



River Medway – Kingscote



An advisory visit carried out by the Wild Trout Trust – November 2010

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on a stretch of the upper Medway above Weirwood reservoir in West Sussex. The advisory visit was undertaken at the request of Mr. Mark Bellisio who looks after the stream on behalf of the owner Mr. Cristen Monge.

Mr. Bellisio has seen and caught wild brown trout in the stream and both he and Mr. Monge are keen to manage the river in a way that protects and improves the fish population and to possibly explore the options for some low key angler exploitation.

Comments in this report are based on observations on the day of the site visit and discussions with Mr. Bellisio and Mr. Monge. 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 Medway rises from springs in the high weald near Turners Hill in West Sussex and joins the Thames near Chatham in Kent, draining a catchment of approximately 2400km². The Medway is a heavily modified river and has been extensively altered for milling, navigation and flood defence purposes.

The local geology comprises of Hastings Beds which are a nutrient poor mixture of clays and local sandstone. The section of upper Medway near Kingscote drains into the 113 hectare Weirwood Reservoir which lies just downstream of Mr. Monge's property at Mill Place Farm, Kingscote.

3. Fishery overview

The Medway running through Mill Place Farm is known to support both brown trout (*Salmo trutta*) and mixed coarse fish populations. Fishery survey data for this particular reach is not available and the river here has only very occasionally been fished. Historically the upper reaches of the Medway were known to support strong populations of trout and, despite the fragmentation of habitat and fish passage caused by the construction of the Weirwood Reservoir in 1953, it would seem that wild brown trout are still populating the short 4-km stretch that feeds into the reservoir.

The lack of any significant local development coupled with the requirements for high quality water feeding the reservoir has probably been responsible for giving some level of protection to the fish stocks present in this very short length of stream. The good quality habitat that was evident during the advisory visit also explains why viable populations of trout are still present.

4. Habitat assessment.

The Medway at Mill Place farm can be split into two distinct reaches. A comparatively open and slow flowing section above the weir and a classic pool/riffle/glide reach below.

It is understood that the weir marks the site of an ancient mill and the structure is likely to have significant archaeological interest and value. Even if deemed desirable, modifying the structure to reduce the impounding effect it currently exerts on the upstream channel may not be an option. This is discussed in more detail in the recommendations section of this report.

The weir (cover photo) impounds the stream for a considerable distance upstream, resulting in comparatively deep water with slow flows. Habitat suitable for wild brown trout was scarce on this section although the occasional adult fish has apparently been caught here. No suitable habitat for trout spawning (shallow, gravel-bottomed glides) or habitat for supporting juvenile trout was seen until a considerable distance upstream, when the impounding effect of the weir was lost. A small tributary which enters the RB of the main stream a short distance above the weir has potential to be developed into spawning and juvenile habitat.

The main channel on this upper section is quite open, with only a few marginal trees and shrubs providing cover. Some thick beds of burr reed (*Sparganium erectum*) were growing across the channel in places, further compounding the relatively slow flows on this reach. Plants such as burr reed can provide excellent habitat when lining the margins, protecting the bank and providing cover for a range of fish and invertebrate species. Large clumps that become established in central channel locations can cause problems by trapping sediments and generally slowing water velocities.

Further upstream above the impounding effect of the weir the stream takes on different characteristics where a combination of a more active morphology and increased shading provides some better quality habitats for trout.

On the upper section livestock have been kept from the river margins by fencing. Here the channel is lined on both sides with a dense tree canopy of mainly alder, ash and occasional elder. Trout populations tend to do best in streams and rivers where the depth and flow velocities are variable and where there is a tree and shrub regime promoting dappled light and shade. Some light thinning of the tree canopy on this top reach will help to boost productivity.

In open grazed meadows with very little shade, water temperatures can rapidly increase during hot summer days, particularly during low flow conditions. As a cold water species trout will not feel comfortable when water temperatures climb above 18°C. Trout will also be reluctant to hold in open sections of channel where there is little or no cover from predators such as fish-eating birds.

However, the heavily shaded sections will be less productive in terms of in-channel invertebrate food sources, although a considerable amount of terrestrial beetles and spiders will drop into the channel from overhanging branches as trout food.

The ideal scenario to aim for is 60% shading to 40% direct sunlight to promote the dappled effect favoured by trout stocks. Some occasional tree planting in the open meadow and some selective thinning of the canopy on the upstream boundary will help to improve the whole of the upper reach.

In contrast to the section above the weir, the downstream section was almost "trout heaven". Here the river is characterised by numerous pools, bends, undercut margins, shallow gravel runs and riffles with a good balance of light and shade. Habitat for all life stages of trout were well represented throughout the reach until the impounding effects of Weirwood Reservoir noticeably slows water velocities and drowns out the natural gradient of the stream near the bottom boundary. It was estimated that the high quality habitat extended for approximately 750m.



A long gravel riffle downstream of the weir. A good habitat for spawning and juvenile trout.

There was some first class spawning habitat a short distance below the weir pool. These sections could be further improved with the addition of some large woody debris (LWD) flow deflectors to help locally scour small pots in the gravel bed and blow out and sort gravels into small ramps idea for trout spawning. Creating occasional small "pockets" in the bed of the riffles will also encourage some larger trout to hold throughout the year. Details of how to create this type of habitat is described in the conclusions and recommendations section of this report.



Typical holding pool on the bottom section.

Numerous high quality holding pools like the one above were seen. Many of these were rendered virtually unfishable by a tangle of shrubs and brushings. Light thinning of some of the high level brush will bring the water into a fishable condition. It is vital however, to maintain as much of the low brush and overhanging scrubby cover as possible. Taking out the odd branch to facilitate a cast here and there is perfectly possible but wholesale clearance must be ruled out if the wild trout that are present are to remain.

Throughout the reach there were good examples of how habitat has formed around fallen trees and in-channel chunks of woody debris. Retaining as much of this fallen material within the channel as possible is crucial. As already described, LWD helps to provide cover and promotes dynamic river morphology. The wood as it rots also provides a primary source of food for some aquatic invertebrate species. If a fallen tree is responsible for unacceptable bank erosion then it can often be moved and pinned to ease pressure on the bank and usefully scour river bed gravels to help form pools and provide new spawning substrate.



A large fallen tree that has caused the river to scour a fantastic holding pool and help form a gravel riffle downstream. High quality habitat for trout.



A ramp of loose gravel thrown up below a pool.



A debris dam near the bottom boundary.

In one or two locations some small debris dams have formed. Generally these do not cause any serious problems for fish migration, however any dam should be monitored to ensure that large amounts of sediment do not build up on the upstream side of the dam. If the bed levels differ by more than approximately 250mm then it is wise to ease some wood out of the dam and peg it in somewhere else.

5. Trout stocking.

There was a discussion about the possibility of carrying out some stocking. The stream almost certainly sustains wild fish occupying all available habitat niches. Introducing large stocked fish on top of the existing population may result in some fish, both wild and stocked, being displaced from the reach. The existing wild population will be well adapted to the small stream environment and provided any fishing pressure is carefully managed there should be no need to introduce any farm reared fish to augment the stock.

There is mounting evidence that interbreeding between domesticated farmed trout and wild fish can lead to lower fitness and survival amongst the offspring, reducing the numbers of river-bred fish in the population. Recent changes to the Environment Agency's National Trout & Grayling Strategy reflect this concern, and by 2015 all farmed trout stocked to rivers will be required to be sterile all-female triploids, or derived from local broodstock.

6. Conclusions

The upper Medway at Mill Place Farm is a delightful little trout stream. Habitat quality for wild trout on the reach running down from the weir is excellent and with a very light touch could easily be further enhanced to provide some low key angling opportunities for the occasional paying guest.

Opportunities for small stream wild trout fishing are comparatively scarce in the south east and this little stream might be an attractive venue for anglers that often have to travel considerable distances to experience this type of sport. The length of high quality habitat is somewhat limited and therefore it would be very easy to put the stream under too much angling pressure. There is probably enough water to sustain one rod for a full day or possibly two rods for half day a week at the most. As a pilot, inviting one or two small stream enthusiasts to fish the water and provide you with some feedback would be sensible.

A wild fishery here can only be sustained on a "catch and release" basis. The stream is obviously cut off from any upstream migration of potential broodstock because of the reservoir, so maintaining a strong population of adult fish at the back end of every season is essential. Brown trout stocked into Weirwood are likely to be highly domesticated farm reared strains and will not provide any worthwhile broodstock for your fishery.

Some light rotational coppicing of marginal trees will help to provide some access for angling and maintain the desired dappled light and shade regime favoured by trout. Leave as much fallen woody debris in the channel as possible and if considered to be a nuisance then relocate it elsewhere and secure it to the bed to promote local bed scour.



Volunteers securing a log to the bed to help scour the bed and free up gravels for spawning

The section immediately upstream of the weir would benefit from the provision of further shade. Planting small groups of thorn or sallow to provide low cover

will help to improve fish holding opportunities and also help to shade out excessive bur reed growth. Where the bur reed encroaches into mid channel locations it is advisable to grub out some of the plants or speak to the Environment Agency about the possibility of controlling some of the plants with an approved herbicide. Reed that grows just in the margins should be left to act as flow deflectors, cover for fish and habitat for a range of river flies.

The small stream that enters the main channel just above the weir could make excellent spawning and juvenile habitat. Currently the stream lacks a suitable substrate. Angular flint gravels ranging in size from 10 to 40mm could be imported and used to line the stream up to the footbridge. Gravels would cost approximately £25 a tonne delivered. Five or six tonnes of gravel introduced into this short section along with a few small pegged-down logs or local sandstone rocks to help lock them in place would provide a valuable habitat and improve the aesthetics of the stream. The current level of tangled overhead cover should be left in place to make it an attractive refuge area for trout fry and parr.

The impounding effect of the weir is having an adverse effect on habitat quality on the reach upstream of the structure. It is recognised that this might be a listed structure and modification not desirable. If the height of the impoundment could be lowered by removing some blocks from the crest of the weir then improvements to upstream habitat quality will develop over time. Lowering the impoundment will also help fish to freely migrate up and down the stream over a much wider range of flow conditions.

7. Recommendations

- Explore options with the Environment Agency for lowering the crest height of the impounding weir.
- Leave as much fallen woody material in the channel as possible.
- Do not be tempted to peel the marginal reed fringe back too far. A narrow but briskly flowing channel will suit trout better than a wide, deep and slow-flowing one.
- Control emergent bur reed when it starts to grow in central channel locations potentially blocking the channel and backing up flows.
- Plant some additional willows (sallow) or thorns to promote low overhead cover on long open sections above the weir, particularly over pool habitat or on the outside of bends.
- Consider introducing more structure into the channel on the top and bottom beats, particularly on shallow gravel sections by using LWD flow deflectors to scour pots and promote ramps of loose gravel for improved spawning opportunities.

- Explore the possibility of improving the bottom 20 to 30m of the small side stream by importing fresh gravels
- If not already involved, consider signing up for some training in undertaking simple surveys as part of the Anglers Monitoring Initiative with the Riverfly Partnership. This is an excellent initiative and will give a much better understanding about the productivity of your fishery and an indication of long term water quality performance. For more information go to www.riverflies.org
- Raise awareness amongst any anglers fishing the stream over the importance of catch and release for wild trout conservation.
- Do not be tempted to stock this little stream with hatchery reared trout. It could and should sustain enough fish to support a low key but high quality wild trout fishery.

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.

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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