

THE MYCOPHILE

Newsletter of the North American Mycological Association

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The Gary Lincoff Memorial Foray

The Gary Lincoff Memorial Foray will be held on Saturday, September 12th: Walks, presentations, auction, book signing, sales, table-walk, mushroom feast. The Lodge, N Ridge Drive, North Park, McCandless Township, PA, 15101. We plan to combine this with a walk and mushroom collection in Cook Forest State Park on the Friday and a Science Sunday. 8am to 7pm, Saturday, Sept. 12th, 2020. See <https://wpamushroomclub.org/lincoff-foray/>

Guided morning walks and self-guided afternoon mushroom walks; Mushroom Walks will be conducted in North Park and in other woodlands nearby Lectures: guest speakers: Michael Kuo; Mushroom Feast; merchandise sales and silent auction. Michael Kuo, the principal developer of MushroomExpert.com, Leon Shernoff, editor of Mushroom, the Journal of Wild Mushrooming, will join us as a guest speakers and mycologists for the foray. Western Pennsylvania Mushroom Club cooks will prepare a Mushroom Feast with dozens of unique mushroom dishes to delight your taste buds.

Wildacres Regional Foray

September 24-27, 2020 | Wildacres Retreat, North Carolina

Wildacres Retreat, located just off the Blue Ridge Parkway near Little Switzerland, North Carolina, is renowned for the identification of new species to the foray each year, and for the identification of new species to the mushroom kingdom. As an attendee, you will have the opportunity to search for fungi along the creek sides of Armstrong Creek, Linville Falls, and Crab Tree Falls, in the highlands of Mount Mitchell, and in many other areas along the beautiful Blue Ridge Parkway.

Cover Photo

Phanerochaete livescens

By John Plischke III for the
NEMF 2019 Crust Workshop

MO-NAMA 2020

PLAN AHEAD Mark on your calendar October 8-11 and make plans to attend the MO-NAMA2020, NAMA's annual foray for 2020. While detailed plans are being finalized, you can make your plans to spend the weekend exploring the hills of the Ozark Mountains. The event will be held at Trout Lodge, 72 miles southwest of St. Louis. We will have transportation available from and to the St Louis Airport.

The Missouri Ozarks offer excellent mushroom habitat. The terrain can be described, geologically, as a broad dome, the most extensive highland area between the Appalachians and the Rockies. We'll foray in rolling hills interrupted by steep escarpments, traversed by meandering waterways and marked by caves. The forests include many species of oak, hickory, walnut, red pine, and cedar.

Our chief mycologist will be Andy Methven, who is MOMS (Missouri Mycological Society) beloved Chef Mycologist. Other speakers and workshop leaders include Tom Volk, Britt Bunyard, Arleen and Alan Bessette, Rachel Swenie, and Rose Tursi, with more to be announced soon!

Trout Lodge itself has a rich and diverse history. The land originally was settled in 1904 by a Parisian who had traveled to St. Louis for the World's Fair. The stream which runs through the property was used for raising trout and to power a sawmill. Over the years and through various ownerships, the land was expanded to include 52,000 acres and a 360-acre lake. Today, Trout Lodge is a branch of the YMCA of Greater St. Louis. The resort is beautiful, with lots of amenities of interest to all, including children. Lodging is way above average, and the food is excellent.

For mycology experts to beginners, this year's NAMA foray assures adventures and fulfilling times for everyone. Also, don't forget to spend some time in St. Louis, a city with excitement for all. Whether it be sports, arts, history, or relaxation, you can find a place to celebrate fall in Missouri. You must be a current member of NAMA to attend. More to come in future publications.

Questions? You can contact either Sam Landes at treasurer@gamushroomclub.org or Maxine Stone at VeryMaxine@aol.com.

A Model Foray Workshop for Difficult Taxa

By Bill Sheehan, Alden Dirks, John Plischke III & Tom Bruns

Crust fungi are diverse, abundant and important members of our mycoflora, but they are among the least studied form groups and are more challenging to identify than most other macrofungi. However, they can be fun to study due to their beautiful colors and diverse micromorphology. They can be found year-round under dead logs – even when it's too dry or cold for fleshy fungi – and they are full of wonderful surprises for those who like microscopy.

To build knowledge of crust fungi, the North American Mycoflora Project organized an innovative all-day workshop at the 2019 gathering of the Northeast Mycological Federation in Lock Haven, PA. The novel part was that specimens were sequenced and all data were posted to an iNaturalist project: [NEMF 2019 Crust Workshop](#). The workshop was organized by the North American Mycoflora Project as a model for training amateurs in difficult taxa at national and regional mushroom forays.

Bill Sheehan initiated the idea for the workshop and invited Karen Nakasone (USDA FS, Madison) and Tom Bruns (UC Berkeley) to lead it. However, Dr. Nakasone was unable to participate and Alden Dirks (a graduate student at U Wisconsin-Madison, now at U Michigan) filled in on short notice. After an orientation lecture by Dr. Bruns, 15 brave souls used microscopes and the key from the 1000-page tome, *Corticiaceae s.l. Fungi Europaei 12* by A. Bernicchia and S.P. Gorjon, to delve into this fascinating group of fungi, while Bruns and Dirks circulated to help interpret microscopic structures and terminology in the key. The workshop was held in the lab of Dr. Barrie Overton at Lock Haven University; he contributed micrographs that he made with his fancy BX53 microscope, with epifluorescence. Bruns collected tissue at the workshop and sequenced it back at Berkeley. John Plischke III took photos in the lab of all specimens tagged for sequencing and posted and organized them on the iNaturalist project site. NEMF's Board allocated funds for the sequencing. All specimens will be deposited at the Carnegie Museum of Natural History and ultimately posted to MyCoPortal.

RESULTS: 24 specimens were photographed and sequencing was attempted on 18. Here's the bottom line:

- 3 sequences failed - can't confirm or refute ID
- 4 sequences matched something that we had left as an unknown
- 6 sequences matched our morphological ID
- 8 sequences refuted our morphological ID

You can view the complete data here:

https://docs.google.com/spreadsheets/d/1VOI5iYr0ZoX0sDo03dmZ9_aXD82s5lveroRzuAiVLAQ/edit?usp=sharing

The sequencing worked reasonably well in that 18 out of 24 gave us some information, but our morphological IDs needed some work. Slightly fewer than half of our morphological IDs were accurate. Perhaps that is not so bad for crusts, given the limited time and the fact that none of us were experts on them. We would have done better if Dr. Nakasone could have made it and we will likely get better as our collective experience grows.

The phylogenetic diversity of our sample was impressive. Our 24 samples came from 12 families in eight orders (see Table on next page).

Crust fungi are probably not for everyone but if we can motivate and train a few people in every club, we can make progress on these fascinating fungi. In this way, our workshop could be a model for other groups of fungi at future NAMA or NEMF forays: Get experts on a group of difficult fungi – say *Russula* or *Cortinarius* or most any ascomycete group – to lead a workshop to train eager participants and document and sequence a couple of dozen specimens. The former will build the skills of serious amateurs; the latter will make a valuable contribution to science.



Schizopora radula photo by John Plischke III

Agaricales

Pterulaceae

Radulomyces aff. paumanokensis

Auriculariales

Incertae sedis

Stypella subgelatinosa

? *Stypella subhyalina*

Cantharellales

Botryobasidiaceae

Botryobasidium aff. conspersum

Botryohypochnus aff. isabellium

Botryobasidium subcoronatum

Botryobasidium sp.

Hydnaceae

? *Sistotrema efibulatum*

Hymenochaetales

Schizoporaceae

Hyphodontia pallidula

Schizopora radula

Xylodon flaviporus

Polyporales

Cystostereaceae

Crustomyces aff. subabruptus

Fomitopsidaceae

Antrodia aff. sinuosa

Fibroporia radiculosa

Phanerochaetaceae

Phanerochaete livescens

Phanerochaete rhodella

Polyporaceae

Perenniporia subacida

Skeletocutis nivea

Russulales

Stereaceae

Gloeocystidiellum porosum

Thelephorales

Thelephoraceae

Tomentella ellisii

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentellopsis sp.

Trechisporales

Hydnodontaceae

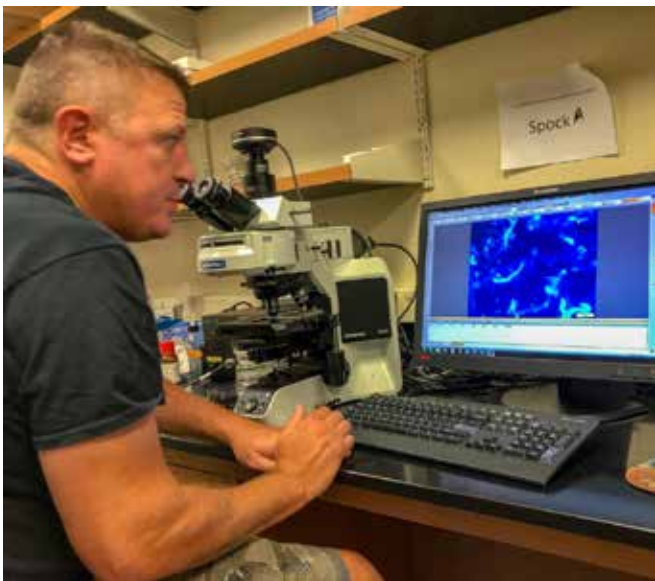
Subulicystidium sp.



Crustomyces aff. Subabruptus photo by John Plischke III



Tom Brun collecting crusts in the field for the workshop



Barrie Overton at his Olympus BX 53 Microscope with epifluorescence (DAPI filter set used for calcoflour) and Differential Interference Contrast



John Plischke III photographing specimens and Tom Bruns taking minute tissue samples for DNA extraction

Gary Lincoff Award for Contributions to Amateur Mycology

NAMA's *Award for Contributions to Amateur Mycology* is given annually to recognize a person who has contributed extraordinarily to the advancement of amateur mycology. Its recipients have often extensively conducted workshops, led forays, written or lectured widely about mushrooms and identifying mushrooms, all on a national or international level. In 2015, the name of the award was officially changed to recognize the contributions of Gary Lincoff; now the *Gary Lincoff Award for Contributions to Amateur Mycology*.

Nominations for this award should include a description of the accomplishments the nominee has made in the field of amateur mycology.

A name alone is not a sufficient nomination; neither is a profile on a website.

The recipient must be living at the time of the award.

Nominees who were not selected to receive the award are automatically re-nominated for 4 additional years, after which the nominee's name has to be re-submitted, and it's up to the nominator to keep track of this.

Selection among nominees is made by the voting of past award winners, and the award includes a plaque and lifetime membership in NAMA.

Nominations are accepted until April 1st of the award year.

Send a single copy of a Nomination by mail or email to:

Walt Sturgeon
 Chair, NAMA Awards Committee
 288 E North Avenue
 East Palestine, OH 44413-2369
 Email: mycowalt@comcast.net

The Harry and Elsie Knighton Service Award

The *Harry and Elsie Knighton Service Award* was established by the NAMA Board of Trustees to recognize and encourage persons who have distinguished themselves in service to their local clubs. It is named for the Knighton's, whose efforts began the North American Mycological Association in 1967.

The annual award consists of a plaque; publicity for the winner and club in *The Mycophile*; a one-year membership in the organization; and registration, housing and foray fees for the next NAMA Foray.

Each year's recipient is selected by the three most recent recipients of the Award.

Every NAMA-affiliated mycological club may nominate one candidate whom it feels has performed meritorious service during the current or preceding year, which has to be described!

Unselected nominees are automatically re-nominated for two additional years.

Nominations are accepted until April 1st of the award year.

Send a single copy of a Nomination by mail or email to:

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 288 E North Avenue
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2019 NAMA Photo Contest Winners

We continue presenting some more winners of the 2019 NAMA Photo Contest with the Open Documentary category. This group features photos taken by photographers who are more advanced and have won first, second or third place in past contests. The documentary category features photos especially suited as illustrations in field guides or monographs, or for use in educational lectures. Emphasis is placed on portrayal of key morphological characteristics such that the usefulness of the image as an identification aid is maximized. Subjects may be shot in the field, laboratory or studio and the photographer has complete freedom to cut, process, manipulate, or orient the specimen in any desired manner to achieve the goal. Close-ups of single features and photomicrographs are acceptable



Open Documentary Honorable Mention
Geronema atrialba by Drew Henderson



Open Documentary Honorable Mention
Panaeolus cinctulus by Richard Tehan



Open Documentary Honorable Mention
Gliophorus psittacinus by Drew Henderson



Open Documentary Honorable Mention
Verpa bohemica by Drew Henderson



Open Documentary 1st Place
Entonaema liquescens by Mark Bower



Open Documentary 2nd Place
Mycena haematopus by Robert Gergulics



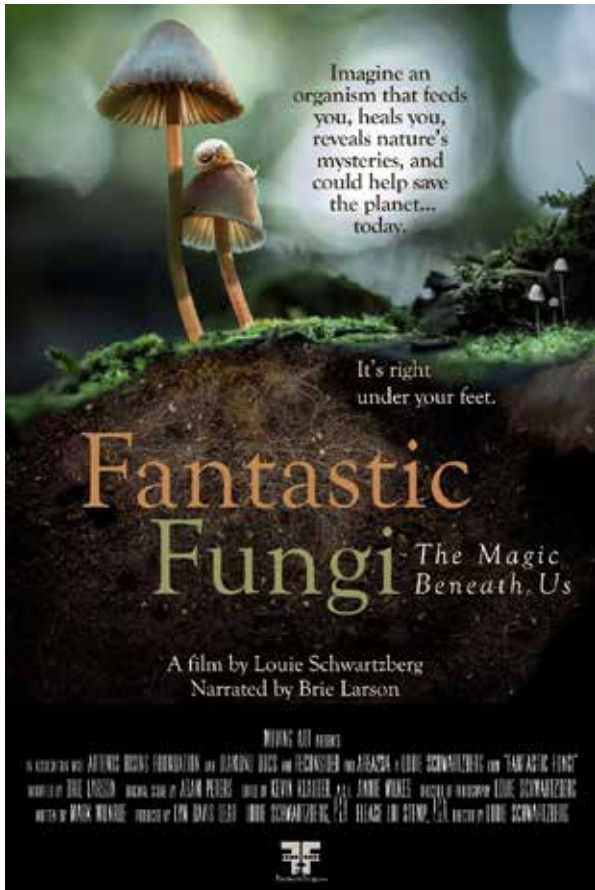
Open Documentary 3rd Place
Amanita pantherina group by Drew Henderson

Fungal Cinema as Art? Education? Outreach?

“*Fantastic Fungi*,” directed by Louie Schwartzberg, is a consciousness-shifting film that takes us on an immersive journey through time and scale into the magical earth beneath our feet, an underground network that can heal and save our planet. Through the eyes of renowned scientists and mycologists like Paul Stamets, best-selling authors Michael Pollan, Eugenia Bone, Andrew Weil and others, we become aware of the beauty, intelligence and solutions the fungi kingdom offer us in response to some of our most pressing medical, therapeutic, and environmental challenges.” *Fantastic Fungi* is a fiscally sponsored project through *Reconsider*, a 501c3 organization. The urgent mission to change human actions and restore our planet motivates both this visually impressive film and its companion book.



The Book - *Fantastic Fungi, How Mushrooms Can Heal, Shift Consciousness, and Save the Planet*, 184 pp. companion to the film, hardcover - August 27, 2019



The Movie - *Fantastic Fungi, The Magic Beneath Us* - 81 minutes - Oct. 11, 2019

By now I expect most *Mycophile* readers have heard of, and many may have seen, the movie *Fantastic Fungi*. It has received stellar reviews by well-known critics, some of which follow. The movie first screened in October 2019 and has since

been shown in over 100 cities across the US, Canada, Europe and Australia with more locations scheduled. You might be able to find a theater near you and get tickets for future screenings at: <https://fantasticfungi.com/screenings/>. This official website also includes the trailer, link to the companion book, film reviews, and importantly, a link to inquire about hosting a theatrical booking for your club (groups of 100 or more), and to bring the magic of this subterranean world above ground to your community.

Your NAMA-affiliated club may want to consider hosting a screening as a way to engage, educate and attract new members, or simply provide your current members with an enjoyable cinematic event.

Hosting/Outreach Example:

The *Minnesota Mycological Society* (MMS) worked with a Minneapolis neighborhood independent theater (seating 350) and the *Fantastic Fungi* website

to host a January 2020 screening. The MMS, the theater and the national promoters each advertised the movie on their websites and Facebook pages, each noting that the showing was sponsored by the MMS. Our club members received discounted ticket pricing, compliments of the theater. With on-line ticket sales, the first show sold out almost immediately. The theater then added 2nd, 3rd, and 4th screenings, all of which quickly sold out; that's 1400 attendees, creating public outreach well above our club's 500 +/- members! The department of sustainable design at Minneapolis College of Art & Design was brought on as a co-host for the 2nd and 3rd films and we've invited the MN Horticultural society to co-host the 4th screening with us.

The theater provided a table in their lobby for MMS members to answer mushroom questions and distribute club and NAMA literature. MMS speakers introduced each showing with an explanation of what MMS and NAMA do, and showed the NAMA Marketing Video prior to the main film. Kathy Yerich, VP of MMS, had the NAMA video converted into a DCP (Digital Cinema Package) file with a 5:1 theatrical audio mix (from the 2017, Cable WI Foray - contact Goltz.Howard@gmail.com to receive a copy for your club). She has asked Paul Stamets and Louie Schwartzberg (director) for permission to play the NAMA video before all other screenings hosted by affiliate mycological societies.

The theater's mixologist created and sold a high-octane "Foragers Old Fashioned" using dehydrated black trumpets, reishi and local maple syrup that were provided by MMS members – creating even happier viewers.



Mushroom cocktails anyone?

Fantastic Fungi Reviews:

"Schwartzberg's film quickly proves to be one of the year's most mind-blowing, soul-cleansing and yes, immensely entertaining triumphs." ~ *Matt Fagerholm, RogerEbert.com* 3.5/4.0 stars

"Louie Schwartzberg's lightly informative, delightfully kooky documentary, "Fantastic Fungi," offers nothing less than a model for planetary survival." ~ *Jeannette Catsoulis, The New York Times*

"Gorgeous photography! Time-lapse sequences of mushrooms blossoming forth could pass for studies of exotic flowers growing on another planet." ~ *Joe Morgenstern, The Wall Street Journal*

"A must see for anyone interested in life, death and the pursuit of the planet's well-being." ~ *David Carpenter, Forbes*

"100%" ~ *Rotten Tomatoes*

"Charming Documentary 'Fantastic Fungi' Explores the Miracle of Mushrooms" ~ *Rex Reed "Observer"*

My impression of the film is that it targets a broad public with a vivid introduction to the world of fungi including: what fungi are, their history, how they interact with the environment, their edibility, beautiful images and time-lapse photography, psychedelics, expanding consciousness, bio-remediation, and an overview of scientific research, neurogenesis and medicine. More experienced mushroom enthusiasts might find the film falls short of their anticipated depth, while being overdone on psilocybin related imagery (recall 1967; *Lucy in the Sky with Diamonds?*), but it's all wrapped up in a highly entertaining and beautiful execution. Our audiences gave it applause!

Go see it if you can, invite your community and publicize your club and NAMA!

One of a series of Mycophile articles on "Fungal Art" by Howard Goltz, Secretary, NAMA. As art is in the eye of the beholder; I invite you to contact me with what you consider "mushroom art" and your ideas for future articles at: Goltz.Howard@gmail.com.

Mushroom Flavor Chemistry Analysis, A Promising Implication for Food Futures

by **Salma St. John, Vice President, NAMA**

Both cultivated and wild mushrooms are known for their unique aromas and flavors. Attempts to isolate and recognize tastes and flavors of food are not a new trend. Beside the four recognized tastes: bitterness, saltiness, sourness, and sweetness, a fifth taste was added to the list, umami, which was identified by the Japanese nearly a century ago. Mushrooms are one of the foods that are rich in umami, which is characterized as being “savory” or “meaty” because it contains high levels of a certain amino acids, such as glutamate and aspartate, peptides, and other umami and saltiness enhancing molecules.

It is exciting that a growing body of research is being focused on analyzing the chemistry of mushroom aroma compounds that are found to have flavor-enhancing properties. These flavor compounds could be used in meatless or reduced-meat foods to provide a better umami taste experience.

Very interesting research is done by Dr. John P. Munafo, an Assistant Professor of flavor science and natural products chemistry in the Department of Food Science at the University of Tennessee. Dr. Munafo was a guest speaker at the Wild Acres foray in North Carolina in September of 2019, which I attended. His presentation was on “flavor chemistry and identifying and quantitating key aroma- and taste-active molecules in foods, including edible mushrooms”. I was intrigued by the presentation and wanted to share it with the Mycophile audience.

Here is the article:

Mushroom Flavor Science Research at the University of Tennessee

by **Dr. John Munafo**



Enhancement of both flavor and the health-promoting properties of mushrooms (both wild and cultivated) presents a substantial opportunity for improving the quality of the global diet. Flavor is the combination of aroma and taste sensations. Aroma is the perception of selected molecules (called odorants) by the olfactory receptors in the nasal cavity, whereas taste is the perception of selected molecules (called tastants) by taste receptors in the oral cavity. Surprisingly, it has been recently discovered that these flavor receptors occur throughout our entire body (e.g., digestive tract, cardiovascular system). So, our body is “perceiving” the flavor molecules from our food long after we swallow, and these molecules trigger a cascade of signals that result in physiological responses in our body. Little is known about the flavor molecules in mushrooms and the role these molecules may play in the human body.

Our research on mushroom flavor chemistry consists of identifying and measuring the key aroma- and taste-

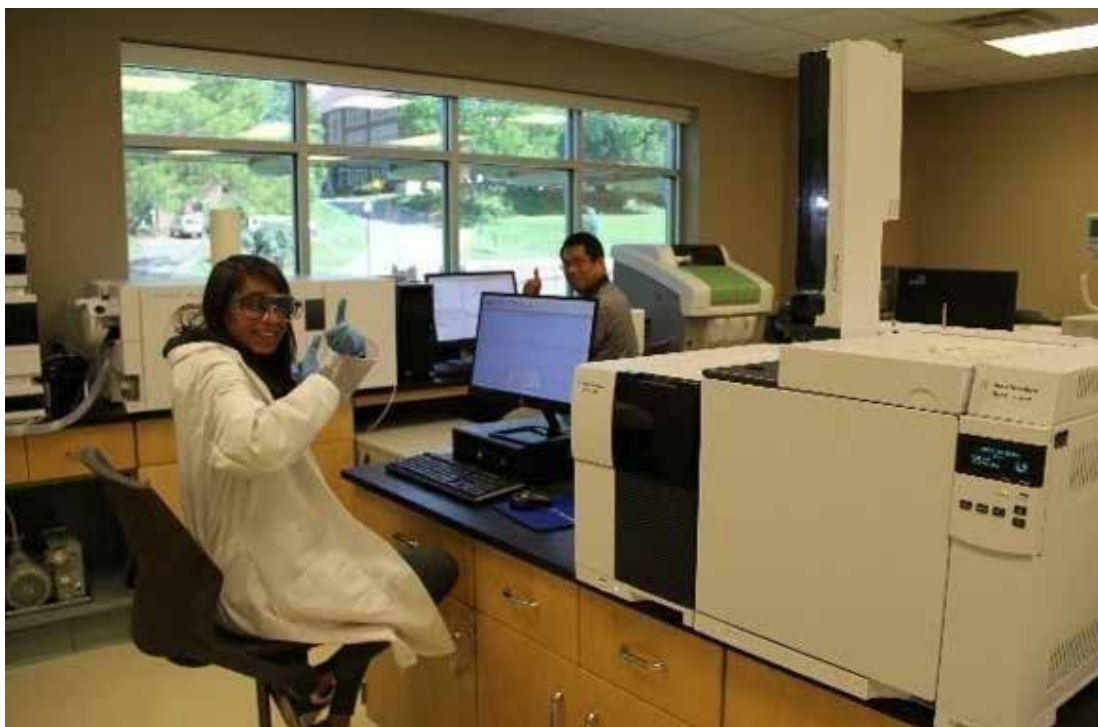


PhD student Melissa Dein extracting odorants from mushrooms.

a wide variety of broths and sauces. The pleasing altered aroma profile of cooked mushrooms and their association with savory foods suggests that a better understanding of the fundamental flavor chemistry occurring in their thermal processing would be useful to the food and culinary industry. Insight into the flavor chemistry that takes place during the thermal treatment of mushrooms under kitchen-like cooking conditions may guide the development

active molecules in culinary mushrooms. This is accomplished through technique called aroma extract dilution analysis (AEDA) to identify the odorants and taste dilution analysis (TDA) to identify the tastants. We then use a technique called stable isotope dilution analysis (SIDA) to accurately measure the molecules in the mushrooms. Our goal is to apply a fundamental understanding of mushroom flavor to aid in the development of foods with improved flavor and, thus, increased consumer acceptance and preference. So far, we have successfully applied these technologies to enhance the flavor of low-sodium foods and mushroom-based meat alternatives. “*Healthy Foods with Great Flavor*” is the vision of the mushroom flavor science leg of our research program.

Wild mushrooms are a popular ingredient in the cuisines of many cultures because of their pleasantly unique flavor and texture. The principle odorants responsible for the characteristic raw mushroom aroma, 1-octen-3-one and 1-octen-3-ol, have been studied at length. Thermal processing of mushrooms, such as pan frying or sautéing, lower the concentration of these two odorants and generate other odorants often associated with “meaty or savory-like” aroma attributes. In addition, mushrooms are often cooked with a combination of sulfur-containing plants of the *Allium* genus, such as onions and garlic, or with other ingredients rich in sulfur-containing amino acids, that further enhance the generation of desirable odorants. Due to their pleasant flavor, mushrooms are enjoyed as ingredients included in



Dr. Philipus Pangloli and PhD candidate, Purni Wickramasinghe, working on LC-MS and GC-MS. LC-MS is used to analyze taste-active and bioactive molecules from mushrooms. GC-MS is used to identify mushroom odorants (aroma-active).

of pleasant flavors that enhance the flavor of savory foods such as beef or chicken, other meats, and low sodium food applications.

Published olfactory research on mushrooms has focused mainly on the raw mushroom-smelling odorant 1-octen-3-ol; consequently, not much is known about the odor quality of cooked mushrooms. One exception to that trend would be the work of Grosshauser and Schieberle who used gas chromatography-olfactometry (GC-O) to identify the key odorants in panfried mushrooms. Further research into the flavor compounds of cooked mushrooms could positively impact the knowledge base for mushroom flavor, with widespread implications.

When mushrooms are cooked, the heat treatment, as with all foods, leads to numerous chemical reactions, including the degradation of carbohydrates into mono- and disaccharides and proteins into peptides and amino acids. Sugars and amino acids then serve as precursors of odorants formed in a myriad of pathways via the Maillard reaction. Little is known about the flavor chemistry that occurs when mushrooms are processed, such as drying, boiling and sautéing. There is a substantial opportunity to learn more about the fundamental flavor chemistry of mushrooms. A better understanding of mushroom flavor chemistry can help guide new recipes, optimize cooking techniques for higher flavor, and be used to develop a new suite of mushroom-derived flavors.

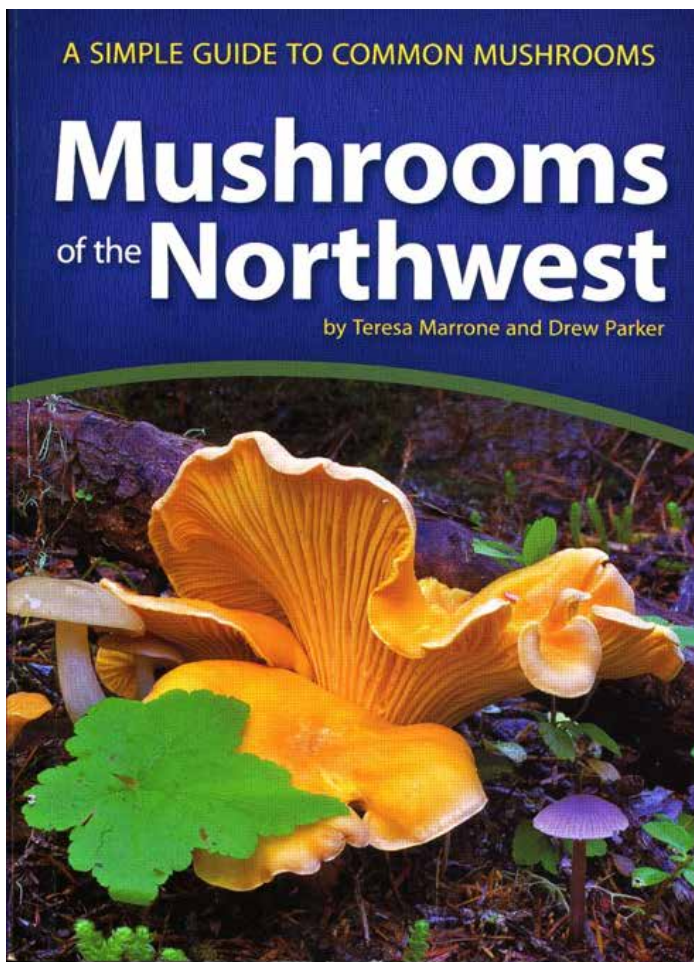


PhD candidate, Purni Wickramasinghe, isolating bioactive molecules from mushrooms using preparative-high performance liquid chromatography (prep-HPLC).



Wild mushroom field work in the forest

Mushrooms of the Northwest: A Simple Guide to Common Mushrooms



Teresa Marrone and Drew Parker
2019, Adventure Publications, Cambridge, MN
www.adventurepublications.net / 1-800-678-7006
ISBN 978-1-59193-792-0 (296 pages, softcover, \$16.95)

This is a small (roughly 4.5 × 6 inches) guide that, as the title states, deals with mushrooms commonly encountered in the Northwest (rather narrowly defined as Washington, Oregon, and Idaho). It “was written with the beginning mushroom enthusiast in mind.” The publisher’s notes suggest that over 400 species are covered but that number must include pretty much every species mentioned anywhere, as the number of well described and illustrated species is much smaller (I get about 150, although an exact count is difficult because of the number of species groups utilized [roughly one-third of the 150]). Approximately 200 additional species are illustrated but with only a few words of descriptive text. All the species also occur outside the subject area and almost all of them are covered

in other books. If this sounds familiar, it should. This new guide from Adventure Publications is nearly identical (quite a lot of the text in fact is identical) to the earlier *Mushrooms of the Upper Midwest: A Simple Guide to Common Mushrooms* by Teresa Marrone and Kathy Yerich (reviewed in the Jan-Feb 2015 *Mycophile*) and *Mushrooms of the Northeast: A Simple Guide to Common Mushrooms* by Teresa Marrone and Walt Sturgeon (reviewed in the Nov-Dec 2016 *Mycophile*). A pattern is developing here — are southeast and California books in the works?

In addition to the two previous mushroom guides, Teresa Marrone has written a number of outdoor-themed books as well as cookbooks featuring wild foods. She lives in Minneapolis and is not known to be part of the Pacific Northwest mushroom scene. In fact it is not clear whether she has any direct experience with our fungi. For that, she made the wise choice of enlisting Drew Parker, from northeasternmost Washington, at the very fringe of the three-state area. Drew is a member of the Pacific Northwest Key Council, has conducted several surveys of mushrooms on national forest lands, and is well known in this region as an identifier and photographer. He contributed the bulk of the photographs to the project, along with a large number of other photographers, apparently identified through their internet postings on *Mushroom Observer* and other sites.

The introductory material is brief, comprising only about 20 pages. It includes the rationale behind the book, an explanation of what mushrooms are and how to look at them, cautions for eating them, a bit of basic fungus biology, and a couple pages on the region’s terrain and climate (new to this book). This is followed by an explanation of how best to use the book, a description of the ten morphological groups (cap and stem with gills, cap and stem with pores, coral and club fungi, etc.) used to organize the Mushrooms Grouped by Type section of the book, and the species accounts. A list of books and websites, glossary, and index follow the species treatments.

The species accounts occupy 246 pages, broken down into three main sections—Top Edibles, Top Toxics, and Mushrooms Grouped by Type. Other than the description of the morphological types, there are no keys or other identification aids. The reader is directed to look for picture

matches, starting with the morphological groups. Unfortunately, separating out the main edible and poisonous species makes the user have to look in three different sections of the book before deciding whether (s)he has found a match for the mushrooms in hand. Within the morphological groups, the species are organized by color (quite useful for wildflowers but not so useful for the legions of brown mushrooms), proceeding from light to dark, which leads to juxtapositions of very unlike things such as *Agaricus augustus* (the prince) followed by *Marasmius oreades* (the fairy ring mushroom) and a *Phaeocollybia kauffmanii* group (erroneously given the common name “dark-rooting collybia group” [they aren’t collybias]), and species of *Suillus* appearing in four different places. Such things are confusing for someone with a bit of experience and make it hard for a beginner to begin developing a feel for the Friesian genera that form the basic framework for learning mushroom identification.

The “species” accounts include a number of groups, such as morels, toxic boletes, and earthstars, in addition to descriptions of single species. The content of the entries varies. The headings are all common names, with the scientific names in a much smaller font beneath them. Information categories include Habitat, Description, Spore Print, Season, Other Names, Compare, and Notes although, for many species, not all are included. The page edges are color-coded to facilitate finding the edibles (green), toxics (red), and morphotype (ten different colors) sections. The pages also include several icons for those same groupings, plus habitat and fruiting season. I didn’t find the icons useful as they merely repeat information in the descriptions and also include adjacent tiny-font text explaining their meanings. The more important features of each fungus are highlighted in the text through use of a colored boldface font.

The photographs vary in size from a whole page down to roughly one-eighth of a page, and having a mix of sizes on one page sometimes makes it difficult to judge the relative sizes of the different mushrooms shown. The images are of uneven quality, although most are good and, at least the larger ones, show the key features well. Some are excellent, but others are underexposed, lack sharp focus, have inaccurate color cast, or fail to show necessary identification features.

As was the case with the first two books, the authors emphasize the value of scientific names and the limitations of common names, but then use common names, rather than scientific ones, in the main headings, photo captions, and text.

The information presented generally is accurate. However, there are a few glitches. Using the scientific names to refer to mushrooms is not “taxonomy.” A rather high percentage of the glossary definitions are either incorrect (e.g., “mycology” [it is the study of fungi, not the study of mushrooms], “volva,” and “white rot”), not helpful (we’re told that a “fungus” is a member of Kingdom Fungi, but nothing about what actually makes a fungus a fungus), or not very clear (e.g., those for “genus” and “kingdom”). Including “inky caps” as a group in the Top Edibles section is misleading. Although probably all of them could be eaten by most people with no ill effects, the overwhelming majority are too small to be of any culinary interest. Only *Coprinus comatus* (shaggy mane), *Coprin(ell)us micaceus* (mica cap), and perhaps *Coprinus/Coprinopsis atramentarius/-a* (alcohol inky, which is toxic when interacting with alcohol in one’s system) can be considered common edibles in the group. Morels are considered a top edible and verpas are categorized as inedible, despite the two groups being very similar edibility-wise. For nearly everyone, both need to be cooked well and, even then, some people cannot tolerate them.

Nevertheless, like its predecessors, this is not a bad little book. It isn’t very expensive and using it might help a beginner decide whether mushrooms are something worth learning more about. However, I remain skeptical about how well it will help people start learning to identify mushrooms. I fear that not grouping the species by the traditional Friesian genera will prevent newcomers from beginning to develop a feel for what, for example, an amanita, russula, or cortinarius is, and that is an essential first step in becoming skilled at mushroom identification. As for mushroomers with some experience (remembering that this is not the book’s target audience), nearly all the species can be found in many other field guides, so adding this to an existing library would probably not increase one’s ability to identify many things. However, if your library is still small, this could be a handy addition.

Steve Trudell

Obituaries

Patricia Ann Lewis. November 2, 1942–February 13, 2020. Patricia Ann Lewis, 77, of Newton, passed away on Thursday, February 13, 2020 in Beaumont. Patricia was born on November 2, 1942 in Galveston, Texas to the late Ervin and Annie Muller. Patricia is survived by her loving husband David Lewis; sister, Ervina McCarvell; children, Rhea Scadden and husband Bill, Darryl Barnhill and wife Linda, Ronnie Hebert, Sr., Patsy Hohensee and husband David, Raymond Hebert, daughter-in-law Terri Barnhill, wife of Jay who preceded her in death; grandchildren, Eric Barnhill and wife Christy, and Austin Barnhill, Joshua Shenkir and wife Lauren, and Matthew Scadden and wife Cortney, Jessica Barnhill, Alexis Moon, and husband Blue, Ronnie Hebert, Jr. and wife Alyssa, Kourtney and Chelsey Hohensee, Wendi Browning and husband Jerry; great grandchildren, Trey, Nicholas, Hunter, Alaina, Elise, Claire, McKenna, Colbie, Hayden, and Dalton; nephew, Christopher McCarvell and wife Melania; great nephews, Michael and Nathan, great niece Marissa. Patricia was a long time member of NAMA.

In lieu of flowers the family request donations to: North American Mycological Association, mail to Melodie Gates - North American Mycological Association Treasurer, 1631 Lana Lane SW, Tumwater, WA 98512.

Chris Wright. NAMA has lost an outstanding MMHC member, Dr. Chris Wright who passed away peacefully Wednesday, January 29, 2020 at age 58. He had been a NAMA club member since the 1970's or 80's and a Michigan Mushroom Hunters Club member almost since it formed in 1981. I recall him doing mushroom kit making way back at Michigan's Waterloo State Recreation Area for our MMHC annual "Fungus Fest" in the early 1980s and still continuing this, and teaching how, for us through last year, 2019, at Michigan's Proud Lake Recreation Area. I worked with him many years on spreading the word about growing mushrooms at home. Chris was always available to assist us and was named an honorary life member of our club.

After years of involvement in mycology, specializing in growing mushrooms, he received a Ph.D. in Plant, Soil and Microbial Sciences from Michigan State University, and a B.S. in Psychology from Northern Michigan University. Thus he had many friends and associates at these Universities. He built and served as President of Easygrow Mushrooms and Composting LLC which produced mushroom grow

kits and mushroom spawn for a wide clientele. He also frequented farmers markets. We all well knew his sense of humor and adventure.

It was Chris' vision to introduce mushrooms to people, and to ensure the safe availability of wild foraged mushrooms in the marketplace that spawned the founding of MAMI, Midwest American Mycological Information program in 2014 (<https://midwestmycology.org/>). When Chris heard about the dilemma posed by the U.S.A. Department of Agriculture beginning to insist that any mushroom found "in the wild" needed to be inspected by a licensed mycologist before it could be sold anywhere in our nation, he started to act. The Federal Department of Agriculture had contacted the Michigan Department of Agriculture who then called the MI Club. Of course, we realized the liability as we could not just name a person as being qualified. When Chris heard about this, he got busy and got a grant to train and test individuals for licensing by the Michigan Department of Agriculture. He thus initiated MAMI, Midwest Association Mycology Information project, formed a board, and we got busy writing a web site of 20 fairly easy to identify edible Michigan Mushrooms and 6 toxic ones, plus writing up 20 test questions for each species. Classes were set up, along with materials for study and interested parties then went to an all-day class, ending with testing. Results were sent to the MI Department of Agriculture which made decisions about giving out 5 year licenses. In conclusion, his many workshops and contacts in the Michigan Club and tireless efforts to promote mushroom growing and harvesting, his expansive knowledge about Michigan mushrooms, and his leadership at NAMA as Committee Chair of the Cultivation Committee will be sorely missed.

A "Celebration of Life" service will be held at a future date and it will be announced later. He and his fiancée Jacque were engaged not long ago. Go to the funeral home website if you wish to leave a message of condolence or comments:

<https://www.legacy.com/obituaries/detroitnews/obituary.aspx?n=christopher-a-wright&pid=195245783&fbclid=IwAR0r6WtRJB8uNsjJRMGb1ej7y2IDSL6Q-89rPHdnyqlAwCKeGJOZsTPD6lc>

By Sister Marie Kopin C.P.P.S. (Life member of NAMA, Board member of MAMI and NAMA, past Secretary of MMHC, and NAMA Ed Committee Chair). *See photo on back page.*

North American Mycological Association

Bruch Reed, Executive Secretary

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Chris Wright teaching a workshop at the Chippewa Nation Tribal Center, Isabella County, Michigan