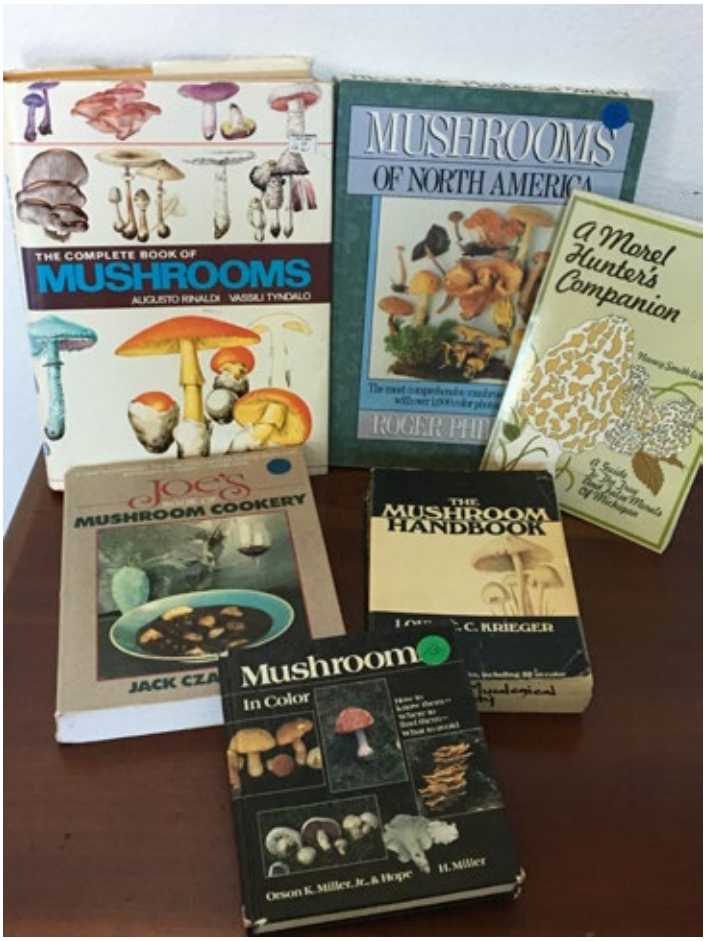
SPORE ADDICT TIMES

The Newsletter of the Pikes Peak Mycological Society 1974-2019 Vol. XLVI August 2019 Issue 3

PPMS LIBRARY HAS NEW LIBRARIAN!

"I hope everyone enjoys the books in the PPMS library!"



(Left" a selection from the PPMS Library, (Right), Isabel Gring, 9th grader at Falcon High School

Isabel Gring is new PPMS Librarian

By Jessica Langley

When asked how she became interested in mushrooms, 14 year old, Isabel Gring says, "I'm not really sure, I've always been a little interested in mushrooms but, I think I got really interested when I had to write an essay on them for school. I was home schooled when this happened and I asked my mom, for no reason in particular, if mushrooms in grocery had to be foraged or were grown on a special mushroom farm. So she made me answer my own question in an essay. It was the most fun and interesting project I did all year, and I wanted to learn

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PIKES PEAK
MYCOLOGICAL SOCIETY

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Librarian	Isabel Gring

WEBSITE

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Secretary: info@pikespeakmyc.org

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Newsletter Editor: editor@pikespeakmyc.org

Librarian: library@pikespeakmyc.org

Webmaster: webmaster@pikespeakmyc.org

Membership Options
Individual Membership: $25.00
Individual Membership + printed newsletter by mail: $30.00
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Family Membership + printed newsletter by mail: $35.00
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Lifetime Family Membership: $300.00

To Pay Online via PayPal: http://pikespeakmyc.org/join/

Send renewal checks to:
Treasurer c/o Beth Leake
1370 Golden Hills Road, Colorado Springs, CO 80919

Please make checks payable to PPMS.

All statements and opinions written in this newsletter belong solely to the individual author and in no way represent or reflect the opinions of the Pikes Peak Mycological Society. To receive this publication electronically or by mail, contact Beth Leake at: treasurer@pikespeakmyc.org
Archived copies of the newsletter are available in the Newsletters section of our website.

Submissions for the next issue of Spore Addict must reach the editors, Mercedes Whitman & Jessica Langley, by Sept 15 2019.

editor@pikespeakmyc.org

CONTENTS:

2019 UPCOMING EVENTS

Tuesday, August 20 @ 6:00pm
Lecture: *Title TBA* - Jill Easterday
Ms. Jill Easterday has been hard at work on a very successful remediation project using pleurotus mushrooms in the Bay Area. She will share her expertise with the club.
Location: Bear Creek Nature Center, 245 Bear Creek Rd. Colorado Springs, CO 80906

Wednesday, August 21 @ 6:00pm
Lecture: *From Mushroom Stones to Stoned Apes* -Britt Bunyard, PhD, Founder, Publisher, and Editor-in-Chief of the mycology journal Fungi
Location: Bear Creek Nature Center, 245 Bear Creek Rd. Colorado Springs, CO 80906

Wednesday, September 25 @ 6:00pm
Lecture: *Mushrooms and Healing* -Eddy Elzarian
Location: Bear Creek Nature Center, 245 Bear Creek Rd. Colorado Springs, CO 80906

MEMBERS CHECKLIST:

Is your email & phone number up to date?
Send contact info to: Beth
treasurer@pikespeakmyc.com

Have you paid your DUES?
If not, please send to:
Treasurer c/o Beth Leake
1370 Golden Hills Road,
Colorado Springs, CO 80919

Care to Volunteer?
Reach out to: Jennifer Bell
info@pikespeakmyc.org

NEWS

Mike Essam

Mike Essam steps down as President

Pikes Peak Mycological Society would like to thank Mike Essam for his many years of service to our club. Several terms as president have distinguished Mike's role as a leader in Southern Colorado's mycological efforts to teach wild mushrooms to the many members over the years. He has been a real gift to this club. Mike is now working full time as Storm Water manager for Manitou Springs. Many memorable forays and lectures have defined his participation in PPMS. Thank you Mike!

SEEKING VOLUNTEERS

We really mean it!! We can't do this without you. The season is in full swing! We are seeking volunteers to do a number of things. Please contact Jennifer Bell: info@pikespeakmyc.org if you are interested in:

- coordinating forays
- record keeping on forays
- writing for the newsletter
- leading a foray
- hosting an event
- hospitality
- volunteering as officer

Black Forest Foray!

PPMS Members head into the Black Forest park on July 7, 2019

Coprinus comatus

Tricholomopsis rutilans

Leccinum fibrillosum

Species List: Black Forest, CO July 7th Foray

Compiled by James Chelin and Brian Barzee

Agaricus spp
Amanita muscaria clade species
A. pantherina clade species
Boleteus barrowsii
Coprinus comatus
Parasola sp
Cortinarius spp (4)
Cryptoporus volvatus
Cystaderma sp
Fometopsis pinicola
Galerina sp
Gasteroids (4) spp
Hygrocybe conica
Hygrophorus pudorinus
Hygrophorus spp
Laccaria lacata group spp
Leccinum fibrillosum
Leucopaxillus spp
Marasmius oreades
Phaeolus schweinitzii
Pholiota vernalis
Pluteus cervinus spp
Psathyrella spp
Russula brevipes
R. decolorans
Russula xerampelina
Salsify sp.
Suillus granulatus
kaibabensis
Trichatum spp
Tricholomopsis rutilans

Cryptoporus volvatus

Tricholomopsis rutilans

Salted & Pressed Mushrooms

a traditional Lithuanian recipe for preserving mushrooms collected by Jessica Langley on her recent trip to Nida, Lithuania.

A process known as "Salting" is a common practice for preserving specific mushrooms, most commonly *Tricholoma equestre* and *Lacterius deliciousus* (shown above), but can also be used for *Lacterius turpis,* and *Lacterius piparatus*; however, it should be noted that these two require additional preparation prior to preserving to remove poisonous toxins.

**to remove toxins for *L. turpis* and *L. piparatus* boil three times for 10 minutes each time, discarding the water between each boil. You may then either cook as normal or follow through with the "salting" method.

For salt preservation you will need:
2 wooden cutting boards (or two heavy boards/planks)
lots of salt
mushrooms of choice
a heavy weight (a big stone)
a towel to absorb water

First, you will clean and cut mushrooms to equal sized pieces. Place one wooden board under, begin a first layer of mushrooms, followed by a big layer of salt (5 cm mushrooms to 1 cm salt), alternating until all your mushrooms are salted. Place the second wooden board on top with a heavy weight to press everything down. Wrap this up in a towel to absorb the water. Leave this for months (through the winter or at least 8 weeks). Store in a cold place in the cellar or refrigerator. DO NOT FREEZE. The mushrooms will be dry pressed.

When ready to eat, remove any moldy layers, soak in water overnight to get rid of the salt.
For a variation try adding garlic or laurel leaves!

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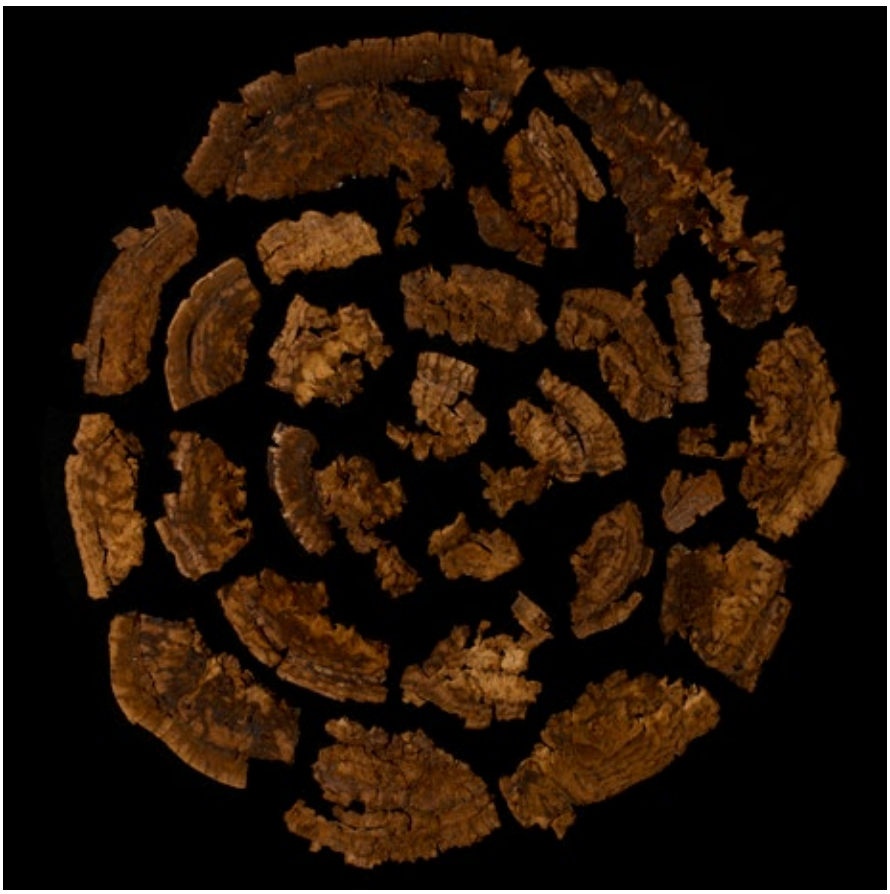
Isabel Gring is new PPMS Librarian

more." It would seem that for this reason, there is no better person to be the caretaker for the collection of books in the PPMS library. She will have all the information at her fingertips!

The collection of 56 books includes rare and out of print books as well as commonly found field identification guides to help members better understand fungi our region and others. There are also books about fungi of Britain and Europe, cookbooks, plants ID books, and more. The books that Isabel has highlighted from the collection are Mushrooms of Colorado and the Southern Rocky Mountains, The Mushroom Handbook, and The Complete Book of Mushrooms.

Isabel Gring is in ninth grade at Falcon High School. What she finds most interesting about mycology is mycorrhizal fungi because of "how the fungi work together to help each other out and are able to communicate even though they are completely different organisms." It is a great analogy for our club! If someone wants to borrow a book, they can email Isabel at library@pikespeakmyc.org and she will bring the book to the next meeting.

new member Jillian Skinner holding some young Agaricuss sp.



Amadou made from Tinder Conks (Fomes fomentarius). Photo by Ben Kinsley

Zen of the Woods

A Foray into Art and Mushrooming

By Ben Kinsley, Co-President of PPMS

(reprinted from an essay originally published in Temporary Art Review, 2016. Kinsley was living in NYC and a member of the New York Mycological Society at the time this essay was written)

Lately I've found myself at art exhibitions in New York City, not looking at the art or engaging with the social ritual of the opening, but instead giving ad-hoc lectures about mushrooms using my phone's photo gallery as a visual aid. This trumping of art by fungi has also infiltrated my studio practice, and the time I would normally dedicate to art making has been replaced with foraging in parks and forests. What began as humble pastime a little over a year ago has quickly ascended into obsession.[i]

The root of this development can be traced to the Adirondack mountains, where my partner, Jessica Langley (also an artist & PPMS newsletter editor) and I spend time each summer. There, it is a tradition to collect an *artist's conk*[ii] during a hike, and upon return etch a commemorative drawing into its porous white flesh. As the mushroom dries the etched lines will bruise dark and become permanent (our camp has a small collection, the oldest dating back to 1935).

i Even as I write this, we are in the midst of a chaga decoction, the second step of an 8 week tincture process of a large mass of Inonotus obliquus; drying some turkey tail (Trametes versicolor) for future use in teas and soup stock; and making spore prints of mushrooms found this morning we are pretty certain are edible brick tops (Hypholoma sublateritium).

ii Ganoderma applanatum, a wood-decaying bracket fungus

While looking for *artist's conks* on our many hikes we became tuned in to the vast quantity of fungi in the woods but had little other knowledge of this mysterious world. In June of 2014 we met our friend (and glass artist) Thaddeus Wolfe at an art opening in Brooklyn. He had just returned from a foray with the New York Mycological Society in one of the many New York City parks, and he was sharing his haul with us via pictures on his phone. We were enthralled. He explained the difference between *russulas* (a gilled mushroom) and *boletes* (mushrooms with a spongy, tubular surface under the cap). To explain things further he made diagrammatic drawings in the gallery's guest book, describing some basic identifying characteristics (such as free vs. attached gills, veiled stalks, the bulbous base of *amanitas*, etc.). We must have spent an hour talking mushrooms in the entryway of the gallery (notably longer than either of us spent with the work), and when we departed we made plans to attend the next NYMS outing together.

My first foray with the group took place in Central Park in late-June. Led by the expertise of Gary Lincoff,[iii] we traversed the park in search for as many types of summer mushrooms the group could find.[iv] At first Jessica and I couldn't see a thing, but after some time and with some assistance, we honed our pattern recognition skills, and the mushrooms were all around us! After a couple of hours the three of us had collected a few edible *russulas*, a variety of good edible *boletes*, and a handful of lambsquarters. We took the train back to Queens and made a delicious brunch. After a couple more outings with the society and major hauls of choice edibles including *chanterelles*, *black trumpets*, *oyster mushrooms*, the *corrugated-cap milky*, and *hen of the woods*,[v] Jessica and I were seriously hooked.

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Three etched artist's conks from our Adirondack camp, dated 1937, 2014, and 2010.

middle: Red-cracked boletes with bluing flesh.
bottom: Brick tops

iii author of "National Audubon Society Field Guide to North American Mushrooms"

iv the NYMS has been working on a ten-year mycological survey of New York City Parks

v Cantharellus cibarius, Craterellus cornucopioides, Pleurotus ostreatus, Lactarius corrugis, Grifola frondosa

left: A day's haul including black trumpets, chaga, chanterelles, milk-caps, and various boletes. right: Oyster mushrooms.

I grew up in a small town in central Ohio and spent the majority of my childhood playing in the woods, climbing trees, swimming in creeks and ponds, studying flora and fauna, and sharing my blood with mosquitoes, horse flies, chiggers, leeches, and ticks. Ironically, it wasn't until I moved to New York City at the age of 33, that I got into mushroom foraging. Admittedly, I've only been doing this for a short time, but I am awestruck by the fact that more (North) Americans[vi] don't take advantage of the plethora of free delectable, nutritional, and medicinal[vii] nourishment growing in and around their towns, cities, and woodlands. Instead, the sight of mushrooms tends to invoke caution and fear in most people. This is, generally speaking, a good thing, as there are many common mushrooms that are deadly poisonous. For example, the destroying angel (my favorite toxic species), if ingested and left untreated, will cause vomiting, diarrhea, and cramps, leading to kidney and liver disfunction, organ failure, coma, and death. And then, of course, there are a number of poisonous species that are "look-alikes" of coveted edible mushrooms, which are sometimes picked and ingested accidentally by the untrained forager.[viii] But, all one needs in order to not kill themselves is a bit of botanical, mycological, and/or local folk-cultural knowledge, and this is exactly the type of information mycological societies exist to make accessible.

The New York Mycological Society is a non-profit organization in NYC dedicated to mycology (the study of

vi Mushroom hunting is a much more popular tradition in Europe and Asia. Author David Aurora claims this cultural "fungophobia" was inherited from the British.

vii not to mention the planet-healing potential of mycelium, the mass of branching, thread-like hyphae that form the vegetative part of fungi. See: https://www.ted.com/talks/paul_stamets_on_6_ways_mushrooms_can_save_the_world

viii this has unfortunately been happening with Syrian refugees in Germany, who are mistaking Amanita phalloides (the deadly poisonous death cap) with the Bearded Amanita which grows in the Mediterranean area. See: http://www.theguardian.com/world/2015/sep/29/germany-attributes-mushroom-poisonings-foraging-refugees

mushrooms and fungi) and mycophagy (the practice of eating wild mushrooms). It too has a deep connection to the art world, as the present NYMS was co-founded by composer John Cage some 50 years ago.[ix] Cage was an avid mushroomer and spent maybe equal energy thinking about the world of fungi as he did about music. In an essay about Erik Satie, published in his famous 1961 book Silence, Cage acknowledges his lust for foraging at the beginning of the text:

> "A few days ago it rained. I should be out gathering mushrooms. But here I am, having to write about Satie. In an unguarded moment I said I would. Now I am pestered with a deadline. Why, in heaven's name, don't people read the books about him that are available, play the music that's published? Then I for one could go back to the woods and spend my time profitably."

ix In 1959 Cage was asked to teach a music class at the New School, and only agreed on the condition that they also allow him to teach a mushroom identification class. This class was the beginning of the current New York Mycological Society.

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left: Amanita bisporigera (commonly known as the Destroying Angel). right: Destroying Angel costume, Halloween 2014.

I can relate, for I too have started paying close attention to rain patterns, and it seems that my creative life has taken a back seat to fungi. So what makes foraging such a seductive and fulfilling activity? The thrill (and delicious reward) of finding gourmet mushrooms in the wild is certainly a hook. Coming home from a short walk in the park with a perfect, 10 pound *hen-of-the-woods* (which might sell for $24/lb at the farmers market) comes with a great sense of joy and accomplishment. And then there's the creative challenge of preparing it all while still fresh, which necessitates experimenting with increasingly varied recipes.

And perhaps there's something to the real, if slight, possibility of danger - danger of misidentification leading to accidental poisoning. In A Natural History of the Senses, Diane Ackerman describes the Japanese tradition of preparing and eating Fugu, the deadly poisonous puffer fish. Fugu contains tetrodotoxin, one of the most poisonous chemicals in the world. As she puts it, "a shred small enough to fit under one's fingernail could kill an entire family." Apparently, the most highly regarded chefs are those who "manage to leave in the barest touch of the poison, just enough for the diner's lips to tingle from his brush with mortality but not enough to actually kill him." Despite the horrendous consequences eaters of fugu risk (including a death-like paralysis which has led to some people being buried alive!), "eating fugu is considered a highly aesthetic experience."

Is mushrooming the ultimate aesthetic act? While the results can be delectable (some of the very best mushrooms, like *porcini* and *morels*, can't be cultivated), and the preparations intellectually stimulating (I spend much of my time reading and researching, both in analyzing the daily collection and in anticipating the next hunt), the act of foraging engages four of our five senses.[x] Mushrooming can also offer a connection to the metaphysical with the help of so called "magic mushrooms," whose fruiting bodies contain psilocybin and/or psilocin, and can induce states of euphoria, hallucination, and spiritual experiences[xi] upon ingestion.

Ben with hen-of-the-woods.

Chicken-of-the-woods.

x Proper identification often requires sight (color of cap, gills, and spore print), touch (texture of cap, firmness), smell (chanterelles, for instance, are known to have a fruity, apricot-like scent), and taste (sweet, tasteless, spicy, bitter, etc.)

xi In "The Sacred Mushroom and the Cross" renowned archeologist and Dead Sea Scrolls scholar John M. Allegro posits that the founding stories and principles of Christianity were actually derived from an ancient fertility cult that consumed and worshiped the Amanita muscaria, and that "Jesus" was not a human being at all, but in fact a code word for this hallucinogenic fungus. See: https://youtu.be/mOu9tV6uy2E

But there's something else, something deeper, that has turned this would-be pastime into an obsession for me. Maybe it's the connection to, and respite in, the natural world that's so enticing in this era of the post-studio, professionalized artist. Most of my studio time is spent on a computer dealing with logistics (emailing, Skype meetings, budgets, proposals, grant writing, etc.). There is a refreshing immediacy to foraging, where planning is limited and the results are unknown (almost nothing seems hard to acquire these days, except maybe, for the elusive mushroom you wish to find).

In a 1979 interview,[xii] musician/producer Brian Eno was asked if he would ever consider doing something other than music. His response reflects my thoughts on foraging:

"I did have a very strong impulse, for quite a long time, to become a gardener. […] It's as much to do with being interested in a living style that is very slow, and where one is conscious of the seasons, and of the time of day. Because I'm not at the moment; by virtue of the way I work, the seasons tend to merge. I mean, obviously I know if it's hotter or colder; but the work is the same from season to season. I don't have summer work and winter work. Similarly, I don't have day work and night work, that much - it's a continuum that the year and the seasons happen to change around."

There is something quite wonderful about experiencing seasonal shifts through the lens of fungi. On the East Coast, summer yields baskets full of *chanterelles* and *chicken-of-the-woods.*[xiii] Fall provides the very best mushrooming season, with the fruiting of the most species of good and choice edibles. Winter tests one's patience, though may provide *wild enoki*[xiv] and *oyster mushrooms* if one is persistent. The spring thaw brings with it the salivation of the *morel* hunters. Minute changes in weather patterns take on new and significant importance. The once dreaded rainy day suddenly becomes a celebrated occurrence, full of potential, a catalyst for exploration.

Filmmaker Jason Cortlund writes in the introductory essay of the Spring 2015 NYMS newsletter,

> "There's nothing more uncertain than a mushroom hunt- what and where you find fungi depends on multiple variables - including one's own awareness. Past experiences can help prepare for what might be found, but only sensory data gained by being present in those precise woods at that exact moment can help one see what's actually there. Expectation can limit one's ability to observe the exceptional, the unusual, the sublime."

I believe it is precisely this uncertainty that attracts me (and many other artists throughout history[xv]) to the world of mycology. It is indeed an awareness exercise, a process of slowing down, paying attention, and being present. One must observe all things with equal importance, and curiosity. Searching for something in particular is the best way to miss everything else. It's no wonder Cage was so taken by mushrooms, for a forage in the woods is very much akin to experiencing his seminal composition 4'33". Both offer a formal opportunity to observe the often ignored but deeply meaningful happenings of the world around us. I believe this is what good art can do. It's just that lately I've been finding it in the woods.

xii See: http://www.moredarkthanshark.org/feature_enovations-sum79.html

xiii Laetiporus sulphureus, a golden-yellow bracket fungus that tastes kind of like chicken

xiv Flammulina velutipes aka enokitake, velvet foot, winter mushroom…

xv Beatrix Potter, for example, (despite being completely ignored by the male chauvinist botanical societies of her time) was a remarkable mycologist. Her exquisite watercolor renderings of mushrooms and research helped lead to the reclassification of lichens (a hybrid of fungi and algae, not plants as was assumed at the time). See: https://www.brainpickings.org/2015/07/28/beatrix-potter-a-life-in-nature-botany-mycology-fungi/

From the World Wide Web…

4 THINGS TO KNOW ABOUT FUNGI 'CLIMATE WARRIORS'

Certain fungi play an important role in how well forests can absorb carbon dioxide.

JULY 27TH, 2018
POSTED BY BOSTON UNIVERSITY

Two researchers, Colin Averill and Jennifer M. Bhatnagar of Boston University, explain below how these fungi fit into forest microbiome and fight climate change, as well as how we can safeguard them for the future. Their paper is published in Global Change Biology.

Fungi represent an entire kingdom of life on Earth. When you think of fungi you might visualize mushrooms in something you eat, or mushrooms that pop up along the forest floor. But some fungi, called mycorrhizal fungi, can exist entirely underground, growing symbiotically with the roots of trees.

These fungi may not be visible to us, but our research group has found that these mycorrhizal fungi are doing us a huge climate favor behind the scenes. These fungi are climate change warriors, helping forests absorb CO2 pollution, delaying the effects of global warming, and protecting our planet.

Yet human activity and pollution are causing forests to lose these fungal carbon guardians, and the loss of these fungi may be accelerating climate change.

HOW DO FORESTS SLOW CLIMATE CHANGE?
Human fossil fuel consumption emits CO2 into the atmosphere, a heat-trapping gas that drives global warming and climate change. The higher the concentration of CO2 in the atmosphere, the warmer the planet will be.

Lucky for us, not all of our CO2 emissions go straight into our atmosphere. Instead, forests all over the world are protecting us from even faster rates of climate change by absorbing CO2. Forests are currently absorbing approximately one third of all human CO2 emissions. This happens when trees "eat" CO2 during the process of photosynthesis. When this happens, the carbon in CO2 gas is converted into plant biomass, and eventually locked up in tree trunks and forest soils.

As long as those carbon molecules stay in the forest, they stay out of the atmosphere, preventing them from contributing to global warming.

WHAT DO MYCORRHIZAL FUNGI HAVE TO DO WITH THIS?
While the trees in a forest may be absorbing the CO2 molecules, they don't do this alone. Forests have a microbiome, consisting of all kinds of microorganisms that grow in sync with trees. While any forest can absorb CO2 and in turn offset climate change, some forests are much better at this than others.

Scientists have come to learn understanding which forests are best at absorbing CO2 requires understanding which mycorrhizal fungi are present in that forests microbiome. Trees form partnerships with many different root fungi, but scientists have learned that particular root fungi, called ectomycorrhizal fungi, are helping trees absorb CO2 even faster.

Furthermore, ectomycorrhizal fungi can slow down decomposition, a natural process that returns carbon from forest soils back to the atmosphere. In these ways, ectomycorrhizal fungi enhance the ability of forests to keep carbon locked up in trees and soils, and out of the atmosphere. Unfortunately, a different type of pollution—nitrogen pollution—is causing forests to lose these fungal carbon guardians, amplifying a natural source of CO2 emissions and accelerating climate change.

WE ARE LOSING OUR FUNGAL CARBON GUARDIANS AT CONTINENTAL SCALES.
Humans have polluted forests all over the world with massive amounts of nitrogen. This is because burning fossil fuels does not only emit CO2 pollution, but also nitrous oxide gas, which eventually rains down on forests as nitrogen pollution. Nitrogen fertilizers used on farms also contribute when these fertilizers blow into neighboring ecosystems.

It turns out that trees partnered with ectomycorrhizal fungi are extremely sensitive to this nitrogen pollution. By layering maps of nitrogen pollution over the distribution of forests in the United States, our research team has discovered that forests exposed to high levels of nitrogen pollution have far fewer trees that harbor ectomycorrhizal fungi.

What's more, we were able to link a loss of these fungi to a loss of carbon from forest soils. Nitrogen pollution drives a loss of ectomycorrhizal fungi, and losing these fungal carbon guardians results in more CO2 pollution entering the atmosphere, accelerating climate change.

What's surprising about this study is the massive scale. Our research team analyzed thousands of forest plots from all over the United States comprised of tens of thousands of trees. We were truly surprised that small changes in microscopic soil fungal communities (the forest microbiome) can lead to landscape-level changes in where different forests are, detectable at the scale of an entire continent. While our study only considered forests in the United States (because this is where scientists have the most forest data), these findings have implications for forests all over the world.

HOW CAN WE SAVE THE FUNGI?
There is some hope on the horizon. Nitrogen pollution is actually decreasing in the United States, as America transitions away from fossil fuels and towards renewable sources of energy. We may make America ectomycorrhizal again.

In the process, restoration of ectomycorrhizal forests may remove additional CO2 from the atmosphere and slow climate change. However, nitrogen pollution is on the rise in developing parts of the world as more and more fossil fuel burning power plants come online. These places are experiencing levels of nitrogen pollution often several times greater than even the highest rates ever observed in the United States. Yet even here mitigation is possible.

Technology exists to scrub nitrous oxide out of fossil fuel emissions and should be implemented not only to save the fungi and protect carbon, but also to mitigate the known carcinogenic effects of nitrous oxide pollution (think the Volkswagen emissions scandal). Better than scrubbers, development of wind, solar, and other alternative energy technologies will allow us to transition away from fossil fuels, stopping both nitrous oxide and CO2 emissions.

Putting an end to nitrogen pollution will help us conserve and save these carbon-protecting fungi, and in turn help save the planet.

Source: Boston University
reprinted from: https://www.futurity.org/mycorrhizal-fungi-forests-1822492-2/

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