Fungi

Tony Leech

Is it 'new for Norfolk'?

However much we appreciate the importance of recording widespread species, most naturalists get a thrill if theirs is a new county record, a greater thrill if it is a national record and an ultimate thrill with 'a new to science'. But what does this mean? It could mean that the organism has hitherto been absent from Norfolk, or wherever, or it could be that it has not previously been observed. The latter possibility is more likely for some taxa than others; recording effort varies greatly. Anyone using distribution data must consider these possibilities.

There is, however, a further consideration; what information do we use to find out if a species is 'new'? The advent of online communication has made databases accessible but they are only as good as contributors make them. Fungus recorders in Norfolk are fortunate in that we have what seems to be an authoritative list of fungal species found in the county, the Norfolk Mycota, but it is not perfect; shortcomings include:

- Lack of historical records. An attempt has been made to capture all records made by Norfolk field mycologists likely to have made reliable identifications since ca. 1976, together with most of those made by Ted Ellis since ca. 1935. Earlier records (e.g. those by, or reported to, C.B. Plowright or G.J. Cooke) are being sourced and will be added if it is considered that their identifications stand the test of modern knowledge.
- Lack of records from visitors to Norfolk who may well have submitted their records to a national database. To make matters worse, there are two! The Fungal Records Database for Britain and Ireland (FRDBI) is the more authoritative but confidentiality issues prevent simple downloading of FRDBI records onto the Norfolk Mycota.
- Increasingly, field naturalists are submitting records on iRecord or iNaturalist. While mechanisms exist for verification, this is particularly difficult with fungi and currently these records are not used.
- In order to allow straightforward uploads of all records from the Norfolk Mycota to FRDBI, it uses only species names approved by UKSI (United Kingdom Species Inventory, maintained by the Natural History Museum). Even when new names are accepted there can be a considerable delay.

With the above in mind, it is important to realise that 'new for Norfolk' is shorthand for 'not recorded on the Norfolk Mycota or NBN Atlas'. Anyone with records for fungi in Norfolk is invited to contact the county recorder.

DNA barcoding

The work described by Leech *et al.* (2023) has continued and a further 26 barcode sequences obtained. Of these, eight resulted in additions to county lists (seven for Norfolk; one for Suffolk) and 10 were of species already recorded. A further four sequences which did not match sequences held on DNA databases were obtained

These results have contributed to the records described below but although the report is limited to fungi collected in 2023, some of the identification work was carried out in 2024. Candidates for sequencing are mostly selected because they belong to groups known to be difficult to resolve

but for which modern taxonomic revision has taken place, or because they appear to deviate from descriptions in one or more ways. When good results are obtained which match observable characteristics, the sequence is uploaded to GenBank, an international library of sequences. By the end of 2024, 61 such sequences had been uploaded.

'Mushrooms' new to Norfolk

Although true mushrooms belong to the genus *Agaricus*, the term 'mushroom' is now widely applied to all fleshy fungi with a cap and stalk. Indeed, increasingly, and particularly in the USA, the term is used to describe all larger fungi including brackets, puffballs and spindles.

Jeremy Bartlett has picked up the baton when it comes to identifying brown webcaps. Using the increasingly good literature he attempts to name the species and then submits it for DNA barcoding. Since reliable sequences have now been published for most *Cortinarius* species it has been possible to add a number of names to the Norfolk list for those which may well be common in the county but for which reliable identifications could not hitherto be easily made.

One of these, ***Cortinarius glabrellus*** (Fig. 1), illustrates the fact that even when a good DNA sequence has been obtained, matching it to described species is not always straightforward. The sequence matched 99.22% with a sequence for type material of this species. Normally this would clinch the identification but in this case it also matched 99.21% with a sequence for type material from another webcap, *C. subbalaustinus*! On the face of it, this appears impossible but a second run and a more detailed analysis revealed that there were fewer (but different) mismatches for *C. glabrellus than C. subbalaustinus*. Furthermore, the gills of *C. subbalaustinus* have been described as close-spaced (Eyssartier & Roux, 2011), confirmed by the illustration in Breitenbach & Kränzlin (2000), whereas those in the specimen collected at East Carlton were more distant. Both species would be new for Norfolk but whilst *C. subbalaustinus* is fairly widely recorded in Britain, *C. glabrellus* appears only to have been recorded once.

Barcoding also confirmed the identity of a second brown webcap collected by Jeremy, this time in Ashwellthorpe Lower Wood, as **Roughened Webcap *Cortinarius rubricosus*** (Fig. 2). Confirmed by DNA barcoding, this was the first Norfolk record for this fungus. A third webcap found by Jeremy (at Sweet Briar Marshes, Norwich) was confirmed by

Figure 1. *Cortinarius glabrellus.* *Jeremy Bartlett.*

Figure 2. *Cortinarius rubricosus.* *Jeremy Bartlett.*

Figure 3. *Cortinarius pilatii.* *Jeremy Bartlett.*

DNA barcoding as **Lemonbalm Webcap *Cortinarius pilatii*** (Fig. 3). Although no records for this species occur on the Norfolk Mycota, a record for the Sheringham area appears on the National Biodiversity Network Atlas without further information.

Yvonne Mynett has been busy too. Her identification of a small inkcap as ***Coprinopsis xenobia*** (Fig. 4) on cow dung from West Acre was confirmed by sequencing adding another coprophilous inkcap to the Norfolk list. Very few records for this species appear on national databases.

Figure 4. *Coprinopsis xenobia.* *Yvonne Mynett.*

Across Europe, DNA studies have led to significant species proliferation in the genus *Inocybe* (fibrecaps) and the last words have certainly not been written. One of the consequences of these studies has been the splitting of the genus, with those having septate cystidia now placed in *Mallocybe*. During 2022, a member of this genus was found with Goat Willow *Salix cinerea* at Watermill Broad, Cranwich. Its DNA barcode sequence was a 100% match for ***Mallocybe siciliana***, a species described in recently from Sicily. It has been recorded once before in Britain, and Penny Cullington, a national expert on fibrecaps, thinks that it might be quite widespread but has not been previously recognised.

Figure 5. *Conocybe aurea.* *Tony Leech.*

Another group which beginners generally ignore are the conecaps, genus *Conocybe*, comprising a large number of superficially similar slender brown fungi. But at least one is almost yellow and when a friend asked Tony Leech to identify the cluster she had found under a newly planted vine, he was able to name it as **Golden Conecap *Conocybe aurea*** (Fig. 5), a species with only six British records, none of them, hitherto, from Norfolk.

Albinism is not restricted to animals and from time-to-time fungi lacking pigment are collected. Since the first stages of fungus identification usually involve colour recognition, this can lead to blind allies and mistakes. Such was the case when Jeremy Bartlett submitted a specimen for sequencing provisionally identified as the scarce *Pluteus semibulbosus*. To his surprise, the sequence was a match for of *P. umbrosus*, a more widespread species with dark scales on the cap and a dark edge to its gills; Jeremy's specimen, from Whitlingham Country Park, lacked both (Fig. 6). We cannot trace any previous British records for **Velvet Shield *Pluteus umbrosus* var. *albus*** and an account of this identification was published (Bartlett, 2024).

Figure 6. ***Pluteus umbrosus*** **var.** ***albus.*** *Jeremy Bartlett.*

The finding of the **Wood Bolete** ***Buchwaldoboletus lignicola*** (Fig. 7) by Jenny Kelly, Keith Fox and Sally Wolstenholme in Sandringham House gardens was confirmed by sequencing and has added another bolete to the county list. Amazingly, Jenny found a second specimen a week later at West Acre, this time with Anne Crotty. In both cases the bolete was found very close to a fruitbody of Dyer's Mazegill *Phaeolus schweinitzii.*

Figure 7. ***Buchnaldoboletus lignicola.*** *Jenny Kelly.*

Field mycologist and author of field guides, Geoffrey Kibby, moved from London to Norfolk in 2023 and has joined the Norfolk Fungus study Group on a number of recording and beginners' forays. It was on one of the latter, at Holt Country Park, that he recognised ***Leucoagaricus brunneocingulatus***, a fourth British record.

A long-awaited return

A number of striking fungi, well-known in southern Europe have recently made an appearance or become commoner in Britain including a number of phalloids, related to the Stinkhorn *Phallus impudicus*, but the **Red Cage** ***Clathrus ruber*** (Fig. 8) has been here for a long time. It was recorded by Charles Plowright (1873) on the basis of a specimen found by Miss Rabett in 1859 in Mintlyn Wood, King's Lynn. Since then, it has been widely recorded in southern counties but not again in Norfolk until it was reported by James Cordeaux from a friend's garden in Thorpe Marriott. Here it had appeared in several places over a couple of years. A record from Lancashire is the only one further north.

Figure 8. ***Clathrus ruber.*** *Photographer.*

Novel earthtongues

Although spindle-like in appearance, earthtongues are ascomycetes and are, in effect, cup fungi which through evolution have extended in height to increase the area of their spore-producing surface.

Figure 9. ***Microglossum rufescens.*** *Ian Senior.*

Recent work has increased understanding of species in the genus *Microglossum* and has been summarised in a key devised by Malcolm Greaves (2017). Before this, specimens which did not exhibit dark green colours were referred to as *M. olivaceum*. Despite there being over 400 records for this 'species' on the NBN Atlas, none are from the East Midlands or East Anglia. When Ian Senior collected a reddish-brown earthtongue in the Old Cemetery, Great Yarmouth it was given this name provisionally but consulting the above key suggested that it actually conformed to the description for **Rusty Earthtongue** ***Microglossum rufescens*** (Fig 9), a species recorded from Wales and Northern Ireland but not England. Sequencing demonstrated a 100% match with two published sequences for this species but unfortunately neither was a type specimen. Investigations are continuing

Ian also struck lucky a couple of months later when he collected a black earthtongue at North Elmham thinking, initially, that it was a *Geoglossum* species. However, microscopic examination revealed the unusual feature that its asci contained only four spores rather than the usual eight. This established that the species was **Fourspored Earthtongue** ***Trichoglossum tetrasporum*** which, except for one 19th century record (from the Kew Fungarium) and one in 2000 (Gloucestershire), had not previously been recorded in Britain.

Fungal parasites

There is probably no group of organisms that is not parasitised by fungi, in most cases by many species; some of these parasites, however, are tiny.

Laboulbeniales is a highly specialised order of arthropod ectoparasitic fungi which look nothing like fungi but very much like each other; fortunately, many are host-specific. Andy Beaumont writes: "Whilst identifying a small millipede, that turned out to be a male *Cylindroiulus punctatus*, I noticed its anterior legs appeared dirty and clogged up." Closer examination by him revealed an infection by a laboulbeniomycete fungus that compared well with ***Rickia***

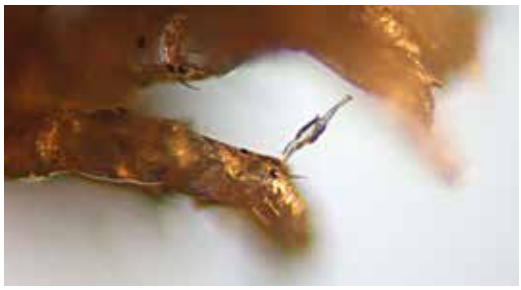

Figure 10. ***Rickia laboulbenioides*** **on leg of** ***Cylindoiulus punctatus. Andy Beaumont.***

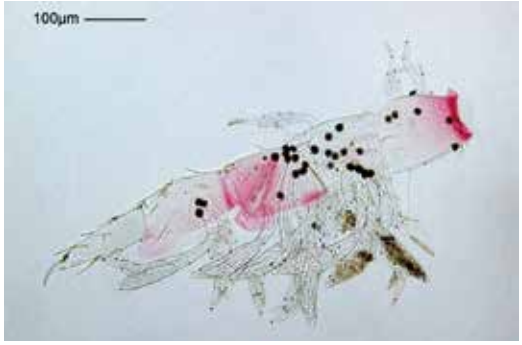

Figure 11. Photomicrograph of ***Rickia laboulbenioides.*** *Andy Beaumont.*

laboulbenioides, a species occurring on this animal (Figs. 10 & 11). The fungus was probably first brought to notice by Tony Irwin in 1989 in an unpublished newsletter of the British Myriapod Group but until 2013 was without its correct name (although the name *R. dendroiuli* had been applied). Gregory (2021) has collated 39 records from five species of *Cylindroiulus* in Britain, none from Norfolk.

Andy's careful work with his microscope (and catholic interests) revealed another new species for Norfolk in the form of ***Micromyces zygogonii***. Whilst observing filaments of the alga *Spirogyra* sp. under the microscope he noticed that some cells contained spiky spheres (Fig. 12) which online detective work revealed were almost certainly evidence of the chytrid fungus *M. zygogonii*. No records for this species appear on national databases. Chytrids are phycomycete fungi with motile zoospores living in water or soil. Most are parasitic, causing, amongst other diseases, chytridomycosis of amphibians, potato wart disease and cotton mould in aquarium fish.

Figure 12. Photomicrograph of *Micromyces zygonii*. *Andy Beaumont.*

Numerous species of fungi, mostly small, parasitise bryophytes. Mike Ball recorded and photographed ***Bryostroma trichostomi*** (Fig. 13), an ascomycete, in the leaf axils of Soft-tufted Beard-moss *Didymodon vinealis* at Blakeney. One of the only three British records for this species was from Lakenheath, Suffolk, in 1999.

Figure 13. *Bryostroma trichostomi* (circled) *Mike Ball.*

Potato Blight is caused by a fungus-like organism and has been encountered by almost everyone who has grown potatoes but until this year no record for the causative organism, ***Phytophthora infestans***, had been entered onto the Norfolk Mycota; Ian Senior corrected this omission.

Black crusts and other pyrenomycetes

The fruiting bodies of a large number of ascomycete fungi consist of tiny, more-or-less spherical perithecia in which their spores develop. These may be single or clustered; many are hard and black and appear on dead plant material. They have been called pyrenomycetes (from their burnt appearance) but do not form a discrete taxonomic group. The genus *Hypoxylon* includes about 15 British species with crust-like forms. The first Norfolk record of ***Hypoxylon cercidicola*** (Fig. 14)

Figure 14. *Hypoxylon cercidicola*. *Tony Leech.*

was made by Tony Leech on a fallen Ash branch near Baconsthorpe but was quickly followed by several more records by Stewart Wright. Since its first British record in 1993, this fungus has only been recorded about 30 times. A similarly scarce black crust ***Biscogniauxia anceps*** was found by Jenny Kelly on oak at Roydon.

Pyrenomycetes of the genus *Daldinia*, although also hard and black, are globose rather than crust-like. Its most familiar species is King Alfred's Cakes *Daldinia concentrica* but other species exist. The finding of ***Daldinia decipiens*** by Steve Judd at Buxton Heath (identified by Stewart Wright) was the only one of six records on FRDBI to be on alder rather than birch. It is not actually a new Norfolk record as the 'old' FRDBI shows two records attributed to Charles Plowright in the 19th century (from different locations) which had later been confirmed by Thomas Laessøe and Brian Spooner, presumably from specimens in the Kew Fungarium.

Figure 15. Unusual form of *Xylaria longipes.* *Tony Leech.*

Several species of the genus *Xylaria* are common and can readily be identified from their shape - or so we thought. Tony Leech was puzzled by the fruiting body he found at Cranwich on a sycamore log which was much-branched and antler-like (Fig. 15). One of the advantages of DNA sequencing is that it can lead to the identification of aberrant forms and in this case indicated unequivocally that the fungus was **Dead Moll's Fingers *Xylaria longipes***, despite looking nothing like the typical form (Fig.16). Note that in both photographs the fungus is dusted with white conidia for these are both anamorphs (asexual forms). The more commonly encountered teleomorph (sexual form) is similar

Figure 16. Typical form of *Xylaria longipes.* *Tony Leech.*

to the typical form but entirely black and with a slender 'stalk'. The even commoner Candlesnuff Fungus *Xylaria hypoxylon* is normally found as the anamorph but now that we know what we are looking for it is often noted accompanied by its teleomorph (Fig. 17)

Figure 17. Teleomorph of *Xylaria hypoxylon.* *Tony Leech.*

Slime moulds: honorary fungi

Only at their spore-producing stage do, slime moulds (myxomycetes) resemble fungi. In their single-celled stage they roam over surfaces consuming bacteria and spores then come together to form plasmodia (the slimy stage) which develop into dry sporangia. Although slime moulds do not belong to Kingdom Fungi they have traditionally been studied by mycologists.

When Jenny Kelly found a black spherical 'fungus' on the bark of a pine tree at Holme she suspected it might be a slime mould and sent photographs (Fig. 18) to the county recorder who, equally puzzled, sent them on to Bruce Ing, national myxomycete expert. His reply reads: "The myxomycete is ***Lindbladia tubulina*** and is a new record

Figure 17. *Linbladia tubulina.* *Jenny Kelly.*

for Norfolk. It is uncommon and entirely confined to conifer wood, especially pine. This is the first record for many years."

During survey work at Broadland Country Park, Mike Ball photographed the sporangial stage of a slime mould which appeared to have been parasitised by a fungus (Fig. 18). The parasite was *Polycephalomyces tomentosus* which had been recorded a number of times in Norfolk but Stewart Wright determined its host to be ***Trichia favoginea,*** a new county record. It was commented at the time that this was a slime mould (Kingdom Protozoa), likely to be feeding on bacteria (Kingdom Monera), on wood (Kingdom Plantae) parasitised by a fungus (Kingdom Fungi) and being appreciated by humans (Kingdom Animalia).

Figure 18. The fungus *Polycephalomyces tomentosus* on the slime mould *Trichia favoginea.* *Mike Ball.*

Other microfungi new to Norfolk

Stewart Wright has continued his assiduous recording of plant parasitic fungi in Norfolk. Those added to the county list by him in 2023, together with some by other recorders and not mentioned above, are shown in Appendix 1. Note that the provisos outlined in the introduction to this report concerning 'new' records apply particularly to these fungi. Fungi for which there are no records on the Norfolk Mycota but for which there are records on the NBN Atlas are omitted from the table.

References

Bartlett, J. 2024. *Pluteus umbrosus* var. *albus*, the white form of Velvet Shield. *Field Mycology* 25(4) 125-126.

Breitenbach, J. & Kranzlin, F. 2000. *Fungi of Switzerland.* Vol. 5.

Eyssartier, G. & Roux, P. 2011. *Le Guide de Champignons France et Europe*. Belin, Paris.

Greaves, M. 2017. https://myfg.org.uk/tombiovis/tombiovis-1.10.0/identikit/geoglossum.html

Gregory, S.J. 2021. Preliminary observations of the ectoparasitic fungus *Rickia laboulbenioides* De Kesel (Laboulbeniales) in Britain. *Bulletin of the British Myriapod & Isopod Group* 33: 35-45.

Leech, T. 2023. From molecules to mushrooms. *Trans. Norfolk & Norwich Nat. Soc*. 56: 50-57.

Plowright, C.B. 1873. Fauna and flora of Norfolk. Part III Fungi. *Trans. Norfolk & Norwich Nat. Soc*. 1: 28-77.

The Norfolk Mycota, managed by Tony Moverley, can be accessed at https://www.thenfsg.co.uk/mycota.php

Dr A.R. Leech. 3 Eccles Road, Holt, Norfolk NR25 6HJ

tonyleech3@gmail.com

Appendix 1. Microfungi added to the Norfolk list during 2023 excluding those mentioned in the text. Identifiers/confirmers: AB Andy Beaumont; CP Christopher Preston; IS Ian Senior; JB Jeremy Bartlett; JK Jenny Kelly; KF Keith Fox; SW Stewart Wright; TL Tony Leech. In most cases the identifier was also the collector. Note: 0 = no UK records on NBN Atlas; x = not on UKSI list.

Species	Place	Substrate	Associated organism	Identifier	Note
Abrothallus cladoniae	Winterton Dunes	thallus	*Cladonia arbuscula*	SW	
Amblyosporium botrytis	Catfield	dead fruit,	*Quercus robur*	AB	
Arthonia molendoi	Litcham Common	thallus	*Caloplaca flavescens*	SW	
Bactrodesmium obovatum	Ditchingham, Broome Heath	dead branch	*Ulex europaeus*	SW	
Botryosphaeria obtusa	Gressenhall Rural Life Museum	living leaf	*Malus*	SW	
Botryotinia draytonii	Repps-with-Bastwick	corm	*Gladiolus*	SW	
Bremia centaureae	Ketteringham, Ladybelt Country Pk	live leaf	*Centaurea nigra*	SW	
Cacumisporium capitulatum	Holkham Hall	dead wood	*Quercus robur*	SW	
Capnodium tiliae	Ketteringham, Ladybelt Country Pk	live leaf	*Tilia cordata*	SW	0
Cercophora ambigua	Hoveton Hall	rotten wood	*Sorbus aucuparia*	SW	0
Cercosporella jaapiana	Blakeney Freshes	living leaf	*Limonium vulgare*	CP	0
Ceuthospora feurichii	Hoveton Hall	dead leaf	*Vinca minor*	SW	
Cladosporium licheniphilum	Blofield, Marty's Marsh	apothecia	*Xanthoria parietina*	SW	
Claussenomyces dacrymycetoideus	Cranwich, Watermill Broad pits	cone	*Pinus sylvestris*	TL	0
Coccinonectria pachysandricola	Hoveton Hall	living leaf	*Pachysandra terminalis*	SW	
Coccomyces coronatus	Marsham Heath	dead leaf	*Betula*	SW	
Coleophoma empetri	Catfield	dead leaf	*Ilex aquifolium*	AB	
Cryptodiscus foveolaris	Barton Turf	dead wood	*Quercus rubra*	SW	
Cryptostroma corticale	Hoveton Hall, Ice Well Wood	trunk	*Acer pseudoplatanus*	SW	
Diaporthe decedens	Hoveton Hall	dead wood	*Corylus avellana*	SW	
Diaporthe impulsa	Hoveton Hall	dead wood	*Sorbus aucuparia*	SW	
Diaporthe perniciosa	Hoveton Hall	dead branch	*Prunus domestica*	SW	
Diaporthe woodii	Repps-with-Bastwick	dead stem	*Lupinus polyphyllus*	SW	0
Diatrypella rhois	Hoveton Hall	dead branch	*Rhus typhina*	SW	0
Didymella cerastii	Sankence Wood	dead leaf	*Cerastium fontanum*	SW	
Diplocarpon alpestre	Hoveton Hall	living leaf	*Persicaria maculosa*	SW	
Diplocarpon earlianum	Buxton Heath, Hevingham	living leaf	*Potentilla erecta*	SW	
Diplocarpon fraariae	Norwich, Bluebell Allotments North	living leaf	*Fragaria x ananassa*	JB	0
Discogloeum veronicae	Buckenham Carrs	live leaf	*Veronica persica*	SW	
Drepanopeziza triandrae	Blofield, Marty's Marsh	living leaf	*Salix cinerea*	SW	
Endophragmiella uniseptata	Hoveton Hall	dead branch,	*Castanea sativa*	SW	
Entyloma ranunculi-repentis	Hoveton Hall	living leaf	*Ranunculus repens*	SW	
Erysiphe robiniae	Hoveton Hall	living leaf	*Robinia hispida*	SW	0
Exosporiella fungorum	Barton Turf		*Cylindrobasidium laeve*	SW	
Fusidium griseum	Upgate Common	dead leaf	*Quercus robur*	SW	
Gnomonia riparia	Hoveton Hall	dead stem	*Epilobium hirsutum*	SW	0
Helminthosporium microsorum	Catfield	dead wood	*Quercus robur*	AB	
Hyaloperonospora hesperidis	Filby	living leaf	*Hesperis matronalis*	SW	0
Hyalopeziza ciliata	Hoveton Hall	dead leaf	*Acer pseudoplatanus*	SW	
Hypocopra merdaria	Weeting Heath	dung	*rabbit*	TL	
Laetinaevia carneoflavida	Hoveton Hall	dead stem	*Urtica dioica*	SW	
Laetisaria lichenicola	Marham Fen	thallus	*Physcia adscendens*	SW	
Lichenopeltella alpestris	Catfield Hall Estate	dead stem	*Molinia caerulea*	SW	
Linospora ceuthocarpa	Buxton Heath, Hevingham	dead leaf	*Populus tremula*	SW	
Lirula macrospora	Hoveton Hall, Ice Well Wood	dead needle	*Picea abies*	SW	0
Melampsora allii-populina	Holt	living leaf	*Populus nigra*	TL	
Melanopsamma pomiformis	Hoveton Hall	dead wood		SW	

continued

Species	Place	Substrate	Associated organism	Identifier	Note
Micropeziza cornea	Catfield Hall Estate	dead stem	*Molinia caerulea*	SW	
Monilinia linhartiana	Hoveton Hall	fruit	*Cydonia oblonga*	SW	
Morenoina phragmitis	Horsford, Broadland Country Park	dead stem	*Phragmites australis*	SW	
Mycosphaerella crataegi	Horsford, Broadland Country Park	dead leaf	*Crataegus monogyna*	SW	
Mycosphaerella mori	Thrigby Hall	living leaf	*Morus alba*	SW	
Mycosphaerella polygramma	Grimston Warren	dead leaf	*Plantago lanceolata*	SW	
Oidiopsis parietariae	Old Hunstanton, churchyard	living leaf	*Parietaria judaica*	IS	
Patinellaria sanguinea	Hoveton Hall	Barkless wood	*Quercus robur*	SW	0
Penicillium glaucoalbidum	Lynford Arboretum & Picnic site	dead needle	*Abies procera*	SW	
Peronospora agrostemmatis	Norwich, Bluebell Allotments north	living leaf	*Agrostemma githago*	SW	
Peronospora aquilegiicola	Repps-with-Bastwick	living leaf	*Aquilegia vulgaris*	SW	
Peronospora destructor	Norwich, Bluebell Allotments north	leaves	*Allium cepa*	JB	
Peronospora mesembryanthemi	Repps-with-Bastwick	living leaf	*Dorotheanthus bellidiformis*		
Peronospora rubi	Buxton Heath, Hevingham	living leaf	*Rubus idaeus*	SW	
Peronospora sepium	Hickling Broad	living leaf	*Vicia sepium*	SW	0
Peronospora variabilis	Blofield, Marty's Marsh	living leaf	*Chenopodium album*	SW	
Peronospora viciae s. lat.	Hoveton Hall	living leaf	*Vicia tetrasperma*	SW	
Phomopsis choisyae	Hoveton Hall	dead twig	*Choisya ternata*	SW	0
Phomopsis digitalis	Grimston Warren	dead stem	*Digitalis purpurea*	SW	
Phomopsis dipsaci	Repps-with-Bastwick	dead stem	*Dipsacus fullonum*	SW	
Phomopsis elliptica	Blofield, Marty's Marsh	stem, dead	*Galium aparine*	SW	
Phomopsis lavandulae	Repps-with-Bastwick	dead stem	*Lavandula angustifolia*	SW	
Phomopsis malvacearum	Barney Wood	dead stem	*Malva sylvestris*	SW	0
Phomopsis obscurans	Ashmanhaugh	living leaf	*Fragaria*	SW	0
Phyllactinia betulae	Cawston, Bomber Wood	live leaf	*Betula pendula*	SW	
Phyllosticta primulicola	Hoveton Hall	living leaf	*Primula vulgaris*	SW	
Phyllosticta rhododendri	Sandringham Estate	live leaf	*Rhododendron ponticum*	SW	
Phyllosticta typhina	Grimston Warren	dead leaf	*Typha latifolia*	SW	
Pilobolus roridus	Upgate Common	dung	*rabbit*	TL	
Podosphaera erodii	Blakeney Freshes	living leaf	*Erodium cicutarium*	CP	
Podosphaera parietariae	Blofield	living leaf	*Parietaria judaica*	SW	
Podosphaera phtheirospermi	Weeting	living leaf	*Odonites vernus*	SW	
Podospora fimiseda	West Acre	dung	*Bos*	SW	
Pseudoidium kalanchoes	Ashmanhaugh	living leaf	*Kalanchoe daigremontiana*	SW	0
Puccinia bistortae	Blofield, Marty's Marsh	living leaf	*Persicaria amphibium*	SW	x
Pyrenochaeta nobilis	Cockley Cley	dead leaf	*Ilex aquifolium*	SW	
Pyrenopeziza rubi	Hoveton Hall	dead stem	*Rubus idaeus*	SW	
Pyrenopeziza tini	Ashmanhaugh	dead leaf	*Viburnum tinus*	SW	
Ramularia asteris	Blakeney Freshes	living leaf	*Aster tripolium*	CP	
Ramularia bryoniae	Blofield, Marty's Marsh	living leaf	*Bryonia dioica*	SW	
Ramularia interstitialis	Foulden Common	living leaf	*Primula veris*	SW	
Rhabdospora visci	Buckenham Carrs	dead leaf	*Viscum album*	TL	
Rhizosphaera kalkhoffii	Hoveton Hall, Ice Well Wood	dead needle	*Picea abies*	SW	
Scopinella caulincola	Hoveton Hall	fallen cupule	*Quercus robur*	SW	
Septoria myricae	Catfield Hall Estate	live leaf	*Myrica gale*	SW	
Septoria plantaginea	Horsford, Broadland Country Park	live leaf	*Plantago major*	SW	
Solicorynespora foveolata	Hoveton Hall	dead stem	*Pseudosasa japonica*	SW	
Sporidesmium anglicum [Fig 20]	Thursford Wood	fallen twg	*Ilex*	TL	
Stachylidium bicolor	Barton Turf	dead stem	*Heracleum sphondylium*	SW	
Stagonospora meliloti	Weeting	living leaf	*Melilotus*	SW	
Stictis arundinacea	Ranworth	dead stem	*Phragmites australis*	SW	

continued

Species	Place	Substrate	Associated organism	Identifier	Note
Stigmidium congestum	Buckenham Carrs	apothecia	*Lecanora chlarotera*	SW	
Stomiopeltis pinastri	Lynford Arboretum & Picnic site	dead needle	*Picea abies*	SW	
Thyridaria macrostomoides	Buckenham Carrs	dead wood	*Salix cinerea*	SW	
Trametopsis cervina	Holkham Hall	dead stump		SW	
Trichoderma viride agg.	Blofield, Marty's Marsh	wood, dead		SW	
Trimmatostroma scutellare	Hoveton Hall	fallen twig	*Larix decidua*	SW	
Urocystis avenae-elatioris	Hickling	flowers	*Arrhenatherum elatius*	IS	
Venturia populina	Hoveton Hall	dead leaf	*Populus serotina*	SW	
Vibrissea filisporia	Barton Turf	dead wood, submerged		SW	
Zoophthora crassitunicata	Foulden Common	beetle	*Cantharis rustica*	SW	0

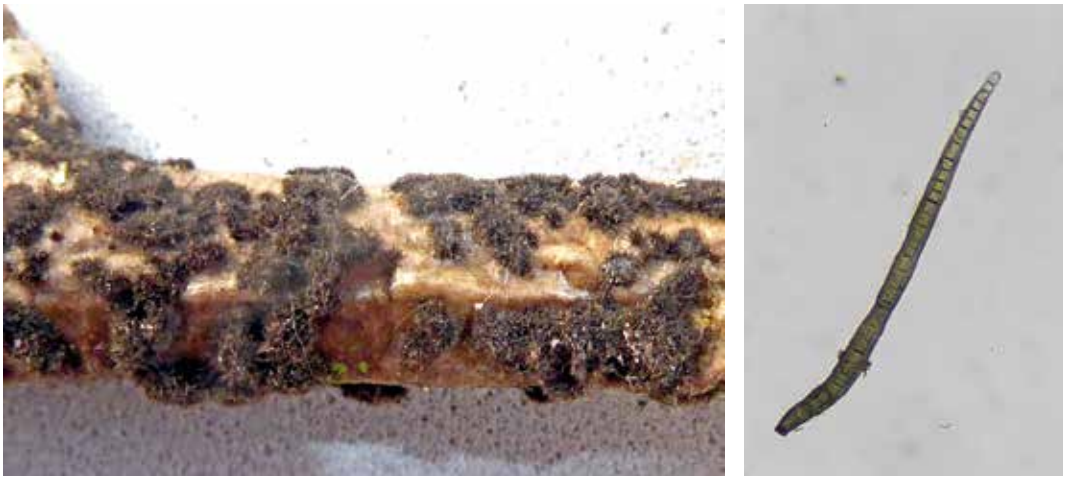

Figure 20. *Sporidesmium anglicum* on a dead Holly twig. The visible 'spikes' are the very large spores (photomicrograph, right). These were up to 0.45 mm long in the specimen but can reach 0.60 mm. The significance of such large spores is not clear. *Sporidesmium* is a form genus of asexual fungi many of which are unrelated by evolution. Their sexual forms remain, in most cases unknown. British records of such a relatively distinctive fungus are surprisingly few; with only five reported from as far distant as Wester Ross (Scotland) and Slapton Ley (Devon). *Tony Leech*.