

Dear AMS Community,

We have a lot to cover in our newsletter this month! To start with, we would like to invite you to our virtual seminar series with Dr Anthony Young from University of Queensland in August and with Prof. Roger Shivas from the Plant Pathology Herbarium (BRIP) in September. We are also giving members notice to join us at our annual general meeting in September.

In this issue, I have invited two early career researchers in fungal research, Dr. Sarah Sapsford and Dr. Vicky Waymouth to tell us a little about themselves and their research. Don't forget to also check out the program of our annual symposium, and our new merchandise store!

Warm regards,
Johanna Wong
Australasian Mycological Society Secretary
Website: <https://www.australasianmycologicalsociety.com>
Facebook: [AMSstudents](#) and Twitter: [@ausmycsoc](#)

AMS Virtual Seminar Series: August

Continuing with our virtual seminar series, we will next meet on
Wednesday 31st August 2022 at 12:00pm AEST.



This month we are happy to have **Dr Anthony Young from University of Queensland** share his research with us.

Dr Young is a senior lecturer in crop protection and his research focuses on the bacteria, fungi, oomycetes, and viruses associated with plant diseases. He has led the Australian sugar industry in the management of root stunting disease and chlorotic streak disease. He also had a pivotal role in developing diagnostic tests for bacterial diseases of mungbean.

A Streak Through History: Cracking the Sugarcane Chlorotic Streak Disease Riddle

Chlorotic Streak Disease (CSD) can be a devastating disease of sugarcane. It emerged in the late 1920s, but the causal agent was not discovered for another 90 years. In that time sugarcane pathologists learned many things about the epidemiology of CSD, including its vegetative and water-borne transmission, some information on varietal susceptibilities and the efficacy of hot water treatment to treat it in propagation material. With the La Niña cycle in full force in 2011, CSD exerted its destructive forces once more, but did so at a time when next generation DNA sequencing platforms had been developed that would ultimately identify the pathogen. This seminar re-introduces a hero of early 20th Century sugarcane science, Dr. Gerharda Wilbrink, and tells the story of the solving of the CSD riddle.

To register your attendance at our virtual seminars, visit our website:
<https://www.australasianmycologicalsociety.com/virtual-seminars-2022>

Annual General Meeting 2022

This notice is to advise Members of the upcoming AGM

Date: 21st September 2022 (Wednesday)

Time: 12:00pm AEST; 2:00pm NZ; 11:30am SA/NT; 9:00am WA

Location: Zoom (Links below)

The AGM will kick off with our monthly Virtual Seminar featuring **Professor Roger Shivas**. His talk details are below.

Register for Roger's opening seminar, via this link

https://us02web.zoom.us/webinar/register/WN_1PHb2FibRYunk2FyNf-ngw

After the seminar, we'll begin the AGM which we expect will take less than an hour.

Register for the AGM, via this link:

<https://us02web.zoom.us/meeting/register/tZoucOCqrz8tHta1FB7ngEdoJLuSS6MLTPNdd>

Please Note: you will need to register at both links to attend the talk at 12:00PM AEST and the AGM at 1:00pm AEST.

"Saving planet Earth - re-evaluating taxonomic best practices"

Wednesday 21st September 2022 12:00pm AEST

Professor Roger Shivas, University of Southern Queensland



Come gather 'round people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You'll be drenched to the bone
If your time to you is worth savin'
And you better start swimmin'
Or you'll sink like a stone
For the times they are a-changin'

(Bob Dylan, The Times They Are A-Changin' lyrics © Sony/ATV Music Publishing LLC)

Times are changing, and not in a good way. Consider climate change, habitat destruction, species extinction. Add in declining resources for science in general, and less funds for taxonomy and taxonomists specifically. A potent mix which threatens the sustainability of humankind on this planet. What can taxonomists do about any of this?

Roger Shivas is a professor of mycology at the University of Southern Queensland. His first degree was in pure mathematics and his career saw him move into the biological sciences (it seemed more fun with greater prospects of travel). Roger's background has allowed him to witness the transition from morphology-based taxonomy to one based on evolutionary relationships determined entirely by molecular (DNA) sequences (with a hybrid stage in between).

It was in 1952 that James Watson and Francis Crick (with the help of Rosalind Francis) discovered the structure of DNA and thereby had found the secret code of life. Deciphering this code is what makes taxonomy possible. It's been nice to stick around long enough to see taxonomy move from morphological descriptions to DNA barcodes.

So how do we save planet Earth? Find faster and better ways to collect, preserve, and classify the undiscovered life, especially fungi, on this planet. It's now or never, pedal to the metal.

Please send our secretary Johanna Wong any items to be included on the agenda via the Secretary email address ausmycsoc@gmail.com.

The agenda will be sent out to all registered attendees the week of the AGM.

People of Australasian Mycological Research – Dr. Sarah Sapsford

In Australia and New Zealand, there are so many brilliant researchers doing amazing research in various aspects of fungi and fungus-like organisms. Members of our AMS community work in various fields ranging from medical science, ecology, plant pathology to molecular biology and beyond, and I am interested to learn more about their research journey. In this issue, I have invited **Dr. Sarah Sapsford from Biosecurity New Zealand** to tell us a little bit about her research.



1. What is your job title and what is your research about?

I am a Senior Adviser with the Plant Risk Team at Biosecurity New Zealand. Our team writes pest risk analyses which are required for international trade and aim to prevent unwanted pathogens and pests entering New Zealand.

My current research investigates ways to streamline pest risk analyses and find ways to conduct this work more efficiently and productively.

2. How long have you been working in this area? How did you get into mycology-related research?

I have been working in plant risk analysis for approximately a year and a half. However, before this position, I was a postdoc at the University of Canterbury looking at invasive plant legacies and their effects on ecosystems. Most of my previous research has focused on fungal pathogens and their effects on populations.

I probably first got involved in mycology-related research in my third year of my undergraduate degree. I remember writing a paper about the amphibian chytrid fungus and being amazed with how a microscopic organism could cause such devastating effects on an entire group of animals. After I graduated, I was accepted in a Masters program at James Cook University in Australia where I actually got to research the amphibian chytrid fungus and monitor an endangered frog species. Since then, I have explored the role of both pathogenic and beneficial fungi in various types of ecosystems.

3. What does your day-to-day work involve?

My day-to-day work involves analysing the potential impacts of various pests and pathogens should they enter and establish in New Zealand. Potential impacts include those on New Zealand's economy, environment, human health and sociocultural practices. These analyses are usually part of an Import Risk Analysis; these projects assess the introduction of pests and pathogens associated with a specific host plant which will be imported into New Zealand from around the world. Based on these analyses certain control measures may be placed on a host before entry into New Zealand. Other teams within Biosecurity New Zealand may also request information from us on specific organisms.

I am also part of a research team that is collaborating with the Centre of Excellence for Biosecurity Risk Analysis (CEBRA) at The University of Melbourne which involves some consultation. Some colleagues and I have also developed a new program which has involved some innovative coding in R.

4. Can you share with us something about fungi that you find fascinating?

There are actually so many things about fungi I find fascinating. They are such a diverse group of organisms that have the ability to cause absolute destruction or extinction of other organisms (e.g. *Batrachochytrium dendrobatidis* which causes chytridiomycosis in amphibians) but are also necessary for other organisms to survive (e.g. mycorrhizal fungi and their symbioses with plants). Fungi are also being used for building material; research is looking into exploring the possibilities in this area. So, I think overall, their diversity is what fascinates me!

5. Is there something you wish AMS can do for the mycology network in Australia and New Zealand in the future?

I became aware of AMS during my PhD and was successful in their AMS Research Award. I think AMS does a great job in supporting students! The virtual seminar series has also been a success in highlighting research being done around the world. I think a possible avenue for the future is highlighting the versatility and diversity of fungi and showing the unique aspects of this group of organisms.

If you are interested in Dr Sapsford's research, please check out her recent publication:

Burgess, T.I., Oliva, J., Sapsford, S.J. *et al.* Anthropogenic Disturbances and the Emergence of Native Diseases: a Threat to Forest Health. *Curr Forestry Rep* **8**, 111–123 (2022). <https://doi.org/10.1007/s40725-022-00163-0>

You can also **apply for a PhD opportunity** with Dr Sapsford at Murdoch University.

“Resilience of forest ecosystems to multiple stressors in a changing climate”



“We have an exciting PhD opportunity to explore the resilience of forest ecosystems to disturbance. The project will investigate the interactions between mutualist (ectomycorrhizal fungi) and pathogenic fungi (Phytophthora species) to understand the protective abilities of ectomycorrhizal fungi. The project will use both molecular and metabolomic techniques to determine and pathogenic fungi compete with each other. The project will involve laboratory, glasshouse and fieldwork, and we expect the applicant to have a biology degree, and postgraduate research experience working with fungi.”

For more information and to submit application, please contact Professor Treena Burgess att.burgess@murdoch.edu.au or Dr. Sarah Sapsford at sarah.sapsford@gmail.com. Closing date for applications is **31st August**.

Research Highlight

Riparian fungal communities respond to land-use mediated changes in soil properties and vegetation structure

by Dr. Vicky Waymouth Research Fellow in Plant Root Science,
School of Biosciences, Faculty of Science, University of Melbourne



Dr. Vicky Waymouth is an enthusiastic ecologist with a keen interest in microbial communities and rhizosphere interactions. She is currently working on understanding the influence of drought on microbial interactions that occur in the rhizosphere in food crops. She is also interested in the response of microbial communities to land-use change, disturbance regimes or elevation and how that relates to plant communities.

Riparian forests are commonly cleared and converted to pastures for grazing due to their nutrient rich soils and proximity to water. This land-use change results in the degradation of riparian ecosystems and initiatives to restore these areas with native species are ongoing. The impact of such land-use changes on the soil fungal communities remains unclear, despite the central roles that soil fungi play in plant establishment and associated ecosystem processes. We investigated how soil fungal taxonomic and functional composition are affected by land-use change at different depths, and if variation in soil fungal communities is related to edaphic properties and extant vegetation.

The study was conducted in six waterways in south-eastern Australia, each comprising three land-use types: remnant riparian forest, cleared forest converted to pasture, and pastures restored with native plants. We surveyed three strata of vegetation and sampled top-soil and sub-soil to characterise physicochemical properties and soil fungal communities. ITS1 region sequences were used to assign soil fungal taxonomic and functional composition.

Fungal taxonomic and functional composition infrequently varied with land-use change or soil depth, with differences only observed for a few taxa. In contrast, fungal community composition was strongly related to soil chemical properties in both top-soil and sub-soil. My results indicate Ascomycota and Basidiomycota were more abundant in areas with low relative soil fertility (N, P, K and Ca) and little ground cover, whereas the opposite was true for Glomeromycota. Sites with high clay content, low sub-canopy cover, and high tree basal area tended to harbour more plant pathogens, dung saprotrophs, and arbuscular mycorrhizae. In contrast, areas with high sub-canopy cover and less tree basal area encompassed a greater abundance of animal pathogens, wood saprotrophs, and ectomycorrhizae. Soil fungal taxonomic composition was related to soil fertility (N, P, K, pH and Ca) and ground cover characteristics, whereas functional composition was related to clay content, sub-canopy cover and tree basal area (Figure 1). Across the six studied waterways, fungal taxonomic and functional composition were more strongly associated with land-use mediated changes in site-scale soil physicochemical properties and vegetation structure than broad-scale classes of land-use type.

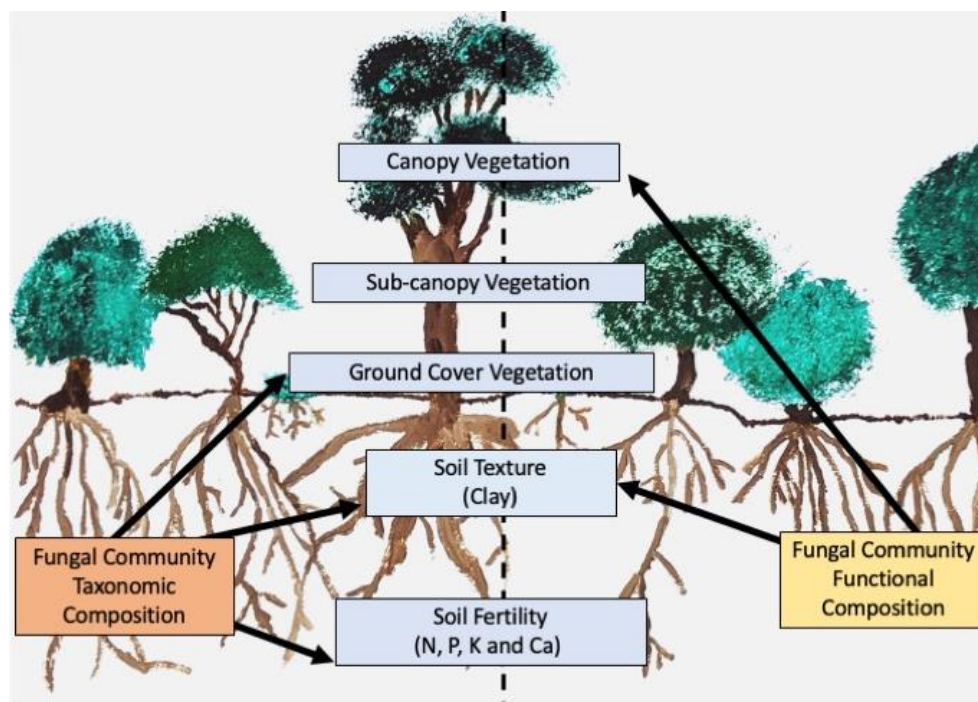


Figure 1: summary of differences in soil fungal relationships between taxonomic composition and functional composition. Arrows indicate where relationships were observed (provided by Dr. Vicky Waymouth)

If you are interested in Dr. Waymouth's research, please check out her recent publication:

Waymouth V., Miller R.E., Kasel S., Ede F., Bissett A., and Aponte C. (2022). Riparian fungal communities respond to land-use mediated changes in soil properties and vegetation structure. *Plant and Soil* **475**: 491–51. <https://doi.org/10.1007/s11104-022-05383-8>

2022 AMS Symposium & NZ Microbiological Society Annual Conference



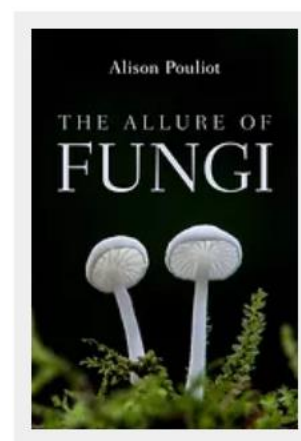
Microbes rule!

NZ Microbiological Society Annual Conference

MONDAY 21 - THURSDAY 24 NOVEMBER 2022
AMS SYMPOSIUM - FRIDAY 25 NOVEMBER
— VICTORIA UNIVERSITY OF WELLINGTON—

We are excited to join the New Zealand Microbiological Society this year and we look forward to seeing you in Wellington on this November. Our symposium will be held as a satellite meeting on **25 November (Friday)** after the main conference which runs at the same venue from **21-24 November**. Here's a little preview on our exciting program!

2022 AMS Symposium Plenary Speaker: Dr Alison Pouliot



We will begin our symposium by our plenary talk by the incredible Dr Alison Pouliot. Dr Pouliot is an ecologist and professional environmental photographer with a focus on fungi. Her work spans both northern and southern hemispheres ensuring two autumns and a double dose of fungi each year. Alison is actively involved in teaching, research and conservation, and has conducted over 700 forays and workshops in a dozen countries over the last two decades. Alison is author of *The Allure of Fungi*, co-author (with Tom May) of *Wild Mushrooming*, and her new book on fungi will be published in March 2023. www.alisonpouliot.com

Program of Speakers

Following the plenary talk, we have a jam-packed schedule including 15 selected oral presentations (15 minutes each followed by questions) on all areas of mycology, with speakers invited to share their work on human, animal or plant fungi, yeasts, and oomycetes. We know our members have expertise in diverse areas including fungal taxonomy and systematics, ecology, evolution, epidemiology, biochemistry, genetics, cell and molecular biology, biotechnology, conservation and biodiversity, physiology, plant pathology, molecular pathogenesis, and medical mycology.

Posters will be displayed on the Wednesday of the NZMS conference and AMS posters will be judged alongside the other NZMS poster submissions, but any submissions from AMS delegates will be displayed again at our Friday Symposium.

Student opportunities

AMS is excited to offer two **Student Travel Grants** to AMS student members who register and submit abstracts for the AMS Symposium. These grants are worth AU\$250.00 each with a big thanks to our generous donors Pamela and David Catcheside. Applicants must be registered AMS members (individual or lab membership) for 2022, with the awarded funds going towards travel expenses such as flights and accommodation. You can apply for the travel grant [here](#). The deadline for application is at 5:00pm AEST on **16th September**. The successful applicants will be announced at the AMS AGM on 21st September (1pm AEST Start).

As is traditional, we also have an additional AU\$250.00 for the **Dr Jack Warcup Memorial Prize** to award the best student talk at the AMS Symposium (for students presenting on 25 November), which will be awarded at the closing ceremony.

Fungal Curiosities Silent Auction

For the first time, AMS will be hosting a silent auction throughout the Symposium. We're asking attendees to keep an eye out for mycology-themed items to bring along with you to Wellington. These will be on display through the course of the day with opportunities to bid for your favourite object to take home with you at the end of the day. All money raised from the silent auction will go towards funding research and networking opportunities for Australian and New Zealand Mycologists in 2023.

Need some inspiration? Think new items or vintage collectables: Agaricus earrings, vintage mushroom ID books, crocheted morels, mycelium magnets... really, anything mycologists would appreciate, but that is also biosecurity-friendly for international travel!



And.... There is more!

Are you looking for more networking opportunities? NZMS is also hosting a dedicated Student Social Event and Networking Session on Tuesday 22 November with refreshments provided. Want more outside of the conference venue? There is also an **optional field trip** on Thursday afternoon (24 November) with NZMS delegates to the nearby Zealandia – the world's first fully fenced urban ecosanctuary. You can also join us for an **AMS dinner on the Friday night (25 November – details TBC)** before heading home on Saturday or choosing to spend the weekend exploring more of New Zealand in her early summer glory.

Please check out the conference website for more information:

<https://www.microbiologyconference.org.nz/>

The AMS merchandise shop is now open!

We are excited to announce that our merchandise shop is now open! It's a perfect place to look for the perfect gift for mycologists.

To support our society, check out our products here at this link:
<https://www.redbubble.com/people/AusMycSocShop/explore>

To mark the opening of our shop, our very talented and creative treasurer, Jordan Bailey has submitted her design "Mushroom basket" to our shop. If you love her design, you can get T-shirts, jumpers, stickers, pins, or tote bags like this from our shop! →

We are also calling for illustration and photograph submissions!

Do you have some awesome illustration that you would like to share? Or maybe an incredible photograph of a mysterious mushroom? You may consider contributing your 'fungi art' to our shop! All proceeds of our shop will contribute to research grants and networking activities for mycological researchers in Australia and New Zealand. If you are interested, please contact us at ausmysoc@gmail.com



Upcoming Mycology Events – Announcements

18th International Symposium on Microbial Ecology

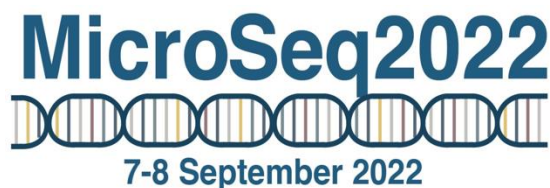
Organisers: International Society for Microbial Ecology
14-19 August, 2022 | [Website](#) | Lausanne, Switzerland



ISME18 is the 18th edition of our non-profit symposium which takes place every two years. The conference is the front runner in the field of microbial ecology, with an average of around 1,750 international scientists that attend the conference.

MicroSeq2022

Organisers: The Australian Society of Microbiology
7-8 September 2022 | [Website](#) | Virtual



MicroSeq2022 is an online conference designed to bring together early career researchers in Australia from a broad range of microbiology domains, who are united by their use of DNA and RNA sequencing technologies to investigate microbes.

Australian Microbial Ecology Conference (AusME 2022)

Organisers: The Australian Society for Microbiology

7-9 November, 2022 | [Website](#) | Melbourne



AusME is an in-person conference in Australia which is dedicated to microbial ecological research. There will be six main sessions: Terrestrial Microbiology, Aquatic Microbiology, Human Microbiology, Industrial and Food Microbiology, Symbiosis, and the Microbial Toolbox.

2022 Joint Conference of the Ecological Society of Australia and the Society for Conservation Biology Oceania

28 November – 2 December 2022 | [Website](#) | Wollongong

ESA-SCBO 2022

28 November – 2 December 2022 | Wollongong NSW



ESA-SCBO 2022 will be an in-person conference (Visit [Website](#)), but a limited number of online options will be offered, including live-streamed plenaries, some live-streamed symposia and some of the presentations being made available online after the conference. The 2022 Conference theme is 'Reconnecting'. As the world begins to open again, many of us are embracing the opportunity to reconnect – with each other, with nature, and with efforts to restore connections within nature.

The 3rd Global Soil Biodiversity Conference

Organisers: The Global Soil Biodiversity Initiative

13 – 15 March 2023 | [Website](#) | Wollongong



The 3rd Global Soil Biodiversity Conference to be held in Dublin (Ireland) in 2023 will expand on previous GSBI conferences and convene the world's leading experts in this interdisciplinary field of soil biodiversity science to present and discuss recent advances addressing the urgency of meeting global challenges which link to human, animal and plant health and a more sustainable world.

If you have anything you'd like to contribute to the next edition, or if you would like to have your research or event featured, please contact me (ausmycsoc@gmail.com) or Tracey Steinrucken (ausmycsoc.president@gmail.com). We're after content highlighting your latest research, profiles on mycologists from your network, mycological events and news, career and scholarship opportunities, and photos or artwork of new or interesting fungal species.

We hope you enjoyed the August 2022 edition of the AMS Newsletter.

Dr Johanna Wong

AMS Secretary