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# WONALANCET



## OUT DOOR CLUB

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CARING FOR  
THE SANDWICH RANGE  
SINCE 1898

WODC.ORG  
NOVEMBER 2023

### FOREST SERVICE LOGGING PLANS IN THE PUBLIC SPOTLIGHT

In late July the Saco Ranger District released a Draft Environmental Assessment and Preliminary Finding of No Significant Impact for its proposed logging project in the Sandwich Range. This project comprises three areas – Ferncroft, Liberty Trailhead, and Guinea Hill (off Mt. Israel Road) – and would treat approximately 648 acres with logging of various intensities, and an additional 306 acres with prescribed fire.

The details revealed in the Draft EA stirred an extraordinary amount of public interest. After the usual 30-day comment window closed in August, a quite unusual second window was opened in late September and closed October 23rd. The response was stunning. By Forest Service count, at least 578 comments were received (over 600 if you add comments submitted during the earlier “scoping” period).

The WODC as an organization submitted comments limited to practical impacts on the hiking and skiing infrastructure. These included the lack of any Recreation Plan to integrate with the logging plan; safety and congestion issues caused by logging trucks and equipment passing through that part of Ferncroft Parking Lot that will be closed to the public; disruption of several popular ski routes on logging roads; the need for buffers where logging is done adjacent to hiking trails; and restoration of hiking trails damaged by logging operations. Besides the club’s official comments, dozens of WODC members submitted their own individual comments.

Public comment writers came down on both sides of whether logging as proposed would have an important or a negligible effect on a wide range of concerns such as greenhouse gas emissions, water quality, forest health, wildlife (including endangered bats), recreation, the peace and serenity of mature forests, local economies, our timber supply, beloved mountain views, and local snowmobile corridors. However,

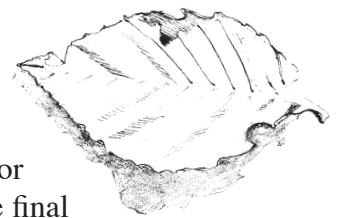
within this diversity there was a definite trend: a large majority was opposed to at least some aspects of the FS plan, and many recommended that the project be paused, modified or halted altogether.

Comments can be viewed in the “Public Comment Reading Room” on the official FS project website: <https://tinyurl.com/5889efa7>

In September and October, perhaps partly in response to public comment, Saco District Ranger Jim Innes and his team of FS specialists made vigorous efforts to communicate their point of view to the public. Among other outreach events, they met with the WODC Executive Committee and with the selectboards of Tamworth, Albany and Sandwich, and led a field trip from Ferncroft to demonstrate how the logging might be laid out. Whether they were successful in changing many people’s minds about the project is questionable, but they are to be commended for upholding a long and productive tradition of engagement and cooperation between the public and our National Forest.

### WHAT LIES AHEAD?

FS consideration of comments will take a few months during which changes in the project may – or may not – be made. When the final Environmental Assessment is released, people and organizations that commented would have standing to make a formal objection if they feel their comment was disregarded. Eligible objectors would have the opportunity to make their case directly to FS officials – with the possibility of collaborative compromise – and a final version of the project would then emerge. Since the FS does not have the capability to carry out logging operations, they would sell the timber to private companies who agree to follow FS-specified procedures. Logging would then proceed seasonally, unless affected by legal action.



– Doug McVicar

## 2023 AUTUMN FOLIAGE SEASON RECAP

The lack of vibrant colors led to a disappointing 2023 autumn foliage season across the White Mountain region. There were undoubtedly trees and locations with brilliant color, but the foliage was generally muted. Even the famous Kancamagus Highway lacked the color intensity of previous years. The four primary White Mountain notches, including Crawford, Franconia, Kinsman, and Pinkham Notches, produced the best color. This better color was likely a result of cooler temperatures typically found in mid-elevations that resulted in more brilliant reds and oranges.

The White Mountain Region has three primary autumn foliage periods. The first starts in late August when red maples in our swamps turn scarlet. The second foliage period starts in late September when the northern hardwood trees on our hillsides turn shades of orange, red, yellow, and even purple. The third foliage season starts in mid-October and showcases our gorgeous tamaracks, a deciduous conifer that turns a golden color – that I refer to as autumn gold. We also have bigtooth and trembling aspen that give us additional golden color.

This year, three primary factors led to a less-than-spectacular array of colors. The first was the persistent rain and high humidity levels that created favorable conditions for a leaf fungus called maple leaf anthracnose. This pathogen causes maple leaves, including sugar and red maple, to develop brown splotches. Infected leaves often curl up and fall off early. This leaf fungus will not kill the tree but could make it more susceptible to other problems. Hot, dry weather stops the spread of this fungus, and we did not have much dry weather in the 2023 summer.

The second factor leading to a less vibrant foliage season is also weather-related. Warm sunny days with cool, crisp nights produce the most spectacular color. Sugar is produced during these warm, sunny days with cool nights. These sugars are then trapped in the leaves, producing brilliant anthocyanin pigments that tint red, purple, and crimson. Instead, we had warm nights in September; most of our communities did not have a frost until late October. We had red and sugar maple leaves that stayed green until early October due to the lack of cool nights.

The Mount Washington Valley also has abundant red oak trees with anthocyanin pigment. Our red oaks typically turn a reddish bronze color in October. We experienced two summers of spongy moth infestation,

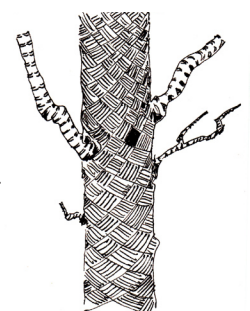
followed by a severe frost on May 18 that caused many leaves to fall off and then regrow. Some oaks were so weakened by the three strikes that they died. The Green Hills in Conway show visible evidence of overstory red oak tree mortality. We also lost many hemlock trees, especially those in the understory, killed after one defoliation. I mention this because our hemlock, pine, fir, and spruce trees add to the colors we see on our hillsides each autumn.

The following is a brief review of the pigments that give us such gorgeous colors. Chlorophyll is the pigment that gives leaves their green color during the spring and summer and assists in photosynthesis, allowing plants to make their own food. As daylight gets shorter, trees start to produce less chlorophyll. The carotenoid and xanthophyll pigments, which are present but hidden during the growing season, start to appear, giving us rich yellows.

Anthocyanin pigment is not present during the growing season. The anthocyanin pigment develops at the end of summer in the sap of leaves and is caused by a breakdown of the sugars. The colors that result are red, scarlet, and purple foliage. The orange color comes from anthocyanin pigment mixing with the carotenoid pigments that typically give us the yellow colors.

Nowhere else in the world is known to have the foliage season's intensity, scale, and length, as does the Northeastern United States and Southeastern Canada. We have the tree species, latitude, day length, soils, and moisture that usually coincide with the right conditions for autumn foliage.

The economic benefit of autumn foliage visitors is enormous for our local and state economies. An estimated 3.5 million visitors come to New Hampshire during our foliage season and spend a projected 1.7 billion dollars. About one million visitors drive the famous Kancamagus National Scenic Byway, and many stay at our local hotels and inns. The big unknown is whether climate change is creating less reliable conditions or if it is just a one-off year due to an intense El Nino event occurring in the Pacific Ocean that plagued us all summer with moisture. We had a similar year in 2005 when moisture conditions created the maple anthracnose with brown leaf splotches we had this summer.



– David Govatski

# LICHENS, SYMBIOSES & MUSINGS ON RELATIONSHIPS

Susan Goldhor

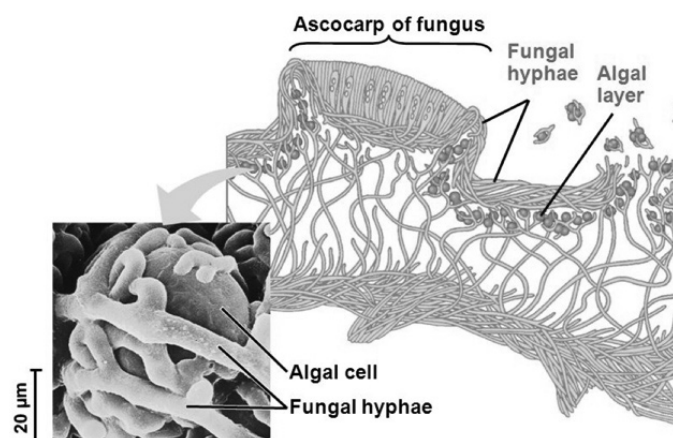
When I was in high school, lichens were the poster children for symbiosis. Lichens were defined as a partnership between a fungus and a single celled photobiont; either an alga or a cyanobacterium, and symbiosis was defined as a relationship sometimes necessary and always beneficial to both partners.

Lichens are still defined as organisms comprising members of two kingdoms, except that we now regard them more as ecosystems containing multiple species and more than two kingdoms, yeasts and bacteria being the most recently discovered. (And yes, we're all ecosystems containing multiple species.) Plus, "symbiosis" has been redefined to mean a habitual, sometimes necessary relationship. What it no longer means is one that's beneficial to both partners. In fact, symbioses now look a lot like marriages, ranging from idyllic to abusive. The new word for a beneficial symbiosis is mutualistic. But we no longer automatically put lichens into that category. The fungal partner in a lichen is the one in charge (in fact, lichens are named for that partner), and the fungal-algal relationship in a lichen now looks a lot like master-slave. Or, perhaps a marriage from the (uncomfortably recent) era when English law used the term "civilly dead" for a married woman, since she had no legal rights.

It's the fungal partner that decides on the shape of a lichen, and it's been pointed out that lichens and mushrooms are the two evolutionary examples of fungi forming something more than a mycelial mass of hyphal threads. If mushrooms are a fungal parallel to animal sex organs, then lichens are a fungal parallel to plants; leaf-like structures designed to shelter photobionts.

In the case of the plant, those are chloroplasts, and it's easy to forget that chloroplasts originated as cyanobacteria taken captive by the ancestors of today's plants, hundreds of millions of years ago. Lichens appeared after plants; perhaps lichens are forging their own plantward evolutionary pathway, in an ironic justification of fungi being categorized as plants until 1969. (Do fungi do irony?). Or, as one scientist wrote, "Just as the phylogeny of lichen fungi cannot be understood without mycology, their form and function cannot be appreciated without botany. They have the genes of a fungus, but they have adopted the lifestyle of a plant." Strengthening this parallel

Anatomy of a common fungal ascomycete lichen



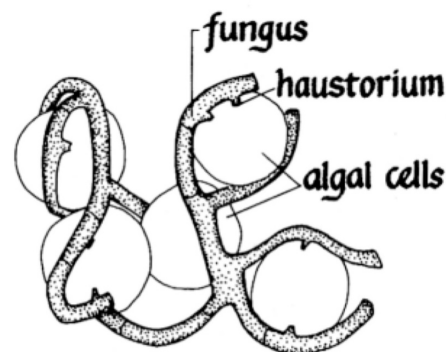
is the fact that at least one algal family (Trebouxia) has given up independence and lives only as lichen endosymbionts.

Trevor Goward has famously said that lichens are fungi that have given up their hunter/gatherer lifestyle and discovered agriculture. Alas, this is true. Lichens have discovered industrial scale dairy farming. Their livestock (apologies for putting algae into the animal kingdom, but lichens seduce us into breaking the systematic rules) are held captive, milked of more than is good for them, and killed at an early age. As long as the rate of algal division is greater than the rate of algal death, the lichen is stable — and we know that lichens can survive for centuries, if not millennia.

Lichens suck sugars out of their algae via organelles called haustoria, which are analogous to milking machines but scarier. Haustoria not only hold the plant partner captive, but penetrate it, which would please Freud. Haustoria are not limited to lichens, but are generally considered to be a specialized organ of fungal plant parasites, such as rusts and mildews, allowing the attacking fungus to compete with its plant prey for photosynthates, sucking out more than the plant is willing to give.

Lichenologist Terry Knudson has said, "The algae is trapped.

It has a lot of tubes going into it. It's controlled by chemical signals . . .



The first time I saw it under the microscope, I wanted to join the Algae Liberation Front. I mean, it looked bad.”

It’s clear what the fungal partner is getting from its photobiont: sugar. All of us non-photobionts depend on plants for our carbs. But what does the poor alga get in exchange? Well, like domesticated livestock, it’s getting protection from external threats like desiccation and sunburn and predation. The physical protection offered by the fungal partner has allowed their algal and cyanobacterial partners to survive in desert environments — even the most challenging desert on our planet, Antarctica, where deconstructed endolithic lichens survive within rocks, behind translucent minerals that allow just enough moisture and sunlight to penetrate to maintain these microscopic fungal-algal layers. And even Antarctica seems balmy compared to the experiment lichenologists love to describe, where lichens (including some from Antarctica) were attached to the outer shell of a Russian satellite and launched into outer space where they were exposed to the cold, the vacuum, and the cosmic ray damage for 16 days. After which the fungal structure and the algal photosynthetic ability were essentially unchanged. No plant, animal or fungus could survive this, but the multi-kingdom lichen manages it. Is this admirable or scary? Is the fungal partner a safe harbor or an abusive abductor? Are the algae pampered favorites or slave labor? And, considering harems, are these actually different? The winter forest is a great showcase for lichens on bark and rocks, and an appropriate place for those of us living in an area known for its wedding venues to think about relationships. But maybe not to share our thoughts with the newlyweds.     ~



FRUTICOSE LICHEN



FOLIOSE LICHEN

If you look for lichens, you’ll find astonishing varieties along WODC trails. These photos show a fruticose lichen (shrub-like) and a foliose (leaf-like) lichen, both near the Blueberry Ledge Trail.     *Editor*

The foliose (leaf-like) lichens are the most common types that grow on the trunks of trees or on rocks in the shady woods. They’re usually gray-green and form more or less circular colonies. The glamorous lichens are the fruticose (shrub-like) lichens that grow more or less like real plants.

*University of Arkansas System Division of Agriculture*

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## FALL TRAIL REPORT

Jack Waldron, *Trails Chair*

The 2023 Trail season has been a mixture of disappointment and success. The disappointing aspect was that we were not able to execute our plan to do 10 weeks of heavy-duty trail reconstruction on the Dicey’s Mill trail. We signed an 80%/20% cost share agreement with the Forest Service in the Fall of 2022 to do this project. The plan was to start the project in 2023 but we were unable to secure a professional trail crew this season. We have rescheduled the project for 2024.

The success was once again our trail volunteers. Led by Fred Lavigne and Mike Schneider, they did a great job on annual maintenance as well as a number of special projects. Those projects included a couple of short trail relocations on Wonalancet Range Trail, installation of check dams on Blueberry Ledge Trail, and scoping out a new relocation on upper Cabin Trail. The Cabin Trail relocation just needs approval from the Forest Service Botanist.

Sleeper Trail and parts of Walden could use more intensive brushing. We hope to address this issue in 2024.     ~

## BOOK REVIEW

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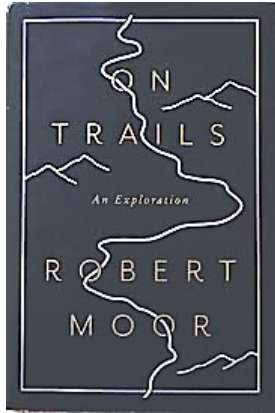
### ON TRAILS: AN EXPLORATION

by Robert Moor

In 2009, Robert Moor through-hiked the Appalachian Trail. Slogging onwards (unfortunately during a cold, wet summer), mile after mile, he started thinking about trails. What constitutes a trail, as opposed to a road or a path or a trace? Who or what makes trails? And here Moor plunges into what will be a major part of this fascinating, idiosyncratic and learned book. He makes two trips to Iceland and almost falls off some rocks in order to meet up with a young paleontologist who's been looking at the earliest trails; smears on rock formed by some Ediacaran worm, but then decides that these are really not trails at all, but traces. He gets interested in ant trails, and talks to one ant specialist after another, interspersing his findings with fascinating material about the history of science, caterpillars, elephant trails, zebra trails, and at the end of a chapter that forms half the book, meets with a French ant scientist who shocks him, and us, by explaining that her research shows that a big proportion of foraging ants (from species and nests that make trails) don't make trails, that a big proportion don't bother bringing anything back to the nest, and that an even bigger proportion never do any work at all.

Moor has a gift for getting to know interesting people and then getting them to open up about their lives and knowledge. Part of it is that he's clearly a likable guy; his elephant informant, who works at a sanctuary for abused ex-circus elephants (and every circus elephant has been abused) is a woman he'd known on the AT as Snuggles, because she would snuggle up as close as possible in an effort to maintain body temperature. When he wants to know about herding, he gets himself a (temporary) job herding a flock of sheep belonging to a Navaho family. When he wants to know about game trails, he somehow finds a part-Indian bow hunter who's killed well over 100 deer and other edible animals (what he can't eat, he gives away), who's willing to put him up and take him out looking for game. When he wants to know about navigating without a trail he "takes a walk" with a Penan tribesman in the Borneo jungle. And so on, all through the book.

The subtitle of this book is accurate, and the exploration is itself a sort of trail, although instead of leading to a



peak or a view, it's composed of uncounted little trails that meander and intersect; join for a while, separate and rejoin. There's a discussion of American Indian trails and an interview with a "trail finder"; Indian trails are hard to locate because we've covered them up with our highways, railroads, etc. Indian trails and Indian guides were the way that we explored this nation, allowing us to murder, defraud and uproot them. And yes, Moor does talk about hiking trails, and how they differ from the others.

This is a wonderful book. It's a treasure chest of ideas, facts, suggestions. I can't imagine anyone who'd find it boring or come away from it unenriched. And — what is a trail anyway? The bottom line is that a trail, which is composed of "signs" is simply that which can be trailed.

Got it?

— Susan Goldhor



### CAN YOU SEE ME?

This crackling locust (*Trimerotropis verruculata*) is more visible since it hopped into this patch of moss. A few feet away, on the lichen-encrusted granite of the Blueberry Ledges, it was almost perfectly camouflaged. Even the eyes look like lichen.

Also known as crackling forest grasshopper or cracker grasshopper, it is a kind of band-winged grasshopper.

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#### EDITORIAL

Susan Goldhor, Doug McVicar, Jack Waldron

#### PHOTOGRAPHY

Doug McVicar

#### LAYOUT

Peggy Johnson

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