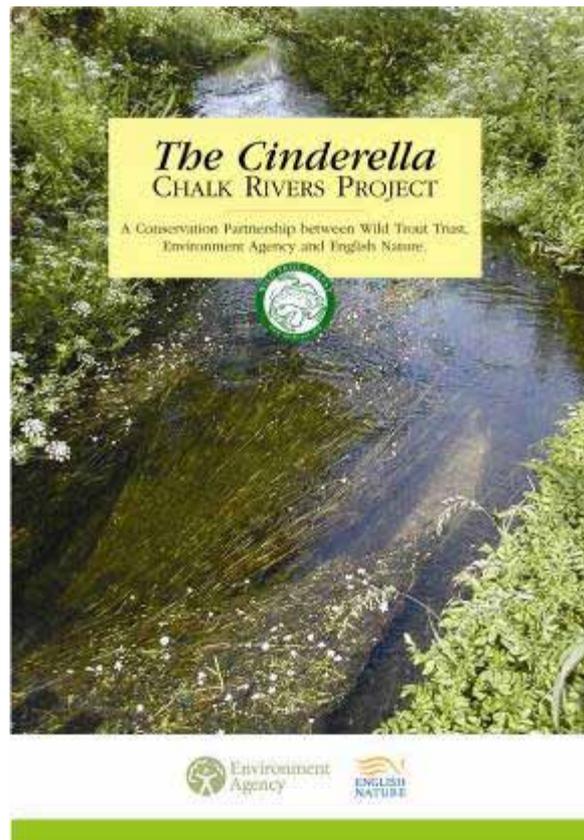


Site Meeting Notes
Visit to River Ash, Hertfordshire
13th December 2007



1.0 – Introduction

This report is the output of a site visit undertaken by Simon Johnson, Wild Trout Trust, on the River Ash, Hertfordshire, on 13th December 2007.

Comments in this report are based on observations on the day of the site visit and discussions with landowner Mr Buxton, and representatives from the Environment Agency, Thames North East Area.

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

The Buxton Family owns and controls some four miles of mainly double bank on the River Ash.

The Ash was a managed trout fishery until the 1900's with two full-time water bailiffs to look after the river and its fishermen. Today the fishery is not specifically managed for fishing and stocking of fish has taken place on a limited 'ad-hoc' basis. There is no organised trout fishing upstream of the Estate, however there is a syndicate downstream at Amwell Magna.

There are wild fish present albeit in very limited numbers. Other species of fish present are chub, dace, minnow and pike. Native crayfish are also present albeit in limited numbers. There are some rainbow trout present which are thought to be escapees from a trout farm further upstream.

The Ash is classified as a chalk river, but flows tend to be more 'flashy' due to the presence of boulder clay in the catchment (J.England, Pers Comm). The higher energy flows of winter spates have given rise to some localised movement of gravels throughout the reach. The Environment Agency classifies the Ash as 'Main River'. The Ash also falls into the Environment Agency Lea Fisheries Action Plan area, a strategy aimed at sustainably managing fisheries in consultation with angling interests.

3.0 – General Overview

The Ash as with so many streams in lowland Britain has not escaped the attentions of post-war dredging and maintenance operations for land drainage and flood alleviation purposes.

This has led to the majority of the river channel visited being deep, incised, over-wide and dominated by fine silts. However, there are 'relict' gravel shallows present, indicating that the Ash once had a functioning pool: riffle sequence. As a result the habitat remaining is in an impoverished state with only a few gravel shallows remaining, which are required for trout spawning. Brown Trout require extensive areas of clean gravel habitat to fulfil their life-cycle requirements. The dominance of silt has obvious implications not only for improvement of the wild fishery, but also the conservation status of this chalk stream.

Chalk Rivers are a unique and irreplaceable part of our heritage and the landscape of Britain. They are very important for wildlife, and many are world-famous for their fly-fishing. Their present appearance and character reflects a long history of human intervention from urban development, agriculture, industry and fisheries.

Today these most English of rivers are in a fragile state. They are under threat from water abstraction, urban and infrastructure development, effluent discharges, land drainage and flood defences.

Despite ever increasing threats, there is optimism for the future: more local people are becoming involved in protecting and enhancing their chalk rivers.

There are 161 chalk rivers in England and Hertfordshire has thirteen of them. To date, much attention has focused on a small number of high profile rivers in the southern counties such as the Test, Avon, Itchen and Wylde.

The Cinderella Chalk Streams project aims to initiate partnership projects aimed at improving the conservation status of the less well known, but equally important chalk rivers. The aims and objectives of this project are supported by the UK Biodiversity Action Plan Steering Group. Its report, 'The State of England's Chalk Rivers', sets out this vision:

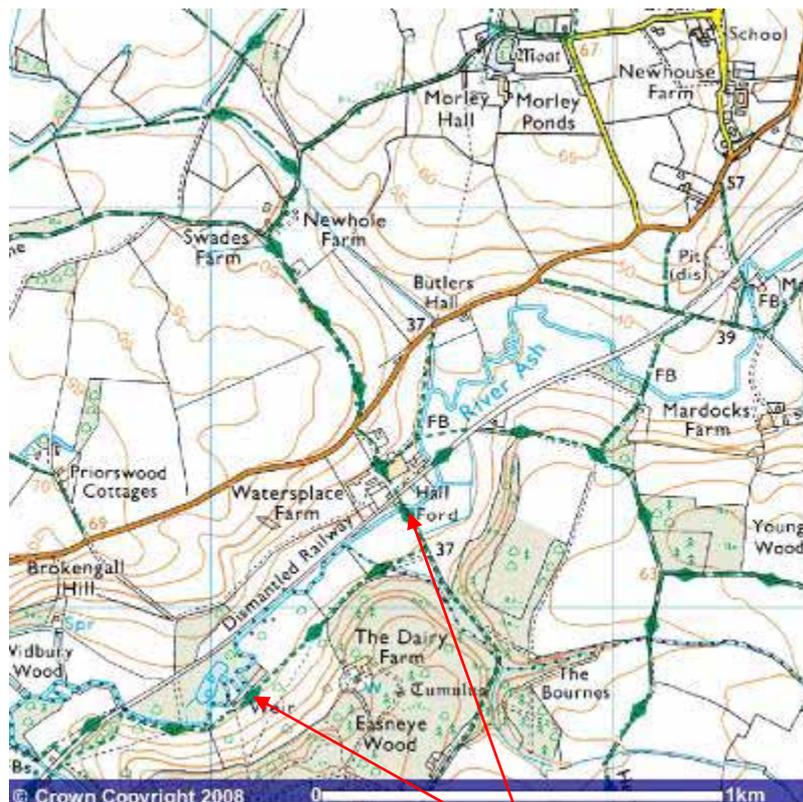
"Chalk rivers should be protected or restored to a quality which sustains the high conservation value of their wildlife, healthy water supplies, recreation opportunities and their place in the character and cultural history of the landscape".

The Wild Trout Trust is working in partnership with the Environment Agency and Natural England to initiate conservation projects on the Hertfordshire chalk streams.



Water Crowfoot

This site visit was undertaken on a 1-km section of the Ash, downstream of Waterspace Farm between the ford and a weir (see map).



Site Visit

For most of the reach visited the Ash runs alongside a dismantled railway line. From looking at maps and satellite photos of the river it appears that the river has been diverted and straightened possibly when the railway was originally constructed. The plan form then appears to take on a more natural and meandering character as it moves away from the railway line.

Although the channel is artificially straight the gradient and flow velocities downstream of the ford appear to be sufficient to facilitate the formation of a series of shallow gravel riffles and pools during spate conditions. However, these riffles appear to be suffering from the ingress of fine silts and sands and as such have limited value as a trout spawning and invertebrate resource. The final 0.25km of the reach above the weir has a more sinuous plan form, however it is severely affected by the backwater effect of the weir (increased depth and reduction in gradient and stream velocity). Here the bed of the river is dominated by fine silt.

4.0 – Recommendations

In 2003 WTT undertook an Advisory Visit upstream of Watersplace Farm which resulted in a habitat restoration project being undertaken by the Environment Agency. The project removed low weirs and replaced them with gravel riffles. Further techniques were also deployed to narrow the river. The works were undertaken as a trial to guide further habitat projects downstream. Four years on, the habitat prescriptions appear to be performing well and in terms of aesthetics alone the river habitat has a more 'natural feel' to it. Therefore the reach downstream of Watersplace Farm would indeed seem a suitable candidate for further habitat works.

In broad terms there are two main areas to focus on;

- 1) Improvement of in-stream habitat diversity
- 2) Removal / bypass of the weir

1) Improvement of in-stream habitat diversity

The text in this paragraph contains footnotes to the Wild Trout Survival Guide (WTSG) a copy of which is included with this report.

Broadly speaking this reach is suffering from a similar suite of problems as those identified and addressed upstream.

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

The over-wide and uniform nature lacks the habitat complexity required for wild trout and a whole host of related species to fulfil their life cycle requirements.



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

The gradient downstream of the ford appears to be steeper when compared to upstream leading to some localised gravel movements. However, due to the fact that the reach has at some point been engineered (straightened, widened and deepened) the bed of the river has become a depositional environment with fine silts and sands covering large areas of the bed of the river. The current siltation appears to be slightly improved compared with when the original AV was conducted in 2003. This may in part be due to higher winter flows that have increased the scouring capacity of the river.

Riparian vegetation has been heavily grazed by cattle on the RHB and there is little in the way of cover in the form of herbaceous and tree growth. The lack of tree growth has also lead to a lack of Large Woody Debris (LWD) in the form of branches, large limbs, root boles or even entire trees in the channel.

Woody debris is a vital component in rivers and it provides 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 upstream facing single and paired logs, etc. and in the long term it is recommended that trees be planted at strategic locations to provide future LWD in a more sustainable manner.

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.

LWD could be sourced from coppicing work downstream or the woodlands of the estate.



This fallen tree (natural LWD) on the River Nar, Norfolk is concentrating flow to sort and scour gravels to form a riffle and pool.

The river is over-wide and would benefit from some narrowing using brushwood faggots / willow spilling with granular soil or chalk backfill¹. The aim of this narrowing would be to create a two-stage channel / berm to increase stream velocity during low summer flows whilst allowing winter flood flows to 'over-top' back into the engineered channel. The new bank should be set no more than 10 cm above summer water level to allow the development of emergent wetland plants such as sedge, water forget-me-not, brooklime, yellow flag-iris and 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,

¹ See WTSG pages 42-45

(which are known to forage along wet vegetated berms). Fringing vegetation will also provide cover for trout fry on emergence from spawning gravels.

The line of the faggots / spilling can be manipulated to introduce a more natural meandering appearance. 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.



Introduction of LWD at three locations on the Glaven in North Norfolk. (Re-energised flows)

² See WTSG pages 44-45



Faggot Islands, River Glaven (woody brush in-fill & natural plant colonisation)



Example of spilling used to narrow both banks of the River Wylde, Langford – Wiltshire Wildlife Trust Reserve.

2) Removal of the weir

Recommendations / specifications regarding the removal of the weir structure are beyond the scope of this report and the site visit. That said, removal of this structure could facilitate wide ranging improvements to both the physical habitat and ecology of the river. The weir structure has been in place for many decades and its removal will require a detailed design which should include considerations on how various options would affect the channel dimensions and habitat upstream. By lowering the water level sufficient gradient may return to allow the river to re-form a narrow sinuous channel within the deep, wide and ponded section upstream. There will probably be a requirement for the installation of several riffles to 'smooth out' the large single drop of 1.5m+ caused by the present structure. An alternative may be to install a fish pass. This would provide the opportunity for fish passage and some enhancement works of the impoverished channel upstream too. Projects of this nature have been successfully completed by the Environment Agency on the Rivers Wandle, Ver and Chess. Both options will involve significant sums of project capital funding. In addition to physical and ecological benefits removal of the weir may well deliver flood management benefits by removing this significant in-stream obstruction and restoring a more gradual gradient.

The removal of the weir should be undertaken **BEFORE** any of the upstream in-channel habitat recommendations, highlighted in this report, are acted upon.

5.0 – 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 in this reach of the Ash. The project will connect the improved reach upstream thereby creating valuable wildlife corridor by linking habitats.

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 / geomorphologist to get project costs and designs 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. Special Note: It should be noted that the removal of the weir and subsequent channel re-design is beyond the scope of support WTT can provide. WTT's support would be to plan and assist with the delivery of the in-stream rehabilitation measures. highlighted in this report

It is proposed that the WTT, or its representative, attends any pre-application meetings 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. Recipients will be expected to cover travel and accommodation expenses of the advisers. The use of specialist plant will be by separate negotiation.

WTT 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

6.0 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.

It is a legal requirement that all the works to the river require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank.