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## **Extension Solutions for Homes and Gardens**

by Paul J. Pugliese

### **“Lichens and Moss Don’t Kill Plants”**

Lichens and moss are often found growing on rocks, tortoise shells, window panes, and even plants. Since we know rocks are not living, then we also know lichens and moss do not infect or parasitize rocks. The same is true for plants that have lichens or moss growing on them. Lichens and moss are not true pathogens and do not cause disease in plants—they only use the plants as a surface to grow upon. If a tree or shrub begins to decline due to some sort of environmental stress or other plant disorder, then the reduced leaf canopy allows sunlight to enter and support lichen growth. Moss tends to grow on trees that are older, slower growing, and under heavy shade. The presence of lichens and moss is often an indicator of poor plant health, but it is never the cause.

Lichens are composite, symbiotic organisms made up of members from as many as three biological kingdoms. The lichen fungi cultivate partners that manufacture food by a process known as photosynthesis. Sometimes the partners are algae, other times cyanobacterium, formerly called blue-green algae. Some enterprising fungi exploit both at once.

The alga or cyanobacterium converts sunlight and carbon dioxide to food for the lichen fungus and in return the lichen fungus protects the alga/cyanobacterium from drying out. The fungus obtains water and minerals from the air and the material it is growing on. The alga provides carbohydrates and nutrients. Some blue-green algae fix nitrogen that is used by both the alga and the fungus. Nitrogen is also obtained from bird excrement, organic debris, or plant leachate. It has been said that lichens are fungi that have discovered agriculture.

Lichens and moss do not cause plant damage and are considered harmless to plants. Moss actually prefers heavy shade and is often found growing on the north side of an old tree’s bark. In contrast, lichens need sunlight to grow and if overall plant health is improved, a dense, vibrant leaf canopy should inhibit any sunlight available for lichen growth. Have you ever heard of the old saying: “A rolling stone gathers no moss?” This saying can be used as an analogy to describe why lichens and moss don’t grow as much on young, healthy, active growing trees. As long as a stone or any other object is moving, then moss and lichens will not have a chance to grow or cling to the surface. The same is true for trees and shrubs—if a plant is actively growing, constantly expanding new bark and shedding old layers of bark, then those same moss and lichens would not have a chance to grow or cling to the surface of trunks or limbs. On the other hand, trees and shrubs that are stressed, growing very slowly or just very old will often have moss and lichens growing on them.

One of the more common situations where we see lichens growing on trees is when they are planted in a small island in the middle of a parking lot. There are several stress factors at work that cause parking lot trees to grow very slowly such as limited soil and root growth, heat stress due to paved surfaces, and compacted soils. Unfortunately, trees that are improperly planted or planted in parking lot islands that are too small will never reach their full potential and will continue to decline. Sometimes, the best option is to remove a tree in this situation and replace with a smaller tree or shrub that is better adapted to the situation.

When lichens or moss are found growing on trees and shrubs in your landscape, this is a clue that something else is causing your plants to decline in health and is causing their slowed growth pattern. This could be a combination of factors such as plant competition, drought stress, root stress, over watering, soil compaction, poor nutrition, improper soil pH, or improper pruning. Proper pruning techniques can actually rejuvenate and stimulate new growth, even on mature trees. For more information on pruning, see publication [B961 - Pruning Ornamental Plants in the Landscape](#). A soil test can help troubleshoot soil pH and nutrition problems. A soil test is actually one of the quickest and easiest ways to rule out a potential underlying problem. You can order a soil test kit at [www.soiltest123.com](http://www.soiltest123.com) or submit a sample through your local county Extension office. If the problem that is causing the tree or shrub to decline is corrected, then the lichens and moss will stop growing and may eventually go away.

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