



Winter/Spring 2017 Newsletter

www.floodplainmeadows.org.uk

In this issue, we have an extended feature on Natural Flood Management (the importance of soils and floodplain meadows) on page 2, alongside a plea to anyone involved in Brexit land management policy development, and an example of one option for a post-Brexit vision on page 4. More information about latest publications and papers on pages 6 and 7, and fancy a hay making festival in Norway anyone?

Floodplain Meadows Partnership celebrates 10 years, but where next?

As we near the end of our third phase of work (we finish our current round of Esmee Fairbairn Foundation funding in December 2017), it is useful to look back over the past 10 years of the FMP, and to consider where we go from here.

We have developed a decent network of contacts across the country, made links in Wales, Ireland, Scotland, and across Europe with other parties working on floodplain meadows. In our tenth year we have expanded to include Natural Resources Wales as one of our Steering Group members. We have provided information in a range of formats, run many and varied training courses, funded PhD students to understand better various aspects of floodplain meadow management, and now embarked on more vocational training to develop the Ambassadors programme.

We have worked with all sorts of partners, but we believe there is still more to be done, and naturally, our eyes are turned to the future; where Brexit will take us and how agricultural and conservation policies and legislation will be affected. We are currently writing our next phase of funding applications. Our focus is on evidencing the natural capital benefits of the floodplain, including the Natural Flood Management benefits of grassland and other land uses, assessing the carbon storage capacity of wet and drier soil and continuing to promote the nutrient removal capacity of wet meadows. We would like to continue the Ambassadors programme, and the restoration project, and recently secured some funds to look at policy opportunities.

If you would like to influence the way the Partnership develops and also give us some very valuable feedback, please could you take 5 minutes to complete this short questionnaire. Your answers will help shape our funding bids this year! This is the same questionnaire that has been sent to all conference delegates, so if you have already completed it as part of your registration, many thanks.

<http://www3.open.ac.uk/forms/questionnaire2017/>





Natural flood management and the importance of soils and floodplain meadows

Ann Skinner and David Gowing

With the Met Office predicting that severe weather events are seven times more likely to occur as a result of our changing climate, more and more people are realising that a different approach is needed to the way we manage our land. This article describes measures that can be taken to slow, store and filter the flow of water to reduce flood risk and provide a multitude of other benefits.

Agriculture occupies around 75% of our land surface, the majority being intensively managed. Artificial fertilisers have often replaced the use of manure, so most of our soils lack organic matter¹. Many farming activities are undertaken with ever larger machinery that is capable of working the land regardless of its condition. As a result, many farming operations are carried out on land that is essentially too wet to bear the weight of the machinery, resulting in widespread soil compaction. Soil erosion, surface water pollution, localised flooding and reduced aquifer re-charge rates are some of the inevitable results.


Agricultural intensification has also removed many features that would otherwise have helped to buffer us from floods and drought; natural sponges in the landscape such as wetlands and upland moorlands have been drained, hedgerows removed, and rough grassland “improved”.

Land left bare over autumn and winter is vulnerable to soil erosion during the heavy downpours that are becoming a feature of our climate. The Environment Agency has estimated that agriculture is responsible for 75% of the “sediment” in rivers and 25% of the phosphorus, most of which is bound to soil particles. An estimated 2.2 million tonnes of topsoil is lost from the land every year – this valuable resource, the product of hundreds of years of careful husbandry that we need to support productive agriculture, is being washed out to sea.

Soil coats the beds of many of our lakes and rivers, compromising their ecological quality and preventing fish from spawning successfully. The Environment Agency spends around £45m year dredging soil out of rivers for flood defence purposes, an unsustainable practice that is expensive, damaging and disruptive. There must be a better way of managing our land, working with natural processes and putting in place measures that will retain topsoil and slow, store and filter the flow. We need to take a long hard look at the way we fund and support agriculture and the management of flood risk.

A different way of doing things?

The decision to leave the EU gives us the opportunity to change the way we fund the management of our countryside. There have been recent moves to put much more emphasis on valuing the benefits we get from natural ecosystems⁴, so that we can better understand the implications of any loss and factor their beneficial functions into our decision making.



Satellite images of the south of England taken in December 2014, the wettest winter on record, show just how much soil is being lost. This soil is somehow magically transformed into “silt” and “sediment” once it enters lakes and rivers - **if we acknowledged what it actually is (i.e. topsoil) there would be much greater understanding and concern about the unintended impacts and consequences.**



Whilst every catchment is different, opportunities for natural flood management (NFM) measures can be found throughout, by working from source to sea. Appropriate NFM measures include restoring degraded moorland, retaining large woody material in the upper reaches of watercourses, re-connecting rivers with their floodplains and re-establishing species-rich floodplain meadows as a more pragmatic and sustainable land use.

An increasing number of catchments where such measures are being used are delivering a growing body of evidence that demonstrates their effectiveness in reducing or de-synchronising flood peaks, and the Environment Agency has established a 'Working with Natural Processes Research Framework' to gather evidence on the effectiveness of these processes to slow and hold back flood waters.

It takes time to change culture and people's perceptions, and there is a long way to go before working with natural processes and natural flood management are common and widespread responses to flooding – but we have made significant progress in recent years and it is up to us all to help make it happen. There are some brilliant opportunities to work together to dovetail making space for water with making space for nature, and deliver more cost-effective solutions that will improve the environment for people and wildlife, but the scale of our ambition needs to increase if we are to make more gains for biodiversity and people through this approach.

If any readers are involved with discussions about the design of agricultural support post Brexit, with consultations on Defra's 25 year Environment, Food and Farming plans, or with flood management schemes lead by Local Authorities or the Environment Agency, it would be great if you could press for adequate recognition of and positive support for the role of floodplain meadows because of their contribution towards natural flood management, storing carbon, re-building soils and soil fertility, and support for pollinating insects. There is enormous potential for the restoration of this functional habitat, given that so many rivers are so divorced from their floodplains, and the amount of arable cultivation there still is in floodable areas. Please get in touch if you wish to discuss policy opportunities and floodplain meadows.



Floodplain meadows are now very scarce, occupying just 1500 ha in England. They are naturally productive, providing hay and grazing with minimal inputs, recovering well after flooding and producing high quality hay even in drought years. They help to moderate a river's hydrological regime by dissipating flood peaks and sustaining summer flows. They retain silt and process nutrients, helping to reduce diffuse pollution whilst storing significant amounts of carbon in their soils. Species-rich meadows are great for people and wildlife, providing aesthetic value to the landscape and supporting a wealth of pollinating insects. Their value was better understood in medieval times, when they were traded at up to ten times the value of arable land.



Brexit: where next?

As the temperature heats up over Brexit, and the formal submission by Government to invoke Article 50 has now been announced, many organisations are beavering away working up visions with which to influence Parliament. Should we all be trying to speak with one voice in the conservation world, or is this completely impractical? Is it sufficient that we are all likely to be saying the same things? It is likely that the focus for subsidies will be towards delivering of public goods, but this is not set in stone. Will we lose a lot of smaller farmers for whom the economics no longer stack up, and therefore their wildlife friendly farms, or will this provide a tremendous opportunity to manage our nature and landscapes in a way which truly and genuinely is for the better?

One such vision comes from Miles King, Director of the charity People Need Nature, and a long-standing member of our Steering Group. People Need Nature wish to highlight the positive relationship between people and nature and the many benefits that nature provides. They are focused on achieving long term positive change for nature, rather than short term fixes. ‘

‘Pebble in the Pond’ is not an FMP publication and does not reflect our views although we are referenced in it. It is the view of one organisation, and it is a start.

A Pebble in the Pond - Opportunities for farming, food and nature after Brexit.

As the reality of Brexit continues to sink in, it’s clear that the UK needs to develop a replacement for the Common Agricultural Policy by 2020. This might sound like a long time away but it’s not much time at all to develop such a major and complex set of policies, trial them and put in place the logistics needed to make them work. With this in mind, in January People Need Nature published a short report called “A Pebble in the Pond: opportunities for farming, food and nature after Brexit.” The report outlines how over the past 75 years, successive agricultural policies in the UK have caused a massive decline in the extent and quality of wildlife on UK farmland. People Need Nature suggests that a new policy to support farmers should focus its resources on small farmers, and should only support the delivery of public environmental and social goods, such as flood prevention, climate change mitigation, supporting wildlife habitats, protecting historic features and supporting sustainable methods of food production. The report also recommends that the Polluter Pays principle should be applied to farmland, to discourage environmentally damaging practices. A Pebble in the Pond includes a range of case studies from different organisations, including one from Floodplain Meadows Partnership, which shows how floodplain meadows provide a wide range of valuable public goods to society. The report can be downloaded from the People Need Nature website at <http://peopleneednature.org.uk/public-realm-policy/pebble-in-the-pond/>



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**Opportunities for farming,
food and nature after Brexit**





PhD studies



Laura George and Melanie Stone are getting on well with their PhD studies. Both are now well into their second years and are on target to complete next year.



We have just secured funds for a third student, who will start in October 2017 (now appointed) who will be looking at 'Managing flood risk through working with nature'. The student will work with the Environment Agency and the National Trust on a real case study, model the impact of climate change scenarios and take an ecosystem-service perspective on flood management. In particular, using data from the Upper Thames catchment, a hydrological model could estimate the change in flood peak achievable by altered land use. The costs and benefits in terms of ecosystem services to the wider catchment, both under current and future climate scenarios, will then be considered.



Last October, the FMP Director was asked to act as the lead examiner of a PhD thesis written by a student in Estonia, Jaak-Albert Metsoja (who presented a paper at our last conference.) The thesis entitled "Vegetation dynamics in floodplain meadows: influence of mowing and sediment application" proved to be excellent and Jaak-Albert was awarded his degree. Congratulations to him. Whilst in Estonia, David took the opportunity to visit the floodplain meadow system that Jaak-Albert had studied, which is very extensive and is currently being brought into conservation management after a period without management and is responding positively.



Fritillary activities this spring

http://www.crickladeinbloom.co.uk/fritillary_watch.html

Our annual fritillary count days will go ahead this year as usual. Dates are:

Lugg Meadows, Herefordshire - 22nd April

Clattinger Farm, Wiltshire - 23rd April

North Meadow, Wiltshire - 25th April

We will also join the Ducklington Fritillary Festival (Oxfordshire) in the afternoon of the 23rd April for walks/talks about the meadow and the fritillaries. We will be running monthly BeeWalks at all three sites. More information here <http://www.floodplainmeadows.org.uk/about-meadows/wildlife/snakeshead-fritillaries>

If you would like to find out more about these events, or go on our fritillary count contacts list, please do get in touch.



International activity

Fancy a hay making festival in Norway?

The 24th Haymaking Festival at Ryghsetra, Buskerud County, Norway is taking place from 6th - 9th July, 2017. This festival offers a course in the practical and theoretical management of ecologically important hay meadows at Ryghsetra, Buskerud County, Norway. The course organiser is 'Naturvernforbundet i Buskerud ('The Nature Conservation Society'), Buskerud County. The course has been running since 1994.

Follow this link for more information <https://naturvernforbundet.no/getfile.php/13117893/Fylkeslag%20-%20Buskerud/Dokumenter/Haymaking%20festival%20Ryghsetra%20Norway%2C%20in%20English.pdf>



FMP contract and consultancy work and voluntary roles

We are currently working on a number of sites under contract to various organisations to understand more about their sites and potential impacts. We have installed dipwells on sites in Godalming and Bourton on the Water to help inform management plans. We have undertaken a sediment survey at Portholme Meadow with the Environment Agency and are acting as technical advisors to a gravel company operating around North Meadow. We are also now working with the Environment Agency looking at impacts of the proposed Oxford Flood Alleviation Scheme.

Additionally, the Partnership Director, David Gowing, and one of our Steering Group members, Ann Skinner, have recently been appointed to the board of advisors to the National Trust.

FMP Hydrotool on the website

This year, we have updated our hydrotool. This is a simple excel spreadsheet that enables you to input your own dipwell data and then translate this information into the expected plant community for the water-levels on your site. You can download this from our website here <http://www.floodplainmeadows.org.uk/about-meadows/restoration/evidence-base>



FMP Ambassadors

Our Phase 1 Ambassadors have just attended their data analysis workshop, having spent the last 18 months studying their chosen sites, and collecting data. We looked at the basics of data presentation, interpretation and Ambassadorial roles. They have now been set the task of writing up their site studies into a report and will aim for completion of the training in July 2017. Meanwhile, the Phase 2 Ambassadors are about to embark on their second field season. 11 of the Ambassadors from both phases will be present at our conference, helping out and showcasing their work, including presenting posters about their study sites. If you are coming, please do catch up with them if they are local to you.

Recent and imminent papers and reports



We have just submitted our 'Review of the National Vegetation Classification for the Calthion group of plant communities in England and Wales' to Natural England for approval as a Joint Report published by Natural England Evidence Services. We are aiming to have copies of this available to take away at the conference, but it will of course also be available through the website. It contains a **revised mesotrophic grasslands key** to accommodate the revision work, which we hope you will trial for us over the coming survey seasons, and feed back any comments.



McGinlay, J., Gowing, D.J.G. and Budds, J. (2016) Conserving socio-ecological landscapes: *An analysis of traditional and responsive management practices for floodplain meadows in England*. Environmental Science and Policy, 66, 234-241. doi:10.1016/j.envsci.2016.07.008. Jim McGinlay was previously a PhD student with us and now works at Cranfield University.



And finally, we also hope to have available at the conference, a most fantastic book written and researched by Martin Hammond, and published by the Carstairs Countryside Trust called 'Deep meadows and transparent floods: the story of the Ouse Ings'. The FMP are very pleased to be able to help fund the printing of this book, along with the Friends of Rawcliffe Meadows. We will provide a more in depth review of this once it is finally published along with a link to where it can be purchased.

Our latest publication

Study of Plant Communities on Zalidovskiye Luga Meadow (Russia)

Inna M. Ermakova and Nadezhda S. Sugorkina. Translated and edited by Irina Tatarenko of the Floodplain Meadows Partnership

Long-term data collection requires a great deal of determination. That, and a passionate attachment to the object of the research – in this case meadow plants. Determination and passion were certainly the drivers of the unique study described in this new book, which spanned six decades, from its beginning in 1965 to its conclusion in 2012. For 48 summers the vegetation of Zalidovskie Luga meadow was minutely observed at the individual, population, and community level, sustaining the exact protocol that had been established back in 1965. Indeed the very same tape measures and survey forms were used throughout! The original data presented in this book are incredibly detailed, and each detail is of great importance to the authors - each measurement and each value matters.

With such a painstaking approach to the data and their analysis, writing the book could not have been an easy task; translating the book was almost as difficult. The authors are so connected to their data, they sometimes reported them in 'telegram' style leaving interconnections aside. The task of translation and editing was challenging and could not have been done without tight cooperation between the authors, translator and the editor. The task of this translation fell to Dr Irina Tatarenko of the Floodplain Meadows Partnership, who established the relationships in the first place, worked with the Russian academics involved, and brought this publication to the attention of western researchers, who had not previously had access to this unique research.

This impressive study of Zalidovskie Luga meadow described in this volume, using a consistent protocol that spans 48 years is a rarity indeed. The results have not previously been available in any language other than the authors' native Russian. We hope the translation presented in this book brings the monumental effort of the authors to the attention of a wider audience and that the scientific potential of this remarkable dataset is realised. In a world where so many environmental systems are being intensively modelled, a body of actual observations within such a special habitat over such a long run of years has immense value.

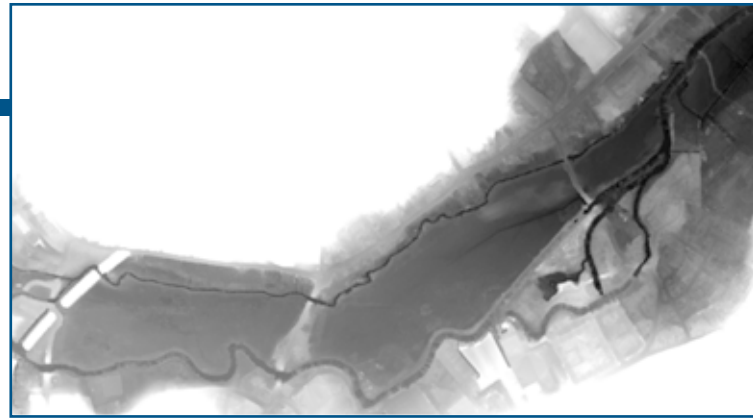
The book was published by YouCaxton Publications, who facilitate the publication of small, specialist, short run books and who were so patient with us through this project and from whom hard copies can be bought for £15.

<http://www.youcaxton.co.uk/open-universitystudy-of-plant-communities-on-zalidovskiye-luga-meadow/>



Lidar

The Environment Agency's Lidar data is now available for free download and very welcome this is too. Lidar data is really useful topographical data available in many geographical areas and if you can get the tiles for your site, you can very quickly gain an overview of drainage patterns. The image adjacent shows a Lidar tile imported into QGIS, and reveals that the lower areas are darker and the higher areas are lighter. So you can quickly see that the ground slopes to the east.



You can also pick out old drainage channels and the north-south gradient. If you have GPS data from the ground, you can compare the heights between those given in the Lidar tile and those from your hand-held machine. In many cases there is a very strong correlation, showing that Lidar can be used for high accuracy work (although it does depend on the area). Tiles can be downloaded from here: <http://environment.data.gov.uk/ds/survey/#/survey?grid=SP04> and need to be imported into a GIS package to make any sense of them.

NEW MESOCOSMS

The Open University designed a system for controlling water-table depth in experimental soil columns back in 2001. It allows plant species to be grown in competition with one another and for the effect of different water-table regimes on their interactions to be studied. The system, with up to 100 separate soil column (or "mesocosms,") has been used by a range of researchers over the years, including members of the Floodplain Meadow Partnership, and a number of academic papers have been published from its use. Indeed, a German University at Regensburg recently copied the design and set up their own array of mesocosms. Some of the original ones at the Open University are currently being used by Dr Clare Lawson to look at the role of water-table regime in determining how much carbon is sequestered in a soil supporting meadow plants, others are being used by colleagues to look at rates of methane generation by soils experiencing different water regimes. The design has proved so successful that the Open University has just agreed to fund another duplicate set for use by PhD students. A member of the meadow research team, Dr Yoseph Araya, is overseeing the construction and we hope the two current FMP research students, Melanie Stone and Laura George, will be able to make good use of them in their studies.

Insect role play anyone?

If you live in the east Wales or Shropshire-Herefordshire area, then you may be able to hire these huge beetles, bees and other beautifully made insects: <http://www.beetlesandbees.co.uk/> They come to your event complete with instructions on how to interview said insect and how to role play with an insect. Great for getting attention and learning about insects. They look fantastic!

