

Advisory Visit Report

River Derwent, County Durham

On Behalf of River Derwent Angling Association

29th March 2007



Giving wild trout a future...

www.wildtrout.org

1.0 Introduction

This report is the output of a site visit undertaken by the Wild Trout Trust on the Upper River Derwent on 29th March 2007.

Comments in this report are based on observations on the day of the site visit and discussions with Mr Alan Farbridge, Eric Peacock, of the River Derwent Angling Association (RDAA) and Mr Gareth Pedley of the Environment Agency (EA) Fisheries Dept, Newcastle.

Normal convention is applied throughout the report with respect to bank identification, i.e., the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

RDAA control 15 miles of mainly double bank fishing of the Upper Derwent. Coverage of the extensive length of river is clearly beyond the scope of a one day site visit. Therefore The AV focused on two stretches of the river that the club control:

- 1) Downstream of Allensford Bridge
- 2) Downstream of Eddy's Bridge

Formed in 1865 RDAA have some 200 members paying £47 per annum in subscriptions.

The river contains good populations of both trout and grayling, the later being introduced in the 1870's. The EA are likely to classify the river as a Native Trout Water under the Trout & Grayling Fisheries Strategy, and consent the annual stocking of some 900 domesticated diploid brown trout each year.

Catch and release of wild trout is encouraged and a bag limit of two fish per day is a club rule (having recently been reduced from four).

The club would like to focus it's attentions in the upper reaches in a bid improve the wild fishery through sustainable management and habitat improvement projects.

Flylife in the river appears excellent with various species of up-winged flies, stonefly and caddis all present. In both reaches freshwater shrimp appeared to be absent perhaps indicating very good water quality. They are known to be downstream below a sewage treatment works. There are some concerns about the decline in Large Dark Olives and Iron Blues.



Invert sampling d/s Allensford Bridge

2.0 – Site Description and Issues

2.1 – D/S Allensford Bridge

Habitat at the top end of this reach just below the bridge is characterised as being shallow and interspaced with boulders and large stones. This is excellent juvenile and parr habitat. The site flows through a public park and in one or two areas un-managed access is causing some localised erosion (nick points) of the banks.



Good in-stream habitat (Note lack of low cover and localised erosion on RHB)

Tree cover is good, but if left un-managed there is potential for some over-shading of the channel. Tree cover is mainly high canopy with very little in the way of low level cover in the form of boughs and bushes.

Moving downstream there is a series of shallow runs, pools and riffle areas. There is a mid-channel island which indicates active geomorphology (gravel movement) within the catchment.

However, there is an almost complete absence of Large Woody Debris (LWD), e.g. fallen trees and branches in the channel. The presence of LWD has been shown to be extremely important in several respects.

- An increase in mean flow, depths and velocities.
- Development of high in-channel physical habitat diversity
- LWD can have 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.

Large Woody Debris (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 perhaps harmful to high quality streams such as the Derwent. 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 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.

At the end of the reach there are two dams that were constructed by the club some years back. These were built in a bid to aerate the river in low summer flows. It is questionable if they actually fulfil this function and it appears that they are acting as silt traps due to the upstream 'ponding' of flows.



Woody Debris in the Derwent (d/s Allensford Bridge)



Two dams d/s Allensford Bridge, which can be seen to be having an effect on flows upstream (silt-trap)

2.2 – Downstream Eddys Bridge

The river immediately downstream of the bridge is wide, shallow and inter-spaced with boulders. There is a general lack of pool habitat and large woody debris. However there is a particularly good example of 'hinged' LWD on the LHB



'Hinged' LWD on the LHB

The river then narrows and goes through a delightful section of runs and pools, before widening out once more into a deep slow pool section. The landowner on the LHB has recently undertaken some tree work to 'tidy-up' the banks. This work was probably undertaken in good faith to assist the club with maintenance. However important low cover has been removed from the pool. Overhead cover is extremely important for trout both in-terms of regulation of stream temperatures (shade) avoidance of predators (shelter) and as a potential source of invertebrates (food). The challenge for fisheries managers is to achieve a balance between the needs of the trout and the needs of the fisherman for access.

Further downstream there has been some stone revetment work to protect the RHB from erosion. Large stones and boulders have been incorporated into the revetment and have been removed from the channel and deposited on the LHB. This has created a fairly uniform channel which provides very little in the way of in-stream cover. There is also a lack of low tree cover.



Stone revetment on RHB



Stones removed from channel on LHB

The bottom end of the reach runs through grazing pasture (horses and cattle). The cattle's grazing is causing widespread poaching of the banks leading to a loss of marginal plants and low tree cover. The Club have also undertaken some limited tree work on both banks which may have removed an important future source LWD from the channel. This section of the river is again fairly uniform with very little diversity in terms of both in-stream and riparian habitat.



Note lack of LWD and poached banks (LHB).

3.0 – Recommendations

The following are recommendations to improve both the status of the wild trout population and biodiversity in general.

It is a legal requirement that all the works to the river require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. It may also be a requirement under the Wildlife and Countryside Act 1981 that all proposals are scrutinised by Natural England conservation officers.

Local EA Fisheries and Development Control staff should be contacted at the earliest opportunity to discuss any recommendations arising from this report that the club may wish to pursue.

The club should adopt a policy of leaving LWD in river unless it is causing significant problems. As a guide the following check list has been developed by the West Country Rivers Trust:

1. Is the debris fixed, if yes then continue to 2, if not continue to 5.
2. Is the debris causing excess erosion by redirecting the current into a vulnerable bank? If yes then go to 5 if not then go to 3.
3. Would fish be able to migrate past it (take into account high river flows). If yes got to 4, if no go to 5.
4. **Retain the woody debris in the river.**
5. **Extract the debris.**

Note: If the debris dam needs to be removed but there is still a significant amount of the root system attached to the bank then it is recommended that the stump be retained for its wildlife habitat value and its stabilising effect on the bank.

In both reaches there is a predominance of high canopy tree growth, which may lead to problems of over-shading of the channel. It is recommended that the club undertakes a programme of selective coppicing to allow more light into the channel and promote low bankside cover in the form of overhanging bush growth. A little and often programme needs to be adopted with regard to tree management on the fishery to achieve a good balance of LWD, light and shade. Willows can be 'trained' to hang over the channel by nicking the trunks and pushing them over.

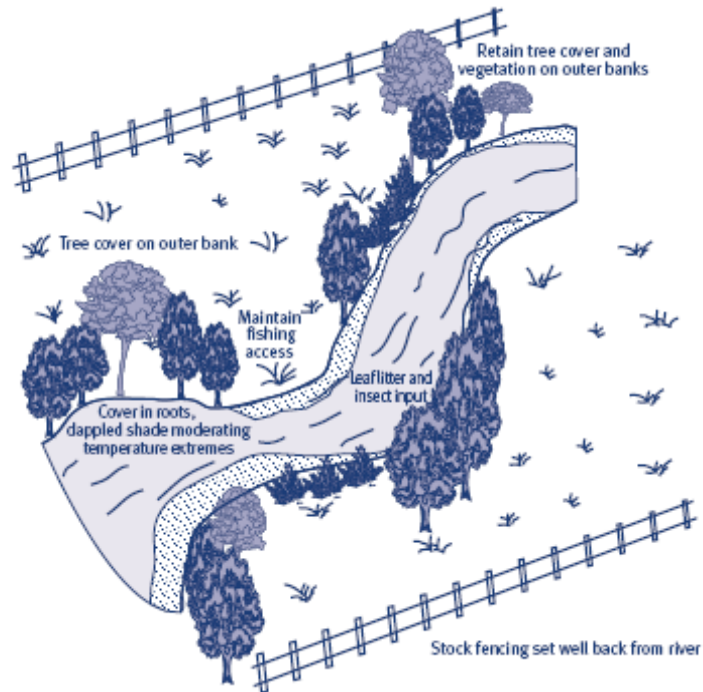
Arising from this tree work could be used to install LWD. In the wide shallow reach d/s of Kenny's Bridge it is recommended to introduce upstream facing submerged log deflectors (single or paired) to create localised scour pools in the margins and mid-channel. LWD will need to be securely 'keyed' into the bank and possibly the river bed using posts and wire to avoid problems of washout. Another option would be to 'hinge' trees, leaving them still connected to stumps, again for added security these can be secured to the bed of the river using posts and wire. Downstream of the flow gauging weir it is recommended that arising from recent tree work undertaken by the club are bundled into 'faggots' and pinned into the margins, thus creating much needed overhangs for trout to use for refuge.

On the RHB downstream of Kenny's Bridge the rock revetment work could do with planting-up with willows. This would create overhead cover and become a future source of LWD. The river in this short section appears to have been dredged and it is recommended that a proportion of the large boulders that are still on the bank are placed back into the channel. This will create good in-stream cover for all life stages of trout.

The fence line downstream of Kenny's Bridge where the river runs through two grazing pastures (horses and cattle) needs to be re-installed as a matter of some urgency. Unhindered access by stock to the river is causing bank-side poaching which is leading to the loss of valuable vegetated margins. It is suggested that a buffer strip of at least 9 metres be created. Formalised 'post and rail' cattle drinks can be created to facilitate safe, clean access for stock.

The margins of the LHB downstream of Allensford Bridge are in places showing early signs of being eroded by the public / dogs at this popular recreational park. It is recommended that a wider strip of grass is left uncut to create a 'conservation area' which will hopefully have the net effect of directing the public to one or two 'honey pot' access points along the river. This minimal intervention may just be enough to reduce pressure on the banks whilst still allowing full access. An interpretation board explaining the change in management and the importance of good habitat for the rivers wildlife will hopefully reduce the likelihood of complaints.

It is also recommended that the two weirs at Allensford are modified or even removed to increase flow velocity and remove the build-up of silt above each structure.



Example of a hypothetical fencing scheme

The fence line should be placed well back from the bank in a straight line to avoid trash getting caught on wires (causing 'blow-out') during peak flows.



Example of 'post and rail' cattle drink

Lastly, it is vital that angling clubs understand what is happening to populations of riverflies in their streams and rivers. To this end WTT recommends that fisheries register their interest in taking part in the Riverfly Partnership monitoring and training initiative. The initiative aims to support fishing clubs to monitor and help conserve the environment. More details can be found on www.riverflies.org



The upper reaches of the Derwent have considerable potential to be developed and managed as a sustainable wild trout fishery. Fish populations, water quality and invertebrates all appear to be in good order. By undertaking the recommendations outlined in this report it is hoped that RDAA will be able to sustain a wild fishery. To protect wild fish it is recommended that catch and release (C&R) and the use of barbless hooks are introduced as club rules in the upper 'wild' reaches. It may also be prudent to get stocked fish marked to aid anglers with identification of wild fish (C&R). Catch return log books could be introduced to gauge stocked vs wild components of the annual catch in the river that the club controls. The Environment Agency in the North East administers a catch log book scheme.

4.0 – Making it all happen!

This report makes a series of recommendations that will improve biodiversity and the status of the wild trout and grayling populations in the Derwent.

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-man team) and materials (max £1800). Recipients will be expected to cover travel and accommodation expenses of the contractor. The use of specialist plant will be by separate negotiation.

Wet-work experts will demonstrate one or more of the following techniques that are appropriate to the site.

- Tree management (coppice, pollard, sky-lighting)
- Tree Planting
- Fencing (Installation & Repair)
- Stream Narrowing (Faggots, Coir Rolls, Spilling)
- Flow Deflectors
- Introduction of spawning substrate
- Gravel Jetting
- Introduction / Management of Woody Debris

Recipient clubs will be expected to cover travel and accommodation expenses of the Wet-work Team. The use of specialist plant will be by separate negotiation.

Further assistance with project funding can be provided through the WTT's 'Rods for Conservation Scheme'. The WTT will donate a Sage XP rod for the club to raffle to raise funds for habitat conservation work. Clubs typically raise £750-1500 from these initiatives. Sage is particularly keen to work with clubs in upper reaches of rivers that are important for spawning fish.

Note: Recipients should have received a WTT AV and have obtained the appropriate consents from the relevant authorities, prior to arrangements being made to undertake the PV. WTT can advise on this.

Applications for all the above and the Rods for Conservation initiative should be made via projects@wildtrout.org

Lastly, RDAA should discuss this report with local EA Fisheries Officer Gareth Pedley who was present at the AV. The EA will be able to provide further technical advice and possibly assistance with project funding. RDAA are reminded that all works within rivers and within 8m of the bank will require written permission from the Environment Agency.

5.0 - Disclaimer

This report is produced for guidance only and should not be used as a substitute for full professional advice. Accordingly, no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.