Ribble Rivers Trust

Annual Newsletter: Issue 20 | 2024
Suggested donation: £1
ISSN 2052-8094

NATURAL FLOOD MANAGEMENT

Using nature-based solutions to slow the flow

RE-NATURALISING RIVERS

Helping rivers regain their natural processes

CITIZEN SCIENCE

Enabling volunteers to collect valuable ecological data

FARM ADVICE

Making farmland work better for nature

HABITAT RESTORATION - EDUCATION - ECOLOGICAL MONITORING

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Ribble, Hodder and Calder Confluences by Paul White, Alamy Stock Photo

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Front cover: River Hodder by John Eveson, Alamy Stock Photo. Back cover: Common Sandpiper by David Chapman, Alamy Stock Photo.

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WELCOME

JACK SPEES

Our CEO rounds up the past year's activities and what the future has in store for Ribble Trust.

During 2023 one question kept coming up – "What is the biggest threat our rivers face?". This came most frequently from our communities, stakeholders and partners. This is not surprising as never before have rivers been so front and centre in the media, nor have the demands for cleaner better rivers been louder. However, the question posed was very often done so from individuals who had a pre-determined answer. The question on occasion could be translated as "what should I do?". But rarely expected was the answer "everything", which is the closest to a correct answer. Diffuse and point source pollution from multiple sectors and sources, modifications to the river channel, degraded habitat, land use contributing to flood risk, litter, invasive species, extreme weather…. I could go on.

There is no one golden bullet to turn our rivers from their current state to how we remember them, or how we want them to be. We need to work across the range of issues to achieve our goals. That is very much at the heart of our Trust's approach, a holistic catchment based approach. We need to work with our landowners and managers, communities and partners to restore and create habitats, reduce pollution, improve in-river habitat, remove barriers to migration, remove and prevent litter, tackle invasive species, and make sure that our improvements are sustained by future generations. The good news is that we are already doing all of these things! We just need to increase the scale of our activity, which with our communities, stakeholders and partners we are doing.

But it isn't just addressing all of the issues - I wish the answer of "everything" could be extended with "everywhere, all at once". This isn't realistic for RRT, or for any one organisation, but it is certainly more achievable if we all act together. Our approach in delivering our work is to focus on and prioritise where we can deliver the most benefit, and where there is most need. This has seen some major successes over the years, but with much more to do in 2024 we have added to, reviewed and improved our data and evidence sets. Importantly, we have also set up new initiatives being rolled out in 2024 to both increase detail and analysis of these further. This will provide information not just for our team to use, but to help inform and influence others.

This has really helped us target our work for 2024, picking up where we 'left off' in 2023 and with an ambition to go bigger and further. More 're-wiggling', flood plain connection, catchment woodland, fish passage, wetlands, leaky dams, farm advice and education. Drawing on the

success of Lancashire Woodland Connect, which has continued to gain momentum, we want to roll out other programmes, not just projects, sustained for years to come. "We need better rivers now" you might respond, and we agree, but 300 years of degradation of our catchment and rivers is not going to be fixed overnight.

The success of our Grunsagill Leaky Dams project, which built on previous learning, has led us to begin programming significantly more leaky dams. These structures hold back water helping to reduce downstream flood risk, but if done correctly, they also replicate natural river habitat, both branches and roots for fish and invertebrates to utilise, but also the way that they promote natural processes of scour and deposition of substrate, creating or improving pool and riffle sequences. Did you know that pools and riffles should occur every 7 channel widths? In many of our degraded rivers and streams they don't occur at all, and certainly not as frequently as they should. This reduces the habitat diversity, and diversity creates resilience. In the face of the impacts of climate change, resilience is an absolute necessity! So leaky dams, they don't just mitigate the flood risk impacts from climate change, but they also help our stream channels and species to adapt and become more resilient to climate change.

"Beavers would do that for you" is a regular comment made around the delivery of leaky dams. However, we don't currently have any beavers, nor do we have enough woodland to support beavers. For leaky dams to be sustainable and continue to support our rivers and communities in the way we need - not surprisingly over time the wood will decompose and need to be replaced – we need more trees and woodlands from which they can be built, or form naturally as trees over time fall across our streams, collecting other materials and delivering the benefits with less intervention. So continuing our woodland creation programme, but in locations where our communities have identified water quality and flood risk issues, whilst capturing carbon to reduce future impacts of climate change will continue to be another priority.

More, and deeper, pools as well as slowed release of water from leaky dams is crucial to addressing the other side of the extreme weather we are seeing. Droughts, or extremely low flows. For a number of years now, we have experienced wet winters, followed by dry hot springs. The latter has seen some of our important nursery streams dry out, or at least only pools retaining water. These pools are a vital refuge for fish and inverts in these situations, so the benefits leaky dams provide continue to be key. But, we need fish and inverts (as well as other riverine species) to be able to move around, migrate within the river, between these refuges. Weirs and culverts we know to be barriers to this migration, however, the focus tends to be on migration for spawning – when it comes to fish – migration to avoid pollution or lack of water is equally and increasingly important. So we will continue removing barriers to migration and creating better riverine habitat.

The permission of landowners is crucial to all of the work that we do. Often this is given altruistically, but often incentives are needed to compensate for changes to land which currently provide income. Working with landowners

to obtain permission for our works is obviously important, but some of the work we do isn't necessarily about habitat creation. The balance of food production and habitat is still to be found, but there is clearly a need for this balance, and so our farm advisors don't just work with farmers to get permission for habitat, but also to help farmers with their farming systems such that their impact on the environment is less (for example nutrient management) but also supports a more sustainable farm business. There are many win-wins in this space, improved soil structure can not only reduce downstream flood risk, by increasing infiltration of water into soils (our greatest water storage feature!), it can also boost yields through promoting better grass (or other crop) growth. By delivering this reduction in rate of water run off, and better grass growth, we can also reduce the amount of nutrient and silt running off into our water courses. Something that the impacts of climate change, such as the regular storms we experience, will mean we see more of.

You might have noticed a bit of a theme here. Climate change. "What is the biggest threat our river faces?" – climate change, specifically not doing enough to address the impacts we are already currently experiencing, and reducing the root problem behind climate change. We must all act to reduce our individual and collective contributions to climate change, but also our efforts to address the impacts already being experienced.

We hope that in 2024, we will launch our next campaigns and programmes to do just that, but also help you to do just that – watch this space!

PROJECTS

WORKING WITH FARMERS

Building and developing strong, mutually beneficial relationships with farmers in the Ribble and Douglas catchment area is a crucial part of River Ribble Trust's work.

Farm land covers most of the catchment area therefore RRT has a dedicated Land Management team of farm and woodland advisors who work across the catchments.

They work with farmers and landowners to look at all opportunities on farmyards and the land to benefit the environment but also the farm business.

Opportunities include roofing slurry stores, farmyard manure stores, guttering, rainwater harvesting, hedgerow restoration, riparian woodland creation, soil and nutrient management and many more.

For all opportunities identified, RRT advisors look at all funding streams available, both public and private, to support delivery.

Examples of public funding towards agricultural management include the Environmental Land Management scheme through the Sustainable Farming Incentive, Countryside Stewardship (CS) capital grant schemes, higher tier and mid-tier, or woodland incentives such as England Woodland Creation Offer and Grow Back Greener.

In 2023, RRT's advisors supported 16 CS applications and 18 woodland creation applications.

All of these funding streams support Defra's 25 Year Environment Plan 'for our country to be the healthiest, most beautiful place in the world to live, work and bring up a family'. It also supports Defra's strategic objective of 'a cleaner, healthier environment, benefitting people and the economy'.

RRT has also been helping farmers with the Woodland Carbon Code, the UK's quality assurance standard for woodland creation projects, which allows farmers and landowners to register the carbon sequestered by newly planted woodland schemes and potentially sell the carbon, if beneficial to the business.

RRT's work with farmers includes projects such as the River Loud Phosphate and Natural Flood Management (NFM), Ribble and Douglas Farm Advice, Tributrees, Grow Back Greener, and Trawden NFM.

RRT has also been part of several Defra-backed tests and trials where they have met farmers to explore how they would like advice to be provided in the future and how future schemes can be designed.

Farmers and land managers from different sectors, regions and land types also discuss how they can support each other and share knowledge through five farm groups now established across the catchments.

The meetings also encourage farmers to monitor their journey and how they deliver activities and outcomes, helping them feel confident that they are complying with regulations.

FARM GROUPS

For almost a decade, Ribble Rivers Trust have established farm groups within the catchment to provide advice and training for farmers.

Farm groups provide many benefits including collaboration, funding opportunities, sharing best practice, and catching up with neighbours and friends.

In addition to the already existing Loud Farm group and Long Preston Facilitation Fund group, RRT has established three new farm groups in other areas of the catchment which include Trawden, the Douglas Catchment and Hyndburn.

The Long Preston Facilitation Group benefits from almost 20 years of collaborative effort and shared learning among local farmers and partner agencies.

The Group represents the Long Preston 'Deeps' floodplain which covers 765 hectares along the River Ribble, 162 hectares of which is a Site of Special Scientific Interest. Sandwiched between the Yorkshire Dales National Park and the Forest of Bowland Area of Outstanding Natural Beauty, it is a priority area for wildlife and rare flora.

The Group's main aim is to make changes to improve biodiversity and water management of Long Preston Floodplain and the wider catchment to help sustain farm businesses and the area's long-term health.

The Trust has been working in the Loud catchment for over a decade and established the Loud Facilitation Fund group in 2015. Initially, there were 15 farmers in the group which grew to 31 by the end of the fund in 2020.

Due to the success of the group and the engagement within the catchment, RRT continued the group and it is now a key part of the United Utilities funded Loud Phosphate and Natural Flood Management project. The aim of this project is to reduce the phosphate load and increase Natural Flood Management interventions within the catchment.

Works being funded within this grant include: covering or roofing of slurry stores; renewing concrete, guttering and drainage systems; woodland and wetland creation; hedgerow restoration; watercourse fencing; gateway improvement; hard standings for livestock feeders and drinkers; leaky dams and livestock tracks.

The Trust is also working closely with the farmers about soil and nutrient management, providing soil samples and working with farmers and experts to provide training and advice.

Through the Environment Agency funded Trawden Natural Flood Management project, a farm group has started in the area aiming to look at the potential of installing some natural flood management interventions which include leaky dams, riparian woodlands, step pools, grip blocking and hedgerows.

Two of the new farm groups represent the Douglas Catchment and Hyndburn. They have been established through the Better Rivers Better North West programme, set out by United Utilities to kick start a river revival over three years.

In addition to its commitment to deliver £230 million in environmental improvements, United Utilities called upon River Trusts such as RRT to support local river health initiatives.

The Hyndburn & Douglas farm groups have several aims including reducing diffuse water pollution, improving soil and nutrient management, investigating mitigation methods to reduce water pollution, and increasing natural flood management techniques.

The Farm Hub also looks for funding streams to achieve its goals and provides opportunities for landowners and tenants to talk to partner organisations as well as agricultural and environmental industries.

FARM IMPROVEMENTS

The Ribble Rivers Trust has been offering free and confidential site visits and reports to farmers in the catchment for over a decade. RRT uses the PINPOINT approach, which was developed by the Rivers Trust and Catchment Sensitive Farming.

The aim of a PINPOINT visit is to walk over the farmyard and the land to identify all the opportunities for improvement that would benefit both the environment and the farm business.

Within the report, we also signpost farmers to the latest funding streams available to assist with delivering the opportunities we suggest.

Some of the options that a farmer could take forward to reduce diffuse pollution include covering slurry stores and implementing rainwater harvesting, to reduce the amount of dirty water running off the farm when it rains. Concreting yards, stoning gateways and siting drinking points on hard standings also help to reduce mud and subsequent dirty water runoff.

Soil testing can help the farmer to create more effective nutrient management plans and improve the structure to enhance productivity, as well as being beneficial to the environment.

Fencing off watercourses, restoring hedgerows and creating woodland are further options that a farmer might choose to take forward, since they help to reduce soil erosion and the amount of diffuse pollution entering watercourses, as well as improving the farmland habitat for wildlife. Any woodland creation opportunities taken forward contribute to the Trust's Lancashire Woodland Connect Campaign.

RRT has recently completed its second year of the Ribble and Douglas Farm Advice project, which was funded by the Environment Agency. The funding enabled our farm advisors to visit all areas of the catchment, but with focuses on the Rivers Yarrow and Lostock in the Douglas Catchment, and Stock Beck, Wigglesworth Beck, Showley Brook, the River Loud and the Upper River Darwen in the Ribble Catchment, since these watercourses suffer from poor water quality.

Over the two years of the project, RRT visited 46 farms in these sub-catchments to carry out whole farm appraisals and implement interventions to reduce sources of diffuse agricultural pollution and improve natural flood management. Baseline water quality data was collected before works were carried out on farms, and the water testing will subsequently be repeated to determine how much of an impact the interventions have had on the health of the watercourses.

WOODLANDS

Identifying suitable sites for new woodlands is just one advantage of working with farmers in the River Ribble catchment.

Ribble Rivers Trust's woodland team are currently working on schemes to increase the number of trees in Lancashire by more than half a million.

Planting more trees helps improve air and water quality, provide habitats and food for wildlife, keep rivers cool and give people places to relax.

They can also help to combat climate change. If greenhouse gas reduction targets are to be met over the next decade, at least 50,000 trees need to be planted across Lancashire annually.

RRT's decade-long Lancashire Woodland Connect project will double the area of woodland across Lancashire.

The Trust is working with private and public sector supporters, community groups and conservation charities to create 100km of new or restored woodland alongside the Ribble, Lune and Wyre catchments and tributaries.

To fund the project, the Trust must raise £500,000 a year, mainly via public and private sector partners, grants, and the public. For just £15 anyone can dedicate a tree.

As part of the campaign, RRT has launched Tributrees, a woodland creation project, included within the Environment Agency's Environment Programme.

This five-year tree planting programme focuses on creating riparian 'buffer strips' - narrow strips of woodland next to rivers - with the aim of planting around 20 hectares of woodland and enhancing 50km of river water bodies.

Trees play an essential role in improving river water quality. They absorb pollutants found in fertilisers and animal waste; provide shade and keep the water cool, vital to trout and salmon which are sensitive to temperature changes; and improve soil structure as their roots help to stabilise the riverbank.

During heavy rainfall, trees absorb water through their roots and prevent it from flowing rapidly into the river, reducing flood risk. Leaves and branches falling into the river during floods, also create leaky dams which slow the water flow, reducing the risk of erosion and protecting riverbanks from damage.

An additional 20 hectares of new woodland will be planted in the Ribble catchment annually, thanks to RRT's new Grow Back Greener partnership with the Woodland Trust.

RRT's data and evidence team produced a bespoke woodland prioritisation mapping tool to identify potential woodland sites taking habitat quality, flood risk, land use, wildlife populations and topography into consideration.

The Trust also works with other partners, including the RSPB, as much of the catchment has wetlands and boggy areas, crucial for wading birds.

Farm advisors then liaise closely with landowners to agree the finer details and the woodland creation team develop the plans before volunteers take over the planting.

If you would like to dedicate a tree, or become a volunteer to help plant them, head to our website for more information.

NATURAL FLOOD MANAGEMENT

We've all heard about how Climate Change is causing more extreme weather patterns, including periods of intense rainfall, sustained droughts and severe heatwaves. But how does this affect rivers and their wildlife?

River levels can fluctuate wildly in response to rainfall, or indeed a lack of rainfall. The quicker a river rises and falls, the more stress it puts on the fish and invertebrates within the channel. Timing is everything, and flash floods that occur in the springtime often coincide with the hatching of fish eggs. Tiny juvenile fish cannot compete against the force of water that a flood brings, and unfortunately they can be washed from their nursery redds in a single high flow event, which can decimate that year's recruitment of fry to the population.

If river levels fall drastically in response to a period of drought, the wetted area of the river or stream channel diminishes, which means there is less habitat available for fish and invertebrates, not as much cover from predation, and more competition for space and food. Furthermore, shallow water warms up more quickly, which puts further stress on the river's inhabitants.

Of all of our freshwater fish species, salmon and trout are particularly sensitive to temperature change. They are adapted to reside in cool water habitats, so once water temperatures reach 20°C and above, they start to struggle, either from a lack of dissolved oxygen in the water, or they abandon their usual territories in search of cooler refuges and face increased competition from other fish. If temperatures begin to reach the thirties, fish will die within minutes. We record water temperatures within the Ribble Catchment as part of our annual fish surveys, and unfortunately we quite often witness temperatures that exceed the threshold for thermal stress on fish.

Thankfully, there are ways to help our river environments adapt to climate change and extreme weather. We can deliver improvements to the surrounding riparian habitat that can reduce the peaks and troughs of flow levels. We call this 'natural flood management' and it involves creating areas of habitat using natural resources that help to store rainwater away from the channel, like wetlands, and release it more gradually. Or we can make in-channel improvements that help to slow the flow, such as re-wiggling artificially straightened channels and installing leaky dams that mimic natural wind-blown trees or beaver dams.

And then of course, there are trees. Planting riparian woodlands is arguably the best method of mitigating the effects of flash floods and droughts, and they can also provide shade over the river channel, keeping the water cooler during heatwaves. The trees themselves intercept and soak up rainfall, thus increasing the time that the water is held back from the river channel, and their roots improve the soil structure so that rainfall can be more easily absorbed and stored within the ground, rather than flowing overland and straight into the watercourse.

The next two pages showcase some of the natural flood management projects we delivered in 2023, but our climate is changing rapidly, and we must increase our delivery of these types of projects in the coming years if we are to protect our freshwater habitats against extreme weather and save some of our iconic species.

SLOWING THE FLOW

GRUNSAGILL LEAKY DAMS

Grunsagill is a small tributary that flows from the hills above Bolton by Bowland before joining Skirden Beck and then the main River Ribble. It's an important nursery stream for salmon and trout, however due to the hilly terrain, the beck is susceptible to flooding. To help prevent washout of fish eggs and fry during high flows, we have installed leaky dams to reduce the force of water flowing down the channel using Defra's Farming in Protected Landscapes funding scheme.

Slowing down the flow also means that the beck has less power to erode its banks, meaning there is less sediment and pollutants within the stream so the water quality is improved.

The leaky dams are made from coppiced logs, branches and brash found within the local area. They are laid across the stream channel and secured into place. In normal flows, the water passes underneath the dams as normal, but when the beck starts to rise, the dams hold back some of the water and in the highest flows, the water spills out onto the floodplain.

One leaky dam is not sufficient to temper a flood, however six dams have been installed along Grunsagill, which when combined, have a significant impact on flow velocity and can help reduce the likelihood of flooding to communities downstream.

The site will continue to be monitored through regular riverfly surveys and our annual salmon and trout count, and we hope to see populations of fish and invertebrates increase over the coming years as a result of this work.

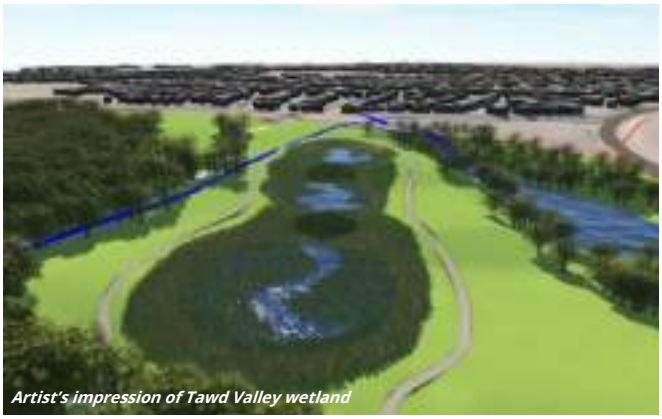
GED BECK CHANNEL RE-WIGGLE

Ged Beck is another tributary of the River Ribble and flows along the Lancashire and North Yorkshire border. In the past, it had been artificially straightened to make way for a conifer plantation, however the plantation has since been felled, which made for an exciting opportunity for the Ribble Trust to restore the beck to its former glory and provide some natural flood management in the process.

With funding from the Environment Agency, we were able to excavate the paleochannel (the old natural river channel) and reconnect it to the main beck, increasing the length of the channel by 116m. This gives the beck increased capacity to hold more water and the meanders help to slow the flow.

The restoration included the installation of woody material to provide habitat for invertebrates and fish and help stabilise the banks. We also have plans to improve the spawning gravels within the beck, however now that the watercourse meanders, we will hopefully start to see pools and riffles forming naturally. The site will also be planted with a mix of native trees.

MAKING SPACE FOR WATER



Artist's impression of Tawd Valley wetland

One of the major consequences of Climate Change in the UK is that floods of significant magnitude are becoming much more frequent. The term 'making space for water' relates to projects that provide storage of rainwater during storm events, keeping runoff away from river channels or delaying it such that the river levels rise and fall more steadily so that the maximum height of the flood peak is reduced.

Wetlands are the typical water storage solution and they also do much more than collect rainwater. They can act as a water filtration system, allowing sediment and pollutants to drop out before the runoff reaches rivers and streams, and they provide vital habitat for insects, birds and amphibians. But for them to play any significant role in reducing flooding, we either need to create sizeable wetlands, or many, many smaller ones.

TAWD VALLEY WETLAND

For a couple of years now, RRT has been working with the Environment Agency and West Lancashire Borough Council to create a substantial wetland in Tawd Valley Park in Skelmersdale. The site surrounds the River Tawd, which is a tributary of the River Douglas.

With construction set to commence in the Spring of 2024, the new 517 square metre wetland will connect to an existing surface water drain and hold up to 177 cubic metres of water, creating a sustainable urban drainage system (SUDS). With rainwater being diverted to a storage wetland as opposed to directly into the river, it will help to reduce flood peaks in the River Tawd and improve its water quality.

Beyond protecting human inhabitants from flooding, the wetland will also provide a habitat haven for wildlife. Wetlands are actually a fairly rare habitat, so this space for nature will prove very welcome, as well as being a beautiful place for people to enjoy. A new circular footpath will be instated around the wetland once it is complete.

LONG PRESTON FLOODPLAIN

In 2023, RRT had a rare opportunity to demolish a section of artificial flood bank within the Long Preston Deeps SSSI and reconstruct it further back from the river channel, to create more space for flood water storage along the main River Ribble.

Long Preston Deeps has been designated as a Site of Special Scientific Interest (SSSI) due to its flat valley bottom and associated river geomorphology and wetland features that support specialised fauna and flora, including breeding wetland birds.

Historically, the SSSI has been negatively impacted by human activity, so the Long Preston Floodplain Partnership has been set up to protect and enhance this rare habitat by working with local landowners and communities to deliver improvement projects.

By relocating the flood bank, we are allowing the river to behave more naturally, flooding out where it normally would, and providing more of the natural features that make Long Preston Deeps so unique. By working closely with the landowner to agree the flood bank's new design and location, we've ensured that the farmland remains productive and does not impact on the farm business.

River Ribble with artificial embankments at Long Preston Deeps

Fish pass on the River Darwen at Hoghton Bottoms

RIVER DARWEN

At over 19 miles long, the River Darwen is a major tributary of the River Ribble. A fairly urban river, from its source above the town of Darwen, it flows through the centre of Darwen before entering Blackburn. It also passes Hoghton Tower, through Hoghton Bottoms, Samlesbury and Walton-le-Dale. Finally it joins the River Ribble south of Preston.

Its long industrial history meant it suffered from pollution well into the 1970s. The River Darwen used to be known as the 'Rainbow River', owing to the paper and paint mills that discharged wastewater used in the dying and manufacturing process directly into the river, changing the water colour dramatically. It goes without saying that this devastated the biodiversity within the river.

Thanks to changes in legislation, as well as the efforts of environmental organisations, local businesses and community groups, the river is starting to recover. In recent years we have delivered several fish pass projects on the River Darwen, including work at Hoghton Bottoms, Lower Darwen and Walton-Le-Dale, but we know there is still much more to do.

A grant from the Environment Agency has enabled us to deliver DEEP - the Darwen Evidence and Engagement Project, which aims to collect data and evidence that will help prioritise and shape future works in the catchment.

Surveys have been carried out to map the locations of barriers to fish migration, and we've engaged with communities and stakeholders with a view to creating opportunities for positive action.

Residents of Blackburn with Darwen also completed surveys to highlight the major issues facing watercourses in the catchment, such as litter hotspots, invasive species and flooding, to help us understand the priorities of the local communities.

The evidence collected as part of the DEEP project will be compiled into a report, which will be used to develop and secure funding for future projects in the River Darwen Catchment.

RIVERBANK REVIVAL

In November 2023, RRT successfully raised over £2,000 from a crowdfunding campaign to revive riverbanks within Blackburn with Darwen.

Blackburn with Darwen is an area with high levels of deprivation and poor access to green spaces. This new funding will helps us to work with communities to lead workshops and provide resources to grow wildflowers.

We'll also run volunteering events to clear invasive Himalayan balsam from riverbanks within the Darwen catchment and then spread wildliflower seeds to allow our native species to re-establish.

The crowdfunder was facilitated by the Save Our Wild Isles Community Fund, which is a partnership between Aviva, WWF and the RSPB. It was set up following the BBC's Save Our Wild Isles television series and aims to support community groups across the UK to protect and restore nature in their local area.

GATHERING THE EVIDENCE

PRIORITISING HABITAT CREATION TO REDUCE DIFFUSE POLLUTION

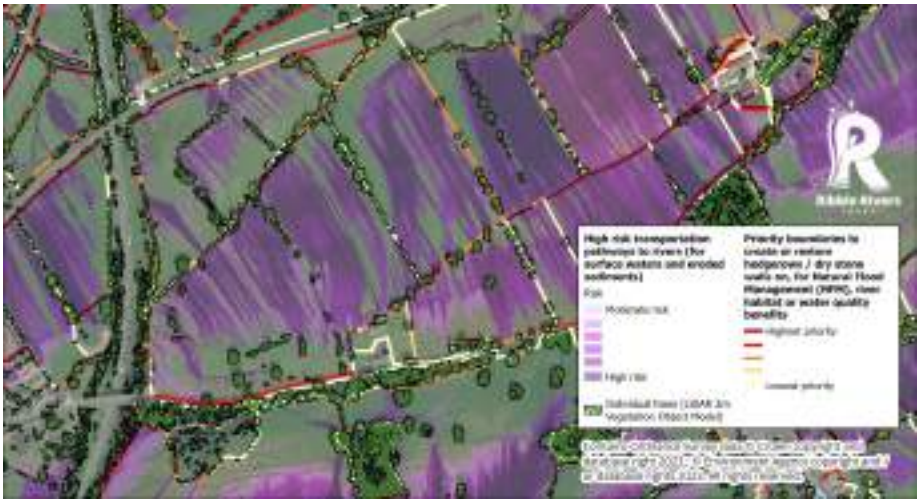
The term 'diffuse pollution' refers to the accumulation of pollution that enters rivers from a range of sources. While there are many potential sources, RRT's present focus is reducing diffuse pollution from agriculture, specifically sediment deriving from eroded soils and pathogens and nutrients carried in livestock faecal matter. Sediment can smother riverbeds and the input of excessive nutrients can reduce water quality or result in eutrophication, leading to algal blooms, depletion of oxygen and harm to other life in the waterbody.

When planted on overland-flow pathways (routes where water flows over land after rainfall) that carry pollutants to rivers, woodland and hedgerows can reduce the volume of pollution reaching the river. They interrupt and reduce the water's rate of flow, causing suspended sediments to drop out of the flow and remain on land, and increase the amount of time available for water to infiltrate the soil and be taken up by the trees, thereby reducing the volume of polluted water getting into rivers.

But when the Ribble catchment is 750+ miles^2, a large proportion of which is agricultural, with 3,500+ miles of watercourses, how do we prioritise where to create these habitats to have the greatest impact on reducing diffuse pollution?

We use an evidence-based approach.

Academics at Durham University have created a map-based tool called 'SCIMAP' that maps the risk of diffuse pollution across a landscape. Put briefly, it factors in average rainfall, the shape of the land and land-use to predict where rainwater is likely to flow overland, which pollutants it's likely to pick up, and where that polluted water enters the river network.



RRT takes the output of the SCIMAP tool and runs a further analysis, created in-house by our own Data and Evidence Team, to identify the stretches of watercourse that are most in-danger of receiving sediment and/or pathogens and nutrients. We identify the areas of land that drain into those at-risk sections of river and, within those areas, the specific high-risk overland-flow pathways that carry the pollutants. This creates a longlist of places where the creation or restoration of woodlands or hedgerows could reduce diffuse pollution.

To narrow that longlist down to a shorter list of priority locations, we rank locations based on the impact a new habitat feature could have on water quality. E.g. when considering which field boundaries would be most beneficial to convert into fully-functioning hedgerows, we consider the angle at which they are crossed by overland flow paths, and the width of flow paths that are currently free to pass through without any trees or dry stone walls stopping them. Boundaries that intercept a wide overland flow pathway at a perpendicular angle, but currently do not have any/many hedgerow trees or a drystone wall on them, are the greatest priority for hedgerow planting.

This evidence-base doesn't dictate where we definitely will work; rather it helps us to determine which landowners it would be beneficial to try and engage with, it aids negotiations when taking to landowners and farmers, and provides evidence to support funding bids.

TURNING TIDES

In 2022, for the first time in eight years, seven of the North West's bathing waters failed to meet the standards of the Bathing Water Directive, resulting in them being classified as 'poor' due to the levels of faecal indicator organisms (FIOs) found in routine water samples.

The Turning Tides board, a regional partnership which works in collaboration to improve the North West's Bathing Waters and beaches, recognised that to reach the ambition for a Blue Flag Coast, future approaches needed more focused effort from all partners.

With the collaboration of its partner organisations, Turning Tides aims to generate a detailed picture of what is happening in 97 key waterbodies adjacent to the North West coast, to understand which factors might be behind the failure of the bathing waters.

Funding from the Environment Agency has enabled Ribble Trust to deliver an investigative project to stimulate direct action that focuses on improving and safeguarding bathing water quality, by monitoring and tackling pollution from rural areas.

Main Drain is one of the watercourses that Ribble Trust is focusing its efforts on. While it is a largely artificial channel and heavily modified, it drains a large catchment area from Blackpool to Lytham Moss, and has the potential to impact on the status of two beaches, therefore improving the water quality of Main Drain is crucial.

Liggard Brook, a tributary of Main Drain, is another priority watercourse for investigation and improvement. Historic monitoring of the water chemistry within Liggard Brook showed that it deteriorated significantly between 2015 and 2019. While sewage discharge has been listed as the main cause, it is accepted that rural pollution is likely to be contributing too.

Ribble Trust's third focus is the River Douglas Catchment, where we are working with Groundwork, Cheshire, Lancashire and Merseyside. The Douglas flows from the West Pennine Moors and into the Ribble Estuary. Watercourses in this catchment suffer from pollution from both rural and urban sources, including wastewater.

Ribble Trust will engage with landowners, carry out feasibility studies, and develop interventions to address either the sources or mitigate the impacts of pollution in the key watercourses. Such interventions may include wetlands, reed beds, buffer strips alongside channels and tree planting.

Furthermore, a task force of suitably trained Citizen Scientists is being formed to assist RRT with its ecological data collection and water quality monitoring in these areas.

The Turning Tides initiative will ultimately produce reports for each at-risk bathing water, highlighting the key pressures for that location and suggesting solutions and projects that could tackle the issues. The reports will be shared with the relevant partners to catalyse interventions that will bring positive outcomes on the ground.

FISH SURVEYS

In 2023, Ribble Rivers Trust completed its 16th annual electric fishing survey across the Calder, Hodder, and Ribble catchments. The surveys, covering 311 sites, aimed to assess the populations of young trout and salmon, with results supporting the Trust's proposals for environmental works and ongoing ecological assessment within the catchment.

For 2023, Josh Morris and Rebecca Ramsden joined the team as Seasonal Survey Assistants during their summer break from university. During survey work the team engaged with many curious members of the public who were out walking on the riverbanks, and also introduced high school and university students to electric fishing as part of their work experience weeks with the Trust.

BROWN TROUT INSIGHTS

During the 2023 survey season, a total of 3,476 brown trout fry and parr were captured across 311 electric fishing sites. While there has been a slight uptick in the observation of trout fry (compared to the previous year), overall densities within the catchment remains largely unchanged.

Trout parr (+1 year old fish) populations have remained steady in the Calder catchment but have declined in the Ribble and Hodder catchments. The Hodder, previously stable in fry densities, now shows reduced parr numbers, possibly due to poor fry-to-parr survival rates. Similarly, the Ribble catchment has seen a decline in parr numbers following a drop in fry abundance.

SALMON INSIGHTS

Recruitment of Atlantic salmon fry remains low across all catchments with a total of 922 Atlantic salmon fry and parr recorded in 311 sites, signaling limited spawning success in tributaries. While some main river sites have shown slight increases in salmon fry densities, exceptional results have been scarce since 2012. Worryingly this year's Environment Agency's 2023 counter figures for salmon at Waddow Hall is the second worst year on record (2004-2023). This does not bode well for the spawning success and fry densities anticipated in 2024.

The Trust and national assessments have highlighted the vulnerable state of UK freshwater fish species, with the Atlantic salmon now classified as 'Endangered' according to the International Union for Conservation of Nature (IUCN) Red List*. Factors such as climate change, habitat loss, exploitation, and poor marine survival contribute to their risk.

Overall, the surveys conducted by Ribble Rivers Trust provide valuable insights into the health of our rivers, guiding efforts to protect and preserve these vital ecosystems. The findings emphasise the importance of monitoring to direct conservation efforts for freshwater species and their habitats in Britain. All results for the 2023 electric fishing season and report are available on the Project Reports page of our website.

*Reference: Nunn, et al. (2023). "Extinction risks and threats facing the freshwater fishes of Britain." Journal of Aquatic Conservation: Marine and Freshwater Ecosystems, September 2023.

Salmon fry

CITIZEN SCIENCE

Since 2022, Ribble Trust has been involved in the Catchment Systems Thinking Cooperative (CaSTCo) led by The Rivers Trust and United Utilities. Funded by Ofwat, the project involves 24+ UK partner organisations, who together are seeking to provide the first national framework for collecting and sharing standardised environmental data that can be used in modelling and decision making tools to help drive environmental improvements across the country.

Ribble Trust has been testing the 'RiverBlitz' approach to collecting environmental data, which is based on the more traditional 'BioBlitz', where volunteer groups come together in a fast-paced event to collect biological records of insects, plants and fungi. BioBlitzes however, only focus on terrestrial species, so RiverBlitzes are being trialled to ensure that our important riverine ecosystems are being monitored too.

The RiverBlitz method, simply put, is a catchment-wide survey to assess river health. Surveying just one watercourse will give you an indication of its health, however to understand where the potential heath impacts come from, the tributaries that feed into it must also be surveyed.

Two RiverBlitzes were undertaken in 2023 on the Stock Beck and Duddel Brook catchments. Teams of passionate Citizen Science volunteers were assembled for a crash course in invertebrate sampling and identification before carrying out their surveys at strategic points throughout the sub-catchment. Water samples were also taken at the same time to test the phosphate levels and the condition of the habitat at each site was assessed.

Without the help of our volunteer Citizen Scientists, collecting this type of data would be expensive and incredibly time-consuming. Yet, we are very lucky to be able to perform surveys like this with the help of local people. Their honest and impartial feedback about the methods used in our RiverBlitz events will help us to inform and develop a standardised approach to citizen science going forward.

Having a dataset of this size across a whole catchment will be incredibly valuable to RRT as it will help us to build a strategy for our conservation action, so we can target our environmental improvements in the areas that need them most. For this, our citizen scientists cannot be thanked enough.

RIVERS IN THE CLASSROOM

Education is the key to ensuring our rivers and wildlife remain protected into the future, which is why RRT continues to strive to deliver its education programme to as many schools as possible.

Our Rivers in the Classroom programme offers many different activities and learning opportunities that help children engage with their natural environment, while linking to different aspects of the National Curriculum.

Our basic set up is to install a fish tank in the classroom and add trout eggs. Over the weeks that follow, the children monitor the tanks and observe as the eggs hatch into fry.

Once the baby trout have grown large enough, the class takes them to a local river or stream, where they can watch them be released into the wild. The local river is now their trouts' new home, so the children begin to foster an understanding that river habitats must be protected from littering, pollution and climate change.

Additionally, there are a range of river-related learning activities that schools can choose from that best fit with their curriculum. We offer micro-safaris, where the children study riverflies and food webs, lessons in water safety, hydrogeomorphology sessions with our river table that simulates erosion, and various arts, crafts, music and creative writing sessions.

RIBBLE EXPLORERS

A three-year grant from the Ernest Cook Trust has enabled RRT to work with even more schools in the South Ribble area as part of our new Ribble Explorers project, which focusses on creating outdoor learning opportunities for schools in areas where there are high levels of outdoor inactivity.

Outdoor learning is the practice of being in the natural world, while developing knowledge, skills and understanding. The benefits to the participants are improved wellbeing and mental health; and improved academic, social and transferable skills. Overall this produces a positive experience, additional understanding of our local environment, and a greater respect for nature.

The children at the selected schools have been enjoying all the different aspects of our Rivers in the Classroom programme, giving them opportunities to get outdoors and learn more about our environment.

BLACKBURN ECOBUDDIES

A grant from The Skelton Charity, administered by Liverpool Council for Voluntary Services, has enabled us to work with two schools in the Blackburn with Darwen area - St Cuthbert's Primary and St Michael with St John's Primary.

The children enjoyed four river-themed learning sessions. They visited Witton Park and embarked upon a woodland trail, while collecting litter along the way to stop it getting into the River Darwen, which flows through the middle of the park. The children learned why littering and pollution is harmful to wildlife and our environment.

Next, the pupils were taken to a nearby farm where the Trust was creating a new 2.5 hectare woodland. The children helped to plant some of the trees and learned about how trees can benefit rivers, their wildlife, and the wider environment.

Finally, a celebration event was held at Blackburn Library, where the two classes were visited by the Mayor of Blackburn and presented with certificates. At the event, the children were able to look at riverflies up close and learn about their importance in the food chain. They were also taught about water safety. At the end of the session, each child wrote a pledge card to say what they would do to help look after our rivers in the future.

COMMUNITY TREE NURSERIES

In 2023, following the success of the Marsden Park tree nursery in Nelson, Ribble Trust expanded its community initiative by setting up two new nurseries in Clitheroe and Preston.

The tree nurseries are a fantastic way for local people to get involved in habitat restoration around the catchment, as they offer low intensity volunteering opportunities which involve collecting and sowing seeds, transferring seedlings and general maintenance such as watering and weeding.

The tree seeds need to be carefully selected to ensure they are of local provenance and native to the area. Ancient woodland sites are most likely to contain tree populations of local origin and to achieve a good sample, we aim to collect a few seeds from as many trees of the same species as possible, rather than targeting one or two trees.

The trees that are grown at the community nurseries will be used in some of our riparian woodlands and provide multiple benefits for rivers. They will offer new habitat for wildlife, help with carbon capture and flood management, and improve water quality in rivers and streams.

We've been fortunate to receive funding for our tree nurseries from a number of sources, including the Forestry Commission, Fellowship of the Trees and local corporate donations.

If you would like to get involved in one of our community tree nurseries, head to the volunteering page on our website.

TRINITY ECOHUB

Ribble Trust has partnered with Natural England and Trinity Methodist Church in Clitheroe to create a green community hub and courtyard wellbeing garden at to improve people's access to natural space.

The EcoHub will offer a venue for workshops and sessions that will help to improve people's health and wellbeing.

We have already run a successful event to help kickstart our tree nursery in Clitheroe. Local families joined us for a tree seed planting workshop and helped to plant an impressive 1,600 acorns. Once grown, the small trees will be used in our riparian woodlands around the catchment.

The green space, which will feature a living wall and raised planting beds, will also contribute to the delivery of a wildlife corridor through the urban area of Clitheroe, building on the successful creation of the Primrose Lodge Nature Reserve.

URBAN TREE PLANTING

Thanks to funding from Preston City Council, we've been transforming urban green spaces around Preston by clearing scrub and planting new trees and hedgerows.

The regeneration at Maudland Bank and Oxheys Recreation Ground has been helped along by local primary schools and residents, who have helped to plant 90m of new native hedgerow, including blackthorn, and hawthorn, and 34 larger trees including hazel, cherry, rowan, alder, and birch.

The new trees and hedges will not only provide additional habitat for wildlife in an urban setting, but will also deliver natural flood management benefits by reducing the runoff rate of rainfall.

The council has also funded the installation of new benches, to help encourage local communities to use and enjoy their urban green spaces more.

VOLUNTEER WITH RIBBLE TRUST

Get outdoors, help nature and be part of the journey towards a healthier environment for our future generations.

Our team of conservation volunteers, or as we like to call them, River Heroes, are a vital part of Ribble Rivers Trust. This wonderful group of nature enthusiasts provides the people power we need to deliver our diverse range of projects, from Ribblehead to the Ribble estuary, and everywhere between.

Now more than ever, we rely on our volunteers. Our rivers are an integral part of our natural heritage but, despite their importance, our rivers are facing serious threats from pollution, climate change, and various human activities. By generously offering your time and skills, you can contribute to safeguarding and preserving the environment, while also supporting local wildlife and leaving a positive imprint on the world around you.

Volunteering not only aids in the protection and conservation of our rivers. Volunteering presents opportunities to forge new connections, acquire new skills, and garner valuable experiences that can enrich both your personal and professional life. It can also be a rewarding and fulfilling experience to know that you are making a difference in your community and helping to create a better world for future generations.

Of course, the Ribble Trust team are environmental professionals. So, you can rest assured that you're in safe hands when you volunteer with us. All tools, PPE, and necessary training are provided by us. All our activities are fully insured, our staff are highly trained, and we're always on hand to help.

You can sign up to our weekly mailing list at ribbletrust.org.uk/volunteer. Once you've signed up, we'll send you a weekly email containing details of all our upcoming volunteer days. If you'd like to attend, you simply follow the links in the email and sign up.

TEAM BUILDING

Everyone loves the chance to escape from the office, which is probably why we've been lucky enough to have so many corporate groups joining us for volunteer days recently!

2023 was an exceptional year for corporate team away days, with groups joining us for a range of activities; from rivers clean-ups to tree planting, and everything in between.

While many of our corporate partners view these outings as a chance for their staff to enjoy a fun day out, team away days offer more than just entertainment. By removing people from the office environment, employers can dismantle barriers, foster conversations, and facilitate connections, enabling everyone to engage, converse, and collaborate in a fresh and stimulating setting.

This year, special thanks go to Harrisons Engineering, Heywood Pension Technologies, the Environment Agency, Lancaster University, Recycle IT, Richard Wellock & Sons, Serco, University of Central Lancashire, and United Utilities.

TACKLE INVASIVE SPECIES

Invasive non-native species are a growing threat to the environment, and they can have serious impacts on river ecosystems. These species often outcompete native flora and fauna, disrupt ecosystems, and cause damage to infrastructure.

Himalayan balsam and giant hogweed in particular have become major concerns in the Ribble catchment, dominating riverbanks and displacing native plants, leading to ecological imbalance.

But we're on the case, working to tackle these plant pests. Many of our projects integrate invasive species control, including work funded by the Angling Trust and funding facilitated by Yorkshire Dales National Park.

With the help of our amazing volunteers, we can clear huge swathes of balsam in a day, with very little effort.

We've also been able to train small groups of people to help us with giant hogweed control too. This is a little more complicated, as treating giant hogweed requires herbicides and careful handling to avoid the chance of chemical burns.

Find out how to volunteer at ribbletrust.org.uk/volunteer

TREE PLANTING

If you've been following our work for a while, then you'll probably already know that we're passionate about trees. And it turns out that we're not alone.

During the 2023/2024 winter season, we've planted over 85,000 trees, with one site near Tosside boasting an impressive 8,000 trees. However, none of this would have been possible without our amazing volunteers and supporters who provide the much-needed people power.

Volunteers aren't the only people helping us though. Since the launch of the Lancashire Woodland Connect campaign back in 2020, we've received thousands of pounds of donations, which help us to fund this vital work. Visit our website to find out more about our tree dedication service.

RIVER BANK REPAIRS

2023 was a very busy year for nature-based solutions (NBS), and Hasgill Beck riverbank repair highlighted our commitment to providing natural solutions to the problems our rivers face.

Situated near Stocks Reservoir, Hasgill Beck faced severe erosion, adversely affecting water quality and habitat in what could potentially be a highly valuable and diverse waterway. In order to tackle these issues and enhance biodiversity, we embarked on a brash bundling mission!

This river conservation technique involves the use of natural materials to stabilise riverbanks. Firstly, we gathered branches and other woody debris from local woodlands. These materials were then fashioned into bundles, resembling small haystacks, while untreated posts were inserted into the riverbed to serve as anchors, securing the bundles in place.

Each week, scores of individuals joined us, generously offering their time to assist in preserving the riverbanks and combatting erosion. Additionally, we were fortunate to have corporate volunteers, such as Heywood Ltd, who treated their teams to a day outdoors, working together to complete new and exciting tasks. For them, this was certainly a contrast to a usual day in the office!

WAYS TO SUPPORT US

JOIN THE TRUST

Sign up as a regular supporter and we'll keep you posted on how your money has helped improve rivers. Simply visit our website to join online, or complete the form on the next page and return it to us. We'll send you a joining pack in the post, and our annual newsletter for each year that you remain a supporter.

DONATE

The Trust's projects are mostly grant funded, but unfortunately there are some things that grant funding doesn't pay for, such as running costs, wildlife surveying, staff and volunteer training, project research and development, and site maintenance. The money raised from donations helps us cover these vital costs and keeps us going. Donate, if you can, via our website.

CORPORATE SUPPORTERS

Is your company looking to improve its environmental credentials? Whether you are a tech start up, a small independent high street shop, or a major UK company with a multimillion pound turnover, Ribble Rivers Trust can help you to reach your corporate social responsibility goals. Visit our website for more info.

LEGACIES

Leaving a gift in your will is a great way to ensure that your legacy will continue to make a difference, long after you are gone. There are multiple benefits to leaving charities a gift in your will, including tax relief. However, perhaps the most important benefit is the satisfaction of knowing that you have supported a cause that is important to you. Visit our website for more info.

DEDICATE A TREE

Whether you want to mark a milestone, remember someone special, or give someone a unique gift, you can dedicate a tree in Lancashire for a small donation. Your tree will be planted on a site which you can access and we'll give you a map of your woodland so you can visit it. Head to our website for more details.

DOWNLOAD A FUNDRAISING PACK

Do you have a fundraising idea that can help raise vital money to help rivers and wildlife? Our fundraising packs include everything you need to get started, including sponsorship forms. Head to our website to download the pack.

GO FISHING!

Our Angling Passport scheme offers day ticket fishing at a number of picturesque beats around the Ribble Catchment. From wild, remote streams, to main stem rivers, you can enjoy coarse and game fishing from as little as £5.00 per day. Catch and release is strongly recommended, and you must hold a valid rod licence to fish. Tickets can be purchased via our website.

VOLUNTEER

Donating to a charity doesn't have to be all about money - your time is just as valuable. There is no way we could restore as much habitat as we do without the help of our amazing volunteers. From tree planting and invasive species control, to litter picking and wildlife surveys, each activity is a chance to get outdoors, have fun and help nature. See page 20 for more info.

www.ribbletrust.org.uk

JOIN RIBBLE RIVERS TRUST

As a charity, we rely entirely on supporters, donations and grants to continue the vital conservation of our rivers. If you love nature and would like to make a difference, please complete the form or visit ribbletrust.org.uk to join online.

Your details

Title | Surname

Forename(s)

Address

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Your donation

Your subscription is a donation towards our work. The more you can afford to give, the more we can do to improve our rivers.

- ○ **Individual Supporter** £36.00 per year
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Help secure a better future for our environment

As a charity, we depend on the generosity of our supporters who care about the environment and want to make sure it's protected for future generations. Become a supporter of Ribble Rivers Trust today and together we can help make a difference.

As a supporter you will receive:

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