Pembrokeshire Fungus Recorder

Issue 2/2016

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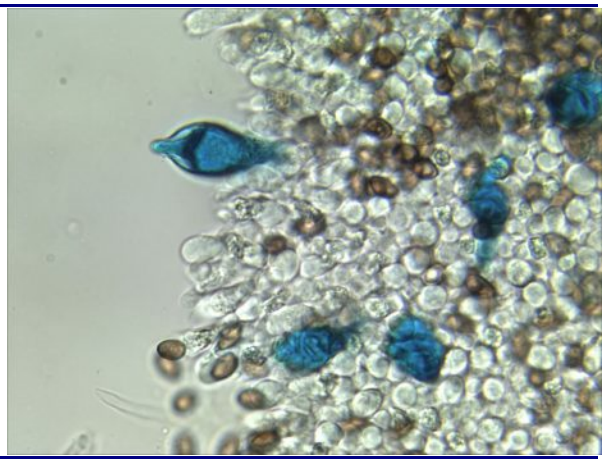
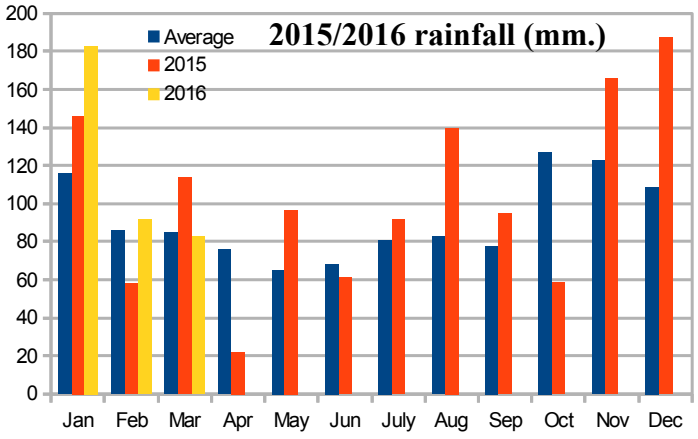


Gill fragment of *Stropharia albonitens* showing pleurocystidia stained blue with Patent blue V (see p.3)

Introduction

Following a damp January, rainfall returned to something close to average levels for the time of year. However, the ground must be pretty saturated at it seems to take only a moderate rainfall to rapidly re-establish muddy conditions!



Weather data courtesy of FSC, Orielton

A quiet part of the year for fungus records, so most of this issue is a catch-up on activities and records from last year.

Work on our DNA project (which featured in the last issue) has been progressing steadily. By the next issue we should know whether or not we have been successful in taking samples from the DNA extraction stage to a point at which the amplified barcode portion of the DNA is ready for sequencing.

Elsewhere in the region, I attended a meeting at the National Botanic Garden of Wales where a group of enthusiasts are working towards the formation of a Carmarthenshire Group. They already have a number of very active participants and a popular blog (www.carmarthenshirefungi.co.uk). We wish them well with their plans. Further afield, Nigel Stringer and I attended a well supported AGM of the Glamorgan Fungus Group where I gave a talk on the background to the formation of our Network and an overview of our activities. The Glamorgan Fungus Group has a Facebook page at: www.facebook.com/GlamorganFungusGroup

David Harries, PFRN coordinator
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April 2016

Fungus records

Lost and Found project

Last autumn our Network members continued their search for species that feature in the Kew "Lost and Found" project.

Specimens collected and submitted included Trevor Theobald's find, from a cemetery, of an orange waxcap that may belong to the group containing *Gliophorus perplexus* - hopefully we will learn more when this and other samples are DNA-sequenced at Kew. Looking back through our records, Sam Bosanquet reported a similar find from a different cemetery back in 2005 - uncannily similar as the images show.

New names for waxcaps

Gliophorus is the new genus for several waxcap species previously known as *Hygrocybe*.

Hygrocybe psittacina		
var. *psittacina*	*Gliophorus psittacinus*	Parrot waxcap
var. *perplexa*	*Gliophorus perplexus*	
Hygrocybe irrigata	*Gliophorus irrigatus*	Slimy waxcap
Hygrocybe laeta	*Gliophorus laetus*	Heath waxcap
New species (2013)	*Gliophorus europerplexus*	
New species (2013)	*Gliophorus reginae*	

Clavaria atroumbrina

Another intriguing find, from a lawn at Upton Castle (Cosheston) was a brown spindle fungus (pictured right). The description fits *Clavaria atroumbrina*, but current thinking is that European records may actually be for a different (undescribed) species compared with *C. atroumbrina* which was described from the United States.

This species seems to produce fruitbodies very infrequently with fewer than 20 UK records prior to 2015. Last autumn was an exception with four recorders across the UK finding collections. Interestingly, three of the recorders; Sam Bosanquet, Philip Jones and myself (DJH), have connections with our network.

Hypocreopsis rhododendri

Mike Karpaty added a new site (near Templeton) to our list for *Hypocreopsis rhododendri* (Hazel gloves) whilst Adam Pollard confirmed the continuing presence of this species at Neyland. Recent years have seen a surge in the number of records for this species - a point picked up by Dr. David Genney at a recent BMS conference. He commented that DNA from samples collected across the UK

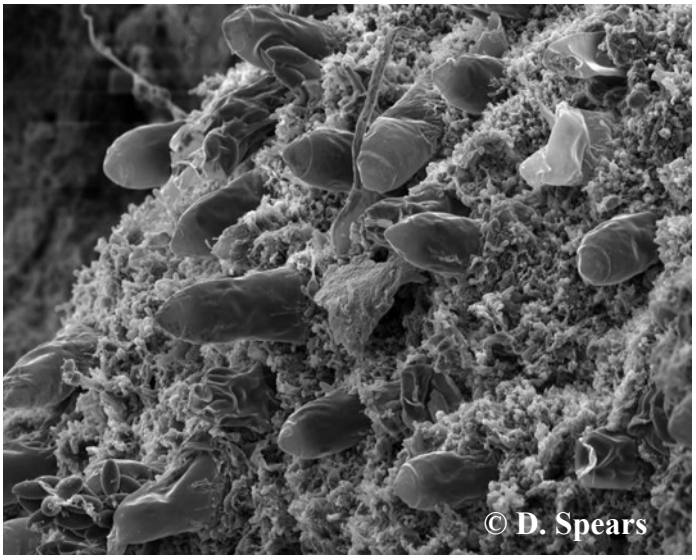
showed little variation and this, coupled with the fact that the first UK record was as recent as 1973, could indicate that *H. rhododendri* is a fairly recent coloniser to these shores. The species was originally described from the United States in 1922.

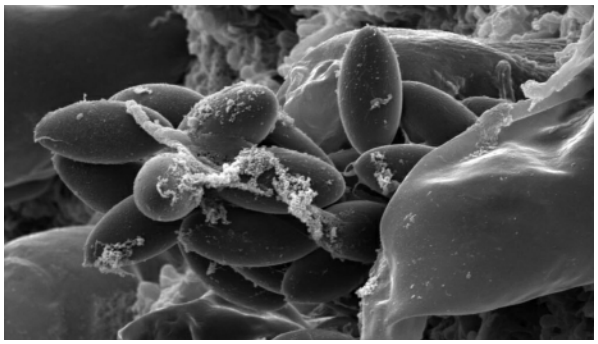
Thecotheus pelletieri

Mike Crutchley collected some cattle dung in mid-December in order to capture fresh images of *Pilobolus* - the hat thrower fungus (illustrated in issue 1-2016). Dung samples often produce a series of different species as the sample matures, so Mike kept the dung moist and checked for the development of new fruitbodies over the following few days. After about a week he was rewarded with a collection of tiny (ca. 0.5 mm across) pale, cushion-shaped fruitbodies with asci (spore sacs) each containing 32 spores.

The specimen keyed out to *Thecotheus pelleteri*, a rarely recorded species with just 4 entries in the FRD including one dating from the 19th century.

Intrigued by the 32-spored fungus, Mike forwarded the sample to a friend in Taunton, David Spears. Whilst many of us can lay claim to a light microscope or two in our spare room, David actually runs a Scanning Electron Microscope. He kindly took images of our sample which show with outstanding clarity the ascospores protruding from the sample, and a collection of spores that have emerged from a burst ascus. The individual spores measure just 30 to 35 µm in length.





Scanning electron microscopy images:
Left: asci protruding from surface of fruit-body (note spores in lower LHS)
Right: Enlarged image of spores emerging from ascus.

Stropharia albonitens

S. albonitens is a pure white, slimy species with less than 20 UK records shown in the FRD. This collection, the first for Pembrokeshire, turned up in marshy grassland at a farm near Lampeter Velfrey in October.

Collection and Preservation of fungus voucher material

This note provides guidance on best practice for collecting field information about fungi and then preserving specimens for further investigation. It is intended to cover species growing on soil, but the general principles apply to many species found on other substrates (wood, dung, mosses etc.).

Generally speaking it is best to avoid spending time on specimens which are in poor condition. Instead, concentrate efforts on good collections which contain a number of specimens at different stages of growth.

Field observations

Make a note of the location, habitat and soil type where the fruiting bodies are found. Nearby vegetation may give clues regarding the acidic or basic nature of the soil. Some fungi are particularly associated with roots of nearby trees and shrubs, so a record of these associate species is important.

Record field characters including fruit-body size, surface texture (dry, fibrous, sticky, glutinous etc.), and smell (mealy, honey, menthol/cedar etc.). The colour of fresh, undamaged samples is important along with any changes, for example to the freshly cut surfaces of boletes.

Photographs are invaluable: include a ruler or other object for scale and shade the subject matter from direct sunlight when taking the photograph. Ensure at least one image shows the underside of the fungus (especially species with caps). Take care to remove the stem intact when preparing for this image. Images of the stem and cap underside provide information on the shape of the base of the stem as well as gill colour, gill spacing and gill attachment.

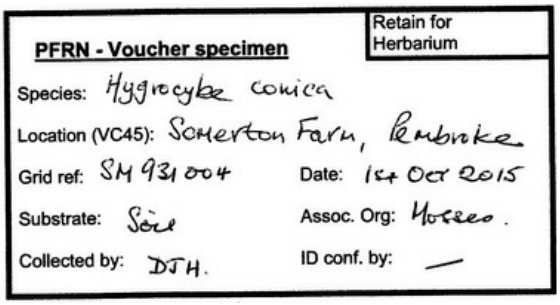
A spore print on paper provides valuable information of the colour of the spore mass. Pale examples may need to be made on a glass slide which can be viewed over a black surface.

Voucher material

Interesting or important specimens should be retained as voucher material which can be examined at a later date for microscopic characters. In many cases this is essential for determination or confirmation of the species. Specimens which are rarely recorded in the UK should be forwareded to the Conty Recorder for deposition with the Royal Botanic Gardens, Kew.

There is an increasing trend for requests by researchers for well documented voucher specimens to support research projects. In most cases, these samples will be analysed using molecular techniques to establish the DNA barcode for the specimen.

Voucher material should be labelled with key information as shown in this example. Additional notes can be written on the reverse. Blank sheets of suitable labels can be downloaded from the PFRN website.



Collections should ideally include at least 3 fruit-bodies and be dried in a current of warm air at ~40°C for 12-24 hours. A fruit dehydrator (pictured right) is ideal, but in practice, a sunny window-ledge, radiator or other warm, dry location will be satisfactory for most samples.

The dried collection should be sealed in a labelled paper envelope and stored in a dry place.

Well-dried samples intended for long storage should be deep frozen for 2 days (-20°C) to kill any bugs, then stored in sealed polythene bags with desiccant. Air-tight plastic boxes sold for food storage can be ideal for long term retention of samples.

If you plan on keeping a number of samples, then it is well worth assigning reference numbers to each collection and keeping an inventory. The same reference number should be attached to images and notes that relate to the collection.

A Spring Rust - *Puccinia umbilici* on Navelwort (*Umbilicus rupestris*) by R. Nigel Stringer

Navelwort is a member of the Stonecrop family which has large round fleshy leaves (Fig.1) with a characteristic navel-like depression in the centre which gives rise to its common name. It is a plant of shady walls or damp rocky crevices and has a remarkably western distribution, occurring in the south-west of England, Wales and the west of Scotland (Fig. 2). Its distribution is probably governed not only by rainfall and humidity but also by temperature because it is absent from the east and north of the country.


Fig 1.

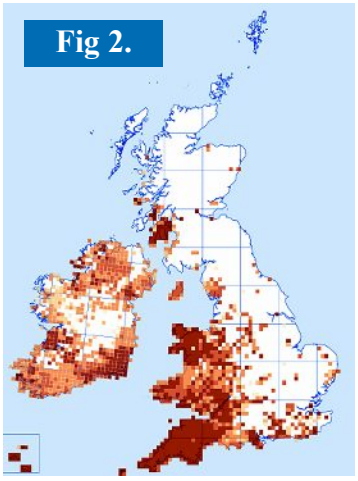


Fig 2.

During the Spring, in certain locations, the leaves exhibit a characteristic pinky-yellow blotching on the upper surface but if one examines the under surface you will find concentric rings of dark brown bodies emerging from the leaf (page 6, Fig. 3). Closer examination with a x 10 hand lens shows these blotches have a granular content (page 6, Fig. 4). The dark brown pustules are the spore bodies of the rust *Puccinia umbilici*. The rust only produces one spore type during its life cycle so there is no alternate host as is the case with many rusts. During the season many of these rust pustules are grazed by slugs resulting in holes in the leaves. The spores are rich in proteins and this grazing effect can be seen in other rusts as is the case with *Puccinia sessilis* on Arum. Although most of the rust pustules are formed on the leaf surface some are found on the petiole as well. Another interesting phenomenon regarding this rust is that pustules have been recorded within the tissue of the host and if one picks a leaf with an infected petiole and sections it the spore-producing bodies (telia) can be seen as tiny black-brown dots in the internal cell matrix. The presence of 'internal sori' is rare in rusts.

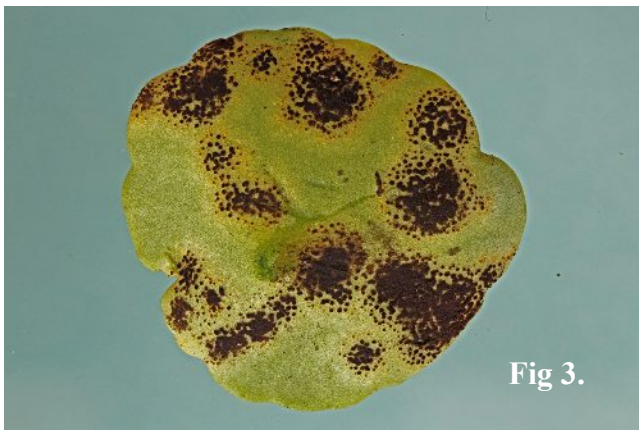


Fig 3.

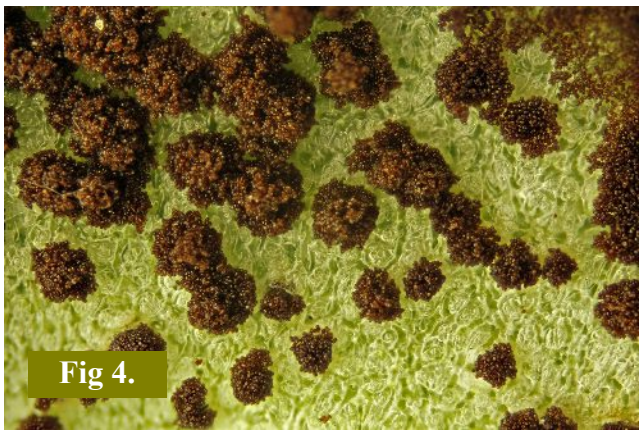


Fig 4.

In Carmarthenshire *P. umbilici* is found mainly from January to early June at which time the plant may have lost its leaves because of the dry conditions.

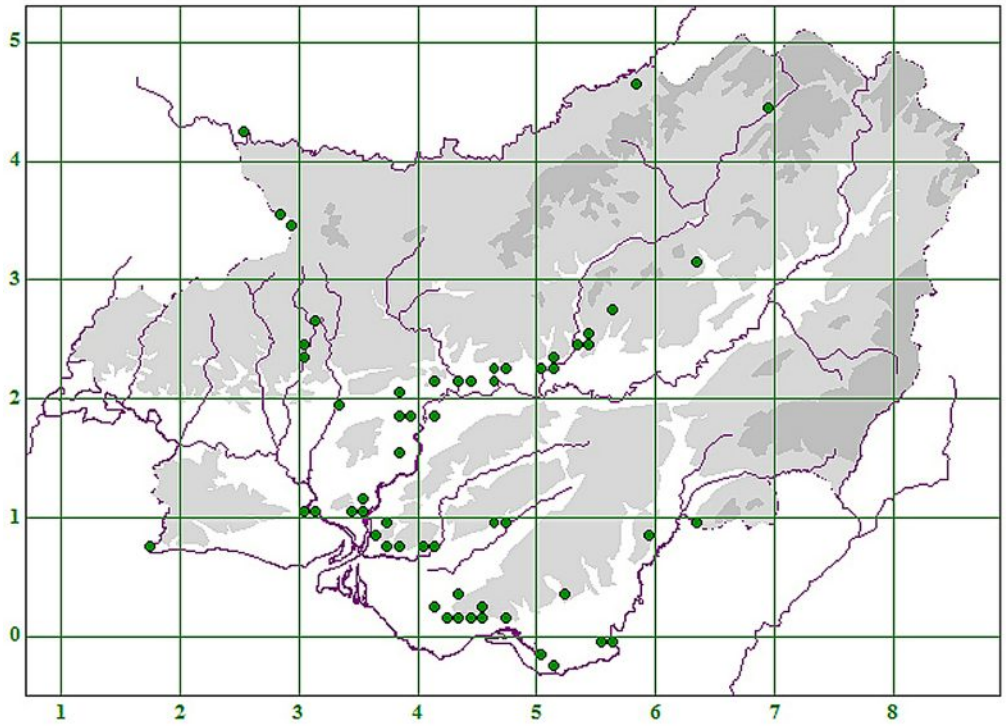
There are close to 200 records of this rust in the UK, most of the records from Devon and Cornwall but Tom Preece and members of the Shropshire Fungus Group have recorded a lot of infected plants in Shropshire. There are 1980's records from Pembrokeshire and in recent times Vicky Tomlinson and David Harries have reported it from Freshwater East and Somerton Farm. Arthur Chater and Debbie Evans have found it in west and north Wales. It is also present in Carmarthenshire but it has a very odd distribution pattern (Fig. 5). Nearly all the records are lowland and from the river valley systems.

Many people think that the rust is a 'refuge' species because its distribution is not as extensive in Europe as it once was. There is also some debate on whether the host is declining in Britain so it may be useful if enthusiasts in Pembrokeshire keep an eye out for this rust as there are many stony banks and walls throughout the county which support the plant.

The author wishes to thank Malcolm Storey (BioImages) for permission to use his photograph of *U. rupestris* and the BSBI for use of their distribution map.

Fig 5.

Puccinia umbilici - Umbilicus rupestris



Records from National Trust coastal sites in Pembrokeshire

Last year we were contacted by the National Trust who asked if we would be able include some of their coastal heath and grassland sites in our autumn recording programme. The National Trust kindly agreed to contribute towards mileage costs for this work.

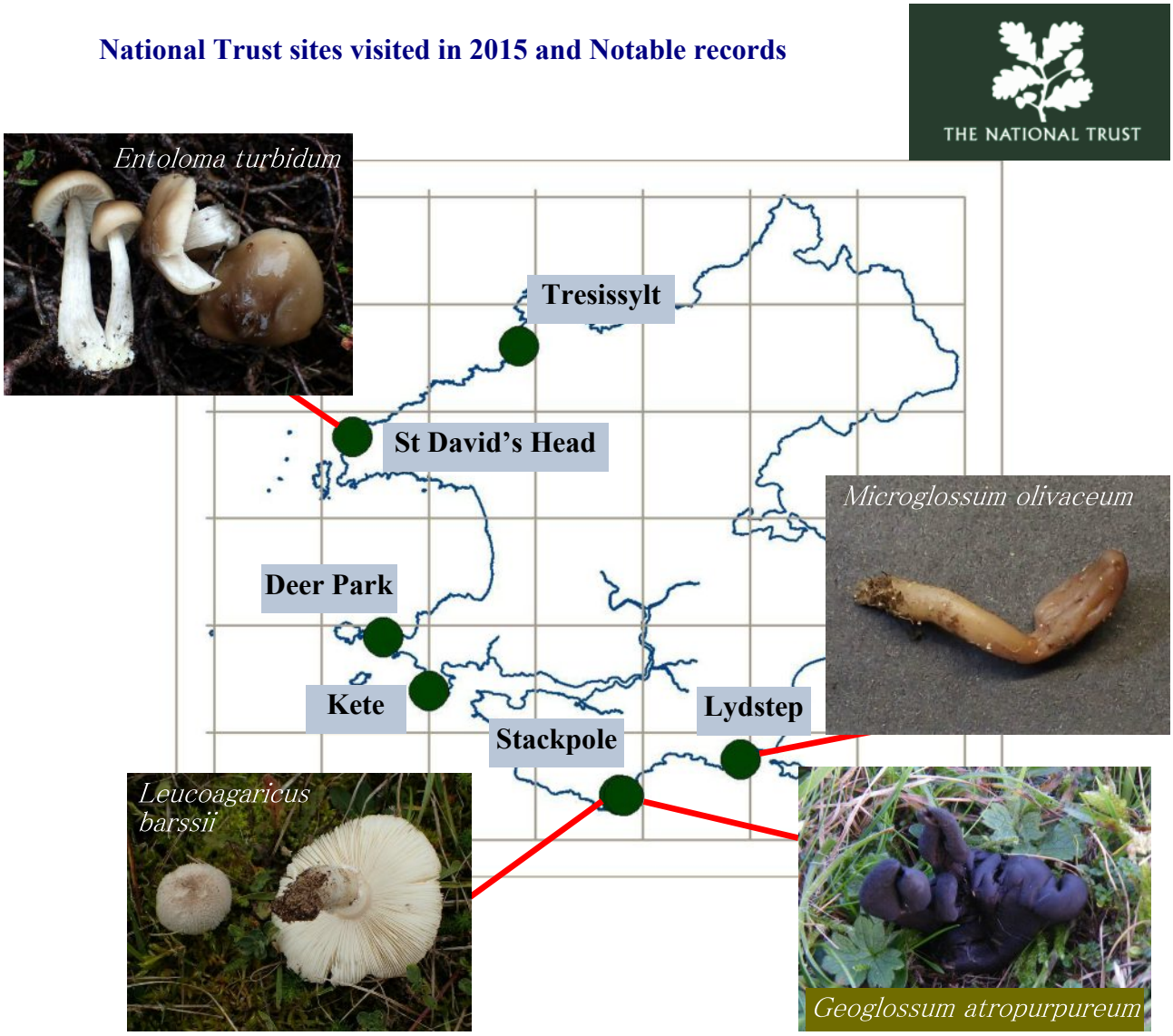
Although it turned out to be a pretty wet, windy and unpleasant season, Jane, Trevor and I managed a few visits and reported back on out findings from Stackpole, Lydstep, Tresissylt, St. David's Head and Deer Park.

Records of particular interest included: *Microglossum olivaceum* at Lydstep Headland (first record of this Section 42* species for this site), *Geoglossum atropurpureum* at Stackpole (another S42 species and fruiting in good numbers at a previously recorded location) and the Red Listed species *Leucoagaricus barssii* at Broad Haven South (Stackpole).

Entoloma turbidum was recorded amongst heather in heathland at St David's Head. This was the first County record with only one other record from South Wales (Carmarthenshire) shown in the Fungus Records Database - though rather more frequently recorded in North Wales.

[* Section 42: A list of species "of principal importance for the purpose of conserving Biodiversity" in Wales.]

National Trust sites visited in 2015 and Notable records



Conservation News

UK Fungus Day

The BMS has appointed Meg Scully as their Social Media and Outreach Officer. Meg will provide a point of contact for any interesting conservation policy developments or news articles relating to rare finds that the society should be aware of and should be highlighting in the public domain. Additionally Meg will help to coordinate the BMS's contribution to UK Fungus Day (**9th October 2016).**

As a follow-up to UKFD2015 - Participants in our events may remember the mushroom growing packs we distributed last autumn. Gary Easton took his pack to London where he set up the kit for his grandson. Sometime later he was rewarded with this fine display (and mushrooms for breakfast).

Fungus collecting

The BMS has published updated versions of its "Conservation Policy" and "Code of Conduct for Responsible Collecting of Fungi for Research and Educational Purposes" (copies can be downloaded from the BMS website - follow links to Field Mycology, then Conservation).

Atlantic cedar fungus

Image from www.forestry.gov.uk/fr/

The Forestry Commission advises that during the last two years a severe shoot blight and defoliation of Atlantic cedar has been reported from a range of locations in Britain. The fungus *Sirococcus tsugae* has been identified as being consistently associated with these symptoms.

In the spring, affected trees develop dead needles on the shoots, dead shoots, cankers and gum exudation. Dead needles are very distinctive as they turn **'pink'** in colour. Later they become brown as the season progresses. This pink colour of the needles is very characteristic on affected Atlas cedars.

Observations of this fungus should be reported to the Forestry Commission through their Tree Alert webpage: http://www.forestry.gov.uk/treealert

Biodiversity (Wales)

The Environment (Wales) Act 2016 became law in Wales on 21 March 2016. The Act includes provision for maintaining and enhancing biodiversity in Wales and requires Welsh Ministers to prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This will be known as the **Section 7 list** and will replace the former **Section 42 list** from the NERC Act 2006.