



Dorset Frome – Notton to Southover



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

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Frome in Dorset. This report covers the reach of river from Notton bridge down to the bridge at Southover. This report is one of a series of WTT advisory visits undertaken in conjunction with the Dorset Wildlife Trust and the Environment Agency as part of the Dorset Chalkstream Project.

During the site visit the author was accompanied by Sarah Williams from the Dorset Wildlife Trust and representatives of the main riparian owners.

The comments and recommendations made in this report are based on the observations of the Trust's Conservation Officer, Andy Thomas and discussions with the owners and their representatives.

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.

In 2002 a previous advisory visit and report was produced by Nick Giles on behalf of the WTT for Mr Charles Druce, who owns the fishery from Notton bridge down to the recently renovated hatches at NGR xxx xxx. This report is available via the WTT website at www.wildtrout.org

The three main recommendations from the report were:

- That the key spawning gravels should be jet washed to improve spawning success
- A programme of tree works be carried out on the wooded section
- The hatch gates on the sluice to be renewed.

2. Description of the Fishery

The River Frome has the reputation of being an excellent chalkstream fishery supporting good stocks of brown trout *Salmo trutta*, and grayling *Thymallus thymallus*, as well as Atlantic salmon *Salmo salar*. The river also supports indigenous stocks of coarse fish as well as key conservation species such as bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*. Many sections of the Frome are regularly stocked with hatchery derived trout but this reach of the upper Frome is completely reliant on natural production to sustain the trout fishery.

Over the comparatively short reach inspected, the in-channel habitats were very diverse. This was partly due to the large impounding weir just downstream of Crockway House but also because of the local geology and associated riparian habitat found downstream of the hatches on Major Hubbard's reach at Hydlands Farm.

For the purposes of this report it is logical to divide the reach into two. The upper reach from Notton bridge down to the hatches and then lower reach from the hatches to Southover bridge.

2.1 Notton Bridge to Crockway Sluices

This reach is under the ownership and control of Mr Charles Druce. The fishery here has been in the ownership of the Druce family for many years and is managed and nurtured with wild trout and the wider conservation of the river very much in mind.

The top half of the beat is geomorphically active and is characterised by a series of classic pools, runs and riffles. During the inspection numerous trout were observed enjoying what can only be described as excellent trout habitat.



Excellent trout nursery habitat below Notton bridge

The potential for good quality spawning was evident, with numerous riffles and gently flowing shallow nursery zones, however, there are concerns that the quality of the spawning habitat is compromised by the natural concreting process of the river bed. This can be partially addressed through active intervention, as described in Nick Giles's 2002 report but can also be helped through a more relaxed approach to the clearance of in-channel debris, such as fallen trees and large pieces of wood. Where pieces of large timber lodge on shallows they actively promote local scour of the river bed and natural sorting of river gravels which are then actively used by spawning fish. Some good examples of large woody debris (LWD) were observed on the Notton fishery and

Mr Druce appears to be well aware of the benefits derived from leaving such material in the channel.

Most of the margins and banks throughout the fishery were in good condition with a nice mix of shallow shelves and deep marginal pools. Some active erosion was evident in a few areas where the bank was not defended with marginal root systems. Provided no serious loss to property is threatened there is often no need to actively intervene. Sometimes a small realignment or managed retreat of an access path is better and more beneficial to the river and its inhabitants than any attempt to harden the bank. New gravels won from such events are crucial to the condition of many trout habitats. On one section of RHB near the top of the section a land owner has attempted to defend the bank using wooden toe-boarding. This has already started to fail and as well as being a biologically sterile habitat, it is also failing to prevent the river from moving sideways.



Ineffective bank erosion control measures

The margins of any well managed chalkstream are potentially the biologically richest part of the stream. An eroded bend, if left unmanaged, will usually find a naturally equilibrium and eventually create excellent habitat. As the bank nibbles back, the rate of erosion slows and the bare bank slumps down to form a natural batter to be rapidly colonised with a herb rich margin. The main problem is that few owners have a relaxed approach to losing their property to the river. Where a managed retreat is deemed impossible, then soft engineering techniques using planted faggot bundles to protect the toe of the bank, or live willow spilling will usually halt the process. Simple current deflectors using tree trunks can also be deployed and anchored to divert the erosive flows towards the centre of the channel rather than the toe of the bank.

Further information on these techniques can be found in the WTT Chalkstream management guidelines, which can be downloaded as pdf files from the WTT website.

It has been the fashion on some sections of chalkstream to carry out wholesale channel narrowing to combat the effects of sustained low flows and to create fast and usually deeper water capable of supporting adult fish. Where strong populations of wild trout are desired then it is crucial to ensure that there is also extensive habitat for juveniles. The upper half of this beat has all of the essential habitat components, with a the diverse mix of shallow sections pinching down to deeper glides with a good smattering of deep slow pools. There were good examples of low scrubby cover and the current management regime has struck the right balance between habitat and access for angling. Where improvements could be made is on some of the wider shallow sections, where some extra cover and possibly greater variation in depths and flows could improve both temporary holding for pre spawning brood fish and improved cover for juveniles from predators.



A low scrubby margin – trout heaven!

An area of potential concern relates to the presence of non-native plants. Himalayan balsam (*Impatiens glandulifera*) was observed on several sections. It is a relative of the busy Lizzie and is known by a wide variety of common names, including Indian balsam, jumping jack and policeman's helmet. It is a tall, robust, annual producing clusters of purplish pink (or rarely white) helmet-shaped flowers. These are followed by seed pods that open explosively when ripe, shooting their seeds up to 7m (22ft) away. Each plant can produce up to 800 seeds. Himalayan balsam tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. In the autumn, the plants die back, leaving the banks bare of vegetation and vulnerable to erosion.

This plant was observed on numerous sections of the beat and there was evidence on how damaging it can be for trout habitats, where it has the capacity to outcompete and shade other native plants and prevent the establishment of those crucially important marginal fringes. It is recommended that efforts are made to eradicate the plant, especially where it is found adjacent to potentially high quality marginal habitat.



A backdrop of Himalayan balsam which has compromised the establishment of a vegetated fringe of ecotone plants. A gently battered margin like this is usually brilliant habitat for trout fry but cover is essential.



Himalayan balsam in flower

Control measures are required to prevent flowering and if this is achieved before seeds are set, eradication is possible in two to three years. Options for control include:

- **Chemical control:** can use glyphosate or 2,4-D amine. Need to be used whilst plant is actively growing in early spring for best effect.
- **Cutting/mowing/strimming:** cut at ground level, before the flowering stage in June. Do not cut earlier as this promotes greater seed production in any plants that regrow. Cutting should be repeated annually until no more growth occurs.
- **Pulling:** shallow-rooted plants can be pulled up very easily and disposed of by burning or composting, unless seeds are present.
- **Grazing:** Grazing by cattle and sheep is effective from April throughout the growing season. It should be continued until no new growth occurs.

The Food and Environment Protection Act 1985 (Control of Pesticides Regulations 1986, as amended), sets out the rules on the use of pesticides to control weeds growing in water or on land. *'Pesticides' includes herbicides as well as insecticides and fungicides.*

Under the Regulations, anyone who wants to use herbicides to control aquatic or bankside weeds must have written agreement to their proposals from the Environment Agency. They must notify the Agency of their proposed programme, including details of the site to be treated, who will be applying the herbicide, and which herbicides they will use. See: http://www.environment-agency.gov.uk/commodata/acrobat/wqm1_notes201_1797478.pdf

The reach from the wooded section down to the sluices is very much under the impounding influence of the sluices. This is characterised by typically deep, slow flowing water. Although not as a rich and diverse a habitat as that found on the upper part of the beat, this type of water can sometimes be favoured by large adult trout and species such as eel. Unfortunately it is somewhat compromised by the inappropriate marginal planting and management on the LHB adjacent to Crockway House. Here the river appears to have been used as an extension to the formal garden surrounding the house. The move towards a mown lawn bank compromises both the biological value of the reach and its resilience to damage as a result of flooding events.

A real improvement could be made through a change in marginal management on the LHB and the provision of some low cover via planted goat willow or sallow *Salix caprea*.



Formal garden with a bank vulnerable to erosion and devoid of marginal scrubby cover

On the RHB the river sits adjacent to the meadows owned and managed by the Dorset Wildlife Trust. The restoration of the sluices has enabled the DWT to restore the water meadow and gain control over levels and flows. In many cases the removal of weirs and structures enables impounded reaches to establish a more natural in-channel regime, however the channel here has not only been modified by the structure but has also been re-aligned and banked up to form a classic “perched” mill channel.

Removing the structure may well re-establish some in-channel features but the banks would also need to be extensively lowered to recreate any valuable chalk stream margins. Although possible, this work would be prohibitively expensive and also compromise the ability of the DWT in managing the water meadow system. It is therefore recommended to continue with the current arrangement and to look at the possibility of improving access for migratory fish species through the structure.

The Environment Agency may well have already assessed this structure for fish passage. It is recommended that enquiries are made to see if any plans have been devised to effect improvements.

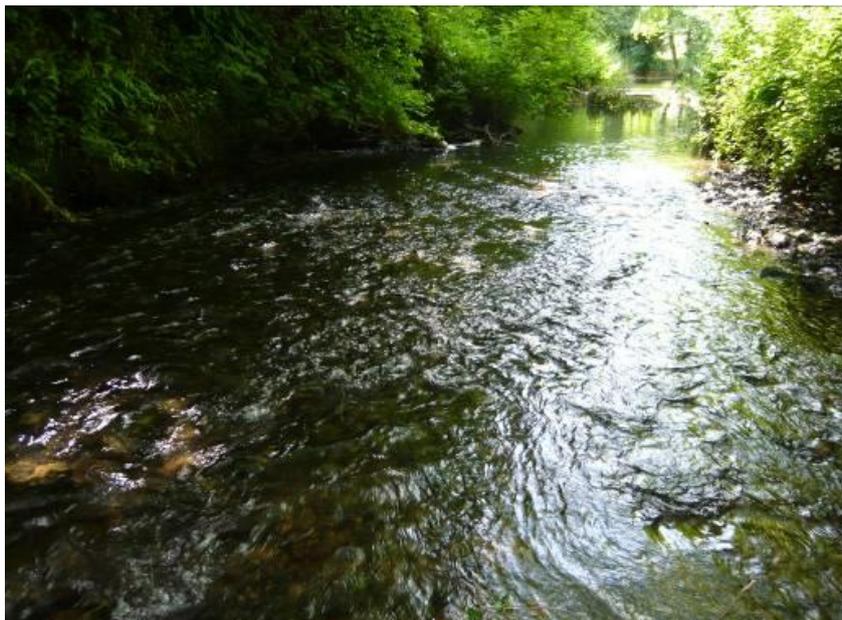
In addition to the impact the sluice has on the main channel, it also provides the head of water to feed a small channel that flows south east across the meadows before swinging north east again to rejoin the main channel. This carrier was not inspected in detail but it is known to support some excellent in-channel fishery habitat as well as important riparian habitat.



Side carrier fed from the sluice – good refuge for young trout from predators

2.2 Sluices to Southover bridge

Downstream of the hatches the river takes on a very different and unusual look. Here a very steep, natural looking slope rises up above the left bank giving the river the characteristics of an upland wooded stream rather than classic chalkstream. The channel is very heavily shaded by mainly dense stands of sycamore *Acer pseudoplatanus*. Significant improvements to in-channel and marginal habitats could be achieved through some selected thinning of the sycamore canopy. Material won from the operation could be used to improve in-channel habitats by either “hinging” live trees or pegging down cut trunks to promote local scour and provide much needed refuges for fish.



Not a stream on Dartmoor but the Dorset Frome

From here down the channel is very straight with a comparatively steep gradient and shallow profile. It is unclear if this was originally the main channel or more likely, one of several small streams that probably meandered across the flat valley before being consolidated into formal channels for milling and meadow irrigation purposes.

Of particular note on this lower reach was the lack of in-channel weed. On the top section there were reasonable beds of water crowfoot *Ranunculus aquatilis* but these were scarce even in comparatively un-shaded sections on this lower beat. This may, in part be due to the exceptionally hard substrate. The bed throughout the whole reach shows evidence of compaction but it appeared to be particularly concreted on the lower reach, possibly making the establishment of macrophytes difficult. The levels of concretion will certainly be compromising the spawning success of any salmonid fish wishing to cut redds on what first appears to be good habitat.

Charles Druce kindly sent me some photographs of the reach taken in the early 1930s showing that there were a number of low stone weirs dotted throughout this reach. This possibly explains the presence of so much large stone dotted around the channel.

The photographs also suggest that margins were virtually un-managed with access for angling restricted to the wading angler. Extensive beds of water crowfoot are also visible in one of the photographs taken of the lower beat.

Some attempts have been made by the landowner to encourage scour using upstream facing V weirs.



Flat V weir possibly on the site of an old stone structure

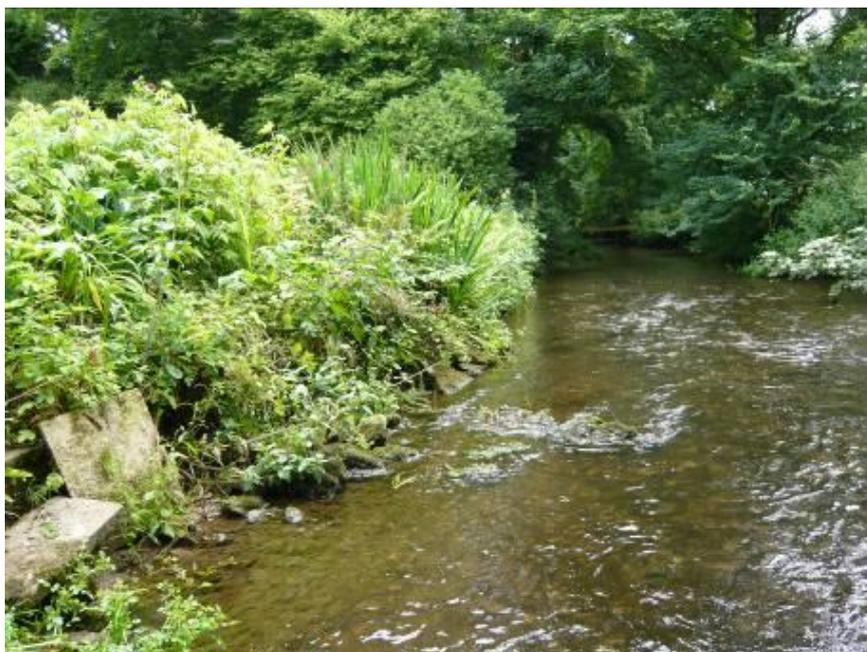
Upstream of the weir in the photograph above, the bed of the river has actually re-profiled with the bed level having risen to the top of the structure. Very little soft silt was present above the structure indicating the considerable gradient and power this particular reach has in heavy water conditions. Unfortunately the flat,

parallel nature of the structure has not enabled it to focus the erosive power of the river to form any decent sized central scour. Lowering the central part of the structure would potentially focus the scour over a range of different flow conditions.



The straight shallow channel downstream of the Hydlands Farm

Below the section of river controlled by the Hubbard family the river continues on its straight course. The river again is one long shallow glide, occasionally breaking into riffle. This section represents good juvenile trout habitat but would benefit from improved in-channel cover. Heavy high level tree shading is restricting the development of thicker low level marginal cover so important for fish on certain sections.



Inappropriate planting adjacent to the LHB may leave this section vulnerable to erosion

The very bottom end of the reach opens up to a public amenity area. Creating the classic soft squishy margins and promoting a thick fringe of native herbs and chalk river plants is not very easy and possibly not desirable in such a well used space. The channel itself is very wide and shallow and has potential to be a good nursery zone for juvenile trout. Again the lack of in-channel weed is a concern which will restrict the productivity of this section. Locally breaking up the hard concreted bed may help to establish plants and promote improved spawning. Re-establishing crowfoot with the help of protective hazel "snow-show" structures or simple posts driven into the bed could be an option here.

3. Conclusions

The top third of this reach is an absolute delight. Improvements could be made to some of the wide shallow riffles with the provision of more pegged down LWD. Further efforts to control the spread of Himalayan balsam should also be made. The advice put forward by Nick Giles to break up and loosed spawning gravels would also improve spawning success.

Help and advice should be offered to those land owners who currently manage sections of the bank and have aspirations to address erosion problems.

The presence of the large structure in the centre of the reach obviously has a huge influence on the in-channel and riparian habitats found throughout this reach. Any scheme or proposal that seeks to improve in-channel habitat through lowering or removing the impoundment would have huge consequences for the side carriers and the quality of the adjacent riparian habitat. The benefits derived from any such scheme would also be difficult to justify by the potential costs and the loss of quality habitat that is currently sustained by having the ability to push water through small side carriers. Where weirs become derelict and difficult to manage there can be benefits in removing them. Upstream water levels can be maintained through raising the bed with a series of gravel ramps. In this particular case this would make the management of the adjacent water meadows extremely difficult.

Free access for migrating fish is a concern at this site. Managing the structure with undershot hatches may enable fish to move up through the structure but it is recommended that the Environment Agency is asked to provide details on whether they believe this structure can convey access for target fish species over a range of flow conditions. It may be that some fine tuning on how the gates are operated will bring about improvements for fish migration. Solving problems associated with access for migrating fish will be a major component of new Water Framework Directive, where there are specific targets for bringing rivers into "good ecological condition".

Further improvements can be made on the section downstream of the weir. Thinning out the extensive high canopy of sycamore trees on the RHB to promote dappled light and enhanced marginal scrub will bring benefits for trout. Large trunks and branches could be utilised within the channel to promote bed scour and natural sorting of river bed gravels. This in turn will provide improved habitats for all life stages of trout.

Some of the structures constructed in attempt to improve trout habitat are not working very well. These should be removed or possibly modified to concentrate and promote in-channel scour over a range of flow conditions.

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.

4. Recommendations

- Seek further advice over the management of hatches on the main weir and establish if the structure is considered "passable" by salmonid and other fish species.
- Encourage local scour on shallow riffles and glides through the use of pegged down LWD.
- Break-up and clean potential spawning gravels using gravel jetting techniques
- Re-double efforts to control the spread of Himalayan balsam.
- Provide advice and help to those land owners who have attempted to protect their banks from erosion. Promote the benefits of indigenous plants colonising soft natural banks in combating the erosive forces of high flows.
- Thin heavy canopy of tall marginal sycamores to promote dappled light and utilise material for improving in-channel habitats.
- On the lower section where light hits the channel, break up the hard bed in selected areas with heavy fencing spikes or similar and seek to promote the re-establishment of water crowfoot.

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.

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 and the Dorset Wildlife Trust for making the Dorset Chalk Stream Project possible.

Disclaimer

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