



Advisory Visit to the River Bulbourne,
Berkhamstead, Herts

Undertaken on behalf of the Wild Trout
Trust, by Vaughan Lewis, Windrush
AEC Ltd

June 2004

1.0 Introduction

This report forms the output of a site visit undertaken to the River Bulbourne, Berkhamstead, Herts. on 28 April 2004 on behalf of Berkhamstead Town Council

Information for the report was gathered during the site visit. Additional information was provided by Councillor Betty Patterson. Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

2.0 Description of fishery

The River Bulbourne is a small, Chiltern chalk river. It flows through the centre of Berkhamstead and is a key landscape feature in the town. It has been extensively modified historically with the formation of a small lake at the upstream end of the town possible the most significant change. The river is also intimately linked with the Grand Union Canal, that runs parallel to the north side of the river through the town.

At the upstream end of the town reach, the river runs through a short section of gravel bedded, flow dependent habitat, before entering the old cress beds. The river has been impounded at this point, creating an 'on-line' pond. As a consequence, sediment and nutrient accumulation have combined to reduce the depth of the river and its value for brown trout. It does however, provide a significant and well-liked landscape feature.



Old Cress beds, looking upstream

A scheme for enhancement of the River Bulbourne has already drawn up by the Chiltern Society and has been agreed with the town council. The scheme includes plans for the restoration of the cress-beds, the pollarding of some of the mature willows fringing the LB of the river opposite the Waitrose store and the removal of a section of concrete bank immediately upstream of the footbridge at this location.



River Bulbourne adjacent to Waitrose car park showing concrete bank to be removed and the heavily maintained RB

The RB opposite this section of concrete was very heavily strimmed, effectively removing all fringing vegetation. This work was apparently undertaken by the Environment Agency (EA). Point source discharge of silt laden water from surface water gullies was apparent during the visit. These discharges were adding a considerable fine sediment burden to the river.

Sections of the channel were very over-wide, with limited emergent vegetation present. As a consequence, the substrate of the river was poorly sorted, with fine sediment coating much of the gravel and stone present.

Heavy shading was apparent over sections of the channel due to the dense canopy of riparian trees. This is particularly apparent where the river runs through a heavily wooded and overshadowed copse. Plans have been drawn up to coppice/pollard this area during winter 2004/5 in order to reduce shading, and increase its value as a wetland/reedbed area. Japanese knotweed *Fallopia japonica* was present along much of the river. A programme of treatment had been instigated, using the herbicide glyphosate.

Towards the downstream end of the fishery, the river split into two arms, with flow currently prioritised along the left bank channel due to a build up of a trash dam at the bifurcation. This eventually enters the GUC via a short culvert some 200m – 300m downstream.

The right channel had a much smaller flow. The bed was coated in heavy deposits of organic sediment and leaf litter. Riparian trees cast heavy shade over much of the channel, whilst significant volumes of surface run-off were noted entering the river. The banks were significantly modified with hard revetment common. In combination, these factors had reduced the habitat quality of this channel.

3.0 Fish Stocks

The Bulbourne has periodically dried out due to a combination of naturally low flows and abstraction. As a consequence it is not believed that there are any brown trout present in this reach of the river. However, reductions in the abstraction regime planned for the Thames Water Utilities Limited (TWUL) pumping station at New Ground in 2005, should increase the likelihood of sustainable, perennial flow in this reach. The potential habitat quality for brown trout should improve as a consequence, allowing a re-stocking project to be considered.

4.0 Recommendations

The following recommendations are made with respect to the Bulbourne at Berkhamstead:

- The proposals for the river drawn up by the Chiltern chalkstreams project are broadly endorsed.
- The proposed pollarding of riparian trees, removal of section of concrete bank revetment, recreation of downstream area of wetland via the mechanism of coppicing and restoration of a channel through the old water cress beds are all positive management options.
- Additional enhancement is recommended by the narrowing of the channel at specific locations using faggot bundles constructed from brashy arisings from the proposed coppicing. Where appropriate, reject flint gravel should be introduced into the channel. This will create a self-sustaining, flow dependent channel with value for spawning and juvenile brown trout. Details are provided in the Wild Trout Trust guide to improving trout streams.
- Restoration of the channel through the old cress beds can be effected by delineation of a suitably sized channel using faggot bundles, 300mm diameter coir fibre rolls or similar. The channel can then be lined using flint reject gravel. The area out-with the new channel can then be encouraged to develop as a reed-bed by selective infill with clean spoil and/or woody brash, followed by planting with reed/sedge plugs or rhizomes. It is essential that detailed plans are drawn up for this major exercise and that local residents are consulted at all stages regarding what will be a significant change to the landscape of the area.

- Following completion of the proposed restoration works and changes to the abstraction regime at New Grounds, a trial introduction of trout should be attempted, probably using incubation boxes. These are gravel filled boxes, approximately 0.6m in each dimension that are filled with suitably sized gravel and seeded with 10,000 - 20,000 trout eggs. A water feed at the bottom of the box (using a head difference created by a sluice or riffle) allows the eggs to incubate and hatch. Once they reach the swim-up fry stage, fish leave the box via the overspill pipes, where they could be collected in a small trap box and transferred into the river or allowed to enter the river unaided and disperse. In effect, these are naturally reared fish without the unhelpful behavioural modifications associated with hatcheries. More details on incubation boxes can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.

Similar, smaller boxes have been used in Northern Irish and Scottish rivers. 'Ownership' of these boxes has been given to small groups of school children in order to foster an interest in aquatic ecology. Such a scheme would seem appropriate for the Bulbourne.

- The current heavy maintenance of the banks of the river and canal should be reviewed with the Environment Agency and British Waterways. There is little point embarking on a river restoration programme only to have the outcome jeopardised by over-zealous bank cutting. Positive control of bank cutting could produce significant ecological and landscape benefits. For instance, the 'island' lying between the canal and river could be developed into a 'meadow' area by reducing the intensity of grass cutting. The presence of small clumps of bluebell *Endymion non-scriptus* and cowslip *Primula veris* on the day of the site visit suggests that other wild flowers may also be present that would flourish if cutting pressure was reduced. The creation of a meadow area would strengthen the link between river and canal both ecologically and in landscape terms. More closely cut paths could be maintained through the meadow to allow public access. It is likely that such a management regime would also show positive financial benefits.
- The highways authority should be lobbied to address the control of silt laden, surface water discharges in to the river. Whilst it is acknowledged that this is a potentially expensive and logistically difficult issue, the benefits to the river are significant. Recent advances in Sustainable Drainage Strategies (SUDS) have identified a range of proven, cost effective solutions to many aspects of urban surface water run-off.
- No work is recommended for the right hand channel below the bifurcation. The likely benefits of work being undertaken here are small. Efforts should be prioritised in the left hand channel.
- It should be noted that no work should be undertaken to the bed of the channel or its banks within 8m of the channel without the consent of the Environment Agency under the Land Drainage legislation.