

Improve channel geomorphology to create habitat

Project Summary

Title: Knettishall Heath River Restoration

Technique: Bed and bank re-profiling

Location: Little Ouse, Knettishall Heath, Suffolk, England

Cost of technique: ££

Overall cost of scheme: £££

Benefits: ££££

Dates: September 2012

Mitigation Measure(s)

Improve channel geomorphology to create habitat

How it was delivered

Delivered by: Environment Agency

Partners: Suffolk Wildlife Trust



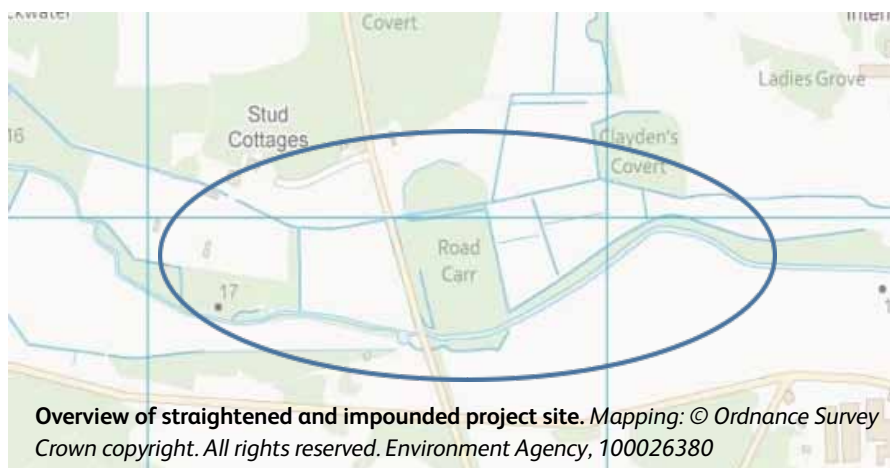
Straightened and impounded section of the Little Ouse
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Background / Issues

The Little Ouse has been subject to continuous management for the last century, which has included the installation of a series of stop-board weir water level management structures throughout the length of the reach at Knettishall Heath, resulting in extensive impoundment and lack of in-channel habitat diversity.

The in-channel structures have a considerable impact on the river and prevent it reaching Good Ecological Status under the Water Framework Directive. While removal of in-channel structures was not a viable option at the site due to funding constraints, restoration options involving bed and bank re-profiling aimed at improving the local hydromorphology by increasing the range and quality of in-channel habitats were implemented.

In addition to improvements to local hydromorphology, the amenity value of the river landscape was also considered in project design, given the visibility of the project site as it is located within Knettishall Heath Country Park and is therefore well used by the public.



Overview of straightened and impounded project site. Mapping: © Ordnance Survey Crown copyright. All rights reserved. Environment Agency, 100026380

Step-by-step

The implementation of the Knettishall Heath River Restoration Plan was achieved through the:

- Creating of pools and runs from existing flat river bed through re-profiling of the material that currently existed.
- Creation of a two-stage channel by installing dense reed stands to prevent the complete 'closure' of the channel and avoid ponding of water upstream.
- Narrowing of sections of the channel by pushing the banks in.
- Installation of single (pushing flow toward a particular bank) and double deflector shoulders (that focus flow into the centre of the channel) created from local large woody debris, encouraging hydromorphological diversity and zones of erosion and deposition.



Cutting of two-stage channel



Narrowing of channel

Benefits

- All works and alterations were achieved without importing any materials into the site. Similarly no disposal of spoil was necessary during the implementation of the scheme.
- The scheme delivered significant improvements to the quality and range of in-channel habitats through the introduction of numerous in-channel features.
- Improvements to local hydrology and morphology contributed towards renaturalisation of flow and sediment regimes and achievement of Good Ecological Status for the Little Ouse water body.



Restored section after project completion

Lessons Learnt

- It is possible to deliver significant hydromorphological and ecological improvements in a heavily impounded river without the necessity to removal structures. This represents a significant cost saving.

Project contact: Fisheries & Biodiversity, Anglian Region, Environment Agency