Grassland Fungi

Gardd Fotaneg Genedlaethol Cymru
National Botanic Garden of Wales

Gwnaed yn bosibl gan | Made possible with
Cronfa Treftadaeth
Heritage Fund

What are fungi?

- A kingdom of their own
- They come in all shapes and sizes
- They include yeasts, mildews, molds, and mushrooms
- Fungi have cell walls containing chitin (the same stuff as the exoskeletons of insects)
- They absorb nutrients from their surroundings
- Fungi can reproduce both sexually and asexually
- Reproduce via spores

What type of grassland do they grow in?

- Unimproved grassland – These are areas of grassland that have never been ploughed, re-seeded or fertilised.
- Fertile grassland – Through ploughing, the fungal threads are cut, breaking connections between them. The use of fertilisers changes the chemical balance in the soil, having a negative effect on fungi.

Fungi and soil

- You might have heard of the wood wide web?
- These fungi that link with plant roots are called mycorrhizal fungi.
- It's not just for woodlands and trees – most plants benefit in a similar way from fungal connections.
- They contribute to good soil and plant health.
- In turn, this benefits the whole food web and ecosystems.

Why are these habitats vulnerable? What threats do they face?

1. Ploughing
2. Chemicals: pesticides, herbicides, fertilisers
3. Urban development
4. Neglect
5. Tree planting schemes

1. Breaks up the mycelial network
2. Can kill fungi and soil organisms
3. Habitat loss through building
4. A lack of grazing or cutting, leading to scrub encroachment
5. Loss of unimproved grassland habitats

How are fungi being protected and recorded?

- Red Data List (see right)
- Recording by experts
- Citizen science
- Record databases
- Positive habitat management and conservation action

The International Union for the Conservation of Nature (**IUCN**) makes assessments for how well species are surviving, and maintains a '**Red List**' for how threatened they are.

In 2025, the IUCN Red List included a total of 1,300 fungi species, at least 411 of which are threatened with extinction. In total, the Red List currently covers 169,420 species, of which 47,187 are at risk of extinction.

"*Fungi are the unsung heroes of life on Earth, forming the very foundation of healthy ecosystems – yet they have long been overlooked. Thanks to the dedication of experts and citizen scientists, we have taken a vital step forward: over 1,000 of the world's 155,000 known fungal species have now been assessed for the IUCN Red List of Threatened Species™, the most comprehensive source of information on extinction risk. Now, it's time to turn this knowledge into action and safeguard the extraordinary fungal kingdom, whose vast underground networks sustain nature and life as we know it,*" said **Dr Grethel Aguilar, IUCN Director General.**

Fungi at the National Botanic Garden of Wales

- Wales is home to some of the most globally important grasslands for fungi, including for colourful jewel-like waxcaps.
- On the Botanic Garden's Waun Las National Nature Reserve, grasslands are managed carefully, with fungi specifically in mind.
- One of our meadows, Cae Waxcap, has at least 10 species that are IUCN red-listed as vulnerable to extinction! This makes our Nature Reserve an internationally important site.

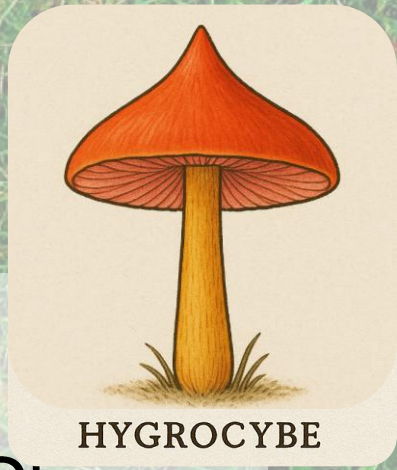
Fungi ID features for waxcaps

Waxcap fungi are small to medium-sized mushrooms that usually grow in grasslands, mossy areas, or sometimes woodland clearings. They're called "waxcaps" because their caps often feel smooth, waxy, or slightly greasy to the touch.

- Colour – often bright, reds, yellow, green, orange.
- Cap shape – variety of shapes.
- Gill attachment – often ‘decurrent’.
- Cap margin – often wavy and splitting.
- Spore colour – white!
- Smell – sometimes they have identifying smells.

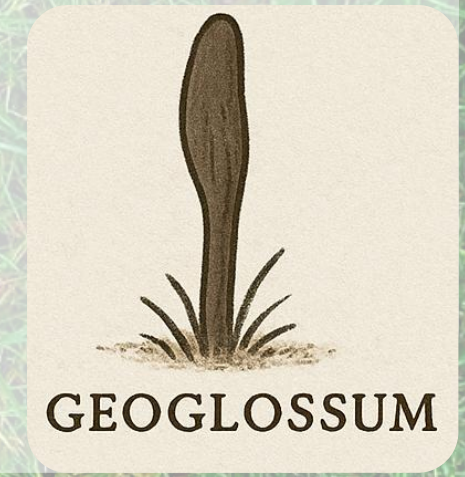
Waxcaps aren’t the only type of fungi that make this vulnerable habitat their home.

Meet the gang!



Waxcaps and all their grassland friends have a nickname – C.H.E.G.D!

- C= Clavarioid - fairy clubs and corals
- H= *Hygrocybe* - waxcaps
- E= *Entoloma* - pink gills
- G= *Geoglossum* – earth tongues
- D= *Dermoloma* - crazed caps



Get hunting on our indoor meadow!

- In groups, pick out 10 species from the meadow pockets.
- Now use your identification key to find out which fungi you found.
- Who got a cow pat?! Take a closer look at what other species of fungi like growing on poo!
- Add up the scores on your cards to work out which group had the most species-rich grassland finds.
- Who had the rarest species?

Grassland Fungi activity in action