HABITAT ADVISORY VISIT TO THE RIVER FROME, TELLISFORD, SOMERSET

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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd to River Frome, Tellisford, Somerset on behalf of West Wilts Flyfishers Guild (WWFG) on 27 February 2006.

Comments in the report are based on observations on the day of the site visit, and discussions with members of the club. 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 Assessment

WWFG is a club with some 75 members controlling approximately 2km of the River Frome downstream of Tellisford village. The upstream limit of the fishery was located at Tellisford Mill, with the holding stretching downstream to a weir below Pomeroy Wood.

Tellisford Mill was in the process of renovation, with the construction of a substantial hydroelectric generation scheme a key element of the ongoing work. The HEP scheme involved the raising of the weir upstream of the mill by some 25cm. Whilst this in itself did not directly impact on the WWFG fishery, the additional height of the impoundment had the potential to reduce further the already restricted access over the weir for migrating fish. Although a basic fish pass had been provided within the weir elevation, it was closed on the day of the site visit, preventing any access to fish.

Of greater impact to the WWFG fishery was the reduction in flow likely to occur in the main river between the bridge and the downstream confluence of the mill leat during periods of generation. Depending on the timing of abstraction for power generation, this could potentially have a significant impact on the quality and availability of habitat for spawning brown trout *Salmo trutta*, grayling *Thymallus thymallus* and rheophilic (fast water loving) coarse fish.

Tellisford Mill showing leat rejoining the main river on the LB

The riffle downstream of the bridge was dominated by mixed gravel suitable for spawning of these species. There were significant stands of Water crowfoot *Ranunculus* spp visible on the riffle. These grow so extensively during the summer period that the club has considered cutting channels selectively through them. Gravel jetting of the riffles had been undertaken by the club in the past, in an attempt to improve the hatching success of deposited trout eggs.

Downstream of the riffle, the river has a meandering planform, with instream habitat dominated by shallow glide, deep glide and pool, interspersed with short length of riffle. The channel was significantly incised (3m in places), with the banks comprised of friable alluvial soil. The river was generally less than 1.5m deep, with much of the angling undertaken by wading.

Typical section of the upper reach

The banks were tree lined, with the channel moderately shaded. Many of the alder *Alnus glutinosa* were infected with the fungal disease *Phytopthora*. Limited trimming of overhanging tree limbs had been undertaken to facilitate angling and increase light penetration. Woody debris had generally been removed from the channel and piled on the bank. As a consequence, there was limited Large Woody Debris (LWD) in the channel. Instream cover was provided by undercut banks/tree root complexes, deep water, and submerged weed, mainly water crowfoot.

A number of small, vegetated gravel islands had formed within the river. These were very effective in narrowing the channel, hence increasing water velocity locally and encouraging sorting of the substrate. They also provided small areas of undisturbed habitat for a range of species.

Small vegetated islands. Note arable land ploughed to top of LB

Land use was dominated by semi-improved pasture and woodland on the RB, and by a mix of domestic gardens, semi-improved pasture and arable land on the LB. The latter fields were ploughed very close to the top of the bank, with only a narrow buffer of rough vegetation remaining.

Instream habitat in the middle reach of the fishery was heavily influenced by the presence of an Environment Agency (EA) gauging weir. The backwater effect of this structure had resulted in considerable deepening of water upstream, with associated deposition of fine sediment on the bed. The design and construction of the weir were not beneficial to upstream migration of fish, resulting in partial spatial isolation of the fish populations upstream and downstream of the structure.

Gauge weir

It is understood that the gauge weir may now be redundant. The increased water velocities caused by the gauge weir had caused LB and bed erosion downstream of the structure. Some of the eroded material had consolidated and vegetated, forming a series of three or four islands. These were valuable features, helping to narrow the channel and sort substrate. The resulting shallow, gravel dominated riffles were important spawning areas for both salmonids and coarse fish species. The islands also providing undisturbed terrestrial habitat for a range of species.

Island 'archipelago' formed by erosion downstream of the weir

Further downstream, a RB channel previously entered the river. This had gradually accumulated sediment, with secondary regrowth of crack willow *Salix fragilis*. As a consequence, there were no remaining open areas of water.

Silted up mouth of old RB channel

The reach alongside and downstream of Pomeroy Wood was characterised by deep, slow instream habitat, largely as a result of the backwater effect of the substantial downstream weir. There was little habitat suitable for spawning or juvenile brown trout or grayling. Sheep and beef cattle had been kept in the unfenced RB field of this reach at relatively high densities. Overgrazing of the riparian vegetation and significant erosion of the banks had occurred as a result, with large areas of slumping visible. LB land use was arable, with a well-developed fringe of trees and shrubs offering some protection from erosion.

Eroded, slumping bank and resulting unconsolidated sediment

3.0 Fish stocks

The club operated a mixed fishery, with fly fishing only during the annual trout season, and coarse fishing permitted during the trout fishing close season. There was a moderate stock of wild brown trout and grayling *Thymallus thymallus* present in the reach. An electrofishing survey undertaken by the EA during 2003 revealed small numbers of brown trout and coarse fish, although no grayling were captured.

Stocking is understood to have been undertaken with both brown trout and rainbow trout *Onchorhynchus mykiss,* with a total of 300-400 takeable fish introduced annually. Rainbow trout are routinely killed when caught, with catch and release of the brown trout generally practiced. Catch returns are made by the club, with an annual summary of catches made by club officials since 2001.

4.0 Recommendations.

- Where stands of water crowfoot are so extensive during the summer that they totally occlude the river, it may be advantageous to selectively cut patches or channels in the weed, concentrating flow, promoting scouring of silt and providing lies for trout and coarse fish. Care should be taken not to cut so much weed that water levels drop damagingly. This is of particular importance during low flow years. No consent is required from the EA for weed cutting. It is however an offence to allow cut weed to remain in the river.

- The cultivation of the arable land on the LB was potentially damaging to the fishery, with the narrow buffer strip providing limited protection from sediment run-off. Ideally, a wider buffer of at least 10m should be provided in such a vulnerable location.

- The quality of the gravel can be improved by continuing the regime of cleaning spawning gravels each September. This can be achieved by either manual 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. It is important 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.

Whilst gravel washing is a potentially useful aid to enhancement of hatching success for trout eggs, it is very labour intensive. A simpler, longer-term enhancements can be achieved by careful placement of LWD in areas of gravel riffle. Practical management options to increase LWD include making use of fallen or cut timber in order to create simple flow deflectors by wiring/staking these to the bank. These can be used to scour relatively homogeneous riffle areas in order to sort the gravel and create deeper pools used by adult fish. These small pools can provide shelter areas adjacent to riffles during spawning periods, increasing the numbers of spawning fish.

It is important that the Environment Agency is made aware of any adopted policy to retain LWD in the channel, both in order to assess potential flood risk (likely to be very low), and to prevent its removal during routine management operations undertaken by the Agency.

Good example of stable LWD in the lower fishery

- The overgrazing and subsequent erosion of the RB of the lower reach is very damaging to the fishery. It should be addressed as a matter of some urgency. Ideally, agricultural stocking densities should be reduced to a level that prevents significant bank damage. However, this is unlikely to happen. A more practical

alternative would be to erect a fence along the length of the riverbank in order to create a well-vegetated buffer strip of at least 5m width. Fencing costs are likely to be in the order of £4/linear metre, with stiles, and access gates additional costs. There will be some maintenance liabilities associated with the fenced area, mainly focussed on regular cutting of vegetation in order to allow access for anglers. Part funding for this and other habitat work could potentially be provided by the WTT (contact Edward Twiddy) and/or the EA.

- There is little doubt that the gauge weir is having a detrimental impact on both the instream habitat and the migration of fish. If it is indeed redundant, then an approach could be made to the EA with a view to its removal or modification. This would clearly be a very significant and expensive operation that would require a high degree of planning. However, the benefits accruing would be equally significant, improving both upstream habitat quality and allowing unimpeded passage of fish.

- The EA have apparently expressed a desire to remove some or all of the islands that have formed downstream of the weir. The logic for this aspiration is believed to be the erosion caused to the LB due to the presence of the island and their impact on flows.

Erosion on LB of the river adjacent to the islands

It is strongly recommended that this course of action by the EA should be resisted. The islands have a high conservation value, both in their own right and as elements narrowing the river channel, helping to improve instream habitat quality for coarse fish and salmonids. If the only justification for their removal is indeed to protect the LB arable land from erosion, then other mechanisms should be considered first. The value of the arable land is relatively low, with present gross margins on cereal production at a similarly low level. The advent of the recent Single Farm Payment casts even further doubt on the financial sense of continued cereal production in sub-optimal areas, particularly within a floodplain. The economic justification for the ecologically damaging option of removal of the islands in order to protect the arable field from erosion is thus likely to be weak.

Given this, it is recommended that a combination of local re-grading of the eroded bank in order to create a shallower, less easily eroded profile and the creation of a well-vegetated buffer of at least 20m would provide a more acceptable and cost effective solution to this issue.

- The silted up old channel on the RB below the weir could be excavated in order to create a wide, deep bay and channel, offering a valuable low velocity refuge for coarse fish fry during high discharge periods. Survivorship of young of the year fry during spates, particularly during summer the summer/autumn period, is strongly correlated to subsequent year class strength.

- Any works to the bed or banks within 8m of a river require the previous written consent of the Environment Agency. In addition, the Agency's consent is required under Section 30 of the Salmon and Freshwater Fisheries Act 1975, for the introduction of any fish or eggs to any inland water.

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