

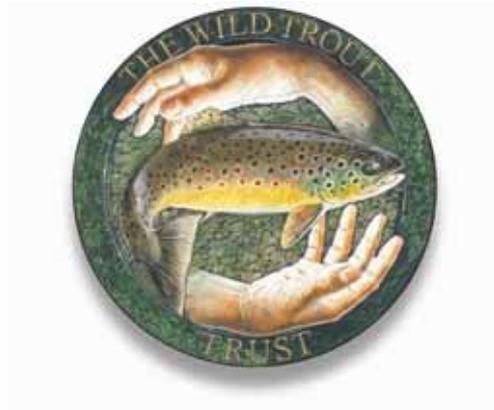
Advisory Visit Report

Driffield Beck, Skerne, East Yorkshire
River Hull SSSI

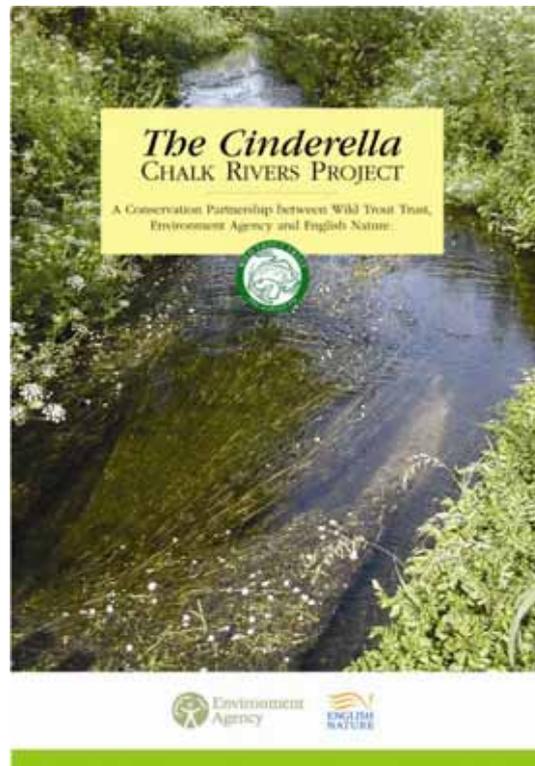
Undertaken By Simon Johnson

On behalf of Mulberry Whin Fishery
& East Yorkshire Chalk Rivers Trust

14th November 2006



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1.0 – Introduction

This report is the output of a site visit undertaken by Simon Johnson of the Wild Trout Trust on the Mulberry Whin Beat of the Driffield Beck, part of the River Hull Site of Special Scientific Interest (SSSI), East Yorkshire.

Comments in this report are based on observations on the day of the site visit and discussions with Directors of East Yorkshire Chalk Rivers Trust (EYCRT) Alan Mullinger and Trevor Londesborough.

Normal convention is applied throughout the report with respect to bank identification, i.e., the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

2.0 – Fishery Overview

Mulberry Whin comprises one mile of double bank fishing. The fishery contains both wild and stocked trout, grayling and some coarse fish such as chub. There are a number of escapee rainbow trout in the river too. The fishery operates on a pre-bookable ticket system with up to four anglers, spread between two beats per day. Over the last couple of years there has been a programme of habitat improvements including narrowing, introduction of Large Woody Debris (LWD) construction of two mid-channel islands and gravel cleaning.

3.0 Conservation Objectives & Catchment Sensitive Farming

Rising from natural calcareous springs around Driffield, the River Hull runs its course southwards to join the River Humber at Hull. The River Hull valley dominates the western landscape of Holderness and both the river and its adjacent wetland habitats support a diverse range of plants and animals.

The upper tributaries of the River Hull originate on the edge of the Yorkshire Wolds and enter an alluvial floodplain with drift deposits of glacial till and occasional pockets of sand and gravel within a few miles of their source. This surface geology influences the character of the river with gravel, sand and silt sediments deposited on the riverbed in varying proportions. This variation in the riverbed sediments is reflected in the species composition of the aquatic vegetation which is abundant throughout the headwaters during the summer.

In recognition of its importance as the most northerly chalk stream system in Britain, the headwaters of the River Hull have been designated as a Site of Special Scientific Interest. Species characteristic of the upper reaches of the Hull are stream water crowfoot, lesser water parsnip, mare's-tail, spiked water-milfoil, fennel pondweed and shining pondweed in the channel, whilst the marginal vegetation is often composed of branched bur-reed, common reed, reed canary-grass and reed sweet-grass. Opposite-leaved and flat-stalked pondweeds occur locally, with river water-dropwort occurring in the middle reaches. The latter is a scarce species at the northern limit of its British range here; it is endemic to North-western Europe and of highly restricted occurrence outside the Britain and Ireland. The aquatic and emergent marginal vegetation provides habitats suitable for a diverse invertebrate fauna including several uncommon species.

Otters have recently re-colonised the upper reaches of the River Hull and its headwaters, with increasing evidence that this species is now well-established once again. The once-familiar water vole is, however, confined to a very few isolated populations. The invertebrate fauna of the river is also of interest with notable species including the uncommon mayflies *Heptagenia fuscogrisea* and *Caenis robusta*.

The condition of the SSSI has been classed as unfavourable (September 2003) and there is much work to be done to achieve favorable status.

The Department for Environment Farming and Rural Affairs have selected the Hull as a priority catchment under the Catchment Sensitive Farming Project. The project is focusing on siltation problems in the catchment and its impacts on the streambed and populations of salmonids (see below)

Priority problem/Issues	Description	Justification
<u>River Hull Headwaters</u> Siltation and high nitrate levels	Siltation	River Hull SSSI is failing due to siltation of the streambed caused by grazing animals with access to the stream banks. It also fails due to the high level of nitrates in the water probably caused by agricultural practice on the chalk aquifer from which the stream emerges.

4.0 Habitat Assessment

The Beck at this location can best be described as a heavily modified chalk river. In places the river is 15+ metres wide with a uniform bed profile. The river has been historically dredged for land drainage and flood defence purposes. Further evidence of this 'activity' is borne out by the presence of a relict meander loop on the LHB.

The rest of the fishery goes through a meandering planform with several deep pools and straights. In a couple of locations LWD has been installed to facilitate bed scour and the sorting of gravels for trout and grayling to spawn on. Backed up by a rigorous programme of gravel cleaning this has achieved some success with freshly cut reds observed on the day.



Over-wide and uniform section of the Beck

Of major concern was routine maintenance work being undertaken by the Environment Agency on the dyke system that runs parallel to the Beck. An excavator equipped with a Bradshaw bucket was 'slubbing-out' the dyke and removing vegetation from within the channel and on the banks. The dyke system is a know refuge for water voles. Yorkshire Wildlife Trust have undertaken a programme of fencing and habitat restoration to create conditions suitable for voles. The work the Agency was undertaking was at best unsympathetic and at worst could even be in contravention of the protection afforded to water vole burrows under the Wildlife and Countryside Act 1981.



The EA 'slubbing-out'



Close-up of EA 'slubbing-out' operation. Note removal of vegetation from toe of the dyke. This is important habitat for water voles for foraging, predator avoidance and latrine requirements.

5.0 – Recommendations

The text in this paragraph contains footnotes to the Wild Trout Survival Guide (WTSG) a copy of which was provided during the site visit.

This reach of river needs to be 're-energised'!

The over-wide and uniform nature lacks the habitat complexity required for wild trout and grayling to fulfil their life cycle requirements.



The wild trout's 'life-cycle' habitat requirements

In places the river is around 15+ metres wide and would benefit from some narrowing using brushwood faggots with granular soil or chalk backfill¹. The aim of this narrowing would be to create a two stage channel to increase stream velocity during low summer flows whilst allowing winter flood flows to 'over-top' back into the engineered channel. Another narrowing option would be the creation of small mid-channel islands. Islands can be created from hazel faggots, willow spilling or coir rolls. Infill can be in the form of woody brash or granular sub-soil. Mid-channel islands can also be located in areas of bank narrowing. It may be necessary to protect the upstream toe of the islands from erosion with loose stone.

At various points it is also recommended that flows be 'pinched' by installing paired and single faggot / LWD deflectors to allow the river to scour pool habitat². Backfill for these features can be sourced from the chalk pit which lies in close proximity to the river. The new bank should be set no more than 10cm above summer water level to allow the development of emergent wetland plants such as sedge, water forget-me-not, brooklime, yellow flag-iris and

¹ See WTSG pages 42-45

² See WTSG pages 44-45

water mint, etc. Consideration should be given to transplanting well-established emergent vegetation from adjacent areas to facilitate the colonisation process. A density of four plants per square metre should achieve rapid results.

This habitat is particularly important for grey wagtails, reed warblers, southern damselfly and water voles, (which are known to forage along wet vegetated berms). Fringing vegetation will also provide cover for trout fry on emergence from spawning gravels.



Installation of new bank using faggots and chalk backfill on the River Wensum, Norfolk

Currently there is only limited Large Woody Debris (LWD) in the channel. Woody debris in rivers can provide habitat for a variety of animals. Brown trout numbers increase significantly with the presence of woody debris along the banks and in the river as they provide refuge and cover. It may also offer lies for otters or perches for kingfishers. Woody debris in the river can also create pools and riffles in sections of the river that would otherwise have a dearth of aquatic habitats. It can also retain leaf litter and act as an energy reservoir for the river section. In the short-term LWD could be introduced in the form of logs, etc and in the long term it is recommended that trees be planted at strategic locations to address this problem in an 'in-house' and sustainable approach.



Installation of these upstream facing 'paired logs' has created valuable mid-channel pool habitat.

All riffles and shallow glides would benefit from the introduction of LWD. LWD should be securely keyed into the bank and secured to the bed of the river using posts and wire. LWD would facilitate bed scour, with associated sorting of substrate and creation of pools and marginal shelves. It also provides habitat for a range of species groups including macro-invertebrates, fish, birds and mammals. LWD could be sourced from coppicing work on the on the farm or woodlands on neighbouring estates.



Introduction of single u/s 'natural' deflectors (single, near bank and triangular' far bank) on the Wylde in Wiltshire formed a chicane, sending flow from one bank to another. Note set just above summer water levels.

There is considerable scope to re-connect the relict meander on the LHB back to the main channel. This would restore a natural channel feature to this engineered reach. The re-connection would need to be carefully designed. Accumulated material from the meander could be deposited in the straightened channel, whilst still allowing it to perform a flood conveyance function during peak flows. The extra channel capacity should more than compensate for any reduction in cross sectional area due to narrowing works.

Lastly, it is vital that fisheries clubs understand what is happening to populations of riverflies in their streams and rivers. To this end WTT recommends that fisheries register their interest in taking part in the Riverfly Partnership monitoring and training initiative. The initiative aims to support fishing clubs to monitor and help conserve the environment. More details can be found on www.riverflies.org



6.0 – What next? – Making it all happen!

This report makes a series of recommendations that will improve both the biodiversity and status of the wild trout and grayling populations at Mulberry Whin.

The AV represents phase 1 of a potential 4 phase package of WTT assistance, via the ***Cinderella Chalk Rivers Project***. At this point it is worth discussing restoration plans with a suitably qualified contractor to get ball park project costs, before requesting Phase 2, a worked-up WTT project proposal. However before this happens it is strongly recommended that contact be made with the Fisheries/ Biodiversity and Development Control functions of the local Environment Agency to arrange a 'pre-application meeting'. Pre-application meetings are extremely useful to help scope out design work and to take into consideration any issues that could affect proposed works. Local Natural England staff should also be invited to any pre-application meetings to cover any protected species and habitats issues.

The worked-up proposal should provide all the necessary information for the completion of a land drainage consent application. This legal consent from the Environment Agency must be obtained in writing before works can commence. Consents can take up to two months to process.

It is proposed that the WTT, or its representative, attends the pre-application meeting before commencing a detailed project specification / proposal

On successful completion of phase two of the project an application can be made (Phase 3), for seed-corn funding to kick-start the project. Typically this is between £1000-2000.

Physical works could be yet further kick-started with the assistance of a WTT 'Practical Visit' (PV) (Phase 4). The WTT will fund the cost of labour (two man team) and materials. Recipient clubs will be expected to cover travel and accommodation expenses of the advisers. The use of specialist plant will be by separate negotiation.

Wet-work advisers will demonstrate one or more of the following techniques that are appropriate to the site.

- Tree management (coppice, pollard, sky-lighting)
- Tree Planting
- Fencing (Installation & Repair)
- Stream Narrowing (Faggots, Coir Rolls, Spilling, Islands)
- Flow Deflectors
- Introduction of spawning substrate
- Gravel Jetting
- Introduction / Management of Woody Debris

Note: Recipients of the programme must have received a WTT AV and have obtained the appropriate consents from the Environment Agency, Natural England, etc, prior to arrangements being made to undertake the PV.

Applications for all the above should be made via
projects@wildtrout.org

7.0 Disclaimer

This report is produced for guidance only and should not be used as a substitute for full professional advice. Accordingly, no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.