

Welcome to the Floodplain Meadows Partnership newsletter number 2.

We are pleased to announce the 2008 field season achieved all of its targets despite problems from summer floods and analysis of the data is well underway. You can read about some of our results in Hilary's report on Cricklade on page 2. We take a look ahead to our survey plans for 2009 and some exciting events and training courses we have planned; so have your diaries at the ready.

## News from the team

The team are very happy to announce that our outreach co-ordinator, Emma Rothero, gave birth to a son, Alfie, in August. Whilst Emma is on maternity leave, her post will be covered by Ellie Sargent.



Ellie has worked on floodplain meadows for the last 3 years, undertaking a PhD on the non-chemical control of marsh ragwort in species rich meadows; she was also involved in botanical data collection for the Partnership in 2008. All enquires should be directed to Ellie: [Floodplain-Meadows-Project@open.ac.uk](mailto:Floodplain-Meadows-Project@open.ac.uk) until Emma returns in February.

## Reports from 2008 Survey

### Summer floods

The 2008 field season was not without its problems; our team of botanists were forced to grow gills and don waders as the summer flood

waters lapped at the edges of their quadrats, on Cricklade and West Sedgemoor. Not only did this cause problems with access to the sites, but submerged quadrats proved difficult to survey! Despite these set backs, the team managed to collect an excellent data set this year with 11 sites surveyed.



Fig 1 Nice weather for.... Botanists – The team battle the summer floods to get the 2008 surveys complete.

The summer floods in 2008 also created problems for land managers and farmers, who were unable to get onto their land to cut hay when they would have liked. In addition to the loss of the hay crop, leaving the sward uncut is likely to have reduced botanical diversity on some sites because a timely cut is needed to suppress the more aggressive grass and sedge species that can outcompete herbs and smaller grasses. The difficulty in cutting for hay during 2008 will have compounded the problems caused by the extraordinary flooding that occurred in July 2007.

# Impact of the July 2007 flood at Cricklade

The composition of the vegetation at Cricklade North Meadow NNR has been monitored annually since 1998 and there are now 320 permanent quadrat locations, in four discrete areas, across the site. The botanical record involves listing all species of vascular plant, and the principal bryophytes, within 1x1 m quadrats and assigning each a visual estimate of its percentage cover. The summer flood of 2007, which disrupted hay making, has provided an opportunity to observe the effect of cutting on species richness.

A general observation during the June 2008 survey was that the number of species recorded in each quadrat seemed to have declined, compared to the June 2007 record. The figure below shows species richness expressed as the mean number of species per quadrat for the four monitoring blocks. The accompanying table indicates the number of quadrats in each block.

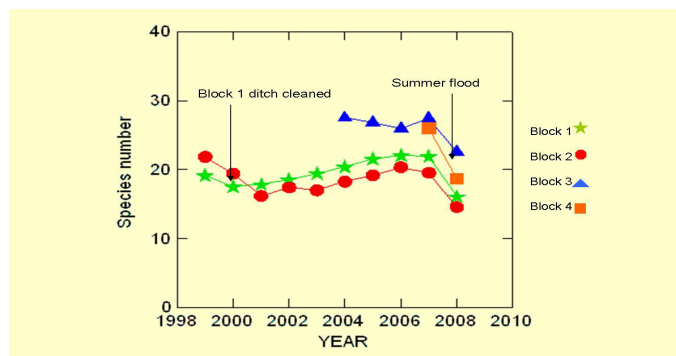


Figure 2. Changes in species richness at the four monitoring blocks.

Table 1. Number of quadrats in each block

Block	Quadrats	Monitoring period	Number cut in 2007
1	130	1998 - 2008	None
2	70	1998 - 2008	10
3	70	2004 - 2008	38
4	50	2007 - 2008	None

Improved drainage in Block 1 in winter 1999 has resulted in maintenance of higher species richness compared to the control area (Block 2) following the winter flooding of 1999-2000. The summer flood of 2007 has resulted in reduced species richness across the site.

Following the summer floods in 2007, very little of the site was cut for hay; the areas that did get cut were surveyed using dGPS and then an overlay of the cut areas was applied to the map of permanent quadrats (Table 1). No quadrats in Blocks 1 or 4 were cut, whilst in Block 3 about half of the quadrats were subject to normal hay cutting.

A comparison of the decline in species richness between cut and uncut areas in Blocks 2 and 3 suggests that the failure to cut following summer flood has resulted in a more marked decline in species richness compared to those areas that were cut.

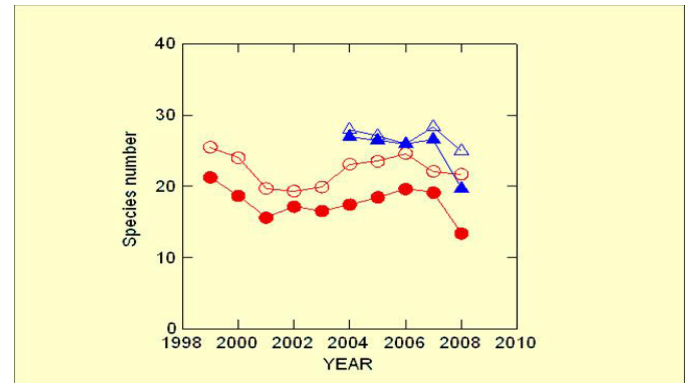


Figure 3. Impact of the summer flood and hay cutting on species richness. Block 2 (circles) and Block 3 (triangles).

It is clear that areas cut following the summer flood of 2007 (open symbols) have shown a less marked decline in species richness than the uncut (filled symbols) areas.

Maps of hay cutting activities have been produced by NE for summer 2008 and it will be very interesting to see whether the trend of species decline continues in those areas that were uncut for a second year running. It is clear from these results that information on past management is invaluable in helping to understand the changes observed on our meadows.

We would welcome information from site managers on past management activities at their sites to help us in our interpretation of vegetation change. In particular: maps of cutting activities (areas that were cut with hay removed, cut with hay left on site and uncut areas) are proving invaluable, but we would also appreciate information on aftermath grazing – did it take place and if so when and with what type of beast (cattle, horse or sheep). We can feed all this information into the database to allow us to produce robust evidence about the impact of different managements. Your help would be much appreciated.

**Please send any information you feel might be relevant to: [Floodplain-Meadows-Project@open.ac.uk](mailto:Floodplain-Meadows-Project@open.ac.uk)**



## Partnership Events

Time to get your diaries out as the team, in conjunction with our partners, has arranged several exciting events for 2009. The objective of these activities is to disseminate our findings to practitioners, managers and landowners as well as raising public awareness of the meadows

### **Training course. Management of species-rich floodplain meadows for conservation. Preston Montfort Field Studies Centre, Shrewsbury: 18-20 May 2009**

The Partnership has arranged a training course which will run from lunchtime on Monday 18th till early afternoon on Wednesday 20th of May 2009. It is aimed at professionals managing species-rich floodplain meadows. The course will include presentations on management and research, workshops on some practical skills and a site visit to Motte Meadows NNR. We are currently bidding for funding to support this course and, if successful, hope to subsidise places, especially for those working in a voluntary capacity or involved with NGOs.

A preliminary timetable for the course can be found below.

#### **18th May**

An afternoon of talks followed by some field activities in the grounds of the study centre.

#### **19th May**

Full day site visit to Motte Meadows NNR  
Evening – Discussion of the days site visit and presentations of on-going monitoring results.

#### **20th May**

Presentation of recent research on hydrological management.  
Discussion session addressing mitigation strategies, management best practice and Individual site issues.

### **Annual Fritillary Count: Cricklade North Meadow NNR.**

**Tuesday 28 April 2009.**

Since 1999 we have been conducting an annual survey of Snake's Head Fritillaries on Cricklade North Meadow near Swindon. We rely on volunteers to undertake this work and this year the

Partnership needs you! If you are able to lend a hand, please contact Ellie Sargent at Floodplain-Meadows-Project@open.ac.uk.

On Saturday 18th April, we will be collaborating with Natural England to present a site open day for the public to visit the reserve and learn more about its ecology.



Fig 4 Fritillary at Cricklade

### **Open Day and talks: Clifton Ings, York. 12th and 13th June 2009**

**Friday evening:** Indoor event open to the general public.

**Saturday morning:** Indoor event for local land owners and managers.

**Saturday afternoon:** Bring your own picnic and enjoy a tour of the meadow.

Clifton Ings, located in the heart of York, is a beautiful site steeped in history. It boasts an outstanding area of MG4 with interesting transitions to damper MG8 and swamp communities. The Partnership, in conjunction with York City Council, the Environment Agency, and Natural England, will be hosting an event on the 12-13th of June, where members of the public and land managers are invited to come and learn more about the meadows. Attendees are invited to bring a picnic and look at information displays before embarking on a guided tour of the meadows, where they will be able to see the rare plant communities and discuss how the site may be improved with sympathetic management, as well as visiting some restoration sites.

## A look ahead - 2009 survey season

The 2009 survey season is already looking busy with repeat surveys of 1000 quadrats at the five SAC sites and a further 300 quadrats to be repeated as part of long-term projects on the Somerset Levels. In addition, we will be setting up some new monitoring trials. These have been selected to cover a wide range of management scenarios; such as at Motte Meadows NNR, where we will be monitoring the reversion of a pasture back to hay meadow following many years of continuous grazing. At Clifton Ings (N. Yorks), we will be carrying out a baseline botanical survey as a precursor to a monitoring programme linked to changes in the hydrological management of the site. To increase the geographic range of sites for which we have botanical data, we hope to carry out additional surveys

at Sherbourne Meadows SSSI in Warwickshire, Ducklington Mead SSSI in Oxfordshire and maybe another site in the valley of the Yorkshire Ouse.

In addition, the team have been invited to visit some interesting MG4 sites in the Peak District and also a few small sites in eastern Wales and there is the possibility of a visit to southeast Scotland to see the range of floodplain-meadow communities that exist north of the border.

We hope to continue to expand our list of MG4 sites to provide a comprehensive inventory; a number of new sites have already come to light this year and we will hope to visit some of these as time permits.

## Science Corner

### Monitoring of Fritillaries on Cricklade

The Snake's Head Fritillary (*F. meleagris*) has become increasingly rare in the wild in England. Eighty percent of the British population is confined to Cricklade North Meadow National Nature Reserve. It is therefore essential that we understand what controls the populations of Fritillaries so we can continue to enjoy these stunning plants into the future. Come along on the 28 April if you want to help count these beautiful plants.



Fig 5 Fritillaries on Cricklade

The Open University has been collecting data on *F. meleagris* numbers at Cricklade North Meadow since 1999. Each year, a team of volunteers counts the numbers of *F. meleagris* at different stages of development in 120 (1 m<sup>2</sup>) quadrats.

The count is undertaken at the time of peak flowering (late April). Hydrological data have been collected from the same set of sampling points since 1993.

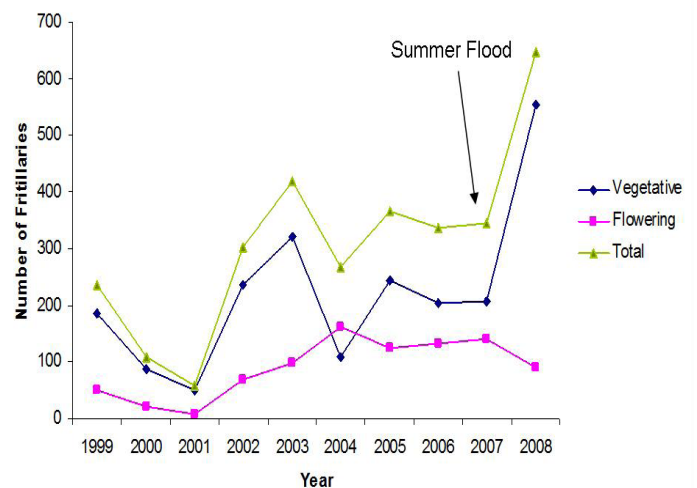


Fig 6 Abundance of Fritillaries on Cricklade

The data indicate that this species has been steadily increasing on Cricklade since 2001. Does the dramatic increase in non-flowering plants in 2008 suggest that fritillaries benefit from summer flooding whilst most of their neighbours have suffered? The smaller increase following the late flood in 2001 suggests a pattern here that needs to be investigated.



## The non- Chemical control of Marsh Ragwort

Marsh Ragwort has become a pest species in many floodplain meadows. It is a problem because it is poisonous to livestock both when grazed and in hay. Many land owners have reported an increase in ragwort abundance in recent years, which is causing problems for site management. The species-rich floodplain meadows depend on grazing from livestock and annual hay cutting to maintain the diversity of the rare plant community. However, where there are large infestations of ragwort, these tasks become problematic because farmers are reluctant to graze them and hay crops lose value.

Current control methods are not ideal. The use of herbicide can be detrimental to other species, so hand pulling is frequently used as an alternative, but this approach is very labour intensive, costly and may not decrease ragwort abundance in subsequent years.

The Open University in conjunction with the RSPB, Natural England and Leader+ have been working hard over the last 3 years to find a solution to this problem by taking an ecological approach. A management trial was set up on the Somerset Levels to investigate the impacts of early hay cut (June 15th), lowering the water table, the application of manure and the application of lime on the number of ragwort plants. It was important that these treatments did not impact the diversity of the plant community, so this was also monitored.



Fig 7 Marsh Ragwort in Somerset - photo Photo courtesy of Phil Brewin

Results indicate that both early hay cut and manure application significantly reduce ragwort numbers. However the application of manure lowered species richness, so is not an ideal control method. Early hay cut should be used instead where appropriate. The trial also showed that although it did not affect ragwort numbers, the use of gutters to reduce water-table depth significantly increased species richness.

The early hay cut is effective because it removes the ragwort before it has time to set seed and marsh ragwort has a short lived seed bank and poor seed dispersal. Early hay cuts need to be undertaken for at least two years before a decrease will be seen.

Control plot



Early hay cut plot



Fig 8 Visual comparison of early hay cut and control plots

# NEWS IN BRIEF

## Lord Puttnam visits the Open University

David Puttnam, Oscar-winning producer of classic films such as “Bugsy Malone” and “Chariots of Fire” and now a member of the House of Lords, was recently elected as Chancellor of the Open University. On 12th November 2008, he spent a day at the University’s HQ at Walton Hall, Milton Keynes, familiarising himself with the scope of the University’s research portfolio. As part of his tour, he met Prof David Gowing, Director of the Floodplain Meadow Partnership, and discussed his own attempts at meadow creation back home in Ireland and he was particularly interested in the impact of climate change on meadows, having recently chaired a Government committee on the subject. Lord Puttnam went away clutching a copy of the Partnership’s newsletter and we hope he will act as an ambassador for the project in government circles.



Fig 9 David Gowing (right) talks to Lord Puttnam (left) about the partnership

modelling work on the soil water regimes at Oxford and Cricklade SACs. We are pleased to announce that we were successful in this bid. This will add greatly to our understanding of the hydrological profile of MG4.

**Count down 2010 Biodiversity action Fund-** We are disappointed to report that we were unsuccessful in our bid from this fund.

**Megasward** – Although we made the final short list we were unsuccessful in our bid as the UK funding for the programme was insufficient to fund all the selected projects in fact the French have stepped in to fund one UK project, but unfortunately not ours. Zut alors!

**The Partnership is pleased to acknowledge the following organisations for funding.**

**RSPB** – for work on West Sedgemoor

**The Environment Agency** – for mapping Clifton Ings

**Yorkshire Wildlife Trust-** for a hydrological investigation on Wheldrake Ings SSSI

**Natural England** – for a study of Ashleworth Ham and neighbouring sites

**Defra** – for a desk study of the effects of soil compaction on biodiversity.

Although we have secured some funding for 2009, we do not currently have enough to survey all the sites we would like to. If you can help us with funding for next year’s field season and help us safeguard the future of these valuable habitats, we would love to hear from you.

## Funding

**Defra’s Aggregate Levy Sustainability Fund -through Natural England**

The Partnership bid to the Fund to undertake

## Restoration sites

**Are you intending to undertake restoration work on floodplain meadows? If so the Partnership would like to hear from you. Floodplain-Meadows-Project@open.ac.uk**



The Light Owl Trust

