

# *Shropshire Botanical Society*

## *Newsletter*

*Spring 2000*



Grass-wrack Pondweed from the Montgomery Canal, July 1998

Conservation on Shropshire's canals

*Luronium* returns to Brown Moss

Notice of AGM

Botanical Society Web Site

A new recording philosophy?

# Shropshire Botanical Society Newsletter No. 3 Spring 2000



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Botanical Society Constitution  
Botanical Society Accounts 1999



This newsletter is produced by the Shropshire Botanical Society  
66 North Street, Shrewsbury, Shropshire, SY1 2JL  
01743 343789

[s.j.whild@bham.ac.uk](mailto:s.j.whild@bham.ac.uk)  
[alex@whild.icom-web.com](mailto:alex@whild.icom-web.com)

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Editor: Alex Lockton

## Botanical Society News

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Sarah Whild

Greetings for the new millennium – I hope that you have already been out recording and making the most of the splendid spring weather we have been having.

The most exciting news this month is that we now have a Shropshire Botanical Society Web Site, which you can visit now. It's only in the early stages of development at the moment, but when it is completed we hope to have on it:-

- all the newsletters
- membership details
- a county checklist of all plant species recorded
- Rare Plants of Shropshire*, with down-loadable maps and accounts of the rarer species
- details of field meetings and events.

This will make quite an interesting site, I think. It is always difficult for visiting botanists to know what occurs in a county (and what doesn't) and it is one of the biggest sources of errors in plant recording when people expect to see – for instance – Meadow Oat-grass, *Helictotrichon pratense*, and it isn't there! You cannot really expect every visitor to join the Botanical Society and order all the back-copies of the newsletter, so if we put them on the Web Site they will not have to.

You can see how it is progressing by going to [http://website.lineone.net/~margaret\\_cole](http://website.lineone.net/~margaret_cole). Not a very snappy address, yet, but give us time! It has been designed for us very kindly by Margaret Cole, so cheers Margaret for all of your hard work.

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### The Annual General Meeting of the Shropshire Botanical Society

We are now a democratic society, and have a constitution and annual elections. Some posts – like Chair, Treasurer and Secretary – are elected, while others are not. The Vice-county Recorders for botany and bryology are appointed by the BSBI and the BBS respectively, and have a place on our committee, and the database manager, which is very much a self-selecting post. However, the elected members of the committee are up for re-election at the AGM.

The AGM will be on Saturday April 29<sup>th</sup> at 2.30 pm at Preston Montford. Chris Walker has decided to stand down as Chair. We are enormously grateful to him for all the work he has put in to get the society established. I have agreed to stand in his place but, like the other posts, other nominations would be welcome. Paddy Martin has been nominated as Secretary, and Roger Green is willing to stand again as Treasurer. Any other nominations should follow the procedures laid down in the constitution (enclosed with this newsletter).

At the AGM both Chris and I will be talking about future recording projects, about which there are some clues in this newsletter. Alex will bring the database and can discuss possible projects with anyone who is interested in taking part in our future recording activities. I look forward to seeing many of you there, and would appreciate it if you could drop me a line to say if you will be attending, so that we can arrange the usual Preston Montford hospitality. Please arrive from 2.00pm onwards for tea, coffee and interesting publications, with business commencing at 2.30pm.

## New Records

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Compiled by Alex Lockton

### First and Second County Records (VC 40)

The only first county record for this newsletter is the less-than-thrilling discovery of **Noble Fir**, *Abies procera* Rehder, at Black Rhadley Hill, SO342956, by Kate Thorne on February 3<sup>rd</sup> 2000 (conf. Sarah Whild). This is a commonly-planted forestry tree which can become established. All of us should perhaps pay more attention to conifers, especially those that do become naturalised.

### Rare Plants

Angela Darwell, a surveyor for English Nature, found **Floating Water-plantain**, *Luronium natans* (L.) Raf. at Brown Moss (SJ562393) again in September 1999. This species disappeared from the site in the early 1990s, and was most definitely absent in the years when the pools dried up completely. However, a combination of wet weather and tree felling has made a considerable difference to the state of the site, and the pools have remained full for the last two summers. It would be wonderful if Sarah could be proven wrong by the reappearance of **Lesser Water-plantain**, *Baldellia ranunculoides* (L.) Parl., as well.

**Greater Broomrape**, *Orobanche rapum-genistae* Thuill., was found at Poles Coppice, within the boundary of the County Council nature reserve (SJ387045) by Sarah Whild on 5<sup>th</sup> March 2000. These were, of course, dead spikes from the previous year's flowers. It had previously been known a few hundred metres away on farmland belonging to the Council, but in that location all the broom has been cut back severely, and this nationally scarce species seems to have gone from there. It was a welcome discovery, therefore, to find the nature reserve doing what it is there for.

### Long Mynd Records

This time last year we asked people to study the Long Mynd, and especially to attempt to re-find some of the rare species that had been recorded. There was an excellent response, with records from Kate Thorne, John Clayfield, Mark Lawley, and Roger and Pam Green. In total, some 450 records were received. The highlights among them were:-

- ❑ **Few-flowered Spike-rush**, *Eleocharis quinqueflora* (F. Hartmann) O. Schwarz: this turns out to be fairly common on the Mynd, having been collected this year by Roger and Pam and independently by Kate Thorne. Curiously, it had not been recorded before 1976, when Helen Davidson found it. Prior to that the only spike-rush recorded was Many-stalked Spike-rush, *E. multicaulis* (Smith) Desv., as long ago as 1904. We are still waiting for any confirmation of this latter species – for those who may want to look for it, it was in Lightspout Hollow.
- ❑ **Rock Stonecrop**, *Sedum forsterianum* Smith., nearly eluded us. No sign was seen of it all year, until John Clayfield found it flourishing at its old site in Ashes Hollow. The recent National Trust survey reported it to be present in two other batches at the south end of the hill, but more details would be useful.
- ❑ Another recent record by the National Trust team, that of **Hare's-tail Cottongrass**, *Eriophorum vaginatum* L., was confirmed by Pam and Roger at Wild Moor. How this species has eluded recorders for so long is a complete mystery, but there it is, definitely, along with a huge amount of the Common Cottongrass, *E. angustifolium* Honck.
- ❑ Kate Thorne Spent some time exploring localities for **Upright Chickweed**, *Moenchia erecta* (L.) Gaertner, Meyer & Scherb., and found lots of it. Almost every south-facing slope in the batches on the east side of the Long Mynd contains some areas of grassland with this species. In fact, the spring ephemeral community where this species occurs is something of a speciality of Shropshire. It is not described in the national vegetation classification – not one of their samples of vegetation contained *Moenchia*, but that doesn't mean it doesn't exist! It is becoming increasingly clear that this forms a distinct sub-community of the U1 upland grassland type that is unique to Shropshire and the Marches.
- ❑ **Alternate water-milfoil**, *Myriophyllum alterniflorum* DC., is another plant that has turned out to be more common than expected. It is abundant in pools along the streams that feed into Carding Mill Valley (Sarah Whild), and is present in four of the pools at Pole Cottage (Kate Thorne).
- ❑ **Shoreweed**, *Littorella uniflora* (L.) Asch., is confirmed as being present in several locations. We can be almost certain that it was not present on the Long Mynd 100 years ago, but has arrived there and

is flourishing at Pole Cottage, Callow Hollow and Thresholds. It is intriguing that it has almost disappeared from our lowland sites during the same period – it was once common in the meres.

□ **Small Cudweed**, *Filago minima* (Smith) Pers., is reported by Mark Lawley to be present in The Batch. This species was last seen on the Long Mynd in 1909 by Augustin Ley and William Moyle Rogers, so it is an interesting rediscovery. There are old records for it in other sites around Church Stretton, so it may be refound in some of those, too.

□ Some of the water plants are worth investigating further. During a course on aquatics in 1999, Sarah Whild found that **Ivy-leaved Crowfoot**, *Ranunculus hederaceus* L., is more frequent at Wild Moor than **Round-leaved Crowfoot**, *R. omiophyllus*. Also, the streams contained **Stream Water-crowfoot**, *R. peltatus* Schrank, and **Common Water-crowfoot**, *R. aquatilis* L., but not Thread-leaved Water-crowfoot, *R. trichophyllus* Chaix. The latter has been reported in the past.

□ Finally, we found a numerous new sites for rarities such as Dioecious Sedge, *Carex dioica* L., Tawny Sedge, *C. hostiana* DC., and the charophyte *Nitella flexilis* agg. – probably more of the uncommon **Dark Stonewort**, *Nitella opaca* N.F. Stewart.

□ Kate Thorne found some plants of **Marsh Lousewort**, *Pedicularis palustris* L., around Darnford Brook below Wild Moor. This confirms the continued presence of a species that has not been recorded on the Long Mynd since Sinker's Flora.

What the survey work in 1999 did **not** discover was:-

Grass-of-Parnassus, *Parnassia palustris* L.

Ivy-leaved Bellflower, *Wahlenbergia hederacea* (L.) Reichb.

Knotted Pearlwort, *Sagina nodosa* (L.) Fenzl

Greater Broomrape, *Orobanche rapum-genistae* Thuill

Wilson's Filmy-fern, *Hymenophyllum wilsonii* Hook.

The hawkweed *Hieracium lasiophyllum* Koch

The first three on this list are in danger of being considered errors of identification, but the Greater Broomrape is undoubted, and is surely still there. We have numerous records for it in the batches around Church Stretton – sometimes within the National Trust boundary, but often in the pastures and fields immediately below. This plant is considered nationally scarce, and it would be very welcome if we could confirm that it is still there. It would be very ambitious to hope to rediscover Wilson's Filmy-fern. There is little evidence that there was ever very much of it, but who knows? – it could yet turn up again. Finally, we would hope to have good specimens of any hawkweeds found on the Mynd. They need to be collected at the best possible time – preferably with buds and flowers and fruit.

## Conservation News

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**Brown Moss:** This site receives the thumbs up for the management work that has taken place so far, including the tree felling that has encouraged the return of *Eleogiton fluitans*, *Luronium natans* and the new occurrence of *Nitella flexilis*. Damming of the quaking bog will be an interesting experiment to monitor – will we see the return of the sundew and the white sedge?

### Golden Ragwort Award

Although Brown Moss is managed by Shropshire County Council, they still receive this issue's Golden Ragwort award for poor management; two years ago I was contacted with regard to Pole's Coppice and the adjacent farmland – what would be the optimal conservation management? I told them the most important species is the Greater Broomrape *Orobanche rapum-genistae*. This is a total parasite depending on its primary host, broom. However, the broom has subsequently been systematically cleared from all surrounding fields, and it is fortunate that there are populations of *O. rapum-genistae* surviving on marginal populations of broom on the edge of woodland of the reserve.

## What next for botanical recording?

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Chris Walker

During the last few decades there have been a number of significant mile-stones in botanical recording in Britain, starting with the Atlas of the British Flora in 1962, and culminating in Flora 2000 for which many botanists have been collecting records in the last few years. Between the two, a major local achievement was the Ecological Flora of the Shropshire Region, which in my opinion remains one of the most interesting local floras nearly fifteen years after its publication in 1985. One of the reasons that the Shropshire Flora is of particular interest is revealed by the title: as well as the usual distribution maps and comments on species distribution, there is a wealth of information on the ecology of the plants and their habitats, and on associated plant species.

Recording for all these publications was done on either a tetrad or hectad (10km square) basis. This has the advantage that the records can be easily and consistently mapped. It has the disadvantage that, by itself, it does not permit any analysis of abundance within the recording unit, and does not reveal associations between species or other useful ecological data. There is no doubt that comparison of the maps in Atlas 2000 with the 1962 Atlas will show some drastic and interesting changes. However, much of the useful information gathered by recorders in the course of their observations is in effect lost by this coarse-scale mapping.

Many botanists enjoy “square-bashing”, watching the records mount up towards some target figure. And of course, some squares are much richer than others. The reasons are usually clear to the recorders. A range of geological formations, in particular the presence of limestone, and the presence of a wide variety of habitats, will greatly increase the number of wild plants present. Additionally, the way in which those habitats are managed will also influence the number and abundance of plant species. The reasons for the changes between the early 1960s and the 1990s will largely be connected with the change in habitat types (overwhelmingly a decline in semi-natural habitats) and the change in the way they are managed (more intensive management in some cases, neglect in others).

Now that the recording for Atlas 2000 is complete, many field botanists will be looking for a new challenge. It seems to me that the most useful thing we could do locally would be to switch our future recording from a tetrad or hectad basis to an ecological one. The unit of recording would then be a discrete area of semi-natural vegetation. Many of these areas would be known “sites” in the sense of SSSIs or Shropshire Trust Wildlife Sites, and these are precisely the locations which hold the most species and which are most in need of good, up-to-date records to assist in the job of management planning. To ensure the most useful and complete records, two things would be necessary: an idea of the abundance of the less common species, and information on the vegetation with which the species are associated. Both of these should preferably be collected in a recognised, standard way. The publication of the volumes of the National Vegetation Classification in recent years provides a standard method for recording vegetation, and would, I believe be a useful adjunct to the recording of species and their abundance. In most cases, it is fairly easy to transfer the data thus recorded to a tetrad map if that’s needed.

Changing to a site-based recording method need not discourage people from wandering the countryside looking for unexpected plants. It would be foolish to suppose that there is nothing left to discover, and for many of us, finding something that is not already known about is a major attraction of botanising. However, some basic information on the habitat and the associate species would tell us more about the plant and its prospects, and would be of greater scientific value than a list or a dot on a map.

### References

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Sinker, C. A., Packham, J. R., Trueman, I. C., Oswald, P. H., Perring, F. H. and Prestwood, W. V., 1985; *Ecological Flora of the Shropshire Region*; Shropshire Trust for Nature Conservation.

Rodwell, J. 1991-2000. *National Vegetation Classification*; Cambridge University Press

## Recording ecologically

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Alex Lockton

Chris Walker's article, on the previous page, reflects a decision that the committee of the Botanical Society made in January, to do more than just record tetrads. We have the computer system to make almost anything possible – so why not expand our ambitions somewhat? These are some of the types of information we can incorporate into the database.

**NVC communities:** we've been collecting this type of information for several years now. The trouble is that they are rather difficult to identify reliably. The solution is to focus one's attention on a limited number of vegetation types, until you get to know them well. There are only a few common types of woodland in Shropshire, for example. You don't need to be a genius to learn to recognise the main ones. Any conscientious recorder should also collect sufficient information to allow us to check their conclusions – at least until you're good enough to recognise such communities on sight. Anyone who wants to work on NVC communities should perhaps work closely with us at first. If you can identify the plants, I don't mind showing you how to analyse the results. As with all botanical recording, though, it doesn't work if one is too proud to admit one's limitations...

**Site surveys:** the database already contains outline information on thousands of sites. For a lot of these, though, we have far too little information. The best solution is to choose a discrete site such as an ancient woodland, and visit it several times in the year to make a full species list. I find it remarkable how few people want to tackle the difficult species in a site, or spend time looking for the rarities. When you think about it, that makes no sense: an experienced botanist can tell you most of the common species that occur in a site just by looking at it on the OS map! What we need field botanists for is to discover the oddities and the rarities – the things that make a site special.

**Species surveys:** there is always work to be done on individual species. All the "critical taxa" are difficult to identify, and it takes some experience to become any good at them. Other plants may be less difficult but also in need of research. The sort of projects that spring to mind are to gather data on species such as Wild Daffodil and Monk's-hood, which are native in some parts of the county but planted elsewhere. It is only by collecting ecological information about each locality that we will ever know which is which – a tetrad dot doesn't tell you!

**Rare Plant Monitoring** and management is infinitely more complex than you might imagine. In fact I'm not sure I've ever come across such an experiment that worked. People usually lose interest far too quickly to make any difference. Bear in mind that most of the rare plants we have today were in exactly the same spot when Edward Williams first saw them 200 years ago. Nevertheless, there is often interesting information that can be gathered, that at least keeps us up-to-date on the status of rarities, even if it does little to actually help them. The work that members of the Botanical Society have been doing on the Long Mynd is an example of this – and apparently has produced howls of protest from far-off, well-paid ecologists, because our little band of volunteers has done so much better than they could do. Being "local" is always seen as an insult, but in truth, if you get out and about a bit, you can learn much more about your local environment than any visiting expert could do. But you must always follow correct scientific procedures, and not jump to conclusions about the identity of plants.

**Historical research:** even staying indoors can produce valuable botanical work. If you have access to a library, or the internet, or a museum, there is research worth doing. We don't have much information from any of the herbaria in Shropshire, with the exception of a few records from Ludlow and Shrewsbury, and a catalogue from Shrewsbury school. Even graveyards and parish registers contain information that can be valuable to botany – helping us to find the dates and details of our predecessors. I'd like to know, in particular, where George Jordan's mum lived – somewhere near Farlow, I believe. It could be a very important piece of information.

Using the database, I can provide suggestions about places to visit, plants to look for, and appropriate data to collect. If you read through the pages of this and previous editions of the Newsletter, there are plenty of examples of worthwhile projects and surveys. Almost every walk in the countryside can yield an interesting find of some sort, if you know what to look for.

## Field Meetings for 2000

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**How to book:** Please always phone on the day before a field meeting if you wish to attend, in case it has to be cancelled. The training meeting will be cancelled (as last year!) if not enough people book a place, so please don't complain if you just turn up without booking and no-one is there... Unless it states otherwise, always bring a packed lunch and sensible clothing. To book, please phone the leader.

### **Saturday April 29<sup>th</sup>**

AGM: meeting starts at 2 o'clock with tea and coffee and an opportunity to buy publications. Business commences at 2.30. At Preston Montford Field Centre.

### **Monday May 1<sup>st</sup>**

National Vegetation Classification (NVC) training day. Free to members. With Sarah Whild and Chris Walker. Meet at Preston Montford Field Centre at 10 o'clock and bring a packed lunch. It is *essential* that you book for this session by phoning Sarah Whild.

### **Sunday May 21<sup>st</sup>**

Leader: Mark Lawley – please phone to book. Primarily a bryophyte expedition to Dolanog in Montgomeryshire.

**Sunday June 11<sup>th</sup>** meet at 2.30 pm at Cleeton St. Mary (SO611787) for herb-rich meadows nearby. This is a joint meeting with the Herefordshire Botanical Society. Women's Institute snacks and refreshments will be for sale. No dogs please. Leader: Mark Lawley – please phone to book.

### **Saturday July 1<sup>st</sup>**

National BSBI meeting at Cole Mere. Places are limited, so please book at least 2 weeks beforehand with Sarah Whild by sending a stamped addressed envelope to 66 North St., Shrewsbury SY1 2JL.

### **Sunday July 23<sup>rd</sup>**

Merrington Green, SJ466209. Meet at 12.30 in the car park at the reserve and bring a picnic. Spend the afternoon recording this Wildlife Trust reserve, with emphasis on training in and recording of willow species. Leader: Sarah Whild.

### **Saturday September 23<sup>rd</sup>**

Woodlands and fields along the River Severn at Dudmaston. Park at the car park in Hampton Loade, SO747865 at 11am. Be prepared for a long circular walk. Leader: Sarah Whild.

## The Border Bryologists

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Mark Lawley, 12a Castleview Terrace, Ludlow, SY8 2NG, 01584 876564.

**May 14<sup>th</sup> 2000:** Holywell Dingle, a Herefordshire NT Reserve 4 miles south of Kington. Park on the lay-by on the A4111 at SO 308509. The woodland and stream overlie Old Red Sandstone and should offer many species.

**June 4<sup>th</sup> 2000:** Catherton Common, Cleeton St Mary, Shropshire. Meet at the side of the lane ¼ mile west of Cleeton St Mary (SO 607787) to explore the sheepwalks and flushes. In the afternoon we may move over to Cramer Gutter.

**August 9<sup>th</sup>-16<sup>th</sup> 2000:** botanical meeting at Ardtornish, Morvern, by kind invitation of Faith Raven, and led by Brian Brookes. Ardtornish is an estate on Morvern, a peninsula on the west coast of Scotland opposite Mull, south-west of Fort William. Its mires, woods, cliffs and coast carry an exceptionally varied flora. For bryologists, the hepatic mats and tiny liverworts in the moist ravines are particularly choice. If the remote splendour of a Scottish mansion and countryside sounds like your choice of holiday, contact Brian Brookes at Borelick, Trochry, Dunkeld, Perthshire, PH10 0BX, tel: 01350 723222. Inclusive cost will be in the region of £375.

## The conservation value of Shropshire's canals

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Alex Lockton

Canals represent a dilemma to conservationists, in that it is difficult to justify their existence on ecological grounds alone. They are nothing other than purely artificial structures, created for, and maintained by, economic activity. If a canal is abandoned, as a lot of them were during the first half of this century, it quickly silts up and loses all its ecological interest. Only for a brief time – a few decades at most – is there a habitat of undisturbed open water that often supports an interesting and valuable flora and fauna. It is difficult to argue that huge sums of money should be spent on the upkeep of abandoned canals (and it is very expensive indeed maintaining aqueducts and locks and so forth) when there are more natural habitats being destroyed at such an alarming rate. This argument would seal the fate of the canal system except for two things: firstly, some canals are now the last refuge of rare biodiversity species that the UK has a legal obligation to conserve; and, secondly, there is no need for a conflict between conservation and navigation. The two can coexist perfectly easily and, indeed, it is largely the enjoyment of the countryside that people take to the canals for. People don't choose to go to canals for the delights of steel pilings, stagnant water and brown rats – they'd much rather have water-lilies and kingfishers, if they had the choice.

Shropshire's canal system is on the verge of complete destruction of its natural history. Its history and historical ecology is a fascinating subject, and indicates what it could be like again in the future. There is still a chance that the best remaining bits could be saved, if the authorities act appropriately. For this article I shall attempt to give a summary of each of the canals in the county (and it might be useful to follow Charles Sinker's example and annexe part of Montgomeryshire for this purpose) and examine the past and present conservation value of each.

### The Shropshire Canal

The first canals in Shropshire were built in what is now Telford, starting in about 1788, and were used for transporting coal, ore, iron, limestone and sand between the various factories and mines in that area. The system was for a long time entirely isolated from the rest of Britain's canal network: links to the Severn provided a water-borne route to the rest of the world. Eventually there was a whole network of canals criss-crossing the district, all of which were smaller than the standard long-distance canal, with a narrower channel and smaller locks. It was a self-contained system, and was largely displaced by the railways by about 1860. Small sections still survive, but they are un-navigable and are completely isolated from all other waterways.

Rev. Edward Williams was the first botanist on the scene, as was generally the case in Shropshire, especially where water plants were involved. In the Lilleshall Canal – the very first stretch built – he found Fennel Pondweed, *Potamogeton pectinatus*, probably between about 1790 and 1800. This was the first record of the species in the county. Fennel Pondweed is not a rare plant, and has subsequently been recorded in most of the canals and in several rivers and meres. It is interesting to note, however, that all the oldest records are from canals, and it wasn't until nearly a hundred years later that it was definitely recorded from any other type of water body. This is because it is a plant of eutrophic (nutrient-rich) water – and the rivers and meres at that time were too low in nutrients at that time for it to thrive there.

In subsequent years a number of other interesting plants were recorded in the Lilleshall Canal, including Fan-leaved Water-crowfoot, *Ranunculus circinatus*, Ivy-leaved Duckweed, *Lemna trisulca*, and the Branched Bur-reed *Sparganium erectum* ssp. *microcarpum*, by W.H. Painter in 1904. Fine-leaved Water-dropwort, *Oenanthe aquatica*, was found “in a pool by the side of the canal” by R.G. Higgins in about 1841. That observation by Higgins is a reminder that it is not just the main channel of a canal that has ecological interest. There are frequently reservoirs, overflow ditches, seepages and similar habitats associated with canals which have considerable value of their own. Water plants can often move from canals to other water bodies, and *vice versa*, and the canals may have once played an important role in moving certain plants around the country.

Another characteristic canal plant is Narrow-leaved Water-plantain, *Alisma lanceolatum*, which was recorded on a canal at Madeley by Painter in 1895. This was its only known site in Shropshire when Sinker's Flora was written, it having been rediscovered there by Franklyn Perring in 1975; but further

searches since then have revealed it to be present in a number of other locations throughout the county, and it is no longer considered to be a rarity.

All that is left of the Shropshire Canal network is a couple of stretches at Blists Hill, the Hay Inclined Plane and several reservoirs dotted around Telford. The latter have mostly been converted to ornamental lakes. The Blists Hill canal is not of very significant ecological interest. It does not belong to British Waterways, and it seems very unlikely that it will ever be used for navigation again, but the Ironbridge Gorge Museums and the Environment Agency are still willing to spend money to maintain the 1.5km length that still contains water.

The most recent survey data we have dates from 1995, when the main part of the canal was almost dry. There was a plan to restore it, but I am unaware of whether that has happened. The only species of any significance recorded at that time was the *Alisma lanceolatum*, so it would be reasonable to say that it is not a site of any particular botanical importance. However, it would be interesting to see what species turn up if and when it is restored.

### The Shrewsbury Canal

The Shrewsbury Canal was constructed in the 1790s, primarily to bring coal from the Telford coalfield to Shrewsbury. It runs from the Buttermarket in Shrewsbury, past Attingham Park, to Trench in Telford and, after a while, was extended to Newport to join up with the Shropshire Union Canal. It was built on a narrow gauge, like the Shropshire Canal, and includes a long tunnel near Atcham, which is of interest for bats.

Like most of the canals, it was bought up by the railway companies in the mid-19<sup>th</sup> century and eventually closed down. It is now dry for most of its length, but a large part of the route remains discernable on the map as well as on the ground. For a long time it was designated on the County Structure Plan for conversion to a cycle path, but that does not seem to have got anywhere yet. It is unlikely ever to be restored because (i) it does not belong to British Waterways, (ii) it is a narrow canal, and (iii) there are several serious obstacles now in its way, including the Shrewsbury bypass.

Edward Williams seems not to have devoted much attention to the Shrewsbury Canal. He collected Hemlock Water-dropwort, *Oenanthe crocata*, at Berwick Wharf and fished Horned Pondweed, *Zannichellia palustris*, out of the water at Uffington. This was a first county record for another eutrophic water plant which, like Fennel Pondweed, later started turning up at the meres. On August 8<sup>th</sup> 1832 William Leighton and Charles Babington visited the Shrewsbury Canal and found, among other things, Fennel Pondweed “in great abundance,” Greater Duckweed, *Spirodela polyrhiza*, (a first for the county), Arrowhead, *Sagittaria sagittifolia*, (another first), and Frogbit, *Hydrocharis morsus-ranae*. They also recorded Narrow-leaved Everlasting-pea, *Lathyrus sylvestris*, presumably growing in the hedgerows alongside. It is quite an uncommon plant in Shropshire these days and, although it may have persisted alongside the canal until the 1970s, it seems to have gone from there now.



Frogbit, *Hydrocharis morsus-ranae*

Leighton seems to have collected, but not at first identified, one of the Shrewsbury Canal's rarities, Flat-stalked Pondweed, *Potamogeton friesii*. This species, which is now almost extinct in the county, was known there until the 1950s. Another rarity, Floating Water-plantain, *Luronium natans*, was not found until about 1880, when W.E. Beckwith recorded it. By this time the canal had been linked to the Midlands waterways for many years, and was in fact already pretty much defunct, so the origin of this plant at this site cannot even be guessed at. Another find in the 1880s was Opposite Stonewort, *Chara contraria*, for which there is a specimen collected by James Groves. This alga is now considered nationally scarce, and is currently known in only one site in the county. Long-stalked Pondweed, *Potamogeton praelongus*, is yet another county rarity, recorded at about that time by R.M. Serjeantson.

It seems that the Shrewsbury Canal may have had a rather finer flora than the Shropshire canal did. Perhaps that is a consequence of it running through open countryside, rather than the industrial pollution of Coalbrookdale; but it is just as likely that the botanists of Shrewsbury were simply more diligent.

The current status of the Shrewsbury Canal is not good. A fairly long stretch is still in water between Ditherington and Haughmond Hill. This is managed by the Borough Council with the interference of the locals, and it has the dubious virtue of being one of the county's best site for alien water plants. In a good year you can find Curly Waterweed, *Lagarosiphon major*, Water Fern, *Azolla filiculoides*, Least Duckweed, *Lemna minuta*, Parrot's Feather, *Myriophyllum aquaticum*, Canadian Waterweed, *Elodea canadensis*, and Water-soldier, *Stratiotes aloides*; the latter being considered a rare native plant in some parts of Britain, but an introduced menace around here.



Water-soldier, *Stratiotes aloides*

Several other stretches of the Shrewsbury Canal are still in water or just damp. At Uffington and Berwick Wharf there is water, and even the dry sections elsewhere often have extensive stands of Common Reed, *Phragmites australis*. The OS map shows several other stretches in water, but we have few recent records. Perhaps a survey of the route would be an interesting project.

### The Llangollen Canal

There is a confusing history to the Llangollen Canal, with the many names that it has had. Originally it was intended that there would be a magnificent canal running from Shrewsbury to Chester and beyond, linking the Severn, the Dee and the Mersey. This was to be the Ellesmere Canal, and Netherport on the Wirral was even renamed Ellesmere Port in anticipation. It was envisaged during the height of canal mania, but was never completed. Instead, it ended up running from Llangollen to Weston Lullingfields, not reaching any useful industrial or population centres at all. Subsequently it was extended eastwards across Whixall Moss, to join up with the Shropshire Union Canal at Market Drayton, and the "Weston Arm" towards Shrewsbury was eventually filled in. So what we call today the Llangollen Canal, which is marked on Ordnance Survey maps as the Shropshire Union Canal, runs approximately east-west across the northernmost part of the county, from Chirk past Ellesmere and Frankton Locks, and onwards past Whixall Moss towards Whitchurch.

The Llangollen Canal appears to have been started in 1794 in the vicinity of Ellesmere and Frankton Locks. A branch towards Llanymynech was constructed to bring limestone from the quarries there. Meanwhile, the main line from Ellesmere to Shrewsbury was being started. It was rather later that the aqueducts over the Dee and Ceiriog were built, owing to the cost and difficulty of constructing these magnificent structures, and the final connection to the feeder between Llangollen and Pontcysyllte was not opened until 1808.

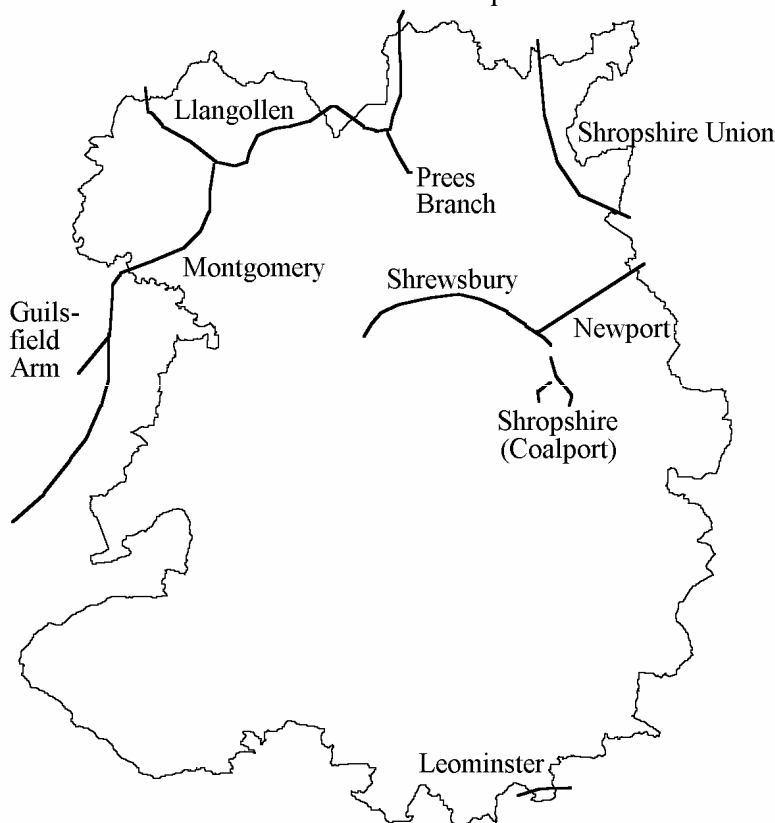
This sequence matters somewhat from the point of view of the colonisation of the canal by aquatic plants. We have no botanical records that are definitely from the canal until rather later. J.E. Bowman was the first to make records. He was born in 1785 and died in 1841, so it not be unreasonable to suppose that many of his records date from between 1805 and, say, 1830. He described a hydrological link between the Mere at Ellesmere and the Llangollen canal in his record for Starfruit, *Damasonium alisma*: "abundant in Ellesmere Mere and adjoining ditches and canal." This is fascinating, because Starfruit is not described anywhere else as a canal plant. It seems highly likely that, when the canal cut through the peat bog at The Moors, there was ample opportunity for colonisation of this new and otherwise isolated water body, from the Mere itself. Bowman also recorded Blunt-leaved Pondweed, *Potamogeton obtusifolius*, at "Ellesmere" – quite likely also to have come from the canal.

Other plants soon came to colonise the new canal. By the mid to late 19<sup>th</sup> century, when the canal was already in decline, a marvellous selection of rare species had been recorded. Serjeantson collected Red Pondweed, *Potamogeton alpinus*, in 1880; and William Beckwith and William Phillips collected Long-stalked Pondweed. Flat-stalked Pondweed was added to the list in 1884, and then, in 1893, Rev. J.D. Gray found Floating Water-plantain. This latter plant is of particular significance, because it is of national and international rarity. It is so rare now that you need a licence from the government to collect it.

There is an interesting sequence to the arrival of Floating Water-plantain in the Llangollen Canal, and subsequently into the Montgomery Canal. There is a theory that it floated down from Lake Bala, along the River Dee, through the feeder stream at Llangollen, and subsequently all the way along the Llangollen canal to Ellesmere. The earliest suggestion of this that I have come across was by Oswald Mosley Feilden in the Record of Bare Facts in 1906. But we also know that there used to be Floating Water-plantain in the Mere at Ellesmere, which was hydrologically linked to the canal some ten years or so before the extension to Llangollen was completed. It is therefore possible that this species entered the canal from The Mere, and that at least some of the plants which remain in the Montgomery Canal are derived from this source, preserving the genetic heritage of a lowland population of this now mostly upland species.

Today the Llangollen Canal in Shropshire is not of much ecological interest. It is connected to the inland waterways network and is constantly boated. The motor-powered craft now used on canals stir up the mud from the bottom, and the wash erodes the banks. As a consequence, the water is too opaque for submerged species, and the marginal plants get washed away. To prevent damage to the banks, British Waterways puts in vertical metal pilings or brick walls, which leave no niche for plants at all. This is the situation now throughout all the Shropshire sections of the canal, and even at Llangollen it is thought that the Floating Water-plantain may have become extinct.

### The modern names of canals in Shropshire



If there is one ray of hope for the Llangollen, it is that the water quality is probably good, if only there was not so much suspended silt. Experience from other canals shows that all it takes is a short side arm of ten metres or so, which is undisturbed, and the water clears enough to allow the aquatic flora to flourish. Perhaps in future there will be the opportunity to develop such side-arms as nature reserves, to enhance the overall value of the canal. It is a possibility – and this is pure speculation – that the water from the Llangollen Canal could be part of the reason why Cole Mere has retained its unique English population of the very rare species Least Water-lily, *Nuphar pumila*. The overflow from the canal presumably brings a supply of clean, nutrient-poor Welsh mountain water that helps to maintain the quality of the mere. To clarify that hypothesis, we would need to know what proportion of the mere's water is derived from this source.

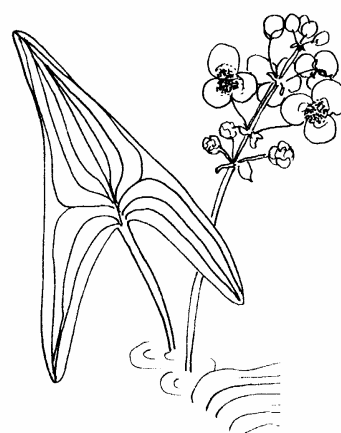
### The Prees Branch Canal

The Prees Branch Canal is a side arm of the Llangollen which runs from the south side of Whixall Moss towards Wem. It was never completed and part of what was built has now been filled in. In the 1960s it was found to have a rich flora, including Frogbit, Red Pondweed, Needle Spike-rush, Flowering Rush, *Butomus umbellatus*, and the hybrid sedge *Carex x boeninghauseni*ana – the only place where this particular hybrid has been recorded in the county. But in the 1970s an ideological battle was fought over the development of this canal for a marina, where boats using the Llangollen Canal could dock. It was argued, successfully, that development would not harm the ecological interest of the site, and the Shropshire Wildlife Trust ended up with the southern end of the canal while the marina went ahead. Subsequently, all aquatic plants promptly disappeared from the marina and the northern parts of the canal, whilst even the reserve has subsequently and steadily declined in quality. It still has Tubular Water-dropwort, *Oenanthe fistulosa*, and water-violet, *Hottonia palustris*, but the Frogbit seems to be on the verge of extinction there. This is perhaps a lesson to be remembered for future debates on the consequences of restoration.

### The Montgomery Canal

What we now call the Montgomery Canal was originally the Llanymynech Arm of the Ellesmere Canal, later extended to Newtown as late as 1819. This canal has some 19km in Shropshire and the rest (currently about 34km) in Montgomeryshire. For the purposes of this article I shall include the Welsh sections even though it is at present completely isolated from the English length by a short dry stretch.

The oldest record for the Montgomery Canal is by Edward Williams at the end of the 18<sup>th</sup> century. He found least Bur-reed, *Sparganium natans*, “near the Queen’s Head turnpike.” That species is now almost certainly extinct in Shropshire. Other rare plants recorded include Long-leaved Pondweed, *P. x zizii*, by Beckwith in 1885, and Floating Water-plantain – first recorded in the Montgomery Canal as late as 1906, by Professor W.N. Jones of London University. Another classic species of this canal is Grass-wrack Pondweed, which was first collected at Welshpool in 1938 by Miss S. Haines, who I think may have been the daughter of Henry Haselfoot Haines, once the Conservator of the Forests of India.



Arrowhead, *Sagittaria sagittifolia*

The Montgomery Canal is extremely important for conservation in Britain. It has an advantage over most canals from its situation in the foothills of Wales. It is fed by the River Severn and in places actually merges with it. This gives it a running supply of unpolluted water which, once slowed down within the canal itself, creates a superb habitat for aquatic species. By a curious chance, it forms the last really substantial refuge for a whole range of what were once typically English lowland species, but which have declined in this country as a result of eutrophication of water bodies.

So, uniquely among the canals of Shropshire (and its near neighbours), the Montgomery still contains all the plants of conservation interest that used to occur in this county. It has literally millions of plants of Floating Water-plantain; several species of pondweed: *compressus*, *praelongus*, *friesii* and *alpinus*; lots of Frogbit; Needle Spike-rush; Alternate Water-milfoil; and even a rare stonewort, *Nitella mucronata* var. *gracillima*. One special feature is the presence of freshwater sponges, which are so rare in this country that British Waterways’ ecologists have to send specimens to Russia to have them identified. From the Shropshire lengths, all these species have virtually disappeared since the restoration and re-opening of the canal to boat traffic; but in the Welsh parts they are thriving.

The battle over the restoration of the Montgomery Canal started as long ago as the 1960s. In about 1980 an Act of Parliament was passed, permitting restoration for navigation on condition that a number of off-line reserves were built. It was intended that these would be like the Prees Branch Canal *before* it was converted into a marina, but in the event only a few reserves have been constructed, and they have ended up more like Prees Branch *after* it was trashed. They have not been successful in conserving the typical canal plants, although they are quite interesting as ponds.

The future of the Montgomery Canal is very much in doubt. Restoration in Shropshire has proceeded in exactly the same way as with the Prees Branch: promises that conservation will be catered for,

followed by almost complete destruction of the aquatic flora. It is only the fact that boats cannot cross over into Wales that has saved the southern half from a similar fate. It would cost a fortune to restore the Vyrnwy Aqueduct and the Guilsfield Arm (now dry) and the last few abandoned sections into Newtown, so perhaps there is still some time. But surely there must be some way of reconciling boat traffic with conservation, to preserve this, arguably the most ecologically important canal in Britain.

### **The Shropshire Union Canal**

Although almost all the canals in Shropshire are labelled on the OS map “Shropshire Union Canal,” the one that is now given that name is Thomas Telford’s Birmingham & Liverpool Junction Canal. It was finished as late as 1835 (after Telford’s death) and was apparently designed to be straight and fast, in order to compete with the railways. There are almost no botanical records for the SU Canal, except for some recent records of the alien species Orange Balsam, *Impatiens capensis*. One cutting is designated a SSSI for the geological exposures, however.

### **The Newport Canal**

Joining the Shrewsbury and the SU Canals was the Newport Canal, which thrived for a while in the middle of the 19<sup>th</sup> century. In 1897 William Phillips recorded Whorled Water-milfoil, *Myriophyllum verticillatum*, there – the only find of this nationally scarce species in a canal in Shropshire. He also found Frogbit. Even now parts of the Newport Canal are designated SSSI because of their interest. Frogbit is there, along with Long-stalked Pondweed and the nationally scarce (but here introduced) Fringed Water-lily, *Nymphoides peltata*. It is interesting to know that Grass-wrack Pondweed was found by George Claridge Druce at Aqualate Mere just once, in 1929. It is not really a species of the meres, and it is quite possible that it arrived there from the nearby Newport Canal – a stretch that is now dry.

Perhaps the greatest advantage of the Newport Canal is that it is isolated from the Inland Waterways network and is not the subject of a restoration scheme. Although it is far less valuable, ecologically, than the Montgomery Canal, it may have better prospects in the near future. However, without the clean water supply from the Welsh mountains that the Montgomery enjoys, one might wonder how long it can sustain its present population of uncommon species.

### **The Leominster Canal**

There is not a lot to say about the Leominster Canal. It was never actually completed, and has now almost gone again. There appear to be just two records for it. The sedge *Carex x pseudoaxillaris* (*C. otrubae* x *remota*) was recorded there by Edward Cleminshaw in 1901, and Yellow-wort, *Blackstonia perfoliata*, is listed for the canal bank in Leighton’s Flora. A very short section in Shropshire is still shown on the OS map, but we have no recent records.

### **Conclusions**

The canals of the Welsh borders occupy a strategically important location in Britain, being in the rural and relatively unpolluted foothills of the Welsh mountains. This makes them especially promising for the long-term conservation of a variety of rare and endangered plants, including some for which Britain has an international legal responsibility. To date there have been hopelessly inadequate efforts to reconcile restoration and conservation, resulting in complete destruction of the ecological interest of several canals, which has been compensated for in an almost meaningless way by the construction of some ponds. On the other hand, several canals have also been lost through neglect.

In the Montgomery Canal in particular, conservation must be the highest priority in future, with recreational use being permitted only in ways that does not destroy the aquatic flora. If this means that boats would have to leave their engines off and be towed by horses (or towpath vehicles) then why shouldn’t they? It is a privilege to travel along such a beautiful canal – if this was the condition for permission to do so, I have no doubt that many people would.

Other canals in Shropshire are, ecologically and sometimes physically, in a desperate state. The Llangollen has the potential to be a very fine water body, but is apparently in a state of rapid decline. The Newport is still a SSSI, but for how long, I wonder? Most of the rest are as good as lost. Whatever happens, the Botanical Society will continue to record and monitor all the canals as long as they exist, and can report honestly and scientifically on the state of their flora.

# The uncertain distribution of Cat's-tails in Shropshire

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Roger Green

## Introduction

There are approximately 15 species of the genus *Phleum* found in the temperate regions of the world, of which five are native to the British Isles and, of those, just two – Timothy, *P. pratense*, and Smaller Cat's-tail, *P. bertolonii* - are recorded in VC 40 Shropshire.

Both species are widely planted for grazing and hay pastures from selected strains. Timothy is common in field margins, roadsides and waste places, but probably native only in water meadows and damp grassland (Hubbard 1984). This distribution is borne out in the Flora (Sinker *et al.* 1985) where no distribution map was published and with the additional comment "Frequent throughout lowlands, less so in hill country". For Smaller Cat's-tail however there is some confusion. The distribution map given, at subspecies level, shows the majority of sites in five of the southern 10km squares and the statement "is common in the uplands but its distribution and ecology not reliably separated from type". The purpose of this article is to examine whether the latter really is more common in the uplands, or whether it may be under-recorded more generally.

One approach would be to examine other data sets and see whether there is a similar distribution elsewhere. Accepting that a distribution of a species in the county should not be taken from NVC data when so little of the county was surveyed, it is stated that the data is based primarily on floristic information and therefore assumptions could be made on what you would expect to see in, for instance, neutral or calcareous grassland. So in the mesotrophic grasslands MG5 and MG6 or the calcareous grasslands CG2 and CG3 one would look for equal coverage of the two species, but that is apparently not so on the plains of Shropshire. And you would not expect to find Smaller Cat's-tail to be noticeably more common in the southern hills.

A point could be made that a geographical split of the two species would still give the same result in the data since both have no effect on the NVC classification, however all authors are in agreement that both are cultivated and naturalized widely.

Looking at the "Key for the Identification of Grass in Turf" (Hubbard 1984), presumably a standard work at the time of the NVC contract, the last couplet that splits the species is as follows:-

Leaf-blades 2-5mm wide. Ligules 1-4mm long. Sometimes with leafy stolons.

*Phleum bertolonii*

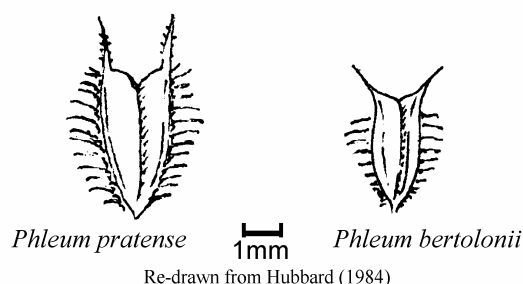
Leaf-blades longer and wider up to 9mm, perhaps twisting. Ligules up to 6mm.

*Phleum pratense*

In (Clapham *et al.* 1987), the only applicable statement for turf identification of the then subspecies is:-

Subsp. *pratense*, ligule obtuse.

Subsp. *bertolonii*, ligule acute.



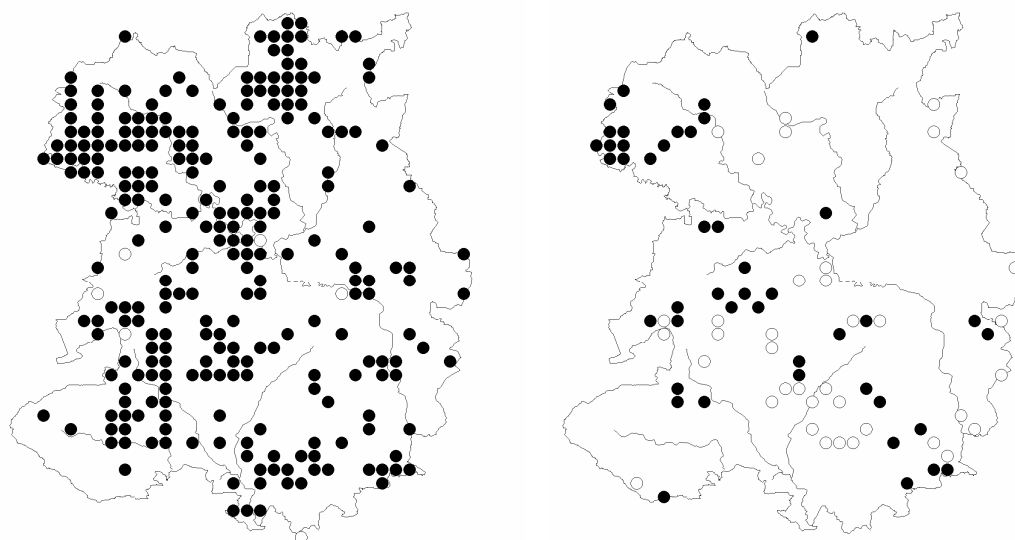
Above: spikelets of Timothy and Smaller Cat's-tail

With such a large overlap in the measurements, and the ligules both pointed albeit at different angles, there may be a strong bias in the NVC data towards the smaller plant. So is there:-

- 1) a similar distribution of the two species within the county which may be hidden by imprecise recording to date, or
- 2) is there an ecological reason for Smaller Cat's-tail not to compete for instance, in rank roadside verges where it would be allowed to flower with easier recognition, or
- 3) is the NVC data biased?

### Conclusion

If we compare the distribution of Smaller Cat's-tail as given in available data with a Soil Association Map (Burnham & Mackney 1964) we can see that it has a probability of being recorded in Soil Association 1 (leached brown soils and calcareous soils) by a factor of four above all other Associations. This accords with the NVC data where Smaller Cat's-tail tends towards calcareous grassland but is also found on a broad spectrum of soils, and it is probably native and would naturalise more readily in the calcareous conditions. As seen from the Flora data 1970-1983, the significant records from the North West of the county were not available to the authors, hence the comment "common in the uplands". However it would appear that Smaller Cat's-tail could be recorded in the pastures, meadows and leys of the Shropshire plain but it will require a careful approach to recording to find it. It is most likely to turn up in fields where it would have been sown, originally, rather than on roadsides and unfarmed land; and it may be necessary to scrutinise a sward closely if it is to be identified in its vegetative form. As general practice, all new records of Smaller Cat's-tail should be supported by a voucher specimen, especially if away from the limestone.



Distribution maps of Timothy (left) and Smaller Cat's-tail (right). Open circles represent records before 1985. Timothy was an "A" species and was not recorded during Sinker's Flora Project – it is probably ubiquitous. New records for Smaller Cat's-tail have shown that it is relatively common on the limestone in the Oswestry area and along the Montgomery Canal.

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Treasurer: Roger Green, Manor Cottage, Ratlinghope, Shropshire, SY5 0SR

This newsletter is produced by the Shropshire Botanical Society

66 North Street, Castlefields, Shrewsbury, SY1 2JL

Tel & Fax: 01743 343789

Mobile: 0585 700368

E-mail: alex@whild.icom-web.com

or s.j.whild@bham.ac.uk

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