

Case Study 26. Inspiring Water Action in the Torne (iWAIT)

Author: David Newborough

Main driver: Flood risk management and restoration of nationally important habitat

Project stage: Construction 2016 and 2017



Photo 1: Restored wet woodland at Sandall Beat Wood SSSI (source: Environment Agency)

Project summary:

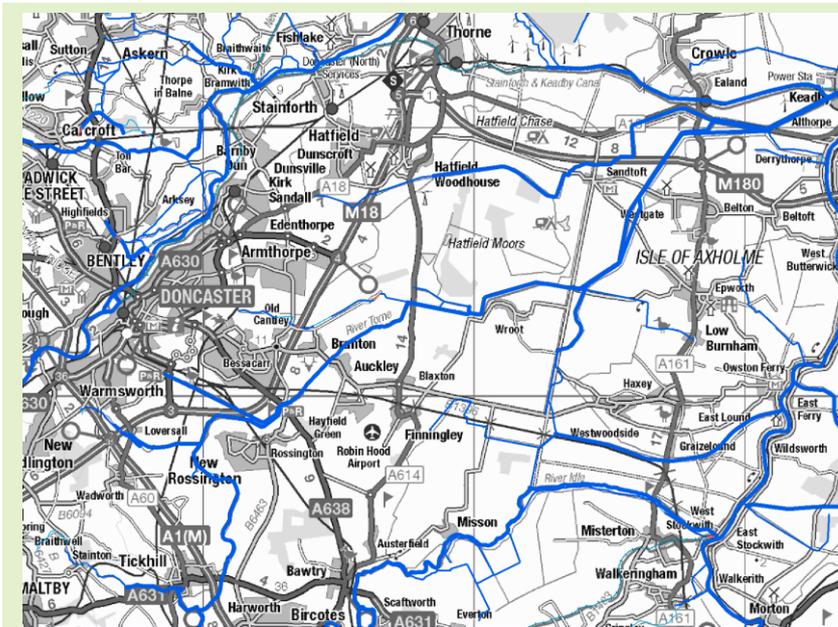
The River Torne Catchment Partnership is a group of stakeholders working towards the revitalisation of the River Torne to the east of Doncaster in South Yorkshire (Map 1) for people and wildlife. The Inspiring Water Action in the Torne (iWAIT) project has multiple outcomes including the restoration of 46.5ha of wet woodland – a rare and threatened priority habitat (Photo 1), natural flood risk benefits, education and community engagement.

Key facts:

- The £100,000 project is expected to bring benefits valued at around £1 million.
- The 46.5ha of restored wet woodland represents 11% of the Environment Agency's national target for habitat creation.
- The estimated 4,000 cubic metres of extra storage space will help naturally interrupt and soak up the flow of rising waters, reducing the risk to around 1,000 nearby properties, as well as to agricultural land.

'That's the first time in over 40 years that piece of woodland has had any water in it'.

(Local resident referring to Sandall Beat Wood Site of Special Scientific Interest)



Map 1: Torne catchment (source: Easimap)

1. Contact details

Contact details

Name:	David Newborough
Lead organisation:	Torne Catchment Partnership
Partners:	Yorkshire Wildlife Trust, Doncaster Metropolitan Borough Council, Natural England and the local community
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2. Location and catchment description

Catchment summary

National Grid Reference:	SE6520602645
Town, County, Country:	South Yorkshire, UK
Regional Flood and Coastal Committee (RFCC) Region:	Trent
Catchment name(s) and size (km²):	Torne/Three Rivers from Mother Drain to Trent. Whole Torne catchment is 520km ² in total.
River name(s) and typology:	Torne
Water Framework Directive water body reference:	GB104028064340
Land use, soil type, geology, mean annual rainfall:	Predominantly rural catchment. Soil and geology not provided as varies across the catchment. 612mm average annual rainfall.

3. Background summary of the catchment

Socioeconomic/historic context

The River Torne starts near Sandbeck Hall in Maltby, South Yorkshire, and reaching its confluence with the River Trent at Keadby in North Lincolnshire. Over the centuries, the Torne has been extensively engineered in order to drain the land to increase its availability for agriculture. The River Torne catchment today is a collection of water bodies that provide drainage and flood protection for industry, agriculture, homes and businesses across parts of South Yorkshire and North Lincolnshire.

The iWAIT project builds on efforts in 2015 to 2016 when the Torne Catchment Partnership worked to reconnect up to 2,000m³ of floodplain storage at Sandall Beat SSSI in Doncaster. This work also delivered multiple benefits including restoration of 2ha of wet woodland, water quality improvements, engagement with local communities and volunteer groups, education around water issues with schoolchildren. By working with Yorkshire Wildlife Trust, Doncaster Metropolitan Borough Council, Natural England and the local community the project was able to achieve excellent outcomes and value for money.

For 2016 to 2017, the Torne Catchment Partnership identified further potential works at Sandall Beat SSSI and 6 other woodland sites within the catchment that could realise multiple benefits. Funding for iWAIT was secured through the Local Levy from Trent RFCC, Water Framework Directive Grant-in-Aid from the Environment Agency, and from Yorkshire Wildlife Trust sources. All partners have supported the project with further time in-kind contributions.

The project includes work at 7 woodland sites:

- Sandall Beat Wood Site of Special Scientific Interest (SSSI)
- Holmes Carr Wood
- Bog Wood
- Tickhill Low Common
- Bessacarr Bank (within Potteric Carr SSSI)
- Piper Marsh (within Potteric Carr SSSI)
- Rossington Brick Pond

All are within the Torne catchment in the Trent river basin.

Flood risk problem(s)

The River Torne is heavily modified and large areas of the catchment are at near sea level or below it. Water levels in the catchment are managed intensively for flood risk and land management. The terminus of this system is Keadby Pumping Station, which pumps water from the Torne system into the River Trent.

Other environmental problems

The Torne is a heavily modified river catchment which means the watercourses have been physically altered over time affecting their ability to act as value habitat for plants and animals.

4. Defining the problem(s) and developing the solution

What was the design rationale?

Targeting Natural Flood Management (NFM) techniques and providing additional flood storage in the upstream part of the catchment will help to attenuate both peak and flood flows from rainfall events. This offers dual benefits:

- Flood risk to property and agricultural land within the catchment is reduced by making more space for water.

- It will reduce the financial and carbon cost of pumping water from the Torne catchment into the River Trent at Keadby.

Using desktop analysis, including reviewing LiDAR (light detection and ranging data), the aim was to involve local communities in creating, restoring or improving a minimum of 46.5ha of wet woodland priority habitat that provides over 4,000m³ of additional flood storage capacity. This will help to naturally interrupt and soak up the flow of rising waters, reducing the risk to around 1,000 nearby properties, as well as to agricultural land.

A sustainable urban drainage (SUDS) feature is being retrofitted in the grounds of 3 schools. This will provide an additional means of engaging with schoolchildren and will further help support efforts to slow the flow in the catchment.

Each of the woodland sites is also being linked to a local community group. As well as providing health and wellbeing benefits to what, in some cases, are deprived and disconnected communities this also helps to ensure legacy and sustainability benefits.

Local groups of volunteers have helped to deliver some of the lower risk capital works. This investment of their time has helped to secure a greater sense of local ownership of the sites.

Project summary

Area of catchment (km²) or length of river benefitting from the project:	
Types of measures/interventions used (Working with Natural Processes and traditional):	Flood storage volume realised: 4,078m ³ SUDS schemes retrofitted: 3
Numbers of measures/interventions used (Working with Natural Processes and traditional):	
Standard of protection for project as a whole:	Not available
Estimated number of properties protected:	~1,000

How effective has the project been?

No information at present.

5. Project construction

How were individual measures constructed?

Measures include:

- selectively thinning the woodland
- re-wetting areas that have dried out
- improving access for visitors
- sowing native plants that will help filter pollutants from the environment

How long were measures designed to last?

No information at present

Were there any landowner or legal requirements which needed consideration?

No information at present

6. Funding

Funding summary for Working with Natural Processes (WWNP)/Natural Flood Management (NFM) measures

Year project was undertaken/completed:	2016 to 2017
How was the project funded:	Local Levy Water Framework Directive Grant-in-Aid Partners' cash and in-kind contribution
Total cash cost of project (£):	£131,500 Local Levy: £71,300 Grant-in-Aid: £25,000 Partners' cash contribution: £5,000 Partners' in-kind contribution: £30,000
Overall cost and cost breakdown for WWNP/NFM measures (£):	
WWNP/NFM costs as a % of overall project costs:	
Unit breakdown of costs for WWNP/NFM measures:	
Cost-benefit ratio (and timescale in years over which benefit cost ratio has been estimated):	Flood risk benefits: £946,500 Volunteer contribution: £10,000 Total benefits: £956,500

7. Wider benefits

What wider benefits has the project achieved?

NFM measures put in place by the project will:

- help improve Water Framework Directive status classification
- contribute to remediation on 2 SSSIs
- provide support for priority species such as the Willow Tit (*Poecile montanus subsp. kleinschmidti*), one of the nation's most threatened bird species

Some of the work is being carried out by volunteers, who are learning new skills in the management of woodland habitats. These skills will help them maintain the improvements into the future.

Alongside this work, funding is being used to engage with 7 schools. Each of the schools is linked to one of the woodland sites. Each school offers a series of lessons and other activities arranged by a dedicated educational project officer (Photo 2). Sessions cover a variety of water-related themes including flood risk, water quality, water availability and biodiversity. To date, around 600 pupils have been engaged in the project.

The retrofitting of a SUDS features in the grounds of 3 of the schools will not only provide an additional

means of engaging with the schoolchildren, but will also further help support efforts to slow the flow in the catchment.

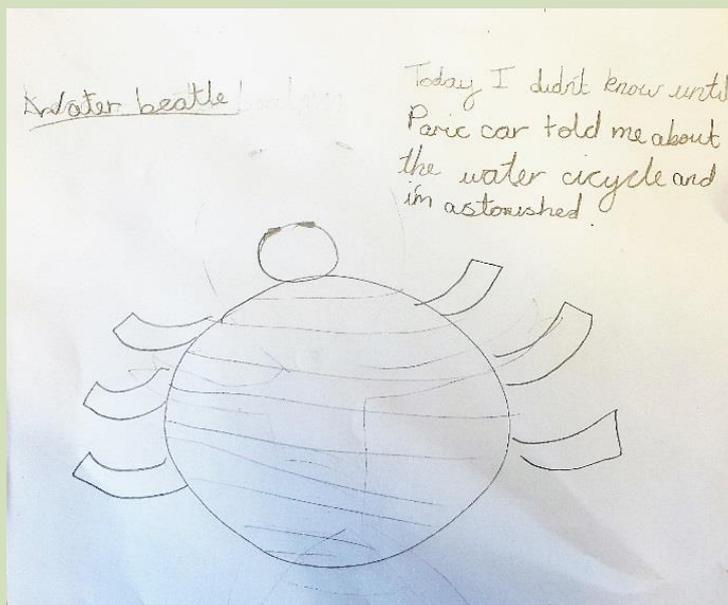


Photo 2: Drawing produced by a pupil during a school education session (source: iWAIT)

How much habitat has been created, improved or restored?

The project will create, restore or improve a minimum of 46.5ha of wet woodland – a priority habitat.

8. Maintenance, monitoring and adaptive management

Are maintenance activities planned?

No information at present

Is the project being monitored?

Pre and post project appraisal will be undertaken and the results shared. Information on current progress can be obtained via the River Torne Catchment Partnership's Facebook (<https://en-gb.facebook.com/tornecatchment/>) and Twitter (<https://twitter.com/tornecatchment>) pages.

Has adaptive management been needed?

No information at present

9. Lessons learnt

What did you learn and how could it be applied elsewhere?

No information at present

10. Bibliography

ENVIRONMENT AGENCY, 2017. *Restoring fifty hectares of rare and threatened habitats in Doncaster*

to benefit all [online]. Press release, 13 February. Available from: <https://www.gov.uk/government/news/restoring-fifty-hectares-of-rare-and-threatened-habitats-in-doncaster-to-benefit-all> [Accessed 7 April 2017].

River Torne Catchment Partnership on Facebook <https://en-gb.facebook.com/pg/tornecatchment/about/>

River Torne Catchment Partnership on Twitter <https://twitter.com/tornecatchment>

Project background

This case study relates to project SC150005 'Working with Natural Flood Management: Evidence Directory'. It was commissioned by Defra and the Environment Agency's [Joint Flood and Coastal Erosion Risk Management Research and Development Programme](#).