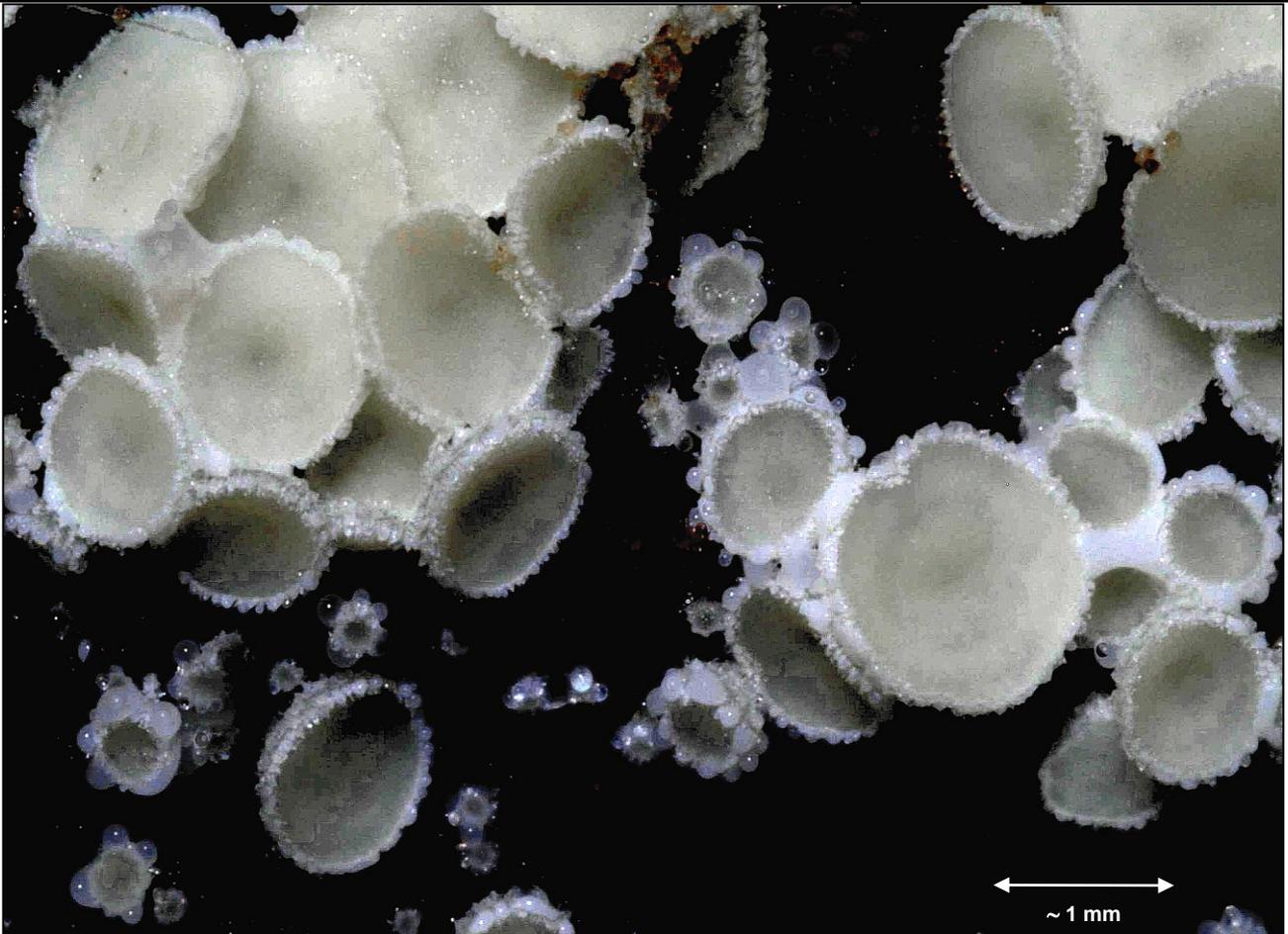




Herefordshire Fungus Survey
Group

News Sheet N° 15: Spring 2008



Dasyscyphus niveus (Queenswood Arboretum – 6/10/07)

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President & Recorder: Ted Blackwell

Chairman: Roger Evans

Secretary: Mike Stroud

Treasurer: Steve Rolph

[Welcome to the Spring 2008 News Sheet](#)

It's that time again and the latest (15th) issue of the News Sheet is out. Once again, many thanks to all our contributors, who have produced a wide-ranging diet for us, hopefully, with something to please everyone's palate. Included in this issue:

- Jo Weightman discusses how dark gill edges can help to identify some agarics;
- Ted Blackwell muses on the toxicity of *Gyromitra esculenta* - very topical as, at the time of writing, there have been a number of recent local reports of this species, which we do not seem to find very often in this part of the UK.

There are also articles on two exciting finds:

- Joy Ricketts describes finding the "critically endangered and nationally rare" Golden Eye Lichen, *Teloschistes chrysophthalmus* in a Herefordshire orchard;
- Roger Evans reports on a Summer Truffle, *Tuber aestivum*, which a friend left on his brother's doorstep, found in Monmouthshire.

In addition,

- Debbie Evans, from North Wales, waxes lyrical on some of the rusts she has been finding up there and is trying to encourage us all to look for them ourselves in Herefordshire;
- there is a short report, by the owners, on a public foray that Stephanie and Cherry led at Turnastone Court – where we have a Group foray later this year.
- Tom Preece comments on a strange method for the treatment of Honey Fungus, which appeared in a Readers Digest book, 'Secrets and Tips from Yesterday's Gardeners'.

We have been having problems with the web version of the News Sheet, caused by the difficulties that the BMS are having with their administration. The Autumn 2007 issue has not yet reached their website, although they have had the CD since last November. Please, if you know of any non-member who normally likes to read these online and who has, therefore, missed out, do tell me and I can send a printed copy of the issue. Hopefully, the new

Administrator, Rosie Farrer, will resolve the problem soon.

In the meantime, happy reading!

Mike Stroud

e-mail: mikestroud1@btinternet.com

HFSG's NEW CHAIRMAN AND TREASURER

For those of our readers who were not at the AGM last November, this is a good opportunity to introduce our new Chairman and Treasurer:



Roger Evans (right) and Steve Rolph (left)

As you will know, Ted Blackwell returned as the Group's Chairman for the year 2007, on the strict understanding that it would only be a stop-gap measure. We are indebted to Ted for doing so and for the hard work he put in over the last year. He will, of course, remain as President and, at least for the time being, Herefordshire Recorder.

He is replaced by Roger Evans, a retired plant pathologist "from Queen Mary and Westfield College, whose interests include fungal pathogens of agricultural crops". Roger has been an active member of HFSG since 2003 and we are delighted to have such a worthy successor to the HFSG Chaimanship.

Sadly, Ray Bray, who has so ably handled our finances since the Group's beginnings, also retired at the AGM. Once again, we also owe him an enormous debt of gratitude for all the hard work he has put into keeping our accounts in order.

This post is taken over by Steve Rolph, an IT specialist, who has been a member and keen supporter of the Group since 2004. The seamless way that the handover has happened is a tribute to his (and, of course, Ray's) efficiency. We are indeed lucky to have his services.

RECORDER'S REPORT,

September - December 2007.

MAINS WOOD, PUTLEY. 5th September 2007 SO6438 & 6338.

The continuing dry ground limited the number of larger toadstools on soil or litter, but was perhaps more favourable to the survival of rusts and powdery and downy mildews. *Phaeoisaria clematidis* on a dead bramble stem although not uncommon was a first record for VC36, also on dead bramble *Anthostomella rubicola* seems to be only the third VC36 record. About 44 fungi and 3 lichens species identified.

AST WOOD. 15th September 2007. SO6738.

A widely diverse list was compiled, ranging from Agaric toadstools via rusts, powdery mildews and Ascomycete microfungi to Myxomycetes and leaf spot Hyphomycetes. There are only a few previous county records of *Clitopilus hobsonii*. The *Cytospora* anamorph state of *Valsa sordida* has not been recorded in the county since 1969; it is sometimes the cause of a bark canker on Poplar.



Valsa sordida (*Cytospora* state) – Ast Wood (15/9/07)

Rigidoporus ulmarius, recorded on previous forays, continues to fruit on the remains of an old elm. A total of about 40 species identified.

MOCCAS PARK (foray for NATURAL ENGLAND). 29th September 2007. SO3442.

The foray was arranged at Natural England's request for the instruction of a group of interested visitors. A usefully varied selection of the larger fungi were collected for demonstration, although rather fewer of the microfungi, rusts, or powdery mildews. The foray was perhaps notable for *Podoscypha multizonata* of which there are only five previous VC36 records, two in fact from this site but widely spaced in time, in 1873 and 2006. Although less rare, *Dichomitus campestris* has been recorded only four times previously. *Inocybe fraudans* appeared as only the second record, previously recorded at Barnett Wood in 2001. A total of about 60 species identified.



Podoscypha multizonata – Moccas Park (29/9/07)

DINMORE HILL, QUEENSWOOD ARBORETUM 6th October 2007. SO5051

Hymenoscyphus vitigenus on dead stem of Bramble is a first record for VC36, and *Lophiostoma vagabundum* on Willowherb dead stem only the second record. *Agrocybe rivulosa* is one of the increasing number of toadstools which in recent times are found colonising a wood-chip substrate and its occurrence here is further indication of its spreading. Such is the strangeness of the season, *Cyathus striatus*, *Paxillus involutus*, *Macrocyttidia cucumis*, and *Chroogomphus rutilus* are the first records for VC36 this year, but on the down side there were no *Boletus* or *Hygrocybe*. A total of about 83 species identified.

WAPLEY HILL. 17th OCTOBER 2007. SO3462.



Neobulgaria pura – Wapley Hill (17/10/07)

This site was less dry than some of earlier forays and produced a more rewarding list with interesting

occurrences although without any great rarities. It was remarkable that for 2007 a number of familiar species were recorded for the first time in VC36, evidence of the peculiarity of the season. These include *Inocybe sindonia*, *Psathyrella pseudogracilis*, *Stropharia caerulea*, *Ischnoderma benzoinum*, *Auricularia mesenterica*, *Phlebia radiata*, *Phelbia tremellosa*, *Typhula quisquiliaris*, *Tremella foliacea*, *Mutinus caninus*; *Poculum firmum*, *Neobulgaria pura* and *Spinellus fusiger*. Even *Phaeolus schweinitzii* and *Paxillus involutus* occur only for the second time. Consistent with the quirks of this season there was a dearth of *Boletus*, only *B. pruinatus*, not even *B. chrysenteron*. A total of about 117 species identified including 14 lichens.

HAFFIELD ESTATE. 7th NOVEMBER 2007. SO7233.

Dry ground conditions had returned for this foray rendering the woodland rather unproductive, but Haffield nevertheless lived up to its promise of waxcaps, the lawn yielding twelve species. Amongst these a false-species hitherto erroneously named "*Hygrocybe virginea* var. *roseipes*" due to the stipe base bearing a distinct reddish hue. The toadstool is no more than *H. virginea* infected with a Hyphomycete fungus, *Fusarium* aff. *graminearum* (NB: the entry in CBIB p135 is incorrectly spelled as "*graminacearum*"). Other grassland fungi included such as *Dermoloma cuneifolium*, *Clavaria fumosa* and *Clavulinopsis corniculata*, but singularly absent from the lawns on this occasion were Earth Tongues, *Geoglossum*. On a dead nettle stem *Botryosporium pulchrum* was a first record for VC36, just a Hyphomycete mould to the naked eye but microscopically displaying a fascinatingly complex structure.



Clavaria fumosa – Haffield (7/11/07)

The Tripe Fungus, *Auricularia mesenterica* is infrequent today due to the scarcity of old elm wood which has mainly rotted away since Dutch Elm disease days, but by microscopical identification of the wood it was here proved to be growing on an old elm log. A total of about 66 species identified.



Auricularia mesenterica – Haffield (7/11/07)

HAUGH WOOD (NORTH). 17th NOVEMBER 2007. SO5937.

An impressive list of toadstools and lichens resulted from a good turnout. Most were common fungi but others less often recorded on the VC36 database included such as *Oligoporus (Postia) ptychogaster*, a specimen seen on this foray having both perfect and imperfect states; and *Creopus gelatinosus*, the latter looking like minute blobs of sago pudding and unusual in having green ascospores. Two *Cortinarius* and a good representation of *Russula* helped to swell the list. A point of interest was the smell of bottle-gas from *Tricholoma sulphureum* in contrast to the more attractive aniseed smell of *Clitocybe fragrans*. A total of about 76 fungi and 21 lichens identified.



Oligoporus ptychogaster – Haugh Wood (17/11/07)

WHITNEY COURT WOODS. 8th DECEMBER 2007. SO 2648.

It was the forayers' misfortune to experience continuous rain, a complete contrast to the dry conditions at this site in the previous year, which consequently limited number of species recorded. But the site yielded (unlike last year) some of the hoped-for grassland fungi, producing a reasonable collection of waxcaps including only the second *Hygrocybe calyptriformis* this year. Another grassland bonus was the Earth Tongue, *Geoglossum fallax*, of which there appears to be only six previous records, most in the last eight years, three of which were from the Haffield estate.

A total of about 35 species identified.



Geoglossum fallax – Whitney Court (8/12/08)

HEREFORDSHIRE ORCHARDS COMMUNITY EVALUATION SURVEY

A survey of six Herefordshire orchards was carried out at the request of the Bulmer Foundation by a number of volunteers. From a review of survey records there was scant evidence that these orchards are home to a special 'orchard mycota', rather the range of fungi was very much that of grazed grassland with plants, shrubs, and broadleaved trees typical of surrounding hedgerows. The only fungi which might be regarded as orchard-indicators were *Chondrostereum purpureum*, the cause of Silver-leaf disease of plum and apple trees, and two on wind-fall apples, *Venturia inaequalis* Apple Scab, and *Monilinia fructigena* Brown Rot. Due to the abundance of mistletoe in the county, there was also perhaps a Herefordshire speciality, a mistletoe leaf-spot, *Sphaeropsis visci*. Reports were absent of other orchard-associated fungi such as Powdery Mildew *Podosphaera leucotricha* or Canker *Nectria galligena*, or of notable grassland fungi like waxcaps or earth-tongues. First records for VC36 were an inconspicuous microfungus on the dead stem of hogweed *Pirotea nigrostriata* at Salt Box orchard, and two Myxomycetes, *Physarum limonium* at Tidnor orchard and *P. decipiens* at Half Hide orchard. The survey produced about 260 records comprising 140 fungi, 9 lichens and 9 Myxomycetes. The unusual weather pattern of a dry spring followed by torrential rain and floods in midsummer and two month's suspension of the survey due to foot & mouth disease from early August to mid-October undoubtedly limited the total of records made but it is impossible to assess the effect in detail.

NOTES OF UNUSUAL RECORDS 2007.

Some interesting records from Herefordshire and neighbouring counties have been reported in addition to those from programmed forays, of which the following are representative.

+ First VC36 record;

Gibellula araneorum+ on spider cadavers, The Sturts nature reserve, SO3347, 8/9/2007, Jo Weightman.

Alternaria tenuissima+ on litter at Downton Gorge, SO4474, 12/9/2007, Jo Weightman.

Cordyceps forquignonii as *Hymenostilbe muscaria* anamorph state, on Dipterous fly, Fishpool Valley, SO4566, 21/9/07, John & Denise Bingham. Only the second VC36 record, last recorded in 1972 by Malcolm Clark at The Gullet, Malvern Hills.

Saccobolus glaber on sheep dropping, Hen Hope orchard, SO582392, 9/9/2007, Jo Weightman, last recorded in 1977 by Douglas Graddon.

Clavaria rosea, Turnastone Court, SO338364, 10/11/07, Cherry Greenway. Only the third VC36 record, last found in 1977 at Coneygree Wood by Fred Fincher. See also article on page 10.

Galerina subclavata+ on moss, Hen Hope orchard, SO582392, 26/10/07. Jo Weightman.



Pirotea nigrostriata – Salt Box Orchard, Garnons Estate (28/5/07)

Teratological deformity ('monstrosity') on *Lepista flaccida*. Bishops Frome churchyard. SO663483. 1/12/2007. E. Dean reported by Jean Wynne-Jones.

Suillus tridentinus, under larch, Wigmore Rolls, SO3969, 6/10/07. Roy Mantle. This appears to be a speciality of this site having occurred there in 1998 and 1999 but has not been recorded elsewhere in VC36.

OUT OF COUNTY

Battarraea phalloides, Bewdley, Worcs, Cherry Greenway, (repeat find at same site as last year).

Spermagonia of *Gymnosporangium sabiniae* on living leaves of *Pyrus* cv. Llanymynech, Montgomeryshire, SJ258208, 22/8/07, Ted Blackwell. Confirmed at Kew where it was retained for K Herbarium because this stage of this rust is so seldom collected, K(M)154832. There is no record of this rust in VC36.

Teratological deformity ('monstrosity') on *Laccaria laccata*. Cwm Carn Forest Drive, SO235940. Monmouthshire. 26/10/2007. Shelly Stroud.

*Weirdly-shaped deformed toadstools which often bemuse collectors occur occasionally on a variety of species, perhaps more frequently on *Laccaria laccata* as reported above. These are known as 'monstrosities' or teratological deformities. It is thought this is due to some alteration of the DNA but often the causal agent is not known but may be due to viral or bacterial infection.

The diversity of species recorded from Herefordshire continues to grow, as does the number of county records. My thanks are due to all collectors and recorders for lists and reports and the results of diligent home-work, whose contribution continues to expand the knowledge of Herefordshire fungi.

Ted Blackwell, Recorder



Examples of teratological deformity ('monstrosity') on
left: *Lepista flaccida*. Bishops Frome churchyard (1/12/2007) – photo J. Wynne-Jones;
right: *Laccaria laccata*. Cwm Carn Forest Drive, Monmouthshire (26/10/2007)

DARK GILL EDGES – OR FUNGAL PALMISTRY

Gill edges can provide useful information in a number of ways in a kind of fungal palmistry or a reading of the lines. Generally speaking the gill edges of most agarics are the same colour as the sides. Occasionally, they are coloured differently. Considered below are a few fungi where the **dark** colour of the gill edge is a helpful diagnostic character. Yellow, red or otherwise coloured edges are another story.

Three *Pluteus* species first:

(A reminder: 2 characters only are required to arrive at *Pluteus*: a) free gills and b) pink spores).

Pluteus species occur on dead, often rotting wood: some on fallen tree trunks, others on small - even minuscule - bits of woody debris in the soil. Do look at mature specimens only. Immature fruitbodies will have white gills and will be misleading, but mature specimens have the characteristic pink ones - so don't waste your time playing guessing games with babies.

The most beautiful (and easiest) of the bunch has to be *Pluteus umbrosus* (top 2 photos), which occurs on fallen trunks of broad-leaved trees, preferring beech and elm. The cap is highly distinctive, beautifully streaked and networked with dark brown velvety hairs. As if this were not enough, this species has a second very handy diagnostic character - dark gill edges.

I am very familiar with *P. umbrosus* in Kent, but it is said to be rarely reported elsewhere, although widespread in the British Isles (CBIB). There are a handful of Herefordshire records, all in September or October (which probably reflects foraging dates).

My second *Pluteus* with dark gill edges is *P. atromarginatus*, a conifer species which I have only seen once. Apart from those edges and the host, this species closely resembles *P. cervinus*. My find was in the New Forest in 1997.

The third dark-gilled *Pluteus* was a puzzle when I collected it from a fallen and rotting beech trunk in 2007 in the Downton Gorge NNR.



Cap colour and texture suggested the common *Pluteus phlebophorus*, although the expected low wrinkles on the cuticle were barely apparent. My brow had some deep ones, however, when I observed that the gills had dark edges. Apart from the two species mentioned above, I knew of no other *Pluteus* with this character. Alick Henrici suggested *Pluteus luctuosus* (casting light on my own dark edges). Happier but earlier names were *P. marginatus* and *P. phlebophorus* var. *marginatus*. The C&D illustration no.885 of *P. luctuosus* shows a darker specimen than mine. This was a new Herefordshire record. Sadly, I have no photo of this collection.

Nearly all *Entolomas* call for a deep breath. Among the grassland species, *Entoloma serrulatum* is fairly straightforward because it has dark violet-black gill edges, conspicuous against the white or nearly white, later pink gills. The cap is blue black when young but brown black in age, almost flat at maturity but always sporting a small central dimple or umbilicus.

Among *Mycenas* there are several species with variously coloured gill edges. Most of these have rather small conical caps but there is one larger species in the *Mycena pura* group. Like the others, *Mycena pelianthina* (third photo down) is

broadly conical when young and becomes almost flat at maturity. It is more or less grey to violaceous grey throughout but rescued from oblivion by its conspicuously dark gill edges. This fungus is frequent in Herefordshire (much less so in Kent).

Although 2007 was a disappointing year generally, there were several collections of a little recorded *Inocybe*. (Perhaps we just looked harder). This was *Inocybe cincinnata* var. *major* which, so far as I know, is the only *Inocybe* with a dark gill edge (see bottom photo on previous page). Previously known as *I. obscura*, it has a brown or dark brown scaly cap. I know of no recent



Herefordshire records.

Finally, *Xerula (Oudemansiella) radicata* (photo to left) sometimes occurs with a dark gill edge. This has been variously called both a form and a variety. CBIB hints that it may represent a distinct species. DNA studies will one day resolve this uncertainty.

Jo Weightman

WHAT A TREASURE!!



It was left for me at my brother's house, wrapped up in a scruffy bit of paper, with a note asking, "any idea what this is?" Imagine my astonishment when unwrapping the package I found a summer truffle (*Tuber aestivum*) - and this was in November and in Wales!! A look at the Fungal Records Database showed only one previous record from Wales, a collection in Bangor in 1950 by the indefatigable Prof. Lilian Hawker.

I had seen the Périgord truffle (*Tuber melanosporum*) before, most recently at a talk and demonstration on truffles by the cookery writer Elizabeth Luard at the Abergavenny Food Festival. But the summer truffle was new to me. Taking a small amount of the internal tissue and squashing it out in a drop of water on a slide showed me the distinctive ascospores. There are usually 3-5 per globular ascus and, on each, what appears to be spikes on the surface but which are actually ridges linked at their tips by a fine membrane (see right).

Some years ago there was a great deal of publicity concerning the adulteration truffle paté. Certain unscrupulous manufacturers were apparently substituting the small black fragments of Périgord truffle with small bits of burnt cork, or even bits from the centre of immature earthballs.

I thought it would be fun to show students how easy it would be to detect such adulteration. I managed to persuade my Head of Department that the purchase of truffles from Fortnum and Mason was justified. In fact, all I got away with was a 1oz tin: this contained one whole fruitbody about the size of a small walnut, plus a half of one of the same size.

I pickled the whole one in alcohol so that many generations of students could see just what *Tuber melanosporum* looked like. The other piece we cut into very thin slices using a microtome and these were then made into permanent microscope slides so that the nature of the spores could be seen.

Using these reference standards, over many years we were able to examine the black bits in many different truffle patés. In spite of the rumours of adulteration, we never did find any evidence of contamination in any samples.



Roger Evans

The Périgord truffle also has very distinctive ascospores, with quite sharp spines on their surface.

GOLDEN EYE LICHEN - *TELOSCHISTES CHRYSOPHTHALMUS*

Perhaps it would be appropriate to begin with the quote "Rejoice with me: for that which was lost is found".

The lichen *Teloschistes chrysophthalmus* – Golden Eye, is listed as "critically endangered and nationally rare". Cliff Smith and I were part of the recording scheme for the Herefordshire Orchard Evaluation project and it was in one of these orchards



that we found Golden eye in the canopy region of a dead, fallen tree. We think the tree fall is recent as the twigs, boughs and trunk are still barked, with, as yet, no sign of bark peeling. From the size of the thallus we assume that the specimen is several years old. For obvious reasons the site details have to remain secret.

However, just like buses, two other sightings followed within days for Golden eye was reported in Guernsey and in Cork. Previously, *Teloschistes chrysophthalmus* had only been recorded in Cornwall, the Isles of Scilly and the Channel Islands and not been re-found at any of these known sites. So until these recent sightings proved otherwise, the lichen was considered to be extinct.

Rather than attempt to describe the lichen I shall quote from my trusty Lichen Flora of the Great Britain and Ireland [BLS publication]:

"*Teloschistes chrysophthalmus* is usually found on well-lit, nutrient enriched twigs of shrubs and small trees, in sunny sheltered situations, formerly in old orchards"

The description continues with:

"The lichen is attractive, small, yellow-orange, orbicular, tufted, and lobed, the thallus is 2 cm in diameter and about 1 cm tall. The lobes have numerous marginal fibrils with stalked, orange-yellow, apothecia on 0.5 to 2.5 mm lobes, the apothecia range from 1 to 6 mm in diameter, and are fringed with grey or concolorous fibrils."

How it arrived in this orchard no-one is sure, but one thought is that it was brought in on a migrating bird's foot. Which ever way it arrived, it is very welcome as it really is a beautiful little lichen!

Joy Ricketts

Photograph by Jeremy Gray

FUNGUS FORAY AT TURNASTONE FINDS RARE SPECIES

[Cherry & Stephanie very kindly offered to help out with a public foray at Turnastone Court Farm last November. This is a reprint of an article by the owners in 'The Lark' (The Countryside Restoration Trust Newsletter). HFSG have a foray at Turnastone Court Farm this year, on December 6th – Ed]

On 10th November 2007 we organised the first fungus foray at Turnastone Court Farm. We were lucky enough to enlist the services of two local experts and enthusiasts from the Herefordshire Fungus Survey Group, Cherry Greenway and Stephanie Thomson. They were very knowledgeable and excellent fun to boot. Thankfully, we were experiencing an extremely dry autumn after the horrendous summer floods, but this

meant we set off with some trepidation as to what, if anything, we would find.

We were delighted with the interest in the foray. Over 20 people turned up and they were kitted out with small collecting baskets. As we started across the fields it felt like a giant treasure hunt. We all scoured the ground with determined stares to see who could find the most interesting specimen. The ancient pastures gave us some interesting waxcaps and a few other grassland species, but it was not until we arrived at the old wood pasture that things really started to get interesting and baskets were returned over-flowing with wonderful looking fungi of many different colours, shapes and sizes.

There were lots of 'oohs' and plenty of 'aahs' as we peered into the baskets and Cherry and Stephanie imparted their vast knowledge of all things mycological. The highlight of the day was finding rose spindles *Clavaria rosea* which has apparently been found in Herefordshire only twice before, at Moccas Park in the late 19th century and at Coneygree Wood, Ledbury in 1977. As well as finding one other uncommon species, *Entoloma bloxamii*, we found a huge variety of other more common, but no less interesting species, with wonderful names such as The Deceiver, Weeping Widow, Turkey Tail, Candle Snuff and the Aniseed Toadstool.

We returned at dusk and discussed the day's finds over tea and cake, before the 30 specimens were packaged up and sent off to the Herefordshire Fungus Recorder. Our huge thanks go to Cherry and Stephanie for making it such an enjoyable day and we look forward to another foray in 2008.

Robert and Chrissy Fraser



Clavaria rosea (photo 2006 at Clydach, Mon.)

HUNTING RARE RUSTS IN NORTH-WEST WALES

The rusts are an amazing group of fungi infecting a wide range of higher plants. They are obligate parasites, incapable of a free-living existence and are dependent on their hosts. A single species can produce up to 5 different types of spores, each produced in a different structure and some species have to alternate between 2 taxonomically unrelated hosts to complete their complex life cycles.

Dr Richard Shattock first introduced me to the rusts in 2002 while I was working on *Phytophthora infestans* at Bangor University. Richard was particularly interested in microcyclic or short-cycled rusts and he showed me some Ground Elder, *Aegopodium podagraria*, infected with the black telia of *Puccinia aegopodii*, collected from near Llangollen. I decided to go and investigate a nearby verge with ground elder and after some searching found a few infected leaves- the first record for Caernarfonshire, (VC49). This was easy! At the same time Nigel Stringer was requesting Welsh rust records and I determined to record as many species as I could. We are lucky in this area to have a huge variety of habitats, ranging from coastal to mountain. So the potential for host-rust associations is enormous. This was the beginning of my love affair/obsession with the rusts and by looking much more closely at both wild and cultivated plants I was soon generating lots of records.

What do we mean by a "rare fungus"? The rarity, or perceived rarity status of a rust fungus can have several different explanations.

A rust can be rare because its host plant is rare, or rare even though the host plant is very common. One host population may be especially susceptible, while others are disease free; or just a few individuals within a huge stand of plants may be infected. Where a rust species infects a range of hosts it may be common on one host and uncommon on another, or even restricted to a single variety of the host.

A rust may have a geographical rarity, being common in one area of the country, while absent or uncommon in other areas. Recorder interest is a huge factor and I have proved this with my own efforts in NW Wales, which have resulted in many new VC records. Finally, recorder determination, or sheer tenacity, a sharp eye for a sick plant, or just a pale spot, plus a large element of luck, also play a big part in finding the more uncommon species. I hope to illustrate these differences with some of my more notable records in this and future articles.

Puccinia aegopodii should be a common rust with the amount of ground elder growing, yet I have only found it at two further sites despite careful searching and it must, therefore, be classed as locally uncommon, but not rare in the UK. At the first site only a few leaves were infected and required close inspection to locate, whilst at the second site most of the plants were infected and the galled leaves were obvious.

My first notable find of a genuinely rare rust was another microcyclic species, *Puccinia fergussonii*, on Marsh Violet, *Viola palustris*, a fairly common plant of damp areas in Snowdonia. This was only the second record for VC49, the previous one being in 1941 and there are only 20 records in the FRDBI.

Puccinia nemoralis is a very rare, heteroecious rust, (one alternating between 2 host plants), infecting Common Cow-wheat, *Melampyrum pratense* (picture above, right) and Purple Moor-grass, *Molinia caerulea*. Bruce Ing first recorded it in Britain in 1975 and I was lucky enough to find it at a new site in Caernarfonshire, on *Melampyrum* in 2005 and on the *Molinia* there in 2007. The white aecial cups readily distinguish this rust from the orange uredinia of *Coleosporium tussilaginis* which can also infect *Melampyrum* and many other plants. *P. nemoralis* is probably rare because the two host species do not commonly occur together; it is very rare in the UK and is listed as vulnerable in the new Red Data List of threatened British fungi. Wild primroses, *Primula vulgaris* are common flowers of hedgerows and woodland, but the rust that infects the plants appears to be quite rare, especially in Wales. Up to 2004 there was only one known site locally for *Puccinia primulae* - a shady roadside bank on Anglesey. I have since found infected primroses on a second Anglesey bank and on the coastal grass near Holyhead. The most pleasing discovery however was the rust on cowslips, *Primula veris*, at Penrhos nature reserve, near Holyhead. There are only two confirmed records on this host in the FRDBI, both from the same site.

I have always tried to look near to home for rusts before venturing further afield and this was especially successful with Wood Anemone, *Anemone nemorosa*. I wanted to find *Tranzschelia anemones*, a microcyclic rust I had not seen, with only a single recent VC49 record. I searched a tiny patch of Wood Anemone within 100m of my house and I found the rust. To my delight I also found *Ochropsora ariae*, a second rust infecting the same host; easily differentiated by the white aecial cups instead of dark-brown telia. I have now recorded *T. anemones* at several sites. It is never common here and I usually have to search meticulously through



Puccinia fergussonii (left) & *Puccinia nemoralis* (right)

huge stands before finding a few infected plants. In contrast, *O. ariae* is much rarer both locally and in Wales; I have only found one further site on Anglesey, (VC 52).

In 2007 I targeted rust species from my 'wish list' and went in search of *Puccinia hydrocotyles* and *Chrysomyxa pirolata*. Both species had been recorded once previously but not in recent years. I spent a day scanning hundreds of leaves of Marsh Pennywort, *Hydrocotyle vulgaris*, in the dune slacks at Newborough Warren on Anglesey and was rewarded by finding a few leaves infected with *P. hydrocotyles*. The host is a very common plant of damp, marshy, boggy areas and dune slacks; yet the rust is truly rare and is on the new Red Data List as critically endangered, so it was very exciting to find it still occurring on this site. I failed to find the *Chrysomyxa* infecting the round-leaved Wintergreen, *Pyrola rotundifolia* ssp. *maritima*, but I was more than compensated by also collecting *Puccinia angelicae* on wild Angelica, *Angelica sylvestris*. I had been looking for this rust for several years without success. There is a single 1924 record from VC49 and only two other records for Wales, despite the widespread occurrence of wild Angelica. So the rust must be quite rare or very uncommon, at least in Wales.

There are many more rare, or uncommon rusts occurring in this area, but my most exciting find to date was recording *Puccinia oxyriae* in 2007. I was on a BSBI field trip on the slopes of Snowdon recording mountain plants. I found a single spot of the rust on a single leaf of Mountain Sorrel, *Oxyria digyna*, yet this was enough to get me very excited - much to the amusement of my companions. This rust is down in the new Red Data List as extinct, not having been recorded since 1941, (a new record is

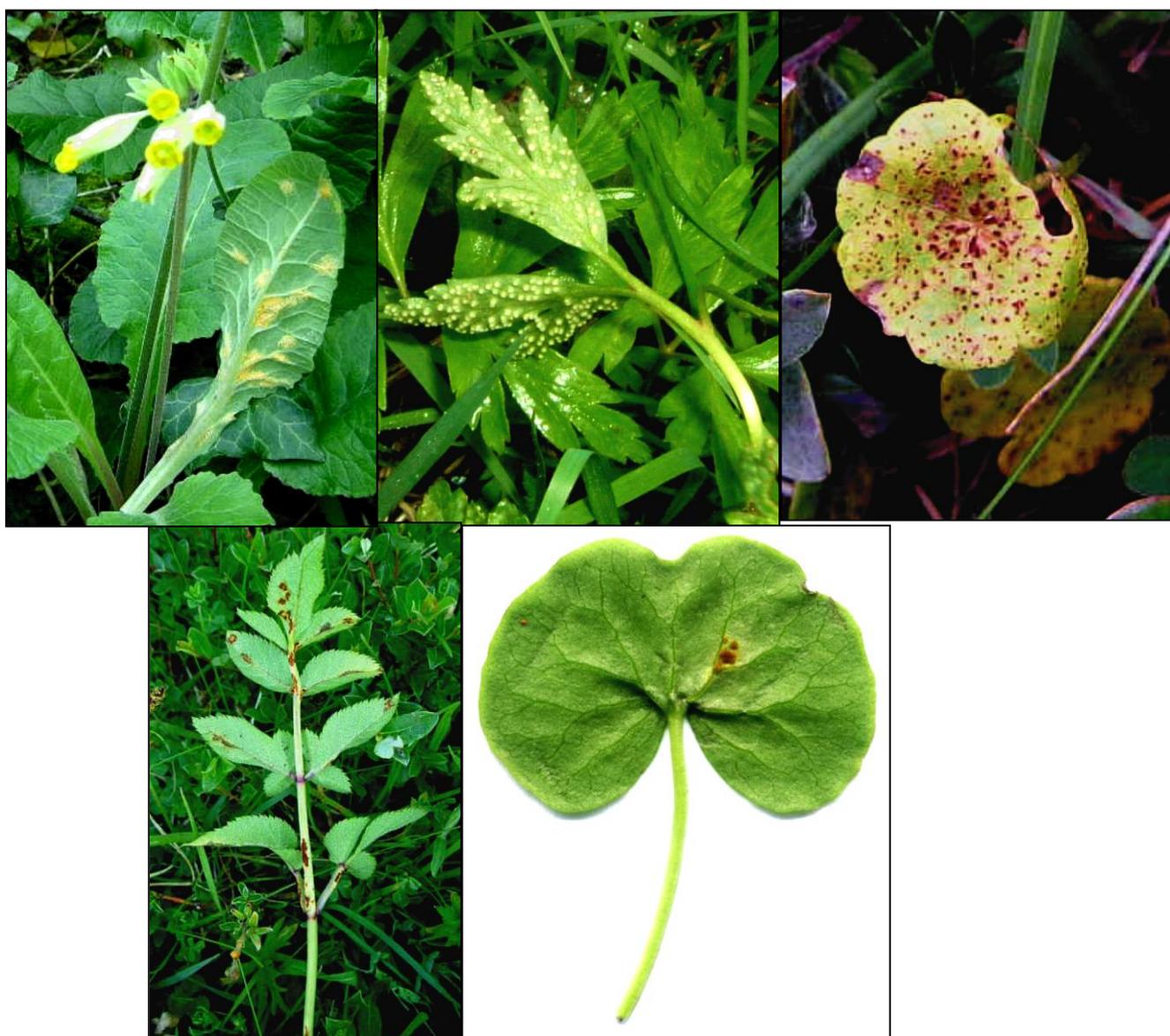
now in the FRDBI for 2007 from Scotland). This poses a question “is the rust genuinely very rare?” The plant only occurs at higher altitudes, but is not itself rare especially in Scotland; however, the number of rust recorders is low and the rarity may be of recorders who also climb mountains rather than the rust! I hope to answer the question this year by targeting *Oxyria* in Snowdonia and possibly in Scotland.

Rust recording is an exciting and rewarding pastime, with the possibility of finding new VC records both for the individual rust species and for rusts occurring on new hosts. It additionally fills the gap in the spring and summer outside the main fungal season and can be thoroughly recommended!

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Debbie Evans



From left to right, top row – *Puccinia primulae*, *Ochropsora ariae*, *Puccinia hydrocotyles*;
 bottom row – *Puccinia angelicae*, *Puccinia oxyriae*

BUT IT'S NOT ROCKET SCIENCE! THE TALE OF *GYROMITRA*

Until relatively recently in Britain at least, a farrago of myths surrounded the way to determine the edibility or otherwise of fungi. They ranged from ease of peeling, taboos on colour and other characters, through changes of flesh colour or 'milking' when broken, or changing the colour of other vegetables, to the tarnishing of a silver spoon when cooking. All this folk-lore has been thoroughly discredited by hapless experience and further debunked by modern science: as a means of determining edibility it is totally valueless and potentially hazardous.

Therefore, one might with confidence reasonably assume that a toadstool embodying 'edible' in its Latin name would be beyond reproach. Surely the name is the distillation of sage experience of centuries and an imprimatur of wholesomeness by the namer? How else would such a description become attached except through time-worn trial and testing down the years.

The toadstool in question is one of the larger Ascomycetes and occurs in the spring under conifers on sandy soils, more commonly in Scotland and abundantly on the European continent. English names are the False Morel, Lorchel, or Turban Fungus. Its Latin binomial is *Gyromitra esculenta*.

A classical reference work, Andrews' *Latin-English Lexicon*, defines "**esculenta**" as: "Fit for eating, good to eat, eatable, edible, esculent"; and Stearn's more modern *Botanical Latin* laconically concurs with "edible".

When considering *Gyromitra* as "fit for eating", therefore, we appear to be on the safest of grounds. By the designation "**esculenta**" the scientists have underwritten the folk-experience of *Gyromitra*. We can eat it, with impunity.

Or can we?

Opinion of about a century ago seemed to have no qualms. No less an authority than George Masee, first BMS president and one-time Cryptogamic Botanist at Kew, in *British Fungi and Lichens* (1911) is concisely unequivocal: "Edible".

Ramsbottom's *Handbook of the Larger British Fungi* in 1922 edges somewhat towards caution, stating: "This species in spite of its specific name must be regarded with suspicion. It should never be eaten

raw, and the water in which it is cooked should not be used."

Later in 1963, Lange and Hora's popular book of that time, *Collin's Guide to Mushrooms & Toadstools*, is more definite: "Poisonous to some, even deadly, though often eaten after special treatment. To be avoided".



Five years later, Dr. Dennis, in *British Ascomycetes* is more absolute: "...collectors are advised not to eat it".

About this time, a German text by Linus Zeitlmayr was published in English as the book *Wild Mushrooms*. At last the gaff was blown: "*G. esculenta* and the closely related *G. infula* were formerly regarded as excellent and good to eat. It is only recently, after considerable discussion that they have been classed as poisonous and it has now been proved that they have caused numerous deaths among adults, and still more among children."

So, mycophagists, take note!

And yet, for years it had been regarded as an excellent edible species especially in Eastern Europe where it had been eaten and enjoyed without adverse after-effects. Ramsbottom, *Mushrooms and Toadstools* (1953) relates that large quantities of the raw fungus were exported from Poland, particularly to Germany. Traditionally it had been prepared by parboiling and discarding the water twice. This implied the poison was water-soluble and was either removed or destroyed by boiling.

Nevertheless there were reports that some people became violently ill after eating the same cooked

meal as others who remained entirely free of symptoms. This was put down to individual allergic or idiosyncratic reaction.

Sometimes, severe illness would strike someone who had previously eaten it with impunity many times over a period of years. It was assumed he had become sensitised, or this time had misidentified the toadstool.

And, equally puzzling, it was reported that on occasions, only the cook who prepared the meal became ill when all the diners remained well. This was explained as coincidence or just superstition.

It was also known that poisonings in Europe were more frequent than in the USA. This was put down to variation in the toxicity in toadstools from different climes or habitats; or to differences in preparation, Americans preferring thorough cooking compared with light cooking in Europe.

From such reports there seemed to be a strong element of chance in its use as food and a dawning realisation that this toadstool was not to be trusted. So what was going on; why was it held to be edible by some, then ruled to be poisonous? Why apparently poisonous on some occasions, but harmless on others? Why poisonous to some people at the same meal but not to others? Could it be both edible and poisonous, depending on.....what?

It was only when the American space programme had been going some time and some of the workers on space rockets were falling ill that intensive research in the aetiology of the illness showed the worker's symptoms were similar to those caused by *Gyromitra esculenta* poisoning.

When *Gyromitra* is unequivocally poisonous it causes acute illness a few hours after ingestion, which can last for 5-10 days. It is an intoxicant of the central nervous system and the only fungus poison known to produce fever. The symptoms are bloating, abdominal pains, vomiting, jaundice, muscular cramps, and bloody diarrhoea, with liver and kidney attack, and in severe cases, death.

The illness of space workers was not due to eating

Gyromitra. It was traced to exposure to a certain type of rocket propellant fuel, known as Monomethylhydrazine, or MMH. *Gyromitra* had been found to contain a substance which was named gyromitrin. It was later discovered that this substance, through the action of stomach digestive acid, is broken down (hydrolysed) to MMH.

Once the parallel had been realised, the answers about the capriciousness of the toxic action of *G. esculenta* began to fall into place. The *Gyromitra* toxin is volatile and distills-off at a lower temperature than boiling water. If a *Gyromitra* toadstool is boiled for a sufficient time (minimum 10 minutes, and the water discarded), the toxin is boiled away, leaving the fungus purged and fit to eat, hence the long established practice of parboiling.

Discarding the water precluded its use as broth, where traces of gyromitrin might remain.

If several toadstools were boiled together but not all boiled equally or thoroughly before serving, some may still contain sufficient toxin to cause poisoning, so some people at the same table may become ill while others are unscathed.

In addition, some people may be more sensitive to the poison than others, falling victim to the toxin when others eating the same fare were unaffected. According to *Poisonous Plants and Fungi in Britain* (1998) RBG, Kew, the apparent differences in the susceptibility of individuals, and of the same individual at different times, may be explained by the very narrow margin between the amount of toxin that has no effect, and the lethal dose.

The explanation of only the cook becoming ill while the diners were unaffected is that the cook was inhaling the toxic vapour as it distilled-off during boiling.

The sale of the False Morel in some European countries has been prohibited because of the danger from inadequate cooking. But Keizer's *Encyclopedia of Fungi* (1997) comments: "In spite of repeated warnings against the potentially serious consequences of the so called *Gyromitra* syndrome, people die every year after eating the False Morel".

Ted Blackwell



A STRANGE PROPOSAL FOR THE CONTROL OF THE HONEY FUNGUS

Armillaria mellea is one of the most disastrous of disease-causing fungi in British gardens, for which there is no satisfactory control measure. Thus, it could be that any suggestions for doing so are seized upon in despair!

One chemical remedy, Armillatox, does not work and its use for this purpose is now illegal.

In a Readers Digest book, "Secrets and Tips from Yesterday's Gardeners", it is suggested that scattering ordinary flour around affected trees will control this disease, because the soil fungus, *Trichoderma viride*, will grow on the flour and hence control the *Armillaria*.

Combating plant disease

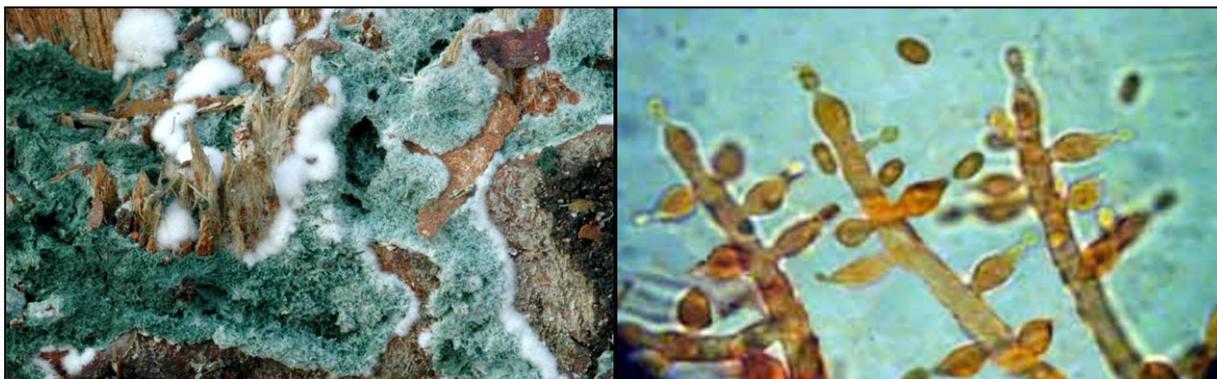
Use flour against honey fungus Clumps of yellow, shiny mushrooms, which suddenly appear at the foot of a tree indicate a case of the often fatal disease honey fungus, or *Armillaria mellea*.

To combat it, spread plenty of flour or starch (available from chemists and hardware shops), at the foot of your trees. The starchy substance will encourage the proliferation of another fungus, called *Trichoderma*, which is hostile to the honey fungus and will help to destroy it.



Ronald Fox, of Reading University (author of "Armillaria Root Rot – Biology and Control of the Honey Fungus" (2000), Intercept Press), says that there are many difficulties here and there is no published paper on this topic.

Particular strains of *Trichoderma viride* are indeed active against particular fungi, but much research indicates that it would have to be a particular strain of the fungus. He also points out that the North American strains of *Armillaria mellea* are much less virulent than British ones.



Trichoderma viride (macro & micro) – with kind permission from Darek Karazinski & Selmar Petzoldt

It all seems weird and a very long shot – also the flour may encourage unwanted mice and rats!

Tom Preece

HFSG MEMBERS IN THE NEWS

- ❖ (Somewhat belated, I'm afraid!) congratulations to Sheila & George for once again winning a Gold Medal at the Malvern Autumn Show, with the BMS stand.
- ❖ Also, congratulations to Rosemary Winnall and Peter Roberts for their talks in the Radio 4 series, 'Fungi – The Fifth Kingdom', earlier this Year.