Rare Plant Status Review: *Silene serpenticola*

Misa Ward (CNPS) and Roxanne Bittman (CNDDB)
Plant summary draft and maps provided by Sydney Carothers
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Background

Silene serpenticola was recently described new to science by Tom and Jane Nelson in *Madrono* 51:384-386 (2004). This species is known from about 26 occurrences, all within Del Norte County. It requires review for inclusion in both the CNPS Inventory and CNDDB. The abstract is included below.

> *Silene serpentinicola* T. W. Nelson and J. P. Nelson is here described as new, discovered on and endemic to the serpentines of the Smith River basin, within Six Rivers National Forest, Del Norte County, California. The bright carmine-red flowered S. serpentinicola has been confused and with the red-scarlet flowered *S. californica* Durand and the pink of *Silene hookeri* Nutt subsp. *pulverulenta* (Peck) Hitchc. & Mag. However, each is distinctive.

Recommended Actions

CNPS: Add to CNPS List 1B

CNDDB: Add to CNDDB as G2/S2.2

Please review the draft CNPS *Inventory* record below, respond Yes or No on the proposal to add this species to the Inventory and CNDDB, and provide any edits/comments. If responding No, please provide supporting information.

Draft CNPS *Inventory* Record

***Silene serpentinicola* T. W. Nelson and J. P. Nelson**

"serpentine catchfly" Caryophyllaceae

List 1B / RED 2-2-3

Del Norte

722C(?), 739B, 739C, 740A, 740D
[Klamath Glen (722C) 4112358, High Plateau Mountain (739B) 4112388, Gasquet (739C) 4112378, High Divide (740A) 4112481, Hiouchi (740D) 4112471]

Perennial herb (rhizomatous), blooms May—July

Chaparral, Lower montane coniferous forest / serpentinite openings, gravelly or rocky; elevation 145-1650 meters.

Locally common in the Smith River Basin of Northwestern California. Has been confused with *S. californica* and *S. hookeri* ssp. *pulverulenta*. Not in *The Jepson Manual.* See *Madroño* 51:384 (2004) for original description.

Background

Silene serpentinicola is a newly described perennial member of the Caryophyllaceae that differs from similar species, *Silene californica* and *S. hookeri* (ssp. *pulverulenta*) in growth habit, flower color, type of pubescence, and shape and size of petaloid appendages, and from *S. californica* in chromosome number. It is only known to occur in serpentine openings in the Smith River basin in extreme northwestern California. Suitable habitat has also been surveyed in extreme southwestern Oregon, to some degree, without locating this species.

Tom Nelson collected this plant a number of times between 1978-2002 from several locations in the Smith River watershed and formally described it in 2003 after comparing it to specimens from Redwood National Park, Humboldt State University, UC Berkeley and Jepson herbaria that had been vouchered as either *Silene californica* or *S. hookeri* ssp. *pulverulenta* (currently included within *S. hookeri* in *Jepson*).

The 19 vouchers examined were collected between 1907 and 2002. The 1907 specimen was collected from a location notated as Red Hill, which is not on current maps but likely refers to Red Mountain per Tom Nelson. This is an area disjunct from the other known locations, and it has not been surveyed for this species in recent years. Most voucher collections were made within the past 25 years, but extant occurrences from some of these areas (eg. south of Hiway 199 along French Hill Road, South Fork Smith River Road, and Redwood National Park) have not be verified since their collection dates.

In addition to the voucher locations, I mapped sites noted during fieldwork in the Smith River watershed during 2003 and 2004, for a total of 26 occurrences. Three of these are duplicate sites, and of the remaining some are within a quarter mile of one another.

The size of *Silene serpentinicola* occurrences has not been tracked to date; in 2003 and 2004 its presence was noted on field observation forms for *Streptanthus howellii* when co-occurring but numbers and phenology were not recorded. From personal observation, occurrences consist of loosely scattered individuals and are not large; however, an estimate of numbers of individuals would merely be a guess.

My familiarity with the species is mainly from the north fork of the Smith River along Low Divide/Wimer Road (County Road 305) and the Gasquet Mine Road (Forest Road 17N49), which ties into Rd. 305. Much of the occupied habitat along Rd. 305 was severely burned in the 2002 Biscuit Fire, which charred some 50,000 acres in the Smith River National Recreation Area in California. Prior to the fire, distribution of *S. serpentinicola* seemed quite patchy and it was noted exclusively on roadside cut banks and openings. Post-fire surveys for *Streptanthus howellii*, which often co-occurs in the same red, serpentinite soils and open habitats, revealed the *Silene* growing abundantly away from the road in former white pine/shrub- or Jeffrey pine/shrub-dominated areas where the trees had been killed and the shrubs top-killed by fire. It's possible that occupied sites along Rd. 305 are actually part of one large occurrence that was fragmented in the past as it was shaded out by increasingly dense overstory. It seems probable that the current abundance will lessen as the shrubs grow back to their former density.

Potential threats to *Silene serpentinicola* include road maintenance, off-road vehicle travel through occurrences and alteration of habitat (ie., canopy closure due to shrub re-growth in Biscuit fire zone).

In 2005, the Six Rivers Forest Botany program is hoping to conduct directed surveys in the Smith River Recreation Area to determine the current geographic and phenologic distribution of *Silene serpentinicola* (Lisa Hoover, personal communication). More thorough surveys should be conducted over the border in southwestern Oregon as well to determine whether the species is indeed not present.

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Known locations of *Silene serpentinicola* from monograph (pre-2003 voucher dates) and from field observations (2003, 2004 dates). Cross reference with mapped locations.

High Divide Quad (740A)

1. T 18N, R 1E, Sec (34) 27. 8.85 mi. No. of North Bank Rd. @ 1933 ft., roadside.
   UTMs: E 413668 N 4641021 (2002)

2. Low Divide E of Smith River in chaparral @ 1800 ft. (too vague to map) (1938)

3. T 18 N, R 1E, Sec. 34 NW ¼. Low-High Divide Rd. 7.4 mi. from jct. with North Bank Rd. (1956)

4. T 18N, R 1E, Sec. 34 SW ¼. Near High Divide @ lat 41º 54' 42", long 124º 02' 55" (1982)

5. T 17N, R 1 E, Sec 9. Along High-Low Divide Rd. 5.8 mi. from jct. with North Bank Rd.
   UTMs: E 4113739 N 463743_ (2002)

6. T 18N, R 1E, Sec 27 @ 1600′. 0.75 mi. So. of Low Divide.
   UTMs: E 413905 N 4640976 (2002)

7. T 17N, R 1E, Sec. 9 @ 2100′. Cnty Rd. 305 6 mi. N of jct with North Bank Rd. (1987)

8. T 18N, R 1E, Sec 24. Le Horton RNA 4.6 Mi. No. of Cnty Rd. 305/Rowdy Creek Rd. jct. UTMs: E 416764 N 4643064 (2004)

9. T 18 N, R 1 E, Sec. 26 NW ¼. 12.8 mi. from North Bank Rd off County Rd. 305 @ former Stone Corral Lookout site. UTMs: E 421039 N 4642018 (2003)

10. T 18N, R 1E, Sec. 24 SW ¼. 3 mi. from jct of 17N49 & Cnty Rd 305 off 305. Stone Corral (site). UTMs: E 415796 N 4642836 (2003)

Hiouchi Quad (740D)

1. T 16N, R 1E, Sec. 23 @ 1800 ft. Along roadside near meteorological tower. (1984)

2. T 17N, R 1E, Sec 24. 4 mi. So. of 199 on South Fork River Rd. (1984)

3. T 17N, R 1E, Sec 25. French Hill Road 0.6 mi. from jct. with 199. (1978)

High Plateau Quad (740B)

1. T 18N, R 11W, Sec. 4 ca. 1.8 mi. east of bridge crossing the North Fork Smith River on County Rd. 305. UTM: E 421039 N 4647509 (2004)

2. T 18N R 11W, Sec. 4. Off Wimer Rd. UTMs: E 421800 N 4647845 (2004)

Gasquet Quad (739C)

1. T 17N, R 2E, Sec. 31. Humboldt Flat So. of Adams Station @ 2500′ (? too high) (1952)

2. T 17N, R 2E, Sec. 16 SW ¼. Stony Creek jct. with No. Fork Smith River. (1972)

3. T 17N, R2E, Sec. 16 @ 600′ (same as 2). Stony Creek Bog. (1973)

4. T 17N, R2E, Sec 21. Old Gasquet Toll Rd. 0.2 mi. No. of So entrance @ 475′ under power lines. (1947) (verified 2004)

5. T 17N, R 2E, Sec 20. Old Gasquet Toll Rd. (1947)

6. T 17N, R 2E, Sec 31 off French Hill Rd. in serpentine opening. (1983)

7. T 17N, R 2E, Sec. 23. Near 18 Mile Creek @ 1374′. (1988)

8. T 17N, R 2E, Sec 29 off French Hill Rd. 2.4 mi. from jct. with Hiway 199. (1978)

9. T 17N, R 2E, Sec 18 NW ¼, on 305* 2 mi. from jct with North Bank Rd. (1989) *Directions don't match legals, which put it off Forest Rd. 17N49 and may approximate #10, below.

10. T 17N, R 2E, Sec 18 @ milepost 9.39 along FR 17N49.
UTMs: E 417319 N 4634771 (2003)

***Klamath Glen Quad? (722C)**

1. *Red Hill on gravely opens (* = Red Mountain? T 13N, R 11W, Sec. 11). (1909)

Maps sent by Sydney Carothers are in a separate file.