

## SPECIES FACT SHEET

**Common Name:** sulphur pin lichen

**Scientific Name:** *Chaenotheca furfuracea* (L.) Tibell

Synonym: *Coniocybe furfuracea* (L.) Ach.

Division: Ascomycota

Class: Sordariomycetes

Order: Trichosphaeriales

Family: Coniocybaceae

**Technical Description:** Crustose lichen. Photosynthetic partner *Stichococcus*. Thallus visible on substrate, made of flour-like, fine grains, intensely yellow-green. Spore-producing structure (apothecium) pin-like, comprised of a spherical head (capitulum) 0.1-0.2 mm diameter on a relatively tall, slender stalk, the stalk 1.6-2.7 mm tall and 0.06-0.1 mm diameter; dark brown with dense yellow-green colored powder covering stalk, capitulum and spore mass. Stalk can also have branched, projecting hyphae, also covered with yellow-green powder. Capitulum covered by yellow-green powder when young, with a mass of powdery brown spores (mazaedium) becoming evident with age. Spore sacs (asci) cylindrical, 12-15 x 2-3  $\mu\text{m}$ , formed in chains and disintegrating; spores arranged in one line in the asci (uniseriate), 1-celled, 2.3-3  $\mu\text{m}$ , globose with ornamentation of tiny warts, not easily visible at 400x.

**Chemistry:** all spot tests negative. Thallus and powder on stalk (pruina) contain vulpinic acid, which gives them the chartreuse-yellow color. This acid also colors *Letharia* spp., the wolf lichens.

**Other descriptions and illustrations:** Brodo 2001, Goward 1999, Nordic Lichen Flora 1999, Silverside 2010, Smith et al. 2009, Washington Native Plant Society 2012, Peterson 1999, Peterson (no date), Tibell 1975 (as *Coniocybe furfuracea*).

**Distinctive Characters:** (1) extensive, bright chartreuse-yellow thallus with yellow-green powder covering stalk and capitulum, (2) stalks tall and thin, (3) mazaedium of light brown spores.

**Similar species:** Many other pin lichens have yellowish powder on their heads or stalks, but few have powder covering the entire apothecium structure including stalk, head and spore mass. Similar species are listed here with brief descriptions, but microscopic characters must be used for final determination. See some of the references listed below.

*Chaenotheca brachypoda* has yellow-green powder covering the stalk and head. The spore mass is brown and made of 1-celled, globose to cuboid spores. The thallus is immersed in the substrate, so not visible.

*Chaenotheca gracilentia* has tall, thin stalks like *Chaenotheca furfuracea* but has grayish powder covering its stalk and head. The thallus is a thin grayish green layer of fine granules. The spore mass is brown to pale brown, made of 1-celled globose spores.

*Sclerophora nivea* has a pale yellow stalk and yellow powder on top of and beneath the head. The spore mass is pale and made of globose spores. The thallus is immersed, so not visible.

**Habitat:** Growing in dark situations under tree roots, tipped over stumps and under rock overhangs, where air may be moist but no direct rainfall hits. It covers surfaces of soil, rock, roots, rootlets and even leaf litter with its yellow-green powdery thallus. Elevations of 40 m to at least 1400 m (Rikkinen 2003).

**Life History:** Details for *Chaenotheca furfuracea* are not documented. The stalked apothecia may facilitate spore dispersal by wind or contact with passing arthropods and birds. Growth and dispersal rates of *Chaenotheca* are probably very slow.

**Range, Distribution, and Abundance:** Frequent and known from all states and provinces of the Pacific Northwest. Common west of the Cascades Range and also found on the eastern slopes of the Cascades in WA and OR.

National Forests: Documented in WA: Okanogan-Wenatchee, Gifford Pinchot, Olympic, Mt. Baker-Snoqualmie. OR: Columbia River Gorge National Scenic Area, Siuslaw, Mt. Hood, Umpqua, Willamette, Deschutes, Rogue River-Siskiyou, Fremont-Winema. CA: Shasta-Trinity, Klamath.

BLM Districts: OR: Coos Bay, Eugene, Medford, Roseburg, Salem. Suspected on Spokane. (Federal records, WTU: Burnett collections).

Other known sites: WA: Bald Hill Natural Area Preserve, Wind River Experimental Forest, Twin Falls State Park, Index Town Wall area, Mt. Persis area. OR: Humbug Mountain State Park, Cape Sebastian State Park, H. J. Andrews Experimental Forest, Little Sinks Research natural Area, McDonald Research Forest, Chip Ross Park (City of Corvallis), Finley National Wildlife Refuge, Cape Lookout State Park, Cascadia State Park, Newberry National Volcanic Monument. CA: Jedediah Smith Redwoods State Park, Calaveras Big Tree State Park (Rikkinen 2003, WTU: Burnett collections).

Cool temperate to temperate areas of northern hemisphere (Eurasia, North America)

**Threats:** Altered fire frequency and intensity resulting from fire suppression and fuel buildup may threaten populations.

**Conservation Considerations:** Fire kills these crustose lichens. Survival through a burn depends on escaping the fire in deep crevices beneath tree roots and in rock piles or islands of unburned trees. Maintaining microhabitat humidity is critical to their survival; pin lichens avoid direct rainfall or trickle-down but need humidity provided by shade and retained moisture in the forest.

Search in areas of OR and WA where it has not yet been found to determine accurate range in the PNW.

Conservation rankings: Global: G4G5, red listed in Denmark. National: no rank. ORBIC: no rank. WNHP: no rank.

**Preparer:** Daphne Stone

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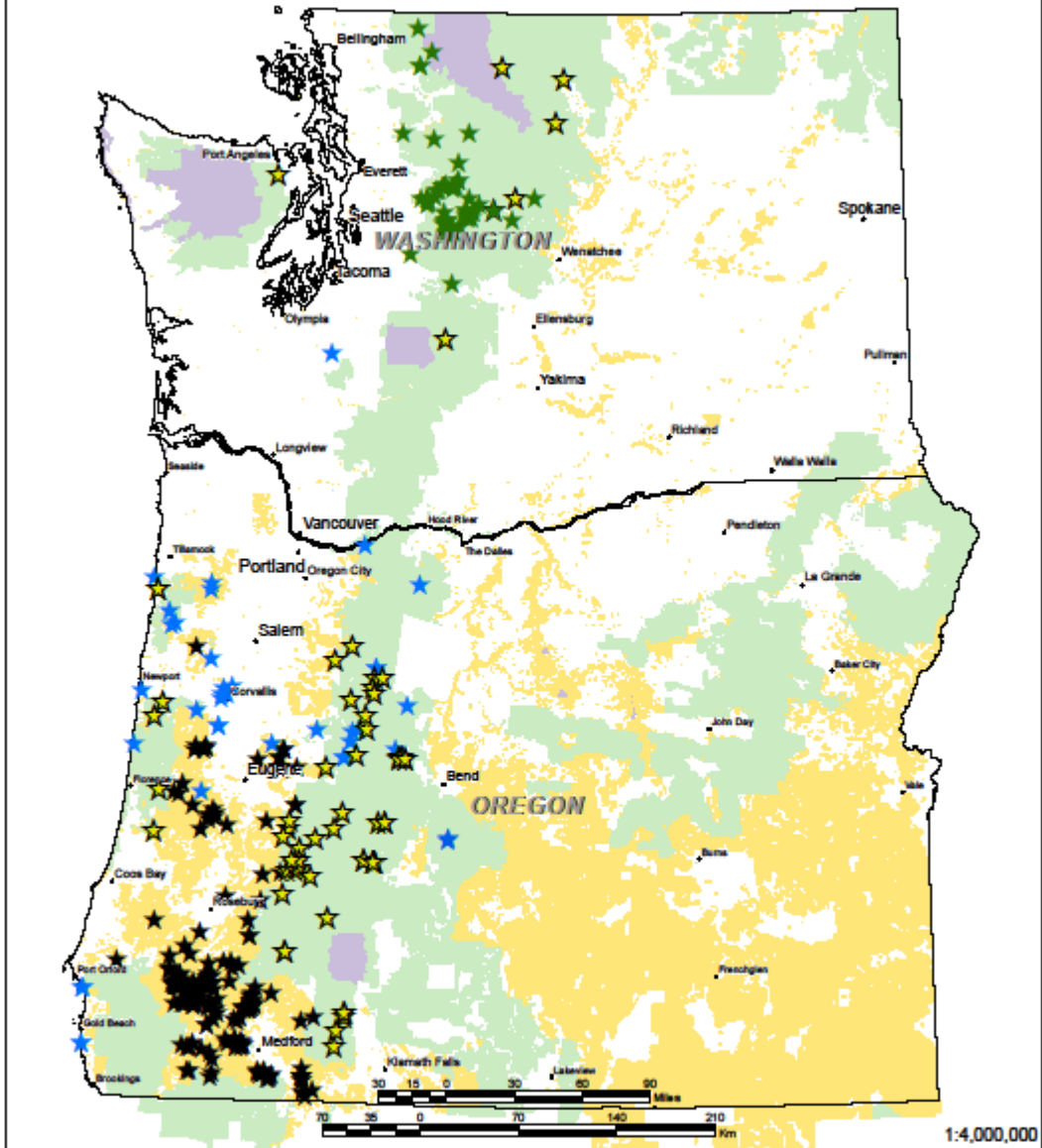
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# Chaenotheca furfuracea CHFU3



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## Legend

- ★ WTU Burnett collections
- ★ FS\_CHFU3
- ★ BLM
- ★ Other Source CHFU3
- Cities of Interest
- Bureau of Land Management
- U.S. Forest Service
- National Park Service

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