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## *Bryoria pseudocapillaris*, Sponsorship for the CALS Conservation Committee

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### Executive Summary

*Bryoria pseudocapillaris* is endemic to the west coast of North America with a distribution from San Luis Obispo County, California north to the Puget Sound in Washington. It was once only known from the Samoa Peninsula in Humboldt County, California and Cape Blanco in Curry County, Oregon, but recent studies have found several new sites. The largest known populations occur along the coastline from northern California to Central Oregon (Humboldt County, CA to Lane County, OR). This species is mostly found on conifers of coastal dunes and headland forests. Because this species reproduces and disperses by fragmentation, it is likely dispersal limited. Coastal development, air pollution, and climate change are likely threats to this species.

### TAXONOMY

**Accepted scientific name:** *Bryoria pseudocapillaris* Brodo & Hawksworth.

**Common name:** none.

**Type specimen and location:** Cape Blanco, Curry County, Oregon (Brodo 20539; CANL 50596).

**Synonyms:** none.

### DESCRIPTION

From Brodo & Hawksworth (1977) and Glavich (2003): Thallus fruticose and hair-like, 5-7 cm long (Figure 1). *Bryoria pseudocapillaris* from the Oregon Dunes in Coos County, Oregon.. Main branches mostly terete with no foveolate portions. Pseudocyphellae long and linear to ~3 mm. Color

mostly pale brown but can be brown to dark brown.

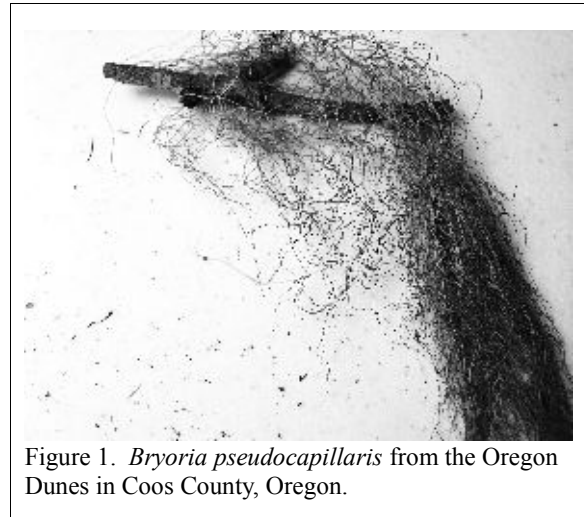


Figure 1. *Bryoria pseudocapillaris* from the Oregon Dunes in Coos County, Oregon.

Spot tests Cortex K+ yellow, C+ pink or reddish, KC+ pink or reddish, P + yellow. Secondary compounds barbatolic and alectorialic acids, sometimes together with an unidentified substance.

### Similar species and distinguishing characteristics:

Several *Bryoria* or *Bryoria*-like species can be mistaken for *Bryoria pseudocapillaris*. The distinguishing characteristic for *B. pseudocapillaris* is the long, linear pseudocyphellae plus the spot test reactions. *Bryoria spiralifera* has long pseudocyphellae, but they spiral around the thallus branches; this lichen also differs in spot test reactions (K+ yellow changing to red, C-, and KC-). *Bryoria capillaris* differs in having short, usually less than 1 mm, pseudocyphellae. *Sulcaria badia* differs in its more robust appearance; its branches often appear

twisted with long pseudocyphellae in deep furrows.

#### BIOLOGICAL CHARACTERISTICS

**Growth form:** fruticose, filamentous.

**Reproductive method:** fragmentation.

**Dispersal agents:** gravity, wind, animals.

**Substrate and specificity:** it is not substrate specific, but it does appear mostly on conifers of the immediate coast: dominantly *Picea sitchensis* and *Pinus contorta* var. *contorta* and also *Pseudotsuga menziesii*, *Abies grandis*, and *Tsuga heterophylla*.

**Habitat and specificity:** hyper-maritime coastal headland and dune forests.

**Pollution sensitivity:** unknown.

**Ecological function:** unknown.

#### GEOGRAPHY

**Global:** Occurs on the coastline mostly from northern California (Humboldt County) to central Oregon (Lane County). A few sites are found on the coastline of Washington and central California.

**Local:** In California, the largest populations are in Humboldt County, which include forests on the dunes of the Samoa Peninsula and on headlands, but also extend as far south as San Luis Obispo Co. (Geiser et al. 2004; Glavich et al. 2005a, 2005b: Fig. 1). California sites include these collections. SAN LUIS OBISPO CO.: Baywood Park, Riefner 87-336 (CANL.) The following are housed at OSC: MENDOCINO CO. H.J. Ranch, Point Arena, Glavich 611. HUMBOLDT CO. Samoa Peninsula, BLM parcel, Glavich 523; Humboldt Bay NWR, Lanphere Dunes, Glavich 527; Humboldt Lagoons SP, Dry Lagoon, Glavich 530; Little River SP, Glavich 595; Patrick's Point SP, Glavich 503; Trinidad Beach SP, Glavich 534. DEL NORTE CO. Redwood NP, Crescent Overlook, Glavich 548; L. Earl SP, Glavich 544. The sites near Point Arena and Los Osos appear to be disjunct.

#### POPULATION TRENDS

Actual population trends are unknown, but recent studies have increased the knowledge of population sites. Previous to more recent work, *B. pseudocapillaris* was known only from two California locations: Samoa Peninsula (Manila), Humboldt Co.

(Brodo & Hawksworth 1977) and Baywood Park, San Luis Obispo Co. (Riefner et al. 1995). Due to more recent surveys, it is now known from Lake Earl State Park, Humboldt Lagoons State Park, Patrick's Point State Park, Trinidad Beach State Park, Little River State Park, Redwood National Park (Geiser et al. 2004, 2005b; Fig 1).

#### THREATS

**History:** Its likely that coastline development was the largest historical threat, and air pollution likely played a threatening role in highly populated areas.

**Future:** Although both coastal development and air pollution still play a threatening role, climate change may be the major future threat to *B. pseudocapillaris* populations. Climate factors appear to be of major importance to *B. pseudocapillaris* habitat; a habitat model suggests that a winter temperature increase of 1°C could negatively affect a site's suitability for this lichen. With the Mote et al. (2003) warming prediction upwards of 1.5 °C by 2050, climate change should be considered in the management of *B. pseudocapillaris* populations.

#### PROTECTION

As of now, it is not known how many *B. pseudocapillaris* populations exist on private lands, but several northern California populations are protected by existing on conservation-based state or federal land parcels: Lake Earl State Park, Humboldt Lagoons State Park, Patrick's Point State Park, Trinidad Beach State Park, Little River State Park, Redwood National Park, US Fish & Wildlife Lanphere Dunes, and Samoa Dunes (BLM)(Geiser et al. 2004; Glavich et al. 2005b)

#### CONSERVATION SUMMARY

Although the distribution of *B. pseudocapillaris* has been studied across northern California (Glavich et al. 2005b), a more site-level study assessing this lichen's local abundance has only occurred on the Samoa Peninsula of Humboldt Bay in northern California (Glavich 2003). Efforts should not only be made to document the size of populations at California State Parks identified in Glavich et al. (2005b), but also surveys should

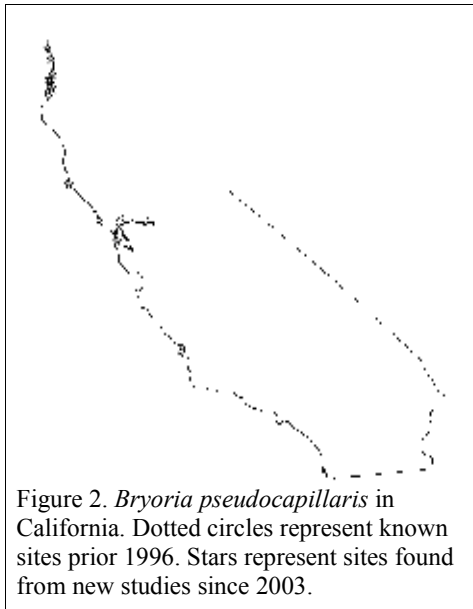


Figure 2. *Bryoria pseudocapillaris* in California. Dotted circles represent known sites prior 1996. Stars represent sites found from new studies since 2003.

be conducted in areas with potential habitat not yet visited: e.g., Lost Coast of the BLM King Range Conservation area and the Sinkyone Wilderness State Park.

Not much is known about its southern populations. The area of its southern most site—Baywood Park, San Luis Obispo Co. (Riefner et al. 1995)—should be surveyed. Other areas near the Mendocino, CA site (Geiser et al. 2004) should be surveyed as well.

#### SPECIFIC CONSERVATION RECOMMENDATIONS

##### **Recommended Global Rarity Rank: G3**

The bulk of the population appears to occur from Humboldt Co., CA northward to central Oregon, and the habitat range is narrow; it occurs only within a few miles of the coastline.

##### **Recommended Global Threat Rank: .2**

Coastal development and climate change could affect this species.

##### **Recommended Local Rarity Rank: S2**

The largest California population appears to be distributed along the coastline of Humboldt and Del Norte Counties. Population sizes for the more southern sites are unknown.

##### **Recommended Local Threat Rank: .2**

Coastal development and climate change could affect this species.

##### **Recommended List: 3**

Little is known about population sizes outside the Samoa Peninsula in Humboldt Co.

#### RECOMMENDED CONSERVATION/MANAGEMENT ACTIONS

All sites, with the exception of the Samoa Peninsula, should be relocated and assessed for population size. More potential habitat should also be surveyed and documented.

#### RELEVANT EXPERTS AND KNOWLEDGEABLE BOTANISTS

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#### STAKEHOLDERS FOR NOTIFICATION OF COMMENT PERIOD

USDI, Bureau of Land Management  
Arcata Field Office  
1695 Heindon Road  
Arcata, CA 95521

US Fish & Wildlife Service  
Humboldt Bay National Refuge  
(Lanphere and Ma-le'l Dunes Units)  
6800 Lanphere Rd.  
Arcata, CA 95521

Redwood National and State Parks  
1111 Second Street  
Crescent City, CA 95531

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