

# What are Lichens?

Lichens are complex organisms made of fungi and photobionts (algae and/or cyanobacteria). They thrive in various environments, benefiting from a mutualistic relationship where fungi offer structural support and moisture retention, while photobionts supply nutrients through photosynthesis.

Bear Creek Lake State Park supports a wide population of lichen that can be found in a variety of places, including on trees, rocks, fences, trails, and even the side of buildings.



Some of the different types of lichen found here.

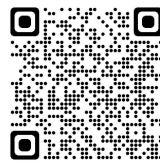


Photos taken by K. Follyn

# Importance of Lichens

Lichens serve various purposes for animals and humans, such as nesting material, camouflage, and winter food. Some lichens have antibiotic properties used in products like toothpaste and deodorant. Historically, Native Americans consumed lichens during famines, though some are toxic. Additionally, lichens are sources of pigments and dyes and act as bioindicators, reflecting environmental health.

Bear Creek Lake supports lichen growth, benefiting both the ecosystem and humans.



<https://home.nps.gov/mora/learn/nature/lichens.htm>

To learn more about lichens

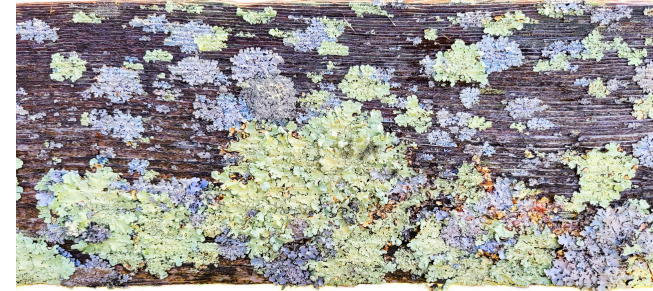


<https://www.fs.usda.gov/wildflowers/b/eauty/lichens/index.shtml>



Bear Creek Lake State Park  
22 Bear Creek Lake Rd.  
Cumberland, VA 23040  
804-492-4410

# BEAR CREEK LAKE STATE PARK



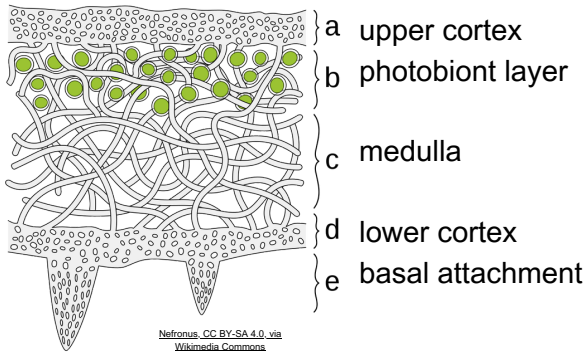
# Let's Get Lichenized!

# VIRGINIA STATE PARKS

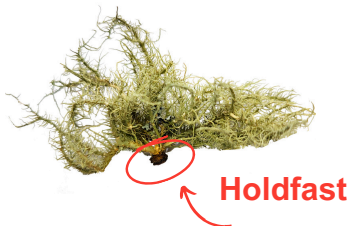
[www.virginiastateparks.gov](http://www.virginiastateparks.gov)

# Structure of a Lichen

Lichen cross-section



Lichens have a unique structure featuring tightly woven hyphae (fungus filament) that form the upper and lower cortex, and a photobiont layer containing algae or cyanobacteria. This combination allows lichens to conduct photosynthesis and thrive in various environments. When wet, the cortex becomes transparent, enhancing the algae's color. Lichens attach to surfaces through rhizines, which are multiple extending hyphae, or a holdfast, a singular peg extending from the thallus (the body of a lichen), firmly anchoring the lichen to its substrate and enabling it to withstand harsh conditions.



# Growth Forms of Lichen

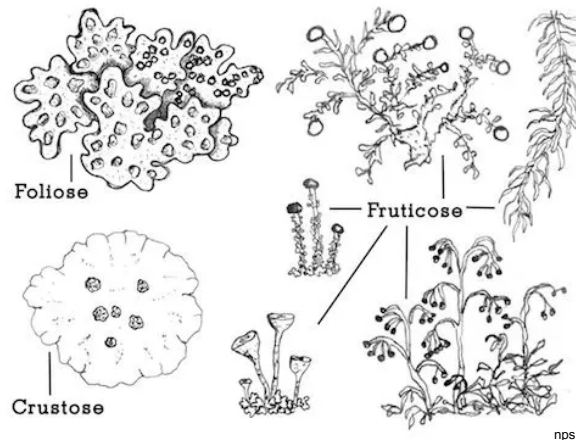
There are three main growth forms of Lichens: foliose, fruticose, and crustose.

Foliose lichen, with their flattened thallus and two distinguishable sides (top and bottom) that are often different colors, may look like clusters small leaves or be full of bumps and ridges laying mostly flat against a surface of which they can be peeled off.

Fruticose lichen can have a bush or hair like thallus with branches that are either flat or cylindric and are attached to a surface at only one point using a holdfast.

Crustose Lichen often grow in patches or speckles pressed like a crust against a surface.

You can often find multiple different forms of lichen growing together in the same place.



# Lichen Reproduction

Lichen can reproduce 3 different ways, both sexually and asexually.

1) The fungus of some lichen is able to grow fruiting structures called apothecia which release fungi spores with then need alga to lichenize with (become a lichen).

2) Some lichen, instead of growing apothecia, are able to simply release soredia which are small granular masses containing both the fungi and photobiont cells.

3) Fragmentation is another way lichen reproduce. This happens when a small piece of the lichen breaks off and continues to grow into a new lichen.



**Apothecia**

