90th meeting of the Mycological Society of America

Mycology in the Swamp
Gainesville, FL July 10-13, 2022

Program and Schedule of Events

We recognize and acknowledge that the University of Florida sits on the historic territories of the Timucua and crossroads of the Native American peoples who long inhabited this land.
TABLE OF CONTENTS

MSA Officers 3
MSA Code of Conduct 4
General information 6
COVID policies/protocols 9
MSA Distinctions 11
MSA Honorary Awards 15
MSA 2022 Karling Lecture 16
Thank you to our sponsors 17
In memoriam 18
Schedule of events 19
Latinx Mycelium 41
Our thanks 43
Meeting venue map 44

MEETING ABSTRACTS

Abstracts for all invited and contributed presentations will be available before the start of the meeting. Access them by scanning this QR code or by clicking on either of the links below.

https://drive.google.com/drive/folders/1Pq_D69exPTcaLyG_pLqVC8QFDXQQrSsB?usp=sharing

NOTE FOR IN-PERSON ATTENDEES

The weather during the event will vary with highs between 91°F and 86°F and lows around 75°F. Gainesville is muggy and humid during July, so we also recommend that you bring an umbrella with you in case you are caught in any late afternoon or evening rain showers. We also recommend bringing a jacket or sweater to the conference each day, as the meeting rooms might get chilly.
MSA OFFICERS, COUNCILORS, AND MEETING LEADERSHIP

MSA Officers

A. Elizabeth Arnold (Betsy), President (2021-2022) School of Plant Sciences / Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ 85721

Julia Kerrigan, President-Elect (2021-2022) Department of Plant and Environmental Sciences, Clemson University, Clemson, SC 29634

M. Catherine Aime, Vice President (2021-2022) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907

Emily Cantonwine, Executive Vice President (2021-2024) Department of Biology, Valdosta State University, Valdosta, GA 31698

Jessie Glaeser, Treasurer (2019-2022) U.S. Forest Service Center for Forest Mycology Research, Madison, WI (retired)

Marc Cubeta, Immediate Past President (2021-2022) Department of Plant Pathology, North Carolina State University, Raleigh, NC 27606

Anne Pringle, Past President (2021-2022) Departments of Botany and Bacteriology, University of Wisconsin-Madison, Madison, WI 53706

MSA Councilors

Romina Gazis, Councilor, Symbiosis & Pathology (2020-2022)
Sydney Glassman, Councilor, Ecology & Conservation (2020-2022)
Sara Branco, Councilor, Genetics & Cell Biology (2020-2022)
Allison Walker, Councilor, Systematics & Evolution (2020-2022)
Tanya Cheeke, Councilor, Ecology & Conservation (2021-2023)
Jessie Uehling, Councilor, Systematics & Evolution (2021-2023)
Antonis Rokas, Councilor, Genetics & Cell Biology (2021-2023)
Marisol Sánchez-Garcia, Councilor, Symbiosis & Pathology (2021-2023)

MSA Meeting Leadership and Program Committee

Local Arrangements Chair and Foray Coordinator: Matt Smith.

Event Manager and Meeting Planner: Katie MacWilkinson, CMP

Program Committee: Frances Trail (chair), Jason Slot, Nhu Nguyen, Ning Zhang, Tania Kurbessoian, Betsy Arnold (acting chair).

Support and guidance: The Rees Group, especially Cori VanGalder, Bill Stoeffler, and Susan Rees.

Special thanks to the MSA Student & Postdoc Section for engagement and vision, and to our Diversity, Equity and Inclusion Committee for helping us follow best practices in developing an inclusive meeting.

MSA is a volunteer-run society and depends on a large number of individuals for the day-to-day operations of the society, for organizing and hosting the annual meetings, and for publishing Mycologia. The Officers and Councilors extend their gratitude to all our volunteers. MSA has such a dedicated membership and is immeasurably grateful of your time, energy, and service to the society.
MSA CODE OF CONDUCT

MSA values the diversity of views, expertise, opinions, backgrounds, and experiences reflected among MSA members and the broader mycology community, and is committed to providing a safe, productive and welcoming environment for all participants of MSA meetings and events. MSA meetings and events can serve as an effective forum to consider and debate science-relevant viewpoints in an orderly, respectful, and fair manner. This Code of Conduct is important to promoting diversity and creating an inclusive, supportive, and collaborative environment for all peoples.

All MSA meetings and events participants – including, but not limited to, attendees, speakers, volunteers, exhibitors, MSA staff, members of the media, vendors, and service providers (hereinafter “participants”) – are expected to abide by this MSA Code of Conduct and by the MSA policy for harassment and discrimination (Appendix B of the MSA manual of operations). This Code of Conduct applies in all venues, including ancillary events and social gatherings, and on-line forums and discussions associated with the MSA.

Expected Behavior

• Treat all participants with kindness, respect and consideration, valuing a diversity of views and opinions (including those you may not share).

• Communicate openly, with respect for other participants, critiquing ideas rather than individuals.

• Refrain from demeaning, discriminatory, or harassing behavior and speech directed toward other participants.

• Be mindful of your surroundings and of your fellow participants. Alert MSA staff if you notice a dangerous situation or someone in distress.

• Respect the rules and policies of the meeting venue, hotels, MSA-contracted facility, or any other venue.

Unacceptable Behavior

Harassment, intimidation, or discrimination in any form. Harassment includes speech or behavior that is not welcome or is personally offensive. Behavior that is acceptable to one person may not be acceptable to another, so use discretion to be certain respect is communicated. Harassment intended in a joking manner still constitutes unacceptable behavior.

Examples of unacceptable behavior include, but are not limited to:

• Physical or verbal abuse of any participant

• Unwelcome or offensive verbal comments or exclusionary behavior related to age, appearance or body size, employment or military status, ethnicity, gender identity and expression, individual lifestyle, marital status, national origin, physical or cognitive ability, political affiliation, sexual orientation, race, or religion

• Inappropriate physical contact

• Unwanted sexual attention

• Use of sexual or discriminatory images in public spaces or in presentations

• Deliberate intimidation, stalking, or following
• Harassing photography or recording, including taking photographs or recording of another individual's oral presentation or poster without the explicit permission of that individual and of MSA

• Sustained disruption of talks or other events

• Bullying behavior

• Retaliation for reporting unacceptable behavior

Immediate Serious Threat to Public Safety

Anyone experiencing or witnessing behavior that constitutes an immediate or serious threat to public safety at any time should contact local law enforcement (by calling 911) and immediately notifying facility security.

Reporting Unacceptable Behavior

• If you are not in immediate danger but feel that you are the subject of unacceptable behavior, have witnessed any such behavior, or have other concerns, please notify an MSA staff member (as soon as possible) who can work with appropriate MSA leadership to resolve the situation. You may also feel free to contact MSA staff at 717-896-0191. All reports will be treated seriously and responded to promptly.

• If you are in immediate danger please call 911. As soon as it is safe and practical, we would ask that you notify MSA staff at the number shown above.

• To report incidents of any sort during or following an MSA event, please contact the MSA staff representative, Bill Stoeffler, at bstoeffler@reesgroupinc.com.

• Once a report is received by MSA, our staff designee will discuss the details first with the individual filing the complaint, any victims or witnesses who have been identified, and then the alleged offender(s) before determining an appropriate course of action. Confidentiality will be maintained to the extent that it does not compromise the rights of others or the safety of other attendees or the public.

Consequences

• Anyone requested to stop unacceptable behavior is expected to comply immediately.

• MSA staff (or their designee) or security may take any immediate action deemed necessary and appropriate, including removal from the meeting or event without warning or refund.

• Further consequences may include prohibition from attending future meetings and events.

Please note that the administrative consequences defined in this policy are separate and distinct from possible actions that would be dictated by the situation. This may include referral and reporting to the appropriate law enforcement agency having jurisdiction, as well as possible reporting requirements under state and federal law, including Title IX.

By attending the 2022 Annual Meeting of the Mycological Society of America, all participants agree to abide by this Code of Conduct, whether participating online or in person. We welcome you to join, sustain, foster, and help grow our inclusive and supportive environment.
GENERAL INFORMATION

Registration Desk

The registration desk is located in the pre-function area of the main meeting venue: Hilton University of Florida Conference Center Gainesville, 1714 SW 34th Street, Gainesville, Florida 32607.

Staff will help participants check-in to the conference, answer questions, and handle on-site registration during the following hours: Sunday, July 10, 4:30pm-7:00pm; Monday, July 11, 7am-7:30pm; Tuesday, July 12, 7am-8pm; Wednesday, July 13, 7am-7pm

Additional activities will be held at the Aloft Gainesville University Area, 3743 Hull Road, Gainesville, Florida 32607.

Nametags

Each registered participant will receive a nametag upon check-in with the conference. The nametag grants access to all conference activities and should be worn at all times during conference functions.

Cell Phones, Mobile, Tablet Devices

Please mute your cell phones, tablets, and mobile devices while in all meeting rooms. Also, please mute the sound on your laptops. Please respect presenters’ wishes not to share certain sensitive data on social media. If you see this icon on slides or a poster, please do not photograph or share on social media.

The official hashtag for our 2022 meeting: #MSAfungi22

Internet Access

Complimentary internet is included in the main meeting areas and can be accessed using the HiltonHonorsConference network. On the splash page that shows up in your browser, please scroll down to see the "I have a Promotional Coupon Code" and type code WELCOME.

Both the Hilton and Aloft have complimentary internet included in the guest room rate. Please make sure to follow instructions from front desk staff when checking in on how to access Wi-Fi in your room.

Parking

Parking is available in any area of the Hilton parking lot. There is no fee to park and no pass is required to park at the Hilton. The parking lot is also located close to the conference center entrance. If you also are attending any events at Aloft, there is also ample parking available in any area of the parking lot and no pass is required to park.

Safety/Medical Information

Emergency: Please dial 911.

University Police (Non-emergency): The University of Florida Police Department (UFPD) is a 24/7 resource and can be reached at 352-392-1111 for non-emergencies. For more information on UFPD and available resources, please visit their website: https://police.ufl.edu/

Local hospitals: There are 2 local hospitals in Gainesville located near the Hilton and Aloft. The closest hospital is UF Health Shand’s Hospital (1600 SW Archer Rd., Gainesville, FL 32608) located 1.8 miles
from the main event venue and North Florida Regional Medical Center (6500 W Newberry Rd., Gainesville, FL 32605) located 4.1 miles from the main event venue.

**COVID testing:** In the event a COVID test is needed while at the event, there are several nearby pharmacies where a COVID test can be administered. The closest options are **CVS Pharmacy** (3404 SW Archer Rd., Gainesville, FL 32608) and **Walgreens Pharmacy** (3455 SW Archer Rd., Gainesville, FL 32608) both located 0.9 miles from the main conference venue.

**Refreshments & Receptions**

Refreshment breaks will be provided throughout the conference. These items are available in the pre-function area. Open events for all participants at which refreshments will be served for registered participants include the MSA Opening Reception, Sunday, July 10; breaks and lunch buffets each day, Monday-Wednesday, and LatinX Mycelium, Wednesday afternoon. Ticketed / pre-registered events include the MSA Annual Foray, Mycologists & Musings, the Volunteer Social, the Student and Postdoc Social, and the Social, Auction, and Student Awards/Banquet.

**Special Meetings**

During the main conference several special meetings will occur, typically over lunch. These include the Mycologia Editors’ Meeting and the Student and Postdoc Section Meeting, both to be held during lunch (12:45PM-2:00PM) on Tuesday, July 12, and an open discussion with NSF Program Officer Andrea Porras-Alfaro during lunch (1:15PM-2:30PM) on July 13. Those attending these meetings should please move promptly through the lunch line and then go to the designated room (see schedule of events) for their meal and special meeting.

**Auction Events**

The 2022 MSA Auction will have three components: our action-packed live auction (in-person, on the evening of Wednesday, July 13); our colorful silent auction (in-person, evening of July 13); and an online auction (virtually, prior to the meeting!). For more information on the different auction platforms, see [here](https://msafungi2022.afrogs.org/). The online auction is now open!

**Share Your Moments**

As you are at the events and are taking photos, we would love for you to share moments that you capture! You can upload photos you take during the event [here](https://msafungi2022.afrogs.org/). Remember our hashtag, #MSAfungi22!

**Poster Presentation Guidelines**

The main poster sessions will take place on Monday, July 11th from 6:00PM-7:30PM and Tuesday, July 12th from 6:30PM-8:00PM. All poster presenters are responsible for printing and bringing their own posters. The poster size needs to be for 4 feet (vertical, long) x 3 feet (horizontal, wide). The boards will be numbered and we will provide push pins to hang your poster up. Each presenter will also be assigned a number so you can hang up your poster to the corresponding board. You will need to make sure to hang up your poster prior to the session starting and take your poster down after the session ends. Any posters that are left hanging on the boards will be taken down by a conference team member.

**Oral Presentation Guidelines**

Regular oral presentations are 15 minutes long (12 minute-talk and 3 minutes for questions). Symposium presentations are 30 minutes (25 minute-talk and 5 minutes for questions). Oral presentations are preferred in Microsoft PowerPoint in a 16:9 standard format. PC computers running on the most up to date Microsoft 365 programs will be provided. If you must use your own PC or Mac because of movie files, software demonstrations, or other situations that would prevent you from using the in-room PC, please let us before the start of the meeting. Be prepared to change computers quickly. Please note that
connection time will be subtracted from your allotted speaking time. You must provide any needed converters or adapters. If you are using the provided PC, please load your presentation before the start of the session by using a USB flash drive. If you are presenting in the morning, you must load your talk prior to the start of the 8:00 AM morning special presentations or during the morning breaks. If you are presenting in the afternoon, you must load your talk before the end of the lunch break. You are advised to bring your own laser pointer (and remote if using your own laptop).

**Online Participation and Guidelines**

**Please make note of the Zoom link below.** With it you can access the special sessions (Presidential Address, Karling Lecture, and Business Meeting) and the invited symposium talks that will be held in the morning and afternoon of each day, Monday – Wednesday. Only these special sessions and symposium talks will be live streamed during the meeting. The Zoom link will be the same for all three meeting days, and session times will be in Eastern Standard Time (UTC-05:00, Eastern Time for US & Canada). Please let Katie kmacwilkinson@ufl.edu know if you do not receive this and we are happy to re-send.

**Katie MacWilkinson, CMP is inviting you to a scheduled Zoom meeting.**

**Join Zoom Meeting:** https://ufl.zoom.us/j/97167964835
Meeting ID: 971 6796 4835
One tap mobile: +13126266799,.97167964835# US (Chicago) / +16465588656,.97167964835# US (New York)

Dial by your location
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 646 931 3860 US
+1 301 715 8592 US (Washington DC)
+1 346 248 7799 US (Houston)
+1 669 444 9171 US
+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)

During the main sessions, please make sure your microphone is muted in Zoom to help with any feedback/background noise. We recommend you log in 10-15 minutes early before sessions start to test your connectivity. We invite attendees to have their camera on during the sessions. You will be able to also type questions or comments in the chat in Zoom and our team will be there to help assist during each day. We recommend if you have not updated your Zoom account, to please do so before the event to make sure that your Zoom account is up to date with the recent settings:

**Upgrading the Zoom desktop client for Windows, macOS, or Linux:** Zoom provides a pop-up notification when there is a new mandatory or optional update within 24 hours of logging in. If you already have the Zoom desktop client installed, check for updates:
- Sign in to Zoom desktop client.
- Click your profile picture then click Check for Updates.
- If there is a newer version, Zoom will download and install it.

**Special facilities and important resources**

We have established a nursing room and a separate quiet room in the main meeting venue, as well as a gender-neutral restroom, for the duration of the meeting. Please see signage at the meeting for these locations. For information about inclusion on the UF campus and beyond, please see these important local resources: https://lgbtq.multicultural.ufl.edu/, https://hispaniclatinoaffairs.multicultural.ufl.edu/, https://disability.ufl.edu/, https://apia.multicultural.ufl.edu/, https://blackaffairs.multicultural.ufl.edu/, and https://multicultural.ufl.edu/. Please reach out to MSA President Betsy Arnold and Local Arrangements Chair Matt Smith for more information: we celebrate and aspire to grow our diversity in MSA, and to offer an inclusive, safe, and welcoming meeting environment.
COVID SAFETY

Our aim is to promote a safe and inclusive meeting, and we ask all attendees to help keep our mycological community, and those in our lives outside of MSA, healthy and well.

For the 2022 Annual Meeting, MSA will follow all CDC guidelines related to COVID, as well as guidelines or mandates imposed by Alachua County, the City of Gainesville, and the University of Florida. These include but may not be limited to:

- Asking attendees to maintain social distancing practices whenever possible
- Encouraging masking in all indoor meeting spaces
- Encouraging self-testing and providing information about reliable local test options

We encourage all attendees to test before departure for the meeting. We encourage attendees to bring tests and to test immediately if symptomatic or concerned. We ask that attendees consider a self-test each morning prior to attending in-person events, even if asymptomatic. We will have a list of valid local testing providers and will be happy to assist any attendee who feels the need to obtain a COVID test.

You should not attend the MSA meeting in person if you are experiencing, or within the five days immediately before the meeting, have had signs or symptoms of COVID-19; if you have been exposed to a confirmed or suspected case; or if you have been diagnosed with COVID-19 and are yet not cleared as non-contagious.

Once at the meeting, we ask that attendees self-isolate if they are symptomatic and/ or if they have a positive test result. Our meeting staff can provide guidance should any attendee need to self-isolate. Please reach out to us – emails are at the end of this note and will be monitored throughout the meeting.

Social distancing: “Comfort dots”

MSA will make available colored stickers for attendees to affix to their name badge. These optional-use stickers are meant to indicate the wearer’s level of comfort with closeness/proximity to others during the course of the meeting. These are not required, but may help attendees feel more comfortable in their in-person interactions:

- Green: Open to up-close (< 6 feet), masked conversations indoors and flexible outdoors
- Yellow: Open to masked conversations that respect a six-foot separation, indoors and out
- Red: Please don’t approach; give a wave and a distant conversation with masks will be ok!

To accommodate individuals whose vision may preclude differentiation of red and green, we encourage those using red dots to mark the dot with an X for easy visibility. We will be sure that pens are available at registration.

Face masks

All attendees will be encouraged to wear a face mask that completely covers their nose and mouth while attending any MSA scheduled event and while in Hilton and Aloft public spaces. While masking requirements are voluntary, we do expect all attendees to honor and respect the choices of others during the meeting. When possible, we recommend that attendees use high quality (N-95 and KN-95) masks.

MSA will especially encourage Poster Session attendees to wear N-95 or KN-95 masks, as those sessions present the greatest potential for social distancing challenges. If you have or can obtain several such masks before you arrive in Gainesville, that would be deeply appreciated. A limited number of basic masks will be available on a first-come basis at the registration desk. Please note: the poster session will be held in the largest space available, with extra spacing whenever possible.
Scheduling of events

The special sessions each morning (Presidential Address, Karling Lecture, MSA Business Meeting) as well as symposia (Monday, mid-morning to lunch; Monday, before the poster session; Tuesday, mid-morning to lunch; Tuesday, before the poster session; Wednesday, mid-morning to lunch) and the Latinx Mycelium event (Wednesday, before the auction, social, and student awards event) will be available for live-streaming online. Thus in-person attendees may choose to attend in person or to stream these events.

Food functions

We understand that face masks cannot be worn when attendees are eating or drinking. We are working with our meeting venues to provide as much social distance as possible within the constraints of the host properties. The opening reception and auction/social will take place in as large a space as the Hilton can provide. Other events have been scheduled in the largest rooms available, and the hotel itself is taking meaningful steps toward safe practices throughout (see below). We understand that some attendees will feel comfortable attending this kind of function while others will not. It is absolutely okay if you choose to skip this or other food functions or coffee breaks! We know it will be hot and humid outdoors but encourage attendees who are comfortable to move outside when needed.

Cleaning surfaces at registration and podiums

The hotel and MSA will work to keep the shared surfaces at registration and podiums/staging as sanitized as possible. Sanitation wipes and/or disinfectant gel will be widely available.

What the Hilton University of Florida Conference Center Gainesville is doing to help

Hilton has partnered with Reckitt, makers of Lysol® & Dettol®, to help deliver an even cleaner stay for its guests with the creation of the Hilton CleanStay program. The program aims to add a greater level of cleanliness throughout the property, and includes:

- Updating ventilation systems to provide advanced air purification
- Opportunities to keep your guest room more isolated by declining housekeeping during your stay
- An improved degree of disinfecting guest rooms and public spaces
- Contactless food delivery
- Contactless arrival (Get the Hilton app on Google Play or the App Store)

More information on the Hilton’s CleanStay program can be found here.

MSA is attentive to the concerns relevant to COVID transmission, and we are working diligently to safeguard as best as we can those individuals willing and able to travel to Gainesville to participate in the meeting in-person. We thank all attendees for following best practices to help keep our community healthy.

Questions? Please reach out to our meeting team.

University of Florida Meeting Planner, Katie MacWilkinson (kmacwilkinson@ufl.edu)
Local arrangements chair, Matt Smith (trufflesmith@ufl.edu)
MSA President, Betsy Arnold (arnold@ag.arizona.edu)
The Rees Group, Cori VanGelder (cvangelder@reesgroupinc.com) and Bill Stoeffler (bstoeffler@reesgroupinc.com)
DISTINGUISHED MYCOLOGIST AWARD:
JOYCE E. LONGCORE

Joyce E. Longcore graduated with a B.S. in biology from the University of Michigan in 1960 and stayed on an extra year as a research assistant to Dr. F.K. Sparrow, the author of “Aquatic Phycomycetes”. She received a M.A. in Botany from Indiana University in 1963, and worked for Dr. Sparrow for another year before marrying and moving to Maryland, where she continued to work for Sparrow in the lab of his former student Robert Paterson at the University of Maryland. She dropped out of academia when her first son was born and became a stay-at-home mother for the next 17 years, during which time the family moved to Orono, Maine, home of the University of Maine. The mycologist at Maine was Richard Homola who knew her from the University of Michigan, where he had been Alexander Smith’s student. When he was advising a graduate student who needed help on isolation and identification of fungi, including “Phycomycetes,” he suggested contacting Joyce. She agreed to help, and once she looked through the microscope again, remembered what she was meant to do. To continue working with zoosporic fungi, she became a “non-traditional” graduate student and began to attend MSA meetings. There she met Donald Barr, who invited her to his lab in Ottawa to learn transmission electron microscopy techniques. TEM of zoospores yielded characters that enabled chytrid specialists to realize that morphology available by light microscopy was not revealing the true diversity of the Chytridiomycota. Longcore received her PhD from the University of Maine in 1991. With firm roots in Orono and no prospects for a job, she occupied part of Dr. Homola’s lab and continued isolating chytrid fungi and publishing research papers.

In the 1980s scientists began to notice frog die-offs, particularly in Australia and Central America. Donald Nichols, a pathologist at the National Zoological Park, also had seen some frog deaths and was on the lookout for material to determine the cause. When some poison dart frogs at the zoo died, he preserved them and had some electron microscopy photos taken of the skin. Mel Fuller, at that time had started a “Zoosporic Fungi” web site. Allan Pessier, then Nichols’ intern, found this site and, because they suspected fungi as a cause of the frog deaths, he asked him to look at the photomicrographs. Mel did, and sent them on to Joyce; they agreed that one of the photographs definitely showed a chytrid zoospore.

This was 1997 and Longcore had been isolating chytrids for about 10 years. Her immediate response to the pathologists at the National Zoo was to ask for a sample that she could examine. The sample was a bit old but the infection was visible, so she asked for a fresher sample. It arrived in a FedEx package and, using her usual techniques, she attempted to grow the fungus. Not much luck; on one piece of skin several zoosporangia grew, but then proceeded no further. So she transferred these zoosporangia on a tiny bit of agar into a flask of liquid medium and more or less ignored them. She came to the lab one Sunday and noticed that the liquid in the flask was opalescent. Either bacteria had taken over or the organism had grown. She made a slide and was elated to find that the organism had grown. This led to the description of *Batrachochytrium dendrobatidis* in a 1999 issue of Mycologia. Now the unemployed chytrid mycologist received invitations to teach Bd isolation techniques around the world; she visited Australia, South Africa, Brazil, Panama, and Costa Rica as well as teaching students from Brazil, Mexico and the US in her lab.
The first use of rDNA sequencing to learn the phylogeny of chytrids was published by James et al. in 2000. Longcore’s isolates were an important part of this study. She has continued to isolate chytrids and their use in molecular studies has added to our knowledge of the diversity and phylogeny the phylum. D. Rabern Simmons was her only PhD graduate student, so she was particularly pleased when he became a post-doc in the James lab, and oversaw the NSF-funded movement of Longcore’s cryopreserved chytrid collection to the University of Michigan, where it is in CZEUM (Collection of Zoosporic Eufungi at University of Michigan). The collection is now in a facility with automatic nitrogen renewal and has grown to contain cultures from Powell, Letcher, their students, and others. Twenty years after the first sequencing to learn the phylogeny of chytrids, Simmons’ 2020 senior-authored paper contains 11 pages of chytrid phylogeny based on the isolates in CZEUM. The JEL culture numbers on the trees indicate contributions from Longcore. She has not stopped looking through her microscope—since 2020 her colleagues have described three new chytrid species based on her isolations.

CONSTANTINE J. ALEXOPOULOS PRIZE:
MATT KASSON

Awarded annually to an outstanding mycologist early in their career. The nominees are evaluated primarily on the basis of quality, originality, and quantity of their published work.

Dr. Matt Kasson is an Associate Professor of Mycology and Forest Pathology in the Division of Plant and Soil Sciences at West Virginia University, in Morgantown, West Virginia. From 2017-2022, he served as Director of INVAM, the world’s largest collection of Arbuscular Mycorrhizal Fungi, following the retirement of long-time curator and director Dr. Joe Morton. Dr. Kasson received his PhD in 2012 from the Department of Plant Pathology and Environmental Microbiology at The Pennsylvania State University, under the direction of forest pathologist Dr. Don Davis. Dr. Dave Geiser, who also served on Kasson’s committee, provided considerable mentorship, overseeing his dissertation work on Fusarium mutualists of ambrosia beetles. Kasson also received a B.S. in Forest Ecosystem Science in 2005 and an M.S in Forestry in 2007 from The University of Maine where he studied under forest pathologist Dr. Bill Livingston. Kasson conducted postdoctoral research at Virginia Tech under the direction of Dr. Gary Griffin from 2012-2014, before accepting his current faculty position in July 2014.

His awards include being named a 2021-22 National Geographic Explorer as well as numerous WVU awards including 2021 WVU-wide Distinction in Mentoring Undergraduates in Research, 2016 & 2021 PSS Researcher of the Year, 2020 & 2021 PSS Service of the Year, 2021 Davis College Service of the Year, and 2018 Gamma Sigma Delta Junior Faculty Award of Merit. Kasson’s lab currently includes three PhD students, two M.S. students, two technicians and numerous undergraduates. From 2014-2022, 4 additional PhD students and 6 M.S. students completed their graduate studies under his supervision. During that same period of time has also mentored three post-doctoral researchers. Since 2014, Kasson has received multiple grants from the USDA including grants from APHIS, USFS, and AMS. He also received grants from NSF, CTPB and The Ohrstrom Foundation totaling ca. $1.5 million dollars. Kasson currently has 54 publications in diverse plant pathology and mycology journals (including nine papers in Mycologia). His first first-author publication was published in Mycologia in 2009.

Kasson has incredibly diverse interests and research projects in the broad area of fungal ecology. His research program ranges from plant pathology focused studies on etiology of fungal canker diseases of trees, fungal biocontrol, and tripartite interactions between ambrosia beetles, their fungal partners, and their plant hosts to mycology focused studies on biology of entomopathogenic fungi and fungal
biodiversity discovery and analysis in fungus-feeding millipedes. Kasson’s biggest mycology contributions are in the area of fungus-arthropod interactions working on deciphering the various roles fungi play in their interactions with cicadas, ambrosia beetles, and millipedes among others. His lab’s work on describing the fungal communities of fungus-feeding millipedes represents the first published work on this topic. With his strong grounding in organismal mycology and forest pathology, and his skills in phylogenetics, metabolomics, finding weird and rare fungi, and performing diverse functional bioassays, Kasson wears the hat of a modern integrative fungal ecologist.

In addition to research, Kasson is a vocal advocate for Science Communication and Outreach, DEI, and Mental Health. He regularly communicates on these topics on Twitter to some 14,000+ followers and has published editorials in venues such as The Conversation and Nature Careers. His lab’s work and advocacy has been featured numerous times in The New York Times, The Atlantic, NPR, Scientific American, and The Late Show with Stephen Colbert, and in podcasts including NPR’s Short Wave, Science Vs, Overheard at National Geographic, Joyful Microbe, Fungi Town, The Mushroom Hour Podcast, and The American Phytopathological Society’s Plantopia. He hopes to continue this work as he feels research and advocacy are both equally important for advancing our profession.

The Mycological Society of America thanks Dr. Kasson and his partner, Dr. Lindsay Kasson, D.O., for their generous decision to donate the financial award associated with the Alexopoulos Prize in full to the MSA Diversity Award fund. Dr. Kasson and Dr. Kasson, thank you for your support of MSA, and for your dedication to fostering a society that is diverse, equitable, inclusive, and just. We honor your generosity and thank you for your leadership through action.

**W.H. WESTON AWARD FOR EXCELLENCE IN TEACHING: EMILY CANTOWNINE**

Awarded annually to an outstanding teacher of mycology at the undergraduate and or graduate levels. This year, two awards are made to honor two exceptional contributors to education in mycology.

**Emily Cantonwine** is a Professor in the Department of Biology at Valdosta State University, a primarily undergraduate institution in South Georgia. She received a B.S. in Botany from Miami University, an M.S. in Biology from Florida International University, and a Ph.D. in Plant Pathology from the University of Georgia. Since joining the VSU faculty, Emily has developed 12 courses, including Mycology, Mycology in Ireland, Plant Pathology, and Biodiversity of Macrofungi. Her guided-inquiry approach to instruction, which she shares in an article entitled ‘Creating an Active Learning Environment in the Laboratory with Prepared Slides,’ published in *Plant Health Instructor*, has received praise from students and colleagues alike. Emily has mentored 33 undergraduate students in research and five graduate students, most of whom have studied the peanut leaf spot pathogens *Passalora arachidicola* and *Nothopassalora personata*. She has published 22 peer-reviewed papers, including three *Plant Health Instructor* articles, and has contributed numerous activities to the MSA Online Teaching Resources Collection. Emily is a former Senior Editor for the journal *Plant Health Instructor* (2016-2021) and former Chair of the MSA Education Committee (2019-2021). She currently serves the MSA as Executive Vice President.
W.H. WESTON AWARD FOR EXCELLENCE IN TEACHING:
MARIN TALBOT BREWER

Marin Talbot Brewer is a Professor of Mycology and Plant Pathology in the Department of Plant Pathology at the University of Georgia where she has been a faculty member since 2011. Her research focuses on the evolution and diversity of fungal threats to plants and people with interests in the genetic basis of disease emergence and host specialization, the evolution of fungicide resistance and fungal mating systems, and the taxonomy and systematics of fungi causing emerging plant diseases. She received her M.S. in Plant, Soil, and Environmental Science from the University of Maine where she studied the effects of biological and cultural controls on soil microbial ecology and Rhizoctonia disease of potato, and her Ph.D. in Plant Pathology and Plant-Microbe Biology from Cornell University in 2011, where her dissertation focused on the phylogeography and mating system of the grape powdery mildew fungus, *Erysiphe necator*. Recent work in the Brewer lab is concentrated on azole resistance in the human pathogen *Aspergillus fumigatus* in environmental settings. Her research has been funded by diverse agencies including the National Science Foundation, the U.S. Department of Agriculture, and the Centers for Disease Control and Prevention. Marin teaches two courses on fungi at UGA every year, including Mycology, which focuses on the taxonomy and biology of fungi, and the very popular, large enrollment course Fungi, Friends and Foes, an overview of the impact of fungi on human civilization. Marin was awarded the 2021 D.W. Brooks Award for Excellence in Teaching, as well as the 2019 Early Career Teaching Award and 2019 Outstanding Faculty Mentor Award from the College of Agricultural and Environmental Sciences at University of Georgia.

GORDON AND TINA WASSON AWARD:
GIULIANA FURCI

*Awarded annually to an outstanding contributor with a sustained impact on the field of mycology, who represents a background distinct from the traditional academic path.*

Giuliana Furci has been working for the fungi since 1999. She is foundress and CEO of the Fungi Foundation - an international non-profit with offices in the US and Chile. She is a Harvard University Associate, Dame of the Order of the Star of Italy, Co-Chair of the IUCN Fungal Conservation Committee, and author of several titles including a series of field guides to Chilean fungi and co-author of titles such as the 1st State of the World’s Fungi (Kew, 2018).
MSA HONORARY AWARDS

MSA FELLOW: BRIAN PERRY

MSA Fellows are selected from members who have completed at least 11 years of service after their Ph.D. They are members who are outstanding mycologists on the basis of one or more criteria: a solid record of mycological research, and/or successful teaching and development of teaching materials for mycology, and/or significant service to the Society. This is meant to recognize a core group of mid-career mycological achievers and outstanding MSA volunteers.

Brian Perry is a Professor of Biology at California State University, East Bay. He received his Master's degree from San Francisco State University under the guidance of Dr. Dennis E. Desjardin, and his Ph.D. from Harvard University where he studied with Dr. Donald H. Pfister.

Brian has been studying fungi since 1995, and has published over 45 papers in scientific journals. In addition to studying the evolution of fungal bioluminescence, he also conducts research on mushrooms and other fungi of Vanuatu, the assembly and biogeography of island fungal communities, endophytic fungi of plants from both Hawaii and California, and the systematics of *Mycena* and allied genera. Brian teaches several mycology courses at Cal State East Bay and the Sierra Nevada Field Campus of San Francisco State University.
The extended phenotype: fungi mediate plant stress responses

Tuesday, July 12
8:00AM-9:00AM
Century Ballroom

Featuring an introduction by MSA Immediate Past President, Dr. Marc Cubeta

The effects of symbiotic fungi on plant stress tolerance are challenging and shifting existing paradigms about plant physiology. Understanding these plant-fungal interactions is critical given projections for a future with more frequent and extreme drought and heat. We focus on the study of widespread, diverse foliar fungal endophytes in native grasses, as well as in grasses grown for food, forage, and fuel. Using a combination of field and greenhouse studies, we discovered a broad array of plant-fungal relationships and identified traits to predict how individual fungi affect plant physiology, productivity, and survival. However, fungal effects on plant host traits vary with both the abiotic environment and biotic interactions, constraining our ability to scale directly from simple to complex systems. Although symbiotic foliar fungal endophytes represent potential management tools for agricultural ecosystems, their implementation in real-world ecosystems requires a better ecological and mechanistic understanding of community assembly and function.
THANK YOU TO OUR SPONSORS

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“This event has been financed in part by a Conference Grant through the Alachua County Board of County Commissioners.”

UF Office of Research
University of Florida

MSB
IN MEMORIAM

Elizabeth Noemi Feliciano

Promising young mycologist, powerful advocate for diversity and inclusion, amazing friend and scholar. She left this world far too soon.

We love you and we miss you, Elizabeth.

20 June 1989 - 16 June 2022

The Mycological Society of America shares our sincere condolences with Elizabeth’s family and friends, and with all who knew and loved her: a bright light in our society and in our world.
MEETING SCHEDULE

SATURDAY, 9 JULY 2022

Please remember to wear your mask and pre-test for COVID prior to joining our daily activities in person
* Content available online for invited participants

9:00AM-4:00PM  MSA 2022 Council Meeting*
Aloft Hotel (Great Room)
Details have been sent to all Councilors, officers, staff, and invited guests

SUNDAY, 10 JULY 2022

Registration open, 4:30pm-7:00pm

All activities are at the Hilton unless otherwise noted
Please remember to wear your mask and pre-test for COVID prior to joining our daily activities in person

* Content available online
** Pre-registration required

8:00AM-4:00PM  MSA Annual Foray**
Please plan to be outside of the Hilton Conference Center loop or Aloft promptly at 8am. There will be one shuttle bus starting at Aloft to drive over to the Hilton to meet the other shuttle buses. The shuttle buses will leave the Hilton no later than 8:15am to head out to Ordway Swisher Biological Station in Melrose. Please plan to bring a hat, sunglasses, sunscreen, and comfortable shoes/breathable clothing as the weather will be warm and humid. Bottled water, snacks, and boxed lunch will be provided for all foray participants.

6:30PM-8:30PM  MSA 2022 Opening Reception
Harn Museum of Art (Galleria, Promenade, Contemporary Gallery, Magoon Garden). Shuttles will be available from the Hilton loop and Aloft starting at 6:30PM and running through 9PM. This event is included in your conference registration. If you are local to the area or plan to drive to the Harn, there is a parking lot located right next to the museum you are welcome to park at. Parking is lifted on the weekends and after hours on campus, so no pass is required.

You can read more about the Harn Museum of Art here: https://harn.ufl.edu/
MONDAY, 11 JULY 2022

Registration open, 7am-7:30pm
All activities are at the Hilton unless otherwise noted
Please remember to wear your mask and pre-test for COVID prior to joining our daily activities in person
* Content available online
** Pre-registration required

7:30AM-8:00AM Mycologists & Musings (M&M), hosted by MSA Student and Postdoc Section**
Hilton, Pre-function area

8:00AM-9:00AM MSA 2022 Presidential Address: It’s what’s inside that counts: endophytic fungi and the beauty of diversity in mycology*
MSA President, A. Elizabeth (Betsy) Arnold
Century Ballroom

9:00AM-9:30AM Break: refreshments served in pre-function area

9:30AM-11:00AM Symposium 1: Fungal Chemistry: Variations on a Theme* (part 1)
Organizers: Joan Bennett and Geromy Moore
Century Ballroom

9:30AM The role of chemosensing in the efficacy of A. flavus biocontrol strains
Geromy G. Moore, Matthew D. Lebar, Carol H. Carter-Wientjes

10:00AM Volatile oxylipins and Drosophila toxicity in a fly eclosion assay
Joan W. Bennett, Hadeel S. Almaliki, Mengyao Niu, Guohua Yin, Nancy P. Keller

10:30AM Beware of the poison at the buffet table! Uncovering cross kingdom impacts of patulin in apple fruit-fungal interactions
Wayne M. Jurick II, Holly P. Bartholomew, Jorge M. Fonseca

11:00AM-11:15AM Break: refreshments served in pre-function area

11:15AM-12:45PM Symposium 1: Fungal Chemistry: Variations on a Theme* (part 2)
Organizers: Joan Bennett and Geromy Moore
Century Ballroom

11:15 AM Chemical diversity of the echinocandin lipopeptide antifungal metabolites
Zhiqiang An

11:45 AM Pangenomics of the ‘death cap’ mushroom, Amanita phalloides, and of Agaricales reveal dynamic evolution of toxin-related gene family in an invasive range
Milton T. Drott, Sung-Chul Park, S. Lynn Harrow, Yen-Wen Wang, Nancy P. Keller, Anne Pringle

12:15 PM Differential frequencies of functional annotations among plant- vs animal-associated Aspergillus strains
Kayla Pennerman

12:45PM-2:00PM Lunch: buffet served in pre-function area

2:00PM-3:30PM Contributed sessions (five concurrent sessions, listed below)
Ecology and Conservation I*
Century Ballroom

2:00PM-2:15PM Mycotic enteritis in a chameleon: What have we learned in 45 years?
Heather E. Hallen-Adams

2:15PM-2:30PM Urbanization reduces the importance of microbial effects on native plant community productivity in a fragmented landscape
Kasey N. Kiesewetter, Leydiana Otano, Michelle E. Afkhami

2:30PM-2:45PM Interactions of *Fusarium xyrophilum* with other microorganisms and insects in a putative floral mimicry system
Terry J. Torres-Cruz, David M. Geiser

2:45PM-3:00PM Impact of pigment from *Chlorociboria* spp. on wood decay communities
Ray Van Court, Jed Cappellazzi, Gerald Presley

3:00PM-3:15PM Ectomycorrhizal fungi regulate rhizosphere carbohydrate metabolic process under elevated atmospheric CO2

3:15PM-3:30PM Crown closure affects endophytic leaf mycobiome compositional dynamics over time in *Pseudotsuga menziesii* var. *menziesii*
Kyle A. Gervers, Daniel C. Thomas, Bitty A. Roy, Joseph W. Spatafora, Posy E. Busby

Ecology and Conservation II
Dogwood

2:00PM-2:15PM Rethinking Baker’s articulation of an “ideal weed” with fungi: What are the traits of an “ideal” invasive symbiont?
Anne Pringle

2:15PM-2:30PM Fish, forests, and fungi: Fungal communities and functional traits along a nitrogen gradient and in response to a unique salmon carcass fertilization experiment
Anne Polyakov, Andrew Berdahl, Korena Mafune, Erik Lilleskov, Erik Hobbie, Daniel Vogt, Kristiina Vogt

2:30PM-2:45PM Fungal communities experience rapid secondary succession during the first year following a wildfire in California chaparral
M. Fabiola Pulido-Chavez, James W. J. Randolph, Cassandra Zalman, Loralee Larios, Peter M. Homyak, Sydney I. Glassman

2:45PM-3:00PM Sensitivity of aquatic detritus inhabiting and root-associated fungi to environmental levels of four pesticides
Daniel B. Raudabaugh, Claudia K. Gunsch

3:00PM-3:15PM Snake fungal disease results in dysbiosis to the snake microbiome in paired laboratory and field experiments
Alexander S. Romer, N. Reed Alexander, Kylie C. Moe, Donald M. Walker

3:15PM-3:30PM Ovicidal effect of entomopathogenic fungi on emerald ash borer eggs
Sofia Simeto, Kathryn E. Bushley, David N. Showalter, Benjamin W. Held, Robert A. Blanchette
Genetics and Cell Biology I
Azalea

2:00PM-2:15PM Obligate sexual reproduction of a homothallic fungus closely related to the Cryptococcus pathogenic species complex
Marco A. Coelho, Shelly Applen Clancey, Andrew R. Passer, Terrance Shea, Márcia David-Palma, Anna Floyd Averette, Teun Boekhout, Jean-Luc Souciet, Patrick Wincker, Betina Porcel, Minou Nowrousian, Christina A. Cuomo, Sheng Sun, Joseph Heitman

2:15PM-2:30PM A hitchhiker Enterobacter bacteria associated with the plant pathogen Rhizoctonia solani
Peiqi Zhang, Ken Obasa, Zhao Peng, Frank F. White

2:30PM-2:45PM Analysis of mushroom development and bioactive compound formation in agarics employing the model system Cyclocybe aegerita and its relatives
Axel Orban, Hannah Elders, Roman A. Frings, Jose G. Maciá-Vicente, Sandra Buše, Adélia Cmoková, Robert Herzog, Harald Kellner, Martin Hofrichter, Martin Rühl, Florian Hennicke

2:45PM-3:00PM Evolution of large gene families allows context-dependency in microbial symbiosis
Damian J. Hernandez, Gwendolyn B. Pohlmann, Michelle E. Afkhami

3:00PM-3:15PM Mycangial colonization and competition in the laurel wilt (Harringtonia lauricola)-Ambrosia beetle symbiosis
Ross Joseph, Kamaldeep Bansal, Nemat Keyhani

3:15PM-3:30PM Evolutionary insights into ancestral plant-fungus relationships: A bioinformatic and functional analysis of secreted enzymes in Chytridiomycota
Emily Trudeau, Mary Berbee

Phytopathology I
Hickory

2:00PM-2:15PM A diverse suite of secondary metabolites produced by Xylaria necrophora mediates interspecific ecological interactions leading to taproot decline

2:15PM-2:30PM Plant water availability contributes to the endophytic and pathogenic activity of Lasiodiplodia theobromae associated with cacao (Theobroma cacao) dieback disease symptoms
Johnny F. Balidion, Marc A. Cubeta

2:30PM-2:45PM Emergence of a Melampsoridium rust epidemic on ironwood and hop hornbeam in the Southeastern United States
Nicolas Anger, Benjamin Held, Robert A. Blanchette, Jason A. Smith

2:45PM-3:00PM Sulfur metabolism and fungal symbiosis within the ambrosia beetle-Harringtonia lauricola system
Kamaldeep Bansal, Ross Joseph, Qiang Wang, Jeff Rollins, Nemat O. Keyhani
3:00PM-3:15PM  Powdery mildews on *Quercus*: North America as a hot spot of genetic diversity
  Michael Bradshaw, Donald Pfister

3:15PM-3:30PM  Pollen-parasitic fungi: an overlooked trophic interaction?
  Alejandro Huereca, Troy McMullin, Adriano Spielmann, Jean Gagnon, Toby Spribille

**Systematics and Evolution I**
  **Hawthorne**

2:00PM-2:15PM  How animals evolved to recognize fungi
  Mary Berbee

2:15PM-2:30PM  Phylogenomic expansion of the “magic mushroom” genus *Psilocybe* reveals new insights into the structure of the psilocybin producing gene cluster
  Alexander J Bradshaw, Virginia Ramírez-Cruz, Áli R. Awan, Keaton Tremble, Giuliana Furci, Laura Guzmán-Dávalos, Paul Stamets, Bryn T.M. Dentinger

2:30PM-2:45PM  *Pneumocystis* in the New World rodent subfamily Neotominae: A case study in host specificity
  Spenser Babb-Biernacki, Jacob Esselstyn, Vinson Doyle

2:45PM-3:00PM  Global introduction patterns of the pine ectomycorrhizal fungus *Suillus luteus*
  Yi-Hong Ke, Anna L. Bazzicalupo, Joske Ruytinx, Nhu H. Nguyen, Sara Branco, Peter Kennedy, Alejandro Rojas-Flechas, Hui-Ling Liao, Thomas D. Bruns, Alan Kuo, Kerrie Barry, Igor V. Grigoriev, Rytas Vilgalys

3:00PM-3:15PM  On the origin of bird’s nest fungi: Phylogenomics of fungi in the Nidulariaceae (Agaricales)
  Nattapol Kraisitudomsook, Matthew E. Smith

3:15PM-3:30PM  The simple holocarpic Oomycetes: Molecular systematics and diversity
  Anthony T. Buaya, Sebastian Ploch, Alexandra Kraberg, Bettina Scholz, José Luis Godínez-Ortega, Marco Thines

3:30PM-4:00PM  Break: refreshments served in pre-function area

4:00PM-6:00PM  Symposium 2: Living in the dark with microbes and beasts*
  Organizers: Gregory Bonito, Rosanne Healy
  Century Ballroom

  4:00PM  Truffles in the sky: the impact of stochastic and deterministic drivers on *Rhizopogon* communities of the Madrean Sky Island Archipelago
  Carolina G. Piña Páez, Adam Carson, Daniel Luoma, Joseph W. Spatafora

  4:30PM  Hidden treasures: An updated taxonomic and ecological review of *Morchellaceae* truffles
  Benjamin Lemmond, Gregory Bonito, Matthew E. Smith

  5:00PM  Truffles and mammals: linking below- and above-ground interactions
  Ryan B. Stephens
5:30PM  Competition release? Fungal and bacterial community diversity in native and non-native productive *Tuber melanosporum* orchard soils
Gian Maria Niccolo Benucci, Sergi Garcia-Barreda, Sergio Sanchez, Pedro Marco Montori, Ana Maria De Miguel, Francis LeTacon, Claude Murat, Aurelie Deveau, Harry Eslick, Todd Elliot, Domizia Donnini, Gregory Bonito

6:00PM-7:30PM  Poster session A. Pre-function area. Please note: some poster presentations by virtual participants may be recorded and will be made available online.

A001  Co-occurring Vanilla species host distinct orchid mycorrhizal fungal communities that are further segregated based on the substrate utilized by roots
Shan Wong, Jaspreet Kaur, Adam Karremans, Jyotsna Sharma

A002  A new method of collecting wood-decay fungi in deserts by using plastic incubation chambers
Nawaf Alashammari and Steven Stephenson

A003  Biosorption of heavy metals by fungi
Alissa Ball, Wei Zhang, Greg Bonito

A004  The role of year-to-year environmental variation on Morchella distribution, density, and growth
Tyler M. Hacking, Clayton Rawson, Jonathan Cook, Michael T. Stevens, Erin Riggs

A005  Characterization of the eastern Joshua Tree arbuscular mycorrhizal community
Arik Joukhajian and Sydney I. Glassman

A006  Fungal pathogen colonization of e-cigarettes: A potential novel reservoir for infectious agents
Katy Deitz, Borna Mehrad, Jason Smith

A007  Do fungal pathogens follow the Janzen-Connell hypothesis
Julieta Alvarez-Manjarrez, Paul Fine, Diego Salazar-Amoretti, Kabir G. Peay

A008  Fungal endophytes shift in composition and functional traits along a forest-to-tundra gradient in northern Arizona
Jusvin Gofandi, Jana M. U'Ren, Roxanne Bantay, Megan N. Nickerson, Brooke E. Sykes, Ming-Min Lee, A. Elizabeth Arnold

A009  Species interactions either help or harm different microbial groups during necromass decomposition
Briana Beatty, François Maillard, Peter Kennedy

A010  Wildfire smoke as a potential transport mechanism for human pathogens
Zifan Zhao

A011  Metatranscriptomic study of simplified fungal communities growing with loblolly and radiata pine

A012  Fungarium in the Swamp: Wrangling the fungal specimens of the University of Florida campus
Caroline B. Willis, Laurel Kaminsky, Matthew E. Smith
A013 Metal tolerance in Suillus from North America
Cody Lewis, Jessica Fletcher, Treya Dabney, Alex Smith, Sara Branco

A014 Identification of oxalotrophic bacteria in Chlorophyllum molybdites mycelial mats
Laurens Stouthart, Andrew Lin, Nhu H. Nguyen

A015 Effective field collection of Pezizales ascospores: enabling germination studies and procuring of fungal isolates for genome sequencing
Alassane Sow, Judson Van Wyk, Benjamin Lemmond, Rosanne Healy, Matthew E. Smith, Gregory Bonito

A016 Endophytic communities associated with Rubiaceae tropical plants are regulated by location and tissue type
Humberto Castillo-González, Stephanie Yarwood, Jason Slot, Priscila Chaverri

A017 Presence of bacterial endosymbionts in Fusarium isolated from failed loggerhead sea turtle eggs
Sara Gremillion, Jasmine Grant, Anthony Kochensparger, Kathryn Craven, Jennifer Brofft Bailey

A018 Biogeographical study of selected macrofungal taxa from Pakistan
Nourin Aman, Abdul Nasir Khalid, Jean-Marc Moncalvo

A019 Fungal diversity in deep-sea extreme ecosystems (hydrothermal vents and an oxygen minimum zone) of the Southern Gulf of California, Mexico
Patricia Velez, Diana L. Salcedo, Laura Espinosa-Asuar, Jaime Gasca-Pineda, Abril Hernandez-Monroy, Luis A. Soto

A020 Fungal endophytes of Black Ash (Fraxinus nigra) in association with invasive Emerald Ash Borer (Agrillus planipennis)
Claire Yager, Judith Mogouong, Kathryn Bushley

A021 Variation among biosynthetic gene clusters and secondary metabolite profiles in endophytic and saprotrophic Xylaria flabelliformis
Roxanne Bantay, Mario E.E. Franco, Megan N. Nickerson, Lillian P. Moore, Malak Tfaily, Jana M. U'Ren

A022 Deep Fungi: Soil depth structures fungal communities in a tropical volcanic soil
Christian Fullmer, Tai McClellan Maaz, Casey McGrath, Susan Crow, Nhu H. Nguyen

A023 Generalist fungal pathogens: Experimental confirmation that Ophidiomyces ophiidiicola and Nannizziopsis guarroi are not as host-specific as previously thought
Savannah Gentry, Jeffrey Lorch, Julia Lankton, Anne Pringle

A024 Characterizing the mycobiome of common crop seeds
Brenna Giese and M. Catherine Aime

A025 A comparison of culture-based and environmental DNA methods to detect chytrids and Thraustochytrids in Maine
Jessica Hayden, Etain Cullen, Erin Grey, Peter Avis, Joyce Longcore

A026 A fungal endophyte from a wild relative protects cultivated lettuce against heat stress And the pathogen Fusarium oxysporum f. sp. lactucae
Nicole Colón-Cárnión, Barry M. Pryor, A. Elizabeth Arnold

A027 Is the fungus Amanita thiersii an invasive species? Using genomes to solve a decades old mystery
Nora Dunkirk, Yen-Wen Wang, Gerardo Robledo, Anne Pringle
**A028 Distributions of macrofungi: quantifying ecosystem and climate drivers of fungal reproduction**  
Carolyn A. Delevich, Bitty A. Roy, Jeffrey M. Diez, Krista McGuire, John Conery, Serita D. Frey, Matthew E. Smith, Peter G. Kennedy, A. Elizabeth Arnold, Jana U’Ren, Andrew Wilson, D. Jean Lodge

**A029 Detecting microbial sequences within RADSeq data of Dendroctonus bark beetle**  
Daniel E. Acosta-Garcia, Natalia Delgado-Machuca, Camille Truong

**A030 Analysis of eDNA shows that water quality determines freshwater fungal diversity, particularly among Chytrids and Aquatic Hyphomycetes**  
Lauren Cortez French, Michelle A. Jusino, James Skelton

**A031 Oral history for mycology 3.0**  
Meredith Blackwell and Donald H. Pfister

**A032 Co-occurrence and Interactions between fungi and bacteria on mangrove structures**  
Kate Hickman, Ben Wainwright, Geoffrey Zahn

**A033 Calicioid lichens and fungi of Mexico**  
Alejandro Huereca, Jorge Guzmán-Guillermo, María de los Ángeles Herrera-Campos, Sergio M. Salcedo-Martinez, Troy McMullin

**A034 Discovery and characterization of novel anaerobic gut fungi in reptilian, avian, and marsupial herbivores**  
Adrienne Jones, Casey Meili, Noha Youssef, Rochelle Soo, Philip Hugenholtz, Mostafa Elshahed

**A035 The International Congress of Armenian Mycologists: a mycology collaboration for the protection of land and life**  
Arik Joukhajian, Claudia Bashian-Victoroff, Tania Kurbessoian, Patricia Kaishian

**A036 Changes as small as 2°C can alter fungal community composition and ecological outcomes in decaying wood**  
Michelle A. Jusino, Mark T. Banik, Matthew E. Smith, Daniel L. Lindner

**A037 Potential carbon-degrading genes of saprotrophic compared to ectomycorrhizal fungi in a boreal forest may inform assessments of carbon cycling**  
Megan Louise Keller and D. Lee Taylor

**A038 The Mycological Society of America, Student and Postdoc Section welcomes you to MSA 2022 in Gainesville, Florida**  
Tania Kurbessoian, María-José Romero-Jiménez, Claudia Bashian-Victoroff, Abigail Neat, Alden Dirks, Madeline Reid Lueck, Xiomy Janiria Pinchi Davila, Cassie Ettinger

**A039 Scratching the surface: Patterns of foliar fungal damage in coffee and adjacent forests and the potential for spillover**  
Jeffrey Lackmann, Priscila Chaverri, Bénédicte Bachelot, Catherine A. Lindell, Laura Aldrich-Wolfe

**A040 Variable parasite prevalence of Hesperomyces virescens on Harmonia axyridis in North America**  
Helen Law, Danny Haelewaters, M. Catherine Aime

**A041 Root endophyte of tropical Nyctaginaceae and Polygonaceae plants in central and southern Mexico**  
Raquel Aline M. Saint. Cyr Frias, Camille Truong, Rodolfo Salas-Lizana
A042 Fungal colonization of wetland plant roots in novel substrate
Elizabeth MacDougal, Bek Markel, Emily Farrer, Sunshine Van Bael

A043 Fungal-fungal interactions in the host-mycobiome-snake fungal disease pathogen system
Claire Matzek, Clay Stalzer, Alexander S. Romer, Donald M. Walker

A044 Influence of tree to fungal communities in grassland habitats
Miroslav Caboň, Juraj Papčo, Dušan Senko, Vasilii Shapkin, Soňa Jančovičová, Slavomír Adamčík

A045 Mycophagy in ungulates
Magnolia W. Morelli and Geoffrey Zahn

A046 Devour or dissipate? Understanding the functions of nematode-trapping structures in Hohenbuehelia mastrucata (Fr.) Singer
Prasanth Prakash Prabhu, David Hibbett

A047 Exploration of the culturable diversity of lichen-associated yeasts through enrichment strategies
Daniel B. Raudabaugh and M. Catherine Aime

A048 Variety of fungi from El Yunque National Forest depending on elevation gradient
Ambar J Rivera

A049 Exploring the diversity-disease protection relationship for foliar fungal communities of Populus trichocarpa
Mariá-José Romero-Jiménez, Devin Leopold, Posy E. Busby

A050 Influence of arbuscular mycorrhizal fungi on establishment of blanketflower (Gaillardia aristata) in a prairie reconstruction
Ankita A. Sawant and Laura Aldrich-Wolfe

A051 Fungal Fight Club: Phylogeny and growth rate predict competitive outcomes among ectomycorrhizal fungi
Alexander H. Smith, Holly V. Moeller, Laura M. Bogar

A052 Global dispersal of fungal pathogens on wooden retail products
Jason A. Smith, Gideon Alake, Nicolas Anger, Tania Quesada

A053 Comparative genomics of the entomopathogenic genus Beauveria
David N. Showalter, Steve Rehner, Kathryn E. Bushley

8:15PM-9:30PM Student and Postdoc Section Social
Trivia Night
Aloft Hotel (Great Room)

This event is hosted by the Student and Postdoc Section, but all meeting participants are welcome! Stop by to participate or cheer on your favorite trivia masters as they share their knowledge of mycology – with fun prizes and more!
TUESDAY, 12 JULY 2022

Registration open, 7am-8pm
All activities are at the Hilton unless otherwise noted
Please remember to wear your mask and pre-test for COVID prior to joining our daily activities in person
* Content available online
** Pre-registration required

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<th>Time</th>
<th>Event</th>
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<tr>
<td>7:30AM-8:00AM</td>
<td>Mycologists &amp; Musings (M&amp;M), hosted by MSA Student and Postdoc Section**</td>
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<td>Hilton, Pre-function area</td>
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<td>8:00AM-9:00AM</td>
<td>MSA 2022 Karling Memorial Lecture: The extended phenotype: fungi mediate plant stress responses*</td>
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<td>Dr. Christine Hawkes</td>
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<td>Century Ballroom</td>
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<td>9:00AM-9:30AM</td>
<td>Break: refreshments served in pre-function area</td>
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<td>9:30AM-11:00AM</td>
<td>Symposium 3: Fungi as food: a mycocentric perspective on below-and above-ground food webs* (part 1)</td>
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<td>Organizer: Peter Kennedy</td>
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<td>Century Ballroom</td>
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<tr>
<td>9:30AM</td>
<td>Uncovering the mycophagous behavior of Patagonian birds</td>
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<td>Marcos V. Caiafa, Michelle A. Jusino, Ann. C Wilkie, Iván A. Díaz, Kathryn E. Sieving, Matthew E. Smith</td>
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<tr>
<td>10:00AM</td>
<td>More than mycangia: diverse structures promote associations between platypodine ambrosia beetles and fungi</td>
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<td>Andre Rodrigues, Andrew J. Johnson, Ross A. Joseph, Nemat O. Keyhani, Matthew E. Smith, Jiri Hulcr</td>
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<tr>
<td>10:30AM</td>
<td>Bacterial degradation of fungal necromass activates Carbohydrate Active Enzyme-encoding genes in a substrate-specific manner</td>
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<td>Jessica Novak, Jeffrey Gardner</td>
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<tr>
<td>11:00AM-11:15AM</td>
<td>Break: refreshments served in pre-function area</td>
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<tr>
<td>11:15AM-12:45PM</td>
<td>Symposium 3: Fungi as food: a mycocentric perspective on below-and above-ground food webs* (part 2)</td>
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<td>Organizer: Peter Kennedy</td>
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<td></td>
<td>Century Ballroom</td>
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<tr>
<td>11:15 AM</td>
<td>Cannibalism belowground: Fungi act as dominant decomposers of dead fungal mycelium in soils</td>
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<td>Français Maillard, Briana Beatty, Eduardo Perez-Pazos, Peter Kennedy</td>
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<tr>
<td>11:45 AM</td>
<td>Dining on dead fungi (and bacteria) in soil</td>
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<td>Kate M. Buckeridge</td>
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<tr>
<td>12:15 PM</td>
<td>Hungry hungry termites: Symbiotic nitrogen fixation in a basidiomycete promotes spore dispersal by termites</td>
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<td>Rachel A. Koch, M. Catherine Aime</td>
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</tbody>
</table>
12:45PM-2:00PM Lunch: buffet served in pre-function area

Two special meetings will be held during lunch. Participants in the special meetings should please gather their lunch at the buffet and then meet in their designated room.

**MSA Student and Postdoc Section – Dogwood**

**Mycologia Editors – Cedar**

2:00PM-3:30PM Contributed sessions (four concurrent sessions, listed below)

**Ecology and Conservation III**

* Century Ballroom

2:00PM-2:15PM *Pleodoris graminearum*, a novel taxon in roots of North American grasses: its ecology and effect on *Bouteloua gracilis* growth
Xiomy Pinchi-Davila, Diana Vargas-Hernández, María-José Romero-Jiménez, Ari Jumpponen, Jennifer A. Rudgers, Jose Herrera, Miriam Hutchinson, John M. Dunbar, Cheryl Kuske, Andrea Porras-Alfaro

2:15PM-2:30PM Punching above its weight: associated fungal diversity of the mid-story tree *Lophomyrtus bullata*
Marley Ford, Manisha Prasad, Andrew Dopheide, Peter de Lange, Luitgard Schwendenmann, Mahajabeen Padamsee

2:30PM-2:45PM Heterogeneous soil traits and plant communities underpin differences in fungal communities within mesquite savannas
Elizabeth A. Bowman, Peyton Smith, Aaron Rhodes, Robert Plowes, Lawrence Gilbert

2:45PM-3:00PM Mycobiome associated with root of *Pinus densiflora* along altitudinal distances
Ki Hyeong Park, Chang Sun Kim, Young Woon Lim

3:00PM-3:15PM Anomalous symbiosis in the ectomycorrhizal fungal genus *Rhizopogon*
Eduardo Perez-Pazos, Peter Kennedy

3:15PM-3:30PM More fungi than legs: the first fungal microbiome of a fungus-eating millipede (Colobognatha)
Angie Macias, Brian Lovett, Michelle Jusino, Lauren Cole, Matt Kasson

**Ecology and Conservation IV**

* Dogwood

2:00PM-2:15PM Mycorrhizal specificity in the rare, leafless epiphytic orchid *Dendrophylax lindenii*
Lynnaun J.A.N. Johnson, Michael E. Kane, Lawrence W. Zettler, Gregory M. Mueller

2:15PM-2:30PM Meta-transcriptomics of the *Populus* root fungal microbiome during the 2021 western drought reveals functional turnover and a springtime explosion of metabolic activity
Jake Nash, Keaton Tremble, Brian Looney, Corbin Bryan, Khalid Hameed, Yi-Hong Ke, Melissa Cregger, Nicholas Dove, Christopher Schadt, Rytas Vilgalys

29
2:30PM-2:45PM  Environmental filtering by soil moisture and dispersal limitation as drivers of endophytic fungal community assembly in *Schizachyrium scoparium*
Cedric Ndinga Muniania, Georgiana May

2:45PM-3:00PM  Investigating the role of leaf litter fungi in Douglas Fir (*Pseudotsuga menziesii*) seedling fitness
Abigail S. Neat, Posy E. Busby, F. Andrew Jones, Joseph A. LaManna

3:00PM-3:15PM  Fungal biomineralization of oxalates in mycelial mats and their bacteria associates
Nhu H. Nguyen, Steven Heisey, Andrew Lin, Sophia Lee, Laurens Stouthart

3:15PM-3:30PM  Atmospheric deposition lowers fungal diversity and may lead to a tipping point in an endangered spruce-fir ecosystem
Chance Noftsinger, Brandon Matheny

**Phytopathology II**
Hawthorne

2:00PM-2:15PM  Comparative analysis of potato and soybean cyst fungal communities and assessment of their biocontrol capabilities
Blaise Jumbam, Inga A. Zasada, M. Catherine Aime

2:15PM-2:30PM  New report of an emergent basidiomycete pathogen, *Crustomyces* sp., affecting a wide host range of trees in Florida, USA
Claudia A. Paez, Matthew E. Smith, Carrie L. Harmon, Jeffrey M. Eickwort, Hector Urbina, Jason A. Smith

2:30PM-2:45PM  Expression profiling during sweetpotato black rot interaction reveals core effector repertoire
Camilo H. Parada-Rojas, Madison Stahr, Kevin L. Childs, Lina Quesada-Ocampo

2:45PM-3:00PM  Comparative analyses of binucleate and multinucleate *Rhizoctonia* species and genetic diversity of *Rhizoctonia solani* AG1 associated with different plant hosts
Juanita Gil, Vanina Castroagudin, Terry Spurlock, Jim Correll, Alejandro Rojas

3:00PM-3:15PM  Identification and management of *Bipolaris* species associated with foliar disease on invasive and weedy grasses in Florida
Ashish Adhikari, Brett Lane, Philip F. Harmon, Erica M. Goss

**Systematics and Evolution II**
Azalea

2:00PM-2:15PM  Lineage structure of the *Fusarium oxysporum* Species Complex (FOSC) based on a dataset of 41 full-length genes from the core genomes of 545 isolates: its implications in taxonomy and diagnostics
David M. Geiser, María M. Jiménez-Gasco, Seogchan Kang, Ningxiang Li, Frank N. Martin, Kerry O’Donnell
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>2:15PM-2:30PM</td>
<td>Breaking the mold: Documenting Chaetothyriales diversity in Southern California desert biological soil crusts with culture-dependent and independent methods</td>
<td>Tania Kurbessoian, Nuttapon Pombubpa, Nicole Pietrasiak, Jason E. Stajich</td>
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<tr>
<td>2:30PM-2:45PM</td>
<td>The systematics of North American <em>Rhizopogon</em> using modern molecular techniques</td>
<td>Thelmalyn Montenegro, Emeline Pano, Darci Pankratz, Matthew Gordon, Alija Bajro Mujic</td>
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<td>2:45PM-3:00PM</td>
<td>Population structure of <em>Rhizopogon salebrosus</em> in the Madrean Sky Island Archipelago</td>
<td>Carolina G. Piña Páez, Joseph W. Spatafora</td>
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<td>3:00PM-3:15PM</td>
<td>Ascoma evolution in Thelebolales (Leotiomycetes, Fungi)</td>
<td>Luis Quijada, Neven Matočec, Ivana Kušan, Joey B. Tanney, Peter R. Johnston, Armin Mešić, Donald H. Pfister</td>
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<tr>
<td>3:15PM-3:30PM</td>
<td>Phylogenomic and comparative genomic analyses shed light on fungus–photoautotroph symbioses in Eurotiomycetes</td>
<td>Ian D. Medeiros, Adam Flakus, Nicolas Magain, Pamela Rodriguez-Flakus, Jolanta Miadlikowska, A. Elizabeth Arnold, Ignazio Carbone, François Lutzoni</td>
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<tr>
<td>3:30PM-4:00PM</td>
<td>Break: refreshments served in pre-function area</td>
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<tr>
<td>4:00PM-6:30PM</td>
<td>Symposium 4: Schooling in the Swamp: Lesions in education from the classroom to the community*</td>
<td>Organizers: Sara Gremillion and the MSA Education Committee</td>
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<td>Century Ballroom</td>
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<td>4:00PM</td>
<td>Sharing lessons from fungi with the public</td>
<td>Brian Lovett</td>
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<td>4:30PM</td>
<td>Using open resources to teach mycology</td>
<td>Fran Norflus</td>
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<td>5:00PM</td>
<td>Less content, more context: Research as pedagogy in undergraduate mycology courses</td>
<td>Geoffrey Zahn</td>
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<tr>
<td>5:30PM</td>
<td>Lessons from teaching an immersive field course in Coastal and Marine Mycology for undergraduate students</td>
<td>Christopher W. Smyth</td>
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<tr>
<td>6:00PM</td>
<td>Moderated panel discussion: educational strategies, resources, and opportunities in mycology</td>
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<tr>
<td>6:30PM-8:00PM</td>
<td>Poster session B. Pre-function area. Please note: some poster presentations by virtual participants may be recorded and will be made available online.</td>
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</tbody>
</table>

*B001* Mechanisms of bacterial-fungal interactions between skin bacteria and the snake fungal disease pathogen (*Ophiidiomyces ophiidicola*)  
Emily K. Stone, Ori Bergman, Claire Matzek, Alex S. Romer, Donald M. Walker
B002 The fitness of Trichoderma koningiopsis in the context of nitrogen pollution
Hannah Vanderscheuren, Nora Dunkirk, Anne Pringle

B003 Beech leaf disease status affects ectomycorrhizal root tip colonization and fungal community composition
Claudia Bashian-Victoroff, Sarah Kyker, David Burke

B004 Assessing the potential ectomycorrhizal fungal networks between seedlings and mature red spruce in a 9500 year old island forest
Evan Warburton and Peter Avis

B005 Fungal and plant diversity and correspondence with soil and environmental properties on brownfields in a semi-arid area
Danielle Stevenson, Mia Maltz, Tania Kurbessoian, Andrew Tseng, Caren Guirguis, Cheng Tan, Emma Aronson, Jason Stajich, Samantha Ying

B006 Interactions between skin bacteria and the snake fungal disease pathogen (Ophidiomyces ophidiicola) across a nutrient gradient mimicking host skin chemistry
Ori Bergman, Alexander S. Romer, Emily K. Stone, Claire Matzek, Donald M. Walker

B007 Antioxidant potential and stability of oxidative sunflower oil by using the ethanolic extracts of four saprophytic edible cultivable mushrooms from Pakistan
Aneeqa Ghafoor and Abdul Rehman Niazi

B008 Distribution of the gyromitrin mycotoxin in the lorchel family, Discinaceae (Pezizales)
Alden Dirks, Osama Mohamed, Pamela Schultz, Ashootosh Tripathi, Timothy Y. James

B009 Mycology for climate change, food, and inclusion: a case study on the importance of exposure to increasing diversity, equity, and inclusion in the field of mycology
Adriana L. Romero-Olivares

B010 Patterns of antifungal-resistance in a plant-associated human pathogen
Luisa Gómez Londoño, Brandi N Celia, Brent Shuman, Caroline Burks, Michelle Momany, Marin T. Brewer

B011 Molecular genetics toolkit for Sporobolomyces lactucae (Pucciniomycotina)
Samira Fatemi, Paula Andrea Gómez Zapata, Linda E. Tharpe, M. Catherine Aime

B012 Omics analysis of the cultivated morel (Morchella rufobrunnea) lifecycle
Judson Van Wyk, Xinxin Wang, Gary Mills, Kevin Childs, Gregory Bonito

B013 Novel DNA mycovirus infects frog-killing fungus
Mark Yacoub, Rebecca Clemons, Timothy Y. James, Jason Stajich

B014 Species specific qPCR assay for sensitive detection of the food spoiling mold Paecilomyces niveus in food and agricultural environments
Tristan W. Wang and Kathie T. Hodg

B015 The Beauveria bassiana transcription factor MedA governs asexual development, conidial morphogenesis and pathogenicity
Qing Cai, Alexander D. Pearce, Nemat O. Keyhani

B016 Comparative transcriptomic assay of Boletus edulis isolates to identify the genetic responses of environmental stress
Tiffany Do, Keaton Tremble, Bryn Dentinger
B017  Draft reference genome of Rhizopogon salebrosus
    Skyler Har, Carolina Piña Páez, Joseph W. Spatafora

B018  Analysis of wood-decay fungal communities associated with contrasting zones of the
    American wood protection association decay hazard map
    Jed Cappellazzi, Amy Bishell, Nathan Bechle, Sam Glass, William J Hickey, Gerald Presley,
    Grant Kirker

B019  Genomic variation in Coccidioides revealed through new, high-quality genomes
    Kelsey Aadland, Marc J. Orbach, Lisa F. Shubitz, John N. Galgiani, Jason E. Stajich

B020  Substrate utilization, phenotyping, and genetic systems in the laurel wilt (Harringtonia
    lauricola)-Ambrosia beetle symbiosis
    Ross Joseph, Kamaldeep Bansal, Yonghong Zhou, Nemat Keyhani

B021  Probing phylloplane microbial community physiology and dynamics in situ using whole-
    cell biosensors
    Julian Liber and Sheng Yang He

B022  Modulation of pH stress by amino acids and oxygen utilization in the laurel wilt pathogen,
    Harringtonia lauricola
    Jane Nguyen, Ross Joseph, Nemat O. Keyhani

B023  Making a mushroom: expression, growth, and the cell cycle in Flammulina velutipes
    development
    Thomas Roehl and Todd Osmundson

B024  Sclerotinia photobiology
    Jeffrey A. Rollins, Selvakumar Veluchamy, Ulla Benny

B025  Respiratory fungal disease in the common loon, Gavia immer
    Thomas Hilling, Mark Pokras, Hannah Reynolds

B026  Fire-dependent infection by Exobasidium ferruginea on Lyonia fruticosa in the Florida
    scrub
    Elan Tran, Matthew E. Smith, Laurel Kaminsky, Michelle Afkhami, Christopher Searcy, Aaron
    David

B027  Morphological and molecular characterization of Puccinia abrupta var. partheniicola on
    Parthenium weed (Parthenium hysterophorus) in Pakistan with its evaluation as potential
    biocontrol agent
    Najam ul Sehar Afshan, Maria Riaz, Maria Shafiq, Mohammad Aijaz Ahmad, Abdul Nasir Khalid

B028  Distribution of Cercospora cf. flagellaris associated with Cercospora leaf blight across
    southern United States
    Ernesto da Silva, Bishnu Shrestha, William Dunford, Paul Price and Vinson Doyle

B029  Genomic analysis of fungal population diversity in host communities
    Rachel Sneed, Christopher Schardl, Pat Calie, Jerzy Jaromczyk, Lou Hirsch, Padmaja Nagabhyru

B030  Estimating biomass of stromatic fungi on media
    Reginald Hunter and Emily Cantonwine

B031  Genome-wide comparison of carbohydrate hydrolases in Ophiostomatoid fungi
    Kamaldeep Bansal, Mateo Valdiviezo, Sarah Barthle and Nemat O. Keyhani
B032 Genotypic diversity in Hemileia vastatrix, the coffee rust fungus
Cristhian Ruiz Castro, Luis Ramirez-Camejo, Ariana Moffitt, Jingyu Liu and M. Catherine Aime

B033 Investigation of Caliciopsis species diversity in Michigan and description of novel species discovered on Pinus strobus
Rebecca Harkness, Katherine Minnix, Carmen Medina-Mora and Monique Sakaliidis

B034 The rapid xylem colonization of Raffaelea lauricola of Persea palustris
Josh Konkol and Jeffrey A. Rolins

B035 Introducing Rust HUBB, the rust herbarium-based universal barcode BLAST database
Christopher Layug, Mark Anderson, Patricia Kaishian, M. Catherine Aime

B036 Fungi associated with the red turpentine beetle (Dendroctonus valens) in Minnesota
Andrew Mann, Benjamin Held, Kathryn Bushley, Robert A. Blanchette

B037 Non-target impacts of routine fungicide applications to the pecan phyllosphere microbiome and interactions with Venturia effuse
Zachary A. Noel

B038 A North American monograph of the powdery mildews
Michael Bradshaw and Donald Pfister

B039 On Mexican marine fungi from mangrove forests: a history of explorations and advances
Maria C Gonzalez and Richard T Hanlin

B040 Eight new species of Laboulbeniales associated with bat flies in tropical America
Warre Van Caenegem, Aimée Blondelle, Brianna Santamaria, Iris Dumolein, Danny Haelewaters

B041 Cophylogenetic and genomic characterization of the Hypomyces lactifluorum-Russulaceae “lobster mushroom” parasitic complex
Kendra C. Autumn and Bryn T.M. Dentinger

B042 Phylogenetic analysis and growth media preference of attine ant fungal cultivars
America Cox, Kendra Autumn, Bryn T.M. Dentinger

B043 Colletotrichum liriopes is more widespread than previously thought
Priscila Chaverri, Megan K. Romberg, John M. McKerny, Karen K. Rane, Lisa A. Castlebury

B044 Convergent evolution in Boletales: first record of a truffle Suillus
Carolina Piña Páez, Kyle A. Gervers, Jessica A. Martin, Javier F. Tabima Restrepo, Daniel L. Luoma, Joseph W. Spatafora

B045 Documenting the distribution and diversity of edible Cantharellus spp. in Florida
Kaori Hall, Ben Lemmond, Matthew E. Smith

B046 Phylogenetic placement of Bactridium and Sphaerosporium, two enigmatic fungi with Scutellinia-like sexual states

B047 Guiana Shield Russulaceae: new species form a distinct lineage of Lactarius subg. Plinthogalus
Terry W. Henkel, Jorinde Nuytinck, Annemieke Verbeken, M. Catherine Aime
B048  Diversity and Taxonomy of family Hydnaceae in Costa Rica
       Mariana Herrera, Gregory M. Mueller, Andrew Wilson

B049  Delineation of Pseudogymnoascus taxa: a comparison of loci
       Abigail Ireland and Karen Hughes

B050  Morphological characteristics of the novel millipede-associated fungus Actinomortierella
       closei sp. nov
       May Campbell, Angie M. Macias, Shelby Meador, Brian Lovett, Matt T. Kasson

B051  The tie dyed phylogenetics of the dyer's polypore Phaeolus schweinitzii
       Andrew L. Loyd and Mark Banik

B052  A multi-locus view of common nonpathogenic genotypes of Fusarium oxysporum
       associated with tomato cultivation
       C.T. McGee, D.M. Geiser, N. Li, M.M. Jimenez-Gasco

B053  Patterns and determinants of the global herbivorous mammalian mycobiome
       Casey Meili, Adrienne Jones, Andrew Foote, Alex Arreola, Jeffrey Habel, Noha Youssef, Mostafa
       Elshahed

B054  Diversity, distribution and hotspots of basidiomycetous macrofungi in Pakistan
       Abdul Rehman Niazi

B055  Uncovering novel hosts for anaerobic gut fungi
       Carrie J. Pratt, Emily E. Chandler, Noha H. Youssef, Mostafa S. Elshahed

B056  Bisporella no more? species of a common genus of discomycetes belong in at least four
       genera
       Luis Quijada, James K. Mitchell, Peter R. Johnston, Donald H. Pfister

B057  Two new species of Microbotryum (Microbotryales, Pucciniomycotina) on Dianthus and
       Polygonum from Ukraine and the United States
       Sarah Blade and Kyryll G. Savchenko

B058  New species of stripe smut of grasses (Ustilago striiformis species complex) from the
       United States
       Mason Gaerte and Kyryll Savchenko

B059  Alpha-diversity and taxonomic identity are influenced by database choice in ITS amplicon
       studies
       Clayton Rawson and Geoffrey Zahn

B060  Assessment of endophytic fungi isolates with mycoherbicide potential for managing
       guinea grass (Panicum maximum)
       Akande Kemi, Iyabode Kehinde, Ekeleme Friday

B061  First report of powdery mildew caused by Erysiphe platani on oriental plane tree (Platanus
       orientalis) in Pakistan
       Irsa Zafar, Najam-ul-Sehar Afshan, Abdul Nasir Khalid

B062  Are mycoheterotrophs actually parasites? Investigating proximity-based abundance of
       Tomentella fuscocinerea relative to Corallorrhiza striata
       Christopher Bivins, Alija Mujic

7:30PM-9:00PM  MSA Volunteer Social**
       Shula's Private Dining Room (Hilton)
WEDNESDAY, 13 JULY

Registration open, 7am-7pm
All activities are at the Hilton unless otherwise noted
Please remember to wear your mask and pre-test for COVID prior to joining our daily activities in person
* Content available online
** Pre-registration required

7:30AM-8:00AM Mycologists & Musings (M&M), hosted by MSA Student and Postdoc Section**
Hilton, Pre-function area

8:00AM-9:30AM MSA 2022 Business Meeting*
Century Ballroom

9:30AM-10:00AM Break: refreshments served in pre-function area

10:00AM-11:30AM Symposium 5: The power of citizen science to advance fungal conservation
(part 1)*
Organizers: Danny Haelewaters and Susana C. Gonçalves
Century Ballroom

10:00AM Progress and challenges in fungal conservation
Susana C. Gonçalves

10:30AM Examples and results of fungal citizen science projects (pre-recorded presentation)
Martha Crockatt

11:00AM The Fungal Diversity Survey: Community science and species discovery
Bitty A Roy, D. Jean Lodge, Jeff Stallman, Jack Johnson

11:30AM-11:45AM Break: refreshments served in pre-function area

11:45AM-1:15PM Symposium 5: The power of citizen science to advance fungal conservation
(part 2)*
Organizers: Danny Haelewaters and Susana C. Gonçalves
Century Ballroom

11:45 AM Rare Fungi Challenges: community scientists documenting rare and threatened fungi in service of conservation
Sigrid Jakob and members of the FunDiS rare fungi working groups

12:15 PM The NAMA Voucher Collection Project and its twenty-five years of public and professional research, outreach, and training in macrofungal diversity
Patrick Leacock, Wyatt Gaswick, Olivia Fillialuna, Andrew W. Wilson

12:45 PM A macroecological approach to the ecophysiological trends of fruiting fungi:
How optimal are species’ current climates?
Carrie Andrew

1:15PM-2:30PM Lunch: buffet served in pre-function area
One open meeting will be held during lunch. Participants should please gather their lunch at the buffet and then meet in the designated room. All are welcome for an open discussion / question and answer session with NSF Program Officer, Andrea Porras-Alfaro: opportunities for funding and new innovations at the National Science Foundation - Dogwood

2:30PM-4:45PM  Contributed sessions (four concurrent sessions, listed below)

**Ecology and Conservation V**
Century Ballroom

2:30PM-2:45PM  Yeast-fungal interactions in a temperate mixed forest
Primrose Boynton, Madeleine Lambert, Meghan Reed, Melane Goncalves

2:45PM-3:00PM  Limited diversity and frequency of ectomycorrhizal inoculum in 16-11,000-year-old extirpated piñon stands
Annie M. Montes, D. Lee Taylor

3:00PM-3:15PM  Salt Life: The effect of increasing salt concentrations on the pine-ectomycorrhiza association in the critically endangered pine rocklands
Elena Karlsen-Ayala, Michelle A. Jusino, Matthew E. Smith, Romina Gazis

3:15PM-3:30PM  More than a headline or a horror show: New insights into Massospora, its ecology, and its potential interactions with other cicada-associated microbes

3:30PM-3:45PM  Contrasting ectomycorrhizal fungal community structure in co-occurring terra firme, white sand, and dipterocarp forests in the Colombian Amazon
Peter Kennedy, Sebastian Gonzalez-Caro, Aida Vasco-Palacios

3:45PM-4:00PM  Break: refreshments served in pre-function area

4:00PM-4:15PM  An evaluation of mycorrhizal inoculants to inform a greenhouse study using wine grapes
Madeline R. Lueck, Michelle M. Moyer, Tanya E. Cheeke

4:15PM-4:30PM  Pygmy pine root mycobiota has higher ectomycorrhizae ratio than that of regular statured pine in New Jersey Pine Barrens
Jing Luo, Emily Walsh, Ning Zhang

4:30PM-4:45PM  Following Fungal Farts: Volatile organic compounds from Trichoderma atroviride exert varied effects on plant root-associated bacteria
Catharine A. Adams, Jose Manuel Villalobos Escobedo, Mitchell Gregory Thompson, Luis Valencia, Robin Herbert, Adam Deutschbauer, N. Louise Glass

**Ecology and Conservation VI**
Dogwood

2:30PM-2:45PM  Effect of soil microbial inoculations on plants native and non-native to the Palouse
Tanya E. Cheeke, Noah Nilson, Ashley Finnestad, Alifya Saify, Megan Brauner, Rebecca Bunn
2:45PM-3:00PM  
**Mycology in the scrub: Uncovering the hidden soil fungi in an ancient, endemic ecosystem**
Aaron S. David, Damian J. Hernandez, Eric S. Menges, Vivienne L. Sclater, Christopher A. Searcy, Michelle E. Afkhami

3:00PM-3:15PM  
**Appalachian soil bacterial communities inhibit amphibian-killing fungal pathogen growth in experimental microcosms**
Sarah McGrath-Blaser, Natalie McGathey, Allison Pardon, Ana V. Longo

3:15PM-3:30PM  
**Mega-fire in redwood tanoak forest reduces fungal richness and selects for pyrophilous taxa that are phylogenetically conserved**
Dylan J. Enright, Kazuo Isobe, Sydney I. Glassman

3:30PM-3:45PM  
**Stress resistance of root-associated fungi to heat and desiccation**
Abigail B. Granath, Taylor A. Portman, Michael I. Mann, Jennifer A. Rudgers

3:45PM-4:00PM  
**Break: refreshments served in pre-function area**

4:00PM-4:15PM  
**Fire and population ecology of the endangered Florida scrub lichen Cladonia perforata**
Sterling A. Herron, Haley Dole, Stephanie M. Koontz, Stacy A. Smith, Scott G. Ward, Eric S. Menges, Aaron S. David

4:15PM-4:30PM  
**Using fungal surveys of wood-inhabiting fruiting bodies and DNA-based analyses of wood stakes to understand effects of forest management in a western conifer forest (USA)**
Kymberly R. Draeger, Daniel L. Lindner, Glen R. Stanosz, Michelle A. Jusino, Deborah S. Page-Dumroese, Mark T. Banik, Mark Coleman

4:30PM-4:45PM  
**Novel methods for building fungal phylogenies from next-generation amplicon sequence datasets**
Michael A. Mann, Stephanie N. Kivlin, Jennifer A. Rudgers, D. Lee Taylor

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**Ecology and Conservation VII**

**Hawthorne**

2:30PM-2:45PM  
**Responses of fungal diversity to a hurricane simulation experiment in tabonuco rainforest of Puerto Rico**
Sharon A. Cantrell, Krista McGuire, Michael Willig, Steven Presley, Kaye Leigh Shek

2:45PM-3:00PM  
**Hydrocarbon degradation studies by mangrove fungi in Puerto Rico**
Matias J. Cafaro

3:00PM-3:15PM  
**Influence of biocrusts on arbuscular mycorrhizae and dark septate fungal communities during and after annual grass invasion in a semiarid grassland**
Rachel Berner, Alexis Sullivan, V. Bala Chaudhary, Tanya Cheeke

3:15PM-3:30PM  
**Absolute microbiome profiling highlights linkages between stability of bacterial and fungal communities and nutrient cycling under long-term sod-based rotation**
Kaile Zhang, Gabriel Maltais-Landry, Michael James, Valerie Mendez, David Wright, Sheeja George, Hui-Ling Liao
3:30PM-3:45PM  Role of endophytic fungi in the resistance of sacred fir (*Abies religiosa*) to air pollution  
Valeria Stephany Flores-Almaraz, Rodolfo Salas-Lizana, Verónica Reyes-Galindo, Juan Pablo Jaramillo-Correa, Alicia Mastretta-Yanes, Camille Truong

3:45PM-4:00PM  Break: refreshments served in pre-function area

4:00PM-4:15PM  Effects of foliar fungal diversity on host plant performance  
Brianna K. Almeida, Elan Tran, Michelle E. Afkhami

4:15PM-4:30PM  The influence of moderate drought on the wheat seed mycobiome  
Lindsey E. Becker, Parker S. Ingraham, Marc A. Cubeta

4:30PM-4:45PM  Plant-Mycorrhizal-Decomposer interactions: The role of shifting plant and soil carbon  

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**Systematics and Evolution III**

**Azalea**

2:30PM-2:45PM  Specimods: A demo of a new web-based tool for producing Genbank sequence submission files for sequences from vouchered specimens  
Richard A. Levy, Jessie W. Berta-Thompson, C. Gary Olds, Andrew W. Wilson

2:45PM-3:00PM  Morphological and molecular evidence revealed three new species of *Mallocybe* (Agaricales, Inocybaceae) from Pakistan  
Malka Saba, Abdul Nasir Khalid

3:00PM-3:15PM  Patterns of recombination in prairie populations of endophytic *Alternaria alternata*  
Mara DeMers, Georgiana May

3:15PM-3:30PM  Re-identification of Korean *Penicillium* sequence records in GenBank collected by software GenMine  
Chang Wan Seo, Sung Hyun Kim, Young Woon Lim, Myung Soo Park

3:30PM-3:45PM  A phylogenetic overview of the Porotheleaceae  
Django Grootmyers, Karen W. Hughes, Clark L. Ovrebo, Renée Lebeuf, Jerry A. Cooper, P. Brandon Matheny

3:45PM-4:00PM  Break: refreshments served in pre-function area

4:00PM-4:15PM  Phylogenetic inference of the Cantharellales using a next-generation multi-locus sequencing approach  
Rachel A. Swenie, Marc A. Cubeta, Yi-Hong Ke, Gitta J. Langer, James D. Lawrey, Brian P. Looney, Masoumeh Sikaroodi, Rytas Vilgalys, P. Brandon Matheny

4:15PM-4:30PM  Boletes in paradise: investigating genomic signatures of niche evolution in temperate and tropical Boletaceae  
Keaton Tremble, Roy E Halling, Terry W. Henkel, Jean-Marc Moncalvo, Bryn T.M. Dentinger

4:30PM-4:45PM  Phylogenomic analysis of the Neocallimastigomycota: Proposal of Caecomycetaceae fam. nov., Piromycetaceae fam. nov., Anaeromycetaceae
fam. nov., and emended description of the family Neocallimastigaceae
Noha H. Youssef, Radwa A. Hanafy, Yan Wang, Jason E. Stajich, Carrie Pratt, and
Mostafa H. Elshahed

5:00PM-6:00PM  LatinX Mycelium: an event to celebrate and learn from Latinx Mycologists*
Organizer: Nicole Colón-Carrión, MSA Ambassador Award Recipient
Century Ballroom

This special event is open to all meeting participants. Join us to meet, celebrate,
and learn from the journeys of outstanding Latinx mycologists!

6:30PM….
MSA Annual Auction, Social, Student Awards, and Banquet
Pre-function space and Century Ballroom

Join us to raise funds for our society through our live and silent auctions! We will
enjoy seeing friends, making new connections, and celebrating student award
winners!

The meeting will officially conclude with the social, auction, banquet, and student awards
on Wednesday night. Self-organizing collaborative teams or other groups may wish
to meet in person on Thursday, July 14, so the day is left flexible for such purposes…
or for travel home.
INTERESTED IN INCREASING INTERACTIONS WITH LATINX LEADERS?

ATTEND THE LATINX MYCELIUM SESSION!

Latinx mycelium is a scientific movement that inspires the next generation of mycologists by featuring current Latinx mycologists in the field. We will be hosting six speakers from Latin America who are trained as mycologists. Each speaker will talk about their story and path as a Latinx mycologist, and the importance of representation in the field.

Hosted by the 2022 Mycological Society of America Annual Meeting
July 13, 2022: 5-6 PM (EST)
The 2022 Mycological Society of America Annual Meeting invites you to

Invited Speakers

Chad Lozada
Romina Gazis
Sofia Machiavelli

Pablo Parra
Adriana Corrales
Adriana Romero

LatinX Mycelium

July 13, 2022
5 PM - 6 PM
THANK YOU

We warmly thank Matt Smith, our local arrangements chair and foray leader for the *original* Mycology in the Swamp, moved to the Cloud in 2020…and now, our 2022 meeting. We are so happy to be here in the Swamp as a result of Matt’s hard work and generous gifts of energy, commitment, and time.

Matt, thank you: you are a wonderful mycologist, mentor, teacher, colleague, and friend, and your work for MSA and all mycologists is lasting and important. We appreciate you so much.

We also extend our sincere thanks to Katie MacWilkinson, MS, CMP, and Assistant Director of the University of Florida Conference Department. Katie has provided a superb example of proactive planning, problem solving, and positive thinking in helping this meeting come together. You’re a star Katie! Thank you!

In our meetings, day to day management, awards, and really, in all that we do, the Mycological Society of America benefits greatly from the advice, guidance, and partnership of The Rees Group. To Bill Stoeffler, Cori VanGalder, Susan Rees, and the rest of your team: we appreciate how you help MSA shine. It’s an honor and pleasure to work with you.
MEETING VENUE MAP