

Shropshire Botanical Society

Newsletter

Spring 2019



Shropshire Botanical Society Newsletter No. 38

Contacts

Newsletter Commissioning Editor:

Hilary Wallace.

email: hilary@ecologicalsurveys.co.uk

Secretary: Penny Wysome, 2 Christine Ave.,
Wellington, Telford, TF1 2DX. Tel. 01952 242617,
email: pennywysome@yahoo.com

Membership Secretary: Vacant from 1 April
Enquiries to: shropbotsoc@gmail.com

Vice-county Recorder: Sarah Whild, 9 Albert
Street, Shrewsbury, SY1 2HT.
Email: sarah.whild@bsbi.org

Past copies of the newsletter are available as pdfs
from the Shropshire Botanical Society website: :
http://www.shropshireecology.co.uk/botanical_society.html

Any opinions expressed in this newsletter are those
of the various authors, and are not necessarily
those of the Society. Ordnance Survey maps
reproduced under licence No. 100040428.

Contents

Society News

Hilary Wallace.....3

Field visits 2019

Dan Wrench5

Oh Christmas Tree

Sue Townsend.....6

Shropshire Farm Nature Discovery

Sue Townsend.....8

Shropshire botany plant records – do you ever look at them again?

Mags Cousins9

Celebrating Cemeteries

Ruth Dawes.....10

The Beautiful Burial Ground Project

Liam Taylor.....12

Looking for fern hybrids

Martin Godfrey.....14

Growing ferns from spores

Martin Godfrey.....16

Tilia in Shropshire

John Handley.....18

Front Cover:

Collection of ferns
(photo by John Handley)



Our thanks to the Shropshire Wildlife Trust and the Field Studies Council for their generous support of our society. Both organisations support the work of the society in recognition of the importance of the contribution we make to understanding Shropshire botany.



Welcome to the 2019 Spring Newsletter. Although Christmas now seems a distant memory we would like to extend a big thank you to all who helped with, or visited, the society Christmas tree in St Chads this year; Sue's article raises the interesting conundrum of Christmas tree sustainability.

Meanwhile our winter meeting in January provided some late festive cheer with a fascinating talk by Richard and Mavis Gulliver on their involvement with the development of the Islay Botanical Gin – it seems that gin and cake provided a perfect combination for socialising after the meeting – a big thank you to all our keen cake makers who provided a splendid array of temptations. Continuing the theme of shifting dates for the society meetings this year's spring meeting and AGM is being held on Sunday 12 May (more details to follow).

We have a couple of themes running through the articles and site visits this spring. The first is all things ferny; we give this topic a very good start at our AGM when Dr Fred Rumsey from the Natural History Museum will give a talk entitled 'Pteridomania'. Martin Godfrey has written a couple of interesting articles on fern hybrids and fern cultivation and is leading a trip to Benthall Edge woodland on 18 August focusing on ferns amongst other species in this botanical hotspot. The other theme which we hope to develop over the next few years is the botanical interest of burial grounds. Liam Taylor from Caring for God's Acre (CFGA) has written an article introducing their new Beautiful Burial Grounds project whilst Ruth takes us on a botanical journey through the seasons in burial grounds across the county. Dan hopes to organise some field trips to under-recorded burial grounds – more details to follow. Identification of *Tilia* species in the county is introduced in an article by John Handley and followed up with a visit to Dudmaston Estate to look at limes in Long Covert, an area of ancient woodland on the estate.

Sue provides details of our potential involvement with the farming community through a joint NFU/Botanical Society Bioblitz at a farm near Onibury in early May.

In addition we will be visiting two restoration sites; at Stretton Westwood Quarry and Llyncllys Quarry, these sites can be fascinating for unexpected arrivals.

I hope you like these themes. Martin has offered to provide a series of articles on Fern identification in future newsletters. Liam promises an update in the autumn on how the botanical recording of burial grounds has progressed through the summer whilst Harriet Carty from CFGA will be our speaker at the 2019/2020 winter meeting.

As a society we embrace both sides of botanical recording; the getting out there, meeting like-minded people and improving our botanical skills and the more tricky question of 'what happens to all the data we collect'.

So, the getting out there is nicely covered by Ruth Dawes look at the botanical interest of burial grounds through the seasons, and Martin Godfrey and John Handley helping out with improving our botanical skills in the identification of ferns and lime trees. The field visits are of course a core part of the getting out there, and in addition to being a lot of fun, they also generate a lot of useful data, which leads us onto the 'what happens to all the data we collect'.

The difficulties of effective data storage and retrieval are addressed in the article by Liam Taylor from Caring for God's Acre, looking at the new initiative launched by Caring for God's Acre 'Beautiful Burial Grounds' project and Mags's article considering where we go from here with the Botanical Society's own data storage.

Spring Meeting and AGM

Date: Sunday 12 May 2019: 2–4 pm

Venue: Preston Montford Field Centre, Montford Bridge, near Shrewsbury, SY4 1HW

The speaker is Fred Rumsey

Title: Pteridomania

Fred will be looking at an amazing moment in time when the world went crazy for ferns, considering what helped drive this interest (horticultural

developments and published works such as the Nature-printed works of Henry Bradbury) and the longer lasting effects on the plants themselves.

This meeting is also the AGM for the society when members have the opportunity to vote for committee members. We are currently looking for a membership secretary to relieve Peta who, having recently moved, feels she can no longer carry on. Peta has done a splendid job of streamlining the task of keeping renewals up to date and collecting subs so this is not an onerous commitment. There is however scope to expand the role by promoting the society through attending outside events and developing publicity materials. Sue has also appealed for a volunteer with modest numeracy skills to check over her keeping of the annual accounts. To test your culinary skills Penny is setting you a "Game of Scones Challenge" for tea after the AGM - all offers welcome, Penny will provide the jam and cream.

Finally at the AGM it is your chance to discuss the future of the botanical society record storing system (see Mags's article).

Last year the Botanical Society was remembered in the will of the late Frank Bentley, a bryologist and active member of the society for many years. We were left all of Frank's natural history books and there are still lots of fabulous old volumes to sell, to raise funds for the society. Sarah Whild is hoping to auction some of the older and more interesting texts at the spring meeting, and the remainder will be on sale for reasonable prices.

Of course there are a lot of bryology books and vascular plant books, but also plenty of New Naturalists and invertebrate, lichen, and algae guides. So bring your wallets and get ready to bid.

We should like to thank once again the estate of the late Frank Bentley for this generous donation.

One Day courses at Preston Montford Field Centre during summer 2019

Most courses run between 10.00 am and 16.00 pm and the cost is c £45.00

| Title | Date | Tutor |
|---------------------------------------------------------------|-------------------|---------------------|
| Wildflowers and ferns of limestone woodlands | 11 May 2019 | Fiona Gomersall |
| Plant identification for field surveyors | 14 May 2019 | Mark Duffell |
| Woodland plant identification | 15 May 2019 | Mark Duffell |
| Plant identification for Phase I habitat surveys : grasslands | 18 May 2019 | John Wilkinson |
| Identification of grasses (The Poaceae) | 21 May 2019 | Mark Duffell |
| Top 10 plant families | 2 June 2019 | John Handley |
| Field identification of upland grasses | 8 June 2019 | Fiona Gomersall |
| BLS Introduction to Lichens | 8 June 2019 | Catherine Tregaskes |
| Heathland plants | 18 June 2019 | Mark Duffell |
| Limestone flora of the Oswestry hills | 22 June 2019 | Fiona Gomersall |
| Marshes and mires | 7 September 2019 | John Wilkinson |
| Fern identification | 10 September 2019 | Mark Duffell |

In addition to these one day courses there are a number of intermediate or advanced level residential courses held at Preston Montford during the summer; for more details contact the Field Studies Council directly:

Telephone: FSC Preston Montford 0845 330 7378

E-mail: enquires.pm@field-studies-council.org

Online: www.field-studies-council.org/prestonmontford

Saturday 30th March. Caer Caradoc. Meet at 10:30am at the pull in beside the road (B4371), Grid Ref. SO4682993215. Please car share where possible. There will be rough tracks and steep climbing but lots of lovely spring ephemerals to find. For further information about the meeting please contact Mags Cousins, 07873 532681, mags@bagbatch.co.uk

Saturday 27th April. Annual Spring Nature Walk at Loton Park, home of Sir Michael Leighton, an interesting and botanically diverse deer park. The Shropshire Botanical Society committee will be leading the walk this year, no more than two hours for adults and children, locals plus Bot Soc members. Meet at Alberbury village hall (SJ358142), registration at 8am, walk starts at 9am. Please car share where possible. Afterwards coffee, bacon roll at the village hall and donations to the Cardeston Church Faulty Tower Appeal - £50k is needed to repair the church tower. For further information about the meeting please contact Mags Cousins, 07873 532681, mags@bagbatch.co.uk

Saturday 4th May. Dudmaston Estate. Meet at 11:00 am in the Hampton Loade car park at SO747865. Please car share where possible. The aim is to look at the Limes in Long Covert, a beautiful ancient woodland that is part of the Dudmaston Estate, a National Trust property. The woodland contains a mixture of both *Tilia cordata* and *T. platyphyllos* as well as Wild Service Tree and a ground flora typical of an ancient Ash woodland. The 'River and Rail' public house might form a suitable venue after the meeting for a comfortable discussion after the days recording is complete. For further information about the meeting please contact John Handley, 07507 054695, johnhandley11@gmail.com

Saturday 18th May. Upper Walton Farm, Onibury, SY7 9AS. Meet at 10:30 am in the farm yard at SO466795. This event is organised by the National Farmers Union with several species recording groups involved. The farm is a mixed holding with arable, grassland, broadleaved woodlands and ponds. It also has some very species rich grasslands where Green-Winged Orchids, *Orchis morio* L

have been recorded in the past. Please car share where possible. To book, or for further information about the meeting, please contact Sue Townsend, s.townsend@field-studies-council.org

Saturday 15th June. Wildmoor Pool. 10:30 start. Although there is space for a few cars, it would be useful if people car-shared as much as possible. The car park is beside Wildmoor Pool at SO 425966. We will be walking up the valley (i.e. more or less southwards) looking at streamside and flush vegetation. It is not too far back to the cars if anybody wants to leave early. The finish time will depend on participants, but I would guess about 15:00 to 15:30. Terrain will be a bit rough, and damp in places. I prefer to wear walking boots, but we are not going to be covering a lot of ground, so wellingtons are a good alternative. To book, or for further information about the meeting, please contact Chris Walker, 07732 761157, chriswalker2110@outlook.com

Saturday 29th June. Stretton Westwood Quarry, Wenlock Edge. Meet at 10:00 am in the car park at SO595983. Please car share where possible. This quarry site has recently received rock spoil from the creation of two large flood alleviation ponds in Much Wenlock. Green hay from species rich meadows on Wenlock Edge has been strewn over the spoil so we are hoping for interesting species that have been carried over. There are small ponds on site so please follow the 'Check, Clean, Dry' biosecurity measures for any footwear or other gear you are taking with you: <http://www.nonnativespecies.org/checkcleandry/>. This is a small site with good access. Much of the interesting vegetation is found near the car park so this visit would be ideal for those not wanting a long or difficult walk or for those who might not want to stay for the full time. For further information about the meeting please contact Andrew Perry, andypassport@gmail.com

Sunday 14th July. Llyncllys Quarry. Meet at 11:00 am in the car park at SJ268242. Please car share where possible. We will explore the developing base-rich fen that is developing in a damp area of this very large site to observe the Black Bog-rush,

Schoenus nigricans that has been introduced there plus other species like Marsh Valerian and Marsh Arrowgrass that have found their way there in hay gathered from the nearby Sweeny Fen. Here's hoping for some Marsh Helleborine... For further information about the meeting please contact Dan Wrench, 07718391794, danwrench@gmail.com

Sunday 18th August. Benthall Edge Wood. Meet at 10:30 am in the main car park at SJ67250331. This meeting will have a focus on ferns but there's plenty more to see in this botanical hotspot. The terrain is quite steep and rough in places so please bring solid footwear. For further information about the meeting please contact Martin Godfrey, mfgodfrey49@gmail.com

Saturday 28th September. Brown Moss. Meet at 10:30 am in the main car park at SJ562394. This meeting will have a focus on the bryophytes (mosses and liverworts) found on the site - of which there are several very rare species. As this is a wetland site please ensure you follow the 'Check, Clean, Dry' biosecurity measures for any footwear or other gear you are taking with you: <http://www.nonnativespecies.org/checkcleandry/>. Wellies are advised and also a hand lens and the BBS Field Guide if you have them. For further information about the meeting please contact Martin Godfrey, mfgodfrey49@gmail.com

An online version of the calendar can be bookmarked for reference: <http://bit.ly/SBS-Cal>

If you save the download from the following link (iCal format) it will add all the events to your own calendar: <http://bit.ly/SBS-iCal>

"As mentioned later in this newsletter the Beautiful Burial Ground project, led by Caring for God's Acre, is encouraging visits to burial grounds across Shropshire. Dan Wrench will be compiling a list of burial grounds with few or no specific species records and then asking naturalists (including botanists) to visit them to plug these gaps in our knowledge. A couple of visits to churchyards just south of Bridgnorth are already being planned for June and other are likely soon. Please contact Dan Wrench if you would be interested in helping discover some gems in these often poorly recorded sites. For further information about the project see their web site: <https://www.caringforgodsacre.org.uk/our-beautiful-burial-grounds-project/> "

Oh Christmas Tree

Sue Townsend

I love Christmas and I love the smell of spruce needles and have a small pot grown tree that has so far lasted over 3 years. Apparently according to <https://eco-age.com/news/eco-friendly-christmas-tree-buying-guide> and the Carbon Trust an artificial tree needs to be used for 10 years to be the equivalent carbon footprint of a shop bought tree.

I have been a little worried about our support of the local Christmas Tree festival at St Chads on botanical ethics grounds.

We have:

- Distributed Shropshire Botanical Society membership leaflets
- Raised our profile with hundreds of people visiting this magical church to view the trees
- Educated the public – many now realise that not all cones are *Pinus sp!!*



What is the environmental cost?

I have recently been doing a little research on the potential negative impacts of harvested trees. The recommendations are that if we do use them they are sourced locally and not destroying upland habitats for cash crop. I was reassured that at St Chads church they have non-commercial arrangement with the Dingle Nurseries. Dingle is just over the border Nr Welshpool and is nationally recognised as a high quality nursery. It does not have an organic or even peat free policy but has developed the growing area from arable land and as such does not damage valuable natural habitat.

There is the inevitable transport, mechanical harvest, pesticide and herbicide use but I am reassured that this is minimised through good plant husbandry, a short journey and appropriate rotation.

I can see that there are stunning alternatives and there could be equally attractive festively decked trees from driftwood, branches from brash, deciduous sculptured branches such as *Salix matsudana* var *Tortuosa*. This may be something we as a society wish to promote or consider. At the moment – the church is geared to continuing with the Dingle trees.

One of our members – Fiona Gomersall made these points when responding to The Guardian article on Christmas trees this year – and had her letter published on the 14th December 2018.

“Your article about which Christmas trees to buy ([Fake or real: which ones look best – and won't cost the Earth?](#), 8 December) failed to make some important points that need seriously considering if all environmental consequences are to be taken into account when making an informed decision about choice of tree.

In the uplands of south-west Shropshire, Christmas trees are grown on increasingly shrinking moorland habitat, home to threatened and severely declining species like curlew, snipe, kestrel and barn owl. Your photograph showed a [Christmas](#) tree plantation on heather moorland, which proves my point. Heathland, one of the UKs priority habitats and home to many iconic species, has declined by as much as 90% over the last 200 years.

The insecticides sprayed on most Christmas trees against leaf-damaging aphids are washed into watercourses, where they not only contaminate

potential drinking water but poison invertebrates in streams and rivers. Residues of these chemicals will later pollute the internal environment of the home, along with the antifreeze sprayed on the trees so they retain their leaves.

Many of the trees grown in Shropshire and surrounding counties are transported to London for sale so that a large carbon footprint is added to the already burgeoning environmental cost.

Due to these pollution and habitat issues we have in Shropshire and elsewhere, I welcomed the news that this is the year of the artificial Christmas tree. Plastic trees are not really the answer, though. The suggestion for growing your own tree in a pot is by far the best choice and, failing that, decoration of a collection of branches from any tree can be a stunning alternative.

Fiona Gomersall, Ecologist, Shropshire”

So like so many debates and considerations, and taking into account that so few human celebrations are truly sustainable, I would welcome the society's continued support for our modest tree or accept that we might consider other methods of promoting the society.

Please let me know your thoughts.



Shropshire Farm Nature Discovery

Sue Townsend



With debate and lobbying on-going following Michael Gove's promise of "public money for public goods" and as we are living in such a rural county – I thought we should see if we can get to record more on farms to see for ourselves what botanical treasures might be present.

So last June I took my Stace and clipboard and joined others to have a look. Skylark, orange-tailed mining bees, ancient ant colonies and a plant species list of over 100 were recorded in a couple of hours on Cwm Bach Farm Near Clunton Coppice, South Shropshire.

The Farm Nature Discovery Day, organised by the NFU, saw sheep farmers Jonathan and Carol Griffiths open their gates to local recorders. Oliver Cartwright, Ceris Jones and Sarah Faulkner all from NFU joined Adrian Pickles, Martin Godfrey and myself to record alongside invertebrate recorders for the day. We are going to do it again – and as part of the meetings for 2019 thought we should join forces with the NFU Bioblitz for Shropshire to record on a lowland farm.



Adrian Pickles looking for *Hypericum humifusum* L. Trailing St. John's-wort

Farmer Robert Lockhart, NFU representative on the union's environmental forum, said: "As farmers we are often told what we should be doing on our farms when there is no formal assessment of what is there in the first place".

"This event helped get the right people out and will create a base-line about what is there so that subsequent schemes can be tailored to maximise habitat and create additional measures to help species thrive and encourage new ones.



Lotus corniculatus L. Bird's-foot Trefoil found at Cwm Bach in June 2018

"As farmers we're growing and rearing food and a result driven business - there's no reason why this type of event can't help support an outcome-based approach in the future."

So with this in mind we are joining the NFU Farm Biodiversity day for 2019. We have a venue in mind near Onibury. It is a mixed holding with arable, grassland, broadleaved woodlands and ponds. It also has some very species rich grasslands where Green-Winged Orchids *Orchis morio* L have been recorded in the past. The idea is to get as many recorders along as possible so if you have a partner who is a birder, a friend who is an entomologist or you are a pan-species lister, you will be especially welcome. Prof Trueman has said he will try to come along with the promise of seeking out Green-Winged Orchids and I will go along to collect the records. It should be a fun day – and I think we'll get lunch as a thank you for our time!! There will be some searching and recording



Rumex acetosella L. Sheep's sorrel found at Cwm Bach in June 2018

and a get together over lunch and at the end of the day to compare notes and identification tips.

So if I can tempt you to join me down on the farm our host Mr Alderson of Upper Walton Farm Upper Walton Onibury, Craven Arms SY7 9AS will be waiting on Saturday 18 May 2019 Please come along – the more eyes the better and all levels very welcome. To book email me at s.townsend@field-studies-council.org

All images Oliver Cartwright NFU from the 2018 event and NFU logo by permission.

Shropshire botany plant records – do you ever look at them again?

Mags Cousins

Many moons ago, Shropshire Botanical Society commissioned Alan Hale to produce an easy access portal to all the plant records which have been submitted to and validated by, our VC40 Recorder Sarah Whild. Since Alan stopped working on it, the committee have been toying with the idea of fixing it, developing it, revamping it. But do you, the membership use it? Do you like it? Some of you may be perplexed and asking what is it, I've never seen it, what does it do?

It is a very simple tool for viewing and downloading Shropshire plant records; you can search on a species and see where it has been recorded in Shropshire; see a tetrad map; produce a list of all plants recorded at a site before you visit; search for axiophytes only; see who has recorded what and where? It was designed to enable easy access to plant records, not just for members but for anyone who is interested as there is no password protection, it is open to all. It has been accessible on the botany pages of the Shropshire Ecological Data Network (SEDN) website for the past few years but has reached a crunch point. To cut a long story short, the way the plant records are stored has changed and we can't upload new data sets to it as it is.

So what to do, move on and leave it up to individuals to use other ways of accessing the data eg NBN Atlas, the BSBI Distribution Database?

The same data is accessible from these other portals after all. Or do a minor fix to keep it ticking along as before, or revamp it and develop it using Shropshire Botanical Society funds?

So for those of you not familiar with it, this is what the front page looks like:



Have a look whilst you still can - only until May this year: <https://shropshireecology.org/>

Try it out if you haven't already, let us know what you think, deadline AGM Sunday May 12th 2019.

Please send any comments that you have to John Handley at john.checology@gmail.com

We have many botanically interesting churchyards in Shropshire which are well worth a visit. I have included a few garden species as well as native and naturalised in my sights and sites to treasure as the choices made for planting on graves are a study in themselves!

One of my first and favourite botanical trips of the year is a January visit to Shipton Churchyard, near Much Wenlock, to see the carpets of Snowdrops, *Galanthus species*, and patches of Winter Aconites, *Eranthis hyemalis*, under fine Beech, *Fagus sylvatica*, trees. It is very uplifting to see those golden pools of colour. Many of our churchyards have Snowdrops; Stanton Lacy, near Ludlow, is a church that actively celebrates these Candlemas flowers with a festival and Snowdrop Tea. A cold February shopping trip to Shrewsbury is often enlivened by a quick visit to St Chad's churchyard where the grassland surrounding the old graves is completely covered in gorgeous purple Crocus. The lovely old trees, including a Cedar, *Cedrus species*, with magnificent cones, are shelter to many songbirds.

Spring in my home village of Trefonen, near Oswestry, gives me the opportunity to admire Violets, *Viola species*, Speedwells, *Veronica species*, Primroses and Cowslips, *Primula species*, in the old Trenant chapel grassland. I know that these will then be followed by native yellow Mouse-ear-hawkweed, *Pilosella officinarum*, and

naturalised orange/red Fox-and-cubs, *Pilosella aurantiaca*. The latter with its long stolons is always a good spreader. I keep looking out for the hybrid between the two, but haven't spotted it yet. Bridgnorth cemetery is the place to go to look out for the exquisite Meadow Saxifrage, *Saxifraga granulata*, easily identified even by its pretty leaves. Sadly, nobody has recorded it at Haughmond Abbey for over twenty years. Is it still there? Tiny Rue-leaved Saxifrage, *Saxifraga tridactylites*, likes a lime-rich wall, but what a pretty red-leaved find this is. The stoloniferous Londonpride, *S. x urbium*, a garden member of the Saxifrage family, happily marches across gravelly graves. Forget-me-nots, *Myosotis species*, are well worth checking – the shield bug recording group found the Forget-me-not Shieldbug, *Sehirus luctuosus*, at Llanyblodwel church, near Oswestry, on a steep south facing bank in the car park.

My first sighting of Pyrenean Lily, *Lilium pyrenaicum*, on a grave was a surprise summer plant. I have always pondered on why that rhizomatous plant is chosen for graveyards, but it flourishes in Trefonen and other country churchyards along the border.

A summer trip to Hope Bagot church is another must to see the colourful hay meadow in this old grassland cared for by CFGA. There is a very fine display of Ox-eye Daisies, *Leucanthemum vulgare*, in the lawn rich in grass species and an ancient



Crocus spp



Chapel turf



Lilium pyrenaicum

Yew in this hamlet on the south side of Clee Hill; not to mention the holy well and lovely Norman church. The viewpoint on top of Clee Hill is a good stopping off point with your flask; a fine day will reward you with sightings of several counties before you take the sunken species-rich lanes down to Hope Bagot. If time permits I call in at Hopesay too, another fine example of old grassland with Pignut, *Conopodium majus*. Sweet Violet, *Viola odorata*, and Common Dog-violet, *Viola riviniana*, flower there earlier in the year.

Pellitory-of-the-wall, *Parietaria judaica*, is often found on ancient stone buildings and is easily spotted around Oswestry church and its surrounding buildings and walls. Under “sympathetic cures” it was once used to treat kidney and bladder stones on the basis that it grew in stone. Horses love it and will seek it out in a



Saxifraga ganulata



Viola riviniana

known place they are passing so maybe it is not just old folklore? Stonecrops, with their procumbent, rooting stems, sending up ascending flower stalks, thrive in graveyard gravel and *S. acre*. Biting Stonecrop, *Phedimus spurius*, Caucasian Stonecrop, and Reflexed Stonecrop, *Petrosedum rupestre*, are easily found. Much easier than remembering how this family has been split up into different genera. One vernacular name for *Sedum acre* – *Welcome-home-husband-though-never-so-drunk* (shared with *Sempervivum*, both of which are planted on rooves) does make me ponder when I find it on graves.

As the flowering plants fade, ferns are still much in evidence. Both Maidenhair Spleenwort, *Asplenium trichomanes*, and Wall-rue, *Asplenium ruta-muraria*, are common on churchyard walls; sometimes a careful search will reveal Rustyback, *Asplenium ceterach*, as well. I am ever hopeful of finding Adder’s-tongue, *Ophioglossum vulgatum*, or Moonwort, *Botrichium lunaria*, in old grassland one day. Why not? Moonwort suddenly turned up in old turf on a botanist’s lawn on the Old Racecourse, near Oswestry, one year.

I still have many churchyards to visit. More information on local churches can be found in *The Churches of Shropshire and Their Treasures* by John Leonard.

The Beautiful Burial Ground Project

Liam Taylor



The Beautiful Burial Ground project aims to inspire, engage and support interest groups, communities and individuals to learn about, research and survey the biodiversity and heritage of their local burial grounds – churchyards, cemeteries, natural and green burial grounds.

One of the most important aspects of our project is to develop a 'portal' on the National Biodiversity Network (NBN) Atlas where anyone will be able to access records for any burial ground in England and Wales. The Beautiful Burial Ground Portal is currently in development with the NBN team, and we hope to have full functionality within the coming months. In theory, anyone will be able to visit the portal, search for any cemetery or churchyard in England and Wales, and easily view the relevant records. This process relies on the creation of digital boundaries, and will take time. We are grateful to the Church of England and their Church Heritage Record team for undertaking this work and sharing the results with us. The initial

areas available on the portal will be North London, Manchester, and West Suffolk; over time coverage of all England and Wales will be made available.

Shropshire

The map of records for burial grounds is patchy. Despite their age, churchyards are under-recorded nationally. To our knowledge, out of 324 churchyards in Shropshire, botanical records are available for only 96 of those, with 218 having no such records. With 67% of Shropshire churchyards lacking botanical records, it is almost certain that a much larger percentage will have no records at all. In addition to a handful of individual local recorders who have shared records with us, the



Sites surveyed in 2014 by the Stretton Community Wildlife Group

- St Margaret's: Acton Scott
- St Michael's & All Angels: All Stretton
- St James: Cardington
- St Michael's & All Angels: Cwm Head
- St Lawrence's: Church Stretton
- Greenhills Cemetery: Church Stretton
- The Old Cemetery: Church Stretton
- St Andrew's: Hope Bowdler
- St Michael's: Smethcott

Sites surveyed in 2017 by Caring for God's Acre and Rob Rowe

- St George: Clun
- Clun Cemetery
- Holy Trinity: Hope
- St Etheldreda: Hyssington
- Holy Trinity: Middleton-in-Chirbury
- St John the Baptist: Myndtown
- St John the Evangelist: Newcastle-on-Clun
- St Margaret: Ratlinghope
- All Saints: Shelve
- Stiperstones Baptist Chapel
- St Michael and All Angels: Wentnor

records available on the SEDN database, and the work of the late John Thompson, we are aware of two recent surveying efforts:

We are committed to improving the collective understanding of biodiversity in burial grounds. We want to increase the number of records, improve coverage, and engage in structured surveying protocols to publish research relating to burial grounds. All the records we produce as part of the project are uploaded to iRecord, with the intention that they will be available on the NBN Burial Ground Portal. In addition, we have an online recording card available on our website.



Working with the Shropshire Ecological Data Network

An important part of our project is to work with Local Environmental Record Centres, and develop solutions and agreements to display more burial ground records on the NBN Atlas. A component of our Heritage Lottery Bid was to trial a pilot scheme with the Shropshire Ecological Data Network (SEDN). This scheme involves harnessing the recorder networks and 'bounty' system of SEDN to offer small amounts of money to local recorders to make records across various different species groups in 20 Shropshire burial grounds. If the scheme is a success, we hope to secure funding in the future to extend the scheme to other areas.

BSBI collaboration

We are working with The Botanical Society of Britain and Ireland (BSBI) to develop agreements for additional burial grounds records to appear on the NBN Atlas. This involves a substantial amount of work for the BSBI to secure permission from individuals to release their records to the Atlas. In the coming months, all being well, Shropshire will be a focus as part of this partnership work, and you may receive contact from the BSBI requesting these

relevant permissions. Your support in agreeing to these permissions will go a long way in the effort to educate burial ground managers and protect these special places.

Surveying Shropshire Burial Grounds

To complement and further the work we are doing with the BSBI, we aspire to produce and contribute to research and analysis related to burial ground ecology. Working with Shropshire botanists is a great opportunity to build a clearer picture of the flora of Shropshire churchyards. We are aware of comprehensive botanical churchyard surveying in a few areas such as Leicestershire and Rutland, and Milton Keynes. We're sure there are many other examples, although we have a limited picture; we welcome any insight our readers may have. Due to the open and collaborative nature of SEDN and the Shropshire recording community in general, churchyard recording in this vice county is particularly valuable and can serve as an admirable example for other vice counties.

If you would be willing to survey some churchyards, we would love to hear from you. Any level of surveying is tremendously appreciated; we can provide interested recorders with the names and locations of churchyards local to them. We can arrange for all relevant permissions for recording.

We are very grateful for the ongoing support of the Shropshire Botanical Society Committee.



LOTTERY FUNDED



Ferns generally tend to be under recorded and their hybrids even more so; the purpose of this article is to give some hints on how to find and identify hybrids, with the example of two which I have found at Benthall Edge wood over the last couple of years, and I will finish with a challenge.

There are quite a number of fern hybrids recorded, some quite common and some exceptionally rare. Indeed ferns can sometimes form hybrids between genera but, as these are rare, we will stick to the idea of within-genus hybrids here.

What to do

One of the difficulties with ferns for many botanists is the paucity of clear ID features - effectively one is looking at the often quite subtle features of leaves with the reproductive organs being small and inconspicuous and often needing a quite powerful lens or even microscope for examination. The first stage in being able to find and identify hybrids is becoming really familiar with the parent species, which is not so much difficult as requiring looking at, and identifying, plants as you find them rather than hurrying past with a shudder; in fact just as one does with other tricky groups like the grasses and sedges.

The reason that familiarity is so important is that the first indication of a hybrid is finding a plant which isn't quite "right". In fact fern hybrids will typically be intermediate in form between their parents - a couple of bonuses being that in many cases they will be quite a bit bigger than the parents and will be invariably be more or less infertile. In fact infertility is the primary way of confirming your hybrid. Fertile spores are plump and rounded whereas infertile spores are small and irregular in shape.

Checking fertility is pretty straightforward but does require access to a compound microscope. To check your plant collect a couple of pinnae with ripe sori on the undersides, put them in a paper packet and leave overnight in a warm dry place. The next day they will have shed their spores,

which look like darkish dust in the bottom of the packet. Make a microscope slide by stirring some of the "dust" into a drop of warm water (with a very little washing up liquid in it as a wetting agent) on a microscope slide and put a cover slip on. The best way of picking up the "dust" is with a damp paintbrush which will release the spores when you put it in the water on the slide. Have a look at your slide at around x100 under the microscope - infertile spores will look small and distorted, Fig 1, whereas fertile spores will be plump and rounded, Fig 2. Note that hybrids may well have a few fertile spores and non-hybrids a few infertile but the emphasis here is FEW.

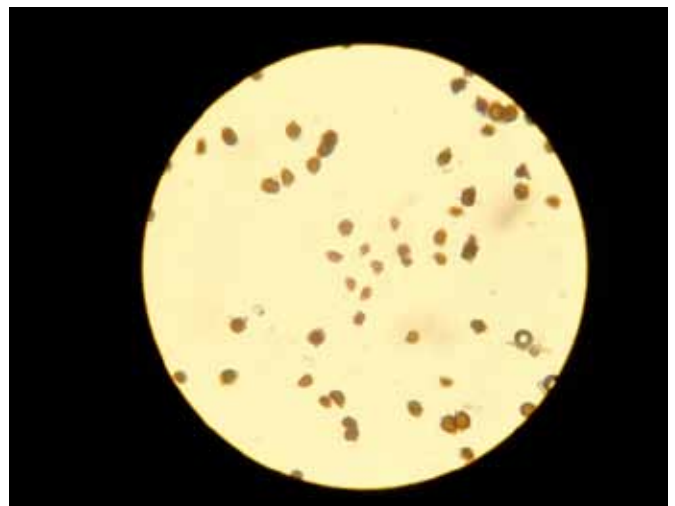


Fig 1. Infertile spores

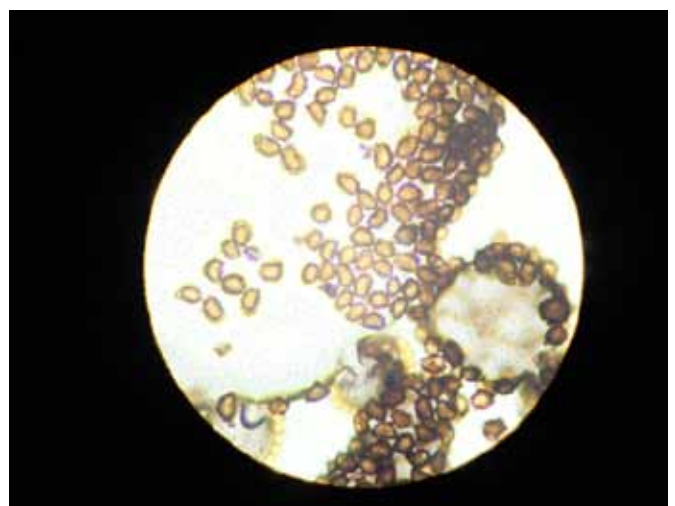


Fig 2. Fertile spores

Two examples

Dryopteris x complexa. This is a hybrid between *D. filix-mas* and *D. affinis*, Fig 3. I found it in an area with a number of both its parent plants – the majority being *D. filix-mas*. This plant has fronds up to 1.5m long, much taller than either of its parents which means that you notice it straight away. Looking more closely you see that it has the rather thick stipe and abundant golden scales of *D. affinis* with the “dark mark” at the base of the pinnae. On the other hand the frond and pinna shape are much closer to *D. filix-mas* - the whole frond being rather less leathery and paler than *D. affinis* and the pinnae more pointed with more sharply serrated margins. Suspecting a hybrid I collected spores and found them to be almost totally infertile confirming the ID.



Fig 3. *Dryopteris x complexa*

Polystichum x bicknellii. This is a hybrid between *P. aculeatum* and *P. setiferum*. I found this growing amongst a lot of plants of *P. aculeatum* where its large size and rather odd frond shape made it stand out. Closer examination showed that the frond shape was closer to *P. setiferum*, being mostly more truncated at the base and with a longer stipe than *P. aculeatum*. The frond itself was also rather more leathery than *P. setiferum* but with the individual pinnae very variable, perhaps more closely resembling *P. aculeatum*. Again examining collected spores showed that they were completely infertile confirming the ID. Interestingly unlike the *Dryopteris* this hybrid did not have both parents close together and a search found a little *P. setiferum* elsewhere in the wood.

A challenge

Taking attendees on a BSBI ferns workshop to the site and hinting that hybrids were present enabled people to quickly find the hybrids as “different”



Fig 4. *Polystichum x bicknellii*

although they were unfamiliar with these plants. For those feeling inspired to have a look for their own hybrid here is a challenge. Benthall Edge wood is full of *Dryopteris filix-mas* and *Dryopteris borneri* – the latter being perhaps the more common. The challenge is to find their hybrid *D. x critica*. I have yet to find this – part of the problem being that although it is intermediate between its parents it does not grow into large plants so close examination of plants followed by microscopy of the spores will be the key to success.

Useful books

FSC The fern Guide - James Merryweather. An excellent basic fern ID guide with good drawings and photographs.

The Ferns of Britain and Ireland - C N Page, Cambridge University Press. Although the taxonomy is a bit out of date an excellent handbook on all of our species and hybrids.

Hybrid Flora of the British Isles - Stace, Preston and Pearman, BSBI. An outstanding handbook on all of our vascular plant hybrids.

Growing ferns from spores

Martin Godfrey

As well as being attractive plants for the garden or potted in the house, ferns have an unusual life cycle which makes them fascinating to grow from scratch. Unlike flowering plants, which produce seeds from which new plants grow directly, ferns produce spores which germinate to produce an intermediate gametophyte generation, known as the prothallus. These are effectively tiny, and usually short lived, independent plants which, given the right conditions, produces eggs and sperm which fertilize to produce the sporophyte generation – the large fern which we see in the wild. Interestingly some ferns, like Killarney Fern (*Trichomanes speciosum*) can live solely as a gametophyte, only rarely producing the sporophyte fronds.

First find your spores

The large fern fronds we are all familiar with produce their spores on the underside of the leaf pinnae in sporangia (Fig 1). The spores usually ripen in late summer, they become dark coloured and the sporangia open to release them. Collection is easy – just take 2 or 3 pinnae off the fern frond and put them in a paper packet. Leave overnight somewhere warm and dry and in the morning you will see that they have shed a fine blackish dust which are the spores.



Fig 1 Sporangia on the underside of a fern frond

Plant your spores

To germinate and grow into prothalli the spores need moisture and light. I put a thin layer of well-moistened potting compost in a jar and thinly sprinkle the spores over it – the spores are so fine and light pick up a little of the “dust” on the end of a knife to do this. Screw the lid onto your jar – this will keep the moisture in, any evaporation will condense and run back down the sides of the jar.



Fig 2. Jar ready for the spores.

Don't forget to label and date your jar (Fig 2). The prothalli cannot take direct sunlight so put your pot on a north-facing windowsill where it can get plenty of light and leave – it can take several weeks or even months for the spores to germinate.

Grow the prothalli

Eventually as the spores germinate you will see a film of green spread over the potting compost. The germinated spores will grow into little filmy plates of tissue 1 or two cells thick – the prothalli, Fig 3.

Fertilization

When well-grown, prothalli will produce male and female reproductive organs, typically on their underside. The male organs will release sperm which will swim through the moisture in the pot to fertilize the eggs in the female organs. The fertilized egg will grow into an immature sporophyte, Fig 4, typically you will get several to a pot.



Fig 3. Growing prothalli.

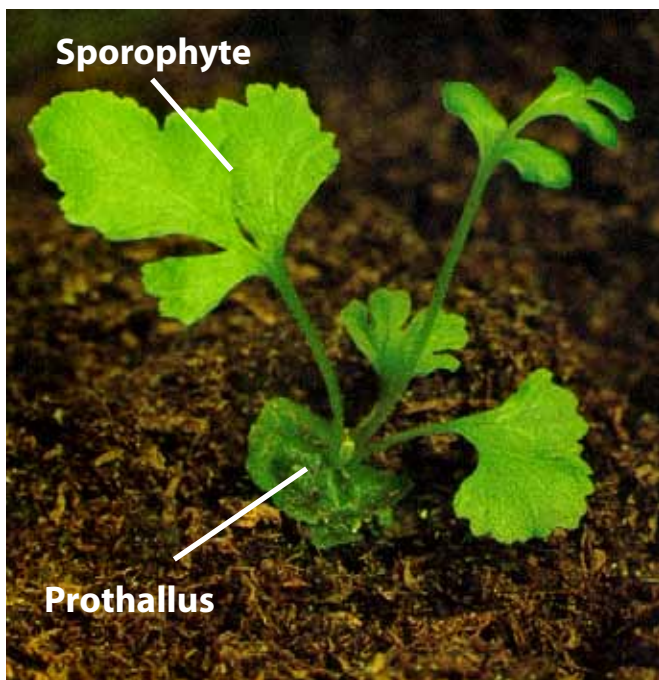


Fig 4. Immature sporophyte



Fig 5. Pricked out sporophytes

Prick out your sporophyte

Once the sporophytes get big enough to handle they will need to be pricked out into a pot to grow on. Fill a small pot with well-moistened potting compost and remove 3 or 4 sporophytes from your jar – a pair of forceps is best for this – and plant in the compost. The sporophytes are still quite fragile and need to be kept on a north facing windowsill and sprayed with water regularly to keep moist, Fig 5.

Enjoy your plants

When your ferns have grown to a reasonable size, some will probably die as well, plant out into a large pot and allow to grow – split and repot the plants if they get too big. Native plants will grow well in your garden. The plants in Fig 6 are around 5 years old.



Fig 6. *Dryopteris x complexa* and *Polypodium vulgare* from spores.

Tilia in Shropshire

John Handley

In the British Isles there are two native species of *Tilia* L. (Lime) present, *Tilia cordata* Mill. (Small-leaved Lime) and *Tilia platyphyllos* Scop. (Large-leaved Lime), and a naturally occurring and often planted hybrid between the two *T. × europaea* L. (Common Lime).

We are more used to seeing them as the tree of urban streets or within town parks such as the Quarry Park in Shrewsbury, which was planted with lime trees in 1719 by Thomas Wright, a noted nurseryman of that time. It forms the subject of what Miss Burne in her Shropshire Folk-lore describes as probably the youngest of the legends of the county:

‘Thomas Wright was a famous nurseryman in old days. He had made a large fortune by his trade, and wished to spend some of it in benefiting the town of Shrewsbury. He therefore proposed to plant the Quarry with trees, but the Mayor and

Corporation were old-fashioned people, and refused to allow any change to be made. But Wright would not be gainsaid. He was a man who knew more than most people, and understood a good deal about conjuring and that sort of thing. He was determined that the Quarry should be planted, and by means of his magic he managed, with only two men to help him, to plant all the trees in a single night, and when the Mayor got up in the morning, the thing was done. But even he was obliged to own that the work was a great improvement, and it was therefore allowed to remain.’ (Watkins 1883).

Although we are used to seeing *Tilia × europaea*, the Common Lime, as a street tree it really belongs to another world that has almost disappeared. It belonged in the vast primeval woods that covered the European plain from England in the west, across central Europe to the far reaches of old Russia in the east. The abundance of its pollen in lake sediments and in peat shows that from 7,000 to 5,000 years ago it was a very important tree.

Lime can grow as tall and live as long as oak, but it casts and will tolerate, when young, a deeper shade, so that it is better adapted than oak to life in dense woodlands. The unnatural abundance of oak in broad-leaved woods today is because it has been preferred for the value of its timber (Pigott 2005).

Lime trees flower profusely and on a sunny day the loud hum of insects – bees, wasps, hover flies, drone flies and moths in the night announce the tree’s presence. The nectar is secreted by the sepals so that bees have to probe between the petals to gather it up. Lime honey is highly valued, and is



Ancient *Tilia* - If you look carefully you can see the author in the centre of this ancient lime, surrounded by maturing coppice poles.



The reddish-brown hairs and inflorescence of *Tilia cordata*



The white hairs and inflorescence of *Tilia platyphyllos*

used in the manufacture of some liqueurs. Many years ago the lime forests at Kowno in Lithuania were managed especially for the production of a superior brand of honey.

Charcoal made from lime was prized for drawing and for making gunpowder, and it was also eaten to help “acid stomachs and gas in the intestines”. In the nineteenth century a French chemist discovered a way of making a delicious chocolate flavoured confection from the dried flowers and

leaves of Common Lime. He set up a company to produce it commercially, but his experiment failed because, try as he might to prevent it, the product deteriorated after two or three days. Lime flowers, complete with the bracts can be harvested and dried to make linden tea.

Lime has a host of common names: Lind; Linden; Line; Lin; Whitewood; Pry or Prye, as well as Bass or Bast: this was also the old English word for the fibrous inner bark of lime. Bast was a valuable product; the court rolls of Furness Abbey record that fines were imposed on men caught stealing bast from woods in Grizedale in the Lake district. It is obtained from young stems, 12–15 years old, and normally cut as coppice. The bark is most easily peeled at midsummer, when new tissue is forming against the wood, but it was often stripped in winter when the stems had to be briefly toasted over a fire. The bark was then ‘retted’: soaked in water for at least two weeks after which the strands of fibres could be separated and cleaned.

The fibre strands are long and strong and could be spun into ropes which wouldn’t stretch in water (ideal for wells), and into string for nets, including fishing nets. Broad strips of bast could be cut from younger stems and used to make mats, baskets and even sandals.

Tilia cordata and *T. platyphyllos* are used as indicators of Ancient Woodland (Whild 2003). Accurate identification and recording of *Tilia* species is important before effective conservation measures can take place, although they are difficult to accurately identify and record (Pigott 1969;

Table 1: Morphological characters to distinguish *Tilia* sp. (after Pigott 1969; 1998; Wicksell and Christensen 1999; Poland and Clement 2009).

| Characters | <i>T. cordata</i> | <i>T. × europaea</i> | <i>T. platyphyllos</i> |
|----------------------------------------------------------|---------------------|----------------------------|------------------------|
| Length of leaf including basal lobe | 45-106mm | 49-120mm | 53-144mm |
| Length of leaf excluding basal lobe | 40-91mm | 44-110mm | 48-135mm |
| Width of lamina | 40-82mm | 40-99mm | 40-113mm |
| Width of apex | 2-9mm | 3-12mm | 3-15mm |
| Number of teeth per cm on the broadest part of the blade | 3-7 | 3-6 | 3-5 |
| Number of lateral veins of 1st order | 4-6.5 | 5-8 | 6-10 |
| Presence of hairs on upper and lower surface of leaf | Few scattered hairs | Scattered hairs | Pubescent |
| Types of hairs | Stellate | Simple | Simple |
| Colour of hairs | Reddish-brown | White-buff | White |
| Colour of abaxial surface of leaf blade | Glaucous | Dull green | Green |
| Lateral veins of 2nd and 3rd order on abaxial surface | Not raised | Slightly raised | Raised |
| Diameter of petiole | <1.2mm | 1.2-1.5mm | >1.5mm |
| Presence of hairs on petiole | Glabrous | Sparsely hairy or hairless | Pubescent |
| Presence of hairs on twig | Glabrous | Usually hairless | Pubescent |
| Inflorescence | Obliquely erect | Pendulous | Pendulous |



Examining the remaining structure of an unusual ancient pollarded small-leaved lime at Downton Gorge

1998); Pigott (1998), Wicksell and Christensen (1999), Poland and Clement (2009) have all defined characters of the foliage to enable accurate identification.

In Shropshire there are several sites where both species occur. One of these is Long Covert, near Bridgnorth, a woodland belonging to the National Trust where we will be having a field outing on 4 May. It is hoped that we will be able to determine which species are present and identify which NVC communities are present. *Tilia cordata* is present in W8 *Fraxinus excelsior*–*Acer campestre*–*Mercurialis perennis* woodland and W10 *Quercus robur*–*Pteridium aquilinum*–*Rubus fruticosus* woodland; whereas *T. platyphyllos* and *T. × europaea* are recorded only from W10, (Rodwell 1991).

References

- Pigott, C.D. (1969). *Journal of Ecology* 57: 491-504.
- Pigott, C.D. (1998) in Rich, T.C.G and Jermy, A.C. (1998). *Plant Crib*. BSBI.
- Pigott, C.D. (2005) *Lime*. Sage Press, Rye 33pp.
- Poland, J. and Clement, A. (2009). *Vegetative Flora*.
- Rodwell, J.S. (1991). *British Plant Communities: Volume 1 Woodlands and scrub*. Cambridge University Press.
- Watkins, M. G. (1883). "Review of Shropshire Folk-Lore, Part I, edited by Charlotte S. Burne". *The Academy*. 23 (580): 416.
- Whild, S.J. (2003). *Ancient Woodland Indicators*. Shropshire Botanical Society Newsletter.
- Wicksell, U. and Christensen, K.I. 1999. Hybridization among *Tilia cordata* and *T. platyphyllos* (Tiliaceae) in Denmark. *Nordic Journal of Botany*.