

Pseudocyphellaria

In the Pacific Northwest

Revised January 2003

Pseudocyphellaria Vainio Thallus foliose, medium to large; lobes 0.5-3 cm broad; upper surface gray or brown, with a network of ridges or irregularly wrinkled; lower surface whitish to dark brown, densely tomentose with scattered white or yellow spots (pseudocyphellae); primary photobiont blue green or green, if the latter then with internal cephalodia containing blue green photobiont; soredia or isidia present or not; apothecia brown, with thalline margin; spores elongate, septate; medulla white or yellow; spot tests various; mainly epiphytic.

1a Pseudocyphellae on lower surface white or gray

2a Thallus pale greenish gray, often bluish tinged; isidia or lobules present, soredia lacking. Thallus foliose, large, loosely appressed to pendulous; lobes 0.5-3 cm broad; upper surface gray or pale greenish gray, often bluish tinged, smooth or irregularly wrinkled; lower surface whitish to light brown, tomentose, with scattered white spots (pseudocyphellae); primary photobiont green, with internal cephalodia containing blue green photobiont; lobules and isidia present; apothecia rare, reddish brown, with thalline margin; medulla white; cortex K+Y; medulla K- or brownish, P-, C-, KC-. Southern BC to Ore, w Cas; on bark and wood of conifers, often overgrowing moss mats; in moist old growth forests at low to mid elevations, usually dominated by Douglas fir and western hemlock, usually in the lower to mid canopy; rare.

P. rainierensis Imshaug

[The combination of grayish color, pseudocyphellae, and lobules or isidia is diagnostic. For a search image in the field, keep in mind a large lobed species, grayish to bluish tinged (greenish gray if wet), larger and flatter than *Platismatia glauca*. One of the lichen species most strongly restricted to old-growth forests, it has nevertheless been found on occasion in younger forests. The distribution is quite patchy, even in suitable habitat, suggesting a strong dispersal limitation.]

2b Thallus brown or grayish brown; isidia and lobules absent, soredia present or not

3a Soredia lacking. Thallus foliose, loosely appressed, free at the edges, to 20(40) cm broad; lobes mostly 1-3 cm broad; upper surface light or dark brown, with a network of ridges; lower surface covered with light brown tomentum with scattered white spots (pseudocyphellae); primary photobiont blue green; soredia and isidia lacking; apothecia brown, common; medulla white; cortex K-; medulla K+Y, P+O or spot tests negative. Alas to Cal, with rare disjuncts inland to n Id; on bark and wood, on conifers, deciduous trees, and shrubs; rarely on rock; in low- to mid-elevation moist forests, especially riparian areas; most frequent near the coast in partially open habitats.

P. anthraspis (Ach.) H. Magn.

[P- and P+ chemical races have been reported for both *P. anthraspis* and *P. anomala*. See additional notes under *P. anomala*.]

3b Soredia present. Thallus foliose, loosely appressed, free at the edges, to 20(40) cm broad; lobes mostly 1-3 cm broad; upper surface light or dark brown, with a network of ridges; lower surface covered with light brown tomentum with scattered white spots (pseudocyphellae); primary photobiont blue green; soredia roundish to irregular, white, gray, or blue-gray, mainly on the ridges; apothecia brown, uncommon; medulla white; cortex K-; medulla K+Y, P+O or spot tests negative; on bark and wood, most often on deciduous trees and shrubs, occasional on conifers; rarely on rock; Low- to mid-elevation moist forests, including riparian areas, Willamette Valley hardwood forests (including oak savannas and ash swamps), and sporadically in mountain conifer forests; Alas to Cal, w Cas, with rare inland disjuncts to w Mont.

P. anomala Brodo & Ahti

[*P. anomala* is almost identical to *P. anthraspis*, differing mainly in their mode of reproduction and ecology. *P. anomala* is sorediate while *P. anthraspis* lacks soredia and is more frequently fertile. *P. anthraspis* is less common overall and more of a riparian species. Blackish apothecia lacking a thalline margin are commonly seen, but these are produced by a parasitic fungus.]

1b Pseudocyphellae on lower surface yellow

4a Medulla yellow. Thallus to 10 cm diam; lobes mostly 2-10 mm broad, sublinear, smooth to weakly reticulately ridged; upper surface gray to brown, glabrous and ± glossy, often with pale angular to reticulate maculae; margins often slightly upturned; soralia marginal and laminal, yellowish; medulla pale to deep yellow; lower

Pseudocyphellaria

surface cream to brown, tomentose, the tomentum cream to dark brown; apothecia not seen; in the PNW known so far only from oceanic and suboceanic areas of w Ore

P. perpetua Miadlikowska & McCune

[Soralia both marginal and laminal but often predominantly marginal, as opposed to the predominantly laminal soredia of *P. crocata*. Before *P. perpetua* was described, specimens of this has been called *P. aurata* or *P. mougeotiana*, but neither of these names is appropriate. *P. aurata* has a green primary photobiont. *P. mougeotiana* is synonymous with *P. crocata*, according to recent monographic study.]

4b Medulla white

5a Upper surface smooth. Thallus foliose, loosely appressed, free at the edges, to 10(15) cm broad; lobes mostly 0.5-2 cm broad; upper surface light or dark brown (grayish in deep shade), sometimes with a shallow network of ridges; lower surface covered with light to dark brown tomentum with scattered pseudocyphellae; primary photobiont blue green; soralia roundish to irregular, yellow, laminal and marginal; apothecia not seen; medulla white, becoming yellow where exposed; cortex K-; medulla K+Y, P+O, C-, KC-, UV+ orangish. Alas to Cal, w Cas, rarely inland to SE BC; on bark and wood, mainly on hardwood trees and shrubs; low- to mid-elevation moist forests, usually in valley bottoms and foothills, often in riparian forests, ash swamps, and oak savanna.

P. crocata (L.) Vainio

5a Upper surface sparsely tomentose or tomentose only near the margins. Thallus typically small in the PNW, most often thumbnail size, but up to 4 cm or more; Alas s to OP and Ore Cas

P. mallota (Tuck.) H. Magn.

[Tønsberg (1999) summarized: "This species is characterized by a cyanobacterial photobiont, a white medulla, coarsely erumpent laminal and marginal soralia with coarse, brown, coralloid-isidioid consoredia (see Tønsberg 1992: 34-37; Budel & Scheidegger 1996: 63-64) and/or dorsiventral phyllidia, a grey to brown upper surface with scattered, coarse, tapering hairs, lower surface with scattered yellow pseudocyphellae; some soralia eroded-yellow; tips of consoredia/phyllidia sometimes with coarse hairs. Detailed descriptions and illustrations of the Southern Hemisphere material are provided by Galloway (1986, 1992)." The Oregon specimens are greyer and smaller than typical *P. crocata*. It looks like a little scrap of *Lobaria hallii* from the top but it has yellow pseudocyphellae below. At present this is one of our rarest macrolichens.]

References

- Büdel, B. & C. Scheidegger. 1996. Thallus morphology and anatomy, pp. 37-64 in T. H. Nash III, Lichen Biology. Cambridge University Press, Cambridge.
- Galloway, D.J. 1986. Non-glabrous species of *Pseudocyphellaria* from southern South America. Lichenologist 18: 105-168.
- Galloway, D.J. 1989. Nomenclatural notes on *Pseudocyphellaria* IV: Some South American taxa. Lichenologist 21: 88-89.
- Galloway, D.J. 1992. Studies in *Pseudocyphellaria* (lichens) III. The South American species. Bibliotheca Lichenologica 46: 1-275 + 44 plates.
- Imshaug, H.A. 1950. New and noteworthy lichens from Mt. Rainier National Park. Mycologia 62:743-752.
- Magnusson, A.H. 1940. Studies in species of *Pseudocyphellaria*. The *crocata* group. Meddelanden fran Göteborgs Botaniska Trädgård 14:1-36.
- Miadlikowska, J., B. McCune, & F. Lutzoni. 2002. *Pseudocyphellaria perpetua*, a new lichen from western North America. Bryologist 105:1-10.
- Tønsberg, T. 1992. The sorediate and isidiate, corticolous, crustose lichens in Norway. Sommerfeltia 14: 1-331.
- Tønsberg, T. 1999. *Pseudocyphellaria arvidssonii* new to Africa, and *P. mallota* new to North America. Bryologist 102:128.