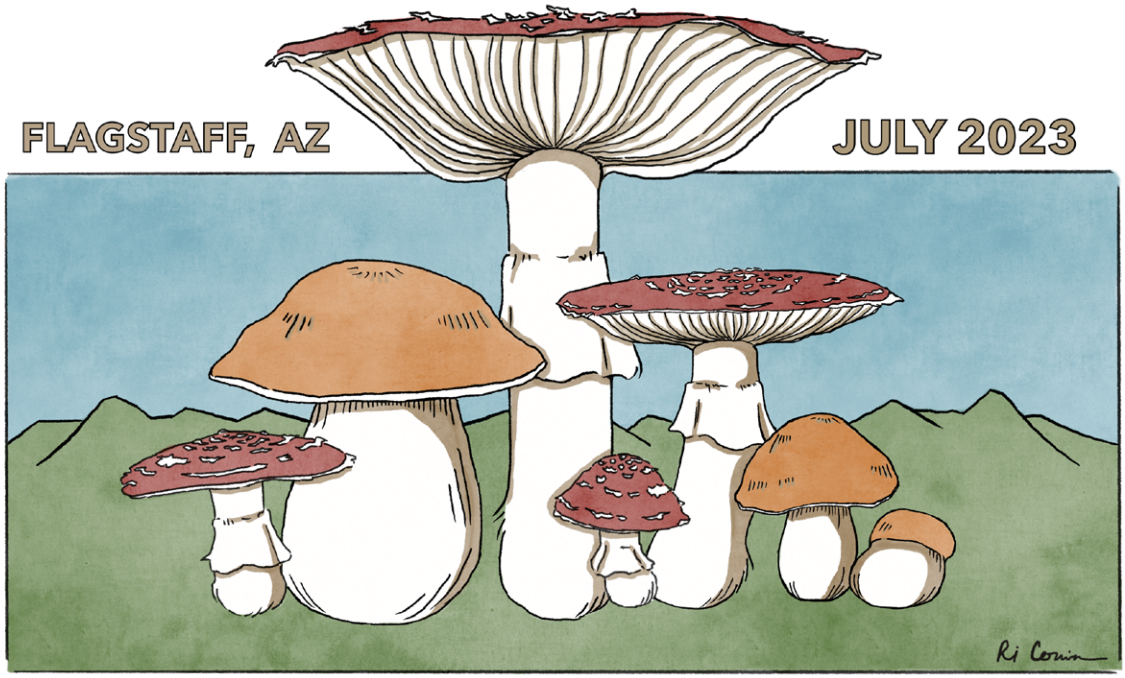
Program and Schedule of Events

MYCOLOGICAL SOCIETY OF AMERICA



ELEVATING MYCOLOGY

91st Annual Meeting of the Mycological Society of America
Little America Hotel and Convention Center • Flagstaff, Arizona

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Meeting Abstracts

Abstracts for all invited and contributed presentations will be available before the start of the meeting. Search for them on the **MSA website** under the Annual Meeting. They are in a pdf format.

MSA Officers, Councilors, and Meeting Leadership

MSA Officers

Julia Kerrigan
President (2022-2023)
Department of Plant and Environmental Sciences, Clemson University, Clemson, SC

M. Catherine Aime
President-Elect (2022-2023)
Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN

Timothy James
Vice President (2022-2023)
Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI

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

Heather Hallen-Adams
Treasurer (2022-2025)
Department of Food Science and Technology, University of Nebraska – Lincoln, Lincoln, NE

Elizabeth Arnold (Betsy)
Immediate Past President (2022-2023)
School of Plant Sciences / Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ

Marc Cubeta
Past President (2022-2023)
Department of Plant Pathology, North Carolina State University, Raleigh, NC

MSA Councilors

Tanya Cheeke
Councilor, *Ecology & Conservation* (2021-2023)
School of Biological Sciences, Washington State University, Richland, WA

Jessie Uehling
Councilor, *Systematics & Evolution* (2021-2023)
Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR

Antonis Rokas
Councilor, *Genetics & Cell Biology* (2021-2023)
Department of Biological Sciences, Vanderbilt University, Nashville, TN

Marisol Sánchez-García
Councilor, *Symbiosis & Pathology* (2021-2023)
Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences, Uppsala, Sweden

Rachel Koch
Councilor, *Symbiosis & Pathology* (2022-2024)
U.S. Department of Agriculture, Agricultural Research Service, Foreign Disease – Weed Science Research Unit, Fort Detrick, MD

Michelle Jusino
Councilor, Ecology & Conservation (2022-2024)
U.S.D.A. Forest Service, Northern Research Station, Center for Forest Mycology Research, Madison, WI

Yan Wang
Councilor, *Genetics & Cell Biology* (2022-2024)
Department of Biological Sciences, University of Toronto, Toronto, Canada

Catalina Salgado-Salazar
Councilor, *Systematics & Evolution*, (2022-2024)
U.S. Department of Agriculture, Agricultural Research Service, Mycology and Nematology Genetic Diversity and Biology Laboratory, Beltsville, MD

MSA Meeting Leadership and Program Committee

Local Arrangements Chair
Don Natvig

Foray Coordinators
Catherine Gehring
Mike Dechter

Program Committee
Jason Slot (Chair)
Nhu Nguyen
Ning Zhang
Maria-Jose Romero-Jiminez
Julia Kerrigan
A. Elizabeth Arnold (*ex officio*, *Past Chair*)
Cathie Aime (*ex officio*, *President Elect*)

Staff

Bill Stoeffler, Account Director
Jane Shepard, Meeting Planner
Cori Van Galder, Registrar and Membership Coordinator
Mary Johns, Registrar

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 2023 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.

Awards

Congratulations to all of this year's MSA Award Winners!

DISTINGUISHED MYCOLOGIST AWARD: DR. DENNIS E. DESJARDIN

The Distinguished Mycologist Award is one of the highest awards bestowed by the MSA, and it is designed to recognize individuals that have a truly distinguished career in the field of mycology in terms of either research or service.

Dr. Dennis E. Desjardin retired from San Francisco State University in 2021 after 31 years as Professor in the Department of Biology, and Director and Curator of the H.D. Thiers Herbarium. He was born and raised in Del Norte County, CA, where he developed his love of fungi, collecting mushrooms from the age of three with his immigrant grandparents. He attended San Jose State University from 1968–1971 as a math major, then dropped out to play music and build homes in the SF Bay Area. After a ten year hiatus, he returned to college to study mycology with Dr. Harry D. Thiers at San Francisco State, earning a BS in Biology–Botany (1983) and a MA in Ecology and Systematic Biology (1985). He received a PhD in Botany from the University of Tennessee in 1989 studying under the tutelage of Dr. Ronald H. Petersen, then taught at Oberlin College for one year. Dr. Desjardin returned to his alma mater in 1990 to continue Dr. Thiers' legacy of mycological teaching and research. At SF State, he taught eight different courses in general biology, botany and mycology at both undergraduate and graduate levels, mentoring 23 Masters and 5 PhD students of which 68% are female and 25% are from under-represented minority groups. His research focuses on the distribution, taxonomy and evolution of mushroom-forming fungi. Supported by eight National Science Foundation grants, he has conducted field studies in the Hawaiian Islands, Micronesia, Indonesia, Thailand, Malaysia, West Africa, Brazil and the US. He has published over 150 refereed scientific papers and described over 300 new species of mushrooms representing most major body forms (agarics, boletes, polypores, bird's nest fungi, earthstars, stinkhorns, coral, cyphelloid, sequestrate and secotioid fungi). He has shared this information on the systematics of mushrooms with the general public in two co-authored popular field guides, *Mushrooms of Hawaii* and *California Mushrooms*. Over the past decade he has become recognized as an authority on bioluminescent fungi. Dr. Desjardin was the first recipient of SF State's Distinguished Faculty Award for Excellence in Professional Achievement (2007), and he is an elected Fellow of the California Academy of Sciences (1995) and the Mycological Society of America (2005). In 1998 he was awarded MSA's C.J. Alexopoulos Prize and the W.H. Weston Award for Excellence in Teaching. In "retirement" Dr. Desjardin is now the Chief Mycologist for Sempera Organics, a start-up company that grows functional fungi for nutraceuticals and has launched a new mushroom and mycelium-based meat alternative called Mamu

W.H. WESTON AWARD FOR EXCELLENCE IN TEACHING: DR. MARC ANTHONY CUBETA

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.

Dr. Marc Anthony Cubeta is a Professor in the Department of Entomology and Plant Pathology at North Carolina State University, Associate Director of the Center for Integrated Fungal Research and Director of the Larry F. Grand Mycological Herbarium. Marc began his academic teaching career as an undergraduate student at the University of Delaware, where he served as a teaching assistant for Dr. Tom Pizzolato's Botany II course to fulfill a requirement for his Basic Educational Opportunity Grant that provides funding to students of low socioeconomic status to attend college. Since his time as an undergraduate student teaching assistant at the University of Delaware, Marc has been involved in teaching in various capacities for more than 40 years at academic institutions that include Gavilan

Community College, University of Illinois, Duke University, and North Carolina State University (NCSU).

For the past 20 years at NCSU, Marc has taught (or co-taught) and developed distance education and traditional face-to-face mycology and plant pathology courses such as Biology of Plant Pathogens, Fungal Genetics and Physiology, Introduction to Mycology, Kingdom of Fungi, and Plant Pathosystems. Marc has always recognized that research and teaching are complementary activities and has worked diligently to improve his ability to transfer complex subject matter from science-based studies in an understandable manner to students. He often finds it very useful to provide pragmatic examples that students can relate to in their everyday lives and strives to stimulate curiosity and independent thinking, as each student has a unique background and learning style. Marc often states that the most important characteristic of an effective teacher is the willingness to help others. This ultimately requires a mutual respect between students and instructor, patience and many hours of preparation. Marc is very interested in understanding how students learn and observing educational methods used by other instructors to improve his teaching. He is extremely committed to educating and mentoring graduate, undergraduate, high school students and teachers, and the public.

Marc has served as an advisor and mentor for 52 high school teachers, 33 high school students, 39 undergraduate students, 20 graduate students, and as a member of 85 graduate student committees. He interacts well with students in and outside the Department and is valued for his advice and approach for addressing problems in multiple areas, with this interaction extending to other universities and international students. He is particularly interested in providing educational opportunities for underrepresented populations and first-generation college students. Marc feels very fortunate to be the benefactor of excellent mentoring for many years that has contributed significantly to his teaching, which is still very much a work in progress. Marc continues to invest considerable time and effort in mentoring and teaching because he truly enjoys the challenges and potential rewards that accompany one-on-one and group interactions with students in a classroom and research setting. Marc served as a mentor for STEM faculty as part of the American Association of Colleges and Universities Project Kaleidoscope program for two years. This program empowers and energizes faculty at US academic institutions to gain knowledge and skills to become agents of change and leaders in STEM education on their respective campuses. Marc was also invited to participate in the President's Office of Science Technology and Policy meeting at the White House to discuss the future of agriculture and STEM education in the US. Marc is a member of the North Carolina Academy of Outstanding Teachers and recipient of the North Carolina State University and American Phytopathological Society Outstanding Teaching Awards.

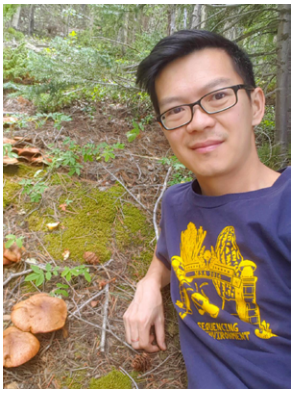
W.H. WESTON AWARD FOR EXCELLENCE IN TEACHING: MATTHEW E. SMITH

Matthew E. Smith is an Associate Professor in the Department of Plant Pathology at the University of Florida and the curator of the Fungarium at the Florida Museum of Natural History. He is responsible for identifying unknown fungi for a variety of Florida stakeholders, including the UF Plant Disease Clinic, UF/IFAS Extension and the UF College of Veterinary Medicine. His research focuses on fungal ecology, evolution and systematics, and he has worked extensively on truffles and ectomycorrhizal fungi.

He has taught a variety of mycological courses to various groups of students at the graduate and undergraduate level. These range from a lecture and lab course (Fungal Biology), to a research-based seminar, to a colloquium focused on advanced topics in mycology as well as professional skill development for graduate students. Outside of the classroom and teaching lab, his educator role has extended into mentorship of research students, a form of teaching that can have the most impact on a student's success and identity as a scientist. This one-on-one teaching includes 14 graduate students, 7 postdoctoral scholars, 29 graduate student committees, and thirty undergraduate students. He feels lucky because he gets to teach fungal biology each Fall semester.

CONSTANTINE J. ALEXOPOULOS PRIZE: NHU H. NGUYEN

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.



Nhu H. Nguyen started his mycological journey as an undergraduate in Meredith Blackwell's lab where he studied yeasts in the guts of beetles and other insects. He described a number of new yeast species, including those with impressive capabilities to ferment xylose into ethanol. After receiving a BS in Biology, he continued on to graduate school with Tom Bruns where he continued his study in mycorrhizal symbioses, although through the lens of plant-fungal-bacterial interactions. While his Ph.D. project was more ecology based, he learned the mushrooms and developed a slimy relationship with the genus *Suillus*. He worked on the systematics and ecology of these fungi, which he brought to Peter Kennedy's lab as a postdoc. His few years with Peter were fruitful where he honed skills in fungal ecology and invigorated the concept of fungal guilds through co-development of the FUNGuild database. He returned to Berkeley for a short postdoc with Mary Firestone where he learned tools to work with soil bacteria. Currently he is Associate Professor of Soil Microbial Ecology at the University of Hawaii at Mānoa where he studies soil fungi and their interactions with bacteria and other soil critters. He continues to work with *Suillus*, as relationships with these fungi don't easily slip away.

GORDON AND TINA WASSON AWARD: THERESA A. (TERRI) CLEMENTS

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.

Terri Clements is passionate about Arizona mushrooms. She loves foraging for them in the diverse habitats of Arizona, documenting and preserving them for the Robert L. Gilbertson Mycological Herbarium so they are available to researchers and educators now and in the future, sequencing their DNA in order to understand the state's fungal diversity of both known and novel species, and submitting their sequences to GenBank so they are publicly searchable and linked to their herbarium specimens. As chairman of the Arizona Mushroom Society's Scientific Committee, she enjoys leading forays, sharing sequencing results and informational posts on the Arizona Mushroom Forum, and helping people identify their fungal discoveries on iNaturalist.

MSA FELLOW: PETER KENNEDY

MSA Fellows are selected from members who have completed at least 11 years of service after their PhD. 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.

Peter Kennedy is a mycologist broadly interested in plant-microbe interactions and microbial ecology. He has worked most extensively on the ectomycorrhizal fungal symbiosis, focusing on how the structure of ectomycorrhizal fungal communities is influenced by factors such as interspecific competition, host specificity, and biogeography.

Peter received his bachelor's degree from The Evergreen State College and his doctorate degree from the University of California, Berkeley. He was a post-doctoral research fellow at Point Reyes National Seashore before joining Lewis and Clark College as an assistant professor in the Department of Biology. In 2013, Peter moved to the University of Minnesota to join the Department of Plant and Microbial Biology, becoming a full professor in 2020. Peter has published 90 peer-reviewed papers which have already been cited more than 10,000 times. He has presented dozens of invited seminars as a speaker for other societies and symposia. He is the recipient of past awards including the MSA Alexopoulos Prize (2015), the Martin-Baker Award (2011) and the International Mycological Association's Reginald A. Buller Award (2014). Kennedy's service to the MSA and broader

community includes chairing the MSA Karling Annual Lecture Committee (2020-present) and as associate editor for Mycologia (2014-2018) and New Phytologist (current).

MSA HONORARY MEMBER: PETER JOHNSTON

The MSA Honorary Member Award is offered annually to a distinguished senior scientist with a long list of significant contributions to fungal biology, and lives outside of the United States and Canada.

Peter Johnston started along the road toward fungal taxonomy in the early 1980's at the New Zealand Department of Scientific and Industrial Research, with strong support from his manager at the time, Gary Samuels (MSA Distinguished Mycologist in 2010). Following early projects on the taxonomy of New Zealand's Stictis and Rhytismatales species, his research has focused on Helotiales and Helotiales-like Leotiomycetes. Most of Peter's training has been hands-on in the forest and lab; as a mature student his more formal training led to a MSc from Reading University and a PhD from Victoria University. He now works as a senior scientist for Manaaki Whenua - Landcare Research. In recent years his research has had two directions - alpha-taxonomy of New Zealand's Leotiomycetes and the development of a modern phylogenetic, DNA-based classification of Leotiomycetes globally. His work on Leotiomycetes classification has been in collaboration with many mycologists from around the world. In addition, he helps maintain the fungal data delivered through the BiotaNZ web pages - a complete compilation of the fungal species reported from New Zealand, their current classification and synonymy, and the literature, specimen and DNA sequence data used to support the occurrence of each species in New Zealand.

Student Awards

MSA Graduate Fellowship
Maria-Jose Romero-Jimenez
Amanda Rawstern

NAMA Award
Syrena Whitner

Myron P. Backus Award Fund
Terry J. Torres-Cruz

Undergraduate Research Award
Marina Zaza

Student Travel Awards

Edward E. Butler Travel Award
Caroline "Caro" Willis

Everett S. Luttrell Travel Award
Kathryn Maley

Harry Morton Fitzpatrick Travel Award
Thomas Roehl

Harry D. Theirs Travel Award
Rebecca Mader

James M. Trappe Travel Award
Elena Flores Callejas

Orson and Hope Miller Travel Award
Amanda Rawstern

Emerson-Fuller-Whisler Travel Award
Syrena Whitner

Robert L. Gilbertson Travel Award
Victoria Luizzi

Richard P. Korf Travel Award
Samira Fatemi

Francis A. Uecker Travel Award
Maddie Hincher

Charles Kramer Travel Award
Katelyn Hickman

Constantine J. Alexopoulos Travel Award
Ishwora Dhungana

Research Awards

Robert W. Lichtwardt Student Research Award
Aimée Blondelle

Clark T. Rogerson Research Award
Benjamin Lemmond

Alexander H. & Helen V. Smith Award
Justin J. Loucks

Salomon Bartnicki-Garcia Research Award
Ernesto Ticiano da Silva

Forest Fungal Ecology Award
Mary Childress

Postdoctoral Forest Fungal Ecology Award
Esther Velasquez Vinazco

MSA Climate Change Research Award
Xiomy Janiria Pinchi Davila

SPORES Mentoring Program

New in 2023, MSA implemented SPORES (Society Prioritizes Our Recruitment of Every Scholar), a mentoring program that sends underrepresented undergraduate students to the 2023 MSA Annual Meeting. Awardees receive free meeting registration, mentoring by an established mycologist, and 1-year MSA membership. Below is a list of recipients for 2023.

The SPORES program is funded by NSF IOS-PBI (2029168) awarded to Sara Branco and Hui-Ling Liao as well as seed money from the MSA.

Zera Adame
Lucas Carbajal
Kane Farmer
Lucia Goldman
Tyler Hacking
Marling Hardman
Louis Hight
Carolina Ortiz
Luna Perez
Mira Polishook
Ari Puentes
Romina Silva
Dorottya Szafian
Fabiana Tabash
Juan Sanchez Tello
Reese Tsubota
Sara Wheeler
Chrisa Whitmore
Birgitta Woods
Zoe Zaretzke
Marina Zaza
Kieryn Zizzo

General Information

Registration Desk

The registration desk is located in the Aspen Room in the Little America Hotel and Conference Center.

Staff will help participants check-in to the conference, answer questions, and handle on-site registration during the following hours:

Sunday, July 30 • 3:00 p.m.-7:00 p.m.
Monday, July 31 • 7:00 a.m.-6:00 p.m.
Tuesday, August 1 • 7:30 a.m.-5:00 p.m.
Wednesday, August 2 • 7:00 a.m.-3:00 p.m.

Badges

Each registered participant will receive a name badge upon check-in with the conference. The badge is required for 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. And please mute the sound on your laptops. Please respect presenters' wishes not to share certain sensitive data on social media.

The official hashtag for our 2023 meeting:
#MSAfungi23

Internet Access

Complimentary internet is included in the main meeting areas and can be accessed using the following credentials:

Network: LAFMeeting
Password: ArizonaMeeting

Please make sure to follow instructions from Little America front desk staff when checking in on how to access Wi-Fi in your sleeping room.

Parking

Parking is complimentary at the Little America Hotel and Convention Center.

If you need to park at Calderon Hall, you will need to register with the Park Mobile App. A code for the MSA meeting will be sent to all individuals with dorm reservations.

Health Care Resources

The closest hospital to the Little America Hotel is **Flagstaff Medical Center** (1200 N Beaver St, Flagstaff, AZ 86001; 928-779-3366) which is located 10 minutes away.

Concentra Urgent Care is located at 1110 E Rte 66 Suite 100, Flagstaff, AZ 86001. This is approximately 6 minutes from Little America or Calderon Hall by car. Concentra is open 8:00 AM to 5:00 PM Monday - Friday.

NextCare Urgent Care is located at 399 S Malpais Ln STE 100, Flagstaff, AZ 86001. This is approximately 10 minutes from Little America and 4 minutes from Calderon Hall. NextCare is open Monday - Friday from 8:00 AM to 8:00 PM and Saturday and Sunday from 8:00 AM to 4:00 PM.

Walgreens Pharmacy is located 5 minutes away from the hotel at 2610 E Rte 66, Flagstaff, AZ 86004; 928-773-1155.

If there is an emergency while you are at the Little America Hotel and Convention Center, please dial 911 or alert the MSA staff at the registration desk in the Aspen Room.

Refreshments & Receptions

Refreshment breaks will be provided throughout the conference and available in Ballroom A unless otherwise noted. Open events for all participants at which refreshments will be served for registered participants include the MSA Opening Reception, Sunday, July 30; breaks each day, Monday-Wednesday; boxed lunches on Monday and Tuesday. Pre-registered events include the MSA Foray (sold out) and the MSA Banquet/Auction/Social.

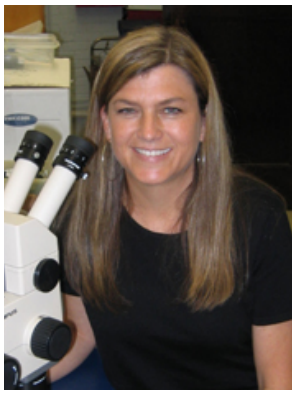
Boxed Lunches

Boxed lunches will be provided for attendees on Monday and Tuesday during the lunch break. Please stop by Ballroom A to pick up your boxed lunch.

Special Lectures

Join your colleagues and friends for the following two lectures during this year's Annual Meeting!

MSA 2023 Presidential Address



Monday, July 31, 2023
8:30 a.m.-9:30 a.m.
Ballroom BC
Life in a Different Light: Elucidating the Microscopic Lives of Fungi
Julia Kerrigan,
Clemson University

MSA 2023 Karling Lecture

Tuesday, August 1, 2023
8:30 a.m.-9:30 a.m.
Ballroom BC
Fungi and Friends: An Expanded View of Fungal-Bacterial Interactions and Biogeochemical Effects in the Mycorrhizal Hyphosphere
Jennifer Pett-Ridge, Lawrence Livermore National Laboratory

MSA Business and Breakfast Meeting

The annual business meeting includes a summary of the Executive Council's reports and passing of the gavel. The awards ceremony is an important part of this meeting, which involves presenting the Distinctions, Honorary, Research, DEI, Student, and Travel Awards. Certificates of appreciation are given in recognition of service for committee members. A hot breakfast is provided.

Special Meetings

During the main conference several special meetings will occur.

***Mycologia* Editors' Meeting**
Agassiz Room
Tuesday, August 1, 2023
12:00 p.m.-1:00 p.m.

MSA Student and Postdoc Section Board Meeting
Agassiz Room
Sunday, July 30, 2023
5:00 p.m.-6:00 p.m.

U.S. National Science Foundation: A Conversation with Program Directors
Tuesday August 1
12:00 p.m.-1:00 p.m.
Ponderosa Room

Those attending the lunchtime meeting should pickup their boxed lunch in Ballroom A and then proceed to the designated room.

MSA Student and Postdoc Section Welcomes You to MSA 2023 in Flagstaff, Arizona

The Mycological Society of America (MSA) Student and Postdoc Section is a student and postdoc led group within MSA, which aims to (1) facilitate communication among all students and postdocs (SPS) of the Society, (2) provide opportunities for SPS to network with other individuals in their own research fields and beyond, and (3) connect SPS members of MSA with scientists performing cutting edge mycological research. Thus, the SPS has the potential to inspire future collaborations. For this year's annual meeting, the SPS organized the morning coffee hours "Mycologists & Musings," a series of informal meetings with mycologists. This informal setup will help students and other early career individuals be comfortable approaching their mycological heroes! Along with this main event, members are welcome to join us at the annual MSA SPS business meeting and at our annual MSA SPS social event. Throughout the 2022-2023 year, we held the "Cómo Convertirse en Micólogue" panel, provided $1150 in scholarships to 21 undergraduate students that covered their society membership fee, held a grant writing workshop, a writing retreat, a "Last of Us" inspired symposia, and other virtual events. Our monthly newsletters have helped to keep student and postdoc members up to date with our events and MSA deadlines, including reminders for abstracts, award submissions, and spotlights. The SPS is an open and inclusive group which welcomes all graduate students, postdoctoral researchers, and faculty participation. We hope you can join us at future events!

Mycologists & Musings

This event is sponsored by the Student and Postdoc Section of MSA. It is scheduled each day of the Annual Meeting from 8:00 a.m.-8:30 a.m. on Monday and Tuesday, and 7:30 a.m.-8:00 a.m. on Wednesday in the Agassiz room. Members will be interviewing and listening to mycologists on their struggles and successes of their career paths. Those to be interviewed are: Catalina Salgado-Salazar, Javier Tabima, and Nancy Johnson. All MSA members are welcome.

Auction Events

The 2023 MSA Auction will be held on Wednesday, August 2 starting at 7:00 p.m. in Ballroom A in conjunction with the Annual Banquet and Social. It will be in person, and have both a live and silent component and is hosted by our renowned auctioneer and esteemed mycologist, David Geiser.

The evening consists of:

- Our action-packed live auction
- Our colorful silent auction

Did you bring an auction item with you to the Annual Meeting? Drop off your item on Monday or Tuesday at the MSA registration desk located in the Little America Hotel Aspen Room.

Plan to join the fun! Bid high, bid often!

Flagstaff

The weather during the event will be with highs in the 80 Fahrenheit degree range and lows in the lower 50 degree range. We recommend bringing a jacket or sweater to the conference each day, as the meeting rooms might get chilly. The same attire will be applicable in the evening when it is cooler. Be sure to check your favorite weather app for the most up to date weather information.

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 to our event photo sharing site. Remember our hashtag, #MSAfungi23

MSA has created an upload directory for anyone wishing to share their #MSAFungi23 photos. You can upload your photos to the site through this link: **https://bit.ly/MSAFungi2023**.

You can also use this QR code for uploading your photos:

To view photos, use this link: **https://bit.ly/MSAPhotos2023** or this QR code:

Please note that by uploading your photos, you are giving MSA permission to share those photos with our attendees.

Poster Presentation Guidelines

Poster presenters, please review the following guidelines and schedule:

- All poster presenters are responsible for printing and bringing their own posters. The poster size must not exceed **36" high** (vertical) **X 48" wide** (horizontal).
- The boards will be numbered and MSA will provide push pins to hang your poster.
- Each presenter will also be assigned a number so you can hang up your poster on 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. Please refer to the schedule below.
- Any posters that are left hanging on the boards will be taken down by a conference team member.

Poster Schedule

Poster Session 1
Monday, July 31, 2023
Ballroom A • 5:30 PM – 7:00 PM
Poster Setup Time: 12:00 PM – 1:30 PM
Poster Viewing: 1:30 PM – 5:30 PM
Author Present: 5:30 PM – 7:00 PM
Poster Take Down Time: 7:00 PM – 7:30 PM

Poster Session 2
Tuesday, August 1, 2023
Ballroom A • 5:30 PM – 7:00 PM
Poster Setup Time: 8:00 AM – 9:30 AM
Poster Viewing: 9:30 PM -- 5:30 PM
Author Present: 5:30 PM – 7:00 PM
Poster Take Down Time: 7:00 PM – 7:30 PM

Oral Presentation Guidelines

Presenters, please make note of the following guidelines:

- Bring two copies of your presentation, in case of storage or media failure. Provide your presentation on a USB Thumb Drive.

Download Your Presentation in the Session Room

- If you are presenting in the morning, you must load your talk prior to the start of the 8:00 AM morning 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.
- Check-in with the session chair so that she/he knows you are present.
- 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 know before the start of the meeting. Be prepared to change computers quickly.
    a) **Please note that connection time will be subtracted from your allotted speaking time.**
    b) **You must provide any needed converters or adapters.**
    c) You are advised to bring your own laser pointer (and remote if using your own laptop).
- Do not plan to use internet service for any portion of your presentation.

Virtual Participation and Guidelines

If you are attending the Annual Meeting virtually, 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 symposia that will be held in Ballroom BC each day, Monday, July 31 – Wednesday, August 2, and the Tom Volk Memorial Session on Wednesday, August 2 in the Flagstaff room. Only these special sessions and symposia 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 Mountain Standard Time (UTC-08:00, Mountain Standard Time for US & Canada). Please let us know (**msafungi@reesgroupinc.com**) if you do not receive this information and we are happy to re-send.

This link will be live approximately 10 minutes prior to each session.

Please use the link below to join the webinar:
https://us02web.zoom.us/j/82629057587?pwd=Y3pxOU1WaGxoSmFZcVFEb2pqQTYzdz09
Passcode: 795616

Or One tap mobile:
+13052241968,,82629057587#,,,,*795616# US
+13092053325,,82629057587#,,,,*795616# US

Or Telephone:
Dial(for higher quality, dial a number based on your current location):
+1 305 224 1968 US
+1 309 205 3325 US
+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)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 360 209 5623 US
+1 386 347 5053 US
+1 507 473 4847 US
+1 564 217 2000 US
+1 669 444 9171 US
+1 669 900 9128 US (San Jose)
+1 689 278 1000 US
+1 719 359 4580 US
+1 253 205 0468 US

Webinar ID: 826 2905 7587
Passcode: 795616
International numbers available: **https://us02web.zoom.us/u/kcC3zXsBwa**

We recommend you log in 10 minutes before sessions start to test your connectivity. Please update your Zoom client to the latest version before the meeting:

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.

If you have any difficulties connecting to the Zoom live stream, please email us at **msafungi@reesgroupinc.com**.

Special Facilities and Important Resources

We have established a lactation room and quiet room as well as a gender-neutral restroom, for the duration of the meeting. If interested in using the lactation room or quiet room, please stop by the MSA registration desk to obtain a key.

Please reach out to any MSA staff person or volunteer on-site for more information. MSA celebrates and aspires to grow our diversity, and to offer an inclusive, safe, and welcoming meeting environment.

Shuttle Transportation

MSA will be offering shuttle bus transportation from Calderon Hall (NAU Campus) to Little America Hotel each day of the Annual Meeting. Please note the times below when the shuttle buses will be running. The shuttle will be accessible on the side of the Little America Hotel. This service is free.
If you don't see a shuttle right away, please wait a few minutes as they are looping to Calderon Hall and back.

Sunday, July 30
2:30 p.m.-6:30 p.m.

Monday, July 31
7:30 a.m.-9:00 a.m.
12:00 p.m.-2:00 p.m.
5:30 p.m.-7:30 p.m.
8:30 p.m.-9:30 p.m.

Tuesday, August 1
7:30 a.m.-9:30 a.m.
12:00 p.m.-2:00 p.m.
5:30 p.m.-7:30 p.m.

7:30 p.m.-10:00 p.m.
Shuttle buses will provide transportation to and from Little America Hotel and Calderon Hall to the Student Social at the Grand Canyon Brewery.

Wednesday, August 2
7:00 a.m.-9:00 a.m.
11:30 a.m.-2:00 p.m.
6:00 p.m.-10:30 p.m.

Stay Healthy!

Nothing is worse than getting sick while traveling! Here are some tips that you can do to reduce your chances of catching anything while at the meeting, and to help prevent the spread of illness.

- Wash your hands often with soap and water! This is one of the most effective ways to stop the spread of germs. You should vigorously wash with soap and hot water for at least 20 seconds.
- If water and soap are not available, use an alcohol based hand sanitizer.
- Wave, don't shake! During cold and flu season, it is perfectly OK to forgo handshaking and hugs in favor of a wave or even a "fist-bump."
- Avoid touching your eyes, nose and mouth. This is one of the most common ways that germs are spread. This is especially important if you have come into contact with someone who might be ill or is displaying cold or flu symptoms.
- Do not cough or sneeze into your bare hands. Use a tissue then dispose of it! If you don't have a tissue, cough or sneeze into your elbow. Always wash or sanitize your hands after coughing, sneezing or blowing your nose!
- Avoid close contact with people who are sick (have a fever or cough). If you think that you might be sick, limit your contact with others to keep from spreading illness. Please stay in your hotel room. If you have a sustained fever, cough, or shortness of breath, please contact the hotel or our staff to obtain medical treatment.
- It is OK to use Disinfecting Wipes to clean the surfaces in your hotel room. Portable packs are available at local pharmacies and stores in the area of the hotel.
- If you are traveling from outside of the United States, please consider purchasing a travelers' medical insurance policy.
- Please note that our meeting will follow the applicable health and safety guidelines and mandates from the CDC.

Stay Safe!

To ensure the safety and security of our attendees and guests, we have composed the following list of safety tips and guidelines for this conference.

- When inside the conference venue, name tags should be worn and visibly displayed at all times. (Access to the conference is strictly for members and registered conference guests.)
- For security reasons, we recommend that you DO NOT wear your badge outside of the conference venue. If you lose your badge, please notify the MSA staff at the registration desk in the Aspen Room.
- Never give your hotel room information to someone you don't know. Do not open your hotel room door to anyone you don't know or recognize.
- Store your electronics, passport, and personal valuable items in your room safe or a hotel lock box when you are not in your room.
- If you are exploring, let someone know where you are going, who you will be with, and what time you expect to return. Avoid walking alone to and from the conference venue, especially at night.
- Please do not leave any bags or articles unsecured in any meeting room, or hotel public areas. Unattended items may be removed and secured by our security team.
- Access to the conference is strictly for members and registered conference guests.
- Attendees at this conference are expected to maintain a level of decorum appropriate to the nature and purpose of our meeting. While exchange and debate is welcome where appropriate, any person who is disruptive or abusive in language or manner will be removed and barred from further conference proceedings.

Questions?

Please reach out to our meeting team.

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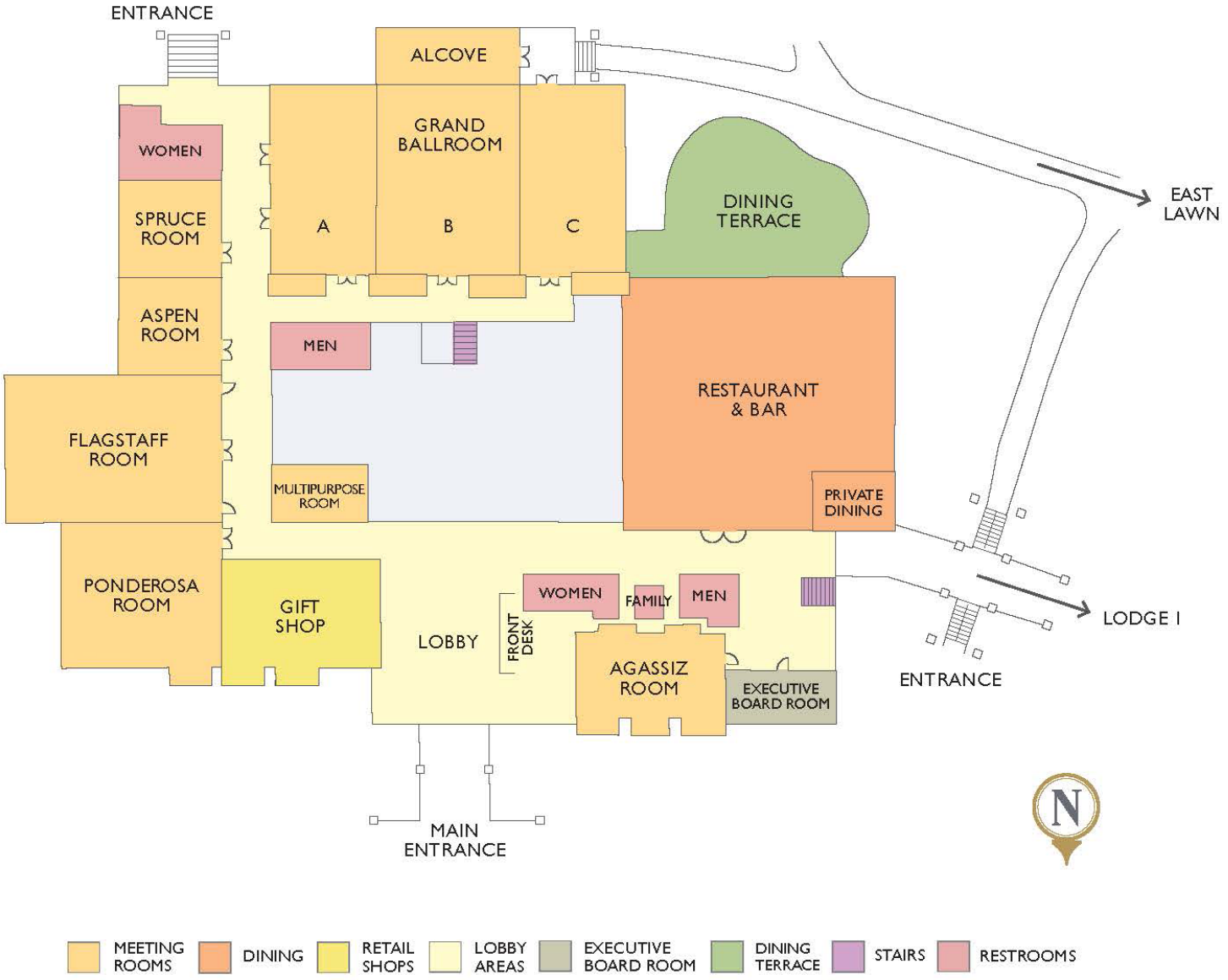
Hotel & Convention Center Map



Schedule of Events

Saturday, July 29, 2023

9:00 a.m.-4:00 p.m.
Agassiz Room
MSA Executive Council Meeting
Continental breakfast provided starting at 7:30 a.m.

Sunday, July 30, 2023

8:00 a.m.-4:00 p.m.
MSA Annual Foray ata the Snow Bowl Ski Resort
If you have pre-registered for the Foray, meet the buses outside of the Little America Hotel and Conference Center. Plan to bring a hat, sunglasses, sunscreen, comfortable shoes, and breathable clothing (and a rain suit in case of inclement weather).

There are two groups going to the Snow Bowl Ski Resort for the Foray. The first group is leaving the hotel by bus at 8:00 a.m. and returning at 12:00 p.m. The second group is leaving the hotel by bus at 12:00 p.m. and returning at 4:00 p.m. Please arrive at the bus a few minutes early to board at the appropriate time for your group.

8:15 a.m.-5:30 p.m.
Excursion to the Grand Canyon
If you pre-registered for the excursion, meet the buses outside of the Little America Hotel and Conference Center. Be sure to bring comfortable walking shoes or hiking boots, sunscreen, hat, sunglasses, cell phone (camera), and a small backpack for personal items.

3:00 p.m.-7:00 p.m.
Aspen Room
Registration Open
Stop by the registration desk to pick up your badge.

4:15 p.m.-4:45 p.m.
Agassiz Room
SPORES Meeting

5:00 p.m.-6:00 p.m.
Agassiz Room
MSA Student and Postdoc Section Board Meeting

6:00 p.m.-9:00 p.m.
East Lawn
Welcome Reception
All attendees are invited to the opening reception. A cash bar and light snacks are offered. Join your colleagues and friends to meet up at the first social event of the MSA Annual Meeting!

Monday, July 31, 2023

7:00 a.m.-6:00 p.m.
Aspen Room
Registration Open
Don't forget to drop off your auction items at the Registration Desk!

8:00 a.m.-8:30 a.m.
Agassiz Room
Mycologists & Musings

8:30 a.m.-9:30 a.m.
Ballroom BC
Presidential Address
Life in a Different Light: Elucidating the Microscopic Lives of Fungi
Julia Kerrigan, Clemson University

9:30 a.m.-10:00 a.m.
Refreshment Break

10:00 a.m.-12:00 p.m.
Ballroom BC
Parallel Session 1-1: Fungi and Global Change

10:00 a.m.-10:15 a.m.
Ranking Climate, Soil, and Plant Communities as Drivers of Leaf, Root, and Soil Fungal Communities in Different Land Uses
Hannah Dea, Anna Kazarina, Abigail Urban, Marcos Mansano Sarto, Samantha Thomas, Terry Loecke, Matthew Kirk, Charles Rice, Gregory Houseman, Mitchell Greer, Benjamin Sikes, Sonny Lee, Ari Jumpponen

10:15 a.m.-10:30 a.m.
Atmospheric Deposition Lowers Fungal Diversity and May Lead to a Tipping Point in an Endangered Spruce-Fir Ecosystem
Chance Noffsinger, Brandon Matheny

10:30 a.m.-10:45 a.m.
The Role of Marine Fungi in Particle-Associated Carbon Processing
Syrena Whitner, Samantha Gleich, David Caron, Anthony Amend

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Melanin "Ghosts" and Soil Minerals: Evaluating Controls on Fungal Necromass Persistence
Katilyn Beidler, Elizabeth Huenupi Pena, Lang DeLancey, Peter Kennedy, Richard Phillips

11:15 a.m.-11:30 a.m.
Herbarium Specimens as Time-Capsules: Using Historical Collections and Modern Surveys to Assess Endophyte Biodiversity in the Threatened Arctic
Brooke E. Sykes, Barnabas H. Daru, François Lutzoni, Jolanta Miadlikowska, Paul Markley, Shannon M. Skarha, József Geml, Ignazio Carbone, Jana M. U'Ren, A. Elizabeth Arnold

11:30 a.m.-12:00 p.m.
Questions and Discussion

10:00 a.m.-12:00 p.m.
Flagstaff
Parallel Session 1-2: Systematics and Diversity 1

10:00 a.m.-10:15 a.m.
A Systematic Revision of Neotropical *Hydropus Sensu Lato (Porotheleaceae, Agaricales*)
Django Grootmyers, Clark Ovrebo, Karen Hughes, Renée Lebeuf, P. Brandon Matheny

10:15 a.m.-10:30 a.m.
Fungi in the Foothills: *Cortinarius* Species Diversity in the Sierra Nevada Habitats
Danielle Sublett, Alija Mujic

10:30 a.m.-10:45 a.m.
A Phylogeny for North American *Mallocybe (Inocybaceae)* and Taxonomic Revision of Eastern North American Taxa
Patrick Matheny, Shawn Campagna, Mary Graddy, Roy Halling, Renée Lebeuf, David Lewis, Sammy Mardini, Chance Noffsinger, Matthew Smith, Rachel Swenie, Maliha Tabassum, Noah Walker, Jukka Vauras

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Phylogeny and Taxonomy of Plant Pathogens Related to *Fusarium Falciforme*, a Very Common Member of the *F. Solani* Species Complex
David Geiser, Ningxiao Li, Frank Martin, Kacey Zimmerman, Johanna Del Castillo Munera, Cassandra Swett

11:15 a.m.-11:30 a.m.
A Phylogenetic Overview of the Cantharellales
Rachel Swenie, Marc Cubeta, Gitta Langer, James Lawrey, Masoumeh Sikaroodi, Matthew Smith

11:30 a.m.-11:45 a.m.
A Decade of Sequencing *Pluteus* (Agaricales, Basidiomycota) in North America: 100 Species (and Counting)
Alfredo Justo, Hana Ševčíková, Ekaterina Malysheva, Else Vellinga, Guillermo Muñoz, Jacob Heilmann-Clausen, Giuliano Ferisin, Francesco Dovana, Egon Horak, Renée Lebeuf, Django Grootmyers, Jacob Kalichman, Stephen Russell, Oğuzhan Kaygusuz, Andrew Minnis

11:45 a.m.-12:00 p.m.
Questions and Discussion

10:00 a.m.-12:00 p.m.
Ponderosa
Parallel Session 1-3: Follar-Endophyte Communities

10:00 a.m.-10:15 a.m.
Neighboring Plants as a Source of Endophytic Fungal Inocula for Wheat
Mara DeMers, Christine Hawkes

10:15 a.m.-10:30 a.m.
Exploring the Effect of Yeast Species Composition and Diversity on Plant Disease Severity
María-José Romero-Jiménez, Mariana Garcia, Forrest Walker, Devin Leopold, Posy Busby

10:30 a.m.-10:45 a.m.
Genotypic and Environmental Variation in the Endophytic Fungal Load of Coastal Douglas-Fir Needles
Kyle Gervers, Joseph Spatafora, Posy Busby

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Deterministic Processes Have Limited Impacts on Foliar Fungal Endophyte Communities Along a Savanna-Forest Successional Gradient
Mathew A. Harris, Martin Kemler, Bernard Slippers, Samantha-Leigh Jamison-Daniels, Frederick Witfeld, Monique Botha, Dominik Begerow, Michelle Greve

11:15 a.m.- 11:30 a.m.
Leaf Traits Influence Species Richness of Foliar Fungal Endophytes - A Continental and Kingdom-Wide Study
Ryoko Oono, Austen Apigo, Leander Anderregg

11:30 a.m.- 11:45 a.m.
Characterization of the Microbiome and Metabolome of Boreal Mosses Reveals Unique Metabolites and Fungal Communities in Sphagnum
Megan Nickerson, Malak Tfaily, Jana U'Ren

11:45 a.m.-12:00 p.m.
Questions and Discussion

12:00 p.m.-1:00 p.m.
Ballroom A
Boxed Lunches
Stop by Ballroom A to pick up a boxed lunch.

12:00 p.m.-1:30 p.m.
Ballroom A
Poster Session 1 Setup

1:00 p.m.-3:30 p.m.
Ballroom BC
Symposium 1: Elevating the Role of Fungaria in Modern Mycology

1:00 p.m.-1:05 p.m.
Welcome and Introduction of Speakers

1:05 p.m.-1:25 p.m.
As Research Incubators, Collections Foster Connections Between Mycological Traditions and Innovations
A. Elizabeth Arnold

1:25 p.m.-1:45 p.m.
Integrating Living and Cryopreserved Collections into Fungal Herbaria: The Collection of Zoosporic Eufungi at the University of Michigan (CZEUM)
Alison H. Harrington, D. Rabern Simmons, Timothy Y. James

1:45 p.m.-2:05 p.m.
Elevating Fungal Diversity Research Through Molecular Barcoding of Fungarium Collections
Andrew W. Wilson, Gary Olds, Justin Loucks

2:05 p.m.-2:20 p.m.
Break

2:20 p.m.-2:40 p.m.
The MyCoPortal: Fungal Specimen Data - Everything, Everywhere, All at Once
Andrew N. Miller, Philip J. Anders, Scott T. Bates

2:40 p.m.-3:00 p.m.
Perfect (or Imperfect) Timing? What We Know (and Need to Know) About Fungal Phenology
Carrie Andrew

3:00 p.m.-3:30 p.m.
Panel Discussion

1:00 p.m.-3:30 p.m.
Flagstaff
Symposium 2: Fungal Interactions of Biological Soil Crusts in a Changing Environment

1:00 p.m.-1:05 p.m.
Welcome and Introduction of Speakers

1:05 p.m.-1:25 p.m.
Do Biocrusts Support Arbuscular Mycorrhizal Fungi?
Anita Antoninka, Sedona Spann, Mandy Slate, Ashley Braae, Ylva Leckberg, Matthew Bowker, Becky Mau, Bala Chaudhary

1:25 p.m.-1:45 p.m.
Biocrust Community Composition Influences Ecosystem Resistance and Productivity More Than Species Richness or Intraspecific Diversity
Matthew Bowker, M. Cristina Rengifo-Faiffer, Anita Antoninka, Henry Grover, Kirsten Coe, Kirsten Fisher, Brent Mishler, Melvin Oliver, Lloyd Stark

1:45 p.m.-2:05 p.m.
Abstract not submitted

2:05 p.m.-2:20 p.m.
Break

2:20 p.m.-2:40 p.m.
Abstract not submitted

2:40 p.m.-3:00 p.m.
Identifying herbicides compatible with biological soil crusts for land management: effects differ by mechanistic family
Lydia Bailey, Anita Antoninka, Matthew Bowker

3:00 p.m.-3:20 p.m.
Abstract not submitted

3:20 p.m.-3:30 p.m.
Questions and Discussion

1:30 p.m.-5:30 p.m.
Ballroom A
Poster Session 1
Posters available in Ballroom A for your review.

3:30 p.m.-3:45 p.m.
Ballroom A
Refreshment Break

3:45 p.m.-5:30 p.m.
Ballroom BC
Parallel Session 2-1: Fungal-Bacterial Interactions

3:45 p.m.-4:00 p.m.
Comparative Genomics of Mollicutes-related Endobacteria Supports a Late Invasion into Fungi
Reid Longley, Aaron Robinson, Patrick Chain, Gregory Bonito

4:00 p.m.-4:15 p.m.
Hyphosphere Interactions Mediate Soil Biogeochemistry and Biotic Resilience to Moisture Limitation
Rachel Hestrin, Jeffrey Kimbrel, Megan Kan, Rebecca Ju, Christina Ramon, Jessica Wollard, Marissa Lafler, Prasun Ray, Katerina Estera-Molina, Steven Blazewicz, Kelly Craven, Mary Firestone, Rhona Stuart, Peter Weber, Erin Nuccio, Jennifer Pett-Ridge

4:15 p.m.-4:30 p.m.
Untangling the Patterns of Sexual Response to Endohyphal Bacterial Symbionts: A Case for and Against Assumptions
Kyle Mondron, Kai Castle, William Gilmour, Teresa Pawlowska, Rasheed Adeleke, Alejandro Rojas, Gregory Bonito, Yi-syuan Guo, Scott Retterer, Jessie Uehling

4:30 p.m.-4:45 p.m.
Using the GOTTCHA2 Taxonomic Classifier to Characterize the Fungal Microbiome
Leah Johnson, Aaron Robinson, Julia Kelliher, Michal Babinski, Paul Li, Emiley Eloe-Fadrosh, Patrick Chain

4:45 p.m.-4:55 p.m.
Break

4:55 p.m.-5:10 p.m.
Harnessing the Power of Bacterial-Fungal Interactions to Create a Highly-Functional, Drought Resistant Hydrogel Biofertilizer that Promotes Plant Nitrogen and Phosphorus Uptake
Korena Mafune, Mari Winkler

5:10 p.m.-5:25 p.m.
Visualizing Bacterial and Fungal Interactions Using Fluorescence In Situ Hybridization
Demosthenes Morales, Aaron Robinson, Reid Longley, Greg Bonito, James Werner, Patrick Chain

5:25 p.m.-5:30 p.m.
Questions and Discussion

3:45 p.m.-5:30 p.m.
Flagstaff
Parallel Session 2-2: Systematics and Diversity 2

3:45 p.m.-4:00 p.m.
Diversity of *Tuber* Species in Mediterranean Forests: Discovery of Three New Cryptic Species
Francesca Angius, Andrea Brandano, Lucia Maddau, Gragory Bonito, Bruno Scanu

4:00 p.m.-4:15 p.m.
Investigating Mycobiota of Sugar and Red Maple Trees Across Maple Syrup Production Areas in Central Appalachian Forests
Molly Sherlock, Brian Lovett, Jamie Schuler, Matt Kasson

4:15 p.m.-4:30 p.m.
New Species and Ecological Impacts of *Tomentella* From Tropical Monodominant Forests of The Guiana Shield
Terry Henkel, Julieta Alvarez-Manjarrez, M. Catherine Aime, Matthew Smith

4:30 p.m.-4:45 p.m.
Break

4:45 p.m.-5:00 p.m.
Richer Than Gold: The Fungal Biodiversity of Reserva Los Cedros, a Threatened Andean Cloud Forest
Roo Vandegrift, Daniel Newman, Bryn Dentinger, Rosa Batallas-Molina, Nelson Dueñas, Jorge Flores, Paulette Goyes, Thomas Jenkinson, Jesse McAlpine, Daniel Navas, Tobias Policha, Daniel Thomas, Bitty Roy

5:00 p.m.-5:15 p.m.
***Dermoloma* – Rise of Small Brown Fungi**
Slavomir Adamčík, Miroslav Caboň, Katarína Adamčíková, Soňa Jančovičová

5:15 p.m.-5:30 p.m.
Questions and Discussion

3:45 p.m.-5:30 p.m.
Ponderosa
Parallel Session 2-3: Fungal Ecophysiology and Applications

3:45 p.m.-4:00 p.m.
Fungal Degradation of the Woody Byproducts of Forest Management Activities
Jeffrey Ravage, Lauren Czaplicki

4:00 p.m.-4:15 p.m.
From Field to Greenhouse: Investigating the Role of Soil Microbes in Take-All of Wheat
Melissa Vergara, Scott Liu, Christopher Mundt, Posy Busby

4:15 p.m.-4:30 p.m.
An Evaluation of Mycorrhizal Inoculants on the Growth and Foliar Nutrient Content of Young Grapevines Planted in Live Field Soil
Madeline Lueck, Michelle Moyer, Tanya Cheeke

4:30 p.m.-4:45 p.m.
A Helping Hand: Assisted Forest Restorations in Costa Rica's Coto Brus Region Yield Fungal Communities More Similar to Old-Growth Forests in Decaying Wood Than Unassisted Forest Restorations
Jeffrey Lackmann, Laura Aldrich-Wolfe, Estefania Fernandez

4:45 p.m.-4:55 p.m.
Break

4:55 p.m.-5:10 p.m.
The Right Fungus for the Job; Changes in Enzymatic Profiles of Six Fungi Grown on Agricultural and Wood Waste with Emphasis on Cellulose and Lignin-Derivable Monomers as Enzymatic Substrates
Leon Rogers, Gerald Presley, Paola Torres-Andrade

5:10 p.m.-5:25 p.m.
Soil and Litter Microbial Communities Differentially Influence *Pseudotsuga Menziesii* Seedling Physiology Across the Elevation Gradient of the Western Oregon Cascades
Abigail Neat, Posy Busby

5:25 p.m.-5:30 p.m.
Questions and Discussion

5:30 p.m.-7:00 p.m.
Ballroom A
Poster Session 1
Authors will be present to discuss their research with attendees. Poster abstracts are available online on the MSA website.

7:00 p.m.-9:00 p.m.
East Lawn
MSA Volunteer Social
Have you volunteered for MSA? If so, you are invited to attend the Volunteer Social as a thank you for your service to the organization. Cash bar and light snacks are offered.

Tuesday, August 1, 2023

7:30 a.m-5:00 p.m.
Aspen Room
Registration Open

8:00 a.m.-8:30 a.m.
Agassiz Room
Mycologists & Musings

8:00 a.m.-9:30 a.m.
Ballroom A
Poster Session 2 Setup

8:30 a.m.-9:30 a.m.
Ballroom BC
MSA 2023 Karling Lecture
Fungi and Friends: An Expanded View of Fungal-Bacterial Interactions and Biogeochemical Effects in the Mycorrhizal Hyphosphere
Jennifer Pett-Ridge, Lawrence Livermore National Laboratory

9:30 a.m.-10:00 a.m.
Ballroom A
Refreshment Break

9:30 a.m.-5:30 p.m.
Ballroom A
Poster Session 2
Posters available in Ballroom A for your review.

10:00 a.m.-12:00 p.m.
Ballroom BC
Parallel Session 3-1: Fire and Fungi

10:00 a.m.-10:15 a.m.
Impacts of Plant-Soil Feedbacks and Fire on Arbuscular Mycorrhizal Fungi Associated with Invasive Plants
Kendall Morman, Hannah Buckley, Colleen Higgins, Micaela Tosi, Kari Dunfield, Nicola Day

10:15 a.m.-10:30 a.m.
Response of Fungal Communities to Fire Severity and Soil Depth Across a Ten-Year Wildfire Chronosequence in Beetle-Killed Lodgepole Pine Forests
Marcos Caiafa, Amelia Nelson, Thomas Borch, Holly Roth, Timothy Fegel, Charles Rhoades, Michael Wilkins, Sydney Glassman

10:30 a.m.-10:45 a.m.
Fire Selects for a Dynamic Subcommunity of Pyrophilous Pioneers
Monika Fischer, Neem Patel, Phillip de Lorimier, Matthew Traxler

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Effect of Long-Term Fire Retardants on Fungal Communities and Mycorrhizal Colonization
Ryan Quaal, Dylan Enright, Basubi Zhilik, Sydney Glassman

11:15 a.m.-11:30 a.m.
Assessing Microbial Resilience in Post-Fire Soil Communities Following the Dome Fire
Arik Joukhajian, Lynn Sweet, Sydney Glassman

11:30 a.m.-11:45 a.m.
Microbial Inoculation Post Prescribed Fire Affects Both Above and Belowground Communities and Ecosystem Functioning
Mia Maltz, James Randolph, Annika Rose-Person, Sydney Glassman

11:45 a.m.-12:00 p.m.
Questions and Discussion

10:00 a.m.-12:00 p.m.
Flagstaff
Parallel Session 3-2: Surprising Fungal Associations

10:00 a.m.-10:15 a.m.
Discovery of Plant- and Algal-Derived Plastids in Diverse Fungi
Julia Kelliher, Aaron Robinson, Demosthenes Morales, La Verne Gallegos-Graves, Saskia Bindschedler, Pilar Junier, Patrick Chain

10:15 a.m.-10:30 a.m.
The Mycorrhizal Associations of the Eastern Pasque Flower (Pulsatilla Patens (L.) Mill. Sensu Lato) Across its Native Range
Savannah Draud, Jason Hoeksema, Tomáš Figura, Gábor Sramkó, Mari Moora, Maarja Öpik, Grażyna Łaska, Laura Aldrich-Wolfe, Thomas Givnish, Anne Pringle, Jon Bennett, Daniel Doak, Kenneth Whitney

10:30 a.m.-10:45 a.m.
Phylogenomic and Comparative Genomic Analyses Shed Light on Fungus–Photoautotroph Symbioses in the Evolutionarily Dynamic Eurotiomycetes
Ian Medeiros, Adam Flakus, Nicolas Magain, Pamela Rodriguez-Flakus, George Greiff, Michael Haldeman, Jolanta Miadlikowska, A. Elizabeth Arnold, Ignazio Carbone, Erik Hom, Louise Lewis, François Lutzoni

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Molecular Interactions Between Novel DNA Mycovirus and Frog-Killing Fungus
Mark Yacoub, Rebecca Clemons, Timothy James, Jason Stajich

11:15 a.m.-11:30 a.m.
Metabarcoding Approach to Study *Fusarium* Composition in Plants Using a Single-Copy Marker Gene and FUSARIUM-ID v.3.0 for Species-Level Identification
Terry Torres Cruz, David Geiser

11:30 a.m.-12:00 p.m.
Questions and Discussion

10:00 a.m.-12:00 p.m.
Ponderosa
Parallel Session 3-3: Crop Protection for Food Safety

10:00 a.m.-10:15 a.m.
Spatial Distributions of Aflatoxin Biocontrol Strains of *Aspergillus Flavus* in Tree Nut Cropping Systems in California and Arizona
Dakota Salyer, Hillary Mehl, Sallu Nepal, Alexandra Dalaya

10:15 a.m.-10:30 a.m.
Red Yeasts, Green Leaves: *Sporobolomyces Lactucae* as a Candidate for Lettuce Food Safety Applications
Samira Fatemi, M. Catherine Aime

10:30 a.m.-10:45 a.m.
Emerging Opportunities for the Application of Fungal Biotechnology in Geotechnical and GeoEnvironmental Engineering
Emmanuel Salifu

10:45 a.m.-11:00 a.m.
Break

11:00 a.m.-11:15 a.m.
Impact of Overwintering on Sporulation by Biocontrol and Aflatoxigenic Strains of Aspergillus Flavus on Crop Debris in Soil
Ally Dalaya, Hillary Mehl

11:15 a.m.-11:30 a.m.
Comparison of Single Versus Mixtures of Non-Aflatoxigenic *Aspergillus Flavus* Genotypes for Biological Control of Aflatoxin Contamination in Maize
Sallu Nepal, Hillary Mehl

11:30 a.m.-11:45 a.m.
Potential and Prospects of Quantitative Magnetic Resonance Imaging (QMRI) to Evaluate the Quality of Truffles
Alessia Marino, Angelo Galante, Simone Bianchi, Marco Leonardi, Alessandra Zambonelli, Mirco Iotti, Marcello Alecci

11:45 a.m.-12:00 p.m.
Questions and Discussion

12:00 p.m.-1:00 p.m.
Ballroom A
Boxed Lunches
Stop by Ballroom A to pick up a boxed lunch.

1:00 p.m.-3:30 p.m.
Ballroom BC
Symposia 3: The Agents of F.U.N.G.I.B. (Fungi Underscoring Novel Gains in Biocontrol)

1:00 p.m.-1:05 p.m.
Welcome and Introduction of Speakers

1:05 p.m.-1:25 p.m.
PROTECTING Batman: Fungal Volatiles that Inhibit *Pseudomonas Destructans*
Joan W Bennett, Itamar Diaz, Gwen Harvey, Victoria Korn Korn, Sally Padhi

1:25 p.m.-1:45 p.m.
Stealth in the Field: How Endophytic Sarocladium Zeae May Protect Corn from Mycotoxin Contamination
Anthony Glenn, Timothy Satterlee, Niño Laurel, Drew Olson, Trevor Mitchell, Jaci Hawkins, Lily Lofton, Scott Gold

1:45 p.m.-2:05 p.m.
Beauveria to Control Fire Ants: The Fungal Way to Slay
Roberto Pereira

2:05 p.m.-2:20 p.m.
Break

2:20 p.m.-2:40 p.m.
***Aspergillus Flavus:* A Fungal Double-Agent in the Battle for Food/Feed Safety**
Hillary Mehl

2:40 p.m.-3:00 p.m.
Killing Them Softly: Putting the Fungal Squeeze on Cyst Nematodes
Kathryn Bushley, Dong-gyu Kim, Deepak Haarith, Noah Strom, Zhou Dong

3:00 p.m.-3:20 p.m.
A Fungal Stake Through the Heart of Blood Sucking Mosquitoes
George Dimopoulos

3:20 p.m.-3:30 p.m.
Questions and Discussion

1:00 p.m.-3:30 p.m.
Flagstaff
Symposia 4: Discovering Interactions in Complex Fungal Communities through Network Analyses

1:00 p.m.-1:05 p.m.
Welcome and Introduction of Speakers

1:05 p.m.-1:25 p.m.
The Biology of Networks: How Can We Use Networks to Understand Microbiome Stability Under Stress and to Identify Keystones Driving Biodiversity and Determinism in Community Assembly?
Damian Hernandez, Amanda Rawstern, Michelle Afkhami

1:25 p.m.-1:45 p.m.
Host Genotype Controls Ecological Change in the Leaf Fungal Microbiome
Acer VanWallendael

1:45 p.m.-2:05 p.m.
Fungal-Bacterial Cooccurrence Patterns Differ Between Arbuscular Mycorrhizal Fungi and Nonmycorrhizal Fungi Across Soil Niches
Maggie Yuan, Anne Kakouridis, Evan Starr, Nhu Nguyen, Shengjing Shi, Jennifer Pett-Ridge, Jizhong Zhou, Mary Firestone

2:05 p.m.-2:20 p.m.
Break

2:20 p.m.-2:40 p.m.
What Network Analyses Can Do for You: Methods Overview and a Case Study in Mucoromycota Fungal-Bacterial Community Associations from Rhizosphere Soils
Nicole Reynolds, Kevin Amses, Jessie Uehling, Rasheed Adeleke, Meg Branine, Teresa Pawlowska

2:40 p.m.-3:00 p.m.
Microbiome Networks: A Systems Framework for Designing Synthetic Communities
Ravin Poudel, Ari Jumpponen, Karen Garrett

3:00 p.m.-3:20 p.m.
Identification of Core Genes in Fungal Genomes Assisting the Discovery of Essential Genes
Pei-Yu Lin, Yi-Tzu Lin, Hsiao-Ching Lin, Pao-Yang Chen

3:20 p.m.-3:30 p.m.
Questions and Discussion

3:30 p.m.-3:45 p.m.
Ballroom A
Refreshment Break

3:45 p.m.-5:30 p.m.
Ballroom BC
Parallel Session 4-1: Soil Fungi and Nutrient Cycling

3:45 p.m.-4:00 p.m.
Embracing Fungal Multifunctionality
Carlos Aguilar-Trigueros

4:00 p.m.-4:15 p.m.
Mushroom Time Capsules: Host Diverse *Suillus* Species Exhibit Comparable Increases in Nitrogen Availability Over the Past Six Decades Despite Varied Organic Nitrogen Use
Talia Michaud, Peter Kennedy

4:15 p.m.-4:30 p.m.
Fungal Diversity and Correspondence with Soil and Environmental Properties on Contaminated Sites in Southern California
Danielle Stevenson, Valeria Covarrubias-Santillan, Mia Maltz, Emma Aronson, Sam Ying

4:30 p.m.-4:45 p.m.
Exploring American Chestnut Ectomycorrhizal Community Assemblages Across a Nitrogen Deposition Gradient in New York's Adirondack Mountains
Molly Heit, Tom Horton, Andrew Newhouse, William Powell

4:45 p.m.-4:55 p.m.
Break

4:55 p.m.-5:10 p.m.
Fungal Organic Acid Uptake of Mineral Derived K is Dependent on Distance From Carbon Hotspot
Arunima Bhattacharjee, Dusan Velickovic, Jocelyn Richardson, Odeta Qafoku, Sneha Couvillion, Gregory Vandergrift, Christopher Anderton

5:10 p.m.-5:25 p.m.
Non-Mycorrhizal Networks: Exploring the "Dark Web"
Beatrice Bock, Nancy Johnson, Catherine Gehring

5:25 p.m.-5:30 p.m.
Questions and Discussion

3:45 p.m.-5:30 p.m.
Flagstaff
Parallel Session 4-2: Population Structure and Dynamics

3:45 p.m.-4:00 p.m.
Connecting the Little Red Dots: Exploring the Biology and Host Range of *Neonectria Magnoliae*
Hannah Petronek, Brian Lovett, Jason Stajich, Matt Kasson

4:00 p.m.-4:15 p.m.
From Populations to Pan-Genomes: Identifying Patterns of Global Genomic Evolution in the Porcini Mushroom, Boletus Edulis
Keaton Tremble, Etienne Lamartinière, Roberto Flores Arzu, Joseph Hoffman, Bryn Dentinger

4:15 p.m.-4:30 p.m.
Insights into Population Biology of *Ganoderma Oregonense* in the Pacific Northwest
Kimberly Syring, Kelli Daffron, Michele Wiseman, Debora Lyn Porter, Steven Naleway, Jessie Uehling

4:30 p.m.-4:45 p.m.
Population Structure and Demographic History of *Rhizopogon Salebrosusin* the Madrean Sky Island Archipelago
Carolina Pina Paez, Joseph Spatafora

4:45 p.m.-4:55 p.m.
Break

4:55 p.m.-5:10 p.m.
Population Structure and Genetic Diversity of *Cercospora cf. Flagellaris* on Soybean Across the Southern United States
Ernesto da Silva, Jacob Searight, Bishnu Shrestha, Jonathan Richards, Paul Price, Vinson Doyle

5:10 p.m.-5:25 p.m.
Competing Sister Taxa of Three Fungi Causing Bud Blight on Spruce are Violating the Niche Partitioning Paradigm of Ecological Roles
Gerard Adams, Sergio Gabriel-Peralta, Loretta Winton, Sydney Everhart

5:25 p.m.-5:30 p.m.
Questions and Discussion

3:45 p.m.-5:30 p.m.
Ponderosa
Parallel Session 4-3: Functional Genomics in Ecosystems

3:45 pm.-4:00 p.m.
Metal Tolerance in the Mycorrhizal Fungal Genus *Suillus*
Sara Branco, Alexander Smith, Jessica Fletcher, Anna Bazzicalupo, Joske Ruytinx

4:00 p.m.-4:15 p.m.
Comparative Transcriptomics of Spore Germination in Plant Pathogenic and Endophytic Fungi
Soumya Moonjely, Zheng Wang, Jeffrey P. Townsend, Frances Trail

4:15 p.m.-4:30 p.m.
Nanopore Sequencing Generates a High-Quality Genome Assembly of *Calonectria Colhounii* 134-2022, a Novel Pathogen of False Indigo *(Baptisia Australis 'Pink Truffles')*
Fiona Harrigian, Elizabeth Bush, Nicholas LeBlanc, Catalina Salgado-Salazar

4:30 p.m.-4:45 p.m.
Break

4:45 p.m.-5:00 pm.
Intraspecific Variability of Potential Effector Peptides MiSSPs in *Laccaria Trichodermophora* and their Possible Involvement in the Development of Ectomycorrhizal Symbiosis
Elena Flores Callejas, Rodolfo Ángeles Argáiz, Roberto Garibay Orijel

5:00 p.m.-5:15 p.m.
Using Mut-Seq to Identify the Genetic Basics of *Aspergillus Fumigatus* Amphotericin-B Resistance
Cristina Ford, John Gibbons

5:15 p.m.-5:30 p.m.
Questions and Discussion

5:30 p.m.-7:00 p.m.
Ballroom A
Poster Session 2
Authors will be available for questions and discussion with attendees. Poster abstracts are available online on the MSA website.

7:30 p.m.-9:30 p.m.
Grand Canyon Brewery
Student and Postdoc Section Social
Join your friends at this casual reception at the Grand Canyon Brewery. Shuttle transportation will be provided from the Little America Hotel and Calderon Hall to the Brewery.

Wednesday, August 2, 2023

7:00 a.m.-3:00 p.m.
Aspen Room
Registration Open

7:30 a.m.-8:00 a.m.
Agassiz Room
Mycologists & Musings

8:00 a.m.-9:30 a.m.
Ballroom BC
MSA Business Meeting and Awards Ceremony
Breakfast is provided starting at 7:30 a.m.

9:30 a.m.-9:45 a.m.
Ballroom A
Break

9:45 a.m.-11:45 a.m.
Ballroom BC
Parallel Session 5-1: Fungal Community Assembly Across Scales

9:45 a.m.-10:00 a.m.
Biogeography and Ecological Function of Foliar Fungal Endophytes
Austen Apigo, Rodolfo Salas-Lizana, Posy Busby, Ryoko Oono

10:00 a.m.-10:15 a.m.
The Global Spore Sampling Project: A Global Time Series of Fungal Disperal
Brendan Furneaux, Nerea Abrego, Otso Ovaskainen

10:15 a.m.-10:30 a.m.
Soil Fungi: Gigantic Microscopic Belowground Scaffolding for Microbial Communities and Ecosystem Processes
Nancy Johnson

10:30 a.m.-10:45 a.m.
Break

10:45 a.m.-11:00 a.m.
Exploring Fine-Scale Assembly of Ectomycorrhizal Fungal Communities Through Phylogenetic and Spatial Distribution Analyses
Shinnam Yoo, Yoonhee Cho, Ki Hyeong Park, Young Woon Lim

11:00 a.m.-11:15 a.m.
Seasonal Patterns in Functional Redundancy and Complementarity in the Quaking Aspen Fungal Microbiome Assessed Using Deep Meta-Transcriptomics
Jake Nash, Keaton Tremble, Brian Looney, Corbin Bryan, Khalid Hameed, Yi-Hong Ke, Melissa Cregger, Nicholas Dove, Christopher Schadt, Rytas Vilgalys

11:15 a.m.-11:30 a.m.
Environmental Drivers Define Richness and Community Composition of Soil-Borne Fungi Along Elevation Gradients in Tropical Forests
József Geml, A. Elizabeth Arnold, Eduardo R. Nouhra, Elisandro R. Drechsler-Santos, Aristóteles Góes-Neto, François Lutzoni

11:30 a.m.-11:45 p.m.
Questions and Discussion

9:45 a.m.-11:45 a.m.
Flagstaff
Parallel Session 5-2: Fungal Molecular Evolution and Phylogenomics

9:45 a.m.-10:00 a.m.
A Horizontally Acquired Biosynthetic Gene Cluster Provides Valuable Insights into the Unknown Mating Genetics Within the Xylariales
Aaron Robinson, Donald Natvig, Demosthenes Morales, Julia Kelliher, La Verne Gallegos-Graves, Patrick Chain

10:00 a.m.-10:15 a.m.
The One that Abstained: *Psilocybe Fuscofulva* Genome Provides Clarity on Psilocybin Evolution
Jason Slot, Zachary Konkel, Alan Rockefeller, Jan Borovička

10:15 a.m.-10:30 a.m.
Searching for Psychoactive Bolete Mushrooms
Colin Domnauer, Bryn Dentinger

10:30 a.m.-10:45 a.m.
Break

10:45 a.m.-11:00 a.m.
Structural Changes of Trichothecene Toxins Produced by *Trichoderma* associated with Evidence for Horizontal Transfer and Loss of Biosynthetic Genes
Robert Proctor, Susan McCormick, Rosa Cardoza, Natalia Martínez-Reyes, Mark Busman, Santiago Gutierrez

11:00 a.m.-11:15 a.m.
Genus-Wide Comparative Genomic and Phylogenetic Analysis of Ectomycorrhizal *Suillus* Fungi Reveal a Complex History of Gene Evolution, Including Significant Gene Presence/Absence Variation and Horizontal Gene Transfer
Lotus Lofgren, Steven Ahrendt, Sara Branco, Hui-Ling Liao, Nhu Nguyen, Peter Kennedy, Kerrie Barry, Igor Grigoriev, Kurt LaButti, Rytas Vilgalys

11:15 a.m.-11:30 a.m.
A Phylogenomic Perspective on Interspecific Competition Between Closely Related Penicillium Strains
Nicolas Louw, Benjamin Wolfe, Lawrence Uricchio

11:30 a.m.-11:45 a.m.
Questions and Discussion

9:45 a.m.-11:45 a.m.
Ponderosa
Parallel Session 5-3: Fungal - Animal Associations

9:45 a.m.-10:00 a.m.
Aspergillus in Phylloplane Communities Influences Leaf Choice in Leafcutter Bees *(Megachile Sp.)*
Victoria Luizzi, A. Elizabeth Arnold, Judith Bronstein

10:00 a.m.-10:15 a.m.
***Basidiobolus:* The Herptile Gut Microbiome Lifestyle of an Enigmatic Member of Non-Dikarya Fungi**
Joseph Spatafora, Lluvia Vargas Gastelum, Alexander Romer, Leila Shadmani, Marjan Ghotbi, George Neuhaus, Kerry McPhail, Jason Stajich, Donald Walker

10:15 a.m.-10:30 a.m.
Insights in the Biology, Diversity and Ecology of Basidiobolus (Zoopagomycota, Entomophtorales) in the American Northeast
Javier Tabima, Maddie Hincher, Sara Wheeler, Manning DelCogliano, Jasper Carleton

10:30 a.m.-10:45 a.m.
Break

10:45 a.m.-11:00 a.m.
Disentangling the Genomes of *Basidiobolus* Isolated from the Herptile Gut Microbiome
Lluvia Vargas-Gastélum, Stephen Mondo, Alexander S. Romer, Leila Shadmani, Kerry L. McPhail, Marjan Ghotbi, Igor V. Grigoriev, Donald M. Walker, Jason E. Stajich, Joseph W. Spatafora

11:00 a.m.-11:15 a.m.
An Analysis of Genomic and Phenotypic Variation Within the Coevolved Fungus-Growing Ant Association, *Cyphomyrmex*
Jacoby Robinson, Sandy Lin, Zoe Zimmerman, Nicole Gerardo

11:15 a.m.-11:30 a.m.
Snake Fungal Disease Generates Dysbiosis of the Snake Microbiome
Alexander S. Romer, Donald M. Walker

11:30 a.m.-11:45 p.m.
Questions and Discussion

11:45 a.m.-12:45 p.m.
Lunch Break (on your own)

12:45 p.m.-3:15 p.m.
Ballroom BC
Symposium 5: The Ecology of Fungal Pathogens of Animals

12:45 p.m.-12:50 p.m.
Welcome and Introduction of Speakers

12:50 p.m.-1:10 p.m.
The Hypothesis and Challenges that Coccidioides Species are Endozoans in Native Rodents
John Taylor

1:10 p.m.-1:30 p.m.
Investigating Potentially Pathogenic Yeasts in Sandhill Cranes
Sarah Shrum Davis, Shelby Showalter, Izzy Gurney, Paris Salazar-Hamm, Donald Natvig

1:30 p.m.-1:50 p.m.
Characterizing Fungal Communities on Mojave Desert Tortoises (G. ag.) in Arizona to Uncover Potential Pathogens
Daniel Kollath, Greer Dolby, Timothy Webster, Bridget Barker

1:50 p.m.-2:05 p.m.
Break

2:05 p.m.-2:25 p.m.
Shape-Shifting into the Brain: Morphotypes During Infection and Extrapulmonary Spread in the Human Fungal Pathogen Cryptococcus Neoformans
Christian Moreau, Steven Denham, Joseph Bednarek, Krystal Chung, Jessica Brown

2:25 p.m.-2:45 p.m.
Surveillance of Fungal Pathogens in the Lungs of Wild Small Mammals
Paris Salazar-Hamm, Joseph Cook, John Taylor, Bridget Barker, Heather Mead, Donald Natvig

2:45 p.m.-3:05 p.m.
The Ecology and Evolution of a Fungal Pathogen of Bats Across a Continent
Jeffrey Foster

3:05 p.m.-3:15 p.m.
Questions and Discussion

3:00 p.m.-3:15 p.m.
Ballroom A
Refreshment Break

3:15 p.m.-5:00 p.m.
Flagstaff
Parallel Session 6-1: Fungi in the Rhizosphere

3:15 p.m.-3:30 p.m.
Field Experiments Do Not Support the Hypothesis that Common Mycorrhizal Networks Consistently Benefit Trees in Forests
Jason Hoeksema, Justine Karst, Melanie Jones, Ian Mounts, Savannah Draud, François Teste

3:30 p.m.-3:45 p.m.
Root-Associated Fungal Communities of Understory Woody Plants: The Roles of Invasive Species and The Ectomycorrhizal/ Arbuscular Mycorrhizal Dichotomy
Louis (Jamie) Lamit, Douglas Frank, Jason Fridley

3:45 p.m.-4:00 p.m.
Deeply Rooted Switchgrass Extends the Habitat of Arbuscular Mycorrhizal Fungi Down the Soil Profile
Erin Nuccio, Eric Slessarev, Kyungjin Min, Jeff Kimbrel, Megan Kan, Edith Lai, Jessica Wollard, Karis McFarlane, Jennifer Pett-Ridge

4:00 p.m.-4:10 p.m.
Break

4:10 p.m.-4:25 p.m.
Influence of Wildfire and Introduced Grasses on Pinyon Pine Mycorrhizae: What's Going on in the Rhizosphere Twenty Years Post-Burn?
Gillian Trimber, Catherine Gehring

4:25 p.m.-4:40 p.m.
Effects of Arbuscular Mycorrhizal Fungi on Verticillium Wilt Disease Severity and Mortality in *Ailanthus Altissima*
Kristen Pierce, Brian Lovett, Bill Wheeler, Matt Kasson

4:40 p.m.-5:00 p.m.
Questions and Discussion

3:15 p.m.-4:45 p.m.
Ponderosa
Parallel Session 6.2: Burning Topics

3:15 p.m.-3:30 p.m.
Best Practices for Isolating Pyrophilous Bacteria and Fungi from Burned Soil
Dylan Enright, Sydney Glassman

3:30 p.m.-3:45 p.m.
Wildfires Shift Fungal Communities Leading to Substantial Increases in Genes for Pyrogenic Organic Matter Degradation
M. Fabiola Pulido-Chavez, Amelia R. Nelson, Peter M. Homyak, Michael J. Wilkins, Sydney I. Glassman

3:45 p.m.-4:00 p.m.
Factors Shaping Fungi on Facemasks and Potential Dispersal from this Mycobiome
Carlos Schwindt, Benjamin Sikes

4:00 p.m.-4:15 p.m.
Break

4:15 p.m.-4:30 p.m.
From The Playa to the Air: Exposure and Our Lungs
Marina Zaza, Mia Maltz, Emma Aronson

4:30 p.m.-4:45 p.m.
Questions and Discussion

3:15 p.m.-4:30 p.m.
Aspen Room
Parallel Session 6-3: Mycology is Diverse - DEI Discussion Panel

3:15 p.m.-3:25 p.m.
Advances, Activities, and Insights from the MSA Diversity, Equity, and Inclusion Committee
Javier Tabima, Fabiola Pulido-Chavez, Lotus Lofgren, Blaise Jumbam, Anna Bazzicalupo, José Solorzano, Sonya Erlandson

3:25 p.m.-3:50 p.m.
Panel Discussion

3:50 p.m.-4:15 p.m.
'Some are Sent and Others Just Went': The Impact of Dr. Lafayette Frederick's Development of Six Generations of Underrepresented Minority Scientists
Chinyere Knight

4:15 p.m.-4:30 p.m.
Questions and Discussion

5:15 p.m.-6:15 p.m.
Flagstaff
Synmycanthrosium: The Tom Volk Memorial Symposium

Dr. Tom Volk's impact on the world of fungal biology was far-reaching and fundamental… just like the mycelial networks he studied. His publications, research collaborations, service to scientific societies, public outreach, and many graduate and undergraduate students stand as a testament to a highly productive life in science.

One of Dr. Volk's keenest talents was bringing the right ideas and the right people together. He was also a great lover of scientific terminology.

With those ideas in mind, we have titled the event the Synmycanthrosium: the "together-fungus-people-place." The goal of the Synmycanthrosium is to continue Dr. Volk's legacy by bringing together the people who were inspired by his work and example, united by a love of fungi.

Session Chairs:
Todd Omundson, University of Wisconsin, LaCrosse
Anita Davelos, University of Wisconsin, La Crosse

Speakers:
Heather Hallen-Adams, University of Nebraska, Lincoln
Dan Lindner, US Forest Service Forest Products Lab, Madison

7:00 p.m.-10:00 p.m.
Ballroom ABC
MSA 2023 Banquet/Auction/Social and Student Presentation Awards
This is a ticketed event.

Thursday, August 3, 2023

8:15 a.m.-5:30 p.m.
Excursion to the Grand Canyon
If you pre-registered for the excursion, meet the buses outside of the Little America Hotel and Conference Center by 8:15 a.m. Be sure to bring comfortable walking shoes or hiking boots, sunscreen, hat, sunglasses, cell phone (camera), and a small backpack for personal items.

Mycological Society of America
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