

Lichens of Mount Pisgah

A Field Guide to Select Species



Mount Pisgah
Arboretum



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Glossary

- **Apothecium (pl. apothecia):** A generally cupped or disk-shaped spore producing surface.
- **Cilia:** Hair-like structures, generally on thallus margins.
- **Cortex:** The outer, surface layer of a lichen.
- **Fibril:** In *Usnea*, a small branch-like projection arising perpendicular to branches.
- **Isidium (pl. isidia):** A vegetative reproductive structure (usually columnar or globular) that contains both photobiont and mycobiont within a cortex (compare with soredium).
- **Lobule:** Vegetative reproductive structures which appear as miniature lobes.
- **Podetium:** The erect secondary thallus in lichens in the genus *Cladonia* (ours).
- **Rhizine:** Root-like structures on the lower surface of some lichens, aiding in attachment to substrate.
- **Soralium (pl. soralia):** Distinct locations in which soredia are produced.
- **Soredium (pl. soredia):** A vegetative reproductive structure (usually powdery) that contains both photobiont and mycobiont without a cortex (compare with isidium).
- **Squamule:** A small lobe-like structure. The primary thallus in lichens in the genus *Cladonia*.
- **Thallus:** The lichen body.
- **Tomentum:** Fine, short hairs.

Basic Lichen Biology

Lichens are symbiotic organisms composed of a fungus (mycobiont) and a photosynthetic partner (photobiont). The photobiont is either an alga, a cyanobacterium, or sometimes both. In this relationship, the fungal partner provides the overall structure and acts as a housing for the photobiont, which may otherwise be unable to persist in the environment for long periods. In turn, the fungus is fed by carbohydrates produced through photosynthesis. Recent research indicates that some lichens also include yeasts. The process of lichenization fundamentally alters the biology of each of the partners such that lichens have a very unique chemistry and produce secondary metabolites not found elsewhere in nature.

The fungal partners in lichens are generally ascomycetes (cup fungi), but a very small number are basidiomycetes, producing fruiting bodies that appear like typical mushrooms.

Lichenomphalia umbellifera (pictured at right) is a basidiolichen that can be found at Mount Pisgah.



Lichens in the Ecosystem

Mount Pisgah's varied habitats and clean air provide it with some of the highest lichen diversity in the Willamette Valley. Lichens are an important component of the ecosystem, serving as a source of food for some mammals, nesting materials for birds, and food and shelter for a number of invertebrates. Some species have been used as traditional sources of food and medicine throughout the world.



Upon falling to the ground and decomposing, lichens introduce large amounts of nutrients into the soil. Cyanobacterial lichens fix atmospheric nitrogen and contribute significant additions of nitrogen to some forest systems in the Pacific Northwest.

Many lichen species are extremely sensitive to air pollution, and are therefore useful as indicators of air quality. Lichen diversity is significantly lower in urban areas, agricultural areas, and along highway corridors. Forest ecosystems affected by air pollution lack the nutrient inputs provided by lichens.

How To Use The Guide

While not intended to be comprehensive, this field guide offers a thorough introduction to some of the most notable and noticeable lichen species at Mount Pisgah. This guide will also prove to be useful as an introduction to lichen identification throughout the Willamette Valley and northward into the Puget Trough of Washington and the Georgia Basin of British Columbia.

The lichens covered in this guide are all identifiable in the field with a fairly high degree of certainty (especially with the aid of a 10x hand lens). Color descriptions refer to the thallus when wet, unless otherwise noted. See the References and Resources section at the end of this guide for access to more thorough species descriptions as well as chemical tests useful for identification.

Features:

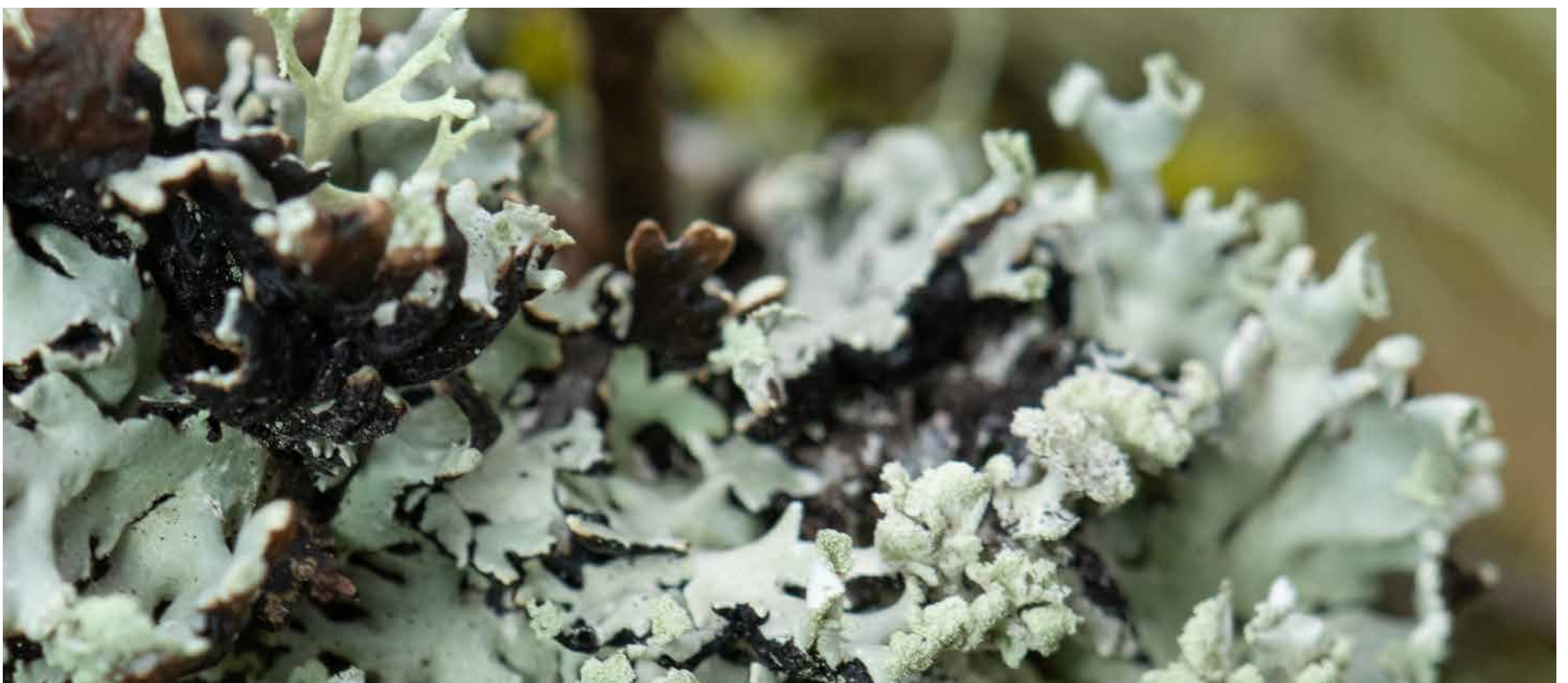
- Species descriptions are organized alphabetically, and by growth form.
- Multiple photos are included with each species description.
- A glossary of terms can be found in both the front and back of the guide.

Types of Lichens

Lichens are organized into groups by their growth form. This guide covers lichens that fall into three of the main morphologies, each of which is color-coded in the guide for easier reference.

Foliose lichens

Foliose lichens have clearly differentiated upper and lower surfaces. Most are more or less two-dimensional and many appear to be leafy. They are often quite firmly attached to their substrate.



Types of Lichens

Fruticose lichens

Fruticose lichens are three-dimensional, without a clearly-defined upper and lower surface. These lichens often take a bushy form, and may be upright or pendulous.



Fruticose lichens with squamules

Our lichens in the genus *Cladonia* are composed of a primary thallus made up of squamules (small, lobe-like structures) and a secondary, fruticose thallus consisting of an erect podetia which is often tipped with apothecia or a cup-like structure.



Hypogymnia physodes

hooded tube lichen



Description: Thallus grayish to greenish-gray, often forming a rosette. Lobes three-dimensional with hollow interior. Lobe tips frequently raised, breaking open to reveal powdery soredia along recurved margins. Underside black, brownish at lobe tips.

Habitat: On bark. Very common and widespread in a variety of habitats across Mount Pisgah.

Hypogymnia physodes

hooded tube lichen



Hypogymnia tubulosa

powder-headed tube lichen



Description: Thallus whitish-gray to greenish-gray. Lobes three-dimensional with hollow interior, appearing inflated. Lobes more or less erect, with powdery sores covering swollen lobe tips. Underside black or dark brown.

Habitat: On bark. Very common and widespread particularly in more open forests across Mount Pisgah.

Hypogymnia tubulosa

powder-headed tube lichen



Hypotrachyna sinuosa

green loop lichen



Description: Thallus yellowish-green, loosely appressed to substrate, often with erect lobe tips. Lobes with powdery soredia in roundish soralia at tips. Underside black or dark brown with dichotomously branched rhizines. Similar in appearance to some *Hypogymnia* and *Parmelia* species.

Habitat: On bark, usually of hardwoods. Scattered in moist forests around Mount Pisgah.

Hypotrachina sinuosa

green loop lichen



Leptogium saturninum group

bearded jellyskin



Description: Thallus blackish to greenish-brown, especially near edges, more or less appressed to substrate. Surface smooth or somewhat wrinkled, with abundant isidia. Underside covered in dense, white tomentum.

Habitat: Generally on bark of hardwoods, often over moss. Uncommon, scattered in moist forests, particularly in riparian areas.

Leptogium saturninum group

bearded jellyskin



Lobaria anomala

netted specklebelly



Description: Thallus a dark greenish-brown to chocolate brown, occasionally attaining a large size, but usually smaller than *Lobaria pulmonaria* and more appressed to substrate. With round, whitish soralia very frequent on and occasionally within a network of ridges. Underside light brown and tomentose, with bare, white patches.

Habitat: Generally on bark of hardwoods and shrubs. Widespread and occasional in moist forests.

Lobaria anomala

netted specklebelly



Lobaria pulmonaria

lung lichen

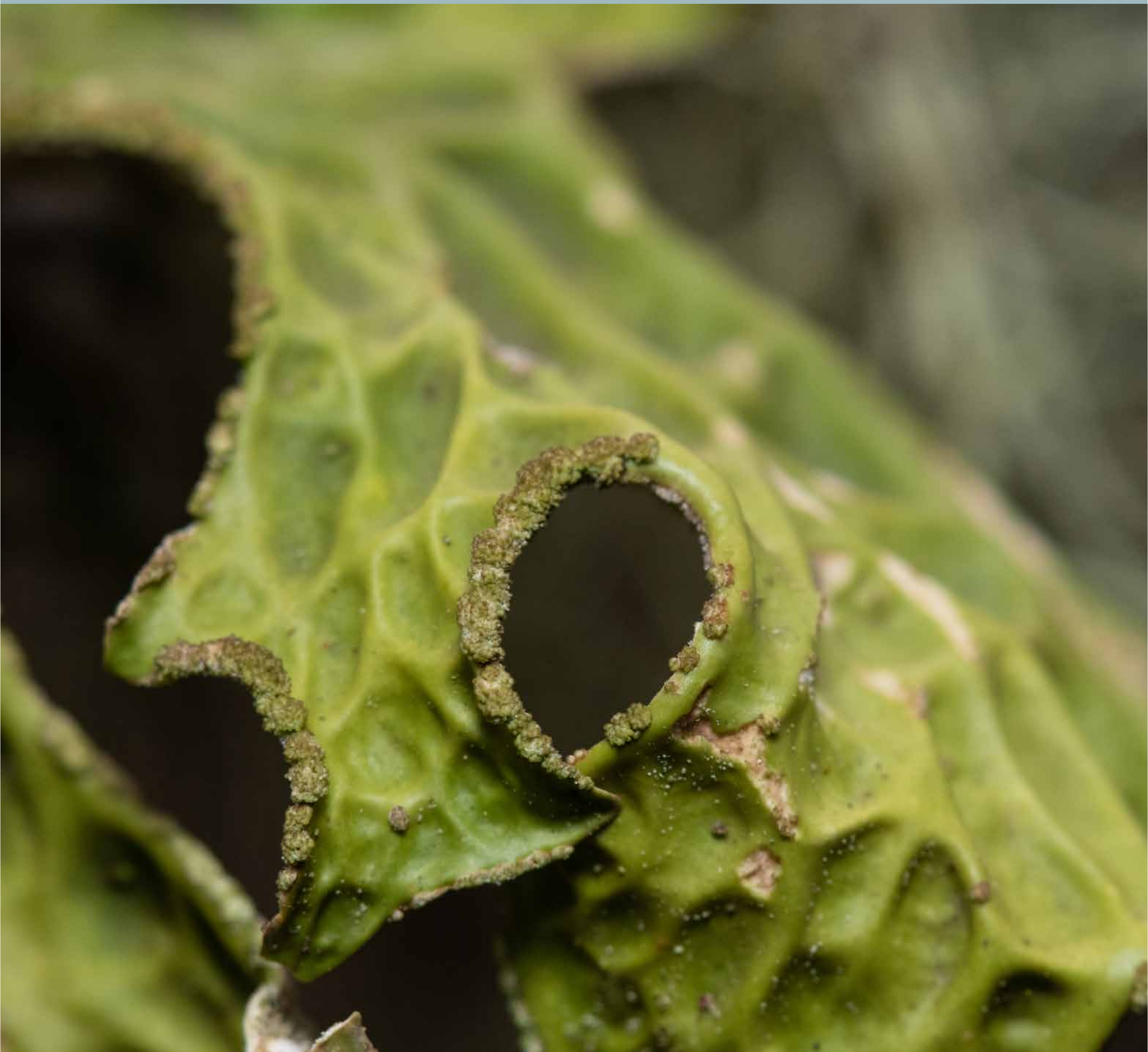


Description: Thallus a vibrant yellow-green when wet, with a well-defined network of ridges. Soredia and/or isidia on ridges and lobe margins. Small, brown apothecia sometimes present. Underside generally cream to light brown, lightly tomentose, with bare, white patches. Mature thalli may reach very large sizes.

Habitat: On bark, most frequently on hardwoods and shrubs, but occasionally on conifers. Very common in moist forests across Mount Pisgah.

Lobaria pulmonaria

lung lichen



Lobaria scrobiculata

textured lungwort



Description: Thallus a deep blue-gray when wet, lighter and yellow tinged when drying. With round soralia scattered on and among a loose network of ridges. Underside generally cream to light brown, tomentose, with bare, white patches.

Habitat: Generally on bark of hardwoods and shrubs. Widespread and common in moist forests, but not abundant.

Lobaria scrobiculata

textured lungwort



Nephroma helveticum

fringed kidney lichen

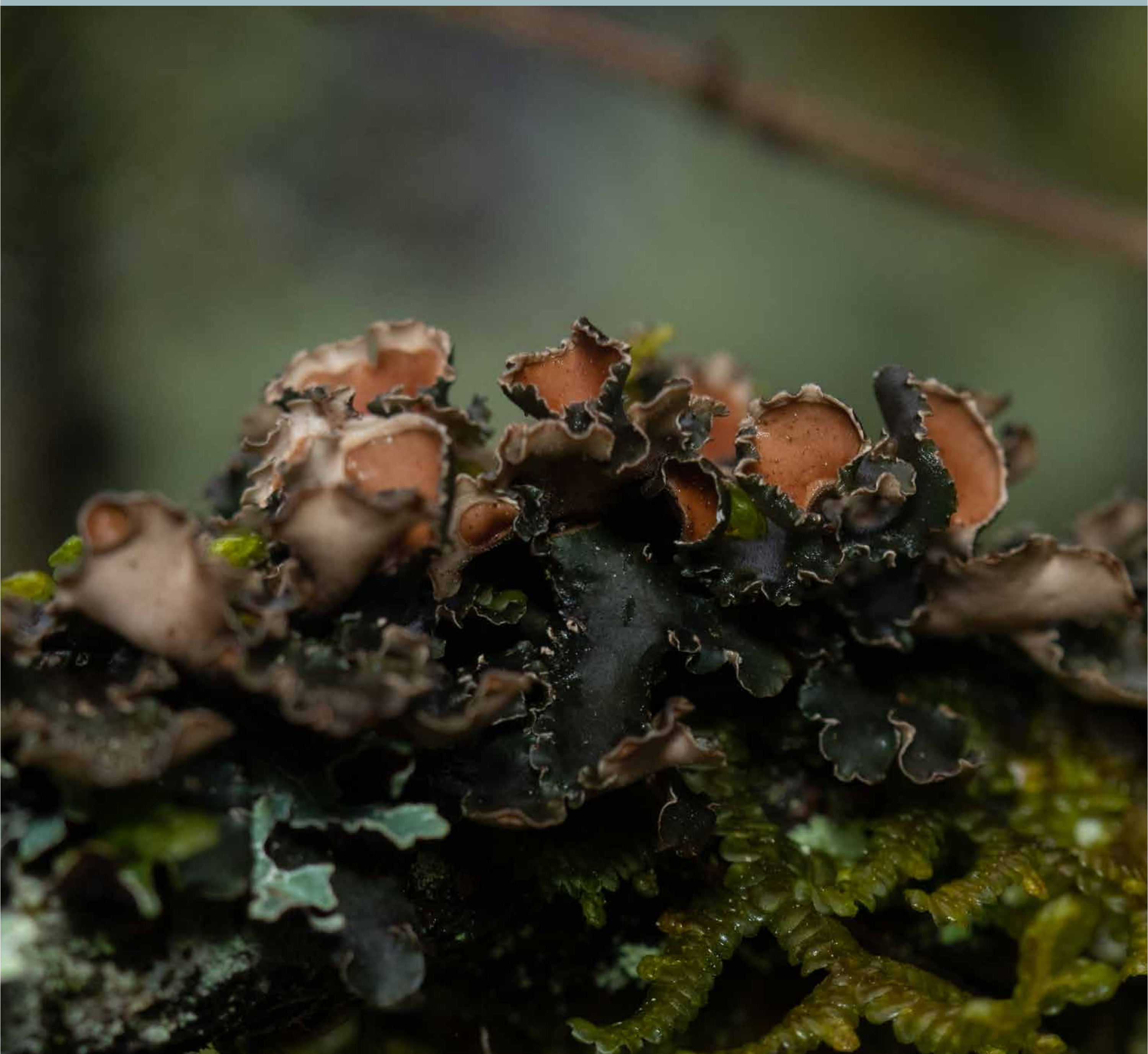


Description: Thallus brownish-green to bluish-brown, low growing and loosely appressed to substrate. Lobes smooth, with little to no tomentum, fringed with many marginal and laminal lobules. Orange-brown apothecia on the underside of lobe tips. Underside tan to dark brown, occasionally tomentose, lacking veins, rhizines, or papillae.

Habitat: Generally on bark of shrubs and hardwoods, often over moss. Infrequent in moist forests across Mount Pisgah.

Nephroma helveticum

fringed kidney lichen



Parmelia hygrophila

western shield lichen



Description: Thallus whitish-green to bluish-gray above. Lobes with white, angular cracks, especially near edges. With globular, non-shiny isidia, rather than the powdery soredia found in the very similar *Parmelia sulcata*. Black below with short, simple or apically branched rhizines. Thallus more or less appressed to bark substrate.

Habitat: On bark. Widespread in moist forests.

Parmelia hygrophila

western shield lichen



Parmelia sulcata

hammered shield lichen



Description: Thallus whitish-green to bluish-gray above. Lobes with white, angular cracks filled with powdery soredia. Black below with short, perpendicularly branched rhizines. Thallus more or less appressed to bark substrate.

Habitat: Usually on bark. Widespread and very common throughout Mount Pisgah. One of the earliest colonizers on outer branches of Oregon white oak.

Parmelia sulcata

hammered shield lichen



Parmotrema perlatum

black stone flower



Description: Thallus bluish-white to greenish-gray, loosely attached to substrate. Lobes with sparse, black, marginal cilia. Small, crescent-shaped soralia found near lobe tips, usually on smaller side lobes. Underside black, lighter toward the margins.

Habitat: On bark. Fairly common and scattered in moist forests.

Parmotrema perlatum

black stone flower



Peltigera collina

tree pelt



Description: Thallus brownish-green to grayish, loosely appressed to substrate. Lobes smooth, generally with undulating margins. Soredia present on lobe margins, except in some young individuals. Brownish-black apothecia occasional on raised lobe tips. Underside with veins brownish, often somewhat indistinct and confluent. Rhizines variable but often plumose. On trees.

Habitat: Generally on bark of shrubs and hardwoods, often over moss. Very common in moist forests across Mount Pisgah.

Peltigera collina

tree pelt



Peltigera membranacea

membranous dog lichen



Description: Thallus blue-green to brown-green, often quite large, and loosely appressed to substrate. Lobes weakly ridged, with very fine tomentum on the upperside, especially near the lobe tips. Tawny brown apothecia present on raised lobe tips. Underside with distinct, raised veins covered in velvety tomentum. Rhizines long and mostly unbranched, similarly covered in tomentum.

Habitat: Generally over moss on ground, logs, rocks, and tree bases. Occasional throughout Mount Pisgah in damp forests.

Peltigera membranacea

membranous dog lichen



Platismatia glauca

varied rag lichen



Description: Thallus grayish to pale green, lacking a distinct network of ridges. Often with a messy, tufted appearance. Isidia and/or soredia may be present. Isidia sometimes corralloid. Underside a variable patchy mix of black, brown, and white. Often very white beneath locally.

Habitat: On bark, especially on conifers. Widespread and common, readily found on the forest floor following storms.

Platismatia glauca

varied rag lichen



Platismatia herrei

tattered rag lichen



Description: Thallus grayish to pale green, lacking a distinct network of ridges. Often with a tufted appearance, occasionally drooping. Lobes much narrower and longer than in *Platismatia glauca*. Isidia present on lobe margins. Underside variable but a patchy mix of black, brown, and white.

Habitat: On bark, especially on conifers in moist forests. Widespread and fairly common.

Platismatia herrei

tattered rag lichen



Scytinium palmatum

antlered jellyskin lichen



Description: Thallus dark brownish-black, gelatinous, and somewhat erect. Many-lobed, with lobe margins inrolled and pointed at tips. Sharply wrinkled. Raised, brown apothecia common and frequently abundant.

Habitat: On soil, rock, moss over rock, or moss over bark. Most frequently found on mossy tree trunks at Mount Pisgah. Scattered in moist locations.

Scytinium palmatum

antlered jellyskin lichen



Sticta fuliginosa

peppered moon lichen



Description: Thallus brownish-gray to dark brown or nearly black. Size variable, from about 2-10 cm. Lobes broad, with isidia scattered over the surface, giving a roughened appearance. Underside cream to light brown, tomentose, with scattered bare pits known as cyphellae. Often with a fishy odor.

Habitat: Generally on bark of shrubs and hardwoods. Scattered and infrequent in moist forests across Mount Pisgah. Often found near *Lobaria anomala*.

Sticta fuliginosa

peppered moon lichen



Sticta limbata

powdered moon lichen



Description: Thallus light brown to dark brownish-green. Size variable, but often quite small, growing in a rosette. Lobes broad, with scattered, irregular soralia almost continuous along the margins. Isida lacking. Underside cream to light brown, tomentose, with scattered bare pits known as cyphellae. Often with a fishy odor.

Habitat: Generally on bark of shrubs and hardwoods. Rare. Scattered in moist forests across Mount Pisgah.

Sticta limbata

powdered moon lichen



Xanthoparmelia cumberlandia

Cumberland rock-shield



Description: Thallus pale greenish-gray to brownish over time, tightly appressed to substrate. Lower surface brownish, but not seen unless peeled from substrate. Brown cup-shaped apothecia very common.

Habitat: On rocks. Common and widespread in exposed sites across Mount Pisgah.

Xanthoparmelia cumberlandia

Cumberland rock-shield



Evernia prunastri

oakmoss, staghorn lichen



Description: Thallus whitish-green, matte, with a paler lower surface. Somewhat upright, tufted, or drooping, and dichotomously branching. Soredia present but usually not abundant. Each branch represents a year of growth, so specimens may be aged by counting branch forks from tip to base.

Habitat: On bark. Very common in varied habitats across Mount Pisgah.

Evernia prunastri

oakmoss, staghorn lichen



Ramalina dilacerata

punctured ramalina



Description: Thallus greenish-gray, tufted, shiny. Branches round to flattened, with scattered perforations. Soredia and isidia absent. Apothecia present and common on branch tips.

Habitat: On bark, predominantly of hardwoods. Common in moist forests across Mount Pisgah.

Ramalina dilacerata

punctured ramalina



Ramalina farinacea

dotted ramalina



Description: Thallus shiny, greenish-gray, tufted to drooping. Irregularly dichotomously branched with mostly marginal soralia on more or less flattened branches. May be confused with *Evernia prunasti* which is matte.

Habitat: On bark. Common in varied habitats across Mount Pisgah.

Ramalina farinacea

dotted ramalina



Ramalina menziesii

fishnet lichen



Description: Thallus greenish-gray, pendulous, often very long. Branches flattened, some significantly widened, branching into distinctive nets. Apothecia sometimes present. Soredia and isidia lacking.

Habitat: On bark, predominantly of hardwoods. Very common, but restricted to moist forests close to water and with summer moisture.

Ramalina menziesii

fishnet lichen



Sphaerophorus tuckermanii

Tuckerman's coral lichen



Description: Thallus pale greenish-gray to tan, tufted and clumping. Dendritically branched with round to slightly flattened branches. Spherical apothecia filled with black spores sometimes present at branch ends.

Habitat: On conifer bark in moist forests. Uncommon and scattered at Mount Pisgah, currently known from only a couple populations.

Sphaerophorus tuckermanii

Tuckerman's coral lichen



Usnea flavocardia

Wirth's beard lichen



Description: Thallus shiny, pale greenish-gray, tufted to lightly pendulous. Branches cigar-shaped (pinched at base), fibrillose, and with small, scattered red spots. With large soralia covering more than half the diameter of branches, and occasional isidia. No other *Usnea* species has distinct red spots. If needed, confirm by checking for a yellow central cord (axis) inside the branches.

Habitat: On bark. Common and scattered in various habitats across Mount Pisgah.

Usnea flavocardia

Wirth's beard lichen



Usnea longissima

old man's beard, Methuselah's beard



Description: Thallus pale greenish-gray, extremely long and pendulous, often draping whole trees. Distinct, unbranching strands with abundant fibrils. Isidia and apothecia lacking. This is our most readily identifiable *Usnea* species.

Habitat: On branches. Rare and restricted to small populations on Mount Pisgah.

Usnea longissima

old man's beard, Methuselah's beard



Usnea spp.

beard lichens



Description: Thallus pale greenish-gray, often with yellowish tinges. Small and tufted to long and pendulous. With isidia and soralia along branches. Apothecia occasional. All *Usnea* have a central cord (axis) within their branches that is stretchy when wet. Identification requires close examination, dissection, and chemical testing. *Usnea* species make up a significant portion of the lichen biomass at Mount Pisgah.

Habitat: On bark. Common and widespread in all habitats across Mount Pisgah.

Usnea spp.

beard lichens



Cladonia cariosa

split-peg lichen

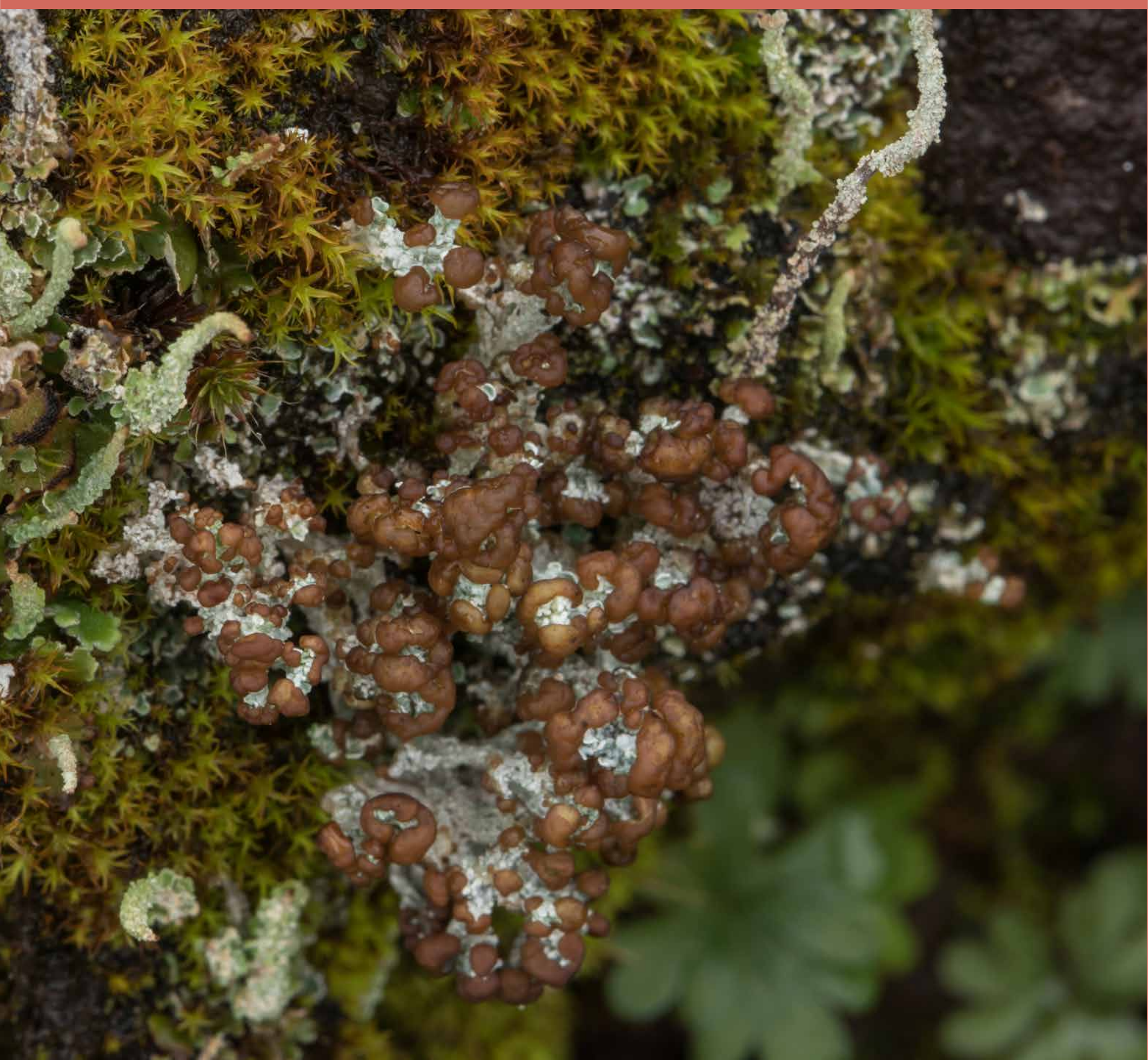


Description: Podetia light gray-green to whitish, somewhat branching, with wrinkles and fissures. Brown apothecia common at tips. Squamules of primary thallus fairly small and inconspicuous.

Habitat: Generally on soil over rock. Uncommon, scattered in rocky sites on Mount Pisgah.

Cladonia cariosa

split-peg lichen



Cladonia furcata

forked cladonia



Description: Podetia squamulose and lacking soredia, green to greenish-gray, tall and multi-branching. Small, brown apothecia common at tips. Branches somewhat flattened. Axils (in branch forks) open, exposing hollow interior. Squamulose and lacking soredia. Primary squamules fairly small, generally not evident in mature specimens.

Habitat: On soil and moss over rocks and logs. Scattered in fairly moist habitats around Mount Pisgah.

Cladonia furcata

forked cladonia



Cladonia transcendens

red pebblehorn



Description: Podetia light gray-green to yellowish-green, infrequently branching, occasionally forming small, ill-defined cups. Red apothecia common at tips. Podetia often covered in sores. Primary squamules small and with sores. *Cladonia bellidiflora* may look similar, but has many large secondary squamules along the podetia.

Habitat: On bark and wood. Scattered in various habitats around Mount Pisgah.

Cladonia transcendens

red pebblehorn



References & Resources

- Brodo, I., Sharnoff, S. D., & Sharnoff, S. (2001). *Lichens of North America*. New Haven, CT. Yale University Press.
- Consortium of North American Lichen Herbaria (2022). Retrieved August 30, 2022, from <https://lichenportal.org/cnalh/index.php>
- McCune, B. & Geiser, L. (2009). *Macrolichens of the Pacific Northwest, Second Edition*. Corvallis, OR. Oregon State University Press.
- McCune, B. & Yang, S. (2021). *Common Macrolichens of the Pacific Northwest*. Retrieved August 30, 2022, from <https://lichens.twinferntech.net/pnw/index.shtml>
- Stone, D.F. (2018). *Usnea in the Pacific Northwest: Aide Mémoire*. Corvallis, OR. Northwest Lichenologists.

Glossary

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