



## Mosses are Marvelous

By Dawn Pettinelli, UConn Home & Garden Education Center

Quite a few calls to the Center are regarding moss. Usually, the caller wants to know how to get rid of moss in their lawn areas. While we try to emphasize how moss stays green year-round and does not need mowing, we also review conditions that favor moss over turf establishment. Lawn grasses are much more demanding in their cultural needs and will not do well in areas that are too shady, where the soil is compacted or poorly drained, or in acidic or low fertility soils. Unless these conditions are corrected, turf grasses will fail to thrive and plants that can tolerate or thrive in these conditions will move in.

Mosses on the other hand inhabit a vast range of ecosystems from forests to the tropics, deserts to arctic regions. It is believed there are between 12,000 to 15,000 species of mosses. These mosses, along with hornworts and liverworts belong to a group of plants called bryophytes. They evolved over 400 million years ago and today's species still share some characteristics with these first plants that started covering the earth's land surfaces.



Moss. Photo by dmp2023.

Mosses differ from most other plants in several important ways that gives them an advantage in colonizing less than optimum habitats. While most plants have an extensive root system, mosses have small root-like growths known as rhizoids used to anchor the moss plant to various surfaces be it soil, rocks or tree trunks. Because of this, they can establish themselves virtually anywhere.

If you took high school biology, you probably learned about the vascular systems of plants, more specifically the xylem and phloem that move water, nutrients and carbohydrates up and down in the plant. Mosses are nonvascular plants. They are able to absorb water and nutrients from both rainwater and dust deposits through their surfaces. Some species can absorb nutrients through their rhizoids.

While vascular plants photosynthesize through their leaves, mosses have chloroplasts throughout their entire structures so photosynthesis can occur throughout the plant. Also, mosses reproduce by spores, not by seeds. They can also reproduce asexually by division. A clump of moss can be moved by wind, water or humans and if conditions are favorable, it will produce new shoots. Even if conditions are not favorable, some species of mosses will curl up as they dry and remain in a dormant state until rewetted, even if it takes 100 years!

These unique characteristics position mosses to be important components of plant ecosystems. They physically cover vast acreages of land throughout the world. In doing so, they protect the soil from erosion by holding it in place. The presence of mosses likely helps regulate soil temperatures by shading it and keeping it cooler in arid regions. They also capture vast amounts of carbon so help in mitigating climate change.

A recent study has found that when moss is growing in an area more nutrient cycling occurs, there is greater decomposition of organic matter occurring and an increase in control of harmful disease-causing organisms. This is important as mosses are one of the first colonizers of disturbed areas. They make conditions more conducive for herbaceous plants, grasses, trees and shrubs to move in.

Mosses absorb water both in their tissues but also in habitats they live in, as is the case of sphagnum mosses in their peatland habitats. These places provide special conditions for unique plants and animals as well as having the ability to regulate water flow in these areas.

While mosses can grow almost anywhere, here in New England, we often find them growing on the north side of trees as the shadier, moister environment suits many species. FYI – moss grows more on the south side of trees in the southern hemisphere. While we can appreciate mosses for their positive effects on natural ecosystems, our pre-industrial ancestors found more practical uses for these plants. Mosses were used to insulate homes, boots, and mittens. In fact, Otzi the Iceman had moss-packed boots! Being absorbent, moss was also used for diapers and wound dressings.

Mosses need to be appreciated more for the important ecosystem roles they play. Take note of the various mosses in your yard or when out enjoying nature. Aside from their functional nature, many are quite lovely to look at and soft to the touch.

For your gardening questions, feel free to contact us, toll-free, at the UConn Home & Garden Education Center at (877) 486-6271, visit our website at [www.homegarden.cahnrc.uconn.edu](http://www.homegarden.cahnrc.uconn.edu) or contact your local Cooperative Extension center.

