

Rare Lichen Status Review: *Scytinium siskiyouense*
Proposed Addition to California Rare Plant Rank 1B.1, G2G3 / S1

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This species review is being expedited through a challenge cost share agreement between the California Native Plant Society and the USDA Forest Service, Pacific Southwest Region. 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. In addition, this lichen is being added to the CNPS Inventory through a memorandum of understanding between CNPS and the California Lichen Society (CALS) to include the CALS Conservation Committee's *Lichens of Conservation Concern* in the CNPS Inventory. The CALS sponsorship process involves the development of a status review proposal in the manner of a form, or as a manuscript submission for *The Bulletin of the California Lichen Society*, along with a complete list of known occurrences in California. *Scytinium siskiyouense* has a CALS sponsorship in press from which most of this status review is adapted (Carlberg and Stone in press).

Background and Taxonomy

Scytinium siskiyouense (D. F. Stone & Ruchty) Otálora, P. M. Jørg. & Wedin is a foliose lichen known from California and Oregon that is in the “jelly lichen” family Collemataceae (Otálora et al. 2014, Esslinger 2018, CNALH 2022, NatureServe 2022, Carlberg and Stone in press). It was first described in the genus *Leptogium* (as *L. siskiyouensis*) in 2008 and transferred to the genus *Scytinium* in 2014; the specific epithet has recently been corrected to “*siskiyouense*” (Stone and Ruchty 2008, Otálora et al. 2014, Index Fungorum 2022). It is characterized by a grey, unwrinkled, circular thallus of rounded lobes with edges dissected into isidia, the lobes closely attached to the substrate along the center longitudinally with the margins raised almost to 90° from the bark; a medulla of short hyphae, usually to 3:1 (length to width), packed closely with photobiont cells; similar upper and lower cortices, but the lower cortex with occasional tufts of white hairs at least 1 mm back from the growing edge; and a dense, coralloid fringe of isidia with undimpled, brown tips along the upturned lobe edges, the isidia sometimes looking like raised hands (Stone and Ruchty 2008).

Ecology

This lichen is usually epiphytic on the smooth bark of young *Quercus* spp. in mixed hardwood/conifer forests at elevations from 633 to 1458 meters (Carlberg and Stone in press). Eighty-seven percent of all collections (from Oregon and California) were growing on *Quercus kelloggii* or *Chrysolepis chrysophylla*, but *Scytinium siskiyouense* has also been found on *Fraxinus latifolia*, *Pseudotsuga menziesii*, *Quercus garryana*, *Quercus chrysolepis*, *Cornus nuttallii*, and *Notholithocarpus densiflorus*. It is often found in mid-seral forests of *Pseudotsuga menziesii*, *Calocedrus decurrens*, and *Pinus ponderosa* with a partially closed canopy. The understory can include *Arbutus menziesii*, *Notholithocarpus densiflorus*, and *Quercus kelloggii*. Other cyanolichen species are often present (Carlberg and Stone in press).

Distribution and Abundance

Scytinium siskiyouense is endemic to northern California and southwest Oregon. It has been reported from 16 occurrences in Jackson and Josephine counties in Oregon and 19 occurrences in Butte, Humboldt, Monterey, Shasta, Tehama, Trinity, and Tuolumne counties in California (Carlberg and Stone in press, Carlberg 2022 pers. comm., CNALH 2022). The majority of the Trinity County occurrences have been observed along Mad River Ridge, a feature that is part of the upper Mad River watershed. However, recent field work indicates that six of the Mad River Ridge occurrences (all on Six Rivers NF lands) were extirpated due to the 2015 Gobbler and 2021 August Complex fires (Carlberg and Stone in press). At these occurrences, substrate trees experienced 100% mortality. This represents a 32% reduction in the known California occurrences, leaving only 13 extant and presumed extant occurrences. In addition, it is possible that other occurrences were affected by the fires, but they have not yet been investigated (Carlberg and Stone in press). Population sizes and trends for the extant or presumed extant occurrences are unknown (Carlberg and Stone in press).

Ten of the 13 extant or presumed extant California occurrences are on National Forest lands. This includes the Lassen NF (1), Los Padres NF (1), Shasta-Trinity NF (2), and Six Rivers NF (6). The remaining occurrences are on lands managed by BLM (1), Yosemite National Park (1), or unknown land owners (1). Of the locations on National Forest lands, one (record #3) lies within a Late-Successional Reserve on the Six Rivers National Forest in Humboldt County, California (Carlberg 2022 pers. comm., CNALH 2022).

Status and Threats

Scytinium siskiyouense is endemic to southwestern Oregon and northern California. It is widespread but uncommon in northern California, with a cluster of six extant or presumed extant occurrences in Trinity County but only seven additional occurrences for the entire rest of the state. In Oregon it has a restricted distribution, appearing in only Josephine and Jackson counties. It has a global ranking of G2G3 with a rounded ranking of G2 (NatureServe 2022), and in Oregon it has a state ranking of S1 (Critically Imperiled) and an HP-List ranking of 1 (taxa that are threatened with extinction or presumed to be extinct throughout their entire range) (ORBIC 2019).

Threats to this lichen are complex. Data from collections of *Scytinium siskiyouense* indicate that it is often found in mixed conifer-hardwood forests with a moderate to high level of canopy closure from encroaching conifers (Carlberg 2022 pers. comm.). Where the substrate is a hardwood species, complete closure of the canopy will eventually result in substrate death. In addition, the habitat of *Scytinium siskiyouense* can be exposed to timber harvesting activities that typically take place before trees reach a mid-seral stage (Carlberg and Stone in press). The occurrence in a Late Successional Reserve (record #3) is protected from commercial logging, but thinning is permitted. The occurrence in Yosemite National Park (record #19) should be well-protected from timber management, especially if the occurrence is not part of a campground, trail, or other infrastructure part where management activities take place. However, moderate- and high-intensity fire has resulted in direct extirpation of at least six occurrences, and the effects of ash and other particulate deposition on other occurrences from fire has not been evaluated (Carlberg and Stone in press). Without pre-disturbance surveys, fuels reduction treatments in anticipation of wildfire could remove occupied substrate (Carlberg and Stone in press).

Summary

Due to the small number of occurrences, limited range, significant decline in occurrences since 2015, and ongoing possibility of threat, CALS recommends a global rank of G2G3. Due to the small number of known occurrences, the possibility that at least two more occurrences of unknown condition may be extirpated, the steep decline in the number of occurrences since 2015, and the ongoing possibility of threat, a California state ranking of S1 is recommended. In addition, CALS and CNPS recommend that *Scytinium siskiyouense* be added to California Rare Plant Rank 1B.1 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *Scytinium siskiyouense* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Scytinium siskiyouense* to CRPR 1B.1

CNDDDB: Add *Scytinium siskiyouense* to G2G3 / S1

Draft CNPS Inventory Record

Scytinium siskiyouense (D. F. Stone & Ruchty) Otálora, P. M. Jørg. & Wedin

Siskiyou jellyskin lichen

Collemataceae

USDA Symbol: none

CRPR 1B.1

Counties: Butte, Humboldt, Monterey, Shasta, Tehama, Trinity, Tuolumne

States: California (CA) and Oregon (OR)

Quads: Chews Ridge (3612135), Ackerson Mtn. (3711977), Kimshe Point (3912184), Cohasset (3912186), Onion Butte (4012125), Devils Rock (4012271), Four Corners Rock (4012312), Swim Ridge (4012322), Ruth Reservoir (4012334), Sportshaven (4012344), Dinsmore (4012345), Halfway Ridge (4012353), Shannon Butte (4012383)

Habitats: Lower montane coniferous forest, North Coast coniferous forest

Micro-habitat notes: Epiphytic, usually on the bark of Fagaceae, such as *Quercus* or *Chrysolepis*

Elevation: 635 - 1460 meters

Life form: Lichen, foliose

Notes:

- Threats: Alteration of fire regimes, frequent wildfires, logging, habitat disturbance, succession

Selected References:

- Original description: *North American Fungi* 3: 1–7
- Revised nomenclature: *Fungal Diversity* 64: 275–293
- Species account: (coming soon)
- Other: CALS account: (coming soon)

Literature Cited

Carlberg, T. and D. Stone. In press. *Scytinium siskiyouense* (D. F. Stone & Ruchty) Otálora, P. M. Jørg. & Wedin, Sponsorship for the CALS Conservation Committee. *Bulletin of the California Lichen Society*.

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Stone, D. & R. Ruchty. 2008. *Leptogium siskiyouensis*, a new epiphytic lichen species from the Pacific Northwest of the United States. *North American Fungi* 3: 1–7.

Personal Communications

Carlberg, Tom. 2022. Lichenologist and Botanist, Six Rivers National Forest. Email correspondence regarding locations of *Scytinium siskiyouense* and CALS Conservation Committee Draft Sponsorship (in press) for *S. siskiyouense*. Personal communication 15 August 2022.

Stone, Daphne. 2022. Faculty Research Associate, Oregon State Herbarium (OSC). Email correspondence regarding *Scytinium siskiyouense*, and CALS Conservation Committee Draft Sponsorship (in press) for *S. siskiyouense*. Personal communication 15 August 2022.