

## Floodplain Meadows Partnership Conference

Day One – 13 October 2021 pm

### **Introduction**

Emma: Hi everybody. Welcome to the 4<sup>th</sup> conference run by the Floodplain Meadows Partnership. This is however our 1st online conference so please forgive us any technical hitches, I'm sure you're all used to those by now. For those that don't know me, my name is Emma Rothero, I'm the Floodplain Meadows Partnership Manager and I'm chairing this session. We have support on the chat today from Olivia Nelson and Clare Lawson from the FMP team and we have support in managing the presentations and Teams IT from the very wonderful Babette Oliver and Amy Sharp from the Events Management and OU Comms Teams without whom none of this would be possible and they will continue to support us over the next 3 days.

This is a really exciting time for the Floodplain Meadows Partnership. We're becoming more recognised externally with the Ecover and Green Recovery bid. We have an online exhibition at COP26 and have been working with the BBC on Countryfile's Plant Britain. There is lots of policy development relevant to our objectives across agriculture, nature recovery strategies, climate change mitigation and adaptation. We're looking for ways the Partnership and floodplain meadows can respond to the twin challenges of biodiversity and climate change crises. We hope this conference will move us further down this path and that you find inspiration, guidance, chat and discussion. We've tried to build in a range of different ways to share information over these 3 days including presentations, polls, discussion, virtual site visits to a floodplain meadow this evening and tomorrow evening. There were some questions that have been submitted to the panel for those sessions and we'll be talking about those. As we go through the conference please do think of other questions you may want to bring to the panel who are experts in all things floodplain meadow. It's a great opportunity to have feedback and discussion.

In terms of ground rules for how we're going to run the conference, you can't activate your own video or microphone I'm afraid. If you want to ask a question in the Question and Answer sessions please raise your virtual hand and you'll be invited to speak by the Chair of the session and then you'll be unmuted. Cameras will remain disabled but please do use the chat. We'll be monitoring this and we'll try and pick up questions as we go which can be asked in the Q&A sessions or in the Question Time sessions later on. You'll be able to access the chat after the event as long as you have the event in your calendar or have attended a session. We are recording all the sessions and these will be made available at some point afterwards but please be patient, we do need to edit them first. Finally and really excitingly we are announcing the winners of our Arts and Crafts competition on Friday in the last session. This has been a really exciting project for us and we have been amazed by the number and range of the entries. Olivia Nelson will be telling you all about the competition and the winner on Friday.

## **Keynote Speakers**

Okay, so we can move on to our fantastic keynote speakers. I don't think we have Barry Gardiner in the room yet. So if not I'm going to move straight on to Trine Christiansen if that's okay. Trine is the Project Manager at the European Environment Agency and author of the report published in 2019 called Floodplains: a natural system to preserve and restore and we really wanted to hear a European perspective on floodplain management. So over to Trine, thank you very much.

### **Keynote Speaker 1 Trine Christiansen**

Trine: So I guess it's good evening now, at least in my part of Europe it's a little before 6 so I'm a little after you in the time zones. Anyway, I'm Trine Christiansen, I'm from the European Environment Agency and I'm here to talk about river and wetland restoration from a European perspective. Some years ago we did an analysis of the 2nd River Basin Management Plans that are reported under the Water Framework Directive. One of the key results from this work was the map that I show here where you can see all the red areas are areas where more than 50% of water bodies are not achieving good ecological status. What also came from this work is that one of the most widespread pressures responsible for this are the pressures that are associated with hydromorphology, and this is about 1/3<sup>rd</sup> of water bodies that are impacted by hydromorphology according to these reports from the legislative process of the Water Framework Directive.

If we look at the results coming from the Habitats Directive for rivers, lakes, alluvial and riparian habitat, a similar 1/3<sup>rd</sup> of those habitats are impacted by hydromorphology. So there's absolutely no question that this is a very important pressure in our aquatic systems. When we talk about hydromorphology what we're actually talking about is river continuity or connectivity, so the connection between the upstream part of the river and the downstream part of the river, as well as the connection between the main channel and the riparian area. As I'm sure you know, the barriers to this connectivity they have a lot to do with either the longitudinal barriers of which there are millions in Europe or channel stabilisation, flood protection or drainage of the riparian area. All of these pressures are extremely widespread and they are very much part of deteriorating the environmental quality of our rivers.

At the Agency we did an analysis of floodplain condition where we calculated 2 different indicators of lateral connectivity. One was an assessment of habitat area of loss of deviation from what might be a natural setting, and the other is a land use pressure indicator. In combination these indicators suggest that somewhere between 80% and 90% of the lateral connectivity in the floodplains are substantially to severely degraded. When we then look at the results coming in of assessments under the Habitats Directive of floodplain habitats we see that only 17% of these habitats are in favourable conservation status, so basically confirming the sad state of affairs in the riparian zone.

So it's a good thing that we today have the biodiversity strategy towards 2030 which has a target for rivers. The way that this target is articulated is to restore at least 25,000km of rivers into free-flowing by removing barriers and by restoration of floodplains and wetlands. Here I'd like to qualify that free-flowing means without both longitudinal and lateral barriers, and also that the time horizon it goes beyond 2030, because in parallel to the biodiversity strategy there is a new nature restoration law coming in which aims to set legally binding targets towards 2050. Of course a lot of what we do at the EEA is associated with monitoring progress towards this. But it's still very early days so at the moment we're talking a lot about it but we have little to show.

So the role of the EU nature restoration law is complementary to the biodiversity strategy. So the strategy targets the need to restore and the objective to restore, but the nature restoration law is expected, so it's not been published yet, but we're expecting it to say something about what needs to be restored. So what is it we're trying to achieve with this restoration in terms of ecosystem services, and in particular habitat area improvement? The carbon storage potential that was also discussed in the film just now and disaster risk reductions are factors that are coming in very heavily with this new legal instrument. But what we're also seeing at the Agency is it's one thing having these ambitions but another thing is being able to actually monitor progress towards these targets and to set baselines. There's no question that this really also drives the demand for new datasets at the European scale where, for example, a product like the EU-Hydro which is a consistent and topologically connected river network, it is going to be very important. We're working towards developing a high resolution habitats map. The current reporting under the Habitats Directive is the dataset that gives a European overview at the moment and this is a 10x10km grid. So very low resolution and we need something with a much higher resolution.

Then we have the whole discussion around the lateral barriers, how do we create an inventory of it because if we're going to assess the lateral connectivity improvements, we really need to understand what it is that needs to be removed. We see this as a project that would be very much complementary to what has already been developed as part of the AMBER Atlas where the transversal barriers in Europe's networks has been mapped.

I would just like to say that at least from a policy perspective, there's no question that our greenhouse gas emission reduction ambition is a very strong driver of the future, both restoration but also trade-offs in the river. So, for example, hydropower is probably going to be something that some countries will want to push for as part of their emission reductions. But then in other countries the greenhouse gas retentions in the riparian zone and also the natural water retention measures to achieve the disaster risk reduction is something that will drive developments there. In Denmark, which is where I am, we are setting aside 4% of the national territory as low lying

areas that we plan to maintain as wetland to simply keep the carbon in the ground as part of achieving our emission targets.

So with this I just want to thank you very much for listening and I wish you a very good few days with your conference. I think you have a very interesting agenda ahead of you and I hope you have a wonderful time. Thank you very much.

Emma: Thank you so much Trine and really well done for speaking slightly ahead of where you were expecting to. I'm going to move straight on to introduce Barry Gardiner, Labour MP for Brent North. Barry currently serves as a member of 2 Select Committees, the Environmental Audit Select Committee and the Environment, Food and Rural Affairs Select Committee. He also chairs the All-Party Parliamentary Group for Nature and the All-Party Parliamentary Group of International Conservation. We are absolutely delighted that he's able to come and talk to us today. Thank you very much Barry.

### **Keynote Speaker 2 Barry Gardiner**

Barry: Emma thanks. In fact I've just come from one of those Select Committees where we were grilling the 6 Chief Executives of the water companies. I'm sure that that session may well be of interest to some of your members as well. Scaling up restoration of the UK's natural ecosystems for the benefit of the planet, for biodiversity, it could not be more pressing. Dasgupta made clear that this is an issue of asset management, or rather it's actually a failure of asset management, that's led this country to being one of the worst nature depleted countries in the world. As Chair, as you said, of the All-Party Group for Nature, obviously I take a particular interest in nature-based solutions to climate change. But while the climate crisis has really gripped public consciousness, the crisis in biodiversity and ecosystem decline has really not got the same focus from the public, or indeed I think from government. Only 2% of our UK grasslands remain species-rich and since the end of the last World War we've lost 97% of our meadows and grasslands. Now that's an absolutely staggering figure, and 75% of the remaining meadows are so small that actually they then have significantly reduced biodiversity. So it's not surprising that the latest State of Nature Report highlights that 15% of species are threatened with extinction from the UK and 41% have decreased since 1970. If we're not committed to protecting our domestic natural environments then how do we expect to command respect on the world stage in a few weeks' time at COP 26. So as we look towards the COP we do need an urgent prioritisation of nature-based solutions from governments. I know it's going to be one of the themes there in Glasgow but at present only 3% of global climate finance is spent on nature-based solutions and only 1% goes for adaptation. We need to ramp up ambition and action as we also have, of course, the COP15 negotiations underway where we'll agree a new post-2020 biodiversity framework. I'm afraid the reality is that we don't have a strong foundation to build on. In the UK we failed on 17 out of the 28 Aichi targets that were set in 2010 at the CBD in Nagoya. If we needed a further reminder, today the Environment Agency's 3<sup>rd</sup> Adaptation Report warns us that we risk underfunding adaptation measures at our

peril. Their Chief Executive likens choosing mitigation over adaptation to 'telling a bird it only needs to fly on one wing'.

The pandemic has highlighted to many the importance of our natural landscapes. Recent flooding over the summer shows that it's really important that we recognise the importance of our natural landscapes such as floodplain, grasslands and meadows in reducing flooding risks, as well as their ecosystem services and the carbon sequestration potential that they have.

So let's go a little deeper into some of the key benefits of restoring our natural environment which serve as a reminder of the importance of this conference that we're holding. First, as economic and job creation. I think it's really important that the RSPB study into the potential for nature restoration as part of the UK's post-COVID recovery said that we could generate £6.4 billion a year. They pointed out that every pound invested in saltmarsh, in peatlands, grasslands and woodland restoration could actually return £3 on average. That's an economic benefit that we really do need. But funding for conservation sadly has fallen by 42% since 2000. So the government's levelling up agenda came into the spotlight recently. You may recall at the party conference that the Conservative government held, job creation, I think, really has to be central in any thoughts about levelling up. A focus on the Environmental Audit Committee's recent inquiry into greening the COVID recovery and biodiversity specifically highlighted the job creation potential from restoring our natural environments. If the government aims to deliver on its ambition in the 25 year Environment Plan of restoring ½ a million hectares of habitat, that could actually lead to over 15,000 jobs. In the immediate term Wildlife and Countryside Link estimate that there are over 300 ready-to-go projects which could support 10,000 jobs. We need to start at the beginning of the supply chain. Our APPG for Nature looked at local authority capacity for implementing those important components of the environment in the Environment Bill and, of course, what we heard was that Councils simply lack the ecological expertise in-house to implement biodiversity net gain and local nature recovery strategies, which is why investing in ecological education from an early age is so vital, and the government really must realise that ambition in the Bill.

So second, let's think about carbon sequestration potential and meeting our net zero target. Our natural carbon sinks from soils which are our largest pool of terrestrial carbon in the UK to grassland and our peatlands really have to be restored if we're to meet our 2050 net zero target. Our most important landscapes sequester 2 gigatons of carbon. Now that's equivalent to 4 years of the UK's annual emissions total. Grasslands and meadows, often I think they're overlooked as nature-based solutions for mitigation purposes. The sequestration potential for peatlands is very well documented, but we're seeing some of the negative effects of well-intentioned tree planting efforts over species and carbon-rich grasslands, simply because we're not attuned to their importance as a nature-based solution. I do want to pay tribute to the Woodland Trust here who've developed some really good guidance on recognising

the biodiversity and carbon sequestration potential of grasslands in order to make sure that we plant trees elsewhere, right tree, right place. We say it so often yet we need action from the top to match those efforts on the ground.

Third, ecosystem services potential. With 2° of warming above pre-industrial levels the Environment Agency estimate that winter rainfall could increase by 6% by the 2050s and summer rainfall by 15%. That would lead to more extreme river flows and sea level rise. London alone is expected to rise by 23cms by the 2050s under that scenario. So even in my constituency, I have over 800 properties with an annual risk of flooding of at least 1%, that's Northwest London. In the most low lying areas of the country such as Norfolk that figure is at a staggering 10,000 plus properties. It's for this reason that we've got to get serious about conserving forests and grasslands for their potential to reduce the likelihood and impact of flooding. There are many examples of the economic benefits too. RSPB's Medmerry Nature reserve saves £300,000 a year in flood prevention costs, protects 348 properties that were at risk of flooding. So floodplain meadows offer some of the most biologically abundant habitats in the country. Burnet Floodplain Meadow with up to 43 species per square meter, one of the richest natural grassland habitats in the UK. Such meadows provide a wealth of agricultural benefits including nutrition for cattle and sheep, pollination, pest control and obviously the alleviation of flood risk through storing flood water that I've talked about.

So we've seen some positive steps from government this year in beginning to recognise those benefits. The Environment Bill which returns to the Commons immediately after the conference recess mandates a 10% measurable increase in biodiversity for new developments, as well as establishing local nature recovery strategies to map out important habitats and what ecosystem services such habitats might provide. I welcome George Eustice's announcement in May this year that the Environment Bill will now have a 2030 State of Nature target, but it is government's inconsistency on natural capital which I believe really is continuing to hamper progress. Just weeks before COP26 the latest Greenpeace Unearthed investigation released just yesterday reports that more than 100 fires on carbon-rich peatlands have taken place in the north of England. Now that's happening in the name of sport, they call it sport, to maintain the conditions for grouse shooting. It's also happening because the government's legislation only protects 8% of our peatland. Natural England have warned that protecting and restoring our peatlands in particular is essential if we're to meet our net zero target by 2050 and that was corroborated by the Committee on Climate Change. There's so much to talk about here, you're going to have a fabulous conference, I really hope that everybody not only gets a lot out of it but actually enjoys it because these are some of the really important things in our lives and for our future. Thanks very much.

Emma: That's fantastic Barry, thank you very much. Are you available to take a couple of questions before you leave or do you need to rush off straight away?

Barry: I'm rushing, but if there are some quick questions let me try and see what I can do. Yes, of course.

Emma: Okay. If anybody wants to raise their virtual hand very quickly. I've got one. Do you think we would benefit from a floodplain strategy that links up Natural England and the Environmental Agency?

Barry: That sounds less like a question than a pretty damn obvious statement. Yes. Of course. So often the problem is, and this is what I've been hearing from the Chief Executives on the Select Committee this afternoon, so often the problem is that different parts of the jigsaw are operating to different targets and different specifications and it isn't a joined up holistic strategy. So absolutely we need that cross-departmental, cross-NGO, across arm's length public body working along with all the private sector to make sure that we know exactly what we're trying to do, how we are going to do it, and who has responsibility for what and who then enforces it.

Emma: Great, thank you. That's brilliant. I think we'll be meeting again in the lead up to Christmas hopefully at one of the APPGs.

Okay, so that was interesting. Let's move on. We've got 2 polls to ask you now, I said you'd be asked to do something. The poll we've got in front of us is - Do you think the current policy framework to promote sustainable land uses on floodplains works? We will feed back the results from the polls afterwards as well as part of the post-conference information.

Thank you very much for those everybody. So now we can move on to our 3<sup>rd</sup> keynote speaker who is unable to join us today but he sent us a video recording and apologises that he can't be here. It's Tony Juniper who is a campaigner, writer, sustainability advisor and a well-known British environmentalist. For more than 35 years he has worked for change towards a more sustainable society at local, national and international levels. He's now the chair of Natural England where he has worked since 2019.

### **Keynote Speaker 3 Tony Juniper**

Tony: Ladies and gentlemen good afternoon. My name is Tony Juniper. I am the Chairman of Natural England and it's my absolute pleasure to be with you this afternoon to share a few thoughts about some of the work that we're doing. That pleasure is not least because of the experience I had during the summer spending some time in the field with the Floodplain Meadows Partnership hearing about some of the work that you're doing and hearing about your ambition for the future.

When it comes to ambition for the future one of the very exciting things that I think is going on at the moment in relation to environmental questions is the extent to which we're talking less and less about conservation, and more and more about nature recovery. This is a very exciting shift in the narrative and marking a phase from the period when we've focused on the protection and hanging on to the last remnants of rare habitats and populations of rare and declining species and are now getting

much more actively into the space of recovery and restoration. There are species and plants that should be characteristic of certain parts of the world and indeed the country but which have either disappeared completely or which are now very rare. That's a very important part of nature recovery. So also is the protection and the recovery of beauty. The way in which the natural environment inspires us through the way in which it touches us at a spiritual level is something that we really mustn't underestimate or overlook. So that beauty dimension evidently has to be part of what we're thinking about when we look to the nature recovery agenda. At the same time as we're thinking about biological diversity and the beauty of places, another set of functions of course lies around this idea of ecosystem services and the practical values that society and the economy derive from healthy, natural, functioning systems. Then on top of the beauty, the practical values and the biodiversity is that cultural and historic dimension of our environment. Again something which ideally we can blend into this wider picture for nature recovery.

When it comes to floodplain meadows I'm sure nobody in this discussion today would be unaware of the fact that all 4 of those values for nature recovery are strongly reflected in floodplain meadows. The diversity of plants and insects like I saw on the meadows by the River Thames near Eynsham with you in the summer really is outstanding and is the reason why many floodplain meadows of course are designated as Sites of Special Scientific Interest for that biodiversity, that outstanding assemblage of characteristic plants and animals that we find in those places. Then at the same time as I stood there looking along the course of the River Thames, we realise just how iconic and characteristic a landscape this is. It's a very beautiful dimension to the way in which the place looks and again has enormous cultural significance for many people beyond the beauty and the uniqueness of those animals and plants that you find in those places. Then at the same time as we see these natural environment functions we see the practical functions right there at the same time. Floodplains, there is I've always thought, a clue in the name and as we suffer more extreme weather events then investing in the protection and the recovery of these kinds of assets that can help to ameliorate downstream impacts on communities caused by too much water in one place at one time, evidently that's a good reason why we might want to be looking at the recovery of these places. Not only for the storage of water but also the purity of the water, taking nutrients, for example, from the water body and holding that in the ground via plant growth which can then be removed in the future to be able to take that away in the form of hay, which can then be fed to livestock, creating yet another ecosystem service. Then on top of these, water purity, livestock feed, and flood risk reduction values is, of course, the capture of carbon in those soils that lie beneath those grasslands. So these are the kinds of practical functions that are layered on top of how these places look and that vibrant biodiversity that's there. On top of that, of course, is this great time depth. Some of these places have a very long history, some of which is documented with some of these places appearing in the Doomsday Book and being in this kind of

management not for reasons of conservation but for reasons of economy for many centuries, thereby giving us some sense of cultural history in these landscapes.

So for all these reasons it's very, very important that we not only protect what's left, but try and restore as much as we can of what might be put back. Of course we have lost an awful lot of these ecosystems over the centuries and today they are really not in what we would regard as a favourable conservation status, 2,500 hectares more or less left. At Natural England we think we need to have something like 70,000 hectares more in order to achieve that goal of favourable conservation status. That's about protecting what we have but also about recreating a lot more healthy habitat of the kind that we know we could have if only we can rise to that ambition, co-ordinate, build partnerships and deploy the tools that we have in a joined up way to be able to turn this corner of decline into one of recovery.

Now fortunately we do have a lot of very good new policy tools coming through. The Environment Bill that is presently going through Parliament will deliver what we expect at Natural England to be the very powerful new spatial planning tool of local nature recovery strategies, setting out at county level exactly what will be the ambition for people to be working together to restore the natural environment and floodplain meadows of course will be one priority habitat that we would like to see reflected in those spatial planning exercises and I'm sure many other people will too.

Once we've got a sense of what 'good' looks like in terms of where nature recovery could occur then we can begin to see the landscape from that point of view, not only in terms of infrastructure and housing, but also in terms of where nature recovery ideally will occur, we can begin to put in place the resources and the tools to achieve that. One big tool in the kit is going to be the new Environmental Land Management Policy coming through now, being designed still, but giving some sense of shape for the future in terms of how we might be able to harness the sustainable farming incentive, local nature recovery and landscape recovery schemes to be able to go down this road of nature recovery, including in relation to these very important and very depleted ecosystems. Then on top of these kinds of policy tools will be the partnerships that we can build with the private sector. Water companies, for example, and the work they need to be doing into the future to be improving water quality and how we might be able to blend in some level of investment into ecosystem services to meet those wider goals of companies and indeed the country.

So floodplain meadows like the rest of the natural environment hopefully is poised for now a period of exciting, targeted recovery in line with targets being set in this country, and hopefully also globally under the convention of biological diversity, at the same time building resilience to climate change and making some contribution towards climate change mitigation. Of course these journeys that we are on, they're long journeys but they all start with questions getting put on to the agenda. One question that now is being put onto the agenda, as a result of the work that you and others are doing, is the need to restore the health of floodplain meadows. That is a very, very important first step and once we've understood the priority at hand we can

start to then harness the tools and the partnerships to be able to make progress into the future. At Natural England we're very much looking forward to working with all of you going towards this period of recovery for these ecosystems and I'm hoping during the years ahead we will begin to see some real progress. So thank you very much for listening. Thank you for having me at your conference. and thank you for all the work that you're doing.

Emma: Thank you Tony in your absence, back. That's great. Obviously we can't ask Tony any questions or Barry anymore, but if people do have questions which are targeted at either of those 2 then do put them in the chat and we'll try and feed them back. I can't promise we'll get responses but you never know. I think before we move on to the next session could we perhaps see if anyone has any questions for Trine before she has to leave. At the same time we're going to ask you a 3<sup>rd</sup> poll question. So if you've got a question for Trine could you put your hand up and Babette will unmute you and answer the poll at the same time - 70,000 hectares of floodplain in the UK should be targeted for the restoration of species-rich meadow to help deliver a range of ecosystem services including nutrient supporting, carbon sequestering, biodiversity and flood storage. Do you agree or disagree? If you disagree please tell us why in the chat box. We ask this because we ran this poll at another session and it was about 50/50 the split on this question, and we never knew why people had agreed or disagreed, so it would be really good to know your thoughts.

Ann: It would be great to know what people thought of the 70,000 hectare target that we're suggesting.

Emma: Cath Mowat has said is 70,000 hectares enough?

I think we'll thank Trine very much and I'm sorry for bumping you to the first speaker. but your information is very useful and I hope that we can look at what's happening in European floodplain policy and see how we can possibly apply some of that stuff to ourselves.

Okay I think we're going to move on then in that case, and we're already slightly behind time. So our next session actually you can sit back and relax and enjoy. We are going to play a series of virtual site visits. This summer in anticipation of an online conference we thought we would try and bring the field online. We approached some of the landowners we were planning to meet and asked them if they minded being interviewed. We also invited our ambassadors to submit similar videos from their own sites. So this series of 5 short films is the result of us doing this. Please forgive us as we were learning as we went along to use the equipment and remember to ask the right questions. I think we might continue to do this to build up a series of short video case studies to put on the website and on social media, so please do let us know if this is a useful resource in the chat. Not all of the people we interviewed are here this evening so maybe if you've got questions you can put them in the chat and we can try and answer them as we go along. So thank you very much.

## **Site visit videos**

### **Video 1**

“I did it on certain areas of the meadows, not on my very best hay bit, and then the hay was brought over and chopped and spread all on the same day because that's how you get the maximum benefit from the seed apparently. So that was done but I haven't seen a great diversity arriving straightaway but maybe one has to wait a few years. Then it flooded quite soon afterwards and I was wondering whether actually a lot of it was washed away but you could see the hay there. Now I'm planning to certainly make hay on one of the fields every year which will be stored in the barn. We don't necessarily want to make hay on all the fields because of barn space and we need it for livestock as well. We also do quite a lot of silage making for the livestock. Also we do a lot of herbal leys which are good for silage. Then we need to be able to graze the meadows reasonably early in the year otherwise we run out of meadow space.

The calendar date of hay making will vary because it will depend on the season, weather and the rain and all that sort of stuff but I think it's an art that's rather been lost.

So I'm a fairly new farmer and I do have a lot of sympathy with farmers who are pushed to really maximise production which often means that there isn't much ability to leave space for nature. I think most farmers want to have nature on their farm and they love it if orchids appear or birds are nesting and that sort of thing. But that's why I do think that the countryside stewardship funding is so important for small, less intensive farmers so that they can actually make a living from their land.

For me as a farmer to really be able to maximise the biodiversity and say revert to the old ways of doing things, I would need help. It might be some financial help to make up for lost production and perhaps capital schemes as well for putting up infrastructure like barns to make the hay.”

### **Video 2**

“We started to go organic in 2016 anyway just as a natural process of the way we were farming because we're one of the Pasture-Fed Livestock Association. We're driven absolutely by trying to make it biodiverse. That's our reason for being here to some extent, is building soil health which will in turn create biodiversity. So, yes, that's all we're about really is regenerative farmers, that's what we do.

We want to make the whole of the floodplain more species-rich because when we arrived there was probably 3 or 4 grass types and that was about it. Since we've stopped applying anything to it we're already seeing more diverse species coming into the mix but it would be nice to try and revert it back to what it might have been at one other point in time. To date we haven't done enough to do that so that's what we want to do with it really.

I think it works perfectly with our farming model. We're low input anyway. Our only real cost is the hay making cost actually, making forage for the winter. So if we can do that and help bring back those meadows to what they might have been then it works perfectly within our system. We'd then graze it afterwards. It floods November onwards anyway, so we could never get on it. It works perfectly for us actually.

We don't have any of our own equipment because we don't have enough to make it worthwhile so I use a contractor and we just book him in and he comes in and does it when he thinks the time is ready.

Restoration of the meadows in an Agri-environment scheme makes far more sense than us just to try and launch to do it ourselves. I mean, we don't have to do a lot more but there are fields that are far more inaccessible for big contractors which means for us to do it ourselves it's a much more manual enterprise and that's much more expensive. Until we get better forage off those fields it's not really economical to do it right now. In 3 or 4 years' time it probably would be. But right now it's probably not. We've got far easier alternative fields to cut.

An Agri-environment scheme really would allow us to take hay off those fields where otherwise we couldn't make a financial argument stack up really without some sort of payment I don't think, because we have far cheaper alternative fields to cut is the reality of it.

Given how much we've lost in terms of certainly meadow and all the rest of it, the only way we're going to get it back is more income, more money. There's no other way. We can do tiny pockets, but it has to happen at landscape level and that needs money.”

### **Video 3**

“Today I'm here visiting Swampy meadow in Northeast Staffordshire. I'm here to meet Graham Prince the farmer. I'm going to have a look at his meadow and see what he's been up to.

Graham: I decided to restore this meadow because it's on the side of the River Dove in the Dove Valley and it's a very good area for butterflies and I wanted to try and encourage them more to breed here really and the same with the birds. It's a very good area for birds and animals. It's just a case of trying to enhance what was here and give them more chance to survive really.

Swampy meadow gets its name because it's adjacent to this fantastic fen meadow that's dominated by meadowsweet but it has other species here. We're next to the River Dove so you get these kind of wetter habitats that then transition into the drier hay meadow.

Graham: I started to restore this meadow by introducing some seeds to begin with, but mainly by hay making it so managing it in a way that was spreading the existing

wildflower seeds that were here already. I'm also hoping to introduce green hay in the future to introduce more variety of wildflowers here.

The meadow was restored in 2018 with a small amount of hay rattle, and now what's happened 3 years on since introducing that hay rattle is it has started to spread quite nicely in the field and we're getting some additional species spreading across the field.

Graham: More monitoring would be useful really of the water table both in the winter when it's been virtually flooded and in the summer when it turns into a hay meadow. Different variety of plants can thrive in both situations and that's where the dip wells come in. We can monitor the information we've got from the dip wells to understand how the field is changing from year to year.

The thing I like most about this meadow is the fact that there's flowers right from the spring through the summer to the autumn. There's the lady's smock for the orange-tip butterflies in the spring, a lot of it and then you've got your rattle and knapweed, meadowsweet that comes through and it makes very nice quality hay.

The biggest challenge about this project is that this particular field is a very small part of a bigger project that we've got down here. We've got 40-odd acres down here that we're trying to restore into wetland habitat, as well as wildflower meadows. We're trying to create scrapes for waders and the planning permission and all the research that has had to be done, the monitoring and the funding that we've needed has been quite immense.

The Agri-environmental scheme has helped a lot. I'm a member of the White Peak Farmers Facilitation Group. I've been struggling to get into a higher tier for several years and not been able to do it until I joined the group. We've been able to join the scheme now, the higher tier. A key message to the government would be to make it easier for people to rewild an area without having to go through planning permissions and red tapes. It's a nightmare really and the expense of applying for planning permission and all the hoops you have to jump through. I'd say get all your research done and your funding in place because without it it is just too much of a job, too big. You need to know what you're doing before you start and what you can do before you start. Get all your research in place. Don't give up, keep going and get advice because without it you don't know what you're going to come up against."

#### **Video 4**

"I decided to restore this meadow because of its close proximity to North Meadow. It's actually adjacent to it and it had the potential to be restored. We went about this by initially taking soil samples and looking at the hydrology, the pH and then whether the seed was available. Then we looked at the land which had been sprayed for many years by the tenant farmer and it was basically a monoculture. So we went about cutting it short and then glyphosating the whole area and then harrowing.

It was not too difficult, just deciding on doing that and getting the right funding was the key to the go ahead and obviously getting the landowners permission to do it. The biggest challenge was actually getting the seed, preparing it and getting the correct method and spread onto this area.

So one of the main indicator species particularly good to have in the restoration site is this *Sanguisorba*. It's looking quite good, not much of it.

What I enjoy most about it now is the profusion of the similar species that are doing really well to North Meadow and also that it has got a reasonably well established snake's-head fritillary.

If you look here this is the developing seed pod of fritillary *meleagris*. These were hand harvested in April from North Meadow with several volunteers, then I cleaned it and stored it in a cool temperature with plenty of air circulating around it. After we had sown the main seed in here, I hand sowed by sectioning it off into areas and weighing out the grams of fritillary seed and hand sowed this. So it's a real success. This year there were about 200 fritillary flowers that we could see. The first flower came up 5 years after sowing. So absolutely fantastic to see more and more spreading out from that one first initial seed. It's a success story. It's been 10 years since the initial surveys, the 2<sup>nd</sup> year after the seed wasn't brilliant and then during the year we've put some more seed on here and from then it has been a real success.

The message I'd give to other people is do your research really well. Get all the ground study details in place, do your Ph studies and don't expect this to be an overnight success.

We really need to look at these areas, there's just not very many of them anymore. They are absolutely vital not only for the wildlife that they bring, the interest to people that the carbon storage provides.

Emma: There is one more but I'm not sure it's loading. I think maybe we'll try and play a little bit later on, if that's ok. I hope enough of you were able to see those videos to make it worthwhile playing. They are a lovely set of films and there is another equally lovely one from Long Mead that we will also try and play a little bit later on. So I do apologise about that. That's your inexperience of not having run an online conference before. A lesson learned for me. So in that case, we've got a chance for some questions, shall we try and do that instead. If you have a question about any of the site visits I can't guarantee that the farmers or the people in the videos will be able to answer them but I might be able to help and we can feed back questions or any comments. Is that useful for those people that could see them? If not I suggest we take a five minute break and reconvene at quarter to for our Floodplain Meadows Question Time. Rose Dale who was one of the speakers in the first video has said she's since got funding for wetland restoration so that's exciting. We'll definitely keep an eye on that with Rose and support her where we can. I have another question, it's Catriona who would be in the final video that we haven't been

able to play yet. We can't hear you. Sorry Catriona. I haven't played your video and we can't answer your question either. Why don't we give ourselves a 5 minute break and reconvene at 5.45 when we'll see if we can get the video running again and then we'll do our Floodplain Meadows Question Time session. Thank you all for your forbearance and I apologise for the technical glitches, let's hope it gets better. Thank you.

Emma: Hi, everybody. I hope you've all come back again. We're going to try and run the final video one more time and I've also made Catriona a presenter so I'm hoping that she can now ask her question. Shall we try that again?

Catriona: So my question was - Are all the meadows in the videos that we saw are they all grazed afterwards with cattle or with sheep? I lost the sound with the North Meadow? Was that hand gathered seed from North Meadow that was resown? I just missed that bit.

Emma: The North Meadow question I can answer. The seed that was sown originally was green hay and commercial seed, they had a couple of goes at it. So it ended up being a mix. But the fritillary seed was hand collected and then hand sown. So they did throw quite a few different methods at that site and it had a very shaky start, it got massively flooded in the first year and then they had another go putting some more seed on that was brush harvested that time. There's a case study about it on our website actually which gives you a little bit more information. As Anita said it's taken 10 years and now it's looking really good. But it has taken that long to look that good. So you have to be patient. The other question about cutting and grazing, a couple of the sites are still in the development phase of working out how they're going to manage them. The other 2 sites, I don't know White Peak. Ann Cantrell is here, she might be able to answer that and Priors Ham, the site next to North Meadow is cut and grazed. Rose has answered in the chat. She is on the line. Thank you Rose. She says hers is cut and grazed after, but she's very early stages. Tim Thompson from Hampton Gay, he's just starting to experiment with cutting in one of his fields and one of his pasture is grazed only. So they're all different. So shall we have a go at running that video now and if it doesn't work we'll just move on to Question Time. Thank you.

## **Video 5**

"I'm here today to look at some restoration that's been done adjacent to Long Mead which is an ancient meadow in Oxfordshire. We're going to meet Catriona Bass who is co-owner of Long Mead who is going to tell us a bit more about what she's done.

Catriona: So we inherited this amazing 1000 year old ancient floodplain hay meadow. Our predecessors had had a dispute with the neighbour because one winter the cowmen were driving across the meadow and destroyed this area, a strip round the track. So they were required to reseed it and they reseeded it with rye grass. We bought this 20 years ago and for the last 20 years we've had this strip of rye grass that's grown tall and has no diversity at all. So last year 2020 we decided

to use some green hay from the meadow to try and restore its diversity. In order to restore it first of all we cut the hay very short, as short as we could, shorter than we would normally do a hay cut just to make sure that it was easier to rough it up basically. We roughed it up by harrowing it. We harrowed it 100%. Normally you need to do about up to 50% but because there was nothing interesting here at all, we thought we would go the whole hog. So we harrowed it. Then we took green hay from the meadow behind me which is very species-rich. We've got over 150 different species in our meadow. We cut it with a forage harvester which chops up the grass very small and importantly captures the seed. So in the normal haymaking process you cut it and then you let the hay lie on the meadow and the seed drops out. This keeps the seed in, puts it into a forage harvester and then we take it from the forage harvester and put in the muck spreader. So what you usually use for spreading manure on fields and blow out the chopped up hay with the seed in onto this strip here. Then we roll it to make sure the seed makes a good contact with the soil. So that was last August. Then the cattle came on and grazed it and their hooves help also to tread in the seed. Then this March we topped it. So the really critical element is the yellow rattle which you can see here behind me. It's grown fantastically well. In the first year that's really what we want to see. We're not expecting a great diversity of other flowers, but the yellow rattle is critical. So we just topped the grass to give the yellow rattle a head start before it starts growing. Obviously you don't want to cut its heads off because it's the only annual in the meadow.

This is the yellow rattle. This is the absolute key ingredient in making meadows. It's the only annual in the meadow and it's semi parasitic on the grasses. So it will reduce the vigour of the grasses. If you look here the grass still is very high. Once this really gets in there it will bring down the height of the grasses so that the perennial flowers can grow and flourish. So we're delighted that we've got so much rattle in our first year sometimes it doesn't take at all. So all of this business is a bit of a gamble. But hopefully on this one we're on the right side of it.

My key piece of advice is if one plants a tree, for example, if you're planting a pear tree, the saying is 'plant a pear for your heirs' and I think one has to think of the same thing about a meadow. In fact, I think that if you think of it like a child that is sort of snotty and horrible for a very long time and then grows into something beautiful. So this is not very beautiful what we've got at the moment. So this is my snotty child and I'm hoping that in 10 years it'll be a bit more interesting. In 20 years, it will flower into this amazing adult meadow. But actually the science says that it's 150 years so it really is for your heirs and that's what you need to be focusing on.

So my key message to government is if we're serious about creating nature recovery networks of meadows or other kinds of land, the landowners and farmers need to be at the table from the start in a level playing field as part of the network. Otherwise we might as well all go home.

Emma: That was lovely and I'm so glad we got to see the final video. What I'll do is I'll put them up on our YouTube channel tonight or tomorrow morning and they'll be

available for you to watch from about lunchtime tomorrow. So hopefully you'll be able to catch up with them. Thank you very much for your forbearance with the technology.

### **Floodplain Meadow Question Time**

So I'm going to move us straight on in that case to our Floodplain Meadows Question Time. Think Gardeners Question Time, but perhaps not being broadcast on Radio 4 and that's what we are going to try and aim for. At your registration we invited people to submit questions in advance and we have some questions in advance for this session. We'll start with those but if you have a question you'd like to ask as well we'll try and fit others in and please put them in the chat as we go along or at the end. If we invite more questions put your hands up and hopefully we can unmute you. Once we get started I will invite those who submitted a question to put their virtual hands up so Babette and Amy can unmute you to ask your questions, then we'll move on to the next one. I hope that's clear.

But first before we begin let's meet the panel. Panel can I please ask you to introduce yourselves to the conference starting with Andy.

Andy: Hi. My name's Andy Rimming, I farm with my family near Cricklade. We've got about 300 cattle, 90 suckler cows and basically we feed a lot of them on floodplain meadow species-rich hay all winter. Then we retail meat, and then we retail leather, and we use the whole floodplain meadow as a driver for those sales. So we make lots of hay. We also make a lot of hay on North Meadow, which I think you've seen quite a lot about already.

Matt: I'm Matt Johnson from the Wildlife Trust working in Northamptonshire where we've got a number of floodplain meadow nature reserves and I also work with various landowners doing restoration projects of various size, shape and success, and I also sit on the Floodplain Meadow Partnerships doing good for the Wildlife Trusts.

Clare: Hi everyone I'm Clare Hill from FAI farms. We are slightly behind Andy in the fact that we do a similar thing, grazing cattle and sheep on floodplains as aftermath grazing, but also using the hay for two purposes. One is to feed the cattle through outwintering, so to provide feed, but also with the purpose of helping to spread that seed and reseed some other areas of the farm, which so far seems to be working quite well, although anecdotal only really at the moment. We are 1200 acres of which about 50% of the farm goes underwater for a large majority of the winter these days. We have an interesting bit in that we manage two sides of the river, one which is managed as a triple SI and one that was arable up until about 18 years ago when we put it back into grazing but haven't given it such the amount of care maybe over the years but we're starting to do more. We've done some restoration and various other things.

David: Hi there. I'm David Gowing, an academic at The Open University. I'm currently Director of the Floodplain Meadows Partnership. I'm a botanist by training and have been undertaking research on floodplain meadows for the past 30 years.

Emma: Thank you. So I'm going to invite our first question to be asked and that comes from Tracy Docherty.

Tracy: Is there going to be a code like there is for woodland and for peatlands for conservation of floodplain meadows going forward for carbon.

Emma: Will there be a carbon code created for floodplain meadows as per peat and trees?

Matt: I don't know if there will be one, I think various partners from the Steering Group are very keen that there is one. The Floodplain Meadows Partnership is as well. It is something we'll probably be pushing for slightly longer term with elms and COP being the main priorities at the moment and I imagine David has probably got a lot of insight into what data has been collected so far that could be inputted into that and what still needs to be factored.

Tracy: The reason why I'm quite interested in this is that as it may be mentioned or referred to later in the conference, I nearly lost 2.8 acres of relic floodplain meadow to tree planting and obviously this is my fear that while everybody's got these codes just for woodland and peatland, we're actually going to lose some critical habitat in floodplain meadows. So I think it's really important that we get grassland code.

Andy: We've just had some work done by Rothamsted looking at various fields and our floodplain meadow came out at 17% organic matter or soil carbon which stuck out like a sore thumb with the rest of their data they had. So it's really important, but we still need to get some agreement on how you take those measurements. So what depth you're taking them to, what system you're using and we've got to get more farmers to do things like the carbon cutting toolkit and then you can get lots of data.

Clare: I've got nothing to add other than what the other speakers have said on that one.

David: Just to say that it's a good point and we are lobbying for a code for grasslands. The Plantlife charity are also anxious that grasslands shouldn't be omitted. As Andy says we know floodplain meadows are very rich in carbon, they can have a very high percentage in their topsoil. But even more critical is that they have carbon at depth. So there have been some studies in the States showing them to be quite rich in carbon to 2 or 3m below the surface because the alluvial soils are fairly unique in the way they've built up over time. So I sympathise with your concern Tracy that we probably shouldn't be planting trees on that sort of soil and so we need some official way of recognising it. I don't think there is one at the moment but we're hopeful that it will come.

Tracy: Thanks everybody. It's kind of what I expected. I really do support you and I really do think we need something to help us conserve in our roles.

Emma: Thank you Tracy and I'll just add to that. There's a whole morning session tomorrow on soil and carbon and we're going to be presenting some of our early findings from our Year 1 of Ecover project which is very exciting where we've been recording soil carbon in meadows. Jenny Phelps is talking on Thursday evening about a farm and soil carbon code that is being developed by a wide range of partners. So there are people throughout the conference who will be looking at this, but as yet there is no answer to your question I don't think, but I think a lot of people want the answer.

Debbie: I'm asking about the best way of grazing meadows to keep the species or to enhance them? Whether we should be hay making and aftermath grazing, or mob grazing or set stocking. I have some species-rich meadows. In 2018 when we had the drought I did a bit of mob grazing because we were short of grazing and I could definitely see a difference the next year where I'd mob grazed versus hay cut and I didn't know whether that was good or bad. So over to you.

Emma: That's a great question Debbie and it's really pertinent, it's a question that there's a lot of discussion about at the moment. I'm going to invite David to speak first on this one.

David: There's a lot in that question. Certainly aftermath grazing is beneficial and the important thing is to get the grass grazed quite low by the end of autumn when the stock are removed to avoid dead plant material thatch building up on the surface and inhibiting the smaller herbs. So having a thorough grazing, I don't think it matters dreadfully which type of grazing animal you use. Alison McDonald who was with us earlier has done some detailed research on this and suggested that cattle perhaps gave the highest plant diversity. But sheep were also very effective and gave a high diversity than not grazing. Your question was also encompassing whether grazing in place of the hay cut might work. For the floodplain meadow community it's not tolerant of spring grazing, so many of the species would disappear if there was regular spring grazing. So holding off until after the 1<sup>st</sup> July with the grazing is beneficial. Probably having a mixture of cut in some years and grazing in others is fine. It depends on the local circumstances that if your meadow is perhaps over fertile and you're trying to bring down the nutrient availability, perhaps it's receiving a lot from sediment, then cutting does have an advantage over grazing. But if that's not the issue and the nutrient availability is fine, the herb grass mix is where you want it, then whether you cut or whether you graze probably isn't as important.

Andy: Some of it's about practicalities. What tools do you have in your toolbox? If you have someone with the stock or your own stock, and they're available to move to where you want to, great. If you've got your own haymaking equipment, great. But it's working out what tools you've practically got that you can get in place at the right time. With us we are haymaking and aftermath grazing and that is great. We also try

and do the haymaking as early as people will allow us, because that generally gets us a better weather window and it gets us a better hay product that is more valuable. Trying to get animals to graze stuff that hasn't been cut in August, you normally see an animal performance drop off, so they're not going to gain much weight. So therefore it's much better to cut it early as hay and then afterwards graze something that's quite green in September, but some of it comes down to practicalities and trying to have a plan and having a plan B as well.

Emma: Clare do you want to add to that? You're probably having this debate yourselves aren't you?

Clare: Definitely. So we do a mixture of both, but partly the practicality thing really comes into it. For us it's a lot of area of hay meadow and we end up with just too much hay that we can manage and not enough grazing. So we do end up grazing some of it. I'd got myself really strung out about the hay cutting dates and thinking it is too late and it really impacts on the quality of our hay and it kind of does with my old paradigm of thinking about quality when I was just focused on the traditional conventional measures of hay quality. But now I think about nutrient density and species diversity and I see the positive impact that the hay is having when we use it to feed our overwintered animals and we don't have proof of this but anecdotally, they eat less. So it's almost like because it's more nutritious as in it's serving them minerals and loads of other kinds of micronutrient dietary requirements, it's almost like they don't need to eat as much. So we use less of it which is interesting and the animals still gain and maintain condition just like we need them to. We're talking sucklers, just to be clear on that, because I think Debbie might be in the dairy game. So to be clear that's what we're talking about is suckler cows. But we can't make hay out of all of it so we do graze some, but we do try and graze it as late as possible because where we do graze it earlier then it does impact on some of the species. But equally, we can't graze all of it late because otherwise we've got no spring grass. So what we try and do is just rotate it round. So we don't graze the same fields in the spring all the time and we try and graze as late as possible. The reason for hay cutting versus grazing in the main would be as in Andy's point about the fact that you'd just have too much material of not so great quality. Although in the new world of grazing and to respond to that question of mob grazing, set stocking or what's the best, we traditionally would have always afterwards grazed on set stocking with sheep. Just because the practicality of the location meant that sheep were the easiest thing to get round there. But we don't have sheep anymore. We've just got cattle. So we're now grazing on cattle. In the last few years we have actually mob grazed it afterwards as well. I don't think we've got the data yet to know whether there's been a difference. Certainly we like doing it like that for all the reasons that we now like mob grazing. It's a longer rest period for some areas, it also means that it kind of ekes the grass out, particularly with sheep, they're not doing so much selective grazing. So I would like to think that mob grazing the afterwards will have a positive impact versus set stocking. I think that's what I feel about it. We would like to experiment with some mob grazing instead of hay cutting because of course the

whole hay cutting process is fossil fuel using, so if we could be grazing instead of hay cutting then that's good for all of us. But I think it would be making sure that we were good with our timing on when that would happen. So not too much long stemmed material but late enough that we're not affecting the species. Almost each season and each year is different on deciding when to do that. We've definitely not perfected it, but we're thinking a lot more about it now.

I think the biggest change for us has been, and as a market opportunity, the interest in the hay from the area, there's almost quite a really good demand from all sorts of people wanting to buy faeces-rich hay from horse feed to dairy farmers. We sell it to everyone. So as an opportunity, as a product, a hay cut is quite a good thing and we no longer store our bales anymore, we put them straight out in the field so we don't have storage costs. So that's been another thing we've changed, not linked necessarily to it being hay meadow hay, we owe it all to floodplain meadow hay but just the way that we run it now we just put the bales straight out at haymaking time. We take them straight up to the field they outwinter on. So we've cut a really big handling and storage cost out of our business as well. So that's been another benefit just with this reframing the way we think about it, I think, which has been an interesting angle for me.

Emma: That's very comprehensive Clare. Thank you very much. Have you got anything to add to that Matt?

Matt: Probably just to agree, for us a lot of it is down to the practicalities. It really comes down to can we get hay kit on or do we have stock nearby etc. We manage our meadows in a whole variety of ways. The ones where we've consistently managed to get hay cut followed by aftermath grazing are the ones that are looking the best. We've have got two meadows side by side, one we hay cut and aftermath graze with sheep and the one next to it because of the wet flushes we only cattle graze. The hay cut one has much more abundance of wildflowers whereas the grazed one has more diversity, but also areas of quite dense rush and sedges as well. So it really makes a difference. We've worked on a restoration project as well where they've only been able to hay cut because they can't have stock on site. That has been slow but we have started to see progress in recent years and really just a lot of it comes down to just getting some management on site is always better than missing out on a year.

Emma: Excuse the pun but it is horses for courses to a certain extent isn't it, you do what you can. The general approach that we take is that a hay cut in a floodplain is important to balance those nutrients but it does depend on your ability to do that and the machinery that you've got and the weather in any one year. Does that help Debbie?

Debbie: Yes that's very interesting. Thank you. Just to add that when we did the mob grazing it was at the same time as hay cutting so it was middle of July and half the field was cut for hay and then left the other half and I mob grazed it because I didn't

have anything to feed them, rather than bring them hay out, they ate it rather than me making it if you see what I mean. But it was really interesting that a year later I could see the dividing line and it looked very different. I just wondered whether if I carried on mob grazing whether I would change the species mix and whether that would be good or bad. But yes thank you it was very interesting.

Emma: When I next come and visit your fields we can have a look if you want, it would be interesting to see. It's a really big topic of discussion at the moment and we're looking into whether we can investigate it more from an evidence-based perspective, but we haven't got anywhere with that yet.

Damon: Hi thanks everyone. It's been really great to listen to this. It's slightly covered my question, I think there's going to be a lot of stuff about it and it's interesting to know that other people are obviously struggling with the same thing. So I work down on the Somerset levels and we've got big areas of peat. There's a lot of drive for restoration of peat. So my question is really based around that, and how do we best balance the need to build resilience within the floodplains that reduce our carbon emissions by restoration of peatlands with the need to maintain and conserve the traditional farmed and late hay cut meadows? Just to follow up on that, we are looking at opportunities, there's 10s of 1000s of hectares of peat with pretty high carbon emissions here, and some of which has got some really great species-rich hay meadow on it. It might not be entirely possible to restore blocks without losing some of that value and whether we can muck spread and we can move these habitats to towards the edges of the floodplains or on slightly higher ground. But it would just be interesting to hear what the panel feel about balancing those needs.

Matt: A tricky question, I think it comes back towards what we've discussed here about there's right tree, right place, and there's right habitat in the right place, and having a diversity of pure peatland, grassland, meadows etc within a wetland is really important. So all having carbon sequestration benefits, and hopefully things like nature recovery network mapping and the Environment Bill and the like will really help people plan out where each habitat can go. I think there's some talks later in the conference that are looking at historical maps and that can really give an idea of where you can restore certain habitats and where you can't and then working from that stage outwards.

Andy: I think it's going to get really interesting. So first of all having a real plan of what you want to do for different objectives is really good. So one is can you practically deliver those objectives? So again it's about have you got the tools in the toolbox? I think that's going to get really interesting with the subsidy system massively, massively changing. We've already started now, so I think there's going to be less farmers out there who can potentially provide services to third parties to manage floodplain meadows, ie, there's going to be less stock around. So you've got to kind of work that in. The carbon sequestration side, again we've got carbon markets really now firing up. So everybody wants to buy my carbon and there's really shocking schemes out there. So I think we might see people thinking that peatland

restoration is the way to earn the most cash. So I think over the next potentially 3 years there's going to be lots of changes that might mean your best laid plans may be easier or more difficult to actually deliver.

David: Hi Damon. Yes this is an important question particularly for your Somerset levels. We have done quite a lot of work on those systems which have the potential of being managed hydrologically really quite delicately. I think it is possible to do both things to conserve the peat and to manage an area for species-rich hay meadow. But it does take a level of fine control that you keep the water table high through the year. The Dutch are the real experts at that. They have systems where the water table sits just about 30cm below the surface. Way back in the 90s we did some work showing that peat loss really only occurred when the water tables dropped deeper than that. So it is possible, but it's a balancing act to keep the peat and to manage the hay. It would be a shame to lose some of those really old meadows on the Somerset levels. But if the ability to manage the water starts to get disrupted where in areas the water level falls further and you start to lose peat and the ground starts to sink, it then becomes very difficult to manage for meadows. In that case it's probably better to try and manage a tall fen or swamp habitat instead. So I think as Matt started off saying, it's good to have a mosaic of different things and again it's pragmatism of what you can do where, but trying to hold on to at least some of those old hay meadows which in Somerset are absolutely brilliant for all sorts of services, such as nutrient removal from the floodplain and for pollinators. It's really worthwhile doing so.

Emma: We'll move on to our 4<sup>th</sup> question which comes from Samantha Cook.

Samantha: I'm just wondering what the community can do to be able to support the conservation of floodplain meadows especially as there's a greater interest now in the community getting involved in things like litter picking and protecting the nature that's around?

Matt: I think there are quite different answers on this. In terms of a Wildlife Trust point of view when managing nature reserves then local communities are very important to what we do. Having 'Friends of' groups for particular sites is really great. They can get involved in monitoring, helping us to better understand our sites. We do some botanical monitoring but having local people with the time to do the hydrological monitoring and things like that can really help. Also be the eyes and the ears helping us with stock checks etc and being able to influence potentially surrounding landowners as well and promote the importance of what we have and promote the importance of restoring similar adjacent fields, if possible, is really great. I know we've talked a lot about Tealby meadow which you've mentioned in the chat where we lost a lot of opportunities to do that restoration because a planning application had been approved for the surrounding land. So we're going to end up with a meadow that saved from planning because you can't build on it obviously, but surrounded by houses on most of the sides, and obviously losing that chance to restore and expand it and create that network as well. But this process has really

inspired the local community and that meadow has become a lot more loved and a lot more understood in the last couple of years.

Andy: I think what the local community can do is actually buy meadow products. I probably would say that as I sell beef, but it's really important because if you want them to survive they've got to economically add up. Whether you're a private landowner or an organisation, a charity etc, if it washes its face it's much more likely to survive and to be able to do more of it. So I think engaging with the local community around buying meat, most people are not vegetarian or vegan and also there's a lot of people that are guilty meat eaters so if you can show that the, in my case beef, has come in from a meadow where there's 200+ species that can really tip the balance. So there's a huge amount of consumers and if you can show that traceability they will part with their cash for that product. But it's not just meat it's experiences as well. We run paid for farm walks, we run free ones to different sectors. So again the floodplain meadow is really useful because it's so dynamic, it's a great place for winter walks, or it's in flood with birds on it, it's a great place for fritillary walks which we now ticket because they're really popular. Then we are looking at other products. So our leather, for example, it's stamped with a fritillary logo to try and make that connection. So in the past our floodplain meadows have been the least profitable bit of our farm. But going forwards, I think they potentially will be the most profitable bit. I think we've got to talk about money a bit more with some of these things because we can't rely on government funding. I think with the particular administration at the moment, if people think they're going to help they've got another think coming. So we've got to look at the markets that will actually do that for us where we're in control of what we're doing with plant communities like this.

Emma: Thank you, Andy. It's a really interesting and different perspective. Clare, where do you stand on community groups?

Clare: I'm listening on really jealous of the marketing angle and thinking we should be doing something more on our products. We're not doing enough of it and the idea of having a fritillary stamped on the leather it's just amazing. So that's brilliant. So for us, we're not selling directly at the moment and so we've less of that angle, but I would totally support everything that was just said. As a farmer I see that as a real opportunity. So where actually ruminant livestock are part of the pollution environment, climate change, biodiversity loss, cattle are such a key part of that and meadows are a really nice way of being able to articulate that. But for others if I were to say now what could a community group do if they approached us, what could they do to help us on our farm, it would be some monitoring actually of birds at the moment but of species and understanding about what they are and what they mean. We've just had a flock of cattle egrets spending some weeks with us which we're just all learning about at the moment, but are quite rare, but are only living on the floodplain meadow. We've got groups of cattle all over but they're just on the meadow and would just be indicative of the species richness that is there in the plants which means we've got the insects, which means we've got the birds, which is

really exciting. We want to be able to tell more of those stories. One of our favourite things to talk about is Facebook posts when people just take pictures along the footpaths and just talk about the number of insects and things like that that they're seeing. They're just spreading the word about pollinators, about species richness, how important all of that is for the fundamentals of our food production. Biodiversity isn't a nice to have, although it is a nice thing to have, basically we won't survive as a species if we don't sort it out and floodplain meadows are incredibly species diverse and that's really exciting. So as an approach as a group, come and talk to us about finding out more about what is going on in our different fields because some of ours are monitored, some of them aren't. But equally just spreading the word about what's happening and talking about it and taking lots of pictures and sharing them on social media would be something else that would be really nice.

David: I think the other panel members have hit all the key points. The key one probably is this idea of raising awareness. I remember leading a guided walk on North Meadow and talking to someone who had lived in the adjacent town for 20 years and they were telling me it's the first time they'd been on the meadow and they thought it was wonderful and they hadn't appreciated it was there. So I think there's a lot of work that can be done by local groups to raise awareness within their own community because the more people who understand and appreciate what meadows are when it comes to deciding on planning applications if there's a lot of local knowledge and desire to keep the meadow then that can influence what happens planning-wise. As I think Matt said, there are practical things people can do such as dip wells to see what's happening with the water levels, or just record floods and the duration and the timings of them. Or as Clare has said to monitor birds, bumblebees, butterflies, it's all useful information that local people can get involved with. So another aspect is to look at the historical angle of the meadows to see from old maps what their floodplains looked like in the past and try to develop an understanding of that. I know that's coming up later in the conference. Again, some people are engaged by counting butterflies while others are engaged by historical aspects. So I think it's good to have a number of different strands. Then picking up on Andy's points, it's important for people to appreciate where their food comes from and the difference between pasture-fed meat compared to stuff fed primarily on grains. I think if people had a better understanding there would be more demand for meat grown purely on grass, and therefore there would be a greater demand for hay and for these low intensity systems. So I think there's a lot that local groups can do. I think what they need to do would probably differ site by site depending on what their local context is. But there's a lot of potential for them to get involved.

Emma: Can I just give a little bit of a wider perspective because we are involved with lots of community groups across the country. We've probably got about 30 different groups on my list who are all involved in different ways in their local floodplain meadow. As David said it is it is horses for courses again. The community groups can be incredibly powerful campaigning organisations when they want to be, so you sound like you've already done a bit of that with your planning and working with

Matt's Wildlife Trust. But they can also be very powerful fundraisers and engagement organisations. So looking for funds a community group can access funds that statutory and non-statutory organisations might not be able to get to so I think that's another niche thing that community groups can do. So if you want to talk more directly to me about what other community groups are doing I can put you in touch with lots of other people if that's of any help. Does that answer your question? Yes, thank you.

What a set of absolutely brilliant questions. We do have a 5<sup>th</sup> one which snuck on at the last minute but I am also conscious of the time. So I'm tempted to say shall we call it a day now and I'll bring Cath on first thing tomorrow because she said she can answer it first thing tomorrow as well for that new question, but I also noticed there's a couple of hands, so if those hands relate to discussion that we've already been having and aren't new questions shall we see if we can unmute one of them and maybe just have a couple of quick finish off questions.

Ros: Actually I would only really second Dan's question - would traditionally managed floodplain meadowlands feature any trees, eg in field trees, boundary trees, hedgerows, small pockets of woodland? Should we be aiming to recreate these as part of a habitat mosaic?

Andy: Willows and Alders, I think they're an essential element of a floodplain meadow and black poplar in our neck of the woods. So yes.

Matt: Yes I'll say absolutely. It comes back to this idea of having a whole mosaic of different habitats. At the moment restoration is often on a field scale, and it just is focused on the meadow but really we should be restoring at a bigger scale and having a whole mosaic of wetland habitats within the floodplain and yes, they would, trees and black poplars and everything would feature within that.

Emma: Or Pollards Elizabeth Cook has said. In our history session on Friday morning we will be looking at historic landscapes and seeing if we can tease out how these landscapes looked over the last 1000 years. So let's just go for one more.

Ann: I think you've sort of partly answered my question really. Andy and Clare it's directed to you more than anybody else. I'm interested in what's driven you to go down the route that you've gone down. Is it purely economic? Is it really about protecting the environment? What's driving you and how can we influence more farmers to do what you're doing because it sounds absolutely fantastic?

Clare: What motivated us? More frequent flooding and drought events was the main thing that made us realise that we needed to do something different. We've been organic for nearly 20 years so technically we should be the best of the best farmers that are out there but yet we're struggling. Financially farming is tough. But aside from that is dealing with the challenges that the climate changing is bringing us and our water holding capacity at the farm and it was after we'd had the wettest winter on record ever, like it is every winter now and then we had cracks in the ground in April

for lambing. I was lambing and it was just cracks and there was no water in the ground and we were struggling for grass and we've seen another drought spring this spring. The wettest winter on record followed by drought springs. Lots of other factors but that was more of a fundamental thing. Also we weren't big input users but when I speak to other farmers it's that treadmill of inputs. That is one of the things that they speak about wanting to get off. We're reliant on a lot of stuff as farmers coming into the farm, seeds, fertilisers, treatments, lots of different things to try and control nature. Most of it's about control. When I learned to let go and learned to give up trying to control what was happening and understand what nature was trying to tell me, that's when my perspective changed, and I also started to enjoy it a lot more. So how do we get others? I think it's changing already. Farmers are recognising things need to change, the payments are being removed over the next couple of years, as that starts to scale it will really change people but we get inundated with people being interested. So I think the change is happening already.

Andy: I guess we pursued direct selling due to the money side of it. Essentially £1000 more margin per animal. But actually I agree with the resilience points. If you look at our neighbours opposite which is arable on the other side of riverbank, he's losing soil every other year and it's just not sustainable. How you get other farmers to do it? I think when a couple of billion disappears out of farmers' pockets over the next 3 years, that will make some people look up and think but they've got to have the right skills and a lot of farmers don't particularly want to deal with the public. So therefore that could be interesting. So then they'll have to form partnerships and work with other people that do want to do the public facing bit. So it's going to be really interesting, but I do think the money side of it will assist some people to have to look at other ways of doing things. But yes also it's really interesting. The botany and the dynamic things are great and having things like snakehead fritillaries lying around your house makes life a lot better.

Emma: What a lovely note to finish on Andy, thank you very much. I should have put my giant fritillary into the background. Maybe I'll do it for tomorrow. I think on that note we're going to wrap up for now. But we're doing this all again tomorrow and another Floodplain Meadows Question Time tomorrow evening. I already have 2 questions scheduled in for that but if you want to be one of the official questions that's asked can you please drop me an email and I will try and put you on the list. We will go through the chat and pick up any questions that have been asked in it and see if we can fit them in. I feel like this discussion could go on and on actually so it's an interesting format for us to try but I am thinking that maybe for our face to face conference next year we might do something like this. Anyway so that's it for today. Thank you so much for your attention. Thank you so much to our lovely panellists who have been so knowledgeable and very happy to share that knowledge and thank you for all your questions. We'll meet again here tomorrow morning at 9.30 for a good morning on soil carbon. Hopefully if Babette puts up the next slide she's going to leave you with one of our pieces of artwork which is a poem.

Thank you all very much and have a good evening. Bye bye.