BMS RECORDING NETWORK NEWS

JANUARY 2023

Nathan Smith
BMS Recording Network Coordinator

New Year; New Look

A new year and a new look for the BMS Recording Network News. In the first issue of this new look, which starts with a fantastic article from Les Hughes, a section is introduced for the mycologists at Kew to communicate updates that are occurring from across the institution. We also introduce a section entitled *In Touch with the Dutch*, where John Taylor will provide updates and insights into the world of the Netherlands Mycological Society (Nederlandse Mycologische Vereniging; NMV). New sections are continuously sought and I am open to any and all ideas.

The new look also coincides with a revigorated approach to the role of Recording Network Coordinator—with an explicit aim to advocate to the BMS on behalf of the groups. As such, I would like to encourage any and all opinions on how I can achieve this and how the BMS can best serve the various local groups across the UK. My email (cwe.smith@gmail.com) is open and all communications will be treated with the utmost sensitivity.

Kindest Regards,
Nathan

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Maintaining Continuity in a Local Recording Group

Geoffrey Hall's note in the last BMS Recording Network News gave me pause for thought, as the Shropshire Fungus Group has gone through similar times. The group was established in 1992, and when I joined in 2005 it was comprised almost entirely of learned, experienced mycologists.

Since then the passage of time, age and infirmity has meant that none of those original members is still foraying actively, and the collective expertise of the group has been much diminished. With the death of Roy Mantle, the group leader, in 2015 it seemed possible that we could not continue. Membership dwindled, and new recruits often failed to return. A good many of our more knowledgable members even now do not live in the county.

We were lucky enough then to recruit a couple of new members (hijacked on a Field Studies Council course), who have taken on the roles of membership secretary and group secretary. By coincidence I had been working with Roy on the development of a new database for the group when he fell ill, and as the only person with a copy of the existing records I became recorder by default. It's a steep learning curve. We also have an energetic new Chair, who is keen on training and education.

We usually foray at weekends. This has always been the case, but it seems to be advantageous in allowing people in full time employment to join in. However, we recently recruited a new member who is an experienced mycologist, and who teaches at weekends. We're likely to be holding a few mid-week events next year!

One of our younger members expressed the view at an AGM that social media might attract attention. He set up a Facebook page for the group, then disappeared, and has no more been seen. No-one else in the group had any real interest in social media, and the page languished, until two years ago during lockdown. A couple of people, one a member the other not, began to post photos on the page. Suddenly there was a stir of interest.

The Facebook page sprang into life, and slowly acquired new members, a process which has only accelerated in the interim. It now boasts over 290 members, and there are regular conversations about interesting finds, as well as first rate photography.

It isn't possible to be sure how this has affected membership, but in that period the group has acquired new, younger and enthusiastic members, all wanting to know more and willing to learn.

It seems to me that the role of the group has changed. Geoffrey talks about training, and there seems to be the future. In 2021 we held a microscope training day, and were lucky enough to obtain the services of Carol Hobart as tutor. Accommodation and microscopes were supplied by FSC locally. We intend to repeat this in 2023. We also offer small bursaries for members to attend courses, and have supplied members with equipment such as loupes, and chemical reagents. In the absence of formal education through university courses an emphasis on developing expertise

among younger people now seems essential, in fact the future of field mycology depends upon it.

Les Hughes
Shropshire Fungus Group
January 2023

EDITORS NOTE:

Les Hughes has also provided the following link to a video produced by "one of [the Shropshire Fungus Group's] newer younger members" on the subject of foraying. It's a fun watch and well worth a look:

https://www.facebook.com/reel/3124334714524531/

BMS Online Talks

The dung lovers: an introduction to coprophilous fungi

15 February 2023, 19:30 – 21:00

Tony Leech, Norfolk County Fungus Recorder, and chair of the Norfolk Fungus Study Group

The aim of this talk is to reveal the fascination of investigating the numerous species of fungi that grow on herbivore dung. Although small, many reveal their beauty under the stereo microscope. After showing a range of coprophilous species, consideration will be given to the simple procedures involved in studying them for anyone with access to a compound microscope. Finally, some aspects of their ecology, including succession and dispersal, will be described.

Those who attended last year's GLM would have seen a version of this talk and know Tony to be both an engaging and knowledgeable speaker and this talk promises to be full of excitement (and excrement). The evening is bound to have something for Field Mycologists of every level and is definitely a must-watch if possible.

Book here: https://www.eventbrite.co.uk/e/523449430337

Women in Mycology: Renaming the Kew Fungarium Compactors

In October the Kew Fungarium saw the arrival of three new curators (including myself) making it busier then ever! This brought with it the unexpected issue of multiple people trying to work in one compactor unit, resulting in lots of arm workouts moving units back and forth, and a few instances of nearly avoiding getting squashed.

The solution was clear, the compactor units needed to be named and diagrammed, so we knew which catalogue numbers belonged where, and we could differentiate between each unit.

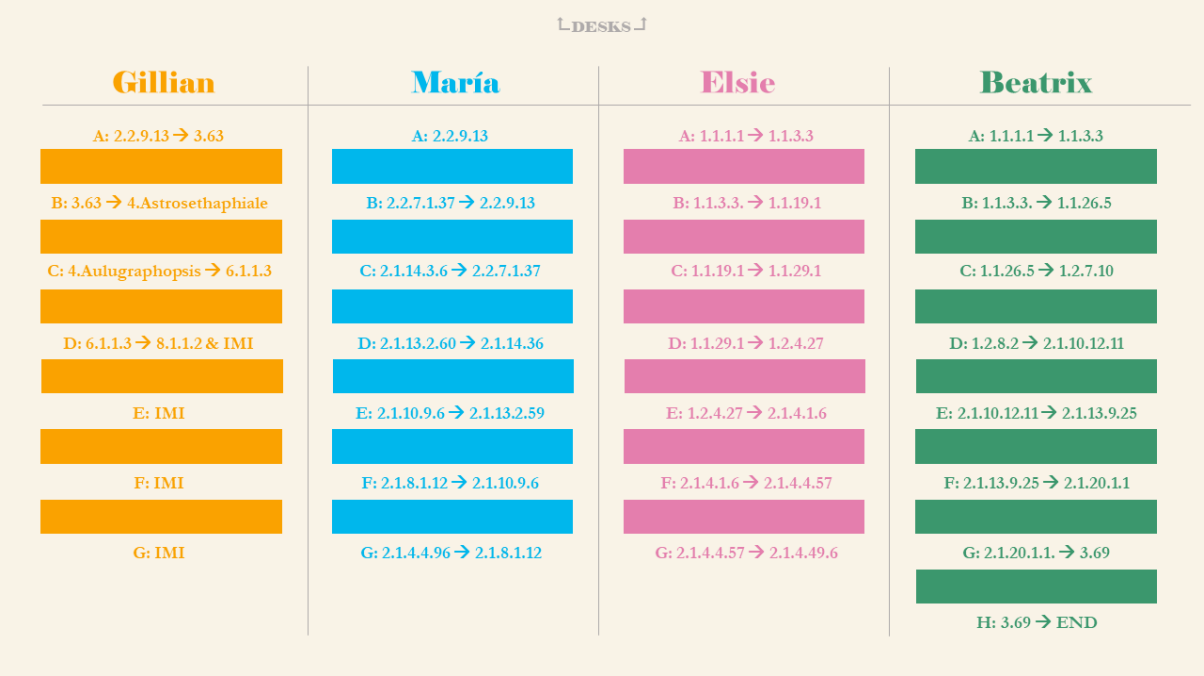


Figure 1 The diagram of each unit specifying the catalogue numbers, and names of each unit

It seemed appropriate to name each unit after a female mycologist, considering the four Fungarium curators are women! After a bit of digging about on the internet I decided on four mycologists:

Beatrix Potter

I had recently visited the Beatrix Potter exhibition, and as a fan of art and fungi I had to include her!

Best known as a children's author and illustrator (most famous for her book The Tale of Peter Rabbit), she was also a passionate field mycologist and conservationist. Potter created over 350 beautiful and accurate pictures of fungi, mosses, and spores - many of which are used for species identification today. After a decade of experience, she began to speculate about their methods of reproduction and experimented in spore germination. This resulted in a paper (now lost) entitled: On the Germination of the Spores of the Agaricineae. The essay was presented on her

behalf at a meeting of The Linnean Society (since as a woman she could not attend herself) in 1897. In her later years, she became a farmer and sheep breeder and helped protect thousands of acres of land in the Lake District.

I name the compactor unit housing the UK collection after her, as she is deeply embedded in UK culture.

Elsie Maud Wakefield

Another no brainer, Elsie Maud Wakefield was an extraordinary scientist who served as Head of Mycology at the Kew for 40 years.

During her career, she published almost 100 papers on fungi and plant pathology, together with two popular field guides to the larger British fungi. She described many new species, from Britain and overseas. The fungal genera Wakefieldia and Wakefieldiomyces are named after her, as are several species. Wakefield studied the fundamentals of fungal sexuality, by pairing colonies that developed from mushroom spores, she dedicated her studies to understanding spore compatibility. Some species of mushrooms have tens of thousands of mating types with fertilization occurring between almost every mating type combination!

The first compactor unit in the world collection was named after her – considering Wakefield was once in charge it seemed appropriate she had first dibs!

María Sabina

Although not strictly a mycologist, María Sabina's impact on mycology is undeniable.

Sabina is an icon who contributed to the popularization of indigenous Mexican ritual use of entheogenic mushrooms among westerners. María was the first contemporary Mazatec shaman to allow Westerners to participate in psychedelic mushroom veladas (healing ceremonies). These were based on the use of psilocybin mushrooms, such as Psilocybe cyanescens. Among the first people to attend one of Maria's veladas was mycologist R. Gordon Wasson in 1955. Wasson collected spores from María's ceremonies, these were used to make the first isolation of psilocybin by Albert Hofmann.

The second world compactor unit was named after Sabina, which appropriately is where the Psilocybe genus is stored (minus those which are listed as Class A drugs – which are securely locked up!)

Gillian Cox

Gillian Cox was another Kew alumnus, known not only for her work in mycology, but as an activist in the LGBT community.

After studying Botany at the University of Sheffield, she went on to work at the Commonwealth Mycological Institute (now the Imperial Mycological Institute) at the Royal Botanic Gardens, Kew; where she specialised in rust fungi Urediniomycetes. She emigrated with her family to New Zealand where she took up a position at the Plant Health & Diagnostic Station in Levin.

Gillian made significant contributions in her field, developing a new spore terminology, publishing the first findings of many fungal diseases and identifying around 533 specimens from around the world. The extensive collection she built up now exists in herbaria. In a 1977 scientific journal she published her preferred name and truth as a trans-woman with the support of her loving wife, children and colleagues. She and her wife then went on to establish a support service called 'Transformation' which provided help and advice for trans people in their community.

The last compactor unit makes up the end of the World collection and the Imperial Mycological Institute (IMI) collection, which is housed and looked after at Kew. Considering Cox used to work for the IMI, this seems like a good match!

This was a nice little project for me to work on as someone new to the world of fungi. It helped me learn a bit of history about the field and the women who came before me. It also has been quite a successful way for us curators to organise our work together!

I got most of my information from the following links, which all go more in depth on these and other female mycologists:

https://stories.rbge.org.uk/archives/34971

https://rainbo.com/blogs/blog/women-in-mycology?_pos=1&_sid=c01d795b2&_ss=r

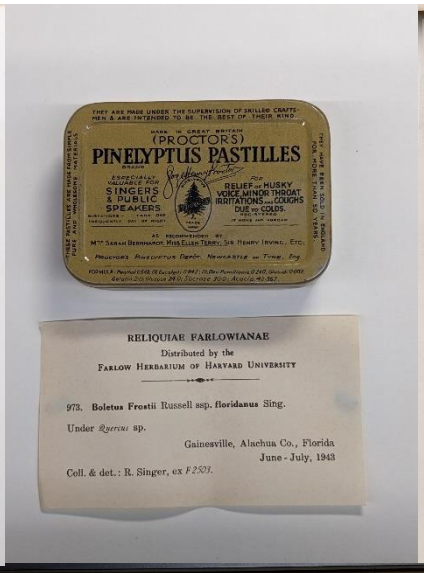
https://www.vam.ac.uk/articles/introducing-beatrix-potter

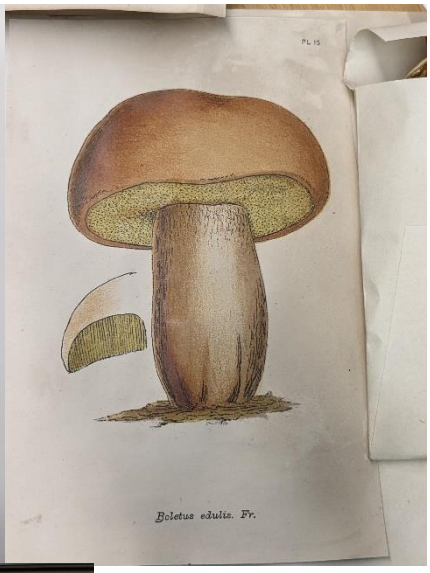
Issy Miles-Bunch

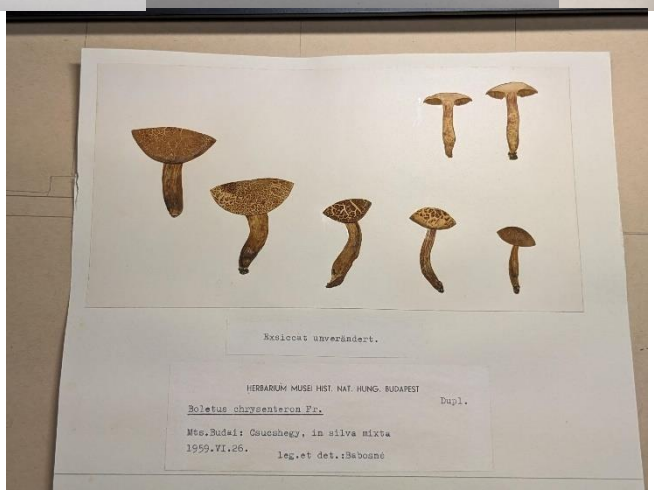
Boletaceae re-curation

Currently in the RBG Kew fungarium re-curation works are being undertaken within the Boletaceae family. Boletaceae is a family that consists of basidiomycete fungi with a poriod hymenophore, with many species within this group of fungi being a culinary favourite. Many of the species within the families Xerocomaceae and Strobilomycetaceae have been re-classified and have been split into genera within Boletaceae and a new family Suillaceae. Approximately 500 species were examined for redetermination, each containing one or potentially more indivdual specimens, with the task itself taking 3 curators 2 weeks. 20 new genera have been incorporated into the collection with all reclassified species being filed under their new correct names. Many of the type specimens boasted beautiful illustrations and specimen sheets, showing the range of colours that these fungi display. The re-curation was an opportunity for the curators to see some of the 19th century collections with their beautiful sheets of thin cross sections of the specimens, however there were some peculiar occurances such as a specimen from Fuckels Fungi which had been collected in monte frankenstien… if anyone knows what this could refer to please get in touch as we are stumped!

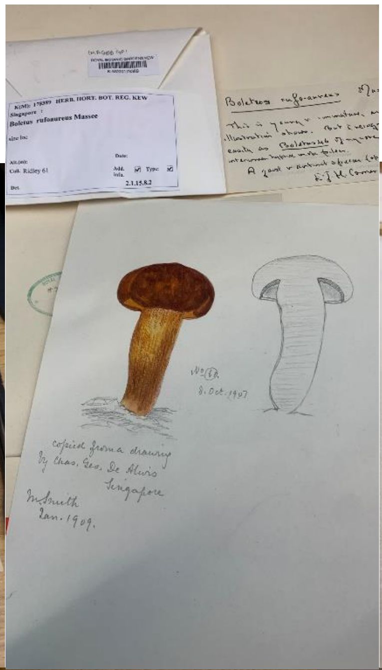
Amy Junnonen



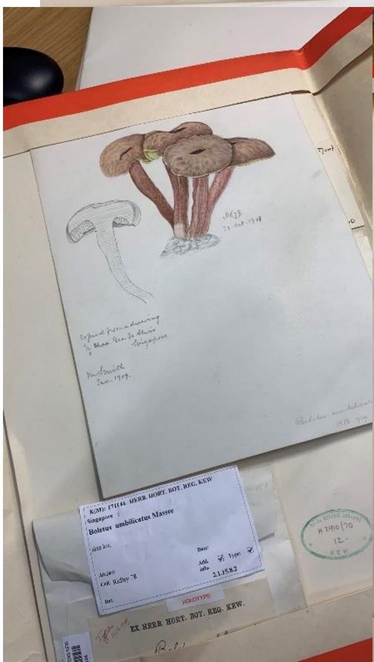


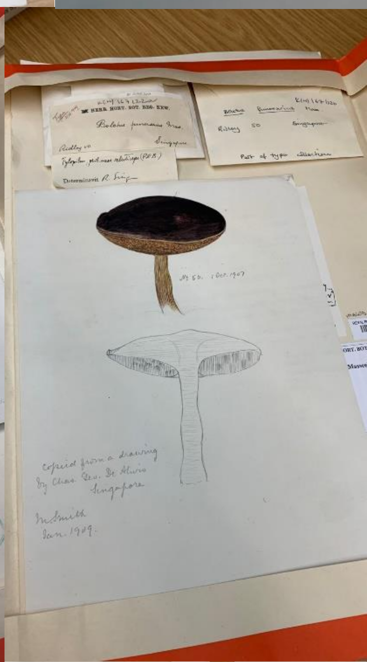


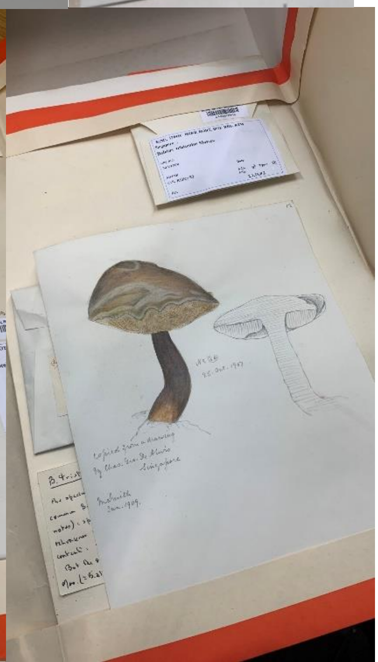

FUCKEL'S FUNGI RHENANI.
Boletus calopus Pers.


HERB. HORT. BOT. REG. KEW
Boletus rufoaureus Massee
copied from a drawing
by Chas. Geo. De Alwis
Singapore
Jan. 1909.


16. Boletus subtomentosus Linn.
Filziger Röhrenpilz, Ziegenlippe
In Laub- und Nadelwäldern bei St. G
October 1879.


HERB. HORT. BOT. REG. KEW
Boletus umbilicatus Massee
HOLOTYPE
EX HERB. HORT. BOT. REG. KEW.


HERB. HORT. BOT. REG. KEW.
Part of type collection
copied from a drawing
by Chas. Geo. De Alwis
Singapore
Jan. 1909.




Determinavit
135 Boletus scaber Fr

Update on The Darwin Tree of Life (DToL) Project at Kew

What is the Darwin Tree of Life Project?

The Darwin Tree of Life Project (DToL; https://www.darwintreeoflife.org) is a nationwide collaboration between research institutes which aims to generate high quality chromosome-level whole genome sequences for all ~70,000 eukaryotic species found on the British and Irish Isles. The data is then made publicly available as a resource to transform the way we do science and to make use of genomic data for biodiversity and conservation goals. As some of you may know, RBG Kew is the partner lead for fungal collections. Some of you may have known about the project through Brian Douglas and Kieran Woof, who were the previous Coordinator and Research Assistant, respectively, and both of whom have led collaborations between the project and the BMS. Rich Wright was also pivotal in the first phase of the project, providing training and support on sample collection and organizing an introductory online workshop with Ester Gaya. The project is now entering a second 2-year phase with new faces, Sahr Mian is the new Project Coordinator and Alex Dombrowski, the new Fungal Research Assistant, with the continued lead by Ester Gaya, Senior Research Leader in Mycology at Kew. During this new phase of the project, we will continue being supported by Brian and Rich, who will be fully engaged in field mycology during the BMS field meetings and forays.

Looking into the future

During Phase I, we established a close partnership with the BMS and field mycology community that secured high quality collections of target taxa and allowed us to exceed the initial collection targets set by the project (we managed to fill Sanger freezers with fungal samples!). We want to give a big thank you to everyone that got involved in this ambitious endeavour, and hope we can continue this exciting and fruitful collaboration in the new phase.

After some difficulties in getting fungal genomes sequenced at Sanger, the first fungal genomes was published early last year (https://www.darwintreeoflife.org/news_item/chicken-of-the-woods-our-first-fungus-genome/), and new species are currently being assembled and coming soon.

We will continue processing, culturing, and barcoding samples at Kew and sequencing the high-quality genomes at Sanger Institute with the aid of Welcome Trust Funds. For this purpose, DToL requires only fresh samples in very good state, with which we can get extremely good DNA extractions. We are now thoroughly evaluating the methods of preservation and protocols that best worked in the first phase, but we can already say that both fruiting bodies and cultures were successful and that both samples preserved in buffers and snap frozen gave good results. This is good news for those collecting specimens that can't be shipped immediately to Kew!

From our experience, we have realised that the most productive collections were those from the BMS study weeks and we plan to focus again on those ones. We are currently updating our *best practice manual for DToL collection* to be shared with all and are working hard to curate our culture backlog so we can produce an updated list of what we have processed so far before spring season starts. We also

promised to provide ITS barcodes for target samples. We are now working on a clean and taxonomically curated dataset that will be soon available.

Why get involved?

Looking forward, if you happen to provide a targeted sample, the collection will be accessioned into Kew's Fungarium, attempted for culturing, and barcoded. ITS barcodes will be available to collectors under request for ID purposes and/or taxonomic work. We plan to make all barcodes publicly available eventually and will consult all collectors before we proceed. As mentioned above, we are currently cleaning and finalising the processing of the hundreds of barcodes we produced in Phase I. If you requested them, we didn't forget, we just have many sequences to look at and we hope to come back to you soon.

Additionally, if your sample succeeds in being genome sequenced, we invite collectors to participate in the writing of the genome note which requires a brief description of the species and a good quality image. You can check the Chicken of the woods genome note (**https://wellcomeopenresearch.org/articles/7-83**) for an example.

Besides these tangible outcomes, you will know that you have contributed to a wider project that will enable better science going forward. Whole genomes provide more complete information than individual genes and can be used to better understand the diversity and evolution of life on earth, particularly populations of native species within the UK and the threats they may face in the future. As the genomes are published open access, they can be used by anyone.

We are so grateful for everyone who has collected for us so far, and to the BMS for supporting our work and being so open to this partnership. If anyone has questions or is interested in getting involved, please do reach out. We look forward to the spring and autumn field meetings this year!

Alex Dombrowski (a.dombrowski@kew.org),
Sahr Mian (s.mian@kew.org)
Ester Gaya (e.gaya@kew.org)

English Summaries of Coolia with Notes

Origionaly published in Mycology Notes 2023 (01) January

Coolia 66(1) 2023. The quarterly journal of the Netherlands Mycological Society, NMV, in Dutch, arrived 3/1/2023 The English summaries are copied here. Any comments are in square brackets.

From the President – Kees van Vliet. [Notes on the past year and the future]
Martin Gotink & Hermien Wassink. 2023. Tomentelloïd fungi: Another year struggling. Coolia 66(1): 2-10.

In 2020 both authors conducted a year-long research into Tomentelloid fungi. In 2021 this research was continued; the results are presented here. In the 2021 mushroom season a total of 138 collections were made and examined. They comprise 28 species; 20 collections could not be properly named. One species was new for the checklist of macrofungi in The Netherlands, this species, Tomentella ramosisima, is described and illustrated. Furthermore, we discuss the species with yellowish to rust brown colours and present a key to those species. [Other photos: *Tomentella cf. terrestris, bryophila, botryoides, ferruginea, rubiginosa, umbrinospora,coerulea, punicea*.]

Laurens van der Linde, Björn Wergen, Thomas W. Kuyper. 2023. Two new species for The Netherlands on one square decimeter - or only one? Coolia 66(1): 11-14.
On a branch of a broad-leaved tree, probably alder, two new species for The Netherlands were recorded, growing very close together. The first species, *Peyronelina glomerulata* is an asexual fungus with affinities in the cyphelloid fungi. The second species, *Pseudolasiobolus minutissimus*, is also a cyphelloid fungus, related to *Flagelloscypha*. LSU sequence data from several records show that both species have the same sequence and are therefore synonyms. Under the current rules of nomenclature the oldest name *Peyronelina glomerulata* has priority. [Photos]
Annekevan der Putte. (ed.) 2023. The autumn 2021 Cristella weekend in Den Osse, province of Zeeland. Coolia66(I): 15-32.

An account is given of a weekend foray focusing on Aphyllophorales and microfungi in the province of Zeeland. Some new species for The Netherlands are dealt with in detail, such as *Alnicola submelinoides.* [Photos of *Terana caerulea, Typhula erythropus, Chlorociborea aeruginosa s.l., Vialea insculpta, Marthamces phacidioides, Lophiostoma viridarium, Heteroradulum kmetii, Hyphodontia gossypina, Sebicina Epigaea, Claussenomyces atroviridens, Stictis stellata, Pezicula rubi, Crepidotus cinnabarinus, Eriopeziza, Rossellinia Britannica. Nemania confluens, Hypoxylon subticinense, Trichosphaerella decipiens, Lachnum apalum, Phaeosphaeria norfolcia,, Murispoa rubicunda, Massariosphaeria scirpina, Phaeosphaeria petkovicensis*. (!)]

Thomas W. Kuyper, 2023. The double life of *Mycena* species. Coolia 66(1): 33-42.
An overview is given of the versatility in life styles of *Mycena* species, as many species are able to exhibit both a saprotrophic and a biotrophic life style. Biotrophy has been reported in achlorophyllous and chlorophyllous orchids, ericoid plants, ectomycorrhizal shrubs and trees, arbuscular mycorrhizal grasses and non-mycorrhizal crucifers. More than 25 species of *Mycena* have the ability to exhibit a biotrophic life style and the ability is not restricted to certain groups within the genus.

It occurs among species that are otherwise known as saprotrophs on wood, leaf and needle litter and herbaceous plants. In many cases the presence of Mycena species in their root system has beneficial effects on plant performance, but the benefit for the fungus has not yet been demonstrated, as there does not seem to be transport of photosynthetic carbon to the fungus. It is also unknown which factors allow Mycena species to switch from saprotrophy to biotrophy. [Photos of *Mycena galopus var. nigra, leptocephala, purpureofusca, cinerella, polygramma, belliae, pura, rorida, flavoalba, stylobates, adonis*.]

Anneke van der Putte. (ed.), 2023. The Cristella-weekend 18-21 march 2022 in Bornerbroek in the Province of Overijssel. Coolia 66(1): 43-49.
An account is given of a weekend foray focusing on Aphyllophorales and microfungi in the province of Overijssel. Some special species for The Netherlands are dealt with in detail, such as *Tomentella crinalis* and *Dacrymyces capitatus*. [Other photos*: Seifertia azaliae, Saccosoma farinacea, Hyaloscypha fuckelii var. alniseda, Stagonospora elegans, Ciboria amentacea*,]

Column by Rob Chrispin Rare. [A discussion of the assessment of rarity]

Notes by John Taylor