

Sussex Flow Initiative Case Study: Natural Flood Management at Sussex Horse Rescue Trust

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Project summary

Working closely with the landowner of the Sussex Horse Rescue Trust (SHRT), the Sussex Flow Initiative (SFI) facilitated the planting of hedgerows, shaws and woodland comprising over 12,050 trees across this 39 hectare site. The work was delivered in 2017/2018 with minimal costs and was supported by volunteers from local groups, schools, businesses, and other stakeholder organisations. Funding of trees was supported by the landowner, the Bannister Trust and the Woodland Trust.

Planted on hill slopes adjacent to the River Uck north of Uckfield town centre, these trees will intercept rainfall and overland flow, increase water infiltration into soil, and provide important connective habitat for wildlife. There are multiple other environmental and societal benefits of the project including carbon storage and water purification.

SFI is working with the landowner to secure funding to plant approximately 8,000 additional trees on the site. The project is part of a catchment wide natural flood management approach in the River Ouse catchment.

Site & catchment characteristics

National Grid Reference	TQ 48602 21734
Catchment, catchment size (fluvial extent)	River Ouse, 510 km ² (River Uck sub catchment)
Land use	Improved grassland, pasture
Soil type	Clay
Annual rainfall (Met Office Standard Average Annual Rainfall 1961-1990)	823mm

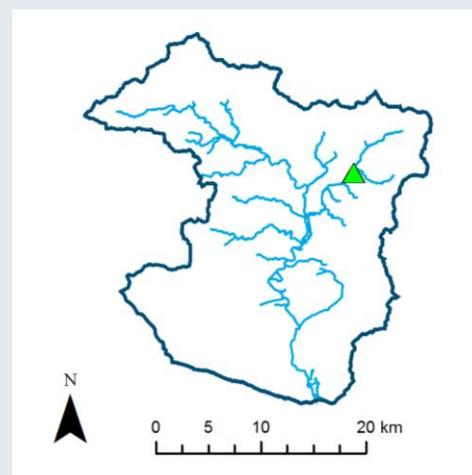


Figure 1. Location of Sussex Horse Rescue Trust in the Ouse catchment

Background information

Sussex Horse Rescue Trust (SHRT) own and manage around 75 hectares of land in the Ouse catchment of East Sussex. Their land lies just upstream of the confluence of the River Uck with the River Ouse, to the east of Uckfield.

SHRT also borders Buxted Park SSSI, Hempstead Wood and other areas of ancient woodland nearby.

Much of the site (over 11 hectares) is within the River Uck floodplain, and contains relict river meanders from before the river was straightened. At least 13 hectares of the site are horse/pony paddocks.

The geology and steep-sided nature of the River Uck catchment means it responds quickly to rainfall and floods rapidly. Uckfield town has a history of flooding, particularly in 2000, when the town was flooded on three occasions, and the town centre was up to 2 m deep in water. An estimated 60 residential and 132 commercial properties are 'at risk' from fluvial flooding.

Through working with the landowner, we were also put in touch with neighbouring landowners.

Consent

The work carried out at the Sussex Horse Rescue Trust did not require consent from regulatory agencies as any planting on the floodplain was located greater than 8 m from the main river channel (River Uck).

Project work

The layout of the hedgerows and woodland was designed to intercept overland water flow, to form wildlife corridors linking adjacent ancient woodlands, and to provide the landowner with important shelter for animals. Where possible hedgerows were planted in the location of historic hedgerows. A native species mix from the Woodland Trust was agreed, and the trees were planted with the help of volunteers from the local community. In the winter of 2017/18, 2.0 km of hedgerow and 1.27 hectares of woodland were planted, and a further 1.54 km of hedgerow and additional woodland are planned for 2018/19 (see Figure 2). There are plans to create a floodwater storage pond, and Catchment Sensitive Farming are helping the SHRT to reduce run-off from farm buildings and muck heaps.

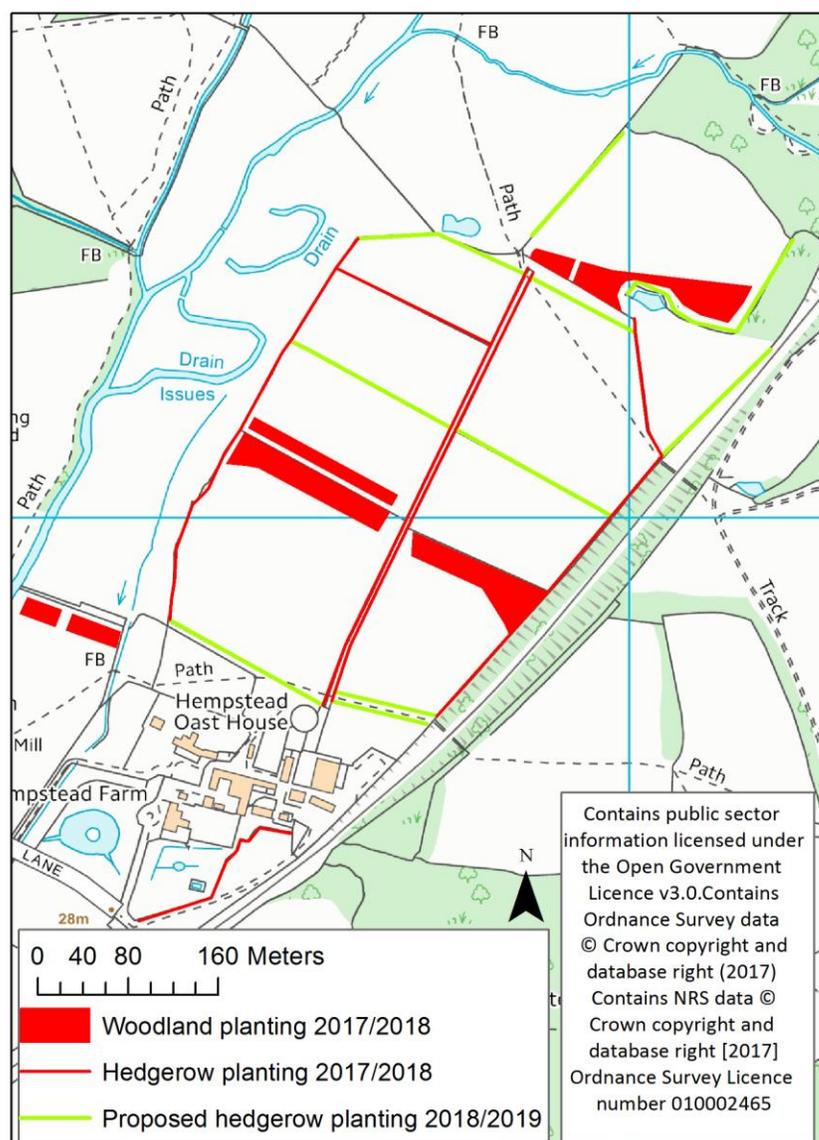


Figure 2. Map of hedgerow and woodland planting at SHRT

Multiple benefits

Natural Flood Management can provide a wide range of 'natural capital' services to people and wildlife. The hedgerows and woodland created during this project will contribute to reducing flood risk in downstream communities (e.g. Uckfield) by slowing down surface water and floodwater, and increasing water infiltration into soils. It will provide multiple additional benefits including CO² sequestration (up to 154 tonnes of carbon p.a.¹), contribute to soil formation and air purification, act as a food source for pollinators and birds, and will improve the aesthetics for members of the public visiting the site or using nearby public footpaths. It will also provide shade and shelter for livestock as well as extra forage for them, and will enhance local ecological networks.

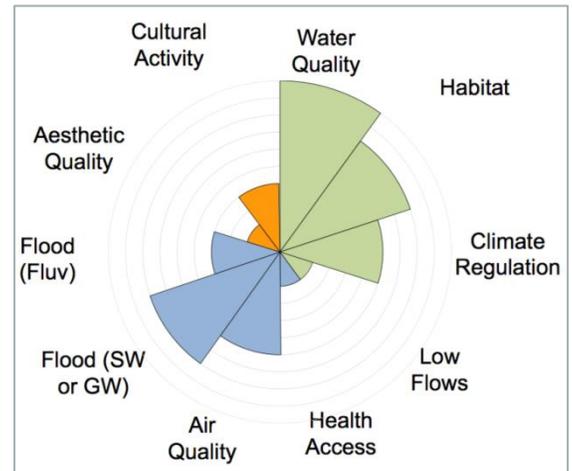


Figure 3. Types of benefits provided by cross-slope woodland²

Collaboration & funding

The project relied on a strong relationship with the landowner, and was a partnership project between Sussex Wildlife Trust, the Woodland Trust, the Bannister Trust, the Environment Agency and Catchment Sensitive Farming.



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Project funding	Funding for the work was provided through the Woodland Trust's MoreWoods and MoreHedges schemes, a grant from the Bannister trust, a significant contribution from the landowner, as well as in-kind contributions from the Sussex Flow Initiative in the form of Project Officer time for both project management and planting.
Overall cost and cost breakdown	<p>The total cost of the project was £26,984.92 (£17,834.92 excluding in kind)</p> <p>Materials (trees, shrubs, stakes, tubes/spirals): £11,460 (incl. VAT)</p> <p>Tools: £348.92</p> <p>Contractors: £1,680</p> <p>Project Officer & Project Manager: £3,086 & £1,260</p> <p>In kind and volunteer hours: >900 hours (115 individual volunteers) (approx. £12,800, based on £100/day)</p> <p>NOTE : This does not include costs for 2018/19 planting</p>

Future work

In addition to hedgerow and woodland planting scheduled for 2018/19, the project hopes to explore opportunities to create run-off attenuation features, such as scrapes, temporary and permanent ponds, as well as scoping the potential for reconnecting the River Uck to its floodplain.



¹ Based on forestry.gov.uk calculations, sequestration rates can be between 3 tC (tonnes of carbon) and 11 tCO² (tonnes of carbon dioxide) per ha p.a. This 2 year planting (14 ha) could store up to 42 tonnes of carbon or 154 tonnes of CO² a year. If we half this out of caution then it would still equate to 21 tonnes of carbon and 72 tonnes of CO². At £5 to £10 per tonne of CO² that's £720 - £1540 per annum benefits.

² Environment Agency (2017) Working with Natural Processes: One page summaries [accessed here: <http://bit.ly/2nTyDq8>]

For more information please contact sussexflowinitiative@gmail.com or visit our website [here](#)