is further impacted by a horse trail that runs directly through the middle of the narrow 100 by 20 meter (328 by 656 feet) occurrence, even though fencing now restricts the horses to the middle of the strip of the occurrence (S. Brown, Service, pers. comm., 2003).

The extremely small size of the most recently observed remaining three populations, and the precarious nature of its habitat, make *P. stellaris* susceptible to catastrophic events or even random instances of trampling. Because of a significant reduction in the known extant range of this species, the species likely has suffered a similar loss of genetic diversity. This species is close to extinction in the immediate future.

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? _____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? _____
- c. Is a proposal to list the species as threatened or endangered in preparation? _____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP:

One of the occurrences is on Federal lands at MCBCP, another occurrence is on lands administered by the California Department of Parks and Recreation at Border Field State Park, and the most recently collected site is on lands managed by the Riverside County Regional Parks and Open Space District.

PRELISTING:

This species was not evaluated for coverage under San Diego County MSCP and consequently has no protection status under this regional NCCP program. We know of no specific protections for this species on State Parks lands. On Federal lands, MCBCP has agreed not to use herbicides for vegetation control at pin flags marking the immediate vicinity of the plants. A proposed work plan (TNP 1994b) called for enhancement efforts that would pose no additional threat to the small population of *P. stellaris*. The work plan outlined a progressive reduction in the iceplant in the area and called for the use of extreme caution in the process because of the limited numbers of plants at the occurrence. The results of efforts undertaken as a result of this proposal are unknown in regard to population levels and conditions for *P. stellaris*. Riverside County Regional Parks and Open Space District recently installed fencing to restrict horses to the trail through the occurrence on their lands.

REFERENCES:

- California Native Plant Society. 2001. Inventory of Rare and Endangered Plants of California (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society, CA. x+ 388 pp.
- California Natural Diversity Data Base. 2000. Internet database.
- Davis, C.R. and E.M. Kellogg. 2000. 2000 Rare Plant Surveys Marine Corps Base Camp Pendleton, California. Final Report.
- Howell, J.T. 1945. Studies in *Phacelia* - Revision of the species related to *P. douglasii*, *P. linearis*, and *P. pringlei*. Amer. Midl. Naturalist 33(2):460-494.
- Lee, G. 1986. Studies in the systematics and evolutionary ecology of the *Phacelia humiles* group. Unpublished Dissertation, University of California, Davis, California.
- The Nature Conservancy. 1994a. Coastal dunes vegetation study USMC Camp Pendleton Phase I Report. (Prepared by BioSystems Analysis, Inc).
- The Nature Conservancy. 1994b. Vegetation restoration and enhancement plan coastal dunes study USMC Camp Pendleton, California Phase II work plan. (Prepared BioSystems Analysis, Inc.).
- Recon. 1999. Final biological survey report for rare plants at Marine Corps Base, Camp Pendleton, California. Prepared by Scott McMillan.
- Skinner, M.W. and B.M. Pavlik. 1994. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, 5th ed.
- Vasey, G. and J.N. Rose. 1889. List of plants collected by Dr. Edward Palmer in Lower California in 1889. Proc. U.S. National Museum 11:527-536.

Wilken, D., R. R. Halse, and R. W. Patterson. 1993. *Phacelia*, pp. 691-706. In: Hickman, J. C., ed. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Zedler, P., S. DeSimone, J. Giessow, D. Lawson, J. Else, and S. Bliss. 1997. *The Plant Communities of Camp Pendleton Marine Corps Base, California* San Diego State University Department of Biology Ecology Program.

LISTING PRIORITY (* after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2*
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: This species is known to be extant at only three small remaining sites. The impacts related to population biology of these widely disjunct, small occurrences of this annual plant are, likely direct impacts from habitat alterations and vehicular and foot traffic. The magnitude of threats is very high due the few number of occurrences.

Immediacy: For one occurrence that occurs along a trail, hikers or a traverse by an ATV on any given day could eliminate the occurrence. For another site, a horse trail currently in use traverses the length of the narrow site. The third site receives a level of protection but inadvertent impacts related to management efforts for the California least tern could severely reduce the small population. Threats to two of the three occurrences are imminent.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Steve Thompson March 6, 2003
Acting Regional Director, Fish and Wildlife Service Date

Concur: Steve Williams April 5, 2004
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

Date of annual review: February 2003
Conducted by: G. Wallace

Comments: _____

