Keckiella rothrockii var. jacintensis

Rare Plant Status Review: Keckiella rothrockii var. jacintensis
Proposed Addition to California Rare Plant Rank 1B.3, G4T2T3 / S2S3
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11 June 2023

This status review is being expedited through an agreement between the California Native Plant Society and the Center for Plant Conservation (CPC), with contributions from the state of California, CPC, and the California Plant Rescue initiative. Aside from being advanced as part of this agreement, the process, content, and information provided herein is not altered, modified, or developed differently in any way or form compared to other status reviews developed by CNPS.

Background and Taxonomy
Keckiella rothrockii (A. Gray) Straw var. jacintensis (Abrams) N.H. Holmgren is a perennial shrub in the Plantaginaceae. It is included in The Jepson Manual (Holmgren 1993), Jepson eFlora (Wetherwax and Holmgren 2012), and Flora of North America (Michener and Holmgren 2019). It was first described as a species, Penstemon jacintensis, by Abrams (1906) then treated as either a variety of P. rothrockii by Munz and Johnston (1924) or as a subspecies by Keck (1936). All members of Keckiella were formerly treated within Penstemon (e.g., Munz and Keck 1959, Munz 1974), but Keckiella is now recognized as distinct based on morphological and genetic evidence (Holmgren 1992, 1993; Wetherwax and Holmgren 2012, Michener and Holmgren 2019). Keckiella rothrockii var. jacintensis differs from K. r. var. rothrockii in its longer corollas (13–15 mm vs. 10–12 mm) that are sparsely long-hairy (vs. glabrate) and its green, glabrate (vs. canescent) leaves (Wetherwax and Holmgren 2012, Michener and Holmgren 2019). In addition, the two varieties occur in different bioregions and are separated by roughly 140 miles. The species and variety are named for the botanist Joseph T. Rothrock and for the San Jacinto Mountains, respectively (Abrams 1906, Charters 2022).

Ecology
Keckiella rothrockii var. jacintensis occurs in montane coniferous forest in flat areas or gentle slopes and drainages, usually on north- to east-facing aspects (Chester 2016, Calflora 2023, CCH2 2023). All occurrences are from granitic substrates (CDC 2015). It blooms from July to August (rarely in June or September) (Calflora 2023, CCH2 2023, iNaturalist 2023). Records range in elevation from 2,225–2,995 m with approximately 85% of the records from 2,400 to 2,785 m (Chester 2016, Calflora 2023, CCH2 2023, iNaturalist 2023, Chester 2023 pers. comm.). One observation was mapped at approximately 2,170 m, the lowest for the taxon, but the location accuracy could not be confirmed, and this record is therefore excluded from the elevation range (iNaturalist 2023). Recent published treatments describe the habitat of Keckiella rothrockii var. jacintensis as identical or nearly identical to that of K. r. var. rothrockii, namely, sagebrush steppe and pinyon-juniper woodland (Holmgren 1993), conifer forest and pinyon-juniper woodland (Wetherwax and Holmgren 2012), or sagebrush steppe and pinyon-juniper woodland (Michener and Holmgren 2019). However, only conifer forest accurately describes the habitat of Keckiella rothrockii var. jacintensis, as Artemisia tridentata, Juniperus californica, Pinus monophylla, and P. quadrifolia do not occur within its habitat (Chester 2016, Chester 2021, Calflora 2023, CCH2 2023, iNaturalist 2023). More accurate habitat descriptions include open forests or dry slopes in montane coniferous forest (Keck 1951, Munz 1974) and “partly shaded slopes and ridges under pines and firs” (Munz and Johnston 1924). Associated plant taxa include Abies concolor, Arctostaphylos patula, Ceanothus spp., Cercocarpus ledifolius,
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Chrysolepis sempervirens, Ericameria nauseosa, Heuchera sp. (most likely H. hirsutissima, CRPR 1B.3), Linanthus jaegeri (CRPR 1B.2), Lupinus spp., Philadelphus microphyllus, Pinus contorta ssp. murrayana, P. jeffreyi, P. lambertiana, Quercus chrysolepis, Ribes spp., and Silene parishii (Calflora 2023, CCH2 2023).

Distribution and Abundance

Keckiella rothrockii var. jacintensis is known from 19 occurrences in the San Jacinto Mountains in Riverside County (Calflora 2023, CCH2 2023, iNaturalist 2023, Chester 2023 pers. comm.). All the occurrences are within 7 km of San Jacinto Peak, and most of them (14) are in and around Tahquitz, Round, and Tamarack valleys. The remaining five occurrences are along Fuller Ridge which is isolated from the main populations by approximately three kilometers of apparently unsuitable habitat, much of it above the taxon’s known elevation range. While there are likely some additional records in off trail areas (S. White 2023 pers. comm.), many of the gaps in the taxon’s distribution are a result of unsuitable habitat (Chester 2023 pers. comm.). Some populations have been censused, with estimates of approximately 4,800 plants in northwest and southwest Tahquitz Valley and approximately 2,000 plants on Fuller Ridge (Chester 2016). An incomplete survey in Tamarack and Round valleys tallied approximately 1,600 plants, and qualitative descriptions of its abundance there include occasional, common, and “super-abundant” (Chester 2016, Calflora 2023, iNaturalist 2023, Chester 2023 pers. comm.). Chester (2016) estimated the total population of Keckiella rothrockii var. jacintensis as somewhere between 10,000 and 20,000 plants occurring over approximately 12 square kilometers. Using GeoCAT (Bachman et al. 2011), the overall extent of occurrence (EOO) is estimated as 60 km² and the area of occupancy (AOO; sum of 4 km² grid squares) is 47.5 km². The EOO is likely a significant overestimate, as the estimation methodology often results in the inclusion of unsuitable habitat (Burgman and Fox 2003). Seventeen of the occurrences are recent, and two are historical. All occurrences are on either San Jacinto State Park (5) or San Bernardino National Forest (14) lands, and all but one of the San Bernardino NF occurrences are in the San Jacinto Wilderness.

Ten records had localities that could not be accurately georeferenced and were therefore excluded from this analysis. These records are highlighted in pink at the end of the location spreadsheet.

Status and Threats

There are no known threats to Keckiella rothrockii var. jacintensis, but two other rare taxa that occur at high elevations in the San Jacinto Mountains, Draba saxosa (CRPR 1B.3) and Linanthus jaegeri (CRPR 1B.2), may be threatened by recreational activities (CNDDB 2023, CNPS 2023). Seven of the Keckiella rothrockii var. jacintensis occurrences are within the perimeter of the 2013 Mountain Fire, and all but one of these have been visited and confirmed extant since the fire. An observer in 2021 noted that Keckiella rothrockii var. jacintensis was “very abundant” within the 2013 fire perimeter (iNaturalist 2023). While some amount of fire is likely beneficial, high intensity fires, frequent fire return intervals, and fire suppression activities could potentially threaten the taxon.

Summary

Based on the available information, CNPS and CNDDB recommend adding Keckiella rothrockii var. jacintensis to California Rare Plant Rank 1B.3 of the CNPS Inventory. If knowledge on the
distribution, threats, and rarity status of Keckiella rothrockii var. jacintensis changes in the future, we will re-evaluate its status at that time.

**Recommended Actions**

CNPS: Add Keckiella rothrockii var. jacintensis to CRPR 1B.3  
CNDDB: Add Keckiella rothrockii var. jacintensis to G4T2T3 / S2S3

**Draft CNPS Inventory Record**

*Keckiella rothrockii* (A. Gray) Straw var. *jacintensis* (Abrams) N.H. Holmgren  
San Jacinto Mountains keckiella  
Plantaginaceae  
USDA Plants Symbol: KEROJ3  
Synonym(s)/Other Name(s): None  
CRPR 1B.3  
Counties: Riverside  
States: California  
Quad name (code): San Jacinto Peak (3311676)  
General Habitat: Upper montane coniferous forest  
Microhabitat details: Flat areas or gentle slopes and drainages usually on north- to east-facing aspects  
Microhabitat: Granitic  
Elevation: 2225–2995 meters  
Life form: Perennial shrub  
Blooms: (June) July to August (September)  
Threats: Possibly threatened by recreational activities  
Taxonomy: Similar to but disjunct from var. *rothrockii*; differentiated morphologically by its longer (13–15 mm) and sparsely long-hairy corollas and its green, glabrescent leaves.

**Selected References:**
- CNPS Status Review: Proposed addition to CRPR 1B.3, G4T2T3 / S2S3 (2023)  

**Literature Cited**


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Element Code: PDSCR0T061
Added to CRPR 1B.3 on 2023-11-20


Sent to: ES/D, T. Chester, S. White, N. Holmgren, D. Michener on 7/11/2023
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Personal Communications
Chester, Tom. 2023. Botanist. Email communication regarding status, distribution, and records of Keckiella rothrockii var. jacintensis. [20 May 2023].