



**Why Fungi?**

**Roz Hart**

# Fungi occur everywhere

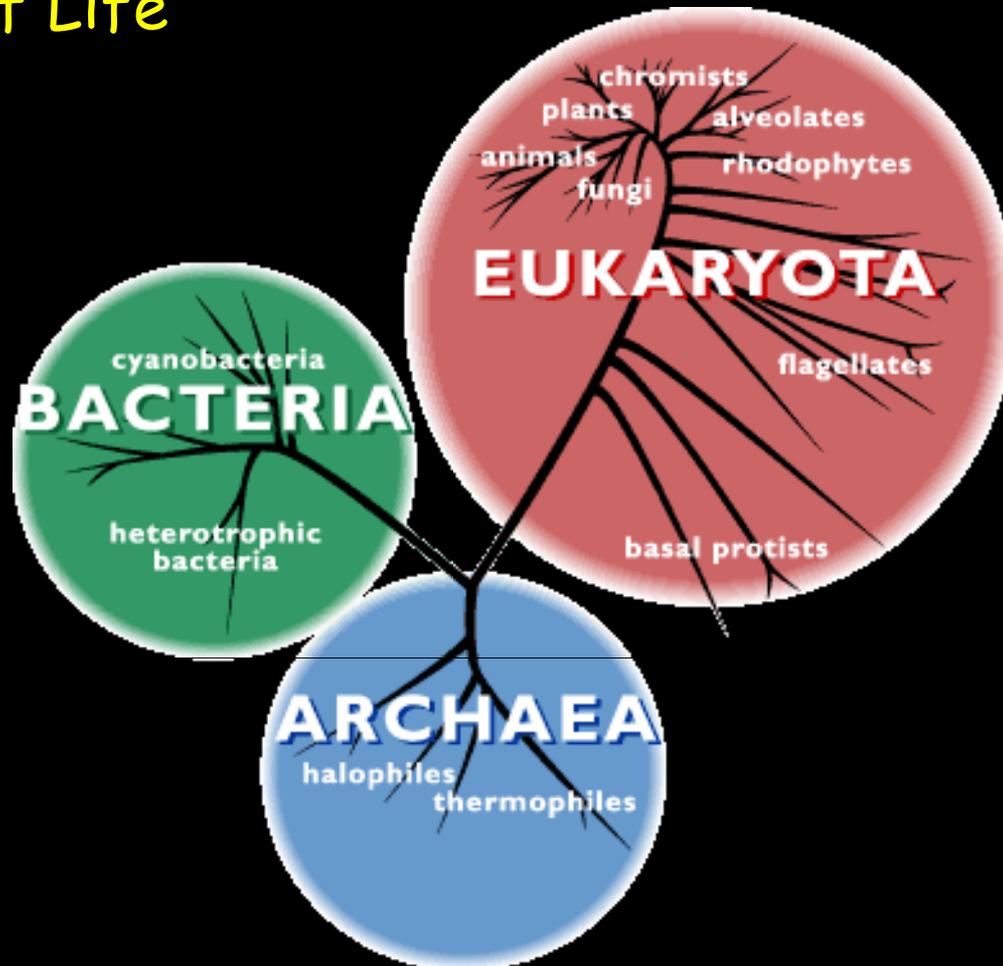
- Fungi occur everywhere, rainforest, lake shores, bushlands, grasslands, farms, beaches, arid areas.
- Each fungus is comprised of microscopic mycelium in the substrate.
- Some fungi are microscopic for all their life cycle, others produce visible fruiting bodies.
- Estimates range from ~15,000-250,000 macrofungi in Australia with only a small fraction described.



# How do Fungi fit into the Scheme of Life?

They are neither Animals nor Plants

They have their own separate Kingdom within the Tree of Life





The Fungi we are familiar with, the mushrooms we see in winter, are the fruiting bodies. The microscopic body of the fungus, the mycelium, lives and functions underground.

# Fungi are made up of microscopic threads

**Fruit body**



**Mycelium**



Leaf litter from above



Below the leaf litter

Fungi propagate by their spores and mycelium

# What Roles do Fungi Play?



- Plant Partners : Mycorrhizal fungi
- Decomposers : the recycling fungi
- Disease fungi



**Mushrooms**



**Truffles**



**Earthstars**

**Many different  
types of fungi**



**Toadstools**



**Puffballs**

**Stalked Puffballs**



**Brackets**



# Some have fun and intriguing names

Earth  
Tongues



Morels



Jelly Fungi



Birds Nest Fungi

Earthstars



# Many fungi are hard to see

Go slowly  
Get "your eye in"  
Recognise clues

Learn to recognise  
a few fungi at first



# Fungi fruiting bodies are very common after rain in arid and semi-arid regions



# Biodiversity Harmony

- It's **how all** the living components of an ecosystem interact sustainably with each other
- Our super biodiverse WA ecosystems are full of wonderful and unexpected interactions enabled by evolution over extraordinary lengths of time
- Quenda, potoroos, small mammals sifting through the soil for their food, truffles
- Pathogens like Armillaria killing plants and making gaps for regeneration

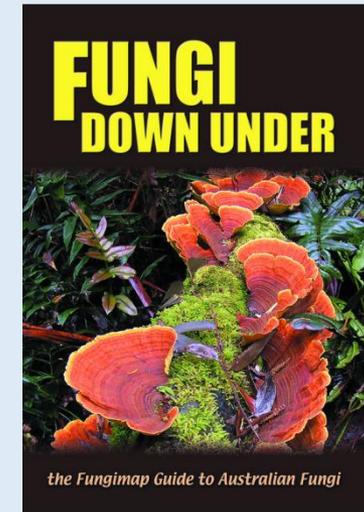


# Fungimap

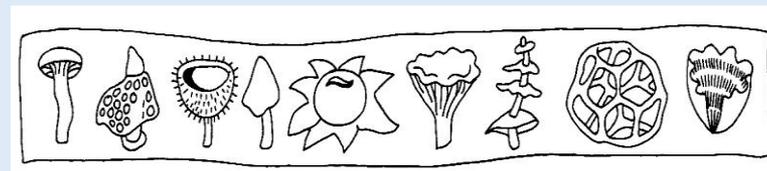


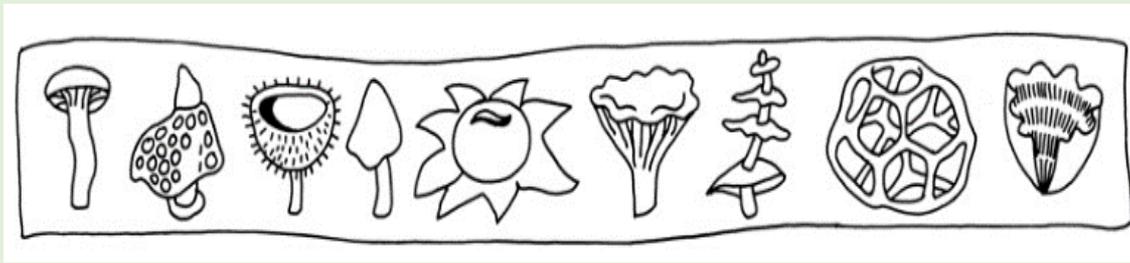
National NGO/Not-for-Profit:

- Aim of improving awareness, knowledge and conservation of Australian macrofungi
- Mapping scheme - more than 400,000 fungi records gathered 1995-2018, extra 50,000 added to ALA in 3 years since partnering with iNaturalist in 2019
- Bookshop, Website, Publications, Conservation and policy development



[www.fungimap.org.au](http://www.fungimap.org.au)





*Fungimap and iNaturalist:  
working together to put  
Australia's  
fungal biodiversity  
on the map*

**iNaturalist**



Shared!



We can:

- Photograph the fungi as they pop up!
- Comment on and /or sometimes identify from images
- Ask for help - Get clues
- The Atlas of Living Australia will record **Research Grade Data**
  - Two confirmed identifications gets into

# Observe

Onion Earthball (*Scleroderma cepa*)

Research Grade

Edit

"Research Grade" observations have media, location, a date, and a community consensus on a precise identification (usually at species-level). Learn more about quality grades



rozhart

427 observations

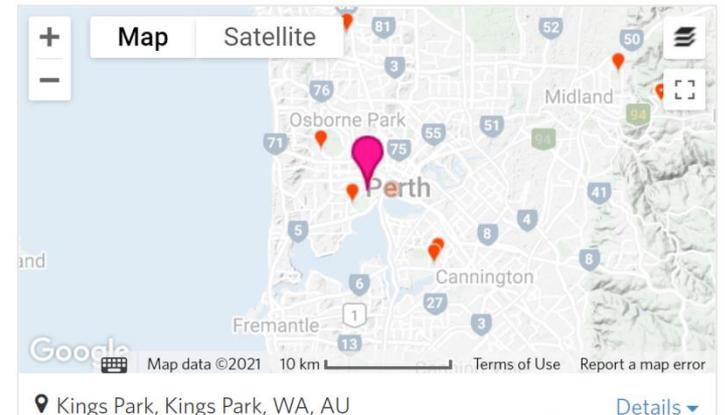


Observed:

Jul 20, 2021 · 10:50 AM AWST

Submitted:

Aug 8, 2021 · 11:18 AM AWST



- **Add** to our iNaturalist project

[Fungimap Australia](https://www.inaturalist.org/projects/fungimap-australia)

<https://www.inaturalist.org/projects/fungimap-australia>

# Recent Fungimap Project Stats on iNaturalist

## 29.8.2021



Fungimap Australia

[Add Observations to This Project](#)

### Stats

#### Totals

**50137**

Observations »

**1310**

Species »

**527**

People »

#### Most Observations



reiner  
25196 observations



peterzuidland  
1865 observations



blackangus  
1569 observations



eileen64  
1317 observations



franklinhermit  
1289 observations

#### Most Species



reiner  
572 species



peterzuidland  
416 species



eileen64  
303 species



paul2george  
276 species



blackangus  
269 species

#### Most Observed Species



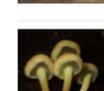
Orange Pore Fungus  
502 observations



Pixie's Parasol  
453 observations



Snow Fungus  
434 observations



Sulphur Tuft  
336 observations



Tall Mycena  
332 observations

Map

Satellite



» [Members](#)

885 members

# Share .... Why make a record?

- Records submitted to the Fungimap Database (NAFD) can be used by anyone via the Atlas of Living Australia.
  - Researchers and government agencies find the data very useful.
  - The data can be used to establish distribution and habitat preferences for species.
  - This data can contribute to conservation policy, or other outcomes such as greater understanding of the role of fungi in ecosystems, carbon capture, etc.
- Very few professional mycologists are employed in Australia, nor are fungi included in most biodiversity surveys, so citizen scientists are really important!



# Perth Fungi Field Book

## Fungi of the Perth Region and Beyond

A Self-Managed Field Book



Neale L. Bougher

J.86 <i>Cantharellus cibarius</i>	J.97 Milk Cap	J.88 Ring-necked Puffball
J.89 <i>Cantharellus cibarius</i> sp. 'Vancouver' (aka 'White Cantharellus')	J.88 <i>Cantharellus cibarius</i> sp. 'Vancouver' (aka 'White Cantharellus')	J.88 <i>Cantharellus cibarius</i> sp. 'Vancouver' (aka 'White Cantharellus')
<b>Boluses:</b>		
<b>Fleshy Mushroom &amp; Toadstools with Pores</b> Page 4		
K.1 <i>Hydnum repandum</i>	K.2 <i>Hydnum repandum</i>	K.3 <i>Hydnum repandum</i>
K.4 <i>Hydnum repandum</i>	K.5 <i>Hydnum repandum</i>	K.6 <i>Hydnum repandum</i>
K.7 <i>Hydnum repandum</i>	K.8 <i>Hydnum repandum</i>	K.9 <i>Hydnum repandum</i>
Visual Index © Bougher (2009) <i>Fungi of the Perth Region and Beyond</i> . Last updated 22/03/2009		
<b>Perfballs, Earthballs, Stinkbombs, Cannonballs &amp; Bird's Nests</b> Page 1		
L.1 Red Puffball	L.2 Teardrop Puffball	L.3 Dog Poo Puffball
L.4 Earthballs	L.5 Cannonballs	L.6 Bird's Nests
L.7 Bird's Nests	L.8 Bird's Nests	L.9 Coloured Earthballs
L.10 Stinkbomb	L.11 Stinkbomb	L.12 Coloured Earthballs
Visual Index © Bougher (2009) <i>Fungi of the Perth Region and Beyond</i> . Last updated 22/03/2009		

Now available on the web at the WA Naturalists' Club fungi page

There are no funds to continue the fungiperth website or to add the many new fungi found

### Basidiomycetes (Coral & Club Fungus)

M-2

### Basidiomycetes (Mushrooms & Toadstools with Gills)

J-34



J-101

### Spectacular Rustgill *Gymnopilus junonius*

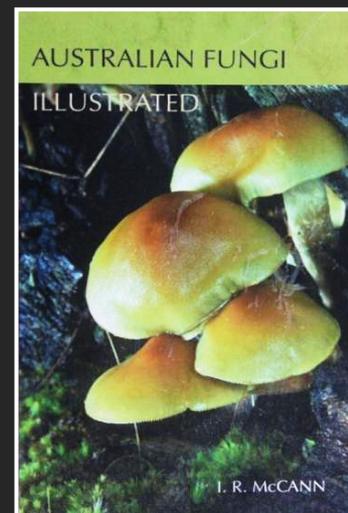
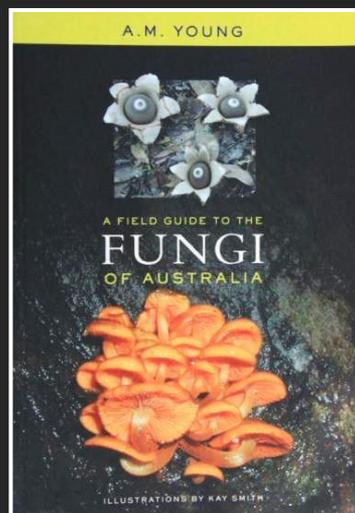
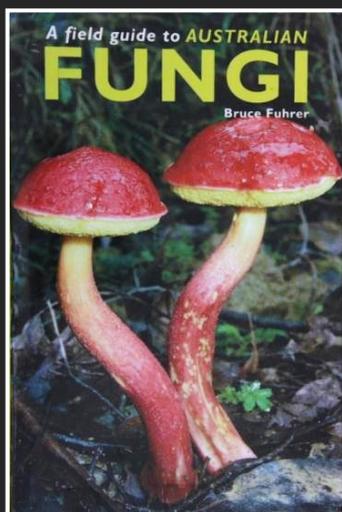
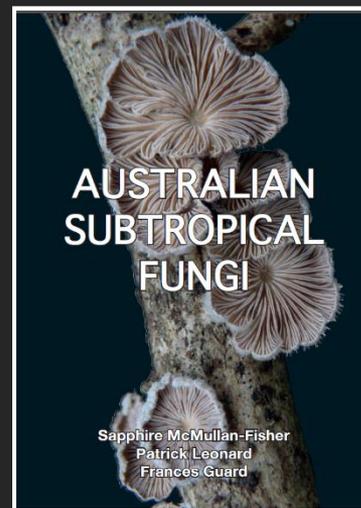
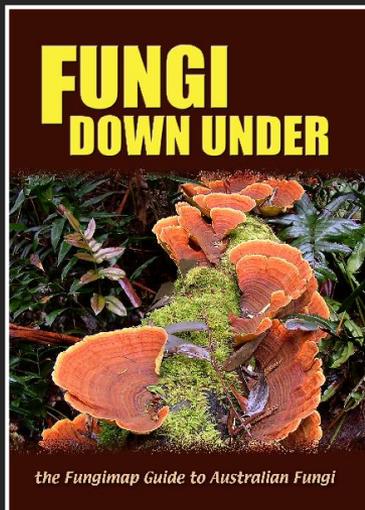
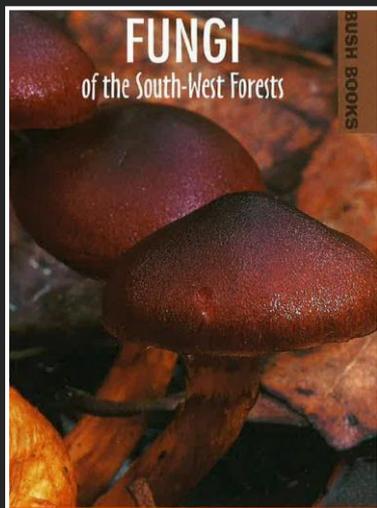


In large clusters around base of trees or on stumps.  
Decomposer.

- Cap up to 300 mm wide, orange-brown, finely scaly.
- Stem up to 100 mm tall, with membranous ring.
- Gills yellow-brown.
- Spore print rusty brown.

Notes

# The Fungimap Website shop has a range of books and field guides



... and lots more

[www.fungimap.org.au](http://www.fungimap.org.au)

*fungimap*



Fungi for Land - Practical knowledge for Australian land managers

To follow or donate visit <https://www.fungi4land.com>

### **Hopes and Achievements:**

- Succeeded in raising funds via crowdfunding to start in 2018
- In 2019, raised public funds to engage professional illustrators to convert our own ideas into engaging drawings
- Now looking for funds to print and distribute the book in 2022
- Then we will go on the road to use the book for Fungi4Land workshops all over Australia.
- If you are interested in hosting a workshop, please talk to me.

# Our Book

We are producing a collaborative manual of how to integrate **Australian** fungi into Australian land management and restoration.

We are designing a book that integrates images and diagrams to clearly demonstrate the amazing interactions fungi have with all other life forms and how to encourage and harness these.

Many mycologists and land managers are contributing to the guide.

We really want to get this book published and into the hands of people who need it.

With this in mind we are continuing to raise funds hoping to have all the money we require by early 2022.

Please help us to provide this valuable resource for the Australian environment.

And now for the "The Question"  
I'm sure you all want to ask

Can I eat them?



From the wild?  
Really Bad Idea!  
For many reasons



It's MAGIC

GROW YOUR OWN

Portabello Mushrooms



Enjoy the fun and grow  
your own!  
It's easy these days

