

**Changed from California Rare Plant Rank 1B.2 to 4.2 in the CNPS Inventory on
January 17, 2014**

Rare Plant Status Review: *Lupinus guadalupensis*
Proposed Rank Change from CRPR 1B.2, G2 / S2.2 to CRPR 4.2, G3 / S3
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 December 10, 2013

Background

Lupinus guadalupensis is an annual herb in the Fabaceae that has been included in the CNPS Inventory since 1974 (1st Ed.; Powell 1974). It is currently included in the Inventory at California Rare Plant Rank (CRPR) 1B.2. *Lupinus guadalupensis* is found only on San Clemente Island, California and Guadalupe Island, Mexico. The vegetation on San Clemente Island was severely impacted by the introduction of herbivores, particularly goats and pigs. Since their removal, however, the island's vegetation has been steadily recovering (USFWS 2012). For more details on the history and management of San Clemente Island, see the attached "Background on San Clemente Island" document. *Lupinus guadalupensis*, like many other San-Clemente Island plants, has greatly recovered since the last feral goats and pigs were removed from the island in 1991.

Today we have very thorough and recent survey data for *L. guadalupensis* on San Clemente Island, while our historical data on the plant is much more anecdotal. Raven (1963) observed that *L. guadalupensis* was uncommon, growing in colonies near the central part of the island. Pierce and Beauchamp (1979) provided a good summary of the status of the species, noting that it occurred mostly on flats in the central part of the island. Helenurm (1998) stated that *L. guadalupensis* was restricted to fewer than 20 sites in the central part of the island. Intensive surveys by Junak and Wilken (1998) and the Soil Ecology and Restoration Group (SERG 2012) have shown that *L. guadalupensis* now occurs throughout the island on a variety of land formations, including upland mesas, lower coastal terraces, canyon bottoms, grassy slopes and ridgetops (CNDDDB 2013). It grows in coastal scrub habitats, usually with rocky soil, and sometimes in disturbed areas (Howe 2012, CNDDDB 2013). The current data show that *L. guadalupensis* is rather common on San Clemente Island, with a total of 56 known occurrences. Of those, 52 occurrences have been recently seen (occurrences not seen in the past 20 years are considered historical by the CNDDDB). Currently there are 29 occurrences ranked "Excellent", seven occurrences ranked "good", one occurrence ranked "Fair", and nineteen occurrences with an unknown rank (CNDDDB 2013). Many of the unranked occurrences occur in areas of high quality habitat, but lack of population data prevent ranking at the moment (K. Gross and E. Howe pers. comm. 2013). *Lupinus guadalupensis* is found in its greatest abundance on the lower coastal terraces on the island's southwest side (E. Howe pers. comm. 2013). A summary of the most recent survey data on *L. guadalupensis* indicates that it has an estimated total population size of about 67,000 individuals on San Clemente Island. More than half of these plants are concentrated in a single large occurrence in the north-central part of the upland flats (CNDDDB EO#3). However, the large size of many populations makes accurate counts

challenging, and population sizes can fluctuate dramatically from year to year because this plant is an annual. Howe (pers. comm. 2012) noted that *L. guadalupensis* had become very common on San Clemente Island, although it was less abundant in 2012 than other years due to rain patterns.

An analysis of both the current and former threats to *L. guadalupensis* is also warranted. Pierce and Beauchamp (1979) noted that “complete removal of all introduced herbivores is a prerequisite for effective management of endemic species on San Clemente Island”. They also stated that military activities (vehicle traffic, emplacement of cable and pipeline, and too frequent fires) and invasive species (particularly *Salsola iberica* and *Chrysanthemum coronarium*) threatened *L. guadalupensis*. The goal of removing feral herbivores from the island was achieved in 1991 (Junak and Wilken 1998), and the current abundance of *L. guadalupensis* is likely due to this release from intensive grazing pressure. Naval activities and invasive species, however, could still affect some populations. Two occurrences (EO#33, 51) are located within training area ranges (TARs) and proposed assault vehicle maneuver areas (AVMAs). About one quarter of the largest occurrence (EO#3) is within a TAR and a proposed AVMA. The AVMAs are likely to have the greatest impacts from Naval activities (B. Munson pers. comm. 2013), probably as a direct result of the disturbance by vehicles. Additionally, EO#29 and 30 are located within TARS and impact areas, and could be affected by frequent fires. A moderate level of disturbance could actually benefit populations of *L. guadalupensis*, however, as the plant has been found growing successfully in old vehicle tracks (CNDDDB EO#10) and other disturbed areas (CNDDDB EO#48, 54; based on Howe 2012). Invasive species could threaten some occurrences, as many of the upland flats on the island are dominated by exotic annual grasses (K. Gross, A. Sims, D. Slakey pers. obs. 2012). Invasives are kept in check, however, by management techniques, including inspections of vehicles brought onto the island and control efforts by the SERG crew (USFWS 2012; K. Gross, A. Sims, and D. Slakey pers. obs. 2012).

On Guadalupe Island, *L. guadalupensis* is not faring as well as it is on San Clemente Island (E. Howe pers. comm. 2012). Feral goats have been removed from Guadalupe Island (S. Vanderplank pers. comm. 2013), but the plant apparently is not making a strong comeback. The author of *The Flora of Guadalupe Island*, R. Moran, only observed six plants from four sites in 40 years of observation (Helenurm 1998). On a recent trip to Guadalupe Island, S. Vanderplank and S. Junak (pers. comm. 2012) did not see any *L. guadalupensis* plants.

With its current high number of estimated individuals and very large area of occupancy of some occurrences (particularly CNDDDB EO #3), it is apparent that *L. guadalupensis* has made a very strong recovery on San Clemente Island. In order to better assess the potential change of a plant's status in the CNPS Inventory, the CNPS Rare Plant Program and CNDDDB developed guidelines stating that in general, CRPR 1B contains plants that are known from fewer than 50 occurrences ranked “excellent” or “good” by the CNDDDB. However, these guidelines were set up as just that—guidelines, and to be taken into consideration with other factors such as population size(s), environmental

specificity, trends, threats, etc. Therefore, although *L. guadalupensis* has not met this general criteria, it represents a unique case as an island endemic. Islands frequently receive special case treatment in management decisions as they often present special cases ecologically (E. Howe pers. comm. 2013). *Lupinus guadalupensis* has never and likely will never occur outside of San Clemente and Guadalupe Island; in terms of historic or potential range, it is well established throughout its range on San Clemente Island with no barriers to gene flow (E. Howe pers. comm. 2013). Since it has seemingly made a full recovery on San Clemente Island, it is apparent that *L. guadalupensis* is not eligible for state listing, and thus no longer eligible for CRPR 1B status. However, if changed to CRPR 4, we strongly recommend that it still be evaluated for consideration during preparation of environmental documents related to CEQA.

Given its recovery, the presence of very large occurrences with high numbers of individuals, lack of serious threats from Navy activities in the majority of occurrences, and the active management of its area of occupancy by the Navy, CNPS and CNDDDB recommend re-ranking *L. guadalupensis* from CRPR 1B.2 to 4.2. If significant threats to *L. guadalupensis* occur in the future, and/or if populations and individuals appear to decline, CNPS and CNDDDB will re-evaluate its status at that time.

Recommended Actions

CNPS: Re-rank *Lupinus guadalupensis* from CRPR 1B.2 to CRPR 4.2

CNDDDB: Re-rank *Lupinus guadalupensis* from G2 / S2.2 to G3 / S3

Current CNPS Inventory Record

Lupinus guadalupensis Greene

Guadalupe Island lupine

Fabaceae

Rank 1B.2

San Clemente Island

San Clemente Island Central (SCMC) 32118G4, San Clemente Island North (SCMN)

32118H5, San Clemente Island South (SCMS) 32118G3

Coastal scrub (sandy or gravelly); elevation 15-395 meters.

Annual herb. Blooms February to April.

In review. Threatened by Navy activities. Feral herbivores removed from SCM Isl., and vegetation recovering. See Bulletin of the California Academy of Sciences 1:184 (1885) for original description, and Aliso 5:327 (1963) for distributional information.

Available online at <http://www.rareplants.cnps.org/detail/1030.html>

Revised CNPS Inventory Record

Lupinus guadalupensis Greene

Guadalupe Island lupine

Fabaceae

Rank 4.2

San Clemente Island

San Clemente Island Central (SCMC) 32118G4, San Clemente Island North (SCMN) 32118H5, San Clemente Island South (SCMS) 32118G3
Coastal scrub / sandy, gravelly, or rocky; sometimes in disturbed areas; elevation 10-465 meters.

Annual herb. Blooms February to April.

Some occurrences threatened by Navy activities. Feral herbivores removed from SCM Isl., and vegetation recovering. See Bulletin of the California Academy of Sciences 1:184 (1885) for original description.

Literature Cited

Helenurm, K. 1998. Outplanting and differential source population success in *Lupinus guadalupensis*. Conservation Biology 12(1): 118-127.

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