



River Anton – Westover Farm



An advisory visit carried out by the Wild Trout Trust – December 2008

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Anton on the Westover Fishery near Goodworth Clatford. Dr William Liddell is co-owner of the Westover Farm Partnership and the fishery is managed and maintained by Mr Simon Turner (Estate Manager) and Mr Sean Wilson (River Keeper).

The fishery has been under the same family ownership for many years and generates an important source of income for the estate. Dr Liddell and Mr Turner are both keen to ensure that the fishery is performing to its full potential. The fishery has a long history of traditional chalk stream management under the day to day stewardship of Mr Wilson, who has been the river keeper here for the last 30 years. The management team have wisely decided to take a step back and review current management practises to ensure that the fishery is reaching its full potential. The river is quite heavily stocked with brown trout *Salmo trutta* to meet current angling demands and there is a desire to explore options for enhancing the wild component of the stock potentially through changes in habitat management.

Good quality habitat is an essential component of any trout fishery. The type and quantity of habitat required will vary from river to river and on the objectives of the fishery owners. If a fishery is to support a viable wild stock then it is essential that there is access to sufficient spawning and nursery habitat as well as holding areas for adults. It is not always recognised however, that stocked trout also need good habitat. High quality trout lies will nearly always support a fish because as soon as one is caught from it another will move in. The key to retaining as many stocked fish as possible within the reach is to make sure that there are lots of lies available.

More information about the Westover fishery can be found at:

www.westoverfarm.co.uk

The comments and recommendations made in this report are based on the observations of the Trust's Conservation Officer, Andy Thomas and discussions with Dr Liddell, Mr Turner and Mr Wilson.

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. Description of the river.

The River Test and its major tributaries, including the Anton, are world famous chalkstream fisheries and are synonymous with upstream dry-fly fishing for brown trout.

The River Anton is the major headwater chalkstream tributary of the River Test in Hampshire. The river rises from the chalk aquifer to the west and north of Andover, which is a substantial urban conurbation influencing both the quantity and quality of water available downstream. The flow is augmented by the Pillhill

Brook which joins the Anton from the west on the southern outskirts of the town. The river flows for a further a further 5km before joining the Test at Fullerton.

A major input of treated sewage effluent servicing the Andover area enters the river below the bottom boundary of the fishery.

Wild trout stocks flourish on the River Anton where there are suitable habitats to support them. In addition to the trout stocks, the river also supports a good head of grayling *Thymallus thymallus*.

The Westover fishery comprises approximately 3.7 km of main river channel and an additional 1.6 km of carrier. The fishing is a combination of both season and day rods and is divided up into four main river beats and one carrier beat. The majority of the carrier is sub-let to Roxtons and let to day rods.

2.1 Main River Anton

The very top section of the main river beat is characterised by being extremely wide, with a laminar flow over a mainly soft silt and thin gravel bed. The channel is slightly broken up by two mid channel islands. Both banks have mown access paths. In some areas the margins have a narrow strip of marginal emergent vegetation of mainly sedge *Carex sp*, most which had been topped as part of a traditional autumn cut.

In-channel weed beds were mainly mare's tail *Hippurus sp*, starwort *Callitriche sp*, and water parsnip *Berula sp*. In one or two areas where the flow was locally sufficient a few beds of water crowfoot *Ranunculus spp* were also noted.



Exceptionally wide channel with narrow access strip from the top boundary. The lack of any significant marginal cover makes this a hostile environment for juvenile fish

In one or two sections on the top beat (beat 4) there was no perceptible planted margin usually associated with chalkstreams. In some areas the mown path dropped straight into the river bed with the bank mainly defended with bare chalk.



Unmanaged margin of a mid channel island. The low scrubby fringe of dying annuals provide vitally important winter cover for juvenile fish.

Some reasonably good marginal habitat was observed on the mid channel island. The margins are a crucial area for both juvenile trout and the food of trout. Many fish will not take up residence in deeper, open water habitats where they are vulnerable to predation. There was very little spawning or nursery habitat within this section. However, the good quality habitats that are present further upstream will ensure that juvenile trout are displaced downstream into the top of the fishery. Unfortunately there is currently very little in the way of suitable nursery habitat available to intercept them. Consequently, these fish will either perish or keep moving until a suitable niche is found.

In addition to providing vital cover for juvenile and adult fish, marginal plants are vital to many invertebrate species on which trout feed. Whilst water crowfoot is widely appreciated for the hatches of olives (Baetidae) and blue winged olives (Ephemerellidae) that it generates, comparable powers of emergent and bankside vegetation are chronically undervalued. Vegetated margins produce falls of terrestrial invertebrates and generate dry-fly sport at times of the year when other hatches may be sparse. They also improve the capacity of streams to support caddis and true mayfly (*Ephemera spp.*) hatches. Both mayflies and many caddis species rely on emergent and bankside vegetation in order to

complete their lifecycle. Forcing such species to fly further from the stream in search of suitable shelter dramatically increases the proportion of adult flies lost to predation. A structurally diverse marginal plant community is, therefore, conducive to maintaining good densities of surface fly activity throughout the season.

Further downstream there was one section where the channel was narrower and where access for fishing was restricted to the RB. Much of the fishery is, however, maintained on both sides to facilitate bank fishing. This traditional style of maintenance is often associated with fishing beats on the middle reaches of the River Test but rarely seen on rivers where wild trout form an important component of the stock. The regime is very much focused on anglers and access for angling but provides nothing for fish or fly life. Some wild fish will be present on beats like this but generally they will be there in spite of the management and maintenance and not because of it.



A biologically sterile margin. Man made banks without any sort of soft marginal fringe of emergent plants are often extremely vulnerable to bankside erosion.

Most anglers these days do not expect to be able to cast a fly over every inch of available water and if wild fish and fly life are to be encouraged then a change of approach should be considered.

The river here is ripe for enhancement. There are some sections where there is potential to harness the gradient and create some better quality in-channel habitats that will be better for both stocked and wild fish.

More sympathetic management of the marginal vegetation, to allow a wider uncut fringe would deliver immediate benefits by providing cover and protected lies for fish and supporting invertebrates. This is one change to current management practice that can be quickly and easily addressed

Bare chalk or old corrugated iron sheets are not conducive to a biologically productive margin that will both protect the bank from erosion and provide habitat for fish and invertebrates.



Another featureless section of channel that provides precious little winter cover for trout or grayling



A section with some gradient capable of sustaining good quality mid channel habitats but in need of better quality marginal habitat



| A good example of marginal habitat on the LB where access for angling is not facilitated



This section could potential provide good trout spawning and nursery habitat but is currently too wide.



An overhanging tree promoting downward scour and a good lie for adult trout.



A good quality LB margin where there is no access for angling.

The top beats on the main river are far too wide for the available flow. Trout and in particularly wild trout will feel uncomfortable and exposed to predators when

lying up in a smooth shallow glide over a predominantly silt bed. Any slightly drier than average year will leave this section extremely vulnerable to a heavy early growth of blanket weed (filamentous algae) which could then shade out potentially valuable plants and leave a very hostile environment for trout and grayling. In such a wide channel, water velocities will be very low, allowing sediment deposition and no opportunity for any natural variation in channel topography to develop. Wild fish stocks require a wide and varied array of habitat types to provide niches at every life stage. The main river here is 90% shallow glide and 9% deep glide. Potentially valuable habitat is either drowned by impoundments, further slowing upstream water velocities, or is unable to develop pool or riffle habitats because the channel is too wide with no retention of any in-channel woody debris that might promote local bed scour.

The vast majority of chalkstream channels are man-made but trout have evolved to conditions that require a range of habitat types including pool, glide and shallow riffle. Without a reasonable amount of all the required habitat niches it will be very difficult to build up the wild stock. Introduced hatchery-derived stocks would also benefit from the creation of enhanced lies for holding and feeding. Adult brown trout are very territorial and each fish requires a comfortable lie where it is not in direct visual contact with another trout. Chalk stream weed beds when properly managed do help to break up the river into holding compartments but if the weed growth is poor then the number of good available lies will be dramatically reduced. Fish failing to find a suitable lie will generally migrate out of the fishery in search of suitable habitat elsewhere.

A very simple way of improving marginal habitat is to move towards single bank fishing wherever possible. If it really is necessary to cater for left handed anglers then alternate the managed bank and provide access via a foot bridge.

As demonstrated on the top beat, the provision of islands is a good way to narrow the channel which will locally increase water velocities promoting better quality habitat as well as providing a substantial area of unmanaged scrubby margin. The margins of fisheries that provide the best habitats for trout are generally low, soft, and scrubby. It does not all have to be like this and manicured margins can be provided on some sections where complete novices can fish without fear of getting caught up. It is likely however that most of the fish will move to the areas where they feel more comfortable which are not necessarily where the anglers want to fish. A more relaxed approach to marginal maintenance will not only improve the fishery but will also save time and/or money.

If local water velocities can be increased through channel narrowing or the lowering of certain impoundments then it will be possible to create either spawning and nursery habitats or deep pool habitat. The introduction of river valley gravels to create good quality spawning habitats is a tried and tested technique on chalk streams. This may not be necessary as good quality spawning gravels are often present but buried under layers of settled sediments. Pinching the channel or lowering an impoundment is often all that is needed to bring a habitat back to life. It is recognised that on some chalkstream channels there is no significant alluvial deposits and some are merely perched above soft peat deposits. On sites like this it will be necessary to import new gravels if successful spawning is to be achieved.

When securing enhanced water velocities it is sometimes necessary to introduce hard current deflectors in order to promote the necessary scour. The best and most natural form of current deflector is generally a large piece of woody debris (LWD). Most natural variation in river topography is initially promoted by a fallen tree, or branch which has forced the river to move or cut down. Trout have evolved to capitalise on the natural variations that a river provides in a completely unmanaged form. Harnessing these principles and using the river and natural materials to create and improve trout habitat is an art that skilful river managers can employ to vastly improve stocks of wild trout.

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 a “natural” groyne which is promoting good habitat diversity on the River Coln in Gloucestershire

Techniques for channel narrowing and the deployment of LWD are described in the WTT Chalk Stream Habitat Manual.



A low weir on the main river.

Throughout the reach there were a number of low weirs. Some of these were built to provide flow for the network of side streams and carriers used to irrigated the old water meadow systems. On rivers with modest gradients, weirs often generate 10m of good quality habitat immediately downstream but wreck hundreds of metres upstream. It should be recognised that some structures play a vital role in keeping adjacent meadows wet and therefore add to the nature conservation value of the river corridor. It is recommended that all of the structures on the Westover Fishery are looked at to identify their function. If they are needed to push water down important side carriers then they must be retained. If not then it would drastically improve the main channel habitat if the structures could be lowered or even removed. This is also the case for structures located on the carriers themselves.

When impounding structures have been in place for a long time the river bed often regrades upstream. When the structure is lowered or boards permanently removed then the channel upstream will often look awful for a good year or more. Given time, however, the increased velocities generated will scour the soft sediments away and a much improved channel can rapidly form. This is without doubt one of the simplest and cheapest forms of habitat enhancement to undertake.



Another weir. Why was it built and is it still needed?



A good sized buffer zone fenced to keep sheep out. Note the double bank fishing on a channel that could easily be fished from one bank

2.2 Carrier

Very often side streams and carriers offer great opportunities for wild brown trout. The options for habitat manipulation are usually easier and more affordable and the introduction of large fish farm derived stock sometimes slightly less appropriate on a smaller channel.



An old fallen tree has blown up some loose clean gravel on the carrier. Excellent spawning habitat

When considering the enhancement of wild stocks it will be important to regulate angling effort. Good quality wild trout fishing is much in demand but allowing day rods to take one and half brace a day with no controls will not allow a wild population to develop, especially where there are other limiting factors such as habitat quality.

If the development of the carrier for wild trout is being considered then it might be appropriate to reduce stocking densities and move to catch and release coupled to a programme of habitat enhancement. This may be difficult to manage, particularly if the bulk of the carrier is let to a third party. Having beats where anglers can catch a large stocked fish and then move on to the more challenging task of catching a wildie on one of the carriers which must be returned could potentially make the fishery a more interesting proposition, particularly for the more discerning angler.



A fringe of reed canary grass *Glyceria Sp* peeled back from the margin



A bed of marginal water cress *Rorippa sp* dragged back from the margin.

In other sections valuable marginal plants have been scraped back which will reduce water velocities, encourage deposition of sediment and remove any cover for juvenile fish.

Some efforts have been made to enhance the carrier through a programme of tree planting and some localised channel narrowing using bunds of imported chalk. Some of the trees appear to be of an ornamental variety and although attractive add less value than a native tree which would support more invertebrates (trout food) or low cover for secure lies. The best species here would be goat willow or sallow *Salix caprea* which if allowed to develop will provide excellent low scrubby cover and a good source of terrestrial food items.

The bunds themselves do not appear to be having the desired effect. They need to be more radical in pinching the channel and should be coupled with the introduction of gravels to raise the bed and locally promote elevated water velocities.



Imported chalk groyne designed to pinch the channel

Much of the carrier lacked significant overhanging marginal cover. This type of cover is even more important in small carriers to reduce predation pressures, particularly from fish-eating birds. Low, overhanging shrub and tree cover also provides an extremely valuable source terrestrial food items such as beetles, spiders and aphids.



A rare example of a low goat willow providing excellent trout habitat on the carrier

If enhancement works are to be undertaken then it is advisable to have a consultation with the local Environment Agency Office regarding your plans.

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 Development Control Officer.

3. Conclusions

The River Anton and carrier on the Westover Fishery has significant potential for enhancement and could be further developed into a high quality chalkstream trout and grayling fishery. Currently the habitat quality is marginal for wild trout and the retention of stocked fish is almost certainly impacted by the lack of suitable secure lies.

The habitat for trout is not improved by the current management practices such as removal of marginal vegetation in the autumn. This practice reduces the amount of protective cover from predators and reduces the production of invertebrates. It also prevents the river from becoming naturally pinched, which would promote more vigorous water velocities that would support valuable

habitat. Removing the fringe also leaves banks vulnerable to winter erosion in a high flow year.

When creating access for angling it is preferable to trim out regular access points on a single bank rather than trim or scythe long marginal swards. This may make the fishing a tad more challenging on some sections, but some more heavily trimmed sections can be retained for complete novices.

Some of the upper sections of the main channel are too wide, resulting in slow, laminar flows and a lack of in stream vegetation which would provide both food and cover for trout. It is recommended that some narrowing could be achieved through a combination of island construction and, where the margin is in need of renovation, some channel narrowing. This can be achieved using faggot bundles back filled with a chalk and soil mix and then planted up with marginal emergent plants. Any narrowing should not seek to create a high, hard bank suitable for standing on but a low, soft margin capable of supporting a thick fringe of native marginal emergent plants. Occasional hard spines of chalk can be introduced into the soft fringe to give adequate access for fishing.

Other than on the very widest top section, move towards single bank fishing and leave the non-fished bank to develop a low scrubby margin.

Consider the introduction of some LWD to create enhanced in-channel habitats.

It is recommended to undertake a survey and a review of the various level control structures that are to be found on the main river and carrier. Opportunities to permanently lower or remove the structures should be explored and taken if at all possible.

Review the current fishing rules. Do anglers need to take one and half brace each time they visit? Over the past 5-10 years, catch and release has become universally accepted on even the most traditionally managed rivers. A move to catch and release on some beats could save money and help to build a better wild component to the stock.

Stock fish are extremely expensive. It makes sound commercial sense to make the most from every one. Stocking densities should be reviewed in light of prevailing conditions (low flow years, high temperatures, fishing effort) and the number of fish introduced tailored accordingly. I presume there are accurate records of introductions and catch returns enabling a detailed analysis of conversion rates. A move to the provision of better quality habitat should result in a better return of stocked fish as well as developing better wild stocks.

With so much that could potentially be done it is recommended that a phased approach to improving the river is adopted. This will allow all concerned to get a feel for what the river could look like and to get some valuable feedback from the rods.

Communication of the changes to management practice, and most importantly the reasons for the changes to the rods is essential. Notices in the fishing huts are perhaps the simplest way of achieving this.

It would also be sensible to look at and explore what other successful fishery managers are achieving in terms of enhancing the economic value of their fisheries through better habitat management.

4. Recommendations

- Consider a move to single bank fishing wherever possible and only undertake maintenance on the un-fished margin if absolutely necessary.
- Stop the practice of strimming and peeling back the margin in the autumn. Allow a fringe of untrimmed marginal plants to develop along the bank, providing cover for trout.
- Consider the construction of one or two new mid-channel islands on the extremely wide top beat 4. Specialist help may be needed and a Land Drainage Consent would be required from the EA. Some alterations to the hatch near the bottom of beat 4 may be required to pull water through more vigorously and capitalise on any channel narrowing through island construction.
- Remove the old sheet tin revetment and re-establish a new soft margin using faggot revetment backfilled and planted with marginal emergent plants.
- Undertake a programme of marginal planting throughout the fishery with goat willow or sallow to promote some much needed low scrubby cover.
- Retain as much LWD within the channel as possible and consider importing large tree trunks or branches that could be pegged onto shallow sections to enhance and sort in-channel gravels.
- Retain some refuge areas where fish can hold up without necessarily being available to anglers.
- Consider the possibility of enhancing the productivity of the fishery by creating new spawning habitat with imported gravels. This again is specialised work and a consultation with the EA is recommended.
- Review the current fishing rules and consider catch and release using barbless hooks on beats where wild stocks are being developed.
- The stocked fish currently being introduced are I understand sourced from the Houghton Club. These fish are likely to be all female triploid stocks and are a better option than fertile diploids if a wild stock is to be developed.

5. 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 an 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.

Alternatively the Trust may be able to help in the development of possible project plans for the creation of new spawning and nursery habitats.

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

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