



Pembrokeshire Fungus Recorder

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Introduction

The after-effects of the dry spring/early summer may have contributed to dearth of records for a while, but as the weeks progressed, Mike Karpaty kept up a steady flow of woodland records, and by the end of August even grassland species started to appear in reasonable numbers.

However, whilst the quantity may not have been great - we could have no qualms regarding the quality of finds, so most of this issue is taken up with notes on exciting new County records - several of them Red Data Listed. Collections of stipitate hydroid fungi (stipitate = with a stem, hydroid = having teeth or spines rather than gills or pores) were especially valuable as they represented UK BAP species from a group not previously recorded in Pembrokeshire. Particular thanks to Matt Sutton for setting us on the trail of these remarkable species.

Matt's farm, Wyndrush Pastures SSSI, features prominently in this bulletin - this photo of the Snakeskin grisette (*Amanita ceciliae*) being just one example of the wide range of species found at the site. The farm was also visited by Peter Thompson who returned to the County in July to collect more ascomycete photographs for his forthcoming book.



The newsletter rounds off with a report on the gathering at the National Botanic Garden of Wales for the launch of Pat O'Reilly's latest book, followed by another of Nigel's excellent snapshots of rust fungi - this time focusing on a familiar rust found on Hollyhock and Mallow.

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

October 2011

Fungus records

A new British record for Stackpole - *Entoloma fridolfingense*

A collection of dark brown Pinkgills collected from limestone grassland on the Stackpole Warren National Nature Reserve has been confirmed as a new British species: *Entoloma fridolfingense*.

The specimens were collected and provisionally identified last autumn. The identification has now been confirmed by the Dutch mycological expert, Dr. Eef Arnolds, who knew the species from limestone grasslands in Sweden and Germany. A voucher specimen from the Stackpole collection has been deposited with Kew for retention in the herbarium.



The fruiting bodies collected at Stackpole had shiny, dark-brown, convex caps with a depressed centre. The caps measured up to 30 mm. in diameter. The stipe was pale grey/brown and measured 15-20 mm x 2-3 mm, tapering slightly towards base, smooth to slightly fibrillose. The gills were sub-decurrent with a tooth, white when young, turning brownish-pink with age.

Microscopically, the samples were separated from superficially similar species by the presence of gill-edge cystidia and connection clamps in the tissues.

The indications are that *Entoloma fridolfingense* appears at Stackpole during the late summer and early autumn after a suitable period of rain, and may be found close to other calciphile grassland species including the Mousepee Pinkgill (*Entoloma incanum*) and the Red Data List species *Hygrocybe calciphila*.

Two new UKBAP species for Pembrokeshire - *Hydnellum concrescens* & *H. spongiosipes*

A call from Matt Sutton in early August advising that he had a cluster of brown, irregular, rosette-shaped fungi at the base of an oak tree had me hot-footing it to Wyndrush Pastures SSSI to see what had turned up.

I was not disappointed as the mossy hedgebank had good numbers of fruiting bodies which were not immediately familiar to me - but looked very interesting! I took samples home, and after close inspection, and some time spent wading through various reference books, concluded that Matt had found some fine examples of a Toothed Fungus in the *Hydnellum* genus - probably Zoned Tooth (*Hydnellum concrescens*).

The sample and collection details were sent to Kew, where Martyn Ainsworth confirmed the identification of this Red Data List and UK Biodiversity Action Plan priority species which had not previously been recorded in Pembrokeshire. Martyn suggested keeping an eye out for other species in the same area - and sure enough a few days later Vicky Swann found Velvet Tooth (*Hydnellum spongiosipes*) on the same mossy bank underneath Oak. The national fungus records database shows just one Welsh record for each species in recent years.



Hydnellum conrescens (Zoned tooth)



Site for both collections of *Hydnellum*

Hydnellum species are ectomycorrhizal, forming a close symbiotic relationship with specific trees, and deriving some of their nutrients from the tree's roots. Seven *Hydnellum* species are listed in the UK Biodiversity Action Plan: the two mentioned here are usually associated with Oak, Beech or Sweet Chestnut, with most of the others favouring Pine. The individual rosettes typically measure from 20 to 70 mm diameter.

Measures for their conservation include the protection of host trees and their surroundings from damage, encroachment of scrub and nutrient enrichment.

The term “conrescens” refers to the tendency for the fruiting bodies to fuse together and “spongiosipes” relates to the spongy swollen stem.

Now that we have established these rare species can be found in Pembrokeshire, all members are asked to keep a special eye out for collections of fruiting bodies under mature trees, especially Oak, during late summer and autumn. In common with most fungi, fruiting tends to follow periods of rain and, although they may not be seen every year, collections are likely to reappear at favoured locations in future years.



Hydnellum spongiosipes (Velvet Tooth)



Underside showing downward pointing “teeth”



Two new pinkgills for Wales

A mid-August excursion to the Castlemartin Range (west) produced a handful of records including the Red Data List waxcap *Hygrocybe calciphila* and the readily identifiable Mouse-pee Pinkgill (*Entoloma incanum*) with its unmistakable musty odour, and green stem which bruises to a bright turquoise color.



The star find came when Jane Hodges found a collection of small grey-brown fungi which, on detailed examination, proved to be *Entoloma indutoides*. (Photo: top right)

This is a Red Data List species with no Welsh records shown on the Fungus Records Database for Britain and Ireland (FRDBI), and few records elsewhere in the UK.

A second interesting pinkgill turned up in woodland near Hundleton. This was the rarely recorded *Entoloma scabiosum*, again with no Welsh records shown on the FRDBI, and only a handful of records elsewhere in the UK. (Photo: right).



An unusual fungus - *Isaria farinosa*.

The fungus shown here is an example of an “entomopathogenic fungus” - one that kills insects! Rather like the more familiar Scarlet caterpillar club (*Cordyceps militaris*), this is another species that preys on caterpillars - in this example probably a buried pupa.

First impressions are of something not unlike a grassland coral fungus - in fact one of the very early names for this species was *Clavaria farinosa*. The underlying structure has smooth greenish-yellow stems up to about 40 mm high. These branch from about halfway up and are thickly covered in loosely attached white cells which leave a deposit on nearby vegetation.



Sample as found



After collection



2 mm. fragment magnified

Sand-dune and dune-grassland records

This year marks an extension of our recording interests into sand-dune areas. With the season barely underway we have already been rewarded with two good finds.

Tom Bean contacted us in August with photographs of a stinkhorn growing at Poppit. From his photograph, it was clear that this was not *Phallus impudicus*, the most widely recorded of the stinkhorn genus, but the much less common *Phallus hadriana* which is very specific to sandy sites. Happily this species is readily identifiable as the casing around the base of the fruiting body develops a purplish colour on exposure to air.



Phallus hadriana: showing a purplish colour at the base.



August was also a good month for *Leucoagaricus* with several examples of *Leucoagaricus leucothites* recorded on Castlemartin Range (west). A few days later an otherwise fruitless search amongst the dunes at Freshwater West produced a fine example of *Leucoagaricus barssii* - a rarely recorded Red Data Book species.

This species illustrates one of the problems with incompleteness of national databases: neither the FRDBI nor the database managed by the Association of British Fungus Groups show any record for this species in Pembrokeshire. However, a CCW report by Maurice Rotheroe shows this species was known from Castlemartin in 1993.

Leucoagaricus leucothites: a slender fruiting body with a smooth white cap. The silky white stem slightly swollen towards the base. Widespread, occurring in a range of habitats including woodchips, compost and grassland.

Leucoagaricus barssii: a chunky fruiting body with a fibrous white cap. The silky white stem broadens towards the centre before narrowing at the base. A rare species usually confined to sandy soil.



Peter Thompson visit

Peter visited the County for a few days in mid-July to continue his search for examples of ascomycetes for inclusion in his book. With over 670 species already photographed, the chance of finding new specimens was more difficult than on previous occasions. However, the summer visit opened up new opportunities compared with his earlier spring and autumn forays.

Recording was centred on three sites: Stackpole Estate, Wyndrush Pastures (Redberth) and Somerton Farm (Hundleton). 50 records were made during the visit - most requiring examination under the microscope for confirmation. The foray produced 6 new records for Wales, and 8 specimens were suitable candidates for the book.



Mollisia coerulans (photo © P. Thompson): A new Ascomycete species for Wales collected from dead stems of Hemp agrimony.

The most prolific of the larger species was *Peziza micropus* which was growing in profusion on a wood chippings in Lodge Park Wood at Stackpole. Another species present in good numbers was the conspicuously orange eyelash fungus *Scutellinia trechispora* growing on soil.



Peziza micropus (top left)

Scutellinia trechispora (top right)

Mycena rorida (bottom right)

Most of the species recorded during Peter's excursion were ascomycetes (spore-shooters) but there was just enough time to look at a few basidiomycetes (spore droppers). One of these was a wood-chip specialist, *Agrocybe rivulosa*, which turned up at Wyndrush. This species was first recorded in the UK in 2004 but has since spread rapidly to occur in most areas.

Also at Wyndrush, this time in a scrubby area, was a not uncommon, but striking, *Mycena* on dead bramble. This was *Mycena rorida* which has a stem covered in a thick, clear, gelatinous layer when fresh.



NBGW Fungus event

A suitably fungus-friendly day (wet!!) at the end of September heralded the launch of Pat O'Reilly's book "Fascinated by Fungi" at the National Botanic Garden of Wales in Carmarthenshire. The event was well attended with a strong contingent of Network members.

Following the formal launch of the book, attendees were able to tour the fungus exhibition "from Another Kingdom", enjoy mushroom-themed dishes for lunch in the restaurant and join a guided fungus foray led by Ray Woods and Bruce Langridge.



From left:
Sue Parker (First Nature)
Dr Rosetta Plummer (Director, NBGW)
Roger Thomas (Chief Executive, CCW)
Pat O'Reilly (First Nature)

Puccinia malvacearum – the Hollyhock Rust

Hollyhocks are one of the most popular of our cottage-garden plants grown by gardeners in Britain today. There are about sixty species in the genus (*Alcea*) and are members of the Mallow family. They are native to the eastern Mediterranean region and were originally called Holy Hock or Holy Mallow. It is said that hollyhocks were taken to Britain from the Holy Land during the Crusades and were valued because of their medicinal properties, which is still of importance today.

The most common species grown today is *Alcea rosea*. The generic name is derived originally from the Greek *althea* which means 'to cure'. It is a biennial, believed originally to come from Turkey or Palestine and is grown for its tall spikes of flowers which appear in summer. The Victorians promoted the cultivation of Hollyhocks and they were considered to be the "must have plant" during this period. Subsequently there was a large trade in seed and plants from Europe and America (Botanica 1997).

However, hollyhocks suffer from a serious fungal disease called Hollyhock Rust (*Puccinia malvacearum*). The rust is a fungal parasite which obtains its nutrients from the living cells of the host. It is microcyclic rust requiring only one host to complete its life cycle. Characteristic early signs of the disease are yellow spots on the leaf surface which then develop into light-brown rust pustules on the corresponding lower surface (figure 1). These pustules (called telia) produce thousands of microscopic dark brown spores (teliospores) throughout the summer. They appear primarily on the underleaf surfaces, but they may occur to a lesser extent on the upper side of the leaves or on the petioles, stems, and flower bracts (Wilson & Henderson 1966). The rust quickly spreads to other leaves, but rarely kills the plant even though it looks ragged. The rust can overwinter as mycelium within tender young shoots and as mature hibernating teliospores on living or dead tissue. In the spring these spores germinate to produce basidiospores which are carried by air currents and rain to living host tissue where direct infection occurs through the cuticle and subcuticular wall (University of Illinois Plant Pathology website).

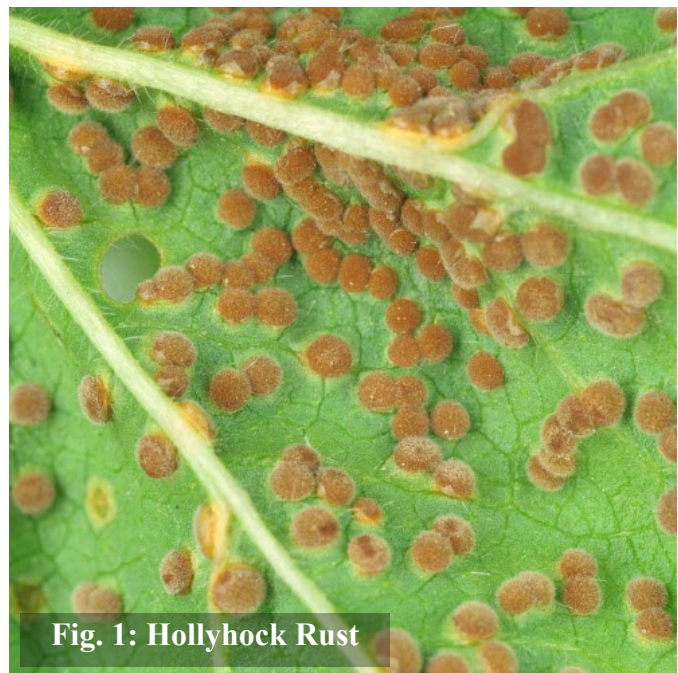


Fig. 1: Hollyhock Rust

The rust was first described in 1852 from Chile where it is presumably native. It was recorded from Australia in 1857, in Spain in 1869, in France in 1872 and in England in 1873 (Moore (1959)). Today it is found in every European country and has spread worldwide. The rust attacks about fifty species in ten genera of the mallow family including, *Brotex*, *Lavatera*, *Malva*, *Hibiscus*, *Arbutilon*, *Alcea* and *Sidalcea*. There are not many records of *P. malvacearum* on cultivated plants in Britain. It is known that the rust totally devastated the Hollyhock plants of Victorian gardeners and this may have been due to the selection of different varieties of Hollyhocks compared to today (Dr T.F. Preece pers. com.).

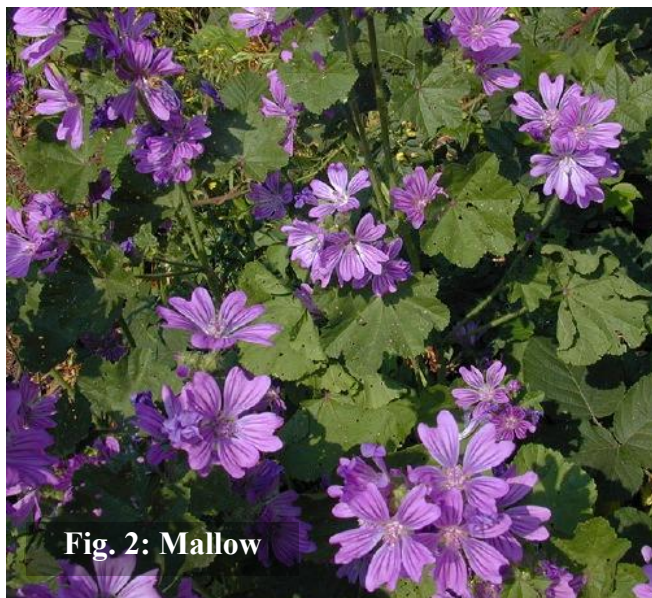


Fig. 2: Mallow

The rust is also present on our native wild species of mallow (*Malva neglecta*, *moschata* and *sylvestris* (figure 2), but over 90% of the rust records are from *M. sylvestris* (FRDBI database).

However, our native species seem to be more resistant than cultivated forms and are very rarely killed by the disease.

Interestingly, with this tremendous host range there is no degree of specialisation within *P. malvacearum* i.e. the rust on *Lavatera* will infect another member of the mallow family and vice-versa. The rust can cause a major problem where mallow plants are grown in mass for commercial use. This is the case with *M. moschata* which is grown on a large scale in Serbia where root

extracts form part of a medicine for the treatment of sore throats and respiratory ailments.

Because there are no rust resistant mallow plants the only way to control the disease is by good husbandry or spraying with a recommended systemic fungicide. However, members of the PFRN may like to try out a control measure I found listed on the internet which is a homemade organic fungicide. It consists of baking soda, canola oil, Ivory dish liquid soap and white vinegar – mix in equal quantities and spray infected plants!! (If anybody would like to enlighten me on the nature of a few of the ingredients I would be grateful).

On a serious note – can all members of the group please look out for hollyhock rust on native and cultivated species of mallow and send their records to David Harries. There are only 170 records in total for Wales (60% from Carmarthenshire). There are no records from Pembrokeshire.

The author would like to thank Malcolm Storey (www.bioimages.org.uk) for permission to use his photographs.

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R. Nigel Stringer
ceridwen@vendreth.demon.co.uk

