



North Eastern Fungus Study Group

Newsletter No 112 - Spring 2024

Index

Forthcoming Events	Page 1
Nethy Bridge Poster	Page 3
Fungus on Fungus on Fungus - Lydia Koelmans	Page 4
Exploring Bioluminescence and Biofluorescence in Fungus - Catherine Gillie ..	Page 4
Earthstar Workshop - Mike Cruse	Page 5
Mushrooms grow so Quickly - RHS The Garden - Alan Simkins	Page 8
Gordon Simpson - A Life Story	Page 10
Lichen Lookout - Jo Scott	Page 14

NEXT ISSUE: The deadline for articles for the Summer newsletter is 26th August 2024
All contributions will be gratefully received!



Forthcoming Events

We have left more days available to allow for Pop Ups and requests from other organisations.

FORAY PROGRAMME 2024

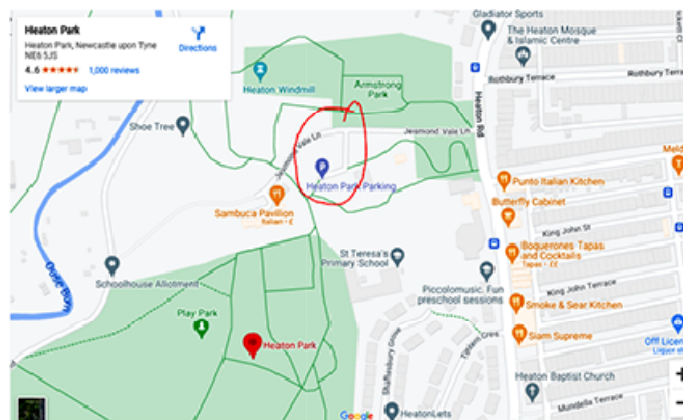
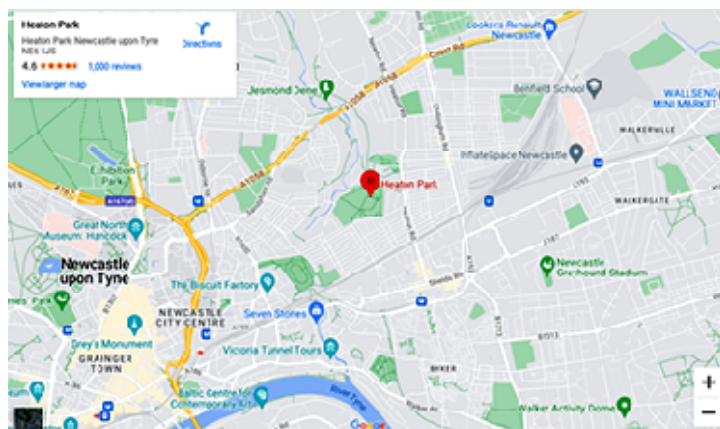
Meet at 10:30am for an 11.00 am start unless otherwise stated.

Sun Sep 1st Mike Cruse Jesmond Dene , Newcastle

Meet at the car park at Heaton Park off Heaton Road along Jesmond Vale Lane.GR: NZ 267 656
Post Code: NE6 5JS.

Meet 10.30 for 11.00 start. We will proceed from Heaton Park through Armstrong Park to Jesmond Dene looking at fungi on the way. Bring a packed lunch.

Contact : Mike Cruse 07748276183



Sat Sep 7th Alan Simkins Lowna , nr Gillamoor , NYMNP

Sat Sep 14th Val Standen Chapman's Well , Lanchester

Fri Sep 20th - Mon Sep 23rd Grantown on Spey (3 nights) See Poster.



A long weekend in Scotland with the NEFSG

with organised forays and 4 days/3 nights bed & breakfast including dinner



Friday 20 September - 23 Monday September 2024, Nethybridge (3 nights)

You are invited to take part in a field trip with organised forays in the beautiful Caledonian Pinewoods around Aviemore, where we hope to find species such as the Hydroid Fungi and other rarities. There will be a room for microscope work and lots of social activities. The price of £267 per person includes 3 nights dinner, B&B at the Nethybridge Hotel, 11 miles North East of Aviemore.

Date: Friday 20th - 23rd of September 2024
Basis: Dinner, bed & breakfast
Rate: £267.00 per person
Rooms: Single rooms, twin rooms and double rooms available

This trip is also in preparation for a longer exchange visit with our friends and colleagues from MAK (Mannheim Fungus Group) at around the same time in 2025, returning their hospitality which we enjoyed last year.

If you would like to join us please contact Catherine Gillie at cat.gillie@btinternet.com specifying what accommodation you would like as spaces are limited for this year.



FUNGUS on FUNGUS on FUNGUS

A mould, on *Trichoderma pulvinata*, on pores of old *Piptoporus betulinus*



Lydia Koelmans

Exploring Bioluminescence and Biofluorescence in Fungi

Bioluminescent fungi and organisms possess a remarkable ability to illuminate their surroundings, with "lumin" denoting a measure of light and "luminous" indicating the emission of light. However, due to the considerable energy required, these organisms do not emit a bright enough glow to be visible during daylight hours; instead, their luminescence is most pronounced at night. Recent research has pinpointed a substance called Oxyluciferin as the key player responsible for this phenomenon in fungi.



On the other hand, biofluorescence refers to an organism's capacity to reflect light, typically in response to high frequency light such as UV light, in a different colour than the light they absorb. This property often makes them appear to glow in the dark. Unlike humans, many animals and insects possess the ability to perceive natural fluorescence during daylight, allowing them to discern patterns and images reflected by UV light. This can confer various advantages, such as facilitating pollination. In the case of fungi, biofluorescence may attract insects, aiding in the dispersal of spores.

During a recent stay on the Isle of Mull in April, I had the opportunity to participate in a biofluorescent night walk in the Adura Community Forest, not far from Lochdon. Equipped with red headlamps to maintain visibility without disrupting the UV lamps, as well as sturdy ultraviolet torches and protective goggles, our group ventured out as dusk settled in. Despite my initial scepticism due to time of year combined with cold and frosty weather preceding our excursion, the

advertised images of bioluminescent green and blue fungi piqued my interest.

The walk commenced along a well-maintained track on a damp evening, with our guide promising the potential for spectacular effects enhanced by the rain. Although we covered only a short distance along the track, the transformation of the surrounding environment under the UV light was captivating. The transition of hues from green to red imbued the landscape with an otherworldly aura, particularly as we ventured into a woodland glade illuminated by the faint glow of the moonlight and UV radiation.

Regrettably, our search for bioluminescent fungi proved as I thought fruitless, likely due to the adverse weather conditions. Nonetheless, we encountered other fascinating manifestations of biofluorescence, such as luminescent woodlice and worms, which appeared surreal under the UV light. Additionally, we stumbled upon what appeared to be mycelium—a faint network of yellow-green strands beneath a decaying log. Although we had hoped to witness the colour-changing abilities of leopard slugs in response to irritation, the cold weather deterred their presence.

Reflecting on the experience, I couldn't help but ponder the potential diversity of bioluminescent and biofluorescent fungi awaiting discovery. While the UK boasts relatively few truly bioluminescent fungi, including various species of *Mycena*, *Panellus stipticus*, and *Omphalotus olearius*—aptly dubbed "Jack o Lantern"—many fungi, or specific parts such as gills and mycelium, may exhibit biofluorescent properties.

In conclusion, the exploration of bioluminescence and biofluorescence in fungi not only unveils the remarkable adaptations of these organisms but also underscores the endless opportunities for discovery and appreciation of the natural world, even in the darkness of night.

Catherine Gillie

EARTHSTAR WORKSHOP, SUNDAY 25th FEBRUARY, 2024

Either side of Christmas a number of Earthstars were spotted, especially in churchyards under yew and other conifers by NEFSG member Mark Welfare and also by Chris Barlow. In all around 25 sites in the North East with Earthstars were noted.

This led to Sally Pattison organizing an Earthstar Workshop at Dobbies Garden Centre, Morpeth. 12 people attended, coming from as far as Yorkshire to Berwick.

Sally took us through the macroscopic features to look out for, including

- Stalked or not
- Peristome (mouth)
- Rays
- Mycelial layer

6 specimens were looked at :

UK Records	Species
Geastrum michelianum (Recently re-named after discovering that the old genus, G. triplex, is a tropical species only)	2084
Geastrum striatum	278
Geastrum pectinatum	118
Astraeus hygrometricus (This find, by Chris Barlow, is the 1 st record of this species north of Shropshire and is a red data list find)	60
Geastrum floriforme	28
Geastrum britannicum (A species recently described and a another 1 st record north of Shropshire)	17

Using a glossary and excellent worksheets we worked our way through each example before coming up with an identification .

A very rewarding exercise , a highlight being Sally watering the hygroscopic earthstars and watching the rays raise themselves up .

Many thanks to Sally for organising such a useful event , it was well received by all who participated.

UPDATE : 2 participants went out after the workshop and found 2 new sites for Geastrum striatum and one for Geastrum pectinatum !



Photos Sally Pattison



Daisy Earthstar - *Geastrum floriforme*



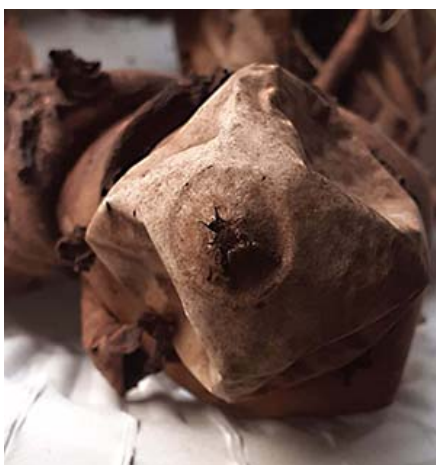
Geastrum britannicum



Beaked earthstar - *Geastrum pectinatum*



Peristome from Beaked earthstar



Spore sac from Collared earthstar

Photos by Gabi Recknagel

Mike Cruse

“Mushrooms grow so quickly – they keep your attention!”

Five years ago, sisters Lorraine and Jodie Caley began growing their own mushrooms to reduce the amount of meat in their family's diet. Today, their Caley Brothers business (named after their grandparents' grocers) is leading a grow-your-own mushroom revolution. Lorraine shares the benefits of bringing these beautiful autumnal treats into our homes and gardens



Lorraine and Jodie Caley

Why do you think home-grown mushrooms are experiencing such a moment? I live in a flat with a balcony and no garden. I'm also not overly successful with houseplants, but mushrooms work well for me. They don't take up much space – you can sit them in a saucer by your sink or hang them – and you can grow them all year round. They're very forgiving and, unlike most houseplants, you can't overwater them.

How long does it typically take from opening a grow-at-home kit to harvesting your 'shrooms? It's a phenomenally quick turnaround: just three weeks for our grey oyster mushrooms. And because the mushrooms themselves grow so quickly – they double in size every 12–24 hours – they keep your attention, whether you're an adult or a child!

That's certainly a much quicker turnaround than your typical home-grown fruit or veg crop. How hard is it to achieve a good harvest? I mean, potatoes are like a lottery for us when we've done them in the past. Sometimes they can be really fruitful, and other times you're like, “is that the only potato? Or just the potato I planted?” We guarantee a first grow with all our mushroom kits. Most kits on the market are as simple as open, water, grow.

Watch mushrooms double in size daily, grown on a saucer alongside houseplants

Most people would associate mushrooms with woodland floors – how do you replicate those conditions at home? Our homes are actually perfect for growing mushrooms. There's an ambient temperature – 16–18°C is ideal – so it doesn't get too cold, and by spraying or soaking your kit twice a day, you're keeping the growing environment humid enough for the mushrooms to grow.

There's a myth that mushrooms grow in the dark – button mushrooms do, and they can be cultivated on a large scale in the dark – but it's actually the light that initiates growth and helps form a lot of mushrooms. By opening up your kit, you're bringing in light, water and fresh air, and that replicates what happens in the wild during mushroom season. So as long as there's enough light to read by – and that can be artificial or natural light – they will grow.

Does growing mushrooms make your home a bit stinky? No. If you've been sent fresh spawn, your grow kit should smell nice and fresh and earthy. If there's a smell that's a bit rancid and vinegary, like smelly feet, then something's wrong – most likely a bacteria has got in – and it should all go into the compost heap.

Which variety would you recommend for a first-time mushroom grower? If it's a gift, then definitely a grey oyster mushroom, because what's nice about greys is that if you're not ready to grow, they'll sit in the fridge for a few weeks until you are, so there's no great pressure to get started. But if you're a real mushroom lover, then go for a pink or yellow oyster, just because they're beautiful and delicious and you can't get them in the shops. The pinks are somewhat sweeter; the yellows are a bit creamy and cashewy in flavour. They've also got a lower water content than a lot of shop-bought mushrooms too, so when you fry them, you don't end up with that slimy texture that can put people off.

Do you have a personal favourite grow-at-home mushroom? I'd have to pick a lion's mane for its versatility and just how unusual it is. Not only is it classed as a medicinal mushroom, but it's also supercharged with a lot of nutritional benefits.





The exhibit of Caley Brothers' gourmet mushrooms on different substrates won a gold medal at Chelsea Flower Show 2023

You can shred it with a fork and it breaks up into a kind of crab meat texture, which is beautiful pan-fried with a bit of seasoning. But it also slices a little like a cauliflower, and you can griddle those slices as you would a steak. And because it's quite spongy, it takes on marinade really well.

Can you grow these interesting edible mushrooms outdoors, too? Yes, you can buy inoculated dowels for growing in logs outdoors, but you do have to source your own log and drill your holes, then pop in the dowels.

Many people don't realise that if your mushrooms are growing in a log, you still need to water that log. The demise of most mushrooms is down to drying out, but if you water them as you water your outdoor pot plants through all seasons, you'll get a harvest after about 12-18 months.

Although it's more time intensive at the beginning of the process compared to an indoor kit, you could be harvesting mushrooms from your log for three to five years, so there's a much bigger reward.

Do you find people are sceptical about having mushrooms in their gardens? People regularly come to us, sometimes with photographs, and say: "We've got mushrooms in the garden, it's awful,

how do we get rid of them?" But these are a good sign because fungi are a really important and undervalued part of our gardens.

Fungus in the soil – the mycelium – is like the egg in the cake mix: it binds the soil together and helps retain water. It goes deeper than your plant roots, so when there's a drought, the mycelium is able to actually bring water from that lower point up to your plants.

We're not taught much about the importance of mushrooms. At school, we learn about flora and fauna – how trees grow and how animals reproduce – but without the fungi, none of it would be here.

How sustainable is mushroom growing?

Mushrooms are a valuable part of the circular economy. You can grow them on used coffee grounds or by-products from industry, such as soy hulls, straw and sawdust. You're re-using something; you're growing food off it; and then the substrate you're left with at the end is so good for the soil – we call it gardeners' gold. ○



Pink oyster mushrooms are both delicious and colourful



Planted in hessian, grey oyster mushrooms look elegant suspended from a macramé hanger

As told to **Dan Masoliver**, RHS Show Guides Editor and author of e-newsletter *The Earthworm*

Gordon Simpson is 91 years old and has been a member of the North East Fungus Study Group since its conception. Gordon is going to share the story of his journey into mycology in the North of England.

We will be following his personal journey over the next few issues.

"I am attaching my first article. It shows how my National Service totally changes my career plans."

My Early Life

I have built up my family tree back to 1730. A lot of my relatives were farmers. After leaving Lady Lumleys Grammar School, Pickering in 1949, with 9 School certificates, I planned on making a career in agriculture. I got a job at Low Askew farm starting at 7am and finishing at 5.30pm and working alternate weekends. The owner of the farm had a degree in agriculture.

He owned a Bentley car. His herd of cattle were Guernseys. I was the third cowman and soon after milk was ready to flow down the cooler I started bottling the milk in pint bottles. My next job was to sterilise all the milking equipment. By 10am I had finished the cowman's work then I had to work in the fields. I had to keep up with the adult farm workers but I was only paid 65% of their wages. Overtime at hay time and harvest meant I had to work until midnight. I then cycled home including walking up the half mile, 1 in 8, hill up to Cropton.



I had a meal but I had to be back at the farm for 7am. I was not paid fully for the work.

In summer 1951 farm workers were called up for National Service. I went with a friend to Scarborough for a medical check in summer. Both of us passed as A1. My friend joined the army. I did not join the army until December 1951. The medical team had not made a record of my height and weight. I replied by mail that my height was 5ft 10 inches and I weighed 10 stone 7lb. Not accepted! So I had to go to Scarborough again. I found



temporary farm work and left Cropton on the 2nd of December at 4pm and arrived at Honiton, Devon 24 hours later to join the Royal Electrical & Mechanical Engineers (REME), or 'Rough Engineering Made Easy' or 'Ruin of Every Maiden Eventually'. A lad from Okehampton and I were selected out of 50 or so lads for officer training. I turned it down because I could not buy whiskey for the Colonel. Lots of lads could not read or write and I was asked to help teach them. Why did the army not transfer me to the Royal Army

Education Corps as a sergeant? The camp was at Hawton Road, SE Newark. On 5 weekdays lots of us were transported to 5AA Group Workshops where the Nottingham Road crosses the A1 towards Kings Lynn. I was one of at least 6 lads and a lance corporal in the planning office. I was the only lad that would work. My job was to visit every section manager and discuss the

progress of every job on their line. The managers were either officers or ex-military personnel. I then had to sort out when spares would become available etc. As an example there was 4 vehicles sections, Motorycles, Light Vehicles (such as vans and cars), Heavy Vehicles (Lorries) and Electricals, Vehicle and Plants. I could get my watch repaired at the Instrument Section. I could say more but this is only an example of my work. I used to babysit for one officer and I levelled a large sandy area and sowed and maintained a lawn for another officer. I eventually complained to the planning officer that I was being overloaded. I was then moved to Receipts and Issues section where items from the whole of Britain Anti-Aircraft Command were received to await repair, or left behind the building awaiting collection after repair. The manager was an Old Contemptible. He took me to

his home one night where I met his step son who was a farm manager. He advised me to leave my farming ideas because all farms would be managed in the future by the farmer and his sons. The Old Contemptible loosened the nuts on the top runners of the half ton entrance steel door. This made the door

The Old Contemptibles were survivors of the First British Expeditionary Force, formed from the regular army, which served in France and Flanders between August and November 1914

difficult to open as it caught up in the bottom groove full of dirt and gravel. He could then get out of his seat in the office and stand waiting at the counter for the customers. Six days before I was due to end my national service I jumped up the steps to open the door. It did not open. Another soldier grasped the door handle too and the heavy door suddenly opened and my

elbow hit the brickwork, bending and breaking my left arm. I was taken to hospital.

The army wanted to retain me until the New Year. On demobilisation day other lads fitted my large and small rucksack on to my back, then my huge kitbag on top behind my neck. I was dropped off at the railway station by one of the troop carriers on its way to the workshops. From that point civilians, known as civvies, helped me. I managed to get home but I needed a ration book. I went to Pickering Food Office to get my ration book. Half the Office was the Labour Office so I asked if they had a one handed job. They suggested I should try the Forestry Commission office. I was taken on and this was the start of my new career.

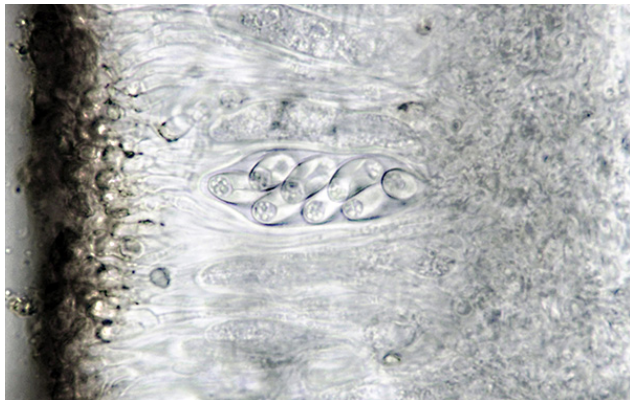
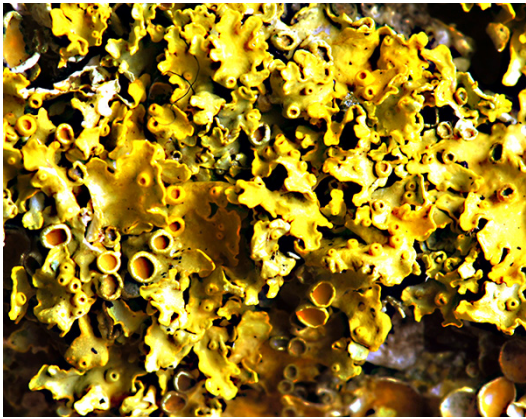
Continued next month...

By the end of World War 1, British woodland cover was at an all-time low (just 5%). Forests in the UK had been steadily declining since the Middles Ages but the strain of WW1 meant that urgent action was required. On 1 September 1919, the first Forestry Act was introduced. The Act established the Forestry Commission to create state owned woods and forests, and to promote and develop forestry in England, Scotland, Ireland and Wales. In the decade that followed, more than 138,000 acres of forestry was planted across England, Scotland and Wales, and almost 54,000 acres of new woodland was created by private landowners who received grants from the Forestry Commission. The Forestry Commission's growth was so rapid that by 1939 it was the largest landowner in Britain.

As tensions mounted across Europe, the Commission was responsible for drawing up felling plans for the WW2 effort and by the end of the war it's estimated that approximately a third of available timber had been cut down and used. In the years that followed the war, the Forestry Commission expanded dramatically to meet the demand of a burgeoning timber trade. Its workforce grew, and more forests were planted. By 1949, a census in Britain concluded that woodland covered a total of 3.64 million acres, which equated to around 6.5 per cent of British land.

Lichen Lookout

A closer look at *Xanthoria parietina*. A common foliose species easily spotted because of its vivid yellow colour. Found on walls, rocks and trees often where birds perch. Usually has many orange/yellow apothecia. The lichen can look quite green/grey in shade.



Cross section through the apothecia showing the ascus containing 8 spores



Spores