

Welcome to the Floodplain Meadows Partnership newsletter No. 4. Find inside details about upcoming events (Pg 2-3), including the first ever conference on Floodplain Meadows, and two exciting workshops. Have a look at some projects in the Severn Vale (Pg 4-5) and find out what great burnet can actually tell you about the environment (Pg 6)! As ever, many thanks to all our contributors.



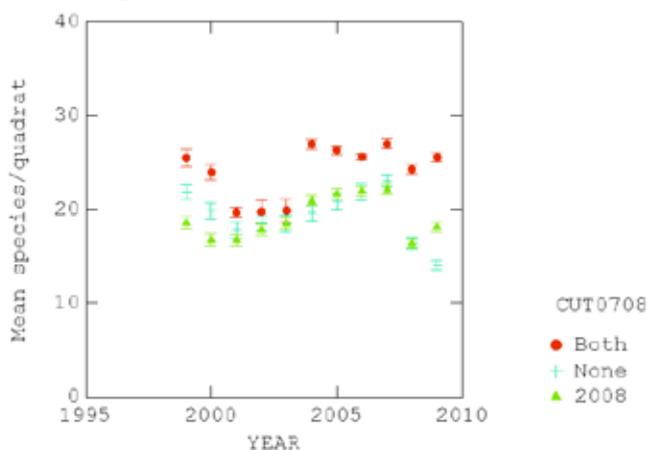
Photo: Mike Dodd

Some of the very curious Belted Galloway cattle that prodded their noses into our metal detector as we tried to find dipwells on Clattinger Farm, Wiltshire, this December.

As I write we are under an inch of snow that has fallen within the last hour in a winter touted to be the coldest for 15 years! Very different conditions from last year. This very cold spell, combined with heavy and persistent rain in the Autumn has meant we have not been able to install as many dipwells as we need to this winter, so whilst the snow is nice, it is now hampering our efforts somewhat with regards to research on meadows! However, with a drier summer, we managed to get all of our quadrats surveyed and many more of you will have managed to take a hay cut while the sun shone (or at least it did not rain) than in the previous two years.

Early results from this years survey suggest some recovery in species richness in 2009, although this has not been uniform across all sites. Full analysis of the 2009 data has not yet been completed but a couple of examples demonstrate that recovery can happen but may be slow, even when hay was cut in 2008. We have continued to follow the fate of quadrats at Cricklade (see graph). All plots showed a decline in

Species change at North Meadow, Cricklade 1995-2009



species richness between 2007 and 2008 but the decline was much less in those quadrats that were hay cut following the 2007 flood (red circles). Those not cut in 2007, but cut in 2008 (green triangles) have shown a modest recovery in 2009 whilst those that remained uncut for a second year (blue crosses) showed a further decline in richness.

At another site, (Oxley Mead, Bucks) there has been a modest recovery (from 14.2 sp/qu in 2008 to 15.8 sp/qu in 2009); whilst at Mill Crook (a directly comparable site geographically) the decline has continued (14.7 to 13.8 sp/qu), despite both sites being cut in 2008. These values are still low

compared to their pre-flood maxima of 16.8 and 23.3 sp/qu respectively and demonstrate that the answers are not straightforward.

Emma Rothero and Hilary Wallace, Floodplain Meadows Partnership Co-ordinators Contact e.c.rothero@open.ac.uk

Floodplain Meadows Partnership Events 2010

This year, we are running 3 major events, including our first ever conference, and based on the success of last year's workshop in Shropshire, two further workshops. More information on all these events can be found on our website and by following the links below.

Conference

Floodplain Meadows: a habitat under threat

The 21st April 2010 sees the first ever Floodplain Meadows Partnership conference. It is, as far as we know, the first conference to have been run in this country to focus solely on floodplain meadows. It will be held at the Open University campus in Milton Keynes and will bring together academics from across Europe, conservation practitioners and students to draw together the latest research and restoration techniques on floodplain meadows.

Our programme includes speakers from the Netherlands, Ireland, Germany and possibly Russia, as well as UK based academics and conservation practitioners talking about their restoration experiences. Attendees will be invited to share their thoughts on the direction research should take for floodplain meadows, and it will be an excellent opportunity to talk to others involved in the management and research on meadows. We are inviting posters and would love to hear more about your projects, whether they are management related, or restoration projects and any outcomes you have observed to date.

This conference is being subsidised by the Open University, so is being offered at a very attractive rate. It is an opportunity not to be missed! Don't delay, book today at www.floodplainmeadows.org.uk/p6_1.shtml

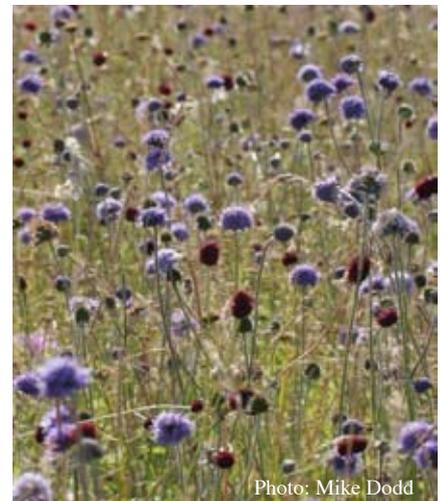


Photo: Mike Dodd

A Natural History of Floodplain Meadows Workshop 11th-13th June 2010

The first workshop is aimed at the general public and will be run over the weekend of the 11-13th June 2010. Led by Professors David Gowing and John Rodwell, the course includes field visits to floodplain meadows with a view to exploring their history and current management. There will be one visit to a National Nature Reserve at the height of the flowering season to understand the botanical importance of the correct management regime and discover the wildlife interests within typical meadow sites.

Consideration will be given to the soil and water regimes that make the plant communities so important. This is a unique opportunity to engage with two of the UK's top academics in this field to explore the cultural and natural history of these special places. Further, this course is being subsidised by the Open University and we are able to offer it at a reduced rate.

Booking is through the Field Studies Council and further information can be found at www.field-studies-council.org/2010/courseinfo.aspx?id=427

Other events:

Fritillary Open Day at North Meadow, Cricklade. We will attend one of Natural England's open days at North Meadow on Saturday 24th April. A guided walk around the meadow.

Fritillary Count. We will once again be counting Fritillaries at North Meadow on Monday 26th April. Volunteers welcome! Sitting in a meadow counting flowers!

We will be helping with a further open day at **Clifton Ings** to feed back findings to date.

Floodplain Meadows Partnership Workshop 28-30th June



Photo: Emma Rothero

Hilary talks grasses

The second workshop is aimed at conservation professionals, site managers and landowners and will be similar to the workshop we ran last year. It will cover the eco-hydrology of floodplain meadows, a day in the field looking at NVC communities, soil types and dipwells, and will consider the fertility and soil-moisture requirements of floodplain meadow plant communities. We will talk through management and restoration principles for floodplain meadows, and the course will be an excellent opportunity to talk to other site managers, landowners and advisors. The course will be run at Preston Montford Field Studies Centre and staff from the Floodplain Meadows Partnership will be the tutors. It is being run in partnership with the Field Studies Council and booking will be through them.

For further information and booking forms, see www.field-studies-council.org/professional/2010/courseinfo.aspx?id=602

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Worried about soil compaction? This may be able to help.

If you are worried about soil compaction issues, and carrying out works in less than ideal conditions, there are machines out there that can help. Following our last newsletter, which highlighted the problems that compaction can cause for plant communities, the RSPB contacted us to tell us about their low ground pressure tractor and we thought it would be helpful to share this with others working in floodplains.

This unique tractor works in wet and/or sensitive conditions. It has much lower ground pressure and better traction: it can reach the parts that other tractors can't reach – without getting stuck or damaging habitat.

It has the same work rate as a conventional tractor and can carry out any tractor-based operation using standard implements. Slightly wider than a conventional tractor, it can still fit through standard farm gates.



The RSPB are using it for topping the wet grassland at West Sedgemoor and Greylake reserves in Somerset. These reserves are important for breeding waders; snipe, redshank and lapwing, as well as their floristic diversity. Topping is an essential part of their management of these reserves for breeding waders. It ensures that the sward height is not too long in the spring. For the last two wet summers, it has proved impossible to get ordinary tractors on to some areas of these reserves to top the grass in the summer and

autumn. Some areas are too wet, even in a drier year, to get on to without causing unacceptable levels of rutting and compaction.

This equipment is available for hire and if you would like a demonstration, or further information, please contact RSPB DHP Ecological Services

01929 556651 or email: info.DHPecologicalservices@rspb.org.uk

Projects in the Severn Vale

Vale Landscape Heritage Trust- a local project with a specific aim to preserve key floodplain meadows in the Vale of Evesham by Andy Davies, Trust Manager

Vale Landscape Heritage Trust began life in 1999, and in the past 10 years has bought 200 acres of land to conserve in the Vale of Evesham, including over 60 acres of floodplain meadow. It has also been instrumental in getting a local floodplain meadow recognised as SSSI quality (Lazy Meadow). This has not yet been formally recognised by a designation, but who knows what the future will bring?

Lazy Meadow

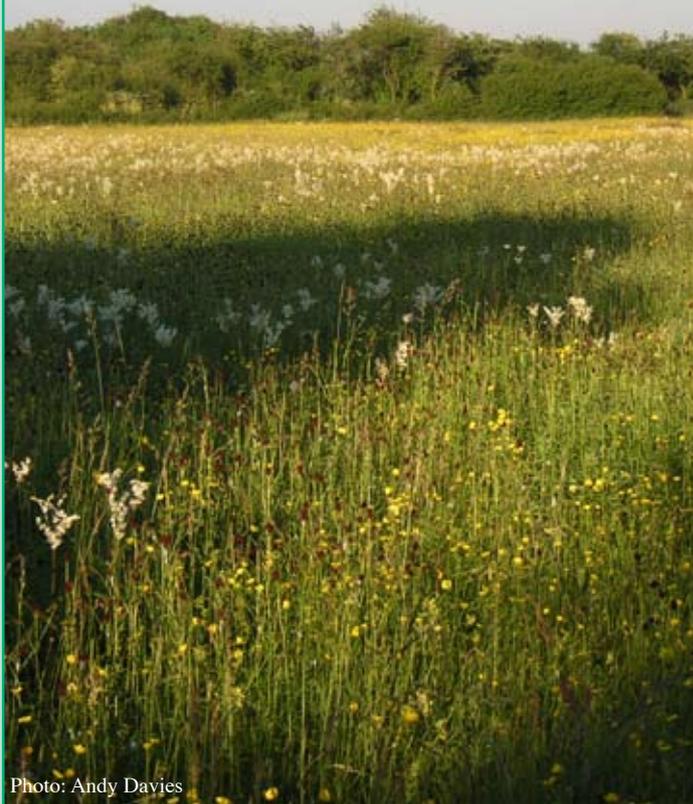


Photo: Andy Davies

Our first purchase was two small three acre flood meadows known as Great Gore Meadows (another SSSI quality meadow) in Fladbury. These abut the Oxton ditch, which has a small flow in it all year. In the past, horses were kept in one of the meadows, and the other one was cut for hay. This is a nice example of MG4 grassland and seed from it is being spread into a further meadow (Littleton Meadows) to improve its quality.

The recent wet summers have not helped the management of these sites and in 2008, the meadows were flooded less than a week after the seed was spread! The aftermath is grazed by sheep.

The next purchase at auction was Littleton Meadows, in the parish of North and Middle Littleton. There are 4 separate areas, a total of about 27 acres, of which 20 are floodplain meadows. Due to the past management, the quality has been much reduced, but seed from Great Gore Meadow was spread upon it in 2008. As with Great Gore, the recent wet summers have hampered us, and Littleton Meadows were also flooded within a week of seed being spread. The aftermath is grazed by cattle.

The restoration attempt is being monitored to see how we get on.

Our latest acquisition is 30 acres of flood meadow in Lower Moor, with the River Avon on one side, and the Lenches Ditch on the other. A sluice in the ditch allows water levels to be controlled. The water levels are raised in autumn, resulting in a 'flash' which is used by wintering birds such as ducks and geese, and passage wading birds such as Greenshank and Redshank. Cattle graze it during the summer when the water level is reduced.

VLHT are applying for Higher Level Stewardship for these and our other parcels of land. We rely on donations from Friends for the office running costs, on our farmers for the day to day running of our reserves, and on our volunteers who do most of the capital works. We fund our acquisitions through Severn Waste Services with some additional funds from private donations and from Trusts.

For further information about the Trust, please see <http://myweb.tiscali.co.uk/valetrust/> or contact Andy Davies on valetrust@tiscali.co.uk



Photo: Andy Davies

**Lower Moor full of
Tubular water-dropwort**

Earthworm study in the Severn Vale

During the summers of 2007 and 2008 there was severe flooding along the River Severn. As a result of this Coombe Hill Nature Reserve, a lowland wet grassland in Gloucestershire that is managed as naturally winter flooding hay meadows by the Wildlife Trust, had 2 m flood waters standing on the site in both years. Once the water had receded the reserve managers observed piles of dead earthworms on the ground.

To assess if earthworm numbers were low at Coombe Hill after the floods Crystal Acquaviva conducted an earthworm survey for the Gloucestershire Wildlife Trust. This survey found only 9 earthworms among the 56 soil samples (5cm across and 15cm deep) collected in June 2009. These numbers equated to 64 earthworms per square metre, a far lower density than the average 500 earthworms per square metre found at other historic lowland wet grasslands. 7 of the 9 worms were found in the north half of the site, where summer hay cutting and aftermath grazing by cows had recommenced after the floods in 2008, with 4 of these found in a single field containing pristine hay meadow. These managed fields lacked mats of dead grasses on the surface caused by the summer floods. The mats were present in the southern half of the reserve and did not seem to be decomposing rapidly, potentially providing less food for earthworms. These results could mean that there is not enough food available for breeding waders at Coombe Hill, and could be contributing to their reduced breeding success reported in recent years.

For further information, contact Crystal Acquaviva on Crystal.Aquaviva@wwt.org.uk

UK Wide Meadows Map, coming to a computer near you!

As part of our re-designed website (available soon) we are developing a map of meadows. This will include all MG4 sites that we are aware of, plus some other sites where we have carried out work, or sites that are being restored.

We would like to include further information on as many sites as possible, so that website users can follow the dot for a particular meadow to further links. I have already contacted some site owners where a site is in public or NGO ownership to secure permission for this and to get the best weblinks, but if you manage, own or are responsible for a meadow and would like further information about it to be included on our map, please let me know.

Emma Rothero, Floodplain Meadows Outreach
Co-ordinator e.c.rothero@open.ac.uk

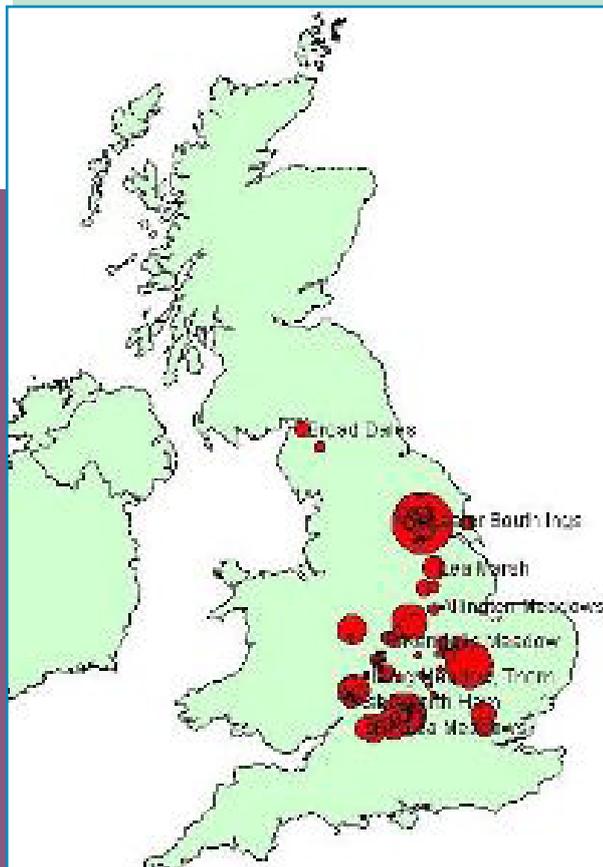
News in Brief

Funds

With Natural England we have secured £46k from ALSF to carry out some practical enhancement works on North Meadow SAC and Elmlea SSSI in Wiltshire. The funds also cover a research assistant for four months to carry out further modelling works on potential meadow restoration sites between North Meadow and Elmlea

Third new PhD Student

As well as the two new students mentioned in the last newsletter, we have been awarded further funds for a third. This student will be looking at nutrient issues surrounding floodplain meadows. Once our three new students have finalised their plans, we will share in more detail what they are studying. We may also be looking for sites for them to carry out studies on.



Science corner - What's that plant? And what does it tell us anyway?

We have been working on an FSC foldout chart that will help with the identification of many meadow plants. As part of this we have developed a table that puts these plants in the context of their soil-water and fertility requirements. The data that will be included in the table are based on measurements of water-table depth from over twenty meadows. "Wet soil" refers to water tables that are so close to the surface that there is very little air in the soil. Plant roots need oxygen to live, and only a limited number of species can thrive in such conditions. "Dry soil" refers to water tables so deep that water cannot move up through the soil quickly enough to match the rate of evaporation and the top layer of soil dries out (Gowing et al., 2002).

The table will show which species are tolerant of different soil-moisture regimes. For example, sites that are subject to more than 20 weeks of wet soil and more than 20 weeks of dry soil per year support only a limited range of plants. In contrast, sites that are more moderate, with 10-20 weeks of wet soil and 10-20 weeks of dry soil per year will support a greater range of plants. It is these more moderate sites where the typical floodplain meadow community is found. The draft plant table is available on our website (under 'Information') and the FSC chart will be available along with other information about each species in due course. The great burnet fact file (below) is an example.

Photo: Mike Dodd

Identification

It is a member of the rose family but the similarity to a rose is not obvious. The flowers have no petals, but the four sepals of the calyx are coloured deep crimson-red and are clustered into globose heads up to 3 cm long. It is a very long-lived perennial with an extensive rhizome system lying just below the soil surface. This system of underground stems is so dense and persistent that the species is used in North America to stabilise soils on steep banks. A single clone can spread over many square metres and be several decades old.

Soil-moisture tolerances

It is found on sites with more than 20 weeks of dry soil per year. It is found on sites with 10-20 weeks wet soil per year, so it is quite tolerant of soil drying, but less tolerant of waterlogging.

Fertility tolerances

It is typically found on moderately fertile sites (10-25 mg P/kg) or P index 1-2.



Great burnet (*Sanguisorba officinalis*) is one of the most characteristic species of floodplain meadows. It is a key indicator of the MG4 species-rich floodplain meadow community.

Distribution

It is a species of floodplains across Europe and also occurs in North America, wherever the climate is cool and moist. It is even found as far south as Iran in Asia, but only at altitude, where the summers are cool, as the species cannot survive intense drought.

Traditional and medicinal uses

Burnet wine was traditionally made from its flower heads. The latin name *Sanguis* (blood) and *sorba* (absorb) points to its medicinal use; to staunch the flow of blood, including nosebleeds. It can also be used to treat burns and insect bites and the leaves can be eaten in salads; they taste like cucumber!

Suitability for floodplain living?

Great burnet is well adapted to floodplain grasslands because following a flood that is long enough to kill most grasses, the shoots of burnet are destroyed too, but once the flood has receded, burnet is one of the earliest species to produce a new canopy of shoots from its abundant reserves stored in its rhizomes. Although well adapted to the effects of flood, it prefers well drained soils, so the traditional floodplain meadow with its unpredictable inundations, combined with its rapid post-flood drainage is a tailor-made environment for the species.