



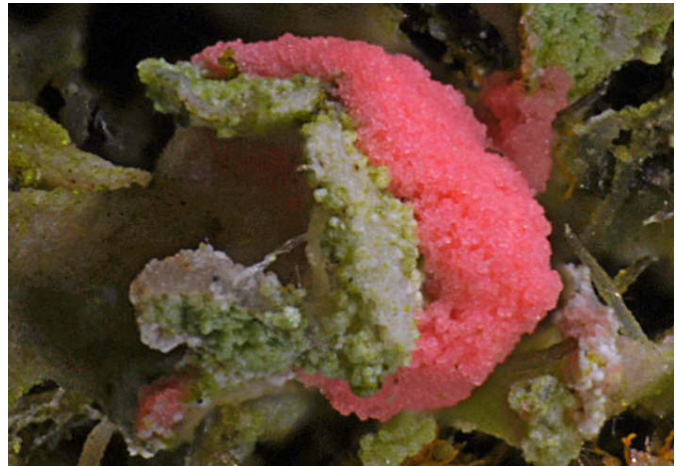
Pembrokeshire Fungus Recorder

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Illosporiosis christiansenii © M. Crutchley

Introduction

In this edition we highlight some interesting early-season records. At the start of the year we invited local members to look out for black spots on Ivy leaves and pink spots on lichens. Special thanks to everyone who collected and sent in specimens - especially as the species were rather small and demanded closer inspection than normal. We report on the "pink spots on lichen" finds in this issue, and will follow with a report on Ivy leaf fungi in the June issue (so plenty of time to collect and send in more samples!)

Nigel Stringer has contributed another in his excellent series of rust articles - this time a rust which affects garden geraniums, whilst Mike Karpaty shares extracts from an old reference book on mushrooms.

The News Roundup feature includes advance notice of a book being compiled by Peter Thompson which will illustrate many of the Ascomycete species found in Britain.

Our funding for 2011 has been underpinned by a generous donation from Chevron (Pembroke Refinery) under their Community Engagement programme. This is especially welcome during difficult financial times - particularly for groups outside England who do not have access to the generous OPAL programme which, thanks to almost £12 million Big Lottery Funding, ***“...aims to help natural history societies and recording schemes grow and flourish....”*** Wales appears to be sadly deficient in this respect.

David Harries, PFRN coordinator
(dandh@f2s.com)

April 2011



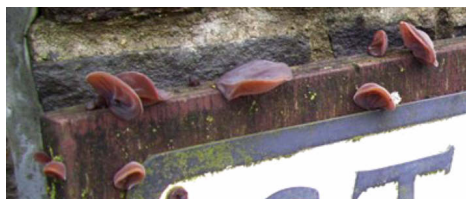
Pembroke Refinery

Fungus records (DJH)

Mike Karpaty kicked off the new year finds with Scarlet Elfcup (*Sarcoscypha austriaca*) on a fallen branch and Velvet Shank (*Flammulina velutipes*) on dead Sycamore in early January. Both species are fairly resistant to cold weather and among the first to appear each year.



Another winter species found by Mike, this time on decayed Willow, was Olive oysterling (*Panellus serotinus*), pictured right, with an attractive olive-grey cap and distinctive, yellowish, off-centre, stem.



Just to show he is always on the lookout for fungi in unusual locations, Mike snapped these Jew's Ear (*Auricularia auricula-judae*) fungi growing out of the timber backing of a street sign in Pentlepoir.

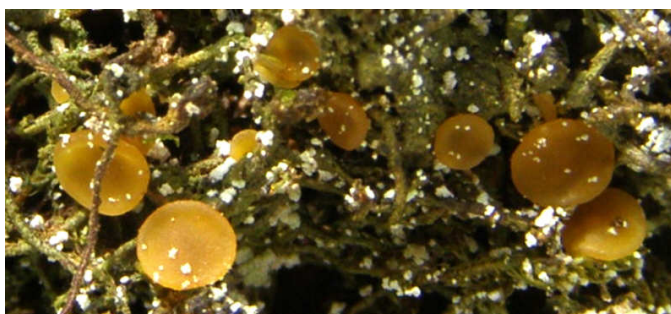
Whilst hunting for some tiny pink fungi associated with lichens (mentioned elsewhere in this bulletin) I spotted some miniature brown cups (about 1 mm. across) clustered in groups on a dead, but still attached, willow branch.



I initially assumed I was looking at an ascomycete (spore-shooter) cup fungus. However, under the microscope, a different story was revealed and the species turned out to be *Merismodes fasciculata* - a basidiomycete or spore-dropper. This species is distinguished from the very similar *Merismodes anomala* by its longer, thinner spores.

A check on the national database showed the species to be reasonably well recorded (for a tiny cup fungus!) with 94 records - but none from Wales. A voucher was subsequently sent to Kew for confirmation and retention.

Still maintaining a link with lichens - I noticed some small orange discs (1-2 mm across) amongst moss and growing (I mistakenly thought!) on the roots of the Common Polypody fern on a dead Ash branch.



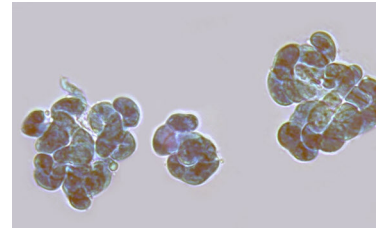
After failing to make any headway with my references, I sent the sample to Kew where Dr. Brian Spooner inspected the specimen and advised the sample was referable to the lichen *Dimerella lutea*. Inspection of records on the two national databases suggests the species is fairly widespread, though usually recorded by lichenologists rather than mycologists.



Pink blobs on Lichens (DJH)

An article by Peter Roberts in British Wildlife (October 2010) mentioned the presence of tiny pink and orange fungi growing on lichens. I thought no more about this until January when I looked at an Ash twig generously covered in lichens and noticed tiny pink blobs about 1 to 2 mm. diameter. Any other colour and I guess I would never have spotted them.

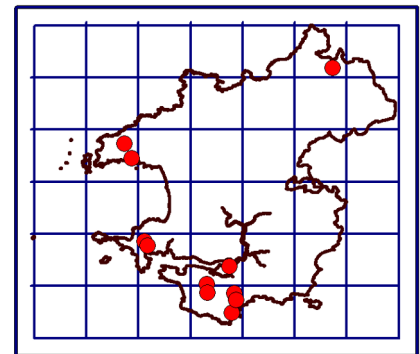
Samples were collected and inspected under the microscope. The pink material appeared to consist largely of partially coiled cells (conidia) rather like tiny sausages. Robin Crump identified the host lichen as *Physcia leptala* - a pale grey foliose lichen with conspicuous dark, fertile discs (apothecia). The adjacent liverwort was *Frulliana dilatata* (Dilated scalewort) - a green/brown leafy species often found on Ash trees. Mike Crutchley photographed the samples.



After some investigation on the internet, it was established that the specimen fitted the description of a fungus parasitic on lichens: *Illosporiosis christiansenii*. The sample was subsequently sent to Dr. Tom Preece who confirmed the identification and suggested we looked for further specimens to learn about its distribution in Pembrokeshire.

The challenge was circulated to the network and resulted in records from 11 Pembrokeshire locations together with 3 from Ceredigion collected by Arthur Chater. It seems likely that the species is actually quite widely distributed - but rarely recorded.

The Fungus Records Database for Britain and Ireland reveals 51 records for *Illosporiosis christiansenii* in the UK with just 4 from Wales - many recorded by lichenologists rather than mycologists.



An article in an earlier edition of British Wildlife (Hawksworth, February 2004) provides an insight into the world of fungi living on lichens. It describes fungi that live on lichens as lichenicolous (lichen-dwelling) and points out that many occur only on lichens so are described as “obligates” and not found elsewhere. They form a large group of fungi, with many not yet described. In fact over 400 were known from the UK by 2003 with new species being reported at a rate of 10% each year.

Unfortunately, for the enthusiastic mycologist wishing to look further, a detailed knowledge of lichenology is rather important for most of the species. In many cases you need to know the host lichen species before you can make much progress identifying the parasitic fungus. Fortunately their conspicuous appearance, and interesting microscopy, makes pink blobs a welcome exception!



***Puccinia pelargonii-zonalis* - a serious disease of Pelargoniums (Nigel Stringer)**

This fungal disease is a relatively recent arrival to Britain and infects the garden geranium *Pelargonium x hortorum* (figure 1). Garden geraniums are one of the most popular plants extensively grown in gardens and flower beds throughout Britain.

The infection starts as small white spots appearing initially on the lower surface and then on the upper surface of the leaves in midsummer. It is within these necrotic areas that the rust fungus produces in turn, two types of spores. The first is the uredospore which is formed within dark brown pustules called uredia which are 0.2 – 1.5 mm in diameter (figure 2). The uredospores are wind dispersed and as a result the infection spreads rapidly to other plants. Interestingly, the production of “secondary” uredia close to the infection point can be caused by the migration of the fungus through the host tissue as well as originating from a spore. Uredospores can remain viable for up to 11 weeks so the disease can remain present in a population for a considerable time (Hutchinson 1996).



The second type of spore – the teliospore, is a specialised type of resting spore produced later in the season and is almost entirely found on plants under greenhouse cultivation. Interestingly, teliospores of *P. pelargonii-zonalis* haven't been seen to germinate as yet so the spread and survival of the rust is thought to be entirely due to uredospores surviving on overwintering plants.

The garden geranium is not hardy and plants are taken indoors or stored in a frost free environment over winter in the UK and then planted out again in the following spring/early summer or cuttings taken from the mother plant. There is no doubt that many rust-infected specimens are planted out again the following season.

The rust is endemic to South Africa and was first discovered in 1926. From here it spread rapidly to Australia, New Zealand, India, Hawaii, Mexico and Central America. It was first found in New York in 1976 and Canada in 1995 (Hutchinson 1996). In May 2007 was reported from Turkey for the first time (Gore 2007).

The first confirmed record of this rust in the UK was from formal beds of *Pelargonium* plants on the sea front in Eastbourne in 1965 (cited in Dennis 1993), the infection supposedly originating as wind-blown spores from the continent. However, Dennis suggests that there may have been two earlier introductions of the disease in Britain, one in 1879 and the other in 1933 but the disease failed to establish itself because of the cold winters.

Once the disease is established it is impossible to eradicate. *P. pelargonii-zonalis* was included in the EPPO A2 list (European and Mediterranean Plant Protection Organisation) in 1992 where special

quarantine measures were put in place to control movement of geranium plants throughout Europe but these measures failed to halt the spread of the disease. Because of this, many of these quarantine measures were lifted in the late 1980's and early 1990's both in the United States and Europe.

Pelargonium x hortorum production is a big business in both these continents where millions of plants are raised in heated greenhouses either from seed or cuttings each year. In the United States the annual production of geraniums was valued in excess of \$160 million in 2005 so disease control is essential to protect the industry. Buck (2007) showed that out of 77 commercial varieties of pelargonium only one strain showed resistance to the rust so the industry relies heavily on fungicides to control the disease. Ivy-leaved, regal, scented-leaved and wild geraniums are not affected.

The author has noted that in Carmarthenshire this disease has become more noticeable within the last 15 years. In the mid 90's very few garden plantings suffered from the disease but now it is ubiquitous in gardens around Kidwelly and Llanelli. However, there are only 9 records of this rust for the whole of Wales and 37 for Great Britain and Ireland (FRDBI database). If anyone during the course of their gardening activities should find this rust then please contact the author or David Harries.

The author acknowledges botanic.jp and apsnet.org. for use of their photographs in this article.

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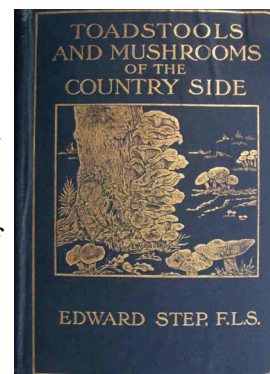


Mushroom Miscellany (MK)

Mike Karpaty compiled this extract from the 1914 issue of "Toadstools and Mushrooms of the Countryside" by Edward Step.

Venomous Toadstool, *Amanita virosa*: Considered to be the most deadly of then poisonous species back in 1914.

The Death Cap, *Amanita phalloides* was known as the Vernal Toadstool.



St. George's Mushroom, *Tricholoma gambosum*: Dr. Baham, who has gained much experience of fungus eating in Italy, where it is reduced to a fine art, declares this to be "the most savoury fungus with which I am acquainted". In a foot note he adds that this species "is much prized in the Roman market, where it easily fetches 30 baiocchi, i.e. 15d per lb.; a large sum for any luxury at Rome.

St. George's Mushroom (*Calocybe gambosa*).

Veal Toadstool, *Pleurotus subpalmatus*: Named because of it's resemblance to that of meat.

Milky Toadstool, *Lactarius*: The French and Italians know these fungi as "cows" and "goats"

Mild Toadstool, *Lactarius quietus*: The white milk does not change colour, and is mild or sweet in taste, not unlike walnuts: but the odour of the toadstool is not at all pleasant, suggesting either castor oil or squashed bugs.

The Leek, *Marasmius porreus*: It may be known by its strong, disagreeable odour of garlic, which clings to it even when the toadstool has been dried for years. It is said that specimens of it in Sowerby Herbarium, gathered in 1796, still retain their odour

Pimplly Cobweb-cap, *Cortinarius papulosus*

Sulphur Tuft, *Hypholoma fasciculare*: Some years ago specimens were exhibited at a meeting of the Woolhope Club with stems four feet in length; they had been found growing on timbering at the Glynorrwg collieries.

Sulphur Tuft (*Hypholoma fasciculare*). Photo: Arthur Rivett



The Magpie, *Coprinus picaceus*: It has an unpleasant fetid odour, and is believed to be poisonous, though there appears to be no positive evidence on the point. Should it be really so, it could not be considered as one of the dangerous species, for its strongly contrasted black and white must act as a deterrent to would be Toadstool eaters among our race as such "warning" contrasts are believed to act upon the lower animals. The fetid odour is an attraction to flies, which assemble upon it and suck up the spore laden fluid that results from the melting of the gills and so help to disseminate it. In spite of this assistance the magpie remains a rare fungus.

Dryad's Saddle, *Polyporus squamosus*: Sir William Hooker in his Flora Scotica mentions an example found by Mr. Hopkirk which had a circumference of seven feet five inches, and weighed (after having been cut four days) thirty four pounds. It gained this size in four weeks. The fungus was formerly much used for making razor strops scarcely seems suitable material upon which to exercise the degenerate masticatory apparatus of the present generation. Respecting the razor strop, Badham who declared it makes a strop far superior to any of those which in his day were "patented, and sold, with high sounding epithets, far beyond their deserts," gives instructions for the preparation of one from this fungus, which may be useful in these days of bald chins.

Sulphur Polypore, *Polyporus sulphureus*: The Sulphur Polypore is one of those that are said to be edible, but it must be exceedingly difficult to masticate, and its strong unpleasant smell would in most cases act as a deterrent. It is sometimes phosphorescent. Among other Polypores from which amadou was prepared for the tinder box in pre-lucifer-match days was this species.

Birch Bracket, *Polyporus betulinus*: The thick flesh is also white and of fine and even texture which enables it to be cut into very thin slices - as is done by the entomologist for the mounting of delicate insects.

A few names have changed over the years. The following information has been extracted from the "Checklist of the British and Irish Basidiomycota"

Tricholoma gambosum = *Calocybe gambosa*
Pleurotus subpalmatus = *Rhodotus palmatus*
Marasmius porreus = *Marasmius alliaceus*
Cortinarius papulosus - Not authentically British
Coprinus picaceus = *Coprinopsis picacea*
Polyporus sulphureus = *Laetiporus sulphureus*
Polyporus betulinus = *Piptoporus betulinus*



News Roundup

Forthcoming book on Ascomycetes

Peter Thompson, a regular visitor to our County, plans to publish a photographic guide to Ascomycetes (spore-shooters) during 2012. Peter has been collecting high quality images of species from this group of fungi over the last four years and plans to have over 600 examples illustrated in his book. Many are extremely small - best observed in the field using a hand lens - and demand considerable expertise and care to produce full size images.

The book will include many rarities which have been backed up by voucher specimens confirmed or identified at Kew as well as several first records for Britain. The photographs will be accompanied by a description of the species, microscopy details and cross references to other publications.

The book will be a welcome addition to any mycologist's library as good sources of images for this group are limited. The most widely used references in the UK, the excellent volumes by Ellis and Ellis, have a limited number of line drawings but no photographs. Perhaps the best known illustrated source - *Fungi of Switzerland*, volume 1 (Breitenbach and Kranzlin) - covers just 390 species and dates from 1984 since when many species names have changed.

We wish Peter well as he enters the final stages of this project and look forward to seeing the book in due course.

Pyrenopeziza polygoni, photographed at Somerton Farm in May 2009.

This species appears as tiny reddish-brown discs, typically 0.5-1.0 mm. Diameter on dead, damp, herbaceous stems - example photographed on Hemp agrimony.



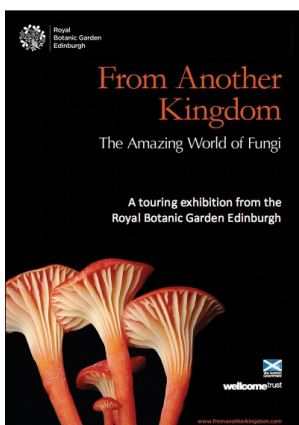
Hypocrea aureoviridis, photographed at One Arch Bridge, Stackpole in May 2009.

This species forms yellowish cushion-shaped fruiting bodies typically about 2.5 mm diameter on dead wood - example photographed on Willow.



[Note: these images are scans of lower quality than those appearing in the printed version.]

From Another Kingdom



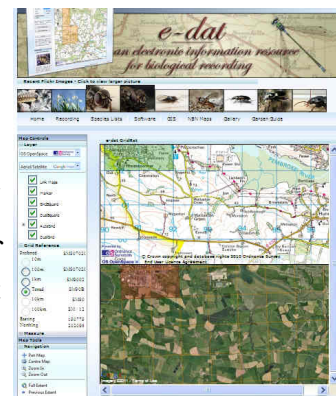
Fungus enthusiasts will be interested to learn that the outstanding exhibition - **From Another Kingdom** - can be viewed at the National Botanic Garden of Wales.

The display, from the Royal Botanic Garden Edinburgh, is the first major exhibition to explore the vital role fungi play in the health of people and the planet. It introduces the incredible diversity of fungi, and uses a combination of models, live material, film, audio, images and text to tell the story of fungi and their importance in sustaining all life on earth.

<http://www.gardenofwales.org.uk/whats-on/events/>

Grid reference website

Bob Haycock forwarded details of a website with OS maps and aerial photographs which offers even more functionality than the "Wherethepath" website mentioned in an earlier bulletin. The site (found at www.e-dat.info) is specifically designed to support biological recording. Various options exist showing either single or split screen versions of OS maps, aerial photographs, road maps etc. Once a map is displayed, it is very easy to pinpoint the grid reference. Well worth a look.



Fungus identification websites

Attempting to identify fungi can be frustrating at times - both for the beginner and for those with more experience. In addition to well-tryed reference books and keys, a number of fungus identification websites have appeared in recent years. One drawback is that they rely heavily on user-submitted photographs - sometimes of questionable quality and often not showing key features. However, on occasions, useful images and descriptions are furnished, and in these cases helpful identifications may follow. Examples of sites currently available are:

ISPOT www.ispot.org.uk/fungi-and-lichens

The fungus site is one section of the natural history websites run by Ispot which is part of the Opal partnership involving, amongst others, the Natural History Museum and Open University. A well presented site with useful links, notes on key identification features for fungi, and guidance on how to take good photographs. Relatively underused compared with the other fungus sites.

ABFG forum www.abfg.org/bap/index.php

A forum run by the Association of British Fungus Groups. Divided into a wide range of topics including identification, Biodiversity Action Plans, microscopy, photography etc. Well used and backed with good quality advice from a number of experienced mycologists.

Wild About Britain www.wildaboutbritain.co.uk/fungi

One of a range of wildlife/environmental forums run by WAB. At first glance appears to offer a large range of useful links e.g. "British Fungi" events, "British Fungi" articles etc - but most links are dead. The forum is very active with input from a number of reputable enthusiasts.

Yahoo - British Fungi discussion forum <http://tech.groups.yahoo.com/group/Fungi-BritishIsles>

One of the multitude of Yahoo forums. Input from several very experienced mycologists, but not very well used.

Pembrokeshire Wildlife www.pembrokeshirewildlife.blogspot.com

Not specifically fungi - but local and well supported. Run by Andy Davies and well worth a look.

Acknowledgements: Distribution maps generated using the DIVA-GIS program. Digitised Watsonian Vice-County boundary data © All rights reserved. National Biodiversity Network Trust and Crown copyright 2003. Photographs & Text © PFRN unless otherwise stated.