River Alham – Albion's Vale

An advisory visit carried out by the Wild Trout Trust – December 2009

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Alham in Somerset. The advisory visit was undertaken at the request of Mr Michael Walters who owns approximately 1km of the river south east of Evercreech.

Comments in this report are based on observations on the day of the site visit and discussions principally with Mr. Walters.

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. Catchment overview

The River Alham is formed by a series of springs which rise to the north of Higher Alham. The river flows for an approximate distance of 14 km from source to its confluence with the River Brue just north of Alford.

The river has a very long history of modification with numerous milling impoundments installed throughout its length. These structures were used for a range of purposes from flour grinding to cloth processing or “fulling”. At Albion’s Vale there are several old impoundments, one of which was used as a silk mill. Many of these structures are ancient and some are mentioned in the Domesday book.

The fishery potential of the Alham seems to be a well-kept secret. A conversation with Iain Turner, Fisheries Technical Officer with the Environment Agency, confirmed that this little stream does indeed support good numbers of natural brown trout (*Salmo trutta*).

3. Fishery overview

Apart from one or two forays by Mr. Walters and his sons, the Alham at Albion’s Vale has received very little attention as a fishery. The stream is not actively managed as a fishery, although Mr. Walters has introduced some good sized buffer zones on the meadow adjacent to the upstream beat to protect the stream from grazing cattle. Mr. Walters has no aspirations to develop the fishery for financial gain but would like to ensure that it is sensitively managed so that it reaches its maximum fishery and conservation potential.

4. Habitat assessment.

The upper section of the reach supports some very good habitat for trout of all life stages, with a classic morphology of pool, riffle and glide, over a mixed bed of sandy sediments, with occasional outcrop of cobbles and finer gravels. This healthy and active morphology could not have been predicted from what initially looked to be a heavily modified channel flowing down over a modest gradient.

Further downstream, significant lengths of potentially good habitat have been drowned due to the presence of several large impoundments.

A nice thick buffer zone keeping livestock well away from the river margin

Typical small pool below the root system of a marginal ash tree – good holding water for adult trout.

Another great holding pool near the top boundary

A shallow riffle supporting good juvenile trout habitat

A combination of extensive tree root systems and fallen woody debris within the channel has created some excellent holding habitat for adult trout. Low, water-level scrubby vegetation provides good cover for juvenile fish in the margins of some of the shallower sections. Spawning glides and riffles, although present, were not particularly extensive, although there may well have been more of this type of habitat a short distance upstream. Good quality spawning and juvenile habitat on the very top section of any fishery is always a great asset because there is usually a downstream drift of displaced juveniles looking for a suitable spot to hold with adequate space and food availablility.

A cursory inspection of some river bed material confirmed the presence of good numbers of shrimp and caddis with some stonefly nymphs also observed. Overall the stream did not give the impression that it was enormously productive in terms of river invertebrates but the extensive shading on this top section will also provide significant quantities of terrestrial food items such as beetles and spiders.

Channel shading on this top section is quite heavy. The ideal situation on a small stream is to have approximately 60% shade to 40% light, creating a dappled mosaic effect. This has to be taken in context with the section of stream as a whole. Some of the reaches further down were much less shaded so overall the level of canopy cover was not excessive. Some thinning of sycamore saplings on this top stretch would allow valuable shafts of light to penetrate to the river bed and could help to boost in-channel invertebrate densities.

Some light thinning of marginal sycamore saplings may help to boost productivity

At one or two locations there was evidence of the non-native plant Himalayan balsam (*Impatiens glandulifera)*. This plant is undesirable because its

suppression of other vegetation, coupled with its winter die back, combine to leave extensive areas of bare bank, contributing to excessive erosion.

The control of Himalayan balsam can be achieved by physical or chemical means:

Physical Control

The main method of control, and usually the most appropriate, is pulling or cutting plants before they flower and set seed (usually in June or July). Working parties are the best means of doing this.

Limited grazing access appears to be controlling balsam in some sections of the fishery. This could be continued, but needs to be carefully controlled and balanced with preventing overgrazing of desirable species, damage to coppice re-growth or damage to river banks. Access in late spring or early summer before the balsam has flowered would be ideal. In areas inaccessible to livestock, physical or chemical control is recommended.

Chemical Control

Before using weedkillers alongside waterways it is necessary to contact the Environment Agency and obtain their written consent via form WQM1 (http://www.environment-agency.gov.uk/homeandleisure/wildlife/31350.aspx). It can also advise on suitably qualified contractors.

Himalayan balsam can be controlled with a weedkiller based on glyphosate, such as Roundup. Glyphosate is a non-selective, systemic weedkiller that is applied to the foliage. It is inactivated on contact with the soil, so there is no risk of damage to the roots of nearby plants, but care must be taken that the spray doesn't drift onto their foliage. Glyphosate is most effective when weed growth is vigorous. This usually occurs at flowering stage but before die-back begins; with most weeds, this is not earlier than mid-summer.

It may take a couple of seasons to obtain good control due to the germination of more weed seedlings.

Himalayan balsam is an undesirable non native plant

Towards the lower end of the top reach was a low block stone weir. It is unlikely that this weir fragments trout populations, as under high flow conditions adult trout should be able to negotiate the structure. The weir could, however, limit the upstream movement of juvenile trout and of important species such as the bullhead (*Cottus gobio*). A very simple enhancement would be to remove one or two of the central blocks to reduce the head loss and create a solid flume of water through the centre of the structure. This will also have the effect of increasing the upstream water velocities which will benefit trout habitat.

Small weir which could be improved by notching out the central section.

Throughout the whole reach there were good examples of habitat created by large woody debris (LWD). This type of habitat is absolutely crucial in streams such as the Alham. The presence of LWD has been shown to be extremely important in several respects:

- An increase in the variety of flow patterns, depths and localised velocities.
- Development of high in-channel physical habitat diversity
- Significant benefits to the control of run-off at the catchment scale. Woody Debris helps regulate the energy of running water by decreasing the velocity. Thus the 'travel time' of water across the catchment is increased.
- Provides organic material which acts as food and habitat for invertebrates

LWD is a general term referring to all wood naturally occurring in streams including branches, stumps and logs. Almost all LWD in streams is derived from trees located within the riparian corridor. Streams with adequate LWD tend to have greater habitat diversity, a natural meandering shape and greater resistance to high water events. Therefore LWD is an essential component of a healthy stream's ecology and is beneficial by maintaining the diversity of biological communities and physical habitat.

Traditionally many land managers and riparian owners have treated LWD in streams as a nuisance and have removed it, often with uncertain consequences. This is often unnecessary and harmful: stream clearance can reduce the amount of organic material necessary to support the aquatic food web, remove vital in-stream habitats that fish will utilise for shelter and spawning and reduce the level of erosion resistance provided against high flows. In addition LWD improves the stream structure by enhancing the substrate and diverting the stream current in such a way that pools and spawning riffles are likely to develop. A stream with a heterogeneous substrate and pools and riffles is ideal for benthic (bottom dwelling) organisms as well as for fish species like wild trout.

A good example of some LWD on the Alham providing cover and promoting pool habitat immediately below.

Obviously in streams such as the Alham care must be taken to ensure that large quantities of woody material do not break loose in spate conditions and cause

increased flood risk at vulnerable sites downstream. However, if the material is stable and fixed to be bank it should always be left *in situ*.

In the meadow below Milton Bridge the river forms a long slow glide. This is due to the impounding influence of a structure a short distance upstream of the main milling impoundment, which is adjacent to the old silk mill. The purpose of this upstream structure is unclear, but the angled stone blocks may be there to protect an old pipe or culvert running under the stream bed. With any such structure, care must be taken to understand exactly what purpose it serves and what, if anything lies beneath.

Angled impoundment a short distance upstream of the main silk Mill.

The main Silk Mill impoundment. This structure will fragment fish populations

The main silk Mill impoundment is a very old structure with significant industrial archaeological significance. Unfortunately the structure will be restricting upstream migration for all but the fittest and determined trout. On many rivers and streams where such structures exist, the Environment Agency has identified a list of prioritised actions to enable fish to freely migrate through the system. Unfortunately, constructing easements or fish passes on structures is extremely costly and very often resources are only allocated to those rivers with a known, or potential run of migratory salmonids. To my knowledge, this would not apply to the Alham. Creating a bypass channel or reducing the head loss by installing a pre barrage might be options worth exploring with the EA, but work of this nature is specialised and will require detailed planning and significant resources.

A further impounding structure with an even greater head loss was observed a short distance further downstream. At one time this little stream would have enjoyed a steep gradient and, in all probability, some superb trout habitat as a result. Despite the fragmentation of habitats, the river bed has regraded in places and some good quality habitat still exists. The relaxed approach to in-channel maintenance will have resulted in trout populating sections where there is sufficient habitat available for all life stages. Fortunately, even in the short section isolated between the two large structures, there is sufficient habitat diversity to enable a trout population to flourish. Even if local recruitment is poor, the section will still receive some stock from downstream drift.

5. Conclusions

The Alham at Albion's Vale is a delightful little stream that in all probability already supports a fit and viable brown trout population.

The stream's main value is as an ecological resource but there is no doubt that it can also support a sustainable wild trout fishery. For the fishery to work, it will need to be managed sensitively with a careful balance struck between maintaining habitats for fish and providing access for angling. Any desire to open up the canopy too much and remove in-channel woody debris may result in a reduction in stock density. Any commercial value is therefore limited because the fishery could only accommodate occasional short sessions for one or two rods.

Taking out the odd branch or tree limb to facilitate a cast here and there and encouraging further debris dams to form in areas of shallow glide will provide enough habitats to sustain a good trout population and facilitate just enough access for some occasional fishing.

The large impounding structures on the lower half of the stretch have a severe impact on habitat quality and will be restricting access for upstream spawning migrations. Flagging up these sites with the EA as possible future sites requiring attention is recommended. If resource were to be made available a scoping study to explore options, feasibility and possible costs would be the first step.

Some measures to protect the river from grazing livestock are already in place on the top meadow. These actions are particularly beneficial to spawning and nursery areas near the top of the fishery. Some consideration should be given to extending the protection through permanent or temporary fencing on the lower

reaches, with some access points left to enable occasional light grazing without risk of damage to the banks.

Tackling the Himalayan balsam is well worth the effort. Some help with volunteer resources to pull the plant may be available via the Somerset Wildlife Trust or possibly the West Country Rivers Trust.

It is understood that there have been some pollution pressures on this stream in the past. Many angling clubs now take part in the Anglers' Monitoring Initiative in order to maintain a close eye on water quality, which is reflected in the invertebrate populations. One excellent method of self monitoring water quality is to link up with the Riverfly Partnership. The Partnership provides simple training and a robust method of assessing fly life through periodic sampling of macro invertebrates. This is a simple and effective way of keeping a close eye on water quality performance. More information can be found at www.riverflies.org

It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Any modifications to hard defences will require a land drainage consent on any river designated as "main river". Advice can be obtained from the EA's Development Control Officer.

6. Recommendations

- Consider removing one or two central blocks from the small weir located in the top meadow.
- Control the invasive Himalayan balsam through pulling or spraying.
- Continue the sympathetic management practice of leaving fallen timber in the stream wherever possible.
- Thin out some clumps of sycamore saplings to promote a little more light for the channel.
- Explore the options for improving fish passage through the two large impoundments on the lower section of the fishery. A consultation with the EA is strongly recommended.
- Consider signing up for some training in undertaking simple surveys as part of the Anglers Monitoring Initiative. This is an excellent initiative and will give you a much better understanding about the productivity of your stream and some indication of long term water quality performance.

7. Making it happen

There is the possibility that the WTT could help to start an enhancement programme. Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). PV's typically comprise a 1-3 day visit where approved WTT 'Wet-Work' experts will complete a demonstration plot on the site to be restored. This will enable project leaders and teams to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

The WTT can fund the cost of labour (two/ three man team) and materials (max £1800). Recipients will be expected to cover travel and accommodation expenses of the contractor.

There is currently a big demand for practical assistance and the WTT has to prioritise exactly where it can deploy its limited resources. The Trust is always available to provide free advice and help to clubs, syndicates and landowners through guidance and linking them up with others that have had experience in improving trout fisheries.

Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

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