

Development of a strategy to manage sediment in an appropriate way

Project Summary

Title: River Hull Headwaters WFD Wet Woodland Project

Location: Harpham, East Yorkshire, England

Technique: Installation of large woody debris; bankside tree clearance

Cost of technique: ££

Overall cost of scheme: £££

Benefits: ££

Dates: 2012-2013

Mitigation Measure(s)

Development of a strategy to manage sediment in an appropriate way

Manage natural obstructions in the channel

Retain and improve existing water's edge and bankside habitats in modified watercourses

Preserve and improve water's edge and bank side habitats

Improve channel geomorphology to create habitat

How it was delivered

Lead Partner: Environment Agency

Partners: East Yorkshire Rivers Trust (EYRT), Yorkshire Wildlife Trust (YWT)



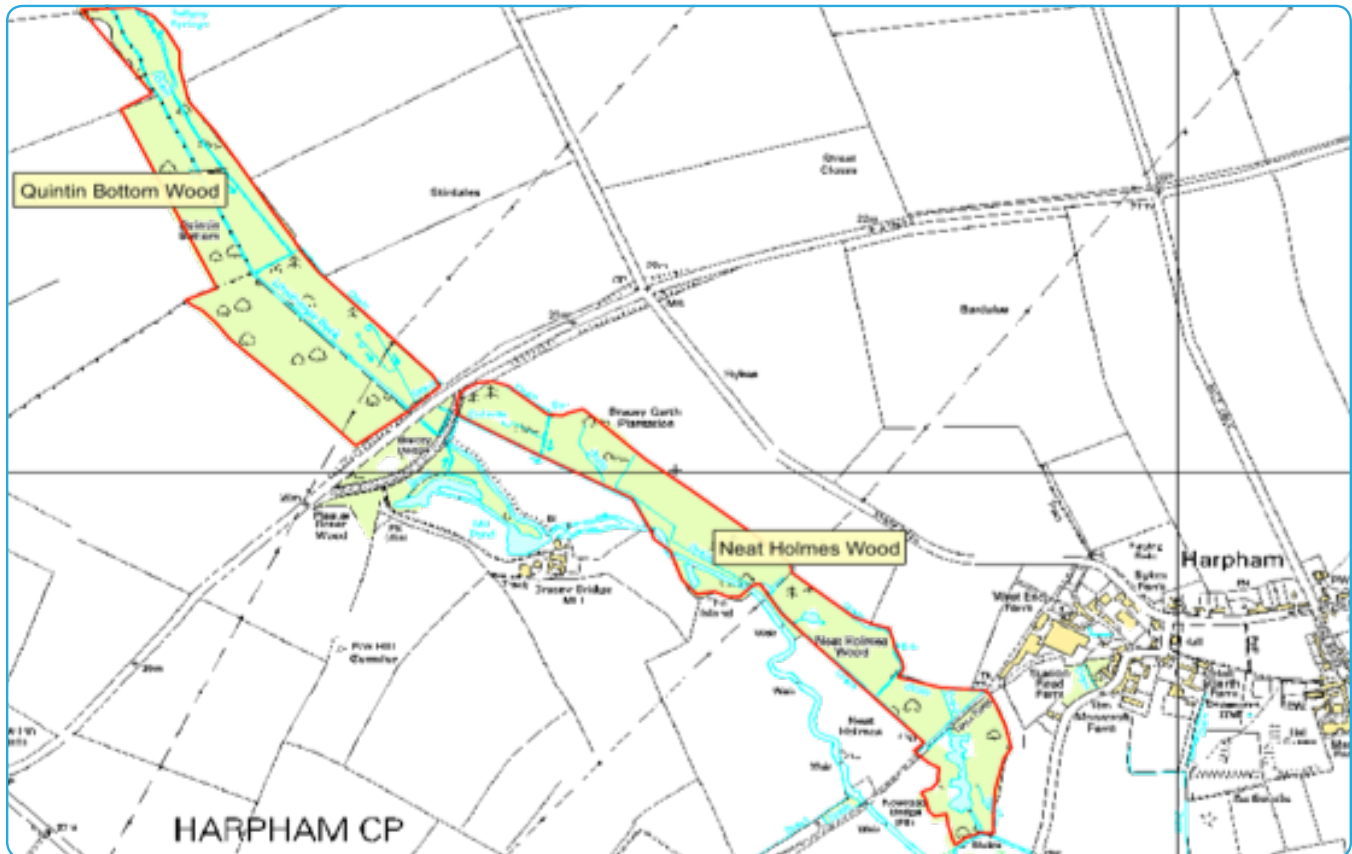
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Background and Issues

Kelk Beck (also called Lowthorpe or Harpham Beck) is located in the River Hull Headwaters SSSI, which is designated for its chalk stream communities. 33 ha of wet woodland in the upper reaches of the beck influences the state of the stream habitat by providing diverse pockets of shade and flow variation due to the influence of tree roots and branches. Walk over surveys identified that silt laden feeder streams had disconnected runoff from the wet woodland into the main channel and created high

levels of siltation in the river itself. The origin of the silt was identified as agricultural input into the drains to the east of the woodland.

The high levels of siltation combined with dense tree cover as a result of lack of riparian tree management had created very poor conditions for fish species such as brown trout, aquatic macrophytes and various freshwater invertebrates. These conditions are atypical of the chalk stream habitats for which the SSSI is designated.



Step-by-step

1. Geomorphological assessment of the site by Royal HaskoningDHV (2010) as part of SSSI river restoration plan, in order to identify the geomorphological issues which prevent the SSSI reaching favourable condition.
2. Site walk over by EYRT project officer to identify all sources of fine sediment which contribute to siltation in the reach. EYRT took the findings to local board members to advise on environmentally sustainable drainage practices.
3. Design and construction of large woody debris features to act as silt traps, using large woody debris from trees felled to allow more light to get to the river. This was delivered by officers from EYRT and YWT (see also 'Manage Natural obstructions in channel case study: River Hull Headwaters WFD Wet Woodland Project').



Examples of siltation in Neat Holmes wood prior to implementation of strategy.

Benefits

- Restoration of more varied river processes through encouraging in siltation resulting in channel narrowing and reduced sediment load in the channel.
- Improvements to range of in-channel and riparial habitats.
- Benefits to fish, macrophyte and invertebrate populations.
- Contribution towards achievement of good ecological status at a water body level.
- Contribution towards river restoration plan for River Hull Headwaters SSSI.
- Excellent working relationship developed with landowner which may result in additional joint working and biodiversity benefits.



(1) Restored section of stream showing hinged trees and Coarse Wood debris (LWD); (2) LWD trapping silt in a feeder stream

Lessons Learnt

- Local partner knowledge and expertise of the site and how it functions helped to minimise costs by matching the shape of some felled trees to create in channel diversity in appropriate places, rather than designing the work in advance and sourcing the material to deliver the design.

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