



Tree planting, carbon capture and flood prevention

Sat 31 July 2021

With Gerald Price (The Woodland Trust), Debbie Coldwell (Don Catchment Rivers Trust) and Chris Fry (Moors for the Future Partnership)



The sixth in a series of Zoom events designed to celebrate and prepare for the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow. These events cover different climate themes, bring together experts and examples of best practice to identify the actions needed to achieve a zero carbon society. The speakers at this event talked about how nature-based solutions such as tree planting, river management and peatland restoration can capture carbon and minimise the risk of flooding, and how we can all help. The recording of the event can be [found here](#) or here: www.youtube.com/watch?v=kp7N_m1SAwo

The speakers

Gerald Price, [The Woodland Trust](#)

Gerald Price has been a volunteer for the Woodland Trust for many years, involved in tree planting, leading walks and giving talks. The Woodland Trust protects, restores and plants new woodland to combat climate change, build a greener future for the UK and create havens for wildlife.





- Woodland Trust (WT) main mission is woodland creation, protection and restoration. We all need trees for biodiversity, human health, resources and climate change mitigation.
- WT helped set up the [UK Woodland Carbon Code](#) a toolkit to allow carbon take-up to be calculated.
- Trees are the largest carbon removal plant we have. Carbon is not just locked up in the trunk, but in the root system and leaf litter stored underground and feeds other organisms
- Carbon can be stored for a long time as timber, [biochar](#), brash (though a fire risk) and a reasonable time as dead wood (good for biodiversity but generally gives off methane).
- Trees help with water management by ‘slowing the flow’ which is best done at source, and helps hold soil in place. WT have 1200 woods of their own but are also working with large landowners, especially in upland areas.
- Planning planting is crucial, (right tree right place) not on peat, manage livestock around it. Hedge planting used on some slopes to stem water flow and riparian planting (along rivers) to hold banks and cool the water
- Leaky dams slow down waterflow and provide boggy areas. WT have a project building leaky dams in the National Forest (which drains into the River Trent) with Severn Trent Water.
- Trees use water via transpiration, and hold water in the canopy after rain & driplines in summer, slowly piping the water into the ground on the outside of roots in winter. The roots help water percolate soils.
- In 2017 we led the launched of the [Tree Charter](#) (signed on the 800th anniversary of the [Carta de Foresta](#)) which raised Government attention and in 2018 the government announced the [Northern Forest](#). Chesterfield is at the Southern end.
- WT have several projects towards that – the largest at Smithills near Bolton (enormous fire there 2 years ago). Many more to come. The National Forest is now deemed a great success after 30 years. WT website has many resources on their website <https://www.woodlandtrust.org.uk/> including a **free tree pack** for community groups where suitable land available.

Debbie Coldwell, Natural Flood Management Officer, [Don Catchment Rivers Trust \(DCRT\)](#)

Debbie joined DCRT just over two years ago and heads up a project in the Upper Rother Catchment that aims to reduce flood risk in and around the Chesterfield area by working with multiple landowners, stakeholders and volunteers to capture and slow the flow of water through the landscape using a variety of methods.

- DCRT are a river conservation charity that aims to protect, enhance and restore the rivers of the Don Catchment and to reconnect people back to those rivers and their heritage. Their work includes engaging with landowners and leading volunteers to reduce flood risk & improve water quality





- Flooding is a natural phenomenon in a healthy ecosystem but in recent years getting worse in intensity, frequency and damage.
- Contributing factors are climate change, landuse and management (developing greenspaces that absorb water with hard surfaces) and agriculture intensification (which compacts soils).
- Traditional hard engineered solutions like straightening, culverting rivers can make things worse in some circumstances by speeding up water flow and increases risk and removes wildlife habitat but are still essential for protecting people and properties in the way we live today. Evidence that dredging rarely helps and can also make things worse. These approaches are not sustainable and alternatives methods are needed that compliment hard engineered defences.
- Natural flood management (NFM) works with nature to capture and slow flood waters via 4 main mechanisms
 1. **Slowing water** reduces speed of flood flows and allows rain to soak in by creating obstacles (eg vegetation, buffer strips of vegetation around fields or on river banks), putting wiggles back in rivers or leaky dams (a series of logs across streams). Lots of interest in reintroduction of beavers which are good dam builders (native but hunted to extinction) and multiple beaver trials in England which will inform whether they can be released
 2. **Storing water** in ponds and scrapes (temporary ponds) and earth dams
 3. **Increasing soil infiltration** by creating/maintaining healthy soils which act as sponges or planting trees
 4. **Intercepting rainfall** through planting trees/vegetation which allows for rain to evaporate from leaves
- Examples of DCRT activities include
 1. Newfield Spring Woods – running regular volunteer days to build leaky dams to help slow water
 2. Grassmoor Country park – hope to relandscape and creating shallow temporary ponds to store water
 3. Farmland in Grassmoor with river running through it – working with farmer to build temporary storage ponds and planting hedgerows to slow water. Using seed mixes with deeper roots to break up soil.
- NFM effectiveness - not a silver bullet, to be used in combination with other defences, but can very effective in smaller catchments and during the more frequent flood events
- Advantages & benefits of NFM - carbon storage, habitat creation, water quality improvements, drought resilience (creates temporary refuges for wildlife), cost. Reduces pressure on traditional flood defences.
- What you can do – capture water in your own home (eg water butts – ensure space before storms), remove hard surfaces like paving, DO NOT ASTROTURF, join DCRT volunteers and let Debbie know of any problem flooding areas or land that can benefit from NFM. <https://dcrt.org.uk/>





Chris Fry, Conservation Quality Manager, [Moors for the Future Partnership](#)

The Moors for the Future Partnership was started nearly twenty years ago to focus on restoring our Pennine moors and peat bogs. Chris Fry has been working in conservation in and around the Peak District for over twenty years. First as a ranger working at sites like the Upper Derwent Valley in the Dark Peak, Carsington in the South and Tittesworth on the Leek Moors. Since 2011 his work has been focused on degraded peaty moorlands, working with Moors for the Future as a project manager and since 2016 as the Conservation Quality Manager.

- Moors for the Future are based in Edale but work across Peak District and Yorkshire and West Pennines.
- Peaty boggy areas are rare, iconic, treasured but deeply broken
- Peat covers 10% England's landscape but only 20% in good ecological condition, 80% is degraded
- **Peat covers 3% global land surface but holds 1/3 of world's terrestrial carbon!**
- Derbyshire has many blanket bog sites such as Kinder Scout which are bare and eroding due to the following:
 - Acid rain killed off the sphagnum moss and left the peat dry and contaminated.
 - Drainage for agriculture dried out the peat
 - Too much fire changes the plant communities
 - Dry peat erodes quickly leaving scars on the landscape
- We are asking a lot from our landscape – water, food, flood reduction, wildlife, leisure, carbon storage – haven't worked out how to do this
- Climate change is having many impacts, including floods and wildfire
- A chart of the Roaches Water Table Depth which showed a big drop in 2018 due to a drought. After that fire hit, and the water table was much more variable as vegetation was burnt off and couldn't hold the water.
- One careless barbeque burnt 60 ha (50 years of peat accumulation)
- One winter fire in Stalybridge damaged over 1000 ha and contributed to the flooding in Glossop.
- But we can act to make a meaningful difference. Black Hill in 2003 was really degraded, but after 10 years of restoration work, sphagnum moss was growing and takes a long time so need to be proactive.
- Moors for the Future have a project at Winter Hill near Stalybridge using heather brush and over 3000 stone/rock dams, to improve water retention.
- While there are big tasks, we can also do something at home
 - Make every bit of greenspace work for nature – plant trees and hedges, compost, make a pond, plant a variety of flowers for pollinators
 - DO NOT USE PEAT BASED COMPOST OR PESTICIDES
 - And recycle more/cycle more/responsible dog walking, etc.
 - Don't start fires on moors or call 999 if you see a fire on a moor
 - <https://www.moorsforthefuture.org.uk/>





Q&A

Q. What can Councils do and can Councils that plant trees on their land benefit from the new Environmental Land Management System (ELMS) that will give public money for public goods?

A [Chris] Land owners can get an agreement for ELMS but are restricted what they can do. Moorlands have been forgotten a bit but Councils are enthusiastic to do more. Huge role for grasslands as so much urban greenspace – Councils cut grass too much and too often. They could create meadows with a hay-cut – opportunities

[Debbie] Country Parks that are owned by Derbyshire County Council were in environmental stewardship for grassland management and they are letting the grass grow longer, an easy win. Some Councils are aware of that but others continue to mow and spray around mature trees – work to be done there. Need to talk to MPs and councillors about need for change.

[Gerald] Councils trying to do a good job but lot of people are nervous about what they see as 'not proper management' (ie not cutting grass) and get complaints about untidiness so need to educate people At Allestree Park in Derby there is talk of rewilding the defunct golf course but lots of concern as people like to see cut grass.

Q. How to promote community woodlands for the benefit of the community and how to ensure private woodland owners manage the woods properly for biodiversity [example of woodland in Loundsley Green]?

A [Gerald] Not aware of any community woodlands north of Derby (some to South eg Melbourne) but something to encourage. Private covenants and woodlands need better policing and if can get public rights of way through woodland then people can monitor. Lots of tree planting grants require public access which will help to get more connection with people and so the public can take an interest.

[Debbie] Know the land in question but haven't been able to engage the owner.

Comment: Shocked at figures on peat fires. Landowners allow fires for grouse but all about money, don't get why they are allowed to do this?

Q. Heard that it takes peat one year to develop 1mm? Lots of peatland in Derbyshire and government has provided funding for restoration but just because grants available councils may not have capacity to apply for them. Should be more partnership working to get funds. Shocked at availability of peat based compost – how can we move away from this and educate public about impacts?

A [Chris] Moors for the Future partnership came together to deal with the problems of coordinating across different landowners. Problem is funding goes to those who are good at writing bids, rather than where it is needed. Problem of burning - land management is all about money and ownership. We manage land according to ownership and straight lines but landscape is an integrated interlinked habitat so square peg in round hole situation. Government policy is changing on burning but change is slow.

[Debbie] Some water companies have tenants on their land and now stopping burning

[Chris] Water companies want to reduce burning and want a high water table and sphagnum moss does slow flow and better for flood mitigation, water quality, carbon sequestration.

We need to be open minded about how the moors look as will look different to the past.





Comment – on educating people – Monty Don said love of short flat grass comes from Victorian landowners. In a village I represent in Amber Valley they did a survey about roadside verges and 70% in favour of letting grass grow but 30% against that were more vocal. Battle in educating people and showing benefits of biodiversity

Q. What is the WT stance on natural reforestation/rewilding? WT known for planting trees.
 A. [Gerald] Natural regeneration is better but takes time and WT view is that need to provide first aid which is why we need to plant trees urgently.

Q. My council produced figures for carbon sequestration but my research suggests no hard and fast way to measure?

A [Gerald] I'm not an expert and it is complicated and need to look at all the aspects. Easy to measure volume of tree trunk but not easy to understand what's underground and that's the important bit.

[Chris] Agree measurements are not quite there yet but if it gives a baseline it is useful. Quote 'all models are wrong but some are useful'. Learning as we go.

Q. What do you think of carbon offsetting?

A [Gerald] It is better than nothing but yes there is a lot of game playing. WT has a lot of corporate supporters and it is creating interest amongst them

[Chris] a lot of the corporate world are getting engaged which is good but ultimately we need to change [reduce emissions] and not just offset as an excuse for not changing

[Debbie] Mixed feelings- in some circumstances can work well but also issues with it e.g. replacing ancient woodland with something else not like for like. The Environment Bill has provision for Biodiversity Net Gain – all new development must have 10% increase in biodiversity and if can't do that can offset. Potential to work well but lots of things needed to make that happen and some concerns about how policed and monitored.

Q. Any good examples of Sustainable Urban Drainage Systems (SUDS)?

A [Debbie] [Grey to Green](#) in Sheffield – collaboration between university of Sheffield and Council, planting in paved areas. Malmö in Sweden also has good case studies.

Comment – [Rain garden in Strutts Mill](#) in Belper good example of a SUDS

[Gerald] Tree cover of England – urban areas often have greater tree cover than rural areas, but lot of that tree cover will become increasingly stressed because paved over and dry.

Usefully lots of back gardens line up so good wildlife corridors if can link.

[Debbie] Been in touch with climate officer Will Rolls – turned volunteer work online and included newsletter with NFM in garden. Will trying to put info together for CBC residents.

**Organised by [Transition Chesterfield](#)
[Chesterfield Climate Alliance](#)
[Derby Climate Coalition](#)
[Derbyshire Climate Coalition](#)**

Save the date for our [Rewilding event](#): Sat 25 September

