



Habitat Advisory visit to the River Rea,
Worcestershire
undertaken by Vaughan Lewis, Windrush
AEC on behalf of the Shakenhurst Syndicate
December 2005

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1.0 Introduction

This report is the output of a site visit undertaken on 12 December 2005 by Vaughan Lewis, Windrush AEC Ltd to the Shakenhurst Fishing Syndicate's water on the River Rea, Worcestershire. The Shakenhurst syndicate had a total of 20 fishing members.

The visit was sponsored by Orvis, as part of its commitment to support habitat enhancement schemes through the offices of the Wild Trout Trust (WTT)

Comments in the report are based on observations on the day of the site visit and discussions with syndicate members. Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.

2.0 Habitat Description

The dominant geology over most of the fishery was Old Red Sandstone. As a consequence, the riverbanks were very friable, with significant areas of erosion present, particularly on the outside of bends. The channel was deeply incised by up to 5m over much of the fishery, a consequence of erosion and likely past dredging activity. Outcrops of alluvial gravel throughout the reach provided a source of hard bed material. Substrate in the river was varied with significant sections of bedrock, interspersed with extensive lengths of mixed, moderately sorted gravel and sand.

The river had a meandering planform, with a well-developed pool-riffle regime. Un-vegetated pebble dominated point bars were common on the inside of bends, with undercut banks present on the outside of bends. Both features highlighted the dynamic nature of the river's geomorphology. There was adequate habitat for spawning, juvenile and adult phases of brown trout *Salmo trutta*. However, habitat quality for juvenile trout could be enhanced by the development of additional fringing vegetation growth (see management recommendations).

For much of its length, the fishery ran through heavily wooded areas, with the often dense canopy of deciduous trees, including alder *Alnus glutinosa*, ash *Fraxinus excelsior* and pedunculate oak *Quercus robur* casting extensive shade over the channel. Many of the alders were multi-stemmed, indicating past coppicing. The shading cast by the trees reduced the growth of both fringing marginal vegetation and instream macrophytes. Land use over the remaining sections of the river was dominated by permanent, unimproved/semi-improved pasture.

There was some Large Woody Debris (LWD) present in the channel, the result of falling trees and limbs. Where LWD was present, it had promoted the development of deeper pools and sorting of the gravel in downstream riffles.



Large Woody Debris in the channel. Note constriction of flow along the far bank

The riverbanks were heavily overgrown with Himalayan Balsam *Impatiens glandulifera* during the summer period. This plant shades out other more valuable vegetation and leaves the banks bare after it dies back in the autumn.

The Shakenhurst Brook entered the river on the LB of the river. This was a steep gradient, heavily wooded tributary stream with long sections of gravel substrate present.

At the top of the fishery (Houghton Pole Bridge), the river had a steep gradient, with an incised channel profile. There was again a dense growth of ash, alder and hazel *Corylus avellana* trees on the banks, casting heavy shade across the channel. The substrate was dominated by bedrock with shorter sections of mixed, moderately sorted gravel present. Much of the gravel was overlarge for trout spawning, being more suitable for Atlantic salmon *Salmo salar*. However, small pockets of gravel suitable for trout spawning were present in some locations.

Instream habitat was diverse, with a good mix of steep riffles, shallow glides, deep glides and pools. Undercut banks, tree roots and limited amounts of LWD provided adequate instream cover. There were sections of the RB that were subject to grazing by agricultural stock, particularly where sheep were being funnelled along the edge of the river by the contours of the surrounding land. As a consequence, the growth of marginal vegetation was reduced, with sections of bank erosion and slippage visible as a consequence. Discolouration and sediment disturbance by stock entering the water are also issues during the fishing season.

3.0 Fish stocks

There was strong recruitment of wild brown trout to the fishery, with a relatively large head of fish present. No stocking of trout had been undertaken by the syndicate in recent years. A total catch of around 120-130 brown trout is recorded annually by members, with individual fish up to 700g in weight taken. Angling generally operates on a catch and release basis, although small numbers of larger fish are killed.

The river also held stocks of chub *Leuciscus cephalus*, dace *Leuciscus leuciscus*, eel *Anguilla Anguilla* and bullhead *Cottus gobio*. It was an important salmon spawning stream, with salmon

parr caught at sites on the river during an Environment Agency electrofishing survey undertaken in 1999.

4.0 Management Recommendations

Generally, habitat quality in the syndicate's fishery on the Rea was excellent. Instream habitat was diverse, with adequate provision for all lifestages of brown trout. However, a few simple management prescriptions are recommended in order to further improve habitat quality:

- There was extensive shading of the channel due to the growth of riparian trees. It would be of great benefit if a regime of rotational coppicing/pollarding could be established alongside the Rea in order to decrease shading, thus allowing the growth of vegetation on the banks, whilst retaining valuable tree root systems. Ideally, trees should be coppiced. However, pollarding does have the advantage of allowing regrowth in the presence of large numbers of grazing agricultural stock, without the need to erect fencing. If coppicing is undertaken, cut brash could be piled over the cut stools in order to provide a degree of protection from grazing stock and deer. It is important that the extent of coppicing/pollarding is carefully managed; the aim of cutting should be to produce 'dappled shade' over the channel, with a mixed age stand of trees on the banks. Arisings from the tree cutting could be sold as firewood to defray costs, with the brushwood utilised to create faggot bundles that could be used to protect eroding sections of the riverbank or for the creation of stick pile otter holts. Note that a felling licence will be required from the Forestry Commission for any significant amount of coppicing.
- Whilst it is important to open up the tree canopy to allow greater light penetration, it is vital to allow as much LWD including tree branches, fallen trees etc, to remain in the channel as possible. Provided that the LWD does not compromise flood defence interests, then it should not be removed. LWD is vital in promoting, the sorting of gravels, the detention of sediment, the provision of habitat, both for invertebrates and fish, and pH buffering. Practical management options to increase LWD include making use of fallen timber in order to create simple flow deflectors by wiring/staking these to the bank. These can be positioned to promote scouring of relatively homogeneous riffle areas in order to create deeper pools used by adult fish. These small pools also provide shelter areas adjacent to riffles during spawning periods, increasing the numbers of spawning fish.

It is recommended that the Flood Risk Management (formerly Flood Defence) section of the Environment Agency should be contacted and agreement reached regarding an acceptable level of retained LWD. Without such agreement, removal of carefully anchored timber by the Agency remains a real possibility.

- Mature fish are known to be present in the Shakenhurst Brook during the late autumn/winter period. Thus, it represents a potential trout spawning area. It is recommended that the stream is walked during the period November-January, with a view to identifying and noting the location of any trout redds. A combination of tree cutting to reduce channel shading, and the introduction of LWD in order to promote sorting of the substrate would be beneficial in improving both trout spawning success and subsequent recruitment of juvenile trout to the fishery.
- The presence of Himalayan Balsam is undesirable. It is classified as an alien invasive weed species. It restricts the growth of other more valuable native plant species, thus promoting excessive erosion by leaving banks bare during the key winter period. There is no policy for its control on a catchment basis, with no authority having a remit to undertake this work. Despite this, it may be possible for the syndicate to undertake limited control of the large stands of balsam present in some areas of the fishery. Chemical control with the herbicide glyphosate

when the plant is actively growing in early spring is effective. Alternatively, the plants can be cut at ground level before the flowering stage (June) or they can be pulled up by the roots and disposed of by composting or burning unless seeds are present.

Note that the use of glyphosate or any other herbicide on or near water requires the consent in writing of the Environment Agency.

- The sections of overgrazed bank on the fishery should be fenced in order to prevent access to the bank by stock. It may be necessary to either construct a formal, fenced stock drinking area or provide pasture pumps (for cattle) within the newly fenced sections.
- Grant aid for tree work, and the erection of fencing may be available under pre-existing agri-environment schemes. It would be worth checking whether any of the land bordering the fishery is registered under the Countryside Stewardship Scheme. If so, it may be possible to obtain a degree of funding for conservation work during the remaining years of the agreement. The newly launched Woodland Grant Scheme may offer some chance of funding. However, it is my understanding that the launch of the scheme has not been smooth, with over-application for available funds already apparent. The WTT has access to small amounts of 'pump priming' funding. It would be worthwhile for the syndicate to apply for some of this money. If successful, it would be possible to ask the local EA fisheries team to match fund (or even exceed) this sum.