Floodplain Meadows Partnership

NEWSLETTER

www.floodplainmeadows.org.uk

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Winter 2013/14

Welcome to the Winter 2013/14 newsletter. Our project is now back in full swing. We have our second (it's a bargain) conference coming up in May (see page 2 for more info). Also in this edition: an update on the latest Partnership research, what have we been doing with *Caltha* meadows (pgs 5-7), and an update on 'Flight of the Fritillary' (wat no fritillaries!)

Summer Survey 2013

2012 was one of the wettest years on record. Prolonged floods during late spring, summer and autumn had a profound effect on the vegetation and soil nutrient content. To estimate the impact of the floods, soil samples were again collected from the 5 SAC sites. Soils were also collected from restoration sites to estimate the impact of the floods on soil nutrient levels and the effect it may have on newly forming plant communities.

Surveying North Meadow proved entertaining last year, as an early cut was undertaken on some of the site in order to remove a thick layer of litter that had accumulated following the 2012 season, where much of the site did not get cut at all. Therefore we had to return to that section once there had been sufficient re-growth to enable identification. Needless to say, we did manage full botanical surveys on the 5 main SAC sites plus a number of others, resulting in the collection of 1141 quadrats of data.

Water avens, *Geum rivale* and globe flower *Trollius europaeus* from a northern hay meadow. Taken as part of our work to re-classify and better understand the wetter end of floodplain meadow plant communities (MG8!). See pages 5-7 for more details.

Our survey programme went international last year as we had two visiting students Frederic Clement (from Germany) and James Owen (from Ireland), who kindly helped us out with setting out and sampling. There was also a visiting researcher from Australia (Tanya Harding), who came to observe our fieldwork to compare to her own. Our usual suspects also made sterling efforts to get the survey completed on time. Thanks go to Hilary Wallace, Irina Tatarenko, Clare Lawson, Sarah Lambert, Francis Kirkham and Eleanor Sargent. Thanks also to landowners and site managers who gave us permission to access sites. It is, as always, greatly appreciated.

Floodplain Meadows Partnership Conference
Floodplain Meadows and Society - A Two-Way Relationship
May 14th and 15th 2014

2014 will see the Floodplain Meadows Partnership's second conference. This time we are going for a two day conference with a couple of site visits and some inside sessions with talks and posters. The conference will be held at the Four Pillars Hotel in Gloucestershire (just a mile or two down the road from North Meadow, Cricklade) and we will be visiting both North Meadow and Clattinger Farm SACs, designated for their species rich floodplain meadow plant communities.

Once again we are happily in a position to subsidise this event and can therefore offer a great rate for the two days. Please book now if you would like accommodation in the conference hotel. Contributory funds have come from the Environment Agency and we have been able to put aside some of our own funds to reduce costs further.

Formal Sessions

1. **The ecosystem services of floodplain meadows**. Speakers include **Professor James Bullock** from the Centre for Ecology and Hydrology who was the lead author for the semi natural grasslands section of the UK National Ecosystems Assessment, and runs a number of major research projects relating to biodiversity and ecosystem services; **Professor John Rodwell** who will be talking about "Beauty and Utility in floodplain meadows: What price both?" and **Dr Jim Rouquette**, who is assessing ecosystem services in the Nene Valley Nature Improvement Area, attempting to put theory into practise.

2. **Restoration** and the involvement of **community groups in floodplain meadows** in the UK. There are an increasing number of community groups involved in the management, restoration, survey and promotion of floodplain meadows across the UK and this session is an excellent opportunity to hear about their projects and to share experiences. We are expecting speakers from **Estonia** and **Germany** to contribute experiences from their restoration projects to broaden our perspective further.

Site Visits

The two site visits will be structured to ensure specific topics are covered during the excursions, including current management, flooding and nutrients, restoration projects and plant community classification. We would like to try to ensure that these sessions meet delegates' requirements and therefore as part of the registration process, are asking delegates to highlight top issues for discussion. We will try to structure the site visits around these topics if possible.

We plan to have an after dinner speaker to offer an entertaining and thought provoking view on floodplain meadows, and of course the whole period will offer a great opportunity to network and talk to a wide range of local staff and national experts and local community representatives.

Share your floodplain meadow project

We are really keen to make this event an opportunity to find out what you are all up to, and to give you an opportunity to tell others about your projects, therefore please bring literature, posters, DVDs etc about your sites and we will endeavor to find space for them. It should be **the place to come** if you are working with floodplain meadows in any capacity. We have an increasingly high stack of books, pamphlets, reports and DVDs that local groups and professional organisations are producing for their sites, and we are keen to keep adding to this. We can help with printing posters if required. We will also be displaying posters showing what we have been up to and of course FMP staff and our Steering Group members will be around to help with discussions and they will try to answer any burning questions. To book a place and find out more please visit http://www.floodplainmeadows.org.uk/content/events

Floodplain Meadows Partnership Research: An Update

2013 was a busy year in terms of concluding some long term studies for the Partnership. Two of our students have completed their PhDs, passing with flying colours. Sonia Newman and Jim McGinlay will hopefully be moving on to greater things, building on their work in the grasslands team here at the OU. Both have kindly summarised their conclusions below.

Jim McGinlay: Policy and Practise in the Assessment and Management of Floodplain Meadows in England?

For centuries, most floodplains in lowland England were managed as hay meadows to provide feed for livestock. The combination of climatic, hydrological, and soil nutrient conditions, together with the periodic disturbance created by hay cutting and aftermath grazing, led to these meadows being populated by a particular combination of plant species that are now valued and conserved for reasons including their species richness, aesthetic appeal and cultural-historical origins.

This research investigated the meadow-assessment practices of stakeholders actively involved in the management of floodplain meadows in England, in order to ascertain what the nature, motivations and meaning of assessment activity are, and to what extent the assessment activity informs management of meadows within a model of responsive management.

The results highlighted the site-specific nature of the stakeholder networks managing individual meadows. One recurring theme was the tensions between stakeholder groups in terms of how they valued such meadows. Some focussed solely on plant diversity, whilst others were more interested in hay yield. Formal assessment practices tended to be based on plant diversity and as result they only offered a partial view of meadow value. Hay yield and other services supplied by the meadow, such as nutrient trapping, amenity, cultural interest etc., were only assessed informally, if at all.

The resulting partial understanding of the meadow, as derived from these assessments, was then not often used by the stakeholders making management decisions. These decisions were seen to be influenced by a range of other factors including ideas of what constitutes 'traditional management' and the practical constraints of the farming system. Tensions between conservation stakeholders and agricultural stakeholders over meadow value can pose a significant threat to meadow conservation by creating strains in the stakeholder networks that deliver meadow management. The primary risk to the long-term conservation of many sites is the continued participation of local farmers, without whom appropriate management might cease to be feasible. Perhaps their perceptions of meadow value should be more formally integrated into assessment methodologies to ensure they remain involved in the management of meadows and that management becomes more responsive to meadow condition.

Sonia Newman: Control of invasive sedges in floodplain meadows; some answers?

Invasive sedges, such as the slender tufted sedge *Carex acuta* and the lesser pond sedge *Carex acutiformis*, have been identified as problems on floodplain meadows both in the UK and across Western Europe. They are also problematic within in wetland habitats in North America. Cutting meadows twice during the summer has been proposed as a control method; however the effect of this

management had not been scientifically tested. This study looked at the effectiveness of a double cut treatment on controlling *C. acuta* and *C. acutiformis*, the effects of this treatment on the wider plant community and investigated potential mechanisms regulating the spread of these two species.

Field trials were set up to monitor the effects of the cutting treatment, and pot experiments were undertaken to asses the effects of cutting on plant behaviour. Mesocosm experiments were used to explore the relationships between water regime, microbial community and plant competition.

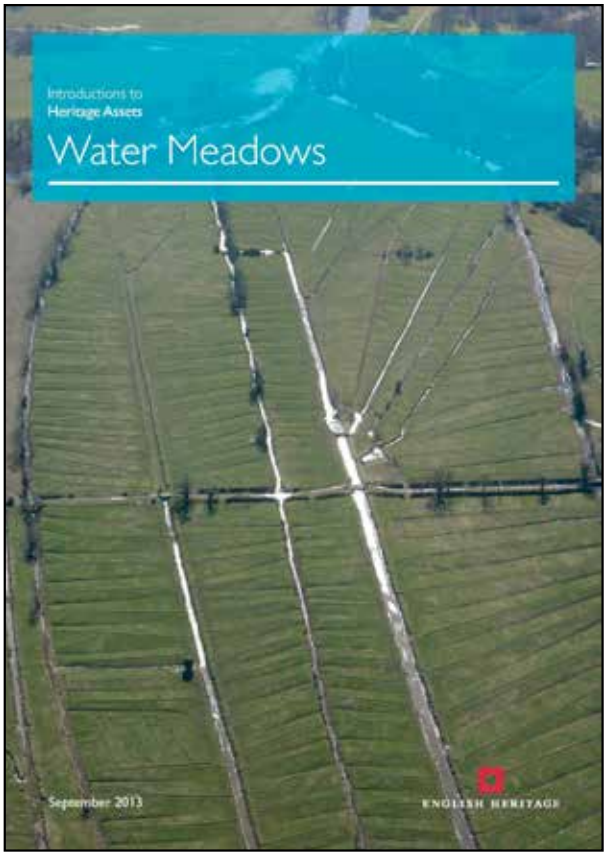
The field trials revealed that a double cut successfully controlled *C. acuta* and *C. acutiformis* on floodplain meadows. The frequency of the cutting treatment was more important than the timing of the additional cut in controlling both species. *Carex* behaviour was not affected by the timing of cuts, but flowering in *C. acuta* significantly decreased with a double cut compared to a single cut.

The microbial community did not show any significant effect on the plant community in the mesocosm experiment. Low water-tables were found to reduce the yield of *Carex,* but not necessarily its percentage cover. Recommendations for control of *C. acuta* and *C. acutiformis* are:


Photo: Hilary Wallace

Carex acuta (easily mistaken for *C. acutiformis* or *C. riparia)*

- Cut the vegetation in mid June and again at the end of August if field conditions allow.
- Grazing with stock during autumn may be used wherever there is sufficient re-growth.
- Maintain double cut regime for three years, which should be sufficient to control sedge invasions, providing excessive waterlogging does not recur.



Historic Water Meadows: English Heritage

English Heritage have produced a brief overview of historic meadows, describing their archaeological features. Download it here http://www.english-heritage.org.uk/publications/iha-water-meadows/

This is one in a series of downloadable English Heritage documents called 'Introductions to Heritage Assets' covering a variety of site types. These are available at http://www.english-heritage.org.uk/caring/listing/criteria-for-protection/

Following on from the article in the last newsletter, a very useful contact was made. The River Wey Trust got in touch with English Heritage and showed them round what remains of traditional water meadows on the lower Wey. Some of the sites will be used in a case study for the booklet currently in production.

Flying the flag for the *Calthion* in the UK

Mike Dodd

Marsh marigold *Caltha palustris* at North Meadow:

The *Calthion* alliance is the term used by European botanists to describe a group of plant communities found primarily on wet meadows and pastures across western and central Europe. In the British Isles, four communities of the NVC are placed within the alliance. These are:

- MG8 marsh marigold - crested dogstail (*Caltha palustris - Cynosurus cristatus*) grassland;
- MG9 Yorkshire fog - tufted hair grass (*Holcus lanatus - Deschampsia cespitosa*) grassland;
- MG10 Yorkshire fog - soft rush (*Holcus lanatus - Juncus effusus*) rush pasture
- MG22 Blunt flowered rush-marsh thistle (*Juncus subnodulosus - Cirsium palustre*) fen meadow.

Communities of the *Calthion* have received much less attention than the 'drier' *Alopecurus pratensis-Sanguisorba officinalis* floodplain grassland (MG4) largely because they currently have no European conservation status and few rare species. There is little information on distribution and variation within these communities. Estimates for the extent of MG8 range from between 300-800 ha (Rodwell et al 2000). Further, the description of the MG8 community within the NVC is described by Rodwell et al (2000) as being 'one of the least satisfactory parts of the mesotrophic grassland section of the National Vegetation Classification': It is not surprising then that some of these grasslands can be hard to identify on site, and that variations with the community are not easily interpreted.

We routinely come across these plant communities in floodplain meadows and often get asked questions about their conservation value and rarity in the UK and Europe. We sensed from our survey work and site visits that these communities were of value, that they could sometimes be very species rich and were subtly different depending on soil type, availability of phosphorus and hydrology. Our Steering Group identified this work as a priority and we secured funds to undertake a desktop study, field survey and data analysis in order to define the communities in the UK more precisely.

The European View

Communities of the *Calthion* are not currently included as an Annex 1 habitat in the European Habitats Directive, either under Code 6510, Lowland Hay Meadows, or Code 7210, Calcareous Fens. However they are regarded as endangered ecosystems in northern Germany as many have been lost due to both to agricultural intensification and to abandonment. The German Federal Agency for Nature Conservation has proposed that the Calthion alliance be added to Annex I of the Habitats Directive, and that Code 6510 (Lowland Hay Meadows) be amended to “nutrient-poor lowland grassland (species-rich sites)”. In Switzerland the *Calthion* is listed in “Biotope Types deserving protection” in their ‘Ordinance on the Protection of Nature and Cultural Heritage’ (FASC 1991) and in Luxembourg, there is a protection plan for *Calthion* meadows. So there is a groundswell of opinion regarding their conservation value and recognition of the need to improve their status.

Tubular water-dropwort
Oenanthe fistulosa

Conservation Value; species of interest

Although these plant communities are not noted for the presence of any really rare species of vascular plant, they do provide the principal habitat for a nationally scarce species and also support the main populations of a further two BAP priority species.

Narrow-leaved water dropwort
Oenanthe sialifolia

Nationally Scare Species

Narrow leaved water dropwort, *Oenanthe silaifolia*, has been recorded from 49 tetrads since 1970. It was recorded on 14 sites in our survey with especially large populations present on the Lugg and Hampton meadows (Herefordshire), Upton Ham (Worcestershire) and Ashleworth Ham (Gloucestershire). Smaller populations were recorded on several of the Derwent Ings sites in Yorkshire.

BAP priority species

Floodplain meadows provide the main habitat for tubular water dropwort, *Oenanthe fistulosa* which is known to be present on 40 of the sites covered in our survey, with large populations on the Somerset Levels. It is also frequent on the meadows and pastures of the Lower Avon (Hampshire and Dorset) and on many of the Derwent sites, especially East Cottingwith and Thorganby Ings.

Marsh stitchwort, *Stellaria palustris* is a less frequently encountered species of floodplain meadows, but was nevertheless recorded on 17 sites throughout our survey, roughly equally distributed between the northern and southern locations. There were notable populations in Somerset at West Sedgemoor, Tadham Moor and Westhay Moor and on the Derwent Ings in Yorkshire at East Cottingwith, Wheldrake Ings and North Duffield Carrs.

Species richness

We have not fully analysed our data yet (findings to come in part 2 and a paper), but initial assessments show us that the average species number per quadrat ranges from 15-24 across the different *Caltha* vegetation types, with values as high as 35 species per m^2 not uncommon.

What we did

Our project started in 2011 by looking at the current Natural England inventory for the MG8 community and then contacting various organisations to see if we could obtain access to existing quadrat data. This exercise yielded 429 quadrat data not previously included in any assessment of this community, from 14 reports or datasets from around the country. This was followed in 2012 by site visits to collect further quadrat data from a range of sites in geographical areas not already represented, and from known sites for which no data appeared to be available. 32 sites across 10 counties in England were visited, with 549 additional quadrats recorded. The map illustrates the distribution of all sites for which botanical data were available for analysis.

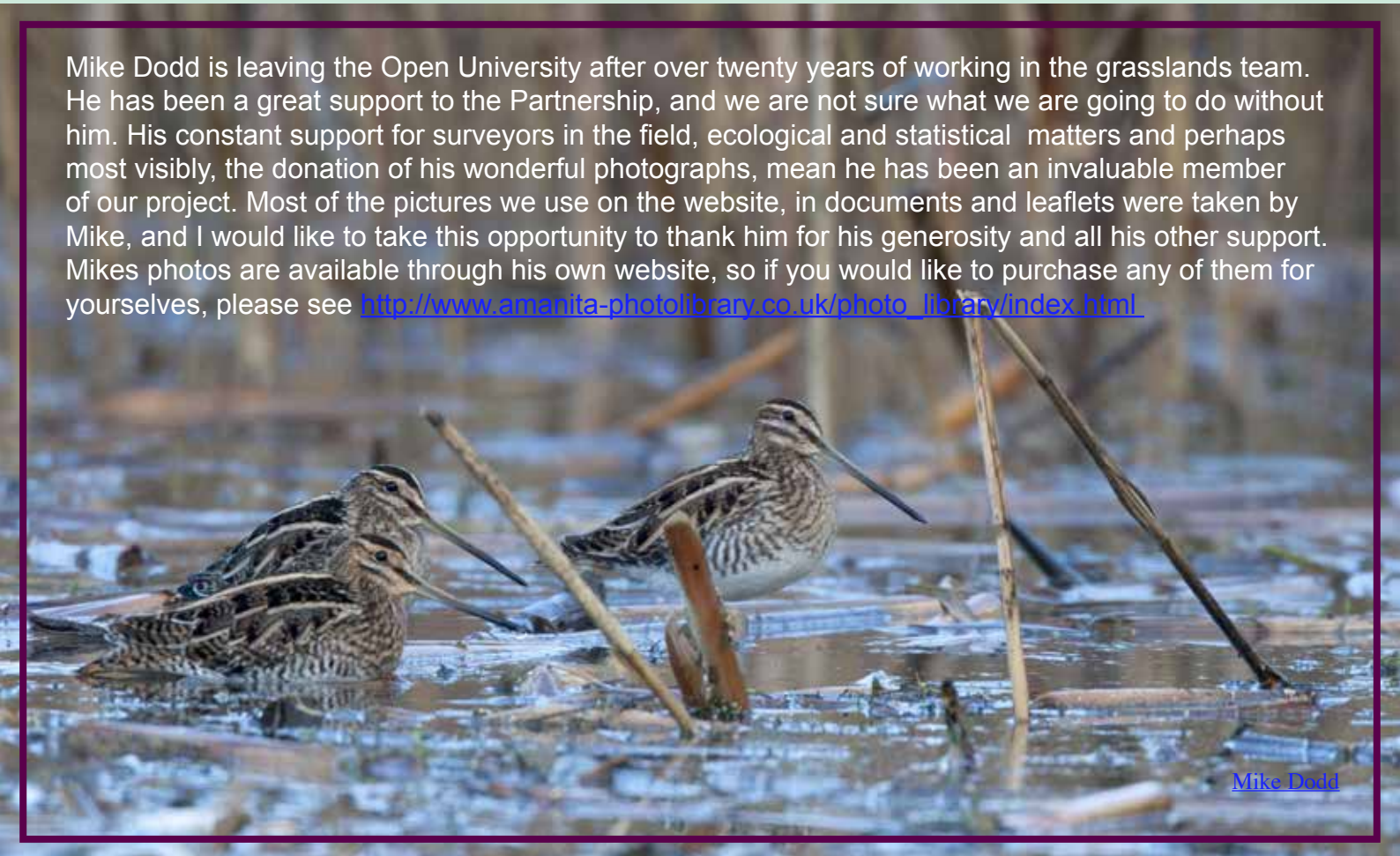
In addition to the botanical data, we also collated and collected soils data, enabling analysis of soil type, phosphorous level and pH data.

Distribution of sites for which botanical data were available for analysis

We are now undertaking the next phase, analysing all the data and proposing new descriptions of the plant communities identified. We will report on these findings through a newsletter, our website, and with a formal publication.

We would like to thank all those who helped us with the data gathering and site visits, as without you it would have been impossible to undertake such an ambitious exercise. We will be in touch with those who helped out, to share new data on specifc sites over the next few months.

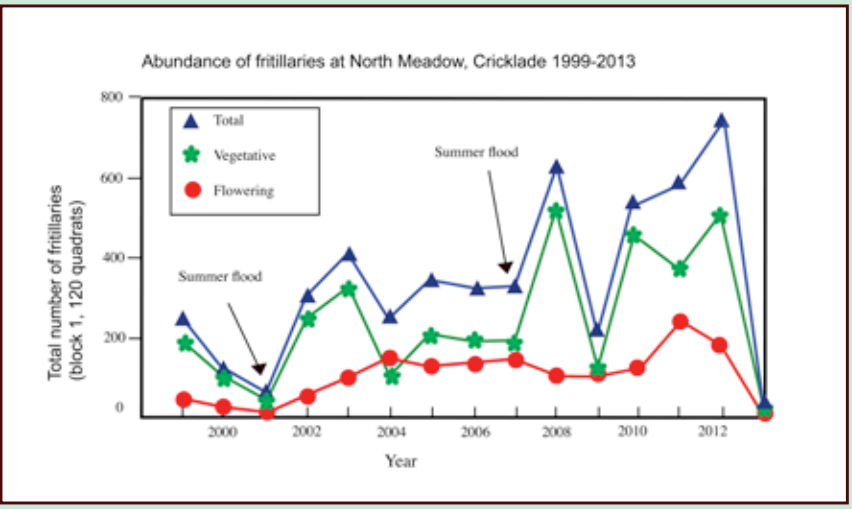
Mike Dodd is leaving the Open University after over twenty years of working in the grasslands team. He has been a great support to the Partnership, and we are not sure what we are going to do without him. His constant support for surveyors in the field, ecological and statistical matters and perhaps most visibly, the donation of his wonderful photographs, mean he has been an invaluable member of our project. Most of the pictures we use on the website, in documents and leaflets were taken by Mike, and I would like to take this opportunity to thank him for his generosity and all his other support. Mikes photos are available through his own website, so if you would like to purchase any of them for yourselves, please see http://www.amanita-photolibrary.co.uk/photo_library/index.html



Mike Dodd

Where have all the fritillaries gone?

We are continuing this year with our Flight of the Fritillary project. Last year saw 3 days out counting fritillaries in April, although the days were delayed in some cases due to the late flowering of the plants and the cold spring. Volunteer numbers were good, but at North Meadow in particular flower numbers were exceedingly poor. The wet year in 2012 meant that much of North Meadow was underwater for 10 months, which had a massive impact on the snakeshead fritillary population. In April 2012, before the flooding started, our volunteers recorded nearly 800 individual plants in 200 1 x 1 m quadrats, but in the same quadrats in April 2013, we recorded just 5 plants (1 flowering plant and 4 vegetative). That is a decline of 99.4%! North Meadow held the UKs largest population of these rare plants, and so the 2013 results are of extreme concern. We hope that some of the missing plants were simply dormant in 2013 and will re-appear in 2014, but we will not know until this April.



Fritillary count days for 2014 have been aranged:

Saturday 12th April: Lugg Meadows Herefordshire
Thursday 24th April: North Meadow, Wiltshire
Sunday 27th April: Clattinger Farm, Wiltshire

Our **bee surveyors** have been stalwart in their monthly (and sometimes twice or thrice monthly) beewalk surveys and we are running feedback workshops in Wiltshire and Herefordshire to talk through fritillary and bee survey results from the last two years. If you are interested in attending one of these workshops, but are not on the circulation list of volunteers, please do get in touch. You are welcome to come. Workshops will be held on **11th Feb in Hereford**, and **24th Feb in Cricklade, Wiltshire.**

North Meadow on fritillary count day 2013; no wonder we couldn't find any flowers.