

Food/Net Zero Nexus in the Fens Workshop – 10th March 2023

Session 1 – Paludiculture (Presenter – Sue Page)

Presentation

Sue shared how carbon-rich peat is important for sequestering atmospheric CO₂, however many peatlands have been and are currently being exploited for provisioning services such as food. This results in peatlands having large GHG emissions as this CO₂ is lost, and so are an inefficient use of land as they have a low calorie output. The challenge we face is maintaining food production whilst preventing environmental damage. Paludiculture is a form of carbon farming that is being explored; paludiculture aims to maintain a higher water table meaning that there is the potential to reduce CO₂ emissions, reduce subsidence and maintain crop production. A water table of 20 cm seems optimal for reducing CO₂ and CH₄ emissions. DEFRA have created the lowland agricultural peat task force for more sustainable farming of peatlands.

Hub discussions

During the hub break-out sessions, attendees discussed the difficulties of paludiculture. These included the potential displacement of food crops by biomass crops, and the risk of water shortages. Participants highlighted the potential for water shortages associated with summers of high temperatures and low rainfall – these conditions are predicted to become more frequent due to climate change. It was noted that water shortages in wetlands are due to drainage by humans and so water shortages could be avoided by altering drainage practices and how water is distributed, although this may have subsequent impacts on nearby housing. Wetter farming has benefits for farmers, but also for wider society by reducing fire risk in the landscape. Furthermore, research on paludiculture is currently only taking place via small-scale field trials – more trials and on a larger scale are needed to evaluate how paludiculture would be received and how scalable it could be relative to its associated challenges. It is also important to consider environmental justice and whether farmers on lowland peatlands are polluters that should be regulated or whether they should be compensated for the management restrictions placed on their land. Compensation may involve paying farmers for storing more water on their farms and for slowing river flows.

Session 2 – Greenhouse gas emissions and mitigation options in lowland peatlands (Presenter – Chris Evans)

Presentation

Wasted peatland still produces GHG emissions because it has a high volume of crop production; cropland on lowland peat accounts for around 1% of the UK's GHG emissions. One of the big challenges we face is whether we can reduce GHG emissions whilst maintaining food production. Chris shared how rewetting and rewilding of peatlands could assist in reducing GHG emissions, although it would be important to ensure that this does not occur by displacing carbon production and moving agricultural production offshore. There are pros and cons to the many management practices that could be used to manage peatlands in a more 'sustainable' way – there are not many easy win-win solutions and so it is important to find an appropriate balance. Economic models do not currently account for this or encourage farmers to transition in a feasible way, however this is something that should be addressed to enable change.

Hub discussions

During the hub break-out sessions, participants discussed the options for how we could manage lowland agricultural peatlands in the future. To move towards a net zero production system, a full rewetting is required in lowland peatland agriculture. Future work on this topic would benefit from discussions with both food systems researchers and water management experts together. Discussion involved whether lowland peatlands should be removed from agriculture completely, but also how seasonal and mixed farming on lowland peatlands (as opposed to monoculture farming) could offer a more reasonable solution and would address many social concerns associated with the former option. Removing peatlands from agricultural food production entirely would have many associated challenges – it would have economic and social implications on peatland producer communities, and would mean that we would have an increased reliance on the import of food from other countries which would still have associated carbon emissions. Regarding GHG emissions it was noted that in order to measure carbon credits properly it will be important to improve the monitoring of vegetation and hold further discussions on the scale of which management should occur (i.e. landscape-scale, county scale, catchment level). Whatever management practices are advised, it is important that farmers are given confidence that they can transition to a new system without any risks and should receive the required support. Cultural ecosystem services (i.e. heritage, recreation) are also important when developing these new areas; society buy-in is crucial for success. The Fens require their own management plan as they are a unique environment.

Session 3 – The socioeconomics of peatland restoration (Paula Novo)

Presentation

The economic costs of peatland restoration are enormous. Public support for peatland restoration will be crucial to justify these economic costs through public funding. Paula described a study on peatland restoration in Scotland where 2000 people were surveyed in order to understand how members of the public value peatlands to make a case for public investment in peatland restoration. The study used willingness to pay as an economic tool for analysis and found that the public willingness to pay for peatland restoration ranges from £200-300 per hectare per year and £130-410 per hectare per year. The costs of peatland restoration are not fully understood, however. Research is still needed to fully understand the social and economic costs of peatland restoration. Questions involve: (1) What makes people care for peat bogs?; (2) How do they experience and enact care?; (3) What barriers do they encounter?

Care is a balancing act between species and processes, and between protecting and restoring peatlands and their access and use by humans. It is important to engage with and understand the views of the people that live on the land.

Hub discussions

During the hub break-out sessions, participants discussed the importance of understanding how people interact with the peatland environment and understanding the cultural value of the Fens. We need to explore mechanisms for funding peatland restoration; options include the use of the willingness to pay indicator, government funding, or using market-driven approaches which could include the carbon market. The point was raised that the origin of subsidies/incentives should be considered and that these will change quickly if they are market-driven. The concept of a social study was raised, to explore how local people in the Fens value the land and why, and how they interact with it. The study could include asking farmers how they value the peatland in ways other than for agricultural production/economic output. In addition, it would be interesting to explore how the cultural value of the Fens has changed over time; originally there was opposition towards draining the Fens however this

practice is now accepted and a part of life. The discussion also focused on the legend and folklore surrounding the Fens, archaeological investigation and the values of biodiversity in the area.

Session 4 – Fenland Advisory Board for The Cambridge Centre of Landscape Regeneration (Joerg Kaduk and Laurie Friday)

Presentation

Networks in landscape regeneration facilitate Fen landscape management and restoration for food production, carbon emissions mitigation, and livelihoods. Fen landscape management can be based on either a top-down or bottom-up approach. Due to complexities surrounding the drivers of Fen landscape regeneration and management, the diverse views and values from various stakeholders underlie the management of the peatland landscape. External pressures such as climate change mitigation and food production which drive peatland management can therefore contradict the views and values of local people, potentially creating situations where there is conflict between public attitudes and government policies. There are big questions surrounding how we should best manage the Fens. The interests of all communities and stakeholders should be considered when making decisions on peatland management of the Fens, and networks facilitate this. There is a need to create effective knowledge exchange amongst the diverse actors involved in peatland landscape management and regeneration to facilitate bottom-up approaches to peatland management.

The Cambridge Centre for Landscape Regeneration works to promote efficient knowledge exchange amongst stakeholders to engage in Fen landscape regeneration for climate change, biodiversity gain, food security, and social wellbeing. Their goals include: creating a network for knowledge sharing and collaboration in the Fens; using a whole-system approach; using evidence-based guidance to support habitat management and restoration for the future; considering possible future landscapes (via land-use scenarios, modelling of potential outcomes and trade-offs); working with people in the community who already do this work rather than setting up more new networks; supporting the FENLAND soil network (a group of farmers who want to sequester carbon and reduce greenhouse gas emissions on their farmed peatland).

Hub discussions

During the hub break-out sessions, participants discussed the need for networks and how to involve all those related to the management of the Fens. The need for this to be done on a local level was highlighted, so that the voices of smaller groups (RSPB, wildlife trusts, OOZ Fen, Wicken Fen, citizens of parishes) can be heard. Farmers are often concerned about tenancy agreements and the requirement to keep land in good agricultural state, however incentives and funding may result in these agreements being broken which is not in the interest of the farmers. Furthermore, there are concerns surrounding inheritance tax and biodiversity credits; farming in ways that is not defined 'arable' can cause issues with land selling due to how the land is labelled and whether agreements are being met. It is difficult to predict what future government subsidies will look like and this uncertainty makes it difficult for farmers to consider changing their management practices. There are also questions surrounding some carbon credit programmes. Green-hushing is a concern; this practice is similar to green-washing however rather than false information, no information is given. Climate change decision making tools are needed. These could include models to understand demand and behaviour and open-source modelling to engage the public in the

development of Local Nature Recovery Strategy Scenarios. Modelling tools that involve scenarios should take into account the IPCC emissions scenarios.

Reflections (Heiko Balzter)

When exploring how we can reduce greenhouse gas emissions, there is a clear need to focus on the practicality of how we can do this, and consider socio-economic as well as environmental aspects. Maybe too much of our focus is on reducing greenhouse gas emissions – maybe we should accept that there will be some greenhouse gas emissions and instead try to increase carbon sequestration elsewhere. Would a seasonal change in farming practices offer a potential solution? Can we mitigate emissions whilst maintaining food production? Should we remove peatlands from agricultural food production entirely?

When changing management practices, incentives for farmers are clearly important. We need to explore what is needed for these farmers to change their land use practices to reduce the impacts of climate change. It would be beneficial to understand the social aspects of what drives behaviour change, and the variations in response amongst farmers. Understanding this would help inform how scenarios are developed and how they would be received by different members of the community. Modelling will be important for understanding how potential future management scenarios could interact with climate change in the future and how they would be received by the community.