



**HABITAT ADVISORY VISIT, REDBOURNBURY
FISHERY, RIVER VER.**

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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC to the Redbournbury Fishery on the River Ver on 8 September 2002. The visit was sponsored by English Nature, as part of its commitment to support the biodiversity of chalk rivers through the offices of the Wild Trout Trust.

Comments in the report are based on observations on the day of the site visit and discussion with the fishery owner.

Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left hand Bank (LHB) or Right Hand Bank (RHB) whilst looking downstream.

2.0 Background

The River Ver is a small, spring fed, chalk stream. The river rises upstream of Redbourn and flows in a generally south easterly direction before joining the River Colne downstream of Colney Street. The Ver is a base rich river, with its water quality strongly influenced by the local chalk geology.

In the recent past, flows have been affected by both borehole abstraction for public water supply and, probably, by changes in climate pattern.

3.0 Habitat Assessment

The Redbournbury Fishery ran from upstream of Redbournbury for a distance of approximately 1km.

At its upstream limit, the Redbournbury Fishery had excellent instream habitat. Shallow riffle areas predominated, with the substrate comprised of uncompacted gravel, in association with a small volume of entrained sand. The gravel size distribution was suitable for spawning brown trout. Large stands of water crowfoot *Ranunculus spp.* were present. In combination with the abundant fringing marginal vegetation (reed sweet-grass *Glyceria maxima* and reed canary grass *Phalaris arundinacea*) and extensive water cress *Rorippa nasturtium-aquaticum* beds, this provided an abundance of habitat ideal for juvenile brown trout.

Generally, the RHB was adequately fenced to prevent damage by stock poaching. However, some light stock poaching was evident on the RHB that was associated with an area used by cattle for drinking.

Approximately 100m downstream, the channel was very over wide, with large areas of deposited fine sediment and associated starwort noted. These beds formed a braided channel, with water crowfoot replaced by starwort *Callitriche spp.*, a submerged weed generally associated with silt.

The RHB in this section was heavily shaded by riparian trees, resulting in a suppression of marginal vegetation that was contributing to the overwidening of the

channel. The LHB was fringed by a line of mature poplar trees that were also casting some shade over the channel.

Further downstream, heavy growths of water crowfoot were present in the channel. These were acting to maintain upstream water levels.

The middle section of the fishery was generally over-deep, with an absence of gravel riffles suitable for spawning and juvenile brown trout. Heavy silt deposits with associated stands of starwort typified these reaches.

A small carrier from an upstream mill, entered on the RHB approximately half way down the fishery. Although carrying a reasonable flow of water, the channel was heavily occluded by emergent vegetation.

The lower section of the river was heavily occluded for some 100-200m by dense stands of common reed *Phragmites communis* and riparian growth of willow scrub.

Below this point, the river was overdeep with very slow water velocity and dense marginal growth of water cress, reed canary-grass and sedge *Carex spp.* This habitat type probably resulted from a combination of past land drainage work that realigned the channel at a higher level, and the backwater effect of the downstream mill.

The river has not been stocked since 1997, when a small number of takeable fish were introduced.

4.0 Recommendations

- The RHB fencing should be maintained and repaired as required in order to maintain a stock proof barrier.
- Formal fenced stock drinking areas should be created, with a stone bed, in order to minimise the risk of poaching of the banks by cattle.
- Where overshadowing of the channel is noted in the report, a system of rotational coppicing/pollarding should be instigated. 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 under-estimated and great care should be exercised in the selection of trees to be cut. Cutting of RHB trees will show most benefits to the fishery as this is the southern bank.
- In the over-wide section 100m from the upstream limit of the fishery, a multi-braided channel should be formed using small islands (4-6m length by 2-4m width) constructed using faggot bundles retained by wooden stakes. The total channel cross section should be sized by reference to the free flowing and self-maintaining section of river at the top of the fishery. 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 create the islands and 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 fishery.

- Similar narrowing of the banks can be undertaken on the inside of bends and in other sections of the river that are overwide. These sections are typified by exposed, unconsolidated silt deposits adjacent to existing banks.
- The lack of gravel riffles in the middle section of the fishery is likely to be limiting recruitment of trout to the fishery. It would be possible to construct riffles in this area, possibly using gravel arising from the excavation of the two lakes at the fishery. Samples of excavated gravel seen during the site visit had an ideal size distribution for riffle creation. However, the moderate amount of fine material associated with the gravel may require some simple sediment control measures to be installed in the river to prevent excessive downstream turbidity. The installation of riffles may also benefit the ecology of the RHB meadow (believed to be in an agri-environment scheme) by raising groundwater levels adjacent to the river. Riffle construction requires some experience in order to avoid some common pitfalls. It should not be undertaken without detailed advice from the Environment Agency (EA) or other competent fishery advisor.
- The possible use of the RHB carrier as a nursery for juvenile brown trout should be further investigated. Ideally, the channel should be managed to produce lengths of gravel dominated substrate with strong marginal fringes of overhanging vegetation suitable for young trout. If this prescription can be achieved, then consideration should be given to introducing swim up fry derived from the deep-substrate incubation box described below.
- Given the overwide, impounded and significantly modified channel at the lower end of the fishery, it is not recommended that any major work should be undertaken here until the issues raised in connection with the upper and middle fishery have been addressed. The lower section of the fishery should be regarded as being potential holding water for adult trout. Additional access for fishing could be provided by careful cutting using either hand scythes or a chain scythe. Alternatively, consideration could be given to the use of the herbicide glyphosate in order to maintain a fishable channel through the emergent vegetation. Note that the use of this herbicide in or near water is strictly controlled and requires consent from the EA.
- In order to prevent the need for excessive bank cutting, it is recommended that the present no wading rule should be changed to allow wading in order to cover individual fish.
- In support of the above policy, a wide margin (>2m) of emergent aquatic vegetation should be retained. This should be topped at a height of approximately 1m-1.3m to increase the visibility of the channel to anglers.
- Selective summer weed cutting should be used to increase the available habitat for adult trout, manipulate water levels and create narrow, self-cleansing channels between the stands of water crowfoot. Generally, it is advisable to work

upstream, cutting weed in a “chequerboard” pattern that encourages flow diversity without reducing upstream water levels dramatically.

- The present policy of catch and release of fish should be maintained.
- In order to assist in the build up of brown trout stocks, it is recommended that a deep substrate incubation box should be installed between the two lakes at the fishery. Basically, 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 the head difference that exists between the lakes) allows the eggs to incubate and hatch. Once they reach the swim-up fry stage, they leave the box via the overspill pipes, where they could be collected in a small trap box and transferred into the river. 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*.
- Note that the installation of faggots, any other work to the bed or banks of the river or within 8m of it, the use of herbicides and the introduction of fish or their eggs all require the consent of the EA.