

NFM COP event March 2021

Aims

- Focus on the work of the Don Catchment Rivers Trust
- Provide expert insight into the important topic of soil health
- Provide an update on the work of the CoP and how to build on its success to sustain it
- Look at the future of the CoP – possibly increasing the frequency of streamed events

Presentations:

1. Debbie Coldwell from the Don Catchment Rivers Trust: NFM work in the Upper Rother catchment area

- The Don catchment was badly flooded in 2007 and again in 2019, especially in Chesterfield
- Started mapping to identify NFM opportunities – also looked at landscape connectivity, pollution and flood reduction
- There became a considerable appetite for NFM
- Working with Moss valley wildlife group on a Moss Valley project north of Chesterfield looking at downstream flood risk
- Landowner Heather Hunt – managed to enhance biodiversity
- Another project is Newfield Spring Wood – NFM opportunities. They will be having their first volunteer day soon since Feb 2020 with 20 volunteers

2. Virtual site visit demonstration by Debbie Coldwell

- 2 miles SE from Chesterfield River, Rother runs through it. An area of 6 hectares. Arable land used for grazing.
- The main issue is that it is too wet, so they looked at what we could do about it.
- Worked with EA and Seven Trent Water to look at opportunities for NFM – and biodiversity
- Needed to make sure the farmer did not lose out on income
- Introduced diverse herbal layers – grass and herbs mixture to provide new habitat and put nutrients back into the soil, improve hedgerow management, 8 scrapes to hold water during storms, field corner ponds to hold back the water, flood plain meadow, buffer strips

Questions/thoughts in response:

- Interest in funding mechanisms and how long funding is guaranteed
- Permissions for ponds or other measures e.g. what were the key factors in enabling the landowner to get involved
- Practicalities with installing scrapes and ponds e.g. positioning of measures

Responses:

- There was an agreement for 5 years we would wait and see what was happening as a result of the measures and if they were successful. Getting funding through Severn Trent made the funding process quicker. See how it goes with maintenance and what funding would be available in the future.
- Positioning of the scrapes and ponds were largely based on local knowledge, looking and watching what happens on-site. There were obvious dips in the land. Some of the scrapes may have done a better job if in better positions. Now working with new software to help

Further questions:

- How long will the herbal ley be in rotation on these fields? What happens once the financial support for this land management ends?
- What were the key factors in enabling the landowner to do this?

3. Presentation by Pippa Chapman on soil science

- Clay soils release water slowly to rivers and ground-water. Tends to be wetter soil. Organic matter also controls the infiltration rate.
- Soil structure influences water movement. Soils can be compacted by machinery and livestock which leads to the risk of flooding.
- You need to think how to improve soil structure if you want to improve flood risk.

Question in response:

- Any advice on improvements that can be made to grazed grassland?

4. Presentation by Andy Dyer from the Eden Rivers Trust on soil health activity

- Aeration creates holes down into the soil to alleviate compaction so air, water and nutrients can reach grass roots.
- Showed video demonstrations of two ways to aerate soil: an aerator and panbuster
- **Aerator:**
 - Can reduce compaction at a deeper level compared to a panbuster
 - Make sure when you use a soil aerator that the soil conditions are not too wet.
 - Soil knowledge is very important and understanding why it might be compact – e.g is the soil compacted from livestock or is it soil structure failure due to use of chemicals now or in the past?
 - Aerators can come with different levels of aeration/disturbance on the surface.
- **Panbuster:**
 - Can reduce compaction of up to 6 inches below surface level.
 - An example given for the effectiveness of a panbuster - farmer found that using a panbuster for sub-surface compaction made a huge difference to the soil structure – he was able to roll his field following the use of a panbuster - and he hadn't been able to do that in years

Questions in response:

- **What do they recommend to use when assessing soil health?**
 - Spade and soil testing kit
 - Can now electronic soil testers which are relatively inexpensive to understand water content, soil pH etc.
 - Careful – when it's too wet don't have a look at the soil as could cause further damage to the structure when wet.
- **How came to have the kit and how well is it used?**
 - Aerators and panbusters funded by Alpa projects and DEFRA. Then secured funding from Lancaster University to trade in the older machines for new ones in early 2020.
 - They do press releases about the work they do to raise awareness. The area they cover increases year on year.

- Increasingly affected by adverse weather. Their panbuster is being used more than ever – 400 acres at the end of the season in the catchment.

5. Presentation by Iain McDonell, senior environment officer responsible for agriculture with the Environment Agency in Yorkshire region: working with farms and landowners

- Poor soil health can lead to pollution
- Compaction affects water filtration
- Good soil structure – retain water in the soil and provide nutrients for crops so good for farmers
- A barrier to farmers having good soil is a lack of knowledge of how to improve it and a lack of kit. Peer to peer learning for farmers is good and there is lots of information available on social media

Questions in response:

- **What are your top tips for monitoring soil?**
 - Get out and know the soil using a spade and soil testing kit.
 - Use deep rooting of grass – makes it more resistant to climate change.
 - Using aerator and panbuster to get rid of compaction – makes grassland work properly.
 - There are economic benefits of looking after soil. Benefits of getting soil aerated in spring and getting soil moving.
- **How can soil health and NFM be linked to other monitoring strategies?**
 - It does need to be linked in. With farming rules being considered, keen to get soil health on top of the agenda. Advice to farmers is to get out there with your spades and look at your soil structure. You can't change the texture or soil type, but you can change the structure.

6. Thoughts/questions during the discussion:

- 'How often is mechanical aeration undertaken? Would you discuss changes to grazing regimes etc to reduce compaction rather than repeat intervention? Can different seed mixes improve soil condition and aeration on a longer-term basis than mechanical aerators?'
- 'Regarding soils and putting metal into the soil I am a bit torn on aerators - on arable we are trying to get away from metal and using roots but then the challenge of balancing this with the real world where we end up with compaction even though we don't want it and need a quicker fix'
- 'Economic question – what is the cost of soil degradation? Need more clarity about the incentives – especially when a lot of farmers are struggling. Need to merge information regarding incentives for farmers and what the economic value could be associated with improving soil health.'
- 'In semi-rural areas such as the lower slopes of the Holme and Colne in Kirklees a lot of land previously used for dairy farming is now used to graze horses. The horse owners have little knowledge of soil management and the land is being degraded by extreme over-grazing. How can this group be made aware of the issues and helped to change?'

In response:

- Land-management – don't just let livestock out in the field and not think of the consequences of soil compaction.
- If there has been compaction over many years – need an aerator to remove the compact soil – can see a change overnight in terms of being able to keep water in.
- Some farmers were dismissive of aerators in the past – demonstrations really important to show the economic benefit of looking after the soil.
- A lot more engagement needed with farmers required but also promote with social media – lessons we can learn to boost resilience e.g. drought issues in America. - Critical to get more water in the soil to ensure crops can last through hot summers.
- Sustainable Farming Incentive – policy paper recently released: <https://www.gov.uk/government/publications/sustainable-farming-incentive-scheme-pilot-launch-overview/sustainable-farming-incentive-defras-plans-for-piloting-and-launching-the-scheme>
- The paper above sends a clear message from DEFRA – working towards soil improvement, improving structure would be a way to claw back money for farmers not only help with flood risk reduction. Soil health is definitely on the policy agenda.
- Compaction is still a massive issue on grasslands too – from years and years of sheep farming. Have to look at history and understand why soil might be compacted. Also, need to look on peatland and uplands too – there needs to be an integrative approach (hedge laying, soil management, woodlands) – really important to not look at interventions in isolation but as water catchment management.
- Without an understanding of your soil – missing a huge strategy within NFM – needs to be the starting point.
- Need to merge information – e.g. Economic incentives of having well-structured and aerated soils, and an understanding of this not only improves crop yield but helps reduce flood risk.

Recommended activity

- Understand the importance of cover crops
- Need to look at why your soil is becoming compacted and what are you doing that makes it compacted – how can you change your actions.
- Make sure your soil is actually compacted – don't just use an aerator if it's not needed. Also, make sure you don't use them when soil is very wet as will just make further problems to the soil structure.
- Switch to calcium lime (rather than magnesium lime) could make a huge difference to soil health (so alongside aeration). Magnesium lime can ruin soil structure – so could improve by switching to calcium lime.
- Remember - can't change soil texture – but can change Organic Matter and soil structure.

Final words

Potential question/ iCASP project: Could we quantify how much impacted agriculture land across Yorkshire and potentially quantify the impact on water holding capacity?

iCASP is looking for more projects on soil health and NFM. If you are interested let us know.

