



A passion for slime moulds

# Outline of today's presentation

- How did I get into this!
- Why such an unfortunate name?
- Life Cycle.
- Slime moulds up close.
- Function in the ecosystem.
- Where to find slime moulds.
- Research in Australia and Australian slime moulds.
- My research and how they keep me busy in retirement.



Image: Valérie Bruneau-Querey

# Why such an unfortunate name?

- Because of the two phases of their life cycle, and
- They were first thought to be fungi.

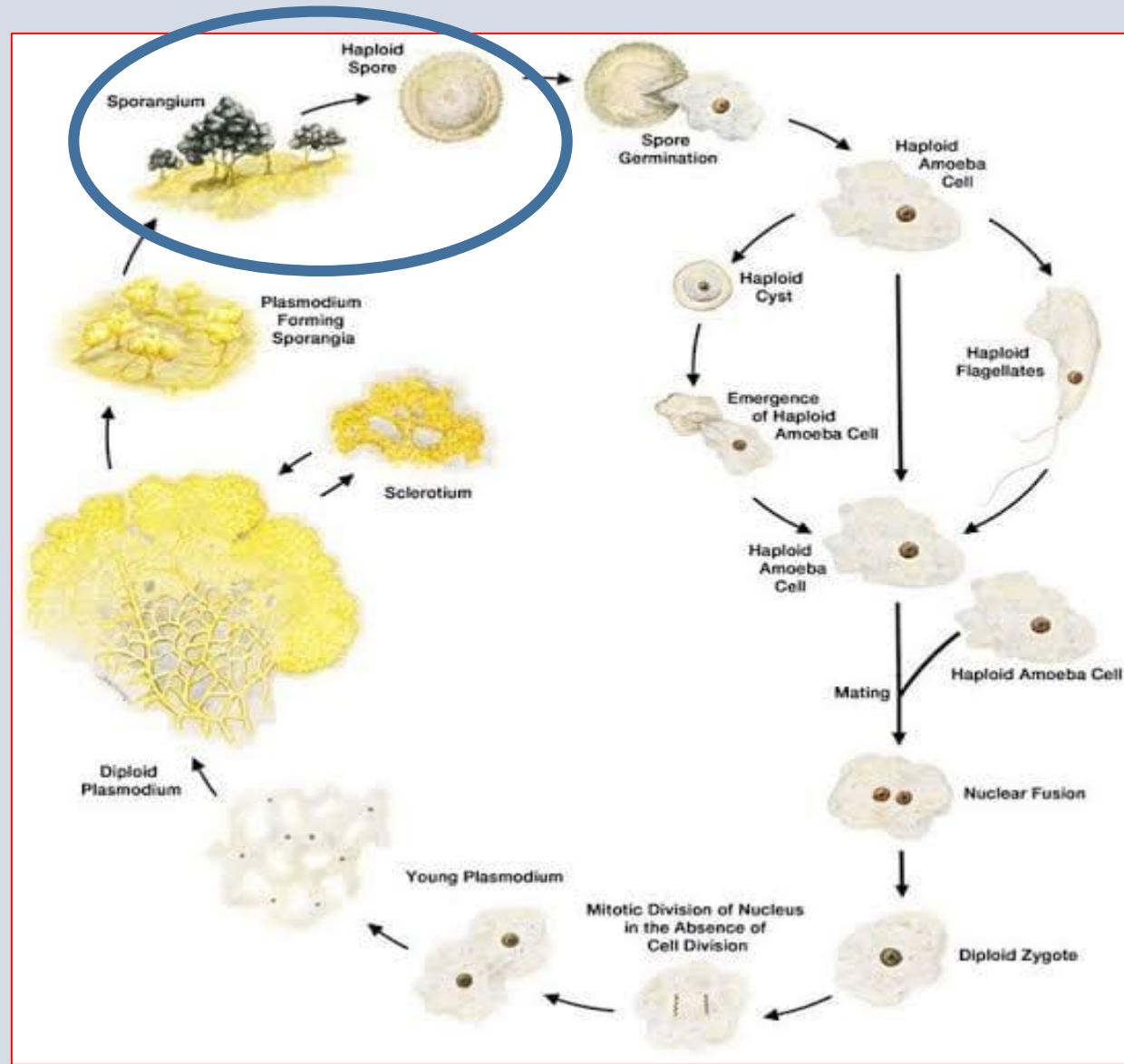


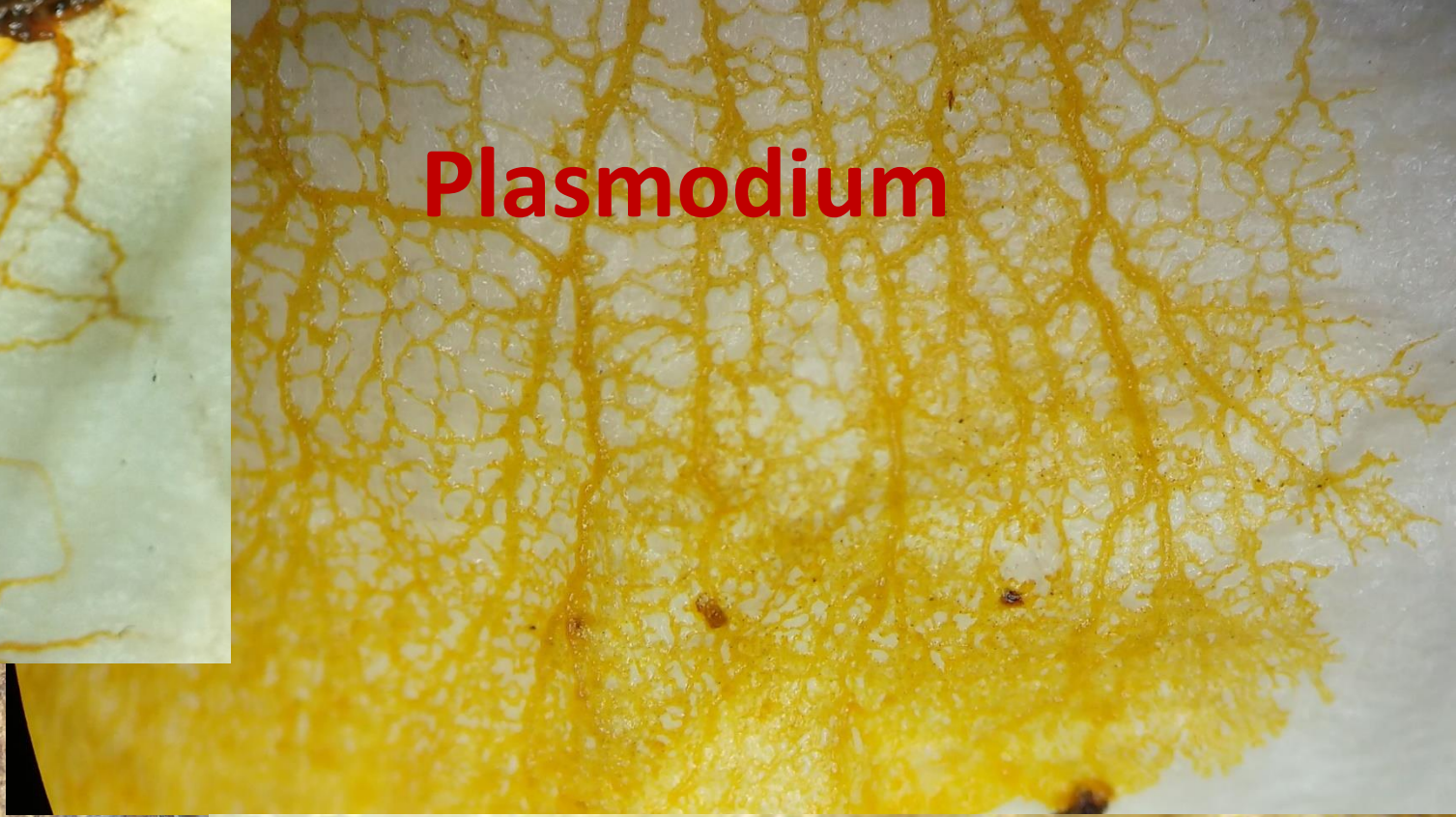
Mould

Slime



# Life cycle of a slime mould





**Plasmodium**



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# Structure of the fruiting body

**Fruiting body (or sporophore)** – spore-forming structure in slime molds.

**Sporocarp** – a fruiting body formed from a plasmodium. It consists of spores and auxiliary acellular structures (stalk, peridium, capillitium, columella, etc.). A large plasmodium usually splits into several (sometimes tens to hundreds) fragments, each forming one sporocarp.

**Sporotheca** – spore-bearing portion of the fruiting body. It consists of a spore mass, covered by a peridium, and may contain auxiliary structures (capillitium, columella, etc.).

**Capillitium** – a system of solid or hollow threads, interspersed within the spore mass inside the sporotheca. It serves to facilitate and regulate the spore dispersal.

**Spore** – microscopic reproductive unit formed in the fruiting body.

**Columella** – continuation of the stalk inside the sporotheca.

**Peridium** – fugacious or persistent covering that surrounds the sporotheca.

**Stalk** – a structure that elevates the spore-bearing portion of the fruiting body above the substrate.

**Hypothallus** – a structure which serves to attach the fruiting body to the substrate.

## Stalked sporocarp:

Capillitium

Spore

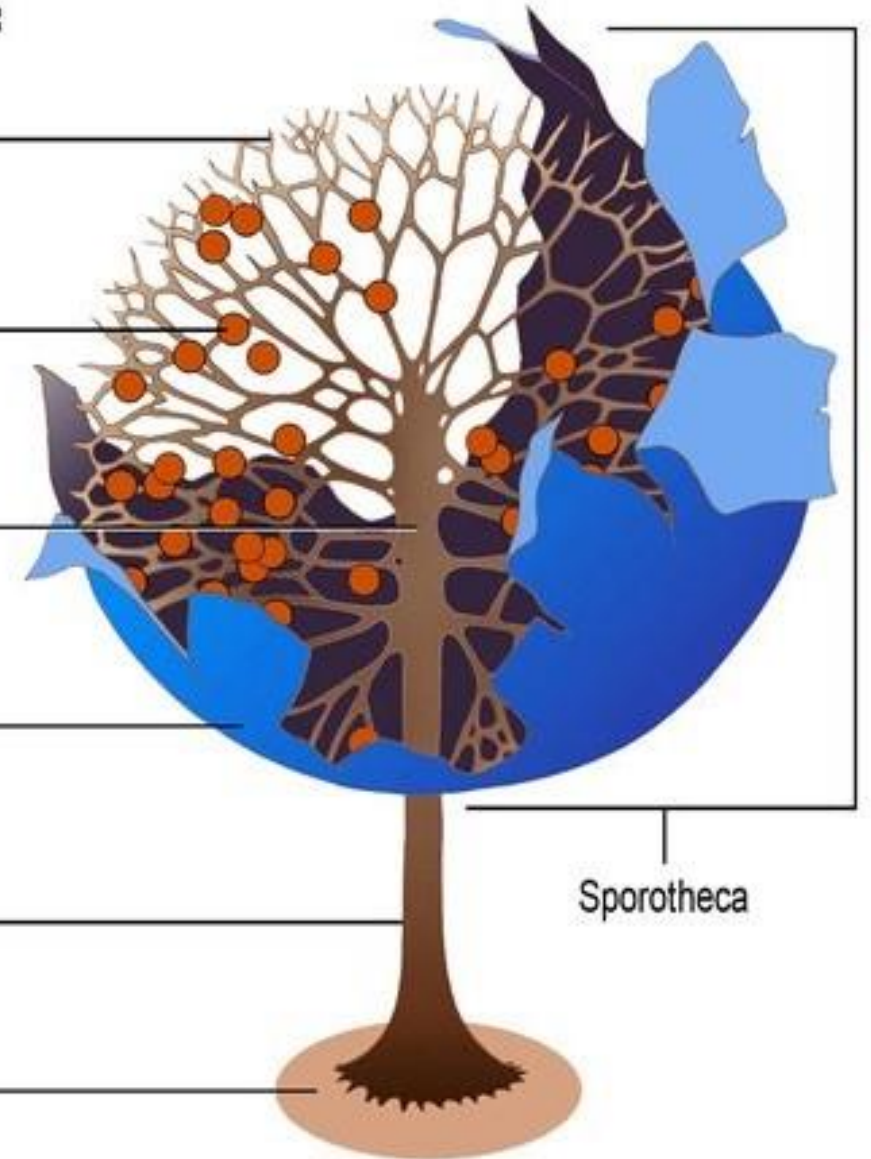
Columella

Peridium

Stalk

Hypothallus

Sporotheca



# Slime moulds up close.

“Many examples produce fruiting bodies of considerable beauty. However because of their small size, all but the largest and most conspicuous examples tend to be overlooked in nature. “

*Secretive Slime Moulds: Myxomycetes of Australia*  
Steven L. Stephenson





Image: Herman Anderson











Image: Teresa and John van der Heul

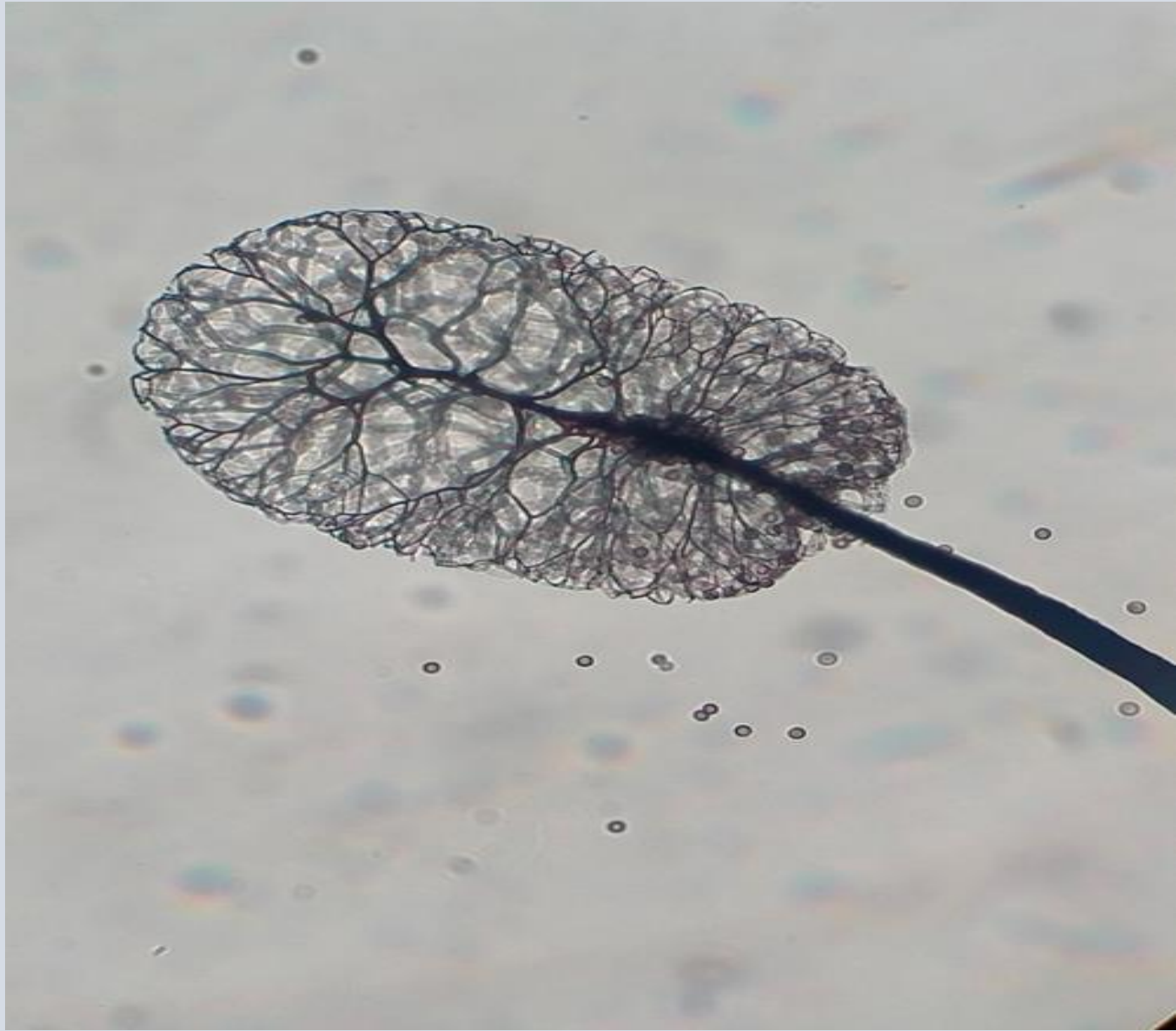




Image: Ulrich A. Maassen









Image: Sarah Lloyd



Image: Peta McDonald





Image: Alison Pollack

© Alison Pollack



Image: Peta McDonald



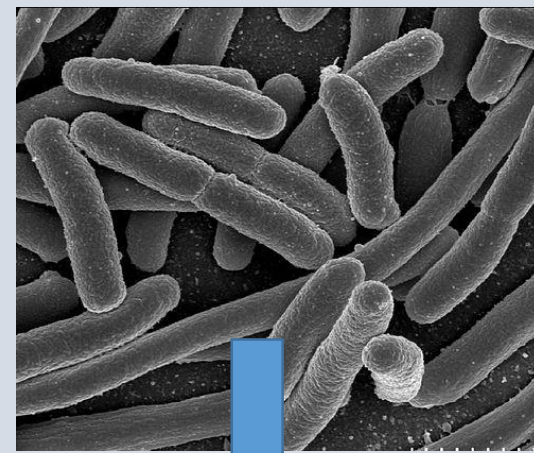




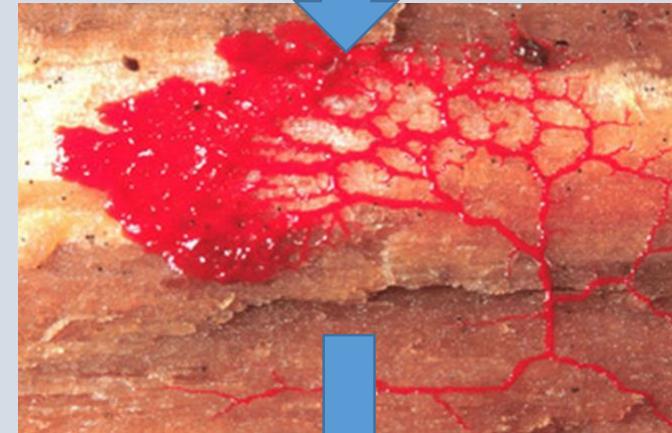
Image: Peta McDonald

# Function in the ecosystem

- Haploid amoeba and diploid plasmodium moves across the substrate feeding on microfungi and bacteria.
- Which themselves feed on the substrate as nutrient recyclers or decomposers
- The slime mould plasmodium and fruiting bodies are then in turn predated on by small insects such as springtails, beetles, ants and molluscs such as slugs.



<https://commons.wikimedia.org/w/index.php?curid=104228>



The Eumycetozoon Project.



# Slime mould habitats

Long evolutionary history – found in virtually every terrestrial habitat. A few are aquatic.

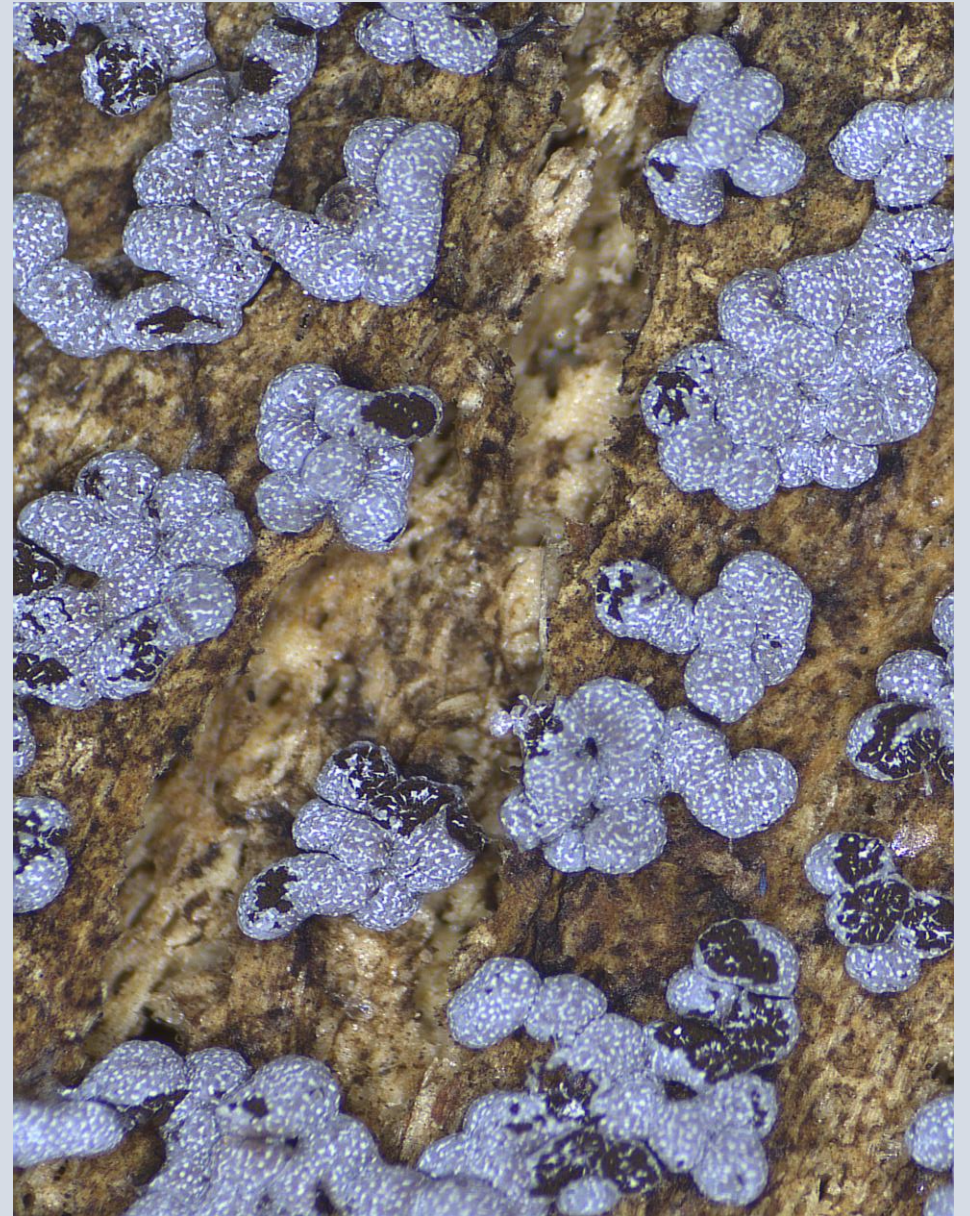
Under favourable conditions slime moulds can be quite common.

Temperature and moisture are the main limiters.

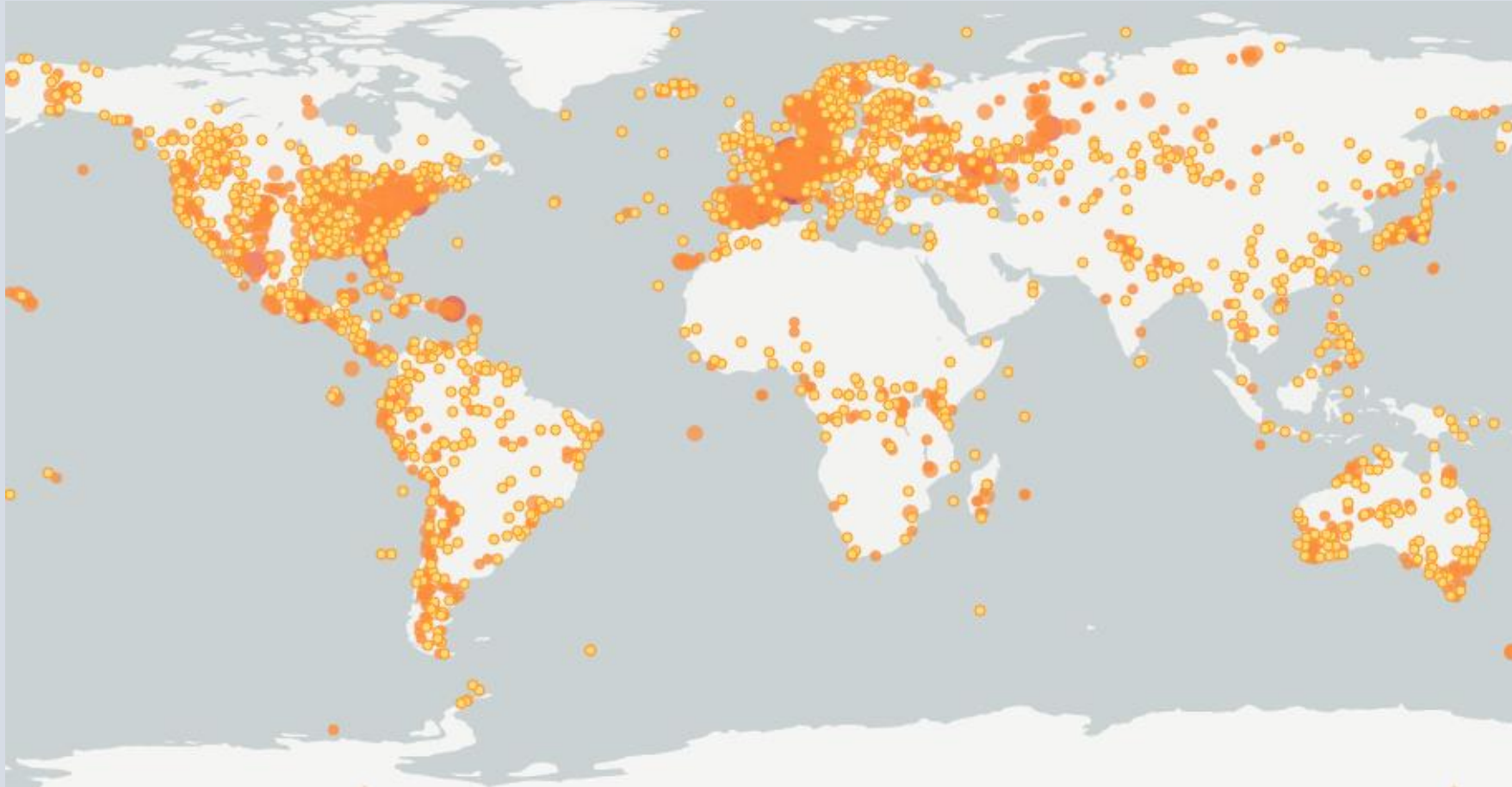
With increasing plant species richness in the environment there is a corresponding increasing in diversity of slime moulds.

Many species have a cosmopolitan distribution, although some occur only in quite specific habitats.

Soil, ground leaf litter, wood, e.g. rotting logs, aerial leaf litter, lianas, flowers of large trees.



# General Patterns of Distribution



Research in Australia  
and  
Australian Slime Moulds

*Trichia  
brimsiorum*



Image: Sarah Lloyd

*Alwisia  
lloydiae*



Image: Sarah Lloyd

*Tubifera  
vanderheuliae*



Image: Teresa and  
John Van Der Heul



*Licea  
xanthospora*



Image: Peter Davison

*Lamproderma*  
sp. nov.

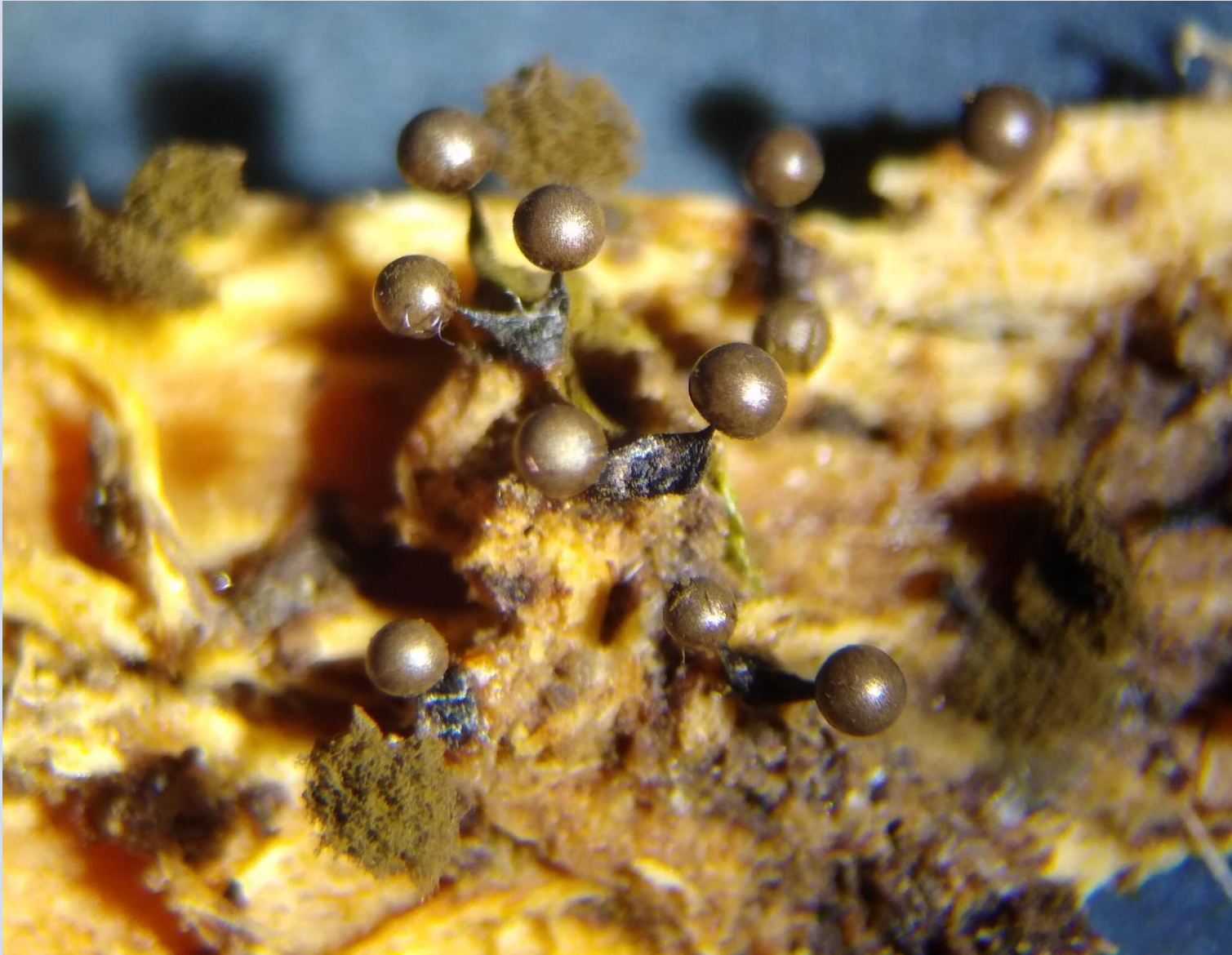


Image: Peta McDonald

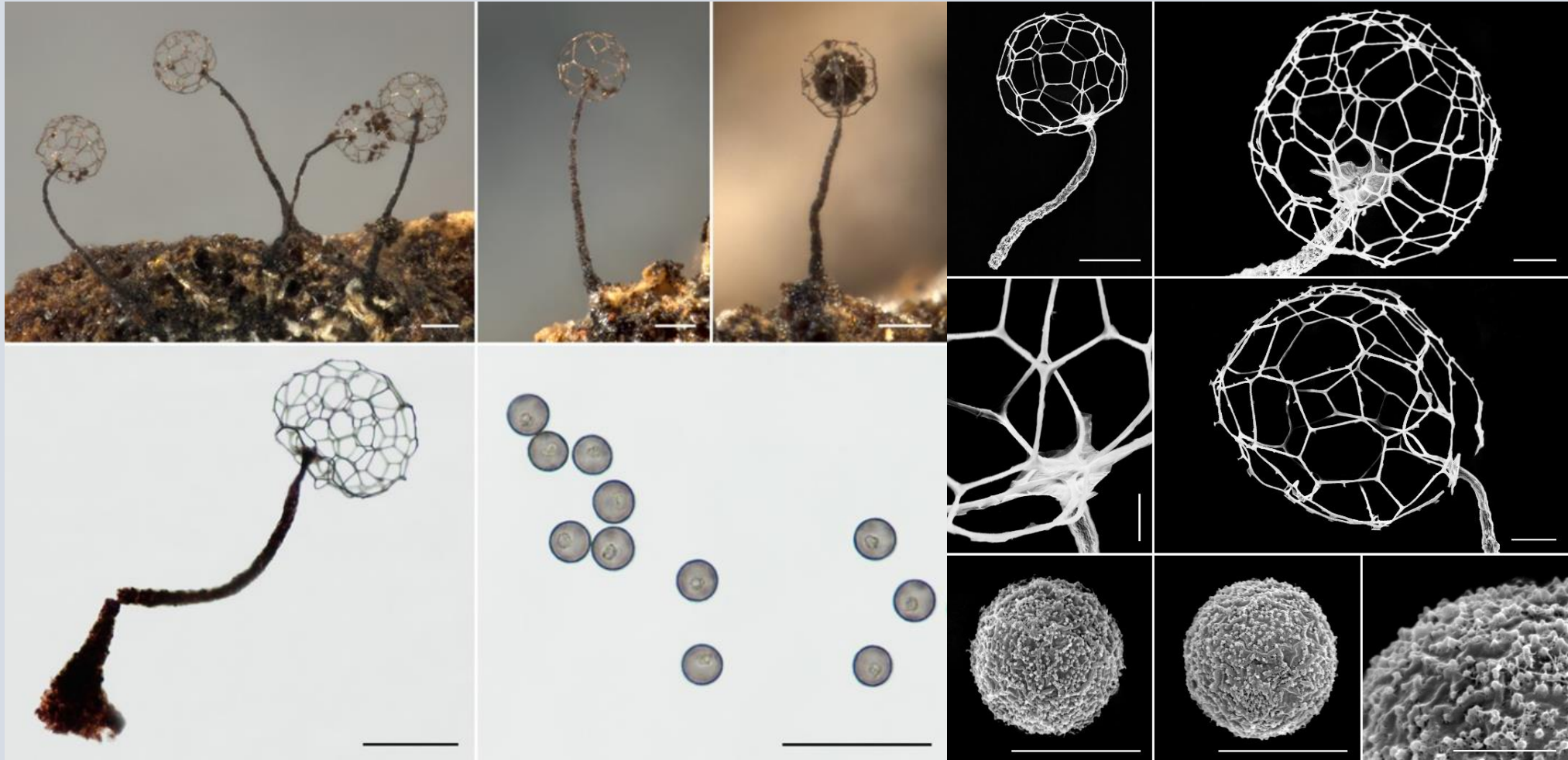
# My Research

# Moist chamber



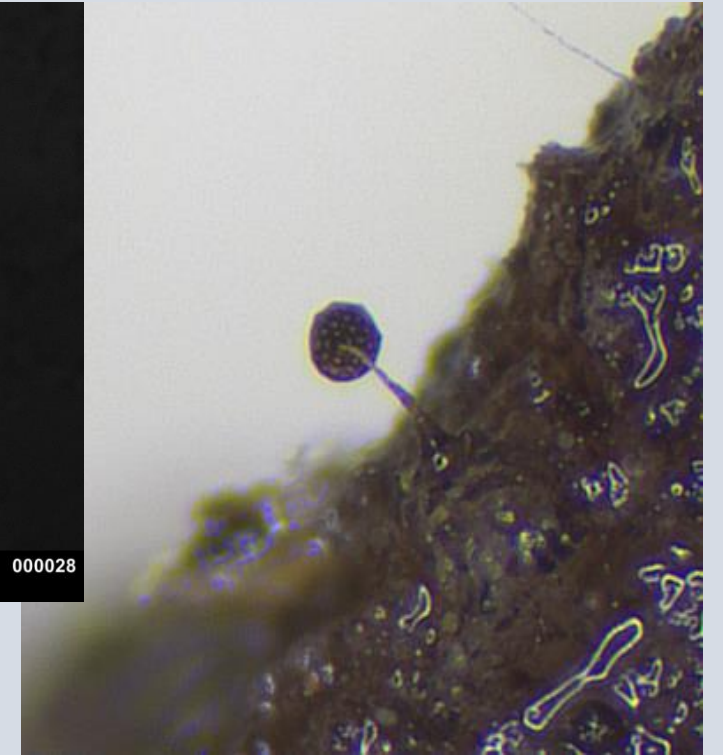
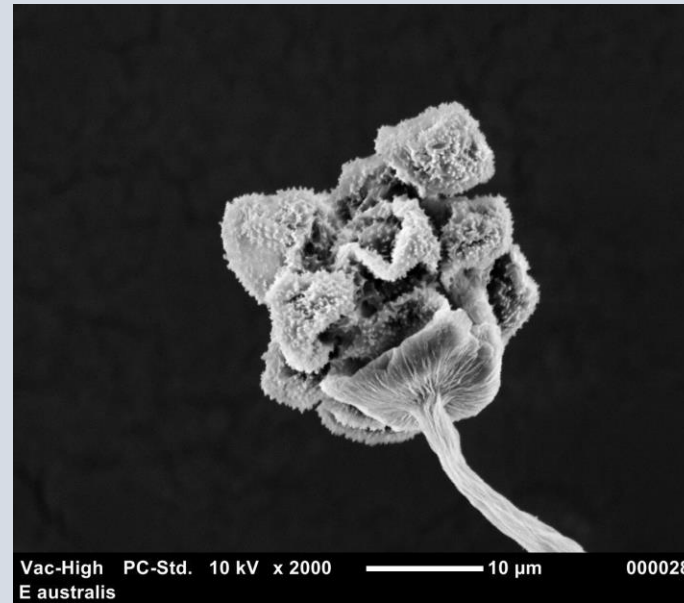
- Supplements field collections.
- Best method to locate minute species.
- Arid areas my favourite, moist chamber the best method of finding slime moulds in this environment.
- Pick up any piece of organic matter, it's likely to grow slime mould in moist chamber.

# *Clastoderma confusum* K.J.Knight & Lado



# Current Research

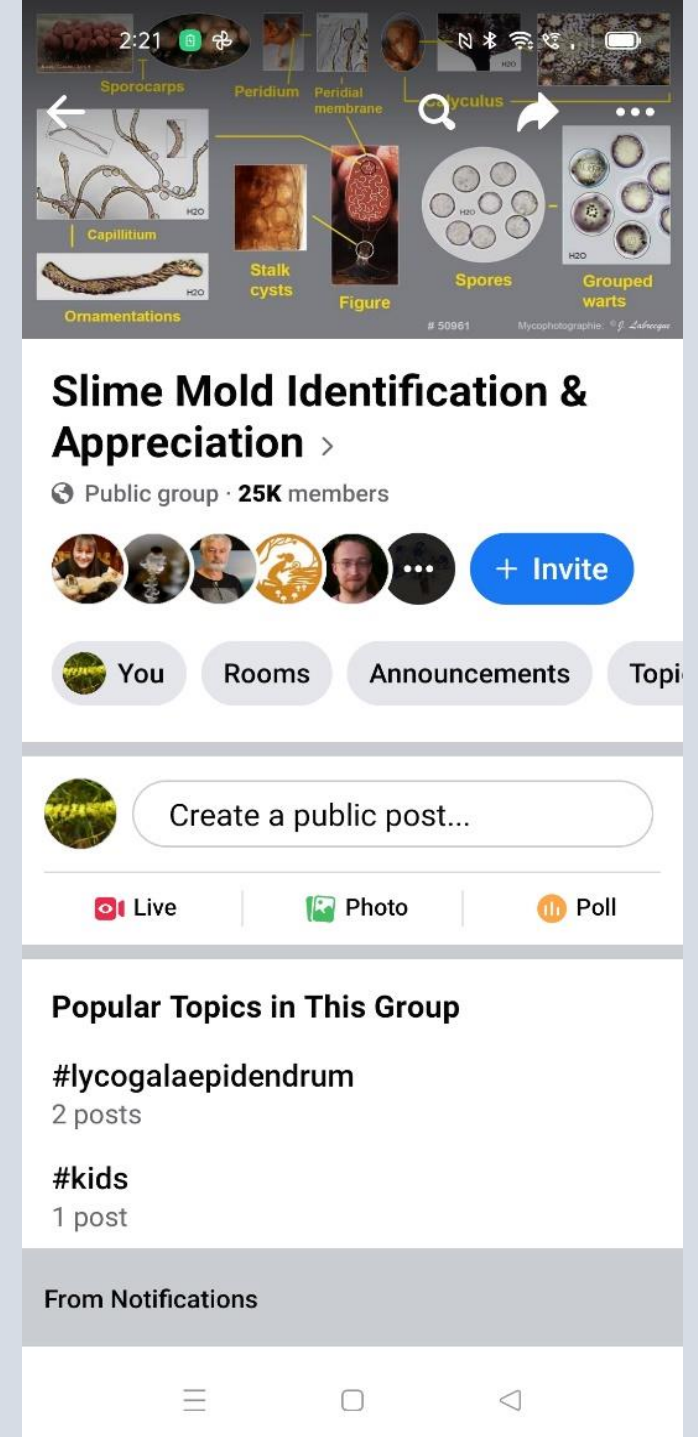
- Curating the herbarium collection.
- Field collecting.
- Focus on moist chamber.
- Collect substrates from arid areas.
- Followed by areas where slime moulds are poorly documented.
- The specimens are added to the Herbarium collection, new names for WA added to the census.
- Currently describing another new species with a few more up my sleeve.



*Perichaena* sp. nov.



There is more than one Facebook page dedicated to this fascinating group of organisms.



The top portion of the image is a scientific diagram of a slime mold, likely *Lycogala epidendrum*. It features several labeled parts: Sporocarps, Peridium, Peridial membrane, Lycoculus, Capillitium, Stalk cysts, Figure, Spores, Grouped warts, and Ornaments. The diagram includes microscopic views and a central figure of the organism. The bottom portion is a screenshot of a Facebook group page titled "Slime Mold Identification & Appreciation". The page shows it is a public group with 25K members. Below the group name are profile pictures of members and an "Invite" button. There are tabs for "You", "Rooms", "Announcements", and "Topics". A post creation area is visible with the text "Create a public post..." and options for "Live", "Photo", and "Poll". A section titled "Popular Topics in This Group" lists "#lycogalaepidendrum" with 2 posts and "#kids" with 1 post. At the bottom, there is a "From Notifications" section and an Android navigation bar.

**Slime Mold Identification & Appreciation** >  
Public group · 25K members

You Rooms Announcements Topi

Create a public post...

Live Photo Poll

**Popular Topics in This Group**

#lycogalaepidendrum  
2 posts

#kids  
1 post

From Notifications



# Presentation resources/references

- WA Herbarium.
- The Eumycetozoon Project (<http://slimemold.uark.edu/>).
- GBIF (<https://www.gbif.org/>).
- FloraBase – WA Herbarium (<https://florabase.dpaw.wa.gov.au/>).
- Nomenmyx – online nomenclatural system of Eumycetozoa ([nomen.eumycetozoa.com](http://nomen.eumycetozoa.com)).
- Myxotropic (Project) (<https://www.myxotropic.org/home/>).
- Wikipedia – <https://en.wikipedia.org/wiki/Myxomycetes>.
- The diversity of Slime Moulds (<http://coo.fieldofscience.com/2008/09/diversity-of-slime-moulds.html>).
- Secretive Slime Moulds (Stephenson).
- Myxomycetes (Stephenson and Stempen).
- Facebook: Slime Mould Appreciation and Identification page and its contributors.
- All images are mine unless otherwise attributed.