



**ADVISORY VISIT TO THE RIVER CHESSE AT
THE OLD RECTORY ESTATE, SARRATT,
BUCKS
UNDERTAKEN BY VAUGHAN LEWIS,
WINDRUSH AEC LTD, ON BEHALF OF WILL
HOBHOUSE
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1.0 Introduction

This report forms the output of a site visit undertaken to the River Chess at The Old Rectory Estate, Sarratt, Bucks on 19 October 2005 on behalf of Will Hobhouse, the owner of the fishery. Information for the report was gathered during the site visit. Additional information was provided by Will Hobhouse.

Other site visits have been made previously to nearby fisheries on the Chess at Chenies and Mickelfield Hall, with the latter estate recently winning the 2005 Wild Trout Trust's conservation award for work to the river. Details of these visits can be found on the Trust's website www.wildtrout.org

Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

2.0 Habitat assessment

The River Chess is a small chalkstream tributary of the River Colne. It arises to the north west of Chesham and flows in a generally south easterly direction before joining the Colne to the east of Rickmansworth. The Old Rectory fishery comprised approximately 1 km. of river downstream of the working cress farm, near to the village of Sarratt.

Downstream of the cress farm, the river had a relatively steep gradient, with a well-defined, moderately meandering channel of between 2m and 4m in width. The substrate was dominated by a mix of clean gravel and sand, suitable for spawning brown trout *Salmo trutta*. Instream vegetation was abundant with stands of lesser water-parsnip *Berula erecta*, and Water crowfoot *Ranunculus* spp. The well-vegetated marginal areas were comprised largely of reed canary grass *Phalaris arundinacea* and sedge *Carex* spp.



River Chess downstream of cress farm

The channel was lightly shaded by a mix of isolated riparian trees.

Further downstream, a number of small weirs had been constructed using telegraph poles, backed with corrugated iron sheets. These were retaining a head of water up to 30cm in height. As a consequence, a significant volume of fine sand and silt had accumulated on the upstream side of the weir, significantly reducing its value as trout habitat. Some of the weirs were in a poor state of repair, having been shored up with corrugated iron sheets.



Example of telegraph pole/corrugated iron weir

Some sections of the channel were over-wide, and over-deep with unconsolidated silt present both on the river bed and in marginal areas.

A small distributary stream fed a small ornamental duck pond from the LB, resulting in some loss of flow along the river, until the confluence of the channel further downstream.

In places, the channel had narrowed to around 1m, with the resulting bed scour producing ideal spawning and juvenile trout habitat. There was clear evidence of past dredging activity, with the raised banks visible on the RB likely to be the product of deposited dredgings.

3.0 Fish stock management

The fishery has not been stocked for a number of years. There was some natural recruitment of brown trout to the fishery, with numbers of fish observed on the day of the advisory visit.

4.0 Management recommendations

Generally, habitat quality is excellent, with abundant areas of flow dependent spawning and juvenile habitat present for brown trout.

However, there are a number of management recommendations that, if adopted, would further improve instream and marginal habitat quality and availability:

- There were few trees on the river banks and as a consequence, little Large Woody Debris (LWD) in the channel. LWD is of great importance to the fishery, both in terms of the cover it provided and, in particular its ability to cause scour of the river bed and sorting of substrate. In order to promote both dappled shading of the channel and LWD, it is recommended that some bankside tree planting is undertaken, with small groups of goat willow moss, ash and hawthorn planted along the bank.
- The benefits for retaining LWD are clearly laid out in the recent EA R&D document, “Large Woody Debris in British Headwater Rivers”. Key conclusions of the report include:
 - An increase in both mean flow depth and velocity and variability of both parameters.
 - The development of high physical habitat diversity both in-channel and in the floodplain. Removal of LWD reduces both habitat quality and availability for juvenile and adult brown trout.
 - Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.
 - LWD have significant benefits to the control of run-off at the catchment scale.
 - River and riparian management has important effects on the distribution and character of dead wood accumulation within the river system.

The report also provides recommendations for the management of LWD, the most important of which is “although there are certain situations that may require wood removal to eliminate stream blockage, the wisest management is no management”. Building on this simple truism, it is recommended that before any future work to remove LWD from river channels is undertaken, the wider implications of the proposal on the whole river system are considered, rather than just the potential (in many cases unproven) benefits to salmonid populations. In addition, the impact of planned riparian tree work on the supply of LWD to the river should be considered. In some circumstances, it may be beneficial to allow trees to fall into the channel, provided the risk of increased flooding is acceptable.

LWD can actively be encouraged into the river in strategic locations (generally on riffles or shallow glide areas) by selective felling of trees. Leaving a ‘hinge’ at the base of the trees during felling will allow control of the placement of the timber, and will also act to stabilise the tree by keeping the tree butt attached to the bank. Ideally, the top of the fallen tree would be angled in an upstream direction in order to reduce the risk of bankside erosion.

Another option for the use of LWD to sort gravel is by the installation of upstream facing 'V' shaped groynes at strategic locations on gravel shallows. These groynes will actively scour out small pools, with the resulting cleaned gravel piles providing potentially excellent spawning sites for brown trout.

In order to manage LWD effectively in the River Chess it is important that a balance is struck between the benefits of retention of timber within the river channel, and access for angling. It is also important that the Environment Agency is made aware of an adopted policy to retain LWD in the channel, in order to prevent its removal during routine management operations undertaken by the Agency.

- Where the channel was over-wide, the use of faggot bundles is recommended to encourage deposition of silt, the growth of emergent vegetation, the consolidation of the marginal zone, and narrowing of the channel. Deadwood faggot bundles approximately 2m x 0.5m should be secured to hardwood stakes, driven at 0.6m centres. The "dead water" behind the new bank line should be roughly filled with fine woody material firmly secured in order to prevent wash out by high flows. This material slows down the velocity of inflowing, silt laden water, actively encouraging the deposition of sediment behind the new bank line, helping to consolidate this area. Sods of *Carex* (sedge) could be cut from the abundant local beds, and transplanted behind the line of faggots to further aid consolidation. The top level of the faggots should be set approximately 100mm-150mm above mean summer water level allowing them to become will become submerged during high flows, minimising the impact on flow conveyance. Similar techniques can be adapted to construct small, mid-channel faggot islands with dimensions of around 2m x 1m. Careful placement of these will result in a braided channel, with the faster flowing water running between the islands tending to scour sections of gravel, resulting in ideal trout spawning conditions.
- The small weirs present are, on balance, having a detrimental impact on the ecology of the river and should be removed or modified. This can easily be undertaken in late summer/early autumn, when river levels are low, birds have finished breeding and the trout spawning season has yet to commence. Whilst total removal of the weirs would be the best option in most locations, it would be possible to cut out the centre of some of the weirs, reducing the height of the impoundment. Provided that the remaining edges of the weir are well keyed into the hard bank and securely fixed to the bed, they can remain, training a central scouring flow along the channel.

It is likely that subsequent to the removal/modification of the weirs, the river will narrow due to increase growth of marginal vegetation, whilst the growth of water crowfoot in the channel might be expected to similarly increase. These changes are likely to more than compensate for the loss of the weirs with respect to the retention of existing water levels in the river.

- Additional feature could be created within the channel by installing sets of paired opposing triangular wooden groynes at strategic locations. These would increase scour, sorting of the substrate and would raise water level locally. The groynes could be constructed from locally sourced tree trunks, with the top of the groynes set approximately 15cm above mean summer water level. The groynes should be

constructed some 6-8 river widths apart. Upstream facing 'v' shaped groynes could also be installed in the centre of the channel in order to scour deeper pool areas and associated downstream gravel shallows.



Upstream facing wooden 'v' groyne showing pool scoured downstream

- The quality of the sections of suitable spawning gravel could be improved by establishing a regime of cleaning spawning gravels each September. This can be achieved by either manual or mechanical (tractor mounted cultivator) raking, or by the use of high-pressure water jets. Care must be taken to clean riffles rotationally, with only short sections being treated annually. The EA may be able to undertake this work on behalf of the fishery, or to lend the appropriate equipment. It is imported that the EA are contacted prior to any cleaning of gravel, due to the possible discoloration of water in the river resulting from the operation. The same concerns dictate that downstream neighbours should also be forewarned of the operation. In order to monitor the success of any gravel washing, it is further recommended that an annual count of spawning redds is undertaken. Key spawning areas should be walked during November- January and observed redds logged and counted.
- The aspiration of the estate is to develop the stocks of wild brown trout over time. It is therefore recommended that catch and release of wild fish should be practised in order to build up trout stocks. If a small number of fish are to be stocked for

recreational angling, they should be purchased from a reputable fish farm. Good suppliers include:

Bibury Trout Farm: 01285 704215

Lechlade Trout Farm: 01367 253266

Savernake Trout Farm: 01672 512607

Donnington Fish Farm: 01451 830873

- The Chilterns Chalkstream project (Tel: 01844 271308) is co-ordinating efforts within the area in order to optimise the ecological interest of the Chiltern streams. The project is very interested in making contact with individual landowners. It would be of benefit for the estate to contact the project and adjacent landowners on the river in order to link potential enhancement activity along the river.
- Note that all works to bed or banks of the river or within 8m of its banks require the written consent from the Environment Agency under the Land Drainage legislation. The introduction of any fish or eggs into any inland water requires the consent of the EA under the Salmon and Freshwater Fisheries Act, 1975. It is imperative that all relevant consents are obtained by the club.
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