

# A GUIDE TO TWELVE COMMON & CONSPICUOUS LICHENS OF GEORGIA'S PIEDMONT

Liking Lichens: Exploring Lichen Ecology and the Environment Workshop Field Guide



Lichens are plant-like organisms that cover about 8% of the earth's surface. They often live on trees, rocks, and soil. They are also found on manufactured objects such as concrete, old rusting cars, and park benches. Lichens are *composite*, symbiotic life forms made up of members from as many as three evolutionary lines: fungi, algae, and *cyanobacteria* (formerly called "blue-green algae"), but they behave as a single organism. Lichens are commonly thought to be moss, with which they sometimes grow, and which they often resemble in size, shape, or color. The lichens of the southeastern U.S., including Georgia, are not very well known. Scientists who study lichens, called lichenologists, estimate that there may be 1,500 species in Georgia.

The color of the lichen body, known as a *thallus*, is very important for identification. The most conspicuous species of lichens on trees tend to be gray-green or yellow-green in color, but some may be orange, bright yellow, brown, slate blue, or black.

Lichens are found growing as three primary life forms: *foliose*, *fruticose*, and *crustose*. Foliose lichens have leaf-like lobes. They can merge with other lichen species, covering several inches or more of the substrate on which they grow. Fruticose lichens are "shrubby" in growth form. Finally, as the name implies, crustose lichens have crust-like bodies. Crustose lichens can often be found tightly embedded on tree, tree limbs and twigs, and on rocks.

Lichens reproduce in a number of ways. Asexual reproduction occurs when lichens form either (a) patches (*soralia*) of granular, dusty particles (*soredia*) or (b) tiny projections (*isidia*) on the surface. Some lichens produce fungal fruiting bodies (called *apothecia* or *perithecia*) that are a form of sexual reproduction.



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# GRAY-GREEN LICHENS ON TREES



Note: Algae may grow on these lichens giving them a green appearance.



## ***Canoparmelia texana*** **“Texas” shield lichen**

**A**

Foliose lichen, gray-green, growing on tree bark (corticolous), closely attached, with dusty patches over the surface (laminal soredia). It is one of a few lichens found on loblolly pine. This pollution-tolerant lichen can be seen growing in many places, including city parks, on trees along roads and highways, and on the trunks of dying dogwoods in cities such as Atlanta.

Similar species: *Canoparmelia caroliniana* is very similar, but with tiny, fine projections (isidia) instead of granular dust (soredia). *It may be found on rocks, in addition to trees.*



## ***Hypotrachyna livida*** **Wrinkled loop lichen**

**B**

Foliose lichen, gray-green, growing on trees (corticolous), closely attached, with large cup-like fruiting bodies (apothecia). This species lacks fine projections (isidia) or granular dust (soredia) on the lichen body. Older portions may be strongly wrinkled on the upper portion of the lichen body.

*H. livida* seems to prefer twigs and branches to trunks, and often is the host for a purple parasitic fungus.

Similar species: the other Southeastern *Hypotrachyna* species are small and inconspicuous. *H. osseoalba* (Grainy loop lichen) has a dense black mat under the lobes which may project out from the edge (ciliate), resembling “hairs.” It glows bright yellow in ultraviolet light.

# GRAY-GREEN LICHENS ON TREES

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***Parmotrema hypotropum*** C  
**Powdered ruffle lichen** (a type of  
Shield lichen)

Foliose lichen, gray-green, growing on trees (corticolous), standing up from the bark, with hair-like projections (cilia) and dusty powder (soredia) on its ruffled edges (marginal). The numerous species of shield lichens are one of the many glories of lichenology in the Southeast.

Similar species: *P. tinctorum*, once the source of a purple dye, has tiny, fine projections (isidia) instead of granular dust (soredia), and wider, paler gray lobes that may even appear yellowish-gray.



***Parmotrema perforatum*** D  
**Perforated ruffle lichen** (a type of  
Shield lichen)

Foliose lichen, gray-green, growing on trees (corticolous), with lobe margins bearing hair-like projections (cilia). The lobes rise up from the bark. This lichen has fruiting cups (apothecia) but lacks the tiny, fine projections (isidia) and granular dust (soredia) found in some species. The large brown apothecia, each with a hole through the bottom, distinguish this shield lichen.

Similar species: *P. michaxianum* (Unperforated ruffle lichen), is a related lichen. The fruiting cups lack holes. It too lacks projections (isidia) and granular dust (soredia).

# GRAY-GREEN LICHENS ON TREES



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## *Punctelia rudecta*

E

### Rough speckled shield lichen

Foliose lichen, gray-green, closely attached to bark (or rocks), with tiny, fine projections (isidia). Members of the genus *Punctelia* have white spots on the upper surface of the lichen body. These white “pore-like” structures are very characteristic of this group. This lichen is tolerant to pollution and will be found in cities and along roadsides where air pollution is high.

Similar species: *Punctelia subrudecta* (Powdered speckled shield lichen) has a dusty granular powder (soredia) rather than tiny, fine projections (isidia). It is occasionally found on siliceous rock.



## *Rimelia reticulata*

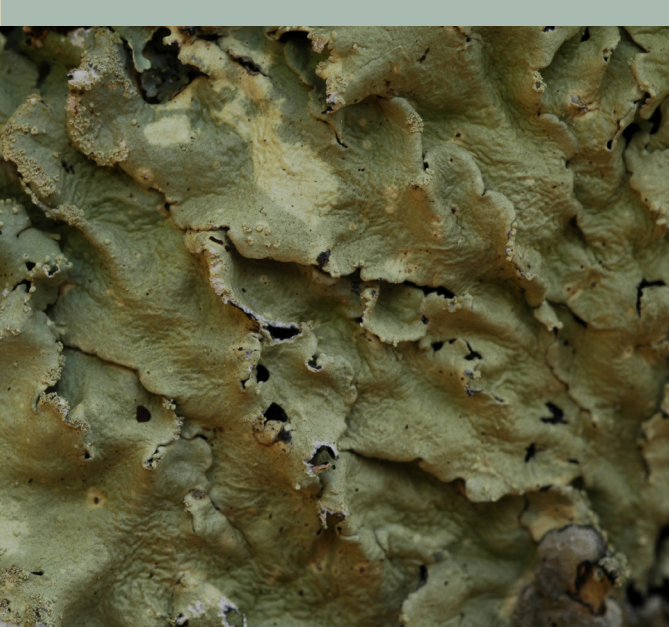
F

### Cracked ruffle lichen

Foliose lichen, gray-green, growing on trees or rocks, with dusty, granular patches on or close to the lobe margins. Members of the *Rimelia* group can be separated from the other shield lichens by the network of fine conspicuous cracks on the upper surface. The lichen edges may bear “hair-like” projections (cilia).

Similar species: *Rimelia subsidiosa* has tiny, fine projections (isidia) in place of soredia. It too may have cilia on the lobe margins.

## YELLOWISH-GREEN LICHENS ON TREES



### *Flavoparmelia caperata* Greenshield lichen

G

Foliose lichen, yellow-green, on trees in sun or partial shade. It is rarely found on rocks. It may have dusty, granular powder (soredia) covering the lichen surface. Members of the *Flavoparmelia* group stand out from the other shield lichens because of the yellowish color, brightening woods and thickets on wet days, especially evident in winter.

Similar species: *Flavoparmelia baltimorensis* (Rock greenshield lichen), is a nearly identical lichen that grows on rocks in sun or shade. It produces tiny rounded bodies on the thallus that break open with age that can be confused with soredia. *F. baltimorensis* may be confused with *Xanthoparmelia conspersa* (which is described in this field guide), however, *X. conspersa* usually prefers more open, dry, sunlit habitats. It's lobes are more angular or "square" on the ends.

## YELLOW TO YELLOWISH-GREEN LICHENS ON TREES & ROCKS



### *Candelaria concolor* Candleflame lichen (Lemon lichen)

H

Minute foliose lichen, bright yellow, yellow or yellow-green on bark and less commonly on rocks, with dusty, powdery granules (soredia). *C. concolor* is the bright yellow stain on city and suburban trees. Pollution tolerant.

Similar species: although unrelated, lichens of the genus *Chrysothrix* (Gold dust lichen) resemble *Candelaria* in color, however they are not foliose, but rather are composed of glowing yellow granular dust (soredia) and have no lobes.

## LICHENS ON ROCKS

**Note:** Some lichens listed under the section “on trees,” may also be found on rocks. They include: *Canoparmelia caroliniana*, *Flavoparmelia caperata*, *Punctelia rudecta*, *Rimelia reticulata*, and *Candelaria concolor*.

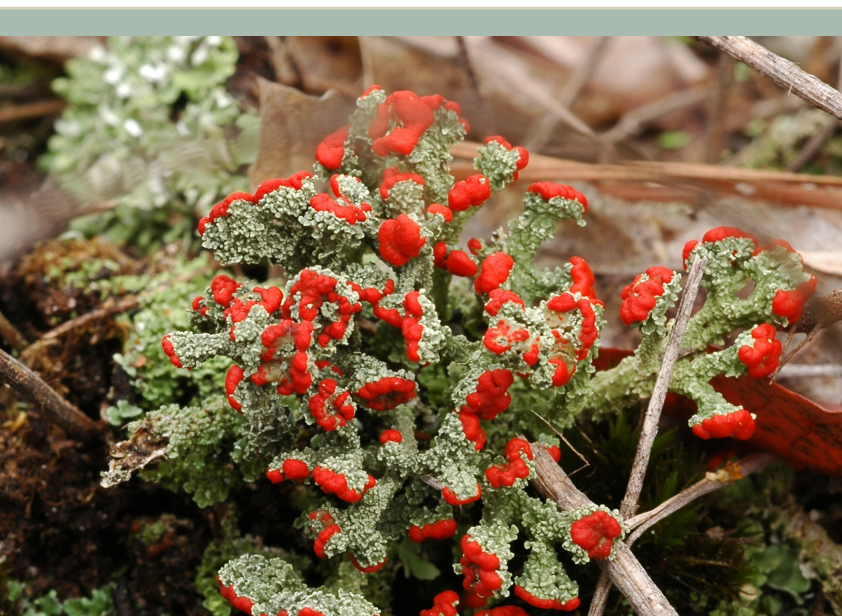


### *Xanthoparmelia conspersa* Peppered rock-shield

Foliose lichen, yellow-green, on siliceous rocks, especially granite, in sunny, often open and exposed locations. It has tiny projections (isidia) on the lichen body and a black lower surface. *X. conspersa* colors Stone Mountain, and other granite outcrops light green, the darker patches are moss, with which lichens compete for sun, space and water.

Similar species: *X. plittii*, is identical but for its brown to dark brown (or mottled) undersurface that is never black.

## SHRUBBY LICHENS



### *Cladonia cristatella* British soldiers

Shrubby (fruticose) lichen growing on soil, wood and bark of trees (often at base), with bright red, terminal fruiting bodies (apothecia). The lichen stalks are smooth. British soldiers look like red-headed match sticks. They are pollution tolerant.

Similar species: *Cladonia sobolescens* (Peg lichen) is similar but with brown fruiting bodies, and *C. chlorophaea* (Mealy pixie-cup), is another ground dwelling lichen that forms green goblets instead of red-tipped stalks.



***Cladina subtenuis* = *Cladonia subtenuis* K**  
**Dixie reindeer lichen**

Shrubby (fruticose) lichen growing on soil, pale yellow-green to almost gray in shade forms, forming woolly clumps or large mats. Tips of “branches” forked in twos (rarely threes). A fast-growing lichen, *C. subtenuis* can be seen in bare dirt along roads and highways on nutrient-poor soil. Similar species: *C. rangiferina* (Reindeer lichen) is the similar but ashy white in color.



***Usnea strigosa* L**  
**Bushy beard lichen; Old man's beard**

Shrubby (fruticose) lichen, dark yellowish-green to gray-green, with a bristly appearance, growing on deciduous trees and shrubs in mostly well-lit habitats, often with large, fruiting cups (apothecia) on the ends (terminal) of the lichen branches.

Old man's beard, is the only Southern *Usnea* with large, pale, terminal apothecia. It is especially well developed when growing on trees near creeks and rivers.

Similar species: *U. rubicunda*, lacks apothecia and is wholly, or partially red.

# GEORGIA MOUNTAINS

In the mountains of northeast Georgia, these three lichens, along with those listed above, are common and conspicuous.

## ***Platismatia glauca*** **M** **Varied rag lichen**

Foliose lichen, gray-green, the edges sometimes brown, lichen body with with dusty patches over the surface, found in pines. Members of the *Platismatia* group have the texture of a crumpled-up piece of paper.

Similar species: *Platismatia tuckermanii*, less often seen in Georgia, has brown fruiting cups (apothecia) in place of powder (soredia).

## ***Tuckermannopsis ciliaris*** **N** **Wrinkle lichen**

Foliose lichen, brown with greenish areas, on twigs and trunks. Along the edge of this lichen is a row of tiny black spore producing structures called pycnidia.

Similar species: two other species of this genus can only be identified by their chemistry.

## ***Umbilicaria mammulata*** **O** **Smooth rock tripe**

Foliose lichen that has one point of attachment, at the center of the body, brown, on rocks. Some mountain cliffs, Mount Yonah for instance, are covered with this lichen, which can grow to fourteen inches across.

Similar species: *Lasallia papulosa* (Common toadskin), has a surface of rounded blisters, but the lichen body grows similar to *Umbilicaria*.

## ***Sticta beauvoisii*** **P** **Fringed moon lichen**

Large brown or gray foliose lichens on mountain trees and rocks. If you hold this close to your nose, you will notice an unpleasant fishy smell, no kidding!

Similar species: Two brown or gray members of the *Lobaria* group (Lung lichens) can be found in the mountains.



The following lichens are common in Georgia's coastal plain, as are the twelve piedmont lichens listed in the field guide.

***Cladonia evansii* (= *Cladina evansii*)** **Q**  
**Powder-puff lichen or Deer moss**

Fruticose lichen, white to white-gray, growing in open or partially shaded sand or sandy soil. What looks like fuzzy cauliflower growing in the sand under palms and pines can only be this lichen.

Similar species: *Cladonia leporina*, also abundant on the sands, is coarser and, on occasion, produces red fruiting cups (apothecia).

***Cryptothecia rubrocincta*** **R**  
**Christmas lichen**

Crustose lichen, pink and white, or pink white and green, on bark. This crust, a lichen fused to its substrate, forms thick red patches surrounded by white, green and red rings on bark in swamps and near the coast.

***Parmotrema praesorediosum*** **S**  
**Powder-crown ruffle lichen**

Foliose lichen, gray-green, with marginal powdery areas (soredia), and no hair-like structures (cilia).

In this shield lichen the outside edges spread out along the bark, while the crinkled, sorediate edges of the central lobes stand upright.

Similar species: *P. rampoddense* (Long-whiskered ruffle lichen), resembles *P. praesorediosum*, but has long black cilia along its edges.

## GLOSSARY

Apothecia.	Cup or disk-shaped structures that produce the spores by which the fungal partner reproduces.
Asexual reproduction.	A form of propagation in which detached portions of the “parent” develop into new individuals without the production of sex cells.
Ciliate.	Having bristles or hair-like structures on an edge. Cilia are the bristles that grow out of the edges of the lichen body.
Composite.	Composed of different components.
Corticolous.	Growing on bark.

Crustose.	A lichen body that is growing tightly to a substrate, and which lacks a lower protective layer, called a cortex.
Cyanobacteria.	A primitive group of organisms formally called blue-green algae.
Foliose.	A lichen body that is more or less “leafy” and which normally has an upper and a lower protective layer, called a cortex.
Fruticose.	A lichen body that is shrubby, stalked, or hanging like a pendulum, and which usually has no distinguishable upper and lower protective layer.
Isidia.	Tiny, fine projections, often finger-like, emerging from the lichen body that act as vegetative propagules.
Laminal.	On the surface away from the edges.
Marginal.	Along the edge.
Organism.	An individual form of life such as a plant, mammal, insect, lichen, fungus, etc.
Piedmont.	The plateau region between the Appalachian Mountains and the coastal plain in parts of the southeastern U.S., including Virginia, North Carolina, South Carolina, Georgia, and Alabama.
Perithecia.	A structure by which the fungal partner reproduces, often embedded in the lichen body, and which opens with a pore.
Saxicolous.	Growing on rock.
Sexual reproduction.	A form of propagation in which the new organism (offspring) is formed through production of sex cells.
Siliceous.	Rock that contains silica such as granite.
Soralia.	Dusty patches on the lichen surface that produce soredia.
Soredia.	Fine particles of mixed fungal threads and algae that act as vegetative propagules; they form in dusty patches on the lichen surface called soralia.
Substrate.	The surface on which the lichen grows.
Symbiotic.	A long-term association between at least two dissimilar organisms.
Terminal.	On the surface at the end of a lobe or stalk.
Thallus.	The lichen body.

## CREDITS

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