

THE MYCOPHILE

Newsletter of the North American Mycological Association



Diversification of Mushroom Club Membership

Pg. 3

The Mushroom Hunter's Kitchen

Pg. 8

Introducing Fungal Diversity Survey

Pg. 10

Fungipedia: A Brief Compendium of Mushroom Lore

Pg. 13

PRESIDENT'S MESSAGE

Barbara Ching, NAMA President

Hello NAMA members,

I am so happy to share some good news amidst the difficult events of 2020. At the same time, I am in Iowa, which was devastated by a derecho last week; that's why this letter is short—but sweet, I hope. House and tree damage along with electrical and internet outages have put many of us behind in our obligations. Half of Iowa's corn crop was destroyed, and 89-90% of the residential buildings in Cedar Rapids, Iowa's second-largest city, were damaged or destroyed.

Looking forward, we have a date and location for the 2021 foray: Snow Mountain Ranch near Estes Park, Colorado. I hope to see many of you there, August 8-11, 2021. The Colorado Mycological Society and the Pikes Peak Mycological Society will be co-hosting with NAMA. (NAMA has a good history with this location: the 2010 annual foray was held here.) The Telluride Mushroom Festival takes place the following week so you could plan quite a mushroom trip to take away the sting of this year's social distancing. You can find more information about Snow Mountain here: https://snowmountainranch.org/?trace_from=epc.

– Barbara Ching
President

A PLEA TO NAMA MEMBERS

My name is Aaron Haase and I am reaching out to your organization in the hopes that you, or a member of your organization, can help me with something near and dear to my heart. My father, Larry Haase, was once a proud member of your organization many years ago (I believe sometime around the 1970s) and would always tell me tales of his time mushroom hunting and the fascinating wonders that fungi hold! All through my youth my father would show off his NAMA patch and once I was old enough he passed on his NAMA patch to me.

As you can see in the photos I have attached, I had sewn the NAMA patch and others he had given me, as well as quite a few that I had collected myself onto a backpack! See I took these pictures when I was finished sewing the patches that I had acquired onto a pack to show off how well I had done. That was a few years ago and I am sullen to say that earlier this year someone has stolen my backpack and I have yet to see it again.

I know that this might be a shot in the dark but I am reaching out to see if your organization still offers this patch for sale, or if one of your members still has an old patch lying around that I would of course also be willing to purchase! This is my only hope for remembering my father's enthusiasm about fungi and hope that his legacy continues with me.

Thank you so much for the time and consideration,
Aaron Haase



**COVER PHOTO: *Boletus sensibilis* and *Cyanoboletus pulverulentus*
by Robert Gergulics**

A DISCUSSION: DIVERSIFICATION OF MUSHROOM CLUB MEMBERSHIP

In our last *Mycophile* issue, Editor Karen Monger's roundup of how clubs are handling the COVID crisis was so well received that we decided to follow it up in this issue with a feature on how our community is responding to another major topic of national discussion right now: the widespread protests led by activists supporting Black Lives Matter. By acknowledging this major social movement, we enter consciously into the larger discussion that is vital to advancing justice for all – as well as expanding and diversifying our organization's membership.

My home club, the Illinois Mycological Association (IMA), has a dynamic and committed member (she prefers not to be named) who was contacted by an urban youth farm group to lead a series of educational mushroom forays for underserved youth. She feels so strongly about the positive impact such a program could make, both on the youth and hopefully on the recruitment of people from diverse backgrounds into our local mycological scene, that she had overcome her reticence about public speaking to pursue the initiative – which was, tragically, postponed due to the pandemic. She writes, “Like so many, I am unsure how to move our club toward more closely reflecting the diverse makeup of our community, to make everyone feel welcome.” Here's hoping that next summer we can get more of our underserved youth out into the forest preserves that are such a beautiful part of their birthright as Chicagoans.

– Bruch Reed

Joe Brandt, NAMA's Northeast Regional Trustee, shared the following frank observations of his venerable club:

“The Connecticut-Westchester Mycological Association (COMA) is so white it could get lost in a snowstorm; that's just how it is. We exclude nobody, although I'm pretty sure that someone showing up for one of our walks in a car plastered with [regalia supporting a controversial Presidential candidate] would get a somewhat chilly reception. Our “advertising” (for a long time now) has been very limited to nonexistent, but (with the exception of this season) our walks and most activities have been posted on our website as being free, and open to the general public, so we always somehow manage to attract new members. Next year (if all goes well with this damn virus) we will be making a concerted effort to attract new members through various media advertising and

publicity. I would love to see more diversity, but how exactly this could be accomplished is an interesting question.

“As far as social justice issues go, I think that perhaps one of the factors that makes our little group so appealing is that this is an area that we tend to avoid like the plague, no (COVID) pun intended. We are rather staunchly apolitical, at least on the surface; people want to get away from all the BS, and our activities give them a much-needed respite, especially with everything that's been going on this year.”

Regards,
Joe Brandt

Spirited, heartfelt discussion on Pikes Peak Mycological Society's Facebook page was significantly responsible for inspiring this roundup and the club's newsletter's co-editors, Mercedes Whitman and Jessica Langley, sent the following response:

“Pikes Peak Mycological Society (PPMS) is an all-volunteer run club whose membership spans Colorado Springs and Southern Colorado, with some members coming from the Denver area. With roughly 60 members (depending on the rain in any given year), we host free lectures monthly during our season that are open to the public, and we try to lead as many forays as possible. As co-editors of the newsletter, we have tried to use this platform to speak about current issues in mycology as well as amplify under-represented voices. Ben Kinsley, who took over as President this year, has made it his mission to bring in more female and BIPOC voices as speakers. The club is committed to scientific achievement and principles, but we also understand that the scientific field is quite limited in its representation of BIPOC. We are hopeful that through outreach and increased representation we might encourage young scientists of color to enter the field of mycology.

“It is important to expand the scope of mycology to be more accessible and applicable to all people. Science itself is rooted in western thought and practice that is systemically reductionist and exclusive. Mycology, therefore, must be re-evaluated and decolonized on an epistemological level. It must extend beyond academia and scientism, the system that defines science and places it at the top of a hierarchy of knowledge and values. There *are* mycologists who have been supported by mycological organizations and events that neither

have formal training nor operate within the rigid sphere of western science – but they are uncommon. The more recent emphasis on citizen science in mycology, and how anyone can contribute important scientific observations through the use of an app – such as with the Fungal Diversity Survey (FunDiS) and data collection using iNaturalist – is an exciting direction.

“Within our club, we have made some small, but hopefully meaningful changes in language we use. As a means of increasing gender inclusivity, we have begun asking speakers for their preferred pronouns. We’ve also used the opportunity of Zoom meetings in COVID times to host BIPOC and womxn speakers from the International mycological community – and to compensate them appropriately. To increase accessibility to the more costly aspect of inoculation and at-home cultivation experiments, we’ve also just built a laminar flow hood that our members can rent out in order to cultivate in a sterile environment. In the future, we’ll have gatherings where people can experiment using the hood, with guided tutelage. One PPMS member will also be making a video for our YouTube page demonstrating cultivation uses. We do know that we have so far to go, however. Some challenges we face are in outreach, and how to increase our visibility among underrepresented communities.

“Only by addressing mycology systemically and making needed changes can the discipline become more inclusive and diverse. We must also be cautious of tokenizing BIPOC in our efforts; this act may come from a place of good intentions but actually be detrimental to those one wishes to include. It’s crucial that this predominantly white and cisgender field acknowledge its positionality and evaluate its biases, and that we commit to being actively anti-racist and willing to learn from those who don’t fit the historically



William Padilla-Brown

typical mold of mycologist. We give thanks to and are learning from BIPOC individuals and organizations in mycology who are doing amazing things, such as William Padilla-Brown, POC Fungi Community and The Mycelium Underground.”

– Mercedes Whitman and Jessica Langley

Renowned mushroom-book author Arleen Bessette offered the following musings on the topic of how to increase diversity in membership; she is not speaking from a club viewpoint per se, but she and co-author/husband Alan Bessette are heavily in demand by many clubs as speakers and foray leaders.

“I had to laugh about your question about POC possibly being uncomfortable or feeling unsafe collecting in the forests/woods. Heck, being a female, I feel uncomfortable and unsafe collecting in some spots! Gender and skin color aside, due to the existence of portable meth labs in the Ocala National Forest and other places, both of us are uncomfortable collecting in certain areas. We have interrupted a drug deal on at least one occasion. Carrying some form of protection (not just for wild beasties) is a wise choice in remote areas in the Southeast. (Finding used needles at trailheads is never a comfortable experience.)

“Your specific question, “what initiatives are clubs/members taking to welcome, involve and cultivate nonwhite members,” has me flummoxed. Just a few days ago, a similar question was posed in a psychology group I am involved in, pertaining to trainers/instructors. Alan had similar questions posed to him when he was still teaching, decades ago. I think I have a bit of a negative response to there being special efforts/energies put forth to “cultivate” the participation of any specific group, including middle aged white males! I have to ask, why? If people are interested, they will come. I have never experienced any discriminatory behaviors in groups, in person or online, to POC or other minorities. I have witnessed more hostility directed at people who differ in opinions/beliefs, but that is another story/topic....”

Much love,
Arleen

In 2018, Pat Mitchell helped found the Blue Ridge Mycological Society (BRMS), centered around Lynchburg, Virginia, a diverse area with a complicated history in terms of social justice, with recent protests centering around a monument to a confederate general. I spoke with him and BRMS member David McRae.

“I have some Black club members and they are some of the most committed, excited and engaged people in my club,” says Mitchell. He set up a conversation with BRMS member David McRae, who became interested in mushrooms while scouting for deer trails (Mitchell and McRae are part of an urban archery hunting initiative and, as expert marksmen, are in high demand by urban and suburban property owners desperate to reduce an exploding deer population). “I noticed that, through his efforts to see mushrooms, Pat was able to see patterns in the woods, patterns that boosted his ability to find deer trails. That inspired me to want to learn mushrooms, too,” says McRae. As he became more interested and involved in mycology, he has come to see how important it is for people of different backgrounds to be part of “the story of mushrooms. Because a lot of that story, as well so many stories in our American culture, have been told exclusively by white male voices. I’d like to learn what people of color and specifically women of color can contribute to the mycological conversation across multiple fronts, especially the medicinal realm.”

McRae acknowledges that there is a long-held, fearful bias that is widespread among his family and community: “There are cultural handcuffs on the Black community when it comes to spending time in nature. When the National Park Service was founded, Black Americans were not welcome or safe to visit wild lands; there’s this urban-legend-y undercurrent notion that bad guys who don’t like us are waiting in the woods.” These insidious “cultural handcuffs” also function to deny Black people information and access to medicinal mushrooms now being widely investigated and used to treat mental health issues. “Black culture has an instinctive prejudice against therapists and any medical approach to mental health,” relates McRae, who would like to be involved in changing that perception.

Both McRae and Mitchell believe that making their club events safe and welcoming for children of all backgrounds is essential to the future, both of their club and mycology as a whole. They are working on a homeschool unit curriculum that will cover basic mycology; with the pandemic appearing unlikely to relent any time soon, homeschooling is becoming a necessity for many more parents than had heretofore considered the option. “I wish there were already accessible options out there to involve kids in mycology but I haven’t found many, so I guess I’ll just have to create them,” declares Mitchell, father of two preteens. “I’d definitely be interested in that,” adds McRae, who has three children under the age of 6.

In BRMS’ second year, Mitchell created a tradition to honor Black History Month by celebrating a Black



Kemper McRae, Levi Mitchell protesting Confederate statue

mycological personage of history (this year, it was George Washington Carver) as well as a current contributor to the field (William Padilla-Brown, a *Cordyceps* specialist who, coincidentally, was booked to give a mushroom cultivation workshop at NAMA’s COVID-canceled 2020 foray in Missouri).

Jon Colon, a longtime friend of Mitchell’s who is multiracial, recently visited from Chicago to attend a BRMS meeting and observed that he felt very welcome in the group because he had been invited by a close friend; whereas, he might have felt intimidated had he simply popped by the meeting on his own. Looking at the distance members often have to drive to attend events, Colon observed that such distance could be a critical factor in attracting and cultivating diverse members.

Both Colon and McRae brought up the idea of specific-community outreach: “bring the mushrooms to the people,” offered McRae, “and the people who are interested will follow the mushrooms back to the club.”

– Pat Mitchell, David McRae and Jon Colon
with Bruch Reed

2020 KNIGHTON AWARD RECIPIENT Sam Landes



Sam Landes, nominated by the Georgia Mushroom Club

The Award consists of an individual plaque; publicity for the recipient and his or her local organization in NAMA's newsletter; a one-year NAMA membership; and registration, housing and foray fees for one annual foray within the next three following years. When present to do so, the recipient of the award shall present the award to the next year's recipient.

Through his warmth, caring, friendliness, diligence, welcoming inclusive nature and genuine interest in others, Sam has helped create an atmosphere that welcomes new members and encourages existing members to participate actively and share their interests across the mushroom hobby spectrum. As a result, we have greater diversity of all kinds in our membership. Membership and meeting attendance have both more than tripled in size from 2010 to the present, with new members as far away as California and as young as eight years old. The Georgia Mushroom Club expanded with a growing satellite chapter in Athens, GA, as well

as supporting events with our members who live in Auburn, Alabama. MCG also started leading day trips to and promoting activities of sister clubs.

Because he welcomes members personally, remembers names and faces, introduces members to one another if they have any commonalities, members feel appreciated and included and step up in many ways. A number of well-seasoned veteran mushroom club speakers have remarked on how seamlessly our club pulls together to get things done. And also how genuinely nice, interested and curious our members are.

Club Logistics:

Several times a year, Sam organizes and coordinates our Club Board meetings. They have been efficient, fun, productive and camaraderie-filled.

Each month for our club meetings, Sam coordinates and organizes the 'nuts and bolts' and physical logistics of our club meetings. Packing and then hauling AV equipment, books & magazines, display posters, snack equipment, water pitchers, fiber samples, and more from home to the meeting site. After arriving early to unpack, rearrange the room, set up the giant screen, projector and public address system, he starts greeting early arrivals. He also coordinates picking up and transporting speakers from city to city, facilitating our sharing of speakers with our sister clubs. This arrangement makes it much more affordable to invite speakers from far- flung parts of the country.

Education:

Through the years, Sam has helped increase the profile of our club and spread the knowledge of fungi throughout the greater Atlanta Metro area by presenting, often multiple times in a month, to garden clubs, master naturalists classes, nature preserves, libraries, homeschooling groups and more. Also through organizing and leading workshops in oyster bag and shiitake log cultivation. He has become well known for his entertaining, fun, informative presentation style.

Our club would not be where it is without his efforts, heart, organizational skills, logistical planning and diligence. The pleasure he's had with our local efforts has informed the work he's done on a national scale. A number of you may already know Sam because in addition to all his contributions to our local club, he has been serving as the NAMA Foray Committee Chair providing both for regional and national foray locations, connecting, organizing, handling logistics, planning, registration, etc.

GARY LINCOFF AWARD WINNER Michael Kuo

Michael Kuo is well deserving of this award. His popular website mushroomexpert.com is a resource used by many amateur and professional mycologists. That alone is a significant contribution to amateur mycology. He has authored several mushroom books. Michael has presented many mushroom programs across the country in addition to serving as primary identifier at forays.

From the nomination letter: "The site is, quite simply, amazing. The website features a wealth of information for amateurs as well as professional mycologists including: *Collecting for Study, Making Spore Prints, Descriptions & Journals, Identifying Odor and Taste, Pronouncing Latin Names, Testing Chemical Reactions, Preserving Specimens* (Including a link to Michael's personal herbarium), *Using a Microscope*, and *Mushroom Taxonomy*. There are also links to *What's New* (which catalogs continuous updates to the website) as well as *What's This Thing in My Yard?* and links to Michael's current scientific projects which include *The Stinkhorn Project* and *Studies in Leccinoid Fungi*. Finally, there are links to *Identifying Trees* as well as the *Identification Keys* which lead the user to descriptions and illustrations of more than 1000 species of fungi, all of which are supported by scientific research and complete literature citations. It is no surprise to me that more than 5000 unique visits are made to the website every day. Clearly, Michael's website has not only made outstanding contributions to the field of mycology but transmitted significant scientific and aesthetic knowledge about fungi to a diverse public audience."



Michael Kuo at the 2015 Gary Lincoff Foray, run by the Western Pennsylvania Mushroom Club, photo by Robert Gergulics

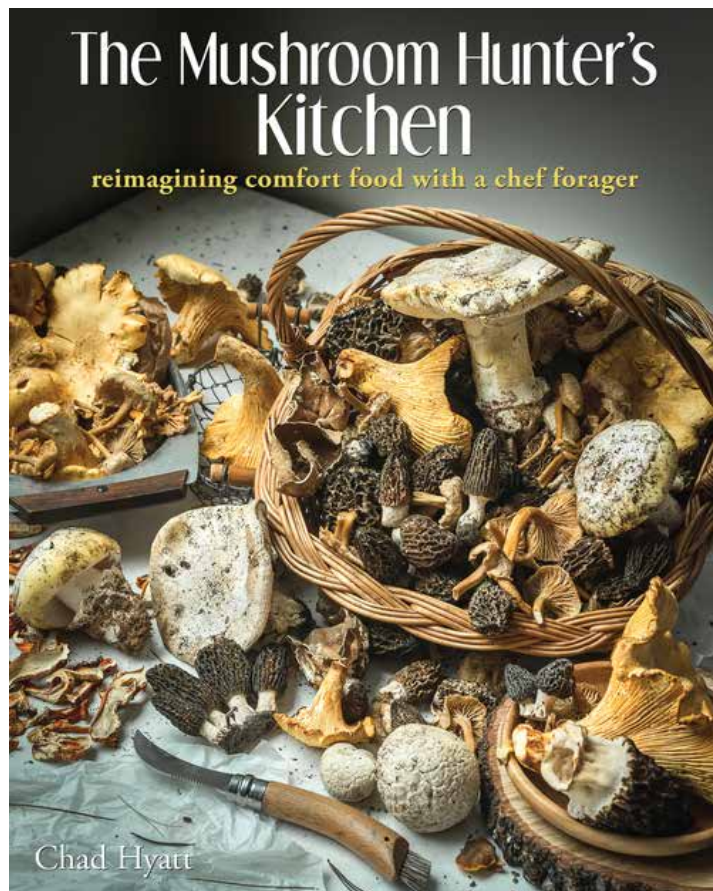
BOOK REVIEWS FOR THE MYCOPHILE

One of NAMA's committees that remains little known to probably the bulk of the membership is the Editorial and Literature Committee, the literature function of which is coordinated by Steve Trudell. The committee has several charges in the NAMA Policy Manual but an important one is to provide reviews of books, DVD's, apps, software programs, and the like for publication in *The Mycophile*. If you learn of a new book (or DVD or whatever) that you feel would be of interest to other NAMA members, or if you would like to write a review, please contact Steve (mycecol@uw.edu) so that he can coordinate acquisition of the items and submission of reviews to the newsletter.

BOOK REVIEW

The Mushroom Hunter's Kitchen: Reimagining Comfort Food with a Chef Forager

By Barbara Ching



Hygrophorus: “Not only will learning to enjoy these lesser appreciated edibles help you vastly improve your odds of a successful hunt, but some of them work better for certain types of cooking than the standard prime edibles” (25). This approach should have been part of the book’s title because it distinguishes *The Mushroom Hunter’s Kitchen* from other mushroom-focused cookbooks.

Hyatt clearly describes how to clean, preserve, taste, and prepare a wide variety of mushrooms. Thanks to his pages on salted mushrooms, and his brilliant ideas about using them much as you use salt cod, I will be salting mushrooms from my fall hauls. Likewise, Hyatt’s mushroom sausage ideas work with what you find, and the book is sprinkled with broth making tips for the less than perfect fungi that sink to the bottom of your basket.

While the content is surprising, the book’s organization is standard cookbook: twelve chapters ranging from breakfast to dessert. Using mushrooms, Hyatt reimagines biscuits and gravy by replacing the sausage in the southern diner version with “mixed mushrooms.” And then there’s the pasta! “*Suillus* Agnolotti with Fennel Shallot Broth and Hideous *Gomphidus* Garnish” anyone? Hyatt adds elite cred to this recipe by crediting Thomas Keller’s *French Laundry Cookbook* for the easy technique. The recipe, he claims, “is an extremely elegant way to serve some of the least appreciated mushrooms you will come across” (162). Maybe so, but come fall, I’ll be making Hyatt’s “Tagliatelle with Bellybutton Hedgehogs and Pine Nuts.” The desserts go way beyond candy caps, including a cauliflower mushroom and kugel! There’s a helpful index and appendices. Elena Feldbaum’s photography, while not stunning, reinforces the excellent information and inspiration that Hyatt’s exposition and recipes provide.

The first recipe I made from this book was “No-Cook Mushroom Syrup.” Hyatt credits Ken Litchfield, of the Mycological Society of San Francisco for the technique. Hyatt gave permission to reprint this lovely recipe here:

No-Cook Mushroom Syrup (1 lb mushrooms yields about 1 cup syrup)

Chanterelles, matsutake, and almondy Agaricus are my favorite mushrooms for this application, but experiment with whatever you have on hand. Do not use this technique for any mushrooms that require thorough cooking to be rendered safe (e.g. morels or honey mushrooms).

1. Chop cleaned fresh (not dried) mushrooms and toss with sugar in a bowl or jar. For every 100 g of fresh mushrooms you want between 10g and 25 g of sugar.

Note: 10 g will give a mildly sweet syrup while 25 g will be rather sweet, so let your end application decide.

2. Cover and leave for a couple hours at room temperature. At this point, give the ingredients a shake or stir; then refrigerate covered, overnight. I like to give it an extra day in the fridge to make sure the flavor really gets into the syrup. Simply squeeze out and discard the mushrooms, and then strain the liquid for use in desired application. Store extra syrup in the fridge for up to a week.

I used Iowa-foraged chanterelles, and rather than use the gloriously tinted syrup in the gin martini Hyatt describes, I make cocktails from my constantly replenished chanterelle-trimming vodka and Rothman & Winter Orchard Apricot Liqueur.

Inevitably Hyatt highlights mushrooms he finds in California even as he makes his book accessible to all foragers, encouraging the use of the mushrooms you can find in abundance. But as always, I find the formulaic stories about expectation-exceeding forays and displays of abundance both envy and anxiety-provoking. There’s a sort of chest-thumping excess in the photographs of overflowing baskets, the californiacopia of candy caps and boletes that I wish I could find. But I also wish I didn’t have visions of trampled habitats and diminishing harvests, of profit diminishing pleasure. Still, there’s an undeniable generosity of vision and expertise in this book. It is worth the time and shelf space of NAMA members everywhere.

NAMA MEMORIAL FELLOWSHIP

Carolina Piña Páez, Oregon State University

pinapaec@oregonstate.edu



“Carolina Piña Páez is a PhD candidate in the department of Botany and Plant Pathology at Oregon State University in Dr. Joey Spatafora’s lab. She received her BS in Biology from the University of Sonora where she worked with gasteroid fungi in the Sonoran Desert. In summer 2009 she was first introduced to truffles, and fell in love with their fascinating ecology and convergent evolution. In 2014 she received her MS in Systematics from the National Autonomous University of Mexico (UNAM), working on the systematics of truffles in the Transmexican Volcanic Belt with Dr. Roberto Garibay-Orijel. Her current research focuses on the diversity and population genetics of *Rhizopogon* in the Madrean Sky Islands of the Southwestern US and Northwestern Mexico. Specifically, Carolina is studying how *Rhizopogon* has migrated with

its hosts and how isolation and environment is shaping its evolutionary trajectory. Her research interests include fungal taxonomy, host shifts in ectomycorrhizal fungi and sexual reproduction, and in particular how recombination impacts genetic diversity.”

Love the Ones You’re With: Chad Hyatt’s *The Mushroom Hunter’s Kitchen: Reimagining Comfort Food with a Chef Forager*.

Chestnut Fed Books

ISBN-10: 1732757100

ISBN-13: 978-1732757103

<https://www.themushroomhunterskitchen.com> \$28.00

I’ll start with the meat of the matter: Chad Hyatt is a California-based chef and mushroom forager; these two facts explain the things I love about his book as well as my reservations about it.

If you like to read cookbooks, you already know what to expect from chef-authors. Hyatt, though, balances chefly refinements and ambition with an adventurous and practical insistence on expanding the range of mushrooms we collect and cook. His encouraging words about *Lactarius*, *Russula*, and

INTRODUCING FUNGAL DIVERSITY SURVEY

Saving the world, one mushroom at a time

Bill Sheehan, Joanne Schwartz and Sigrid Jakob

In the July/August issue of *The Mycophile*, we described how the North American Mycoflora Project was about to rebrand and expand our mission. We described the origin of the Mycoflora Project in 2012 and how it morphed in 2017 into a citizen science project focused on sequencing and vouchering fungal specimens, and NAMA's role in it.

On August 8, 2020, we unveiled our new incarnation, Fungal Diversity Survey, or FunDiS for short (fundis.org). Here, we'll explain why we chose a new name and how all levels of mushroom enthusiasts can participate and contribute to scientifically documenting this amazing – and understudied – kingdom.



A name that celebrates what we do

Let us assure you, this is not merely change for change's sake. Much thought has gone into this renaming. We hope you'll agree with us that our new name better reflects who we are and what we do. Hear us out:

Having the word Mycoflora in our name had become a challenge. "Flora" is a term from botany – the study of plants. Fungi, as Professor Don Pfister so eloquently explained [in a recent blog post](#), are anything but plants. Fungi are their own kingdom – but as long as they get lumped in with plants they will not get the recognition, attention and protection they deserve. As an organization championing the special place of fungi in the world we needed to stand up for them – starting with our name.

When we embarked on a search for a new name, we enlisted the collective creativity of more than 30 stakeholders who brainstormed names with us and helped us narrow down the resulting list. Thank you all – you know who you are!

We chose Fungal Diversity Survey (FunDiS) for a number of reasons:

Unlike Mycoflora Project, it's a name anyone can understand.

- It celebrates our own kingdom, fungi.
- It actually explains what we do, and why we do it: our participants spend countless hours out in the forest and fields to survey and map the wonderful, endlessly fascinating and critically important diversity of fungi.
- Fungal diversity is ecosystem diversity; we're celebrating the importance of biodiversity.
- And it has a cool abbreviation: FunDiS. What's not to love?!

Expand your fungal horizons

Now there's more ways than ever to make your mushroom hunts and photographs make a difference for science, for conservation, and for YOU! Our rebranding marks a significant evolution of our mission, an evolution we're already hinted at in a blog post: [A four-tiered model for crowdsourcing fungal biodiversity citizen science](#).

There are now four ways of participating in FunDiS:

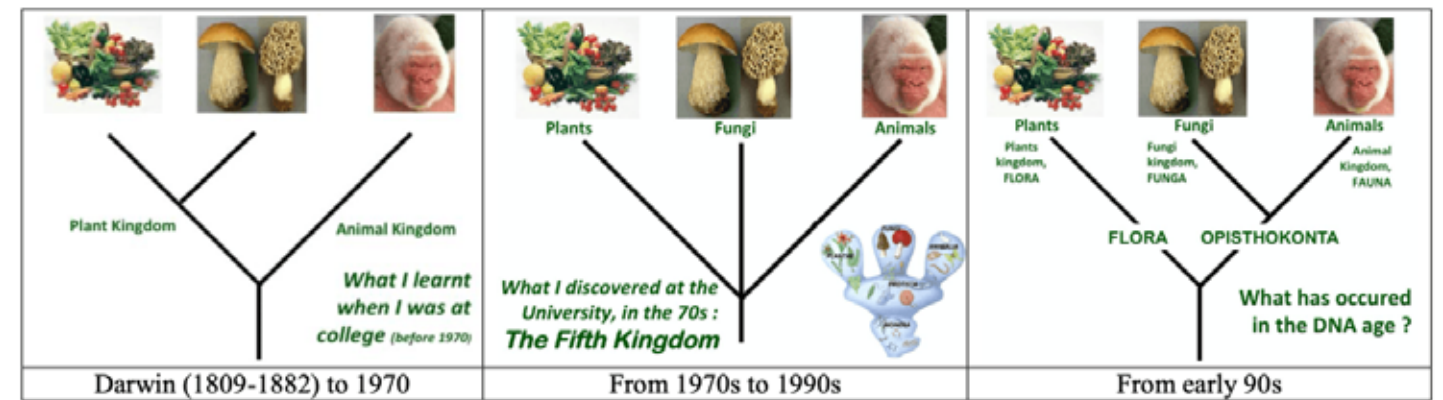
Level 1. Document: Join our iNaturalist or Mushroom Observer projects and contribute your observations. We'll look at them, help with ID's and offer helpful comments, if needed, about creating observations that are more valuable for science.

Level 2. Sequence: In addition, submit tissue for DNA sequencing and interpret results.

Level 3. Voucher: In addition, preserve well-documented, dried specimens in curated fungaria. Join an existing FunDiS project through a club or with local mycophiles, or start your own FunDiS Project, near your home or some wild, conserved or park lands. You'll learn much more and find several rich ways to contribute to conservation and fungal biodiversity science. You might also apply for a sequencing grant to help know with much greater certainty about your discoveries.

Level 4. Super-user: In addition, learn DNA technology, teach others how to analyze DNA results

Figure 1: Three major kingdoms in the tree of life (Simplified version)



From: "State of the Words of Fungi" by Raymond Archambault, *Mcllvainea* Vol. 27, 2018.

and create phylogenies; perhaps even describe new species.

The last decade has seen an explosion in citizen science and participatory crowdsourcing of the natural world. For example, a staggering 500 million bird observations have been logged on eBird globally. Almost 2 million observations of fungi by over 170,000 observers have been recorded for North America on iNaturalist. And over 385,000 observations of almost 12,000 fungal taxa, with over 1.1 million images, have been uploaded by about 7,000 mycophiles on Mushroom Observer. This surge in participatory, technology-enabled citizen science creates an unprecedented opportunity to engage mycophiles at every level to survey our continent's fungi.

Up until now we've focused on requiring participants to operate at the level of professional mycologists: extensive documentation; sequencing DNA, and preserving dried specimens for deposit in fungaria. While this is wonderful (and not something we would ever want to lose) we realized that it is overwhelming to the average mushroom lover and represents a somewhat limited view of what constitutes legitimate science in the era of crowdsourcing.

We asked ourselves – what could FunDiS meaningfully contribute? After all, iNat and Mushroom Observer seem to be doing fine without our help. When we asked mycologists interested in using citizen science data, the need was clear: better data! While there is no shortage of observations of fungi on internet platforms, many observations are not useful because pictures are poor or insufficient and many are wrongly identified.

We realized that there is an opportunity to broaden our current mission, by engaging the large universe of mycophiles posting observations online and (a) training them to provide higher-quality

documentation and (b) ensuring that observations get identified by experts.

ACTION: If you are a NAMA member and/or NAMA-affiliated club member who wants to identify your mushroom finds while contributing to science at the same time, consider joining and contributing your observations to our [FunDiS iNaturalist Project](#). We have minimum quality standards for observations and are recruiting "triggers" to give people feedback on how to improve observation quality, and expert identifiers to provide or confirm IDs and flag interesting specimens for specialists. We are developing a parallel program on Mushroom Observer, which you can learn about on the FunDiS site.. (If you'd like to help triage, email inat-admin@fundis.org or mo-admin@fundis.org).

Sequencing is back!

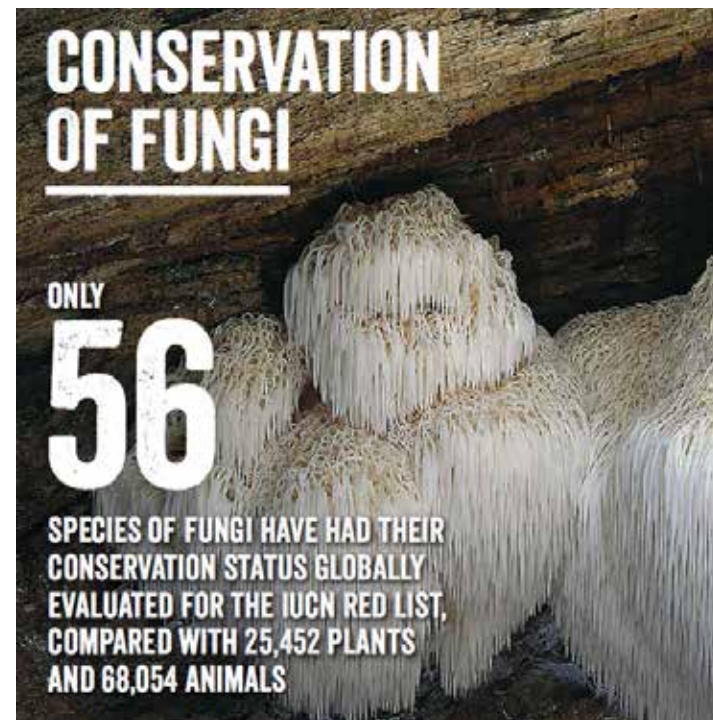
Making the molecular revolution accessible and affordable to individuals, clubs and organizations has been at the core of what we do. We're proud of what we achieved: to date, some 5,000 specimens have been sequenced from projects, forays and MycoBlitzes, with results posted on MycoMap, MyCoPortal, Genbank; and original iNat observations for MycoBlitzes. These include [rare and undescribed species](#), and clarification of recognized species.



Sequencing from existing projects has been on hiatus since the end of last year because we've been identifying and testing a new partner – [BOLD](#), the Barcode of Life Data System, based at the Center for Biodiversity Genomics at the University of Guelph, Ontario. They are able to analyze high volumes of samples at low cost, with a predictable turnaround time. This partnership will clear past bottlenecks and offer other advantages, such as easy GenBank submission.

If you're an individual or project leader who has been "tagging, bagging and holding" onto your specimens over the last nine months, we thank you for patience! As of today, we're accepting specimens for sequencing again and are making new grants available.

ACTION: Even more exciting, we are once again offering sequencing grants for registered FunDiS projects. Funding for grants came from NAMA and the Mycological Society of America two years ago. We're also planning several programs to assist mushroom clubs and independent projects in raising funds for sequencing. Information on getting new grants or purchasing new sequences can be found [here](#).



From Willis, K.J., 2018. State of the world's fungi

Fungi under attack: focus on conservation

The other question we asked ourselves as we were evolving our mission was about our impact in the world.

Today, fungi are under threat like never before. Habitat destruction, pollution and climate change mean that fungi are going extinct or changing distribution faster than we can catalog and map them.

This creates not only an opportunity but an urgent need to put FunDiS into the service of conservation, as a tool to help document and even protect rare and endangered species and habitats dependent on fungi, or a way of tracking species that are harbingers of climate change.

In the summer of 2020, we assembled a working group of mycologists and leaders in fungal conservation to develop a proposed course of action. This group has developed some exciting ideas that we'll share later in the year. Please stay tuned!

FunDiS's new mission

Our rebranding from NAMP to FunDiS has been a journey that involved a lot of soul searching, brainstorming, reflecting, revising, rewriting and debating. We could never have accomplished without the many volunteers who put in the time and shared their expertise. We could have also not done it without our participants who patiently waited for us while all this was happening.

In conclusion, we are proud to share our new mission, which that lays out the work ahead of us for many years to come:

Our Mission is to equip citizen and professional scientists with the tools to document the diversity and distribution of fungi across North America. These data will help increase awareness of the critical role of fungi in the health of our ecosystems and allow us to better protect them in a world of rapid climate change and habitat loss.

If you're curious and would like to find out more, sign up for the Funga Decoded [eNewsletter](#) and Deep Funga [Blog](#) and follow us on [Facebook](#).

ABOUT THE AUTHORS

Bill Sheehan is a recovering entomologist who especially likes crust fungi. He's leader of the Northeast Georgia Funga FunDiS project and is President of FunDiS.

Joanne Schwartz is a naturalist who has studied fungi for over 50 years. She leads the Macro Fungi of the Channel Islands (CA) FunDiS project and is Vice President of FunDiS.

Sigrid Jakob is an amateur mycologist with a particular interest in coprophilous fungi. She leads the Fungi of NYC FunDiS project and is a FunDiS board member.

BOOK REVIEW

Fungipedia: A Brief Compendium of Mushroom Lore

By Dianna Smith



Fungipedia: A Brief Compendium of Mushroom Lore

Lawrence Millman (Author)
and Amy Jean Porter (Illustrator)
Princeton University Press
Published 2019
ISBN: 9780691194721
Price: \$16.95 / £9.99

Fungipedia by mycologist Lawrence Millman is a diminutive 200-page hardcover book filled with an enormous treasure trove of fascinating facts and lore about the fungi kingdom and its impact on our planet and its inhabitants. While not exactly a mushroom identification field guide, at a mere 4.5 x 6.75 inches, it is the size of a book you wouldn't mind carrying into the woods with you. It should appeal to beginning mushroom enthusiasts

who may not be familiar or comfortable with scientific binomials, as well as more experienced folks interested in brushing up on essential mycological terms. The book is also entertaining and filled with amusing stories about mycologists, as well as some of humanity's more curious beliefs regarding mushrooms through time. What mushroom enthusiast wouldn't be drawn into learning more about mycology after reading beyond the humorous titles of entries like 'beech aphid poop fungus', 'berserker mushroom', 'bird droppings', 'hair ice', or 'zombie ants?' Organized alphabetically from A (Agarikon) to Z (Zygomycetes), Millman manages to cover 180 topics concisely with an admirable sprinkling of detail. Subjects of mycological interest to citizen scientists (a.k.a 'amateurs') include well-composed definitions of terms such as 'anamorph', ectomycorrhizal and endomycorrhizal fungi, endophytes, hyphae, and mycelium. Parts of fungi are described in clear but simple terms: gills, umbo, cystidia, latex, sclerotium, spores, stem, veil (annulus). All the basic concepts regarding nutritional and ecological functions of fungi such as parasitism, saprobic activities, mycorrhizal associations, brown, noble, soft and white rot are addressed. A few of the several fungi addressed in this compendium include bird's nest fungi, the caterpillar fungus (*Ophiocordyceps sinensis*), chaga (*Inonotus obliquus*), corals, earth tongues (*Geoglossum*, *Microglossum*, *Neolecta*, and *Trichoglossum* spp.), ergot (*Claviceps purpurea*), jelly fungi, inky caps (*Coprinus*, *Coprinellus*, *Coprinopsis* sp.), lobster mushroom (*Hypomyces lactifluorum*), maitake (*Grifola frondosa*), matsutake, morels, puffballs, oysters (*Pleurotus* sp.), polypores, and shitake (*Lentinula edodes*). Common names of particular fungi provide the ethnomycologist with an opportunity to expand on the meaning of and folk lore behind big laughing gym (*Gymnopilus junonius*), the nitrogen-feeding 'cemetery mushrooms' (*Hebeloma syrjense* and *Hebeloma vinsophyllum*), corn smut (*Ustilago maydis*), cramp balls (*Daldinia* spp.), dead man's fingers (*Xylaria* spp.), fairy rings, king Tut's curse, morel mushroom 'penises', magic mushrooms containing psilocybin, the stinkhorn (*Phallus impudicus*), the train wrecker (*Neolentinus lepideus*) and witches brooms. Among the twenty-four people honored by inclusion are musician-mycologist John Cage, African American mycologist George Washington Carver, mushroom

'Guru' Sam Ristich, the Mexican shamaness Maria Sabina, Otzi, the five-thousand-year mummified Tyrolean body discovered in the Alps, and Renaissance mycologist Paul Stamets. Characters from literature, legend and fantasy include the hookah-smoking caterpillar who sits on a mushroom in *Alice in Wonderland*, Puck, the sprite of Shakespeare's play *A Midsummer Night's Dream*, and, of course, Santa Claus. Diseases caused by fungi and or fungi-cultivating, eating or transmitting insects include white nose syndrome of bats infected by the ascomycete *Pseudogymnoascus destructans*, valley fever caused by *Coccidioides immitis*, the tree-girdling canker Chestnut 'Blight' caused by *Cryphonectria parasitica*, and Dutch Elm Disease caused by fungal spores carried by an Asian bark beetle.

The black and white illustrations by Amy Jean Porter are a perfect accompaniment to the informative and lively text. *Fungipedia* can be read in less than two hours and will prove useful to all. It would make a great stocking stuffer or gift for anyone with whom you may want to share your passion for fungi. Gary Lincoff's Audubon Guide to the Mushrooms of North America has frequently been referred to as the 'Mushroom Bible.' *Fungipedia* in my view qualifies as a succinct companion to any good modern field guide. I highly recommend you get a copy to inspire you and lift your spirits during this crazy time of COVID-19 quarantining. It can be purchased on Amazon for just \$12.89 or for \$10.99 for Kindle readers.

2020 NAMA SURVEY OF AFFILIATED CLUBS

By Howard Goltz, NAMA Secretary

On 14 June 2020, per the NAMA Board of Directors, I emailed each of our affiliated club's representatives a questionnaire regarding their club's activities and how our clubs and NAMA can better support and learn from each other. In addition to NAMA's 1275 individual, family, student, sustaining and life memberships, we have:

- 82 Clubs in 39 states and WDC
- 6 Regional groups covering multiple states
- 6 Canadian clubs representing 5 of the 10 Provinces

Of the 94 questionnaires sent out, we received 24 responses. Not surprisingly, the responses showed that our clubs are diverse in organization, size, activities and costs, etc., with the *Mycophile* and NAMA's Annual National Foray appearing to be major incentives for membership.

All respondents' clubs have been remaining active in spite of COVID restrictions. Our clubs' on-line meetings and presentations are well attended, often with more participants than pre-COVID, in-person meetings. Virtual participation (36 attendees) in NAMA's August Zoom Board Meeting was double our typical face-to-face annual meetings, including 19 club representatives from across the US and Canada, who might have otherwise not been able to attend. NAMA is entering this virtual trend by offering on-line "educational" programs to all of our members.

While following up on responses, I visited many of our clubs' websites, finding an additional wealth of detailed information on what they are doing. I "HIGHLY RECOMMEND" you visit other NAMA club's websites to learn from others, develop new programs, and increase participation in your club. Just go to the NAMYCO.COM website and click on "Clubs" for links to their websites and links to directly contact other club representatives – who are willing to share details of their programs, organizations and offer suggestions – we are a mushroom information sharing group!

Here's the summary of survey responses and ideas – look for NAMA to follow-up.

2020 Survey of NAMA Affiliated Clubs	RANGE	AVE	YES	NO
Your club's average number of members the last few years:	40 to 500	165.29		
Student club membership annual dues:	\$0 - \$25	\$8.63		
Single club membership annual dues:	\$10 - \$30	\$15.42		
Family club membership annual dues:	\$12 - \$40	\$20.04		
Is your club incorporated?			11	13
Is your club insured?			10	14
Do you have a board of directors?			20	4
Your club's committee or position names:				
	Typical Officers, Foray, Program, Newsletter, Refreshments, Mycoflora, Outreach,			
	Education, Professional Advisor			
Number of member forays per year:		9.08		
Does your club voucher & collect foray data?			14	10
Number of non-foray member meetings per year:		5.75		
Mushroom identification meetings?	0 - 8		17	7
Speaker / lecturer meetings?			20	4
Craft, cooking, photo demos etc. meetings or workshops?			16	8
	Cultivation, Dying, Basketry, various			
Restaurant "Mushroom Banquets?"			6	18
Fungal pot-lucks or picnics?			18	6
Certification classes or workshops?			3	21
Vouchering classes or workshops?			4	20
Do you have booths/exhibits at science fairs, state fairs etc.			10	14
Other club activities or public engagement:				
	At Schools, Libraries, Fairs, Garden Clubs, Forays			
Do you have a digital newsletter?			16	8
Do you have a hardcopy newsletter?			7	17
Newsletters per year:		3.92		
Do you have a club store?			9	16
Your club's web address if you have one:			22	2
Does your club have a Facebook page			17	7
Do your club have a Yahoo or Google Group?			5	19
Does your club sponsor a scholarship(s)			8	16
Other club activities				
	Forays with other clubs, tree identification session			
	Potlucks, Mycoflora, NPS & State Park Education			
Most popular or successful club activities:				
	Forays, Speakers, Banquets & Potlucks			
Least popular or successful activities:				
	Scholarships (hard to get applicants)			
Do you know your NAMA Regional Representative?			10	14
What can NAMA do (better) for your club or for you?				
	Online Programs, Mycophile is great, Scholarships to join or attend NAMA			
	Help find insurance, ID sessions on line, more regional forays			
What can your club share with, or do, to help other clubs and NAMA?				
	Co-sponsor forays, zoom meetings, meet with other clubs,			
What is your club doing regarding Covid 19?				
	Doing Zoom, few "safe" forays, cancelled meetings			
Other comments:				
	Zoom, share: club budgets, safety issues, insurance costs, poison expertise, tick info,			
	Core group of long-term members and short terms who learn what they want and drop out			

North American Mycological Association

Bruch Reed, Executive Secretary

1930 W. School St. #2

Chicago, IL 60657

Change Service Requested

NON-PROFIT ORG.

U.S. POSTAGE

PAID

BLACKSBURG, VA

PERMIT NO. 158

THE MUSHROOM CULINARY ARTS CORNER

“No Knead” Iron Skillet Pizza with Chanterelle Mushrooms

This video is a part of a series that I am creating to post on the Mushroom Culinary Arts page. These videos provide information about the culinary aspects of mushrooms. They also make some basic knowledge of the mushroom featured in each recipe available to individuals who are considered “new” to amateur mycology and seek to learn some general/ basic information.

The recipe in this video presents a “no knead” method for making delicious, rustic pizza. So to many pizza lovers who shy from making the pie because of the work involved, this pizza practically makes itself! I hope many of you get to make and enjoy this chanterelle pizza.

Here is the link to the video:

<https://youtu.be/ENiJDOUraBU>

By Salma St. John
Committee chair and NAMA Vice President

