



**ADVISORY VISIT TO THE RIVER CHESSE AT  
CHENIES, BUCKS  
UNDERTAKEN BY VAUGHAN LEWIS,  
WINDRUSH AEC LTD, ON BEHALF OF DAVID  
LE NEVE FOSTER**

**JANUARY 2005**

**Sponsored by:**



**ENGLISH  
NATURE**

## 1.0 Introduction

This report forms the output of a site visit undertaken to the River Chess at Chenies, Bucks on 11 January 2005 on behalf of David Le Neve Foster, the owner of the fishery. Information for the report was gathered during the site visit. Additional information was provided by David Le Neve Foster. 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 Chenies fishery comprised approximately 1 km. of river downstream of Mill Farm, near to the village of Chenies. A syndicate of 10 rods fish the river.

The river downstream of the mill (Fitch's Meadow) occupied two channels. Habitat in the LB channel was generally excellent. It was dominated by flow dependent habitat, with abundant gravel shallows suitable for brown trout spawning and subsequent recruitment of juvenile fish. Water crowfoot *Ranunculus* spp. was common, to the extent that regular cutting has been required during summer periods in order to allow fishing.

The river had been fenced along the LB, preventing access to agricultural stock that had previously poached the banks, causing loss of marginal habitat and mobilisation of fine sediment. A strong buffer of coarse vegetation had established within the fence line, offering protection to the banks from excessive erosion. The RB of this channel was not subject to grazing and also had a well-developed buffer strip. The wetted channel width in this reach was some 3m-4m.



### **LB channel downstream of Mill Farm**

The RB was generally wider (6m+) and more shaded. Some coppicing had been undertaken on its RB in order to reduce shading and allow development of the generally poor marginal growth. Timber arisings had been placed alongside the edge of the channel in order to encourage deposition of silt and subsequent narrowing of the channel.



### **RB channel showing coppicing to reduce shading**

A number of freshly cut brown trout redds were clearly visible in this channel, despite the relatively unsorted nature of the gravel present.

A significant amount of foam was present in the LB channel on the day of the advisory visit. No foaming was noticeable on the RB channel. The two channels joined some 400m downstream of Mill Farm.

Instream habitat downstream of this point continued to be generally excellent, with the exception of an almost total lack of Large Woody Debris (LWD), a factor repeated throughout the fishery. The paucity of LWD was a consequence partly of past river management, but was also due to grazing pressure from agricultural stock. As a result, cover was significantly reduced, particularly for adult trout, whilst there was limited sorting of the hard bed. This had left a relatively homogeneous bed profile, with a lack of deeper pools in some reaches. The quality of the spawning gravel was also reduced due to the presence of fine sediment within the gravel interstices.

Two small weirs were present within the Broadwater reach of the fishery, separated by 80m- 100m. These had been created in the past using a combination of large

wooden poles and corrugated sheets. The head loss over each of the two structures was approximately 10cm – 15cm. Despite this relatively small head difference, there was a significantly deleterious upstream impact on habitat quality. The reduced gradient and associated slower water velocity had allowed fine sediment to accumulate behind the structures, and had further reduced sorting of the substrate, particularly above the upstream weir. The benefits of the weirs to the general habitat quality of the fishery were not immediately apparent.



### **Constructed weir showing small head loss over the structure**

The lower reach of the river, the Willows, was characterised by poaching of the RB by horses. Damage was worst in the lower field, with most of the emergent vegetation grazed off and considerable physical erosion of the old bank line. This has resulted in the over-widening of the channel, by perhaps 50%. As a consequence, water velocity across the channel had declined, reducing scouring and sorting of the substrate. Submerged banks of unconsolidated silt, vulnerable to further erosion, had also developed in the marginal zone. The loss of the marginal vegetation has also reduced the availability and quality of riparian habitat for the nationally endangered water vole *Arvicola terrestris*. Considerable efforts have been made to protect and enhance water vole populations at Chenies, by both the fishery, and the Chilterns Chalkstream Project.



### **Loss of emergent vegetation and bank erosion due to poaching by horses in the Willows**

#### **3.0 Fish stock management**

The fishery is stocked annually with 100 8” – 12” brown trout. There is some natural recruitment of brown trout to the fishery. Numbers of small fish were observed on the day of the advisory visit, particularly towards the downstream end of the fishery.

Catch and release is encouraged, with rods generally only killing small numbers of fish each season.

#### **4.0 Management recommendations**

Generally, habitat quality in the River Chess at Chenies 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 is a concern regarding the presence of foam in the LB channel of the river in Fitch’s Meadow. It is important that the source of this foaming should be established. Initially, contact should be made with the Environment Agency (EA) environmental protection team who may be able to offer assistance in tracing the origin of the pollutant. Discharges from sewage treatment works and other sources each have a statutory discharge consent standard agreed with the EA. Compliance with these standards is regularly monitored by the EA. Results are published on a public register, available for inspection at the EA’s office or by post. Compliance

with statutory consent standard should be checked by the club on a regular (annual?) basis. Failure to comply with the standards allows the club to mount a prosecution or to claim civil damages via the Angler's Conservation Association. The EA should enforce this legislation, but have from time to time, some regions have not been as rigorous in this matter as would be expected.

- There was 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. 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.

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.

- The RB channel of the river was significantly shaded by riparian trees in Fitch's Meadow. Continuing the regime of limited, rotational coppicing would be of great benefit. Increasing light penetration into presently tunnelled river sections would be of benefit to instream vegetation and valuable fringing marginal vegetation. The conservation value of the existing trees should not be underestimated and great care should be exercised in the selection of trees to be cut.

The arisings from the tree trimming should be used to create faggots, roughly 2m long with a diameter of approximately 300mm. Once manufactured, the faggots can be used to locally narrow the channel. They should be pinned in place using

wooden stakes and backfilled with secured brushings. The top of the faggots should be set at approximately 100-150mm above mean summer water level. Details of faggot techniques can be found in the Wild Trout Trust guide provided to the club. Note that the installation of faggots or any other work to the bed or banks of the river or within 8m of it may require the consent of the EA.

- The two small weirs present in The Broadwater are on balance, having a detrimental impact on the ecology of the river and should be removed. This can easily be undertaken in late summer/early autumn, when river levels are low, birds have finished breeding and prior to the trout spawning season.

Concerns have been expressed that the removal of the weirs would adversely affect the hydrological regime of the Site of Special Scientific Interest on the LB of the Broadwater. These concerns centre on the potential for lowering of resting water levels in the river and a knock-on impact on local groundwater levels.

Notwithstanding the fact that it is not known whether the hydrology of the SSSI is primarily controlled by river water level or the influence of groundwater flow from a generally northerly direction, the very small head loss over the weirs means that any significant impact on groundwater levels is unlikely to occur following removal of the weir. Indeed, it is very likely that subsequent to their removal, 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. In order to monitor any change in water level over time, it is recommended that a simple gauge board should be installed on the footbridge upstream of the weirs.

In the very unlikely event that water level in the channel is believed to have been reduced to an unacceptable level, two sets of paired opposing triangular wooden groynes could be installed into the channel near to the site of the old weirs in order to raise water level locally. The design of these groynes would be in line with the examples shown on page 38 of the Wild Trout Trust 'Guide to Improving Trout Streams'.

- The erosion of the RB of the river in The Willows by horses has resulted in an unacceptably high degree of habitat damage. It is important that this reach of the river should be fenced in order to prevent further damage and to create a well-vegetated riparian buffer strip.
- 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.

- 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.