

Annual Review

A warm welcome to the Marches Meadow Group Annual Review for 2023



*Haymaking
(c) Adrian Donnelly*

Dear Marches Meadow Group Members,

A short note from me as the new chair of Marches Meadow Group - a role I am excited and pleased to take on. I have watched the Group's activities with keen interest, and been impressed by the quality of its scientific work and ambition. I particularly acknowledge the interest generated and increase in this valuable wildlife habitat that the Group has achieved to date. I would like to thank and acknowledge the work that the previous chair, David Poynton, has carried out and I am aware I have a good act to try and follow!

You can read a short bio of my work in nature conservation elsewhere in this newsletter and many of you will already know me from my role as

Countryside Manager for the National Trust in South Shropshire. As a committee, as you will see, we are busy looking at how we work in the future following a recent in-depth review of our finances and work to date. As part of this I am keen to meet members ideally on site and get to hear their experience first hand and get a feel for the meadows they are managing.

Please come and chat and introduce yourselves as and when you get a chance at meetings and site visits or indeed get in touch directly if you wish. If I can help I will be happy to do so.

**Best wishes, Peter Carty, Chair
Marches Meadow Group
petercarty@bishopscastle.co.uk**



Seed collection workshop, Ratlinghope in high summer (c) Sarah Jameson

Some thoughts on my time as MMG Chair

I've been asked to offer a few thoughts on my time as Chair.

Amongst the many complex challenges we faced, I'd highlight preparing the individual project targets for both the People's Postcode Lottery and then in rapid succession the Stepping Stones Heritage grant, which tested our resolve; satisfyingly, our positive outcomes were on time and to budget. Innovative approaches to green hay collection enabled greater areas of new meadows to be created, particularly during the second grant period. The BCS small scale equipment, purchased with the first grant, was used to great effect throughout our later projects and is an asset for the future.

Our knowledge, expertise and techniques for meadow-making and habitat definition has grown enormously over this period. The level of meadow expertise within the Group is a real asset for its future development and needs to be nurtured and developed further.

The Group continues to attract new members and it is really satisfying that over the past 4½ years membership has tripled to around 170 and was sustained even through the difficult Covid lockdown period when all events had to be cancelled. Interest in our wider activities can be enhanced further by the varied event programmes on offer and I believe, by greater co-operation across the many vibrant wildlife groups in our area.

Little of this would have been possible without the support of an active Committee and membership. I'm most grateful to all who provide support during my term. I wish the Group good fortune for the future with Pete at the helm.

David Poynton
Outgoing Chair





You can also buy MMG cards at events we hold and attend and the prices there will be less due to no postage/packing.

MMG Hay Meadow greetings cards

Celebrate the beauty and diversity of our hay meadows by sending a Marches Meadow Group greetings card!

There are 10 designs available as A6 greetings cards. They are blank inside and come with recycled brown kraft envelopes. Illustration and design by local artist, Sarah Jameson.

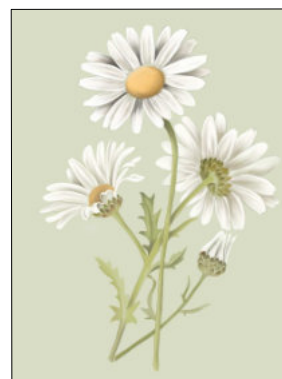
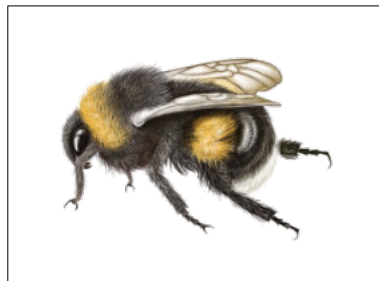
Pack of 4 (choose any 4 cards): £12.00 (inc. p&p)

Pack of 10 (full set): £22.00 (inc. p&p)

Designs include: Silver Y moth, Bumblebee, Swallow, Small Skipper, Early Purple Orchid, Salad Burnet, Yellow Rattle, Ox-eye Daisy, Meadow Brown Butterfly and Summer Bouquet.

Buying MMG cards will help us raise funds for our work.

Contact: Sarah Jameson
(images@sarahjameson.co.uk)





*Deutz with grass grab
(c) Adrian Donnelly*

The (Un)Economics of MMG's Hay Making Service

For some years now it has been apparent that MMG's hay-making service is not breaking even. Our past chairman, David Poynton, was greatly concerned by this state of affairs, especially as MMG acquired more equipment through the grants obtained by the Stepping Stones project. Although some associated costs were also paid for by the most recent Green Recovery Challenge Fund award, generally grants will pay for capital items but not routine costs such as machinery maintenance. These concerns have led to a re-appraisal of the hay-making service and a proposal for a new way of working to be trialled in 2024.

The two main costs associated with the hay-making equipment are insurance and maintenance/repair. The former does not increase directly in proportion to the value of the equipment MMG owns, but, as we all know, insurance costs rise each year. In 2023 the insurance premium for MMG's equipment was £1,321. Maintenance costs increase as more machinery is acquired, although if all the items are used the wear and tear should be less on each item. In 2023 maintenance costs were £2,494. We are fortunate that our contractor, Mark Oldham, is a skilled agricultural engineer who is willing to prepare the equipment prior to the start of the season and who can do much of the routine maintenance.

Thus to break even in 2023 £3,815 was needed on top of the payment to MMG's contractor. Circumstances beyond MMG's and Mark's control

meant that fewer jobs could be undertaken in 2023, and it was decided that Mark should focus on the smaller or difficult to access sites that could be completed with the BCS machine and its attachments. Only one or two tractor jobs were undertaken where other contractors could not access the site. It was also decided to mothball one tractor, although it had pre-season preparation in case the operating tractor broke down.

It was also decided, on the basis of the costs incurred in 2022, that as the tractors have proved much more expensive to maintain than the BCS, charges should be greater for tractor work (£52.50 per hour including contractor's fee) than for BCS work (£42.50 per hour including contractor's fee). Even these seemingly high charges were known to not cover all the costs, but were seen as an interim measure.

Unfortunately the decisions were taken too late to give prior warnings to members requiring the service; this has been a perennial problem for MMG resulting from too much work falling on too few volunteers, but for 2024 we intend to tell members the hourly rates when asking what services are required. This does not allow the overall cost of any job to be determined as the number of hours required depends on the weather before and during the hay-making season. We are grateful that all the 2023 hay-making invoices were paid, and only two members complained about the unexpected increase in charges.

Of 22 jobs originally requested by members four were withdrawn by the clients and nine were rejected as too large (many of these were completed by another contractor that MMG has used previously). Nine 'booked' jobs, plus two additions, were completed by Mark despite poor weather during the hay-making season, except for a good week at the beginning and another good week at the end. These eleven jobs totalled 98 hours' work, and yielded an income to MMG of £1,765.

Thus despite the hike in charges MMG lost £2,050 (£3,815 - £1,765) on the hay-making work in 2023. This is a cost borne by all MMG's members when only 15% of members wanted to use the service in 2023 (and even fewer, 7%, actually had their work completed by Mark). If this loss were to be continued in future years MMG would soon be bankrupt.

So, what's to be done? Apart from giving advance warning of hourly charges to members, we would like to increase the number of hours the equipment completes each year. Although this may cause the maintenance costs to increase a little, it would not

be in direct relation to the increased hours, and insurance would be unaffected. We will review the effectiveness of each item of equipment and, if necessary, replace items with others that increase efficiency or the range of jobs that can be undertaken. We have asked Mark to consider how the machinery could be used more and what items might be sold to fund the purchase of other, more useful, items.

We are also looking at trialling (initially for one year) a system whereby Mark bears the overhead costs and charges clients directly, with no money coming to MMG. This would mean the majority of MMG members were not subsidising the few, and MMG would concentrate its resources on other conservation and membership activities. Nevertheless, MMG would take a keen interest in the hay-making work to ensure that members using the service receive a fair deal, and that members' and MMG's conservation objectives remain paramount.

Richard Small

Peter Carty

I describe myself as a Naturalist and Community Volunteer active in several community wildlife groups in South Shropshire.

For the last 24 years I have been the Countryside Manager for National Trust in South Shropshire delivering land management for Conservation and Public Access on NT land from the Welsh border to Kinver in South Staffs. This is c 10 000 acres of land across 14 sites. These included Long Mynd, Wenlock Edge, Dudmaston as well as Hopesay, Fir Tree Farm, Jinley meadows, Ragleth and Barns Farm.

Prior to that I have managed Sand Dune Nature Reserves in Merseyside and Cumbria with a special interest in Natterjack Toads and grassland management for flora, RSPB Farmland in Orkney for Corncrakes and breeding waders and Sea bird sites in Orkney and Seychelles. A brief spell was spent as an Ecological Consultant translocating slow worms in North London but managing nature reserves was more fun.

I retired in September 2023





Photo: Left to right: broken blade of spade, broken pocket knife, hori-hori and sheath

Useful but little-known tools

Until recently my (RS) efforts to control spear and marsh thistles on our land by cutting through the thistle root below ground level relied on either a spade with a broken blade or a pocket knife. The former was efficient and led to a number of enquiries from passers-by about the purpose of the odd shaped blade, but required a specific expedition to tackle thistles rather than a tool that could be used casually when going about other tasks. Pocket knives fulfilled the latter aim but were soon too blunted by the soil to be used for anything else, and over the years I broke the blades on at least ten knives.

I reported this dilemma to my son who took up the challenge of finding a suitable tool. His internet researches led to a Japanese gardening tool called a hori-hori. I have also seen it called a soil knife. It has a curved steel blade about 20cm long and with one straight edge (that can be sharpened) and one serrated edge. It has proved ideal for the thistle root cutting and has also been used to remove a few first-year ragwort plants. It has a scale in inches and millimetres and can be used for other jobs in the garden such as bulb planting and weeding.

Its only suspected drawback would be if it is worn (it came with a sheath for attachment to a belt) in public when a charge of carrying an offensive weapon may result! There are many brands available on e-bay at varying prices.

Christopher has a tool called a grass-slasher (pictured right) that he uses to swipe off the new fronds of bracken as they appear; it would also be

suitable for new shoots of creeping thistle. The steel handle ends in a thin, curved blade (that can be sharpened) and the slasher has the advantage of not needing the user to bend over to the extent needed to use the hori-hori.

The slasher is available from Sheffield Industrial Saws (<https://walkertools.co.uk/product/grass-slasher-with-plastic-handle-and-display-wallet/>) for £9.15 at the time of writing.

Christopher Brand and Richard Small





Scarlet Waxcap
Photo (c) Sarah Jameson

Opening a Box of Delights: Waxcap grasslands and CHEGD assemblages

I was always much more beguiled by the growing numbers of wild flowers in our field than the fungi that raised their heads in the meadow turf in the autumn and winter months. But some recent new discoveries on site have given me a fresh appreciation for (in particular) waxcap fungi and their intriguing, not to say sometimes distinctly odd, allies.

This autumn, while scything part of the field that otherwise does not get mown or grazed, we found some rare green Earthtongue fungus (*Microglossom pratense*). There are only 3 other records of this fungus in Shropshire. Twisted, finger-like and vividly (almost unnaturally) blue-green in colour when young, they initially resembled electrical cabling lying in the grass. Nearby we found what looks like *Clavaria incarnata* a scarce pinkish coloured club (Skinny Club) and a uncommon off-white coral called *Ramariopsis subtilis*. Elsewhere we think we found *Ramariopsis kunzei* (var. *robusta*), another uncommon grassland coral fungus. In addition to these rarities, we have recorded at least 15 species of Waxcap in the field so far.

Perhaps the very wet Autumn conditions may have contributed to the appearance of these more unusual fungi this year. Some may only fruit



The “CHEGD assemblage”

Waxcaps, corals, spindles, clubs and others form part of what ecologists call the CHEGD fungal assemblage - that is the key fungi groups that appear in old, 'unimproved' grassland and which are often found in association with each other - in so-called "waxcap grasslands."

CHEGD is an acronym as follows:

- C:** *Clavarioids* - Spindles, club and coral fungi
- H:** *Hygrocybe* - The waxcaps
- E:** *Entoloma* - Pinkgills
- G:** *Geoglossum* - Earthtongues, and
- D:** *Dermoloma* and relatives - Crazy caps

With my thanks to Rob Rowe for site visits, fungi ID, microscopy and encouragement!

(i.e. come to the surface and show themselves) occasionally, so you have to keep your eyes peeled! These fungi generally need to be formally identified through microscopy, where the spores and other features can be examined in detail, something which Rob Rowe has been kind enough to do for us to reach positive IDs.

Threats to waxcap grasslands

Shocking fact: nearly 90% of all waxcap species are threatened or on the Red List.

It is tragic that waxcap grasslands, scattered as they are at certain times of year with jewel-like fungi of such differing forms and bright colours (yellow/green/orange/red/white) bubbling up from the turf, have been mostly lost in the UK, a global hotspot for these habitats.

Waxcap grasslands face many serious and varied threats currently:

- *Lack of protection through under-recording*
- *Inappropriate tree planting*
- *Rewilding (where grazing pressures are removed/ drastically reduced)*
- *Climate change (increased flooding events, nitrogen deposition, drought, wildfire)*
- *Intensification of land management (ploughing, liming, disturbance, fertilisers, re-seeding)*
- *Human development - housing, transport infrastructure*
- *Overgrazing and undergrazing*
- *Incomplete scientific knowledge/understanding about these organisms and their interactions.*

So much of our UK grassland has now been ploughed, disturbed, resown and intensively managed with inputs of fertiliser for the purposes of production. This destroys the delicate underground

mycelia (root-like structures) of these fungi (although it is thought that some, such as Snowy Waxcap are slightly more able to cope with some of the above). Churchyards are often good places to see waxcaps since they tend not to get ploughed/fertilised and the sward is kept short. Cricket grounds and lawns can also come up trumps.

Management choices

So, having now found these rarer CHEGD species in parts of the field we had originally (and perhaps naively now) left to “go rough,” we have to re-think our management and bring in further cutting and/or (ideally) grazing - not so easy now the fencing is permanently in place! Our original idea to plant up a larger wood in the field was thankfully shelved at the time. All/most of those CHEGD species would have been eventually lost under tree roots and soil disturbance. This story underlines quite well the dangers these sensitive grasslands face through (in our case) lack of knowledge in otherwise well-meaning site owners!

Some useful links

There is much useful information online. Here are a few links to try if you want to find out more.

- [Plantlife - how to ID waxcap fungi](#)
- [Plantlife Waxcap Watch](#)
- [Sussex Biodiversity Record Centre Waxcap Identification Tool](#)
- [Waxcap fungi vulnerability assessment \(Peak District NP\)](#)

Sarah Jameson
[We bought a Field website/blog](#)



What can Marches Meadow Group members do to help?

One way we can try and ensure these special grasslands survive and thrive is to identify and record them! So if you have noticed any waxcaps, spindles, clubs or corals in your meadow or lawn (or when out and about locally), could you photograph them, provide a specific location (grid ref or what3words ref) and send the information to Rob Rowe at rob@robrowe.co.uk - These fungi will fruit until the frosts arrive. See the mini gallery on the next page for some of the common - and not so common - forms we have found in our field over the last couple of years.

A CHEGD “smörgåsbord” from Stony Field



Hygrocybe pratensis -
Meadow Waxcap



Hygrocybe coccinea -
Scarlet Waxcap



Ramariopsis kunzei (var. *robusta*)
Ivory Coral (?)



Clavulinopsis corniculata -
Meadow Coral



Clavaria incarnata (?)
Skinny Club



Microglossom pratense (*olivaceum*)
Green Earth tongue



Gliophorus psittacinus -
Parrot Waxcap



Ramariopsis subtilis



Hygrocybe coccinea -
Scarlet Waxcap



Hygrocybe chlorophana -
Golden Waxcap



Hygrocybe pratensis -
Meadow Waxcap (?)



Hygrocybe conica -
Blackening Waxcap



Hygrocybe virginea -
Snowy Waxcap



Hygrocybe reidii -
Honey Waxcap



Gliophorus psittacinus -
Parrot Waxcap



Photo (c) Alan Herbert

MMG visit to RL Wildflower Seeds and MMG members' collective seed orders

On 1 July (National Meadows Day) MMG members were invited to visit RL Wildflower Seeds at Albrightlee, just outside Shrewsbury.

Around 20 members had a tour of the fields and Robert Lee gave us an insight into producing top quality commercial seed. As well as seeing the beautiful wildflower fields with Betony and Agrimony in particularly vibrant strips, members were given a 240 plug seed tray. Robert showed us how to sow the tray with a mix of seeds from the most recent harvests including Betony, Sneezewort, Devil's Bit Scabious and Meadowsweet, to be ready to plant out in August. Ours all grew in their plugs (yes – they are good seed!) and we are now waiting to see how they cope, fighting it out in the sward of the stack yard at Leaton!

Following our visit, Robert has confirmed that he is happy to supply seeds to our members at his standard wholesale rates – a very good deal for us compared to online retailers, and also guaranteeing top quality local Shropshire seed! He is a wholesaler so has a minimum order price of £40+VAT.

To allow members who wish to purchase smaller quantities, MMG is planning to collate smaller orders to send in group orders at the end of April, July and September. This will be appropriate for spring, summer, and autumn wildflower seed harvesting. In addition to the usual meadow mixes, this is a great opportunity to obtain seed for specific

species which would otherwise be very expensive to obtain (most mixed seed online involves a significant fraction of grass seed and relatively small quantities of the less common meadow flower species). Robert is also happy to share his knowledge and experience in advising on quantities and the conditions the seeds need for successful establishment in your land.

We will circulate more details and a price list as soon as next year's catalogue is available. Please note that species will become available at different times corresponding to their harvesting date, so some requests may need to await the harvest times. Alan and Philippa will coordinate combined orders for MMG and arrange local delivery/collection for members. We will send out more details in a members email early next year.

Members wishing to order quantities of seed for larger meadow areas for next year are welcome to contact Robert directly at rs.lee0204@gmail.com

Alan and Philippa Herbert
Leaton Hall Farm, Leaton

Leaton.Hall@gmail.com

1

The rise and fall of flowering abundance in two adjacent hayfields - more fascinating than it sounds

Introduction

Features which favour the survival of unimproved pastures and hayfields include small field size, sloping land and areas with difficult off-road access. Such features probably account for the existence of many interesting grasslands on the holdings of Marches Meadow Group - MMG members. Heidi and Nigel Flowerday are fortunate to own three such fields at Brackenhurst on the outskirts of Hanwood.

In this account I report changes in flowering abundance in plots in two of the fields from late May to early July i.e. immediately before a commonly used hay harvest date of early to mid-July. At Brackenhurst the whole ethos is to maintain a conservation island in a landscape generally subject to agricultural intensification and, in parts, recreational use. To this end, hedges are strengthened and enriched, old trees retained and new ones planted, marginal areas lightly managed or unmanaged, dead wood retained and boggy areas preserved. Inevitably, positive management in one habitat benefits others. For example, looking after both a) shaded and b) open grassland areas has resulted in a large increase in the extent of Bluebells in bloom at Brackenhurst.

Photo1 (above) : Field 2 at Brackenhurst on the 29 May 2023 with silhouetted Meadow Foxtail heads in the foreground. In the middle distance the white colour is due to Pignut and the somewhat fainter yellow colour to Yellow Rattle.

The history of the grasslands before Heidi and Nigel bought Brackenhurst five years ago is somewhat unusual, being mown on a three weeks cycle with a self-mulching mower. There is anecdotal evidence of limited grazing after circa 1958 when Brackenhurst was built. Prior to this it was conventional agricultural land. There was no mowing in 2018. From 2019 conventional hay meadow management was implemented with limited mowing/stubble removal without any grazing in the autumn.

After an initial examination, I decided to look at two of the three fields which were moderately similar, using 25 metre square plots. In order to avoid trampling on the sward, the plots were linear and adjacent to mown paths. Allowing for marginal areas, the combined extent is approximately 3.5 acres. The twenty five inch map published in 1902 shows a) no division between the two fields and b) survival of features which suggests limited change in over 120 years.

Technique

I started the investigation on 31 May 2023, a little later than the ideal date. I aimed to include three major hayfield species, listed here in order of flowering - Meadow Foxtail, Cocksfoot and Yorkshire-fog. Ten plots were created, four in the first field and six in the second. Meadow Foxtail was erratically distributed and plots were positively selected to include this species. (My very limited experience of Shropshire hay



Photo 2: lot 5 in Field 2 on 29 May with Pignut, Yellow Rattle and Meadow Buttercup in bloom. Visual assessment was carried out using the canes as guides and hence with minimum trampling.

Photo 3: Plot 5 in Field 2 on 9 July. Yorkshire-fog reached its maximum flowering on 22 June generally and on Plot 5. Common Bent peaked on 3 July generally and on Plot 5. Both were slightly over on 9 July. Together as mature inflorescences they dominate the stand at this time, with no broad-leaved species visible in bloom in the image.

Photo 4: Plot 10 in Field 2 on 3 July. Despite this image being taken at an earlier date than for Figure 3, the sward appears more advanced. The maturing inflorescences of Yorkshire-fog, which reached its maximum flowering on Plot 10 on 22 June, are very conspicuous. Also present are the brown Yellow Rattle fruiting stems near the left hand corner of the plot. Common Bent was abundant on Plot 10, peak flowering was jointly on 3 and 9 July. Visually it is partly masked by Yorkshire-fog.



fields has also shown a patchy occurrence of Meadow Foxtail elsewhere). Flowering abundance was recorded subjectively on an arithmetic scale - the units being 0.25, 0.5, 1.0, 2.0, 4.0; (with extra values of 1.5, 3.0 and 6.0). This rapid recording technique generates a considerable amount of useful data; but if more time is available, more rigorous monitoring e.g. using a greater number of smaller plots, can be undertaken. (Vegetative cover was not recorded, but vegetative presence/absence, species in bud and in fruit were recorded). The termination date - 9 July - was set in order to remove the marginal cane markers before possible mowing. However, the weather thereafter actually prevented an early or mid-July mowing. Five visits were made. In some cases recording spanned more than one day. In this account the first recording day is used. The date ranges are appended. The number of Meadow Foxtail stands was limited. Hence the plots had slightly different marginal dimensions to accommodate pairs of nearby stands, but were always 25 square metres and linear. The narrowest plot was 12.5 x 2m and the broadest was 8.33 x 3m. Plots were photographed on every visit. To assist readability, English names have been used in the text and I have appended a list of



scientific names. Both use Stace (2019) as their source.

Results

Two traditional meadow species, Meadow Buttercup and Meadow Foxtail, and one less common hayfield species, Pignut, showed maximum recorded flowering on the first visit - 29 May. All declined thereafter. Conceivably, the absolute peak of Meadow Foxtail had been a little earlier. Maximum values of Sweet Vernal-grass were also on this date.

Yellow Rattle had been introduced to the site in 2020 and had established itself very well. Heidi and Nigel report abundance is increasing each year. On 10 June it was at its flowering peak, as was Cocksfoot. Yellow Rattle was the broad-leaved plant with the greatest total flowering abundance on the plots. The second most abundant was Meadow Buttercup.

Yorkshire-fog was the most abundant species recorded using this system. It exhibited its peak on 22 June. On 3 July Common Bent showed maximum flowering. It was the second most abundant species recorded. These values indicate the medium fertility of the fields.

This medium-fertility status was also indicated by low flowering abundance of False Oat-grass which had joint peaks on the 22 June and 3 July. At the other end of the fertility scale, Smaller Cat's-tail was only slightly more abundant than False Oat-grass and showed joint peaks on 3 July and 9 July. In these fields the low abundance of False Oat-grass may also be strongly linked to the years of regular mowing throughout the season. Conversely, White Clover, which showed a peak on 22 June, would have benefited from this regime. Greater Bird's-foot-trefoil also had a 22 June peak. The ecological role of Common Bird's-foot-trefoil was replaced by Greater Bird's-foot-trefoil on this heavy soil. In addition its taller stature may be specially suited to the current hay management. Red Clover had the lowest flowering abundance of any of the species discussed. Its flowering peak was jointly on 3 and 9 July - the last recording date.

Examining plots in detail reveals species that might otherwise be overlooked. The most pleasing discovery was the locally uncommon Hairy Sedge, which was found in bloom on two plots. Similarly, near to plot 8, the only detected plant of the delicate pink Common Centaury was found. This species was previously recorded by Richard Small in his initial survey and report containing management suggestions.

Vegetational height was measured using the system of the late Derek Wells, whereby height is measured to the point in the sward where density of grass stems and leaves reduces significantly. Ten values were taken and then averaged. The recorded

height is usually about 66% of the maximum vegetation height. The peak height of 31cm was on 22 June (the value on 10 June was only marginally less at 30.8cm). Heavy rains after 22 June resulted in some subjectivity being required. Henceforward vegetational height was only measured for those parts of each plot which had not been affected by lodging (or minimally affected). In addition the height of the tallest stem on each plot was measured on each visit. Two plots near the margin of field two on 9 July provided the highest values - both with 140cm stems of False Oat-grass.

The total number of species in bloom, pooled over all ten plots, was maximal at 31 species on 10 June and only fractionally less at 30 on 22 June. If one allocates a month for seed maturation, a cut in mid-July, or a little later, would have resulted in the greatest number of mid-season flowering species bearing seed. In addition, there is often a degree of flexibility in the system due to the ability of some species to produce seedlings from 'green seed'. Hence a considerable number of the species are in tune with a traditional hay management regime.

Concluding thoughts

If any MMG member should wish to carry out a similar investigation into the time sequence of maximum flowering per species, I can thoroughly recommend such a phenological study. Being theoretically retired, I had some flexibility time-wise, so I could conduct the recordings on dry days suitable for photography. At Brackenhurst, a beneficial feature was that, as part of their management, Heidi and Nigel had created mown paths through and around their fields.

When writing about grasslands, it is relatively easy to present factual information e.g. hay yields, species richness, and performance of rare species. However, I consider that the pleasure from being in hayfields should not be overlooked, and should be recorded wherever possible. Hopefully the Figures, especially Figure 1, will go some small way towards this objective.

Afterword

In 1986 I studied the sequence of flowering in four grassland sites in Yorkshire, which were unmanaged that year. There were two differences from this study. Firstly data were gathered from 25 square metre plots but presented as - 'mean number of species in bloom per plot'. Secondly a longer time period was involved, from around day 120 (end of April) to around day 290 (mid-October). The date of peak number of species in bloom varied somewhat from site to site, but the mean was around 9 July - day 210. The values showed a more or less linear rise up to the peak, and a more or less linear fall away from the peak. The sites had varying pre-1986 histories. Some had not been mown in previous years, but others had.



Nevertheless the results were similar for the four sites. Other grassland phenological studies were reported. Should any one wish to read the results of these Yorkshire investigations, the reference is appended. Alternatively a copy can be obtained from me.

Richard Gulliver
RichardLGulliver@gmail.com

References

Gulliver, R. L. (1988). Patterns of flowering in grasslands - providing a baseline for environmental managers and planners. *Landscape Research*, 13, 12-19.

Stace, C. A. (2019). *New Flora of the British Isles*: 4th ed. Middlewood Green, Suffolk: C & M Floristics.

Scientific names

Cocks-foot - *Dactylis glomerata*; Common Bent - *Agrostis capillaris*; Common Bird's-foot-trefoil - *Lotus corniculatus* [Reference in text, not recorded at Brackenhurst]; Common Centaury - *Centaureum erythraea*; False Oat-grass - *Arrhenatherum elatius*; Greater Bird's-foot-trefoil - *Lotus pendunculatus*; Hairy Sedge - *Carex hirta*; Meadow Foxtail - *Alopecurus pratensis*; Meadow Smaller Cat's-tail - *Phleum bertolonii*; Meadow Buttercup - *Ranunculus acris*; Pignut - *Conopodium majus*; Red Clover - *Trifolium pratense*; Sweet Vernal-grass - *Anthoxanthum odoratum*; White Clover - *Trifolium repens*; Yellow Rattle - *Rhinanthus minor*; Yorkshire-fog - *Holcus lanatus*.

Date Ranges

Date 29 May Nominal - 29 May and 2 June Actual; 10 June Nominal and Actual; 22 June Nominal - 22 June and 23 June Actual; 3 July Nominal - 3 July and 4 July Actual; 9 July Nominal and Actual.

Meadow v Lawn at King's College, Cambridge

Although it is intuitive that there would be more plant species and insects in long grass with wildflowers than in a manicured lawn, it is helpful to have evidence of the increased biodiversity to support the management of lawns and verges as meadows. A recent study (Marshall *et al.*, 2023) from King's College, Cambridge provides such evidence, and also considered other benefits such as greenhouse gas emissions, carbon sequestration and sunlight reflectance as measures of climate change impacts, and canvassed the views of the college community to assess societal benefits.

The Back Lawn at King's College is *c.* 1 ha (2.5 acres) and was created in 1772. The main grass species were Creeping Bent and Red Fescue. Until 2019 it had all been managed by frequent mowing (twice a week in summer, less frequently throughout the winter), fertiliser application twice a year as the topsoil is naturally of intermediate fertility, treated with selective herbicide once or twice a year and treated with insect pesticides. After 2019 two-thirds of the area is managed as previously with the exception of discontinuing use of insect pesticides.

In autumn 2019 one third of the area was treated with glyphosate, scarified and sown with three commercially available wildflower seed mixes. This meadow area is managed as a Lammas meadow – mown for hay on 1st August (Lammas Day) and mown again in December to simulate light grazing.

No fertilisers or pesticides are used on this area – there was some hand-weeding of Creeping Thistle and Smooth Sow-thistle.

This division of the Back Lawn allowed a comparison of the two areas over three years; the abundance and species richness of plants, spiders, true bugs, soil nematodes and bats were investigated. Full details of the methods and statistical analysis are given in the article, but in summary the surface invertebrates were sampled with pitfall traps and sweep nets, soil nematodes by DNA analysis of soil samples and bats by ultrasonic detection.

“... the response to the meadow amongst the college community was overwhelmingly positive, and it was seen to be more aesthetically pleasing, more environmentally friendly and better for mental wellbeing than lawns”

It is also not possible to give all the results here, but 'highlights' were that in 2021 plant species richness was 3.6 times higher in the meadow than in the lawn – but of the 84 plant species recorded that year only 33 were sown. Spider and true bug species richness in the meadow was 3.7 times and 3.8 times higher than in the lawn for sweep net and pitfall trap samples respectively. Total invertebrate biomass was 25 times greater in the meadow, and the average length of invertebrate species recorded was 8.75 mm in the meadow compared to 4.79 mm for lawn species. For soil nematodes, abundance varied from year to year, but species richness was significantly greater in 2021 than in 2019 and 2020 in both meadow and lawn areas.

Bats were recorded 3.1 times more over the meadow than over the lawn and the average number of bat species recorded per night was also greater over the meadow (4.31 v. 3.45).

Comparison of greenhouse gas emissions (CO₂-e/ha/year) revealed that those from the lawn were 112 greater than those from the meadow. Management costs were 132 times greater for the lawn. If all the college lawns at Cambridge (totalling 43.7 ha (111 acres)) were managed as meadows annual management costs would decrease from £52,108.64 to just £394.87! To encourage this King's College is making green hay available to other colleges and the city council to save on seed costs. Hay yield was 142 bales (size not specified, but average weight *c.* 15 kg) in 2020 and 322 bales in 2021.

There was no significant difference in soil carbon levels in the two areas. Reflectance was 25-34%



Google Earth image of the Back Lawn at King's College, Cambridge showing the (darker green) meadow area. Marshall, C.A.M.,

higher from the meadow compared to the lawn, which would have the effect (if extended across the city's green spaces) of reducing the ambient temperature.

The authors report that the response to the meadow amongst the college community was overwhelmingly positive, and it was seen to be more aesthetically pleasing, more environmentally friendly and better for mental wellbeing than lawns.

However, 68% of respondents preferred a mix of meadow and lawn as the latter was seen as important for recreation; 30% preferred all meadow and only 1.4% preferred all lawn. However, it should be noted that most Cambridge University lawns are restricted to senior members of the college, so were viewed as elitist and classist by some respondents.

There are many more results and talking points in the paper which is available free to download (see

reference below). One more point made in the paper delighted me as I studied soil nematodes for my PhD – four out of every five multicellular animals on the planet are nematodes!

Marshall, C.A.M., Wilkinson, M.T., Hadfield, P.M., Rogers, S.M., Shanklin, J.D., Eversham, B.C., Healey, R., Kranse, O.P., Preston C.D. Coghill, S.J., McGonigle, K.L., Moggridge, G.D., Pilbeam, P.G., Marza, A.C., Szigeccsan, D., Mitchell, J., Hicks, M.A., Wallis, S.M., Xu, Z., Toccaceli, F., McLennan, C.M. & Eves-van den Akker, S. (2023). Urban wildflower meadow planting for biodiversity, climate and society: an evaluation at King's College, Cambridge. *Ecological Solutions and Evidence* 4, e12243

Available for download at
<https://doi.org/10.1002/2688-8319.12243>

Richard Small

Marches Meadow Group website

Did you know we have a website with lots of information on meadow making, our Group activities, dates of events/talks/walks, newsletter for downloading, useful links and a mini shop with our cards and poster designs? Do take a look and feedback to us. If you have any good quality images of your own meadows or insects/plants that live in it that you are happy to let us use on the website with a credit to the photographer, do send them to Sarah (on images@sarahjameson.co.uk) and she will use them to keep the site looking fresh and new.



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*97% of traditional hay meadows in England
have disappeared since the 1940s*



*Meadow at sunset
(c) Sarah Jameson*

Events for 2024

(This is a provisional list only - except for the February event which is booked. Please check our website or email updates for dates/more details in due course)

Friday 23rd February: Stepping Stones Species Action Conference, Norbury Village Hall, 10-4

Friday 15th March: Meadows & Roadside Verges

Sunday 7th April: Free scythe peening workshop at the NNR base 10-1. No booking required. Contact: Simon Cooter - stiperstones.events@naturalengland.org.uk

May: Annual General Meeting

June: Visit to Weo Farm – to discuss the next steps for a developing meadow managed by cattle grazing

June: Moths of meadows

July: Visit to meadows at Venus Pool (Shropshire Ornithological Society reserve)

July: Seed collection workshop

July: Simon Cooter's Introduction to Scything (two courses). Contact details above.

August: Soil testing workshop using MMG's soil testing kits

August: meadow monoprinting workshop

August: Devil's-bit Scabious workshop

September: Guest speaker

October: Meadow fungi walk

November: National Meadows Conference

MMG contact details

Website: www.marchesmeadowgroup.com

Email: mmgmembership@gmail.com

Facebook: [@marchesmeadowgroup](https://www.facebook.com/@marchesmeadowgroup)
www.facebook.com/groups/463777554459852

Officers

Chair: Peter Carty

Secretary: Richard Small

Treasurer: Andrew May

Donations

The Marches Meadow Group is a not for profit organisation. We are always very grateful to receive donations. To do this by BACS, our details are:

Unity Trust Bank

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Account number 20356051

Please use the word 'donation' as a reference

Thank you!