



**Wild Trout Trust
Advisory Visit Report**

**River Ure – Jervaulx Abbey,
North Yorkshire**

Undertaken on Behalf of Jervaulx Fly Fishers

1.0 Introduction

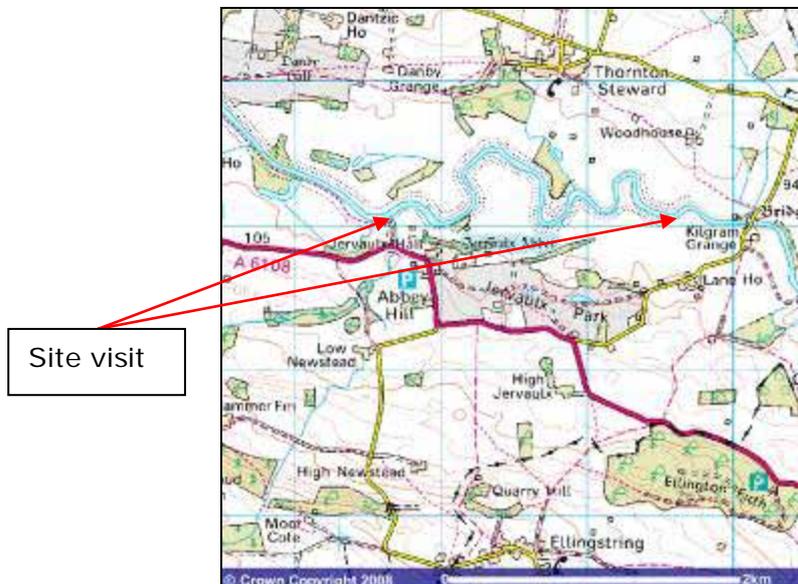
This report is the output of a site visit undertaken by the Wild Trout Trust on the River Ure at Jervaulx Abbey on 16th January 2008.

Comments in this report are based on observations on the day of the site visit and discussions with the landowner and representatives from Jervaulx Fly Fishers, Yorkshire Dales Rivers Trust and the Environment Agency.

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.

It should be noted that the river was in spate on the day of the visit, with river levels being 2m+ higher than normal.

Jervaulx Fly Fishers lease approximately 4km of single RHB of the Ure.



There are 70 members paying £200 per annum. The club stocks 0.5kg+ triploid trout. This has been undertaken to address an apparent decline in the numbers of wild trout and grayling. Interestingly EA survey data for the Ure does not indicate that a decline has taken place (Pers Comm – John Shannon EA Fisheries Officer). However there is no site specific data for the AV reach. The club maintains annual catch records which could be an important source of data. Flylife appears to be 'good' with several species of up-wing, stone and caddis fly all present.

2.0 The Issues

This whole of the reach visited is suffering from extensive erosion problems on both the LHB and RHB. River banks are constantly on the move, it is a natural part of the river processes of erosion and deposition. In places the banks of the River Ure are composed of soft sands and gravels, a highly erodible material. The roots of bank vegetation bind the soil together, making it more resistant to the powerful erosion forces of the river. Unmanaged livestock grazing pressure from high stocking densities can result in a loss of river bank vegetation which accelerates river bank erosion. This causes two problems for not only is valuable land lost, but the water can also become choked with sediment, which has a devastating effect on the biodiversity of the river and the ability of trout to spawn.

In places the rate of erosion is very fast with several metres of bank having been already lost this winter. In places where trees are present this has slowed the rate of erosion considerably. To compound the problem there are no fences to exclude stock from the highly unstable banks.

The river has been extensively dredged with the resultant spoil being used to create and maintain flood banks. In many places the active erosion is close to breaching these banks.

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.

Removal of LWD reduces the quality and availability of habitat for juvenile and adult brown trout. LWD is extremely important habitat for native crayfish.

Woody debris in rivers can provide habitat for a variety of animals. Brown trout numbers increase significantly with the presence of woody debris along the banks and in the river as they provide refuge and cover. They may offer lies for otters or perches for kingfishers. Woody debris in the river may also create pools and riffles in sections of the river that would otherwise have a dearth of aquatic habitats. LWD provides a range of surfaces including splits and hollows in which algae, microbes and invertebrates can colonise. These tiny organisms are crucial as they make up the base of the aquatic food chain and provide food – directly and indirectly – for all creatures associated with the watercourse including mayflies, stoneflies, caddis, crayfish, trout, dippers and otters.



Severe erosion on the River Ure at Jervaulx Abbey



Note the trees in the foreground and background which appear to be slowing the rate of erosion.

Bankside vegetation is important for a variety of reasons, including;

1. Erosion protection- the roots of shrubs and trees strengthen banks and allow natural rates of erosion to take place.
2. Cover – marginal vegetation provides cover for swim-up fry and trout parr. It also provides extremely important habitat for a variety of invertebrates, birds and mammals.



Note: the almost total lack of riparian tree and shrub growth

Very little is known about the status and habitat quality of the spawning stream known as the Harker Beck on the RHB near the Hall. Spate conditions during the visit did not allow a visual inspection. There is generally lack of knowledge regarding the spawning streams on the rest of the middle and lower parts of the catchment. However, the Yorkshire Dales Rivers Trust is hoping to undertake spawning beck fisheries surveys in the upper river and there may be opportunities to extend the scope of this study (subject to funding).

3.0 The Solutions

It is a legal requirement that all the works to the river and beck require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank.

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

The erosion issues facing both the River Ure at Jervaulx are considerable. The spate characteristics of this river necessitates that any potential techniques to restore habitat have to be carefully evaluated. That said, there is also considerable scope to take a more 'innovative' approach to trial techniques being currently developed in North America. By taking this approach it is hope to add to the river restoration knowledge base and assist in developing best practice for other river managers.

However considerable 'buy-in' will be required from the estate in terms of techniques, provision of labour, materials and machinery to address this issue.

It is recommended that a new fence line be installed to create a buffer zone / conservation area along the whole of the RHB. Grazing pressure appears to be speeding-up rates of erosion due to compaction of soil and vegetation loss. Creation of a buffer strip of **at least 10m** will allow development of a vegetated 'conservation area'. Consideration should be given to planting with a wild flower conservation mix and willow / alder whips to facilitate greater bank protection.

There are various agri-environment schemes available to landowners to receive grant aid for fencing projects. It is recommended that contact be made with North Yorkshire Farming & Wildlife Advisory Group who will be able to advise on the best way forward.

In general terms grass buffer strips can be included as part of an Entry Level Scheme in the Defra environmental stewardship package. Rules and points for grass margins are detailed in the ELS handbook - <http://www.defra.gov.uk/erdp/pdfs/es/els-handbook.pdf>

For capital works such as fencing, this would have to be part of a higher level scheme in environmental stewardship or, if there is already a Countryside Stewardship Scheme or an Environmentally Sensitive Area agreement in place this may be able to be added to any existing agreement. Entry to HLS is only available once an ELS scheme has been agreed. Further info on HLS can be found at - <http://www.defra.gov.uk/erdp/pdfs/es/hls-handbook.pdf>

In the worst areas of erosion the toe of the bank and the bank itself all require protection. It is suggested that 'tree-kickers' are deployed in this section.

Tree "kickers" are hardwood logs which are used to deflect stream flow away from an unstable bank area. One or more logs are anchored to the streambank and placed at an angle to "kick" stream flow away from the bank and towards the middle of the stream. Brush is tied between the log and the bank to prevent scour erosion. Tree kickers are most often used to correct bank undercutting especially where the crest of the cut is 1.5m or more above normal water levels. A kicker deflects the concentration of stream energy away from the bank. In addition, kickers help to re-build the bank by providing an area for sediments to deposit and provide underwater structure for fish and aquatic insects.

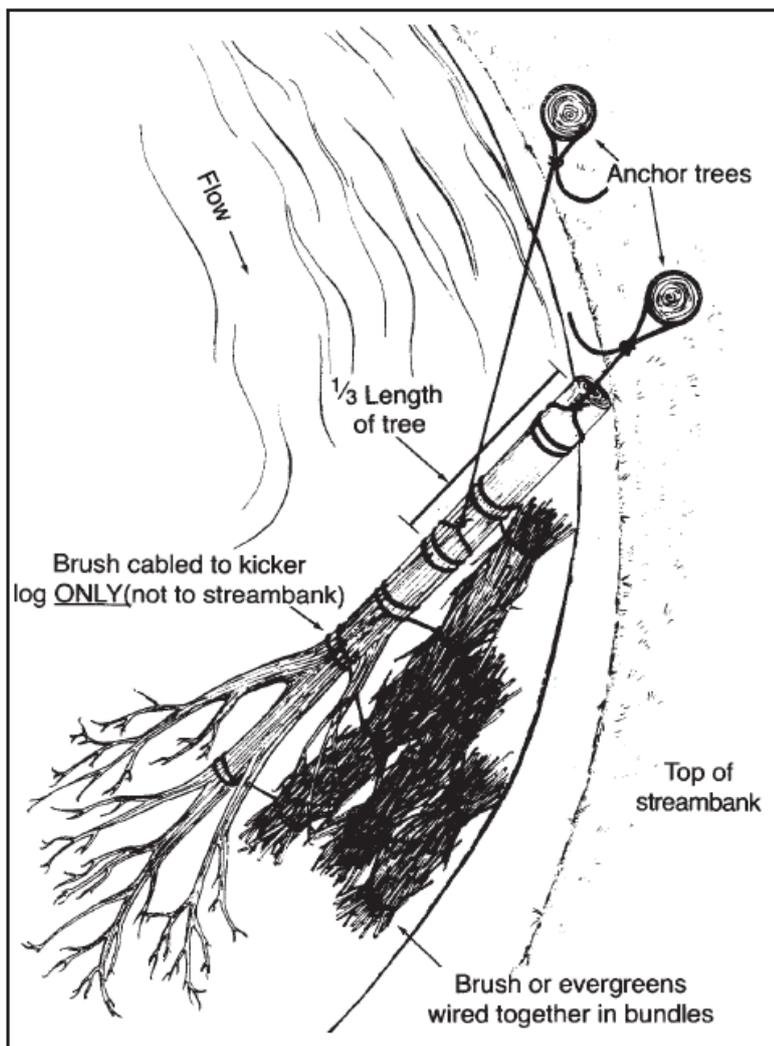


Figure 1. Tree Kicker Construction

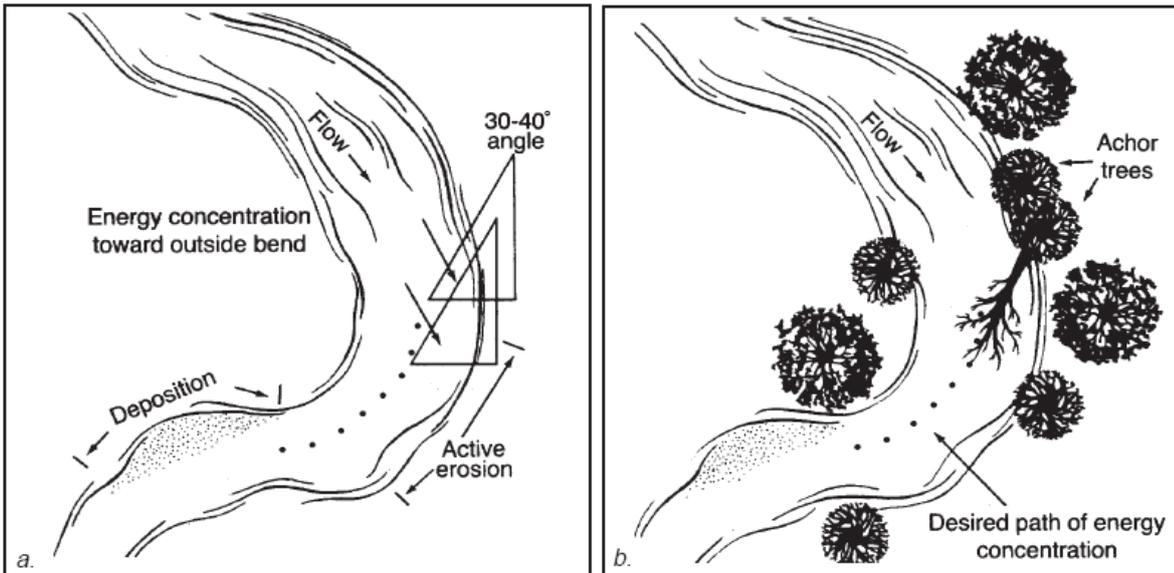


Figure 2. Placement of Kickers

Kickers need to be securely anchored to the streambank. Anchoring it to two live anchor-trees on the bank is best. If no anchor trees are available consideration should be given to installing a deadman anchor. The same angle is used for placing the kicker log. A T-shaped trench will need to be excavated and the kicker will need to be cabled to a large telephone pole or log placed in the crossbar of the 'T'

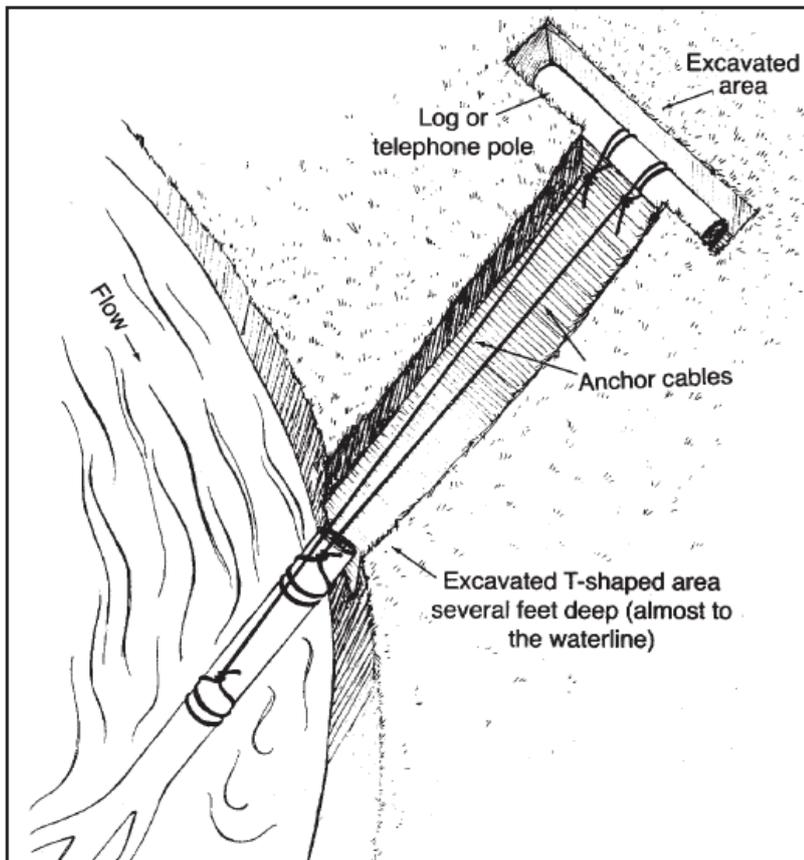


Figure 4. Dead Man Anchor

In conjunction with kickers the problems of slope stability need also to be addressed. This can be undertaken by re-profiling the sheer cliff faces back to a slope of around 30°. Coupled with this it is strongly recommended that the re-profiled slope be stabilised with the sowing of grass seed 'conservation mix' and/or planting of whips (alder / willow). The bank work should be undertaken as early as possible to allow roots to establish and stabilise banks before the winter spate season. An alternative and potentially less expensive approach (machinery / spoil disposal) to re-profiling may be the stabilisation of the banks using an evergreen revetment such as pines, firs or recycled Christmas trees. The more limbs and fine branches a tree has the more it will continue to slow the streams current after the needles are gone, allowing sediments to accumulate within the anchored trees. Anchoring trees to the streambank in a manner that will resist the force of the water is imperative. In order to protect the area of active erosion an evergreen revetment needs to extend beyond the area of exposed soils on the riverbank. Start downstream of the exposed soil anchoring each tree in place with the butt end of the trunk pointing upstream. Work upstream laying each tree so that it overlaps the previously laid tree until the revetment extends beyond the exposed soils. The first row of trees needs to be placed so that tree crown (the widest part of the tree) rests on the toe of the bank slope.

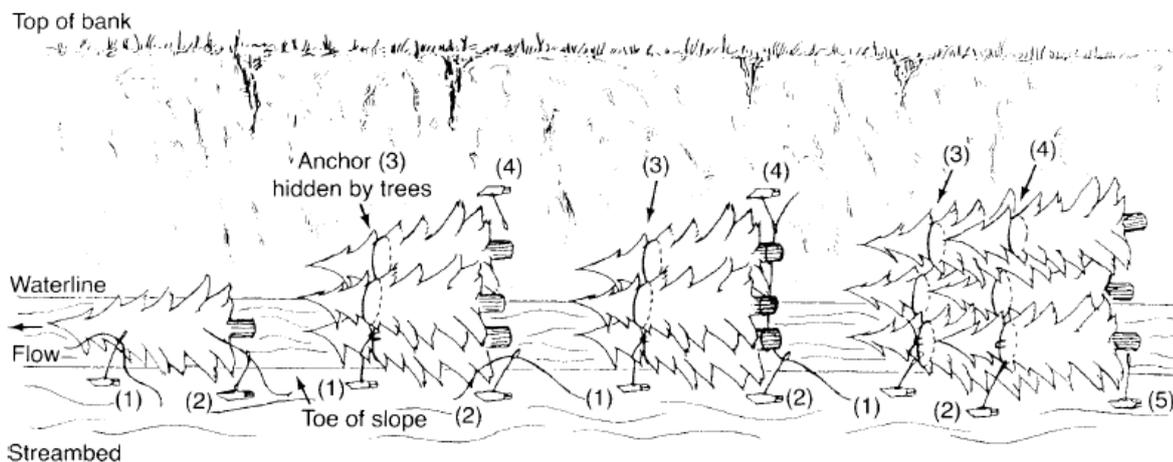
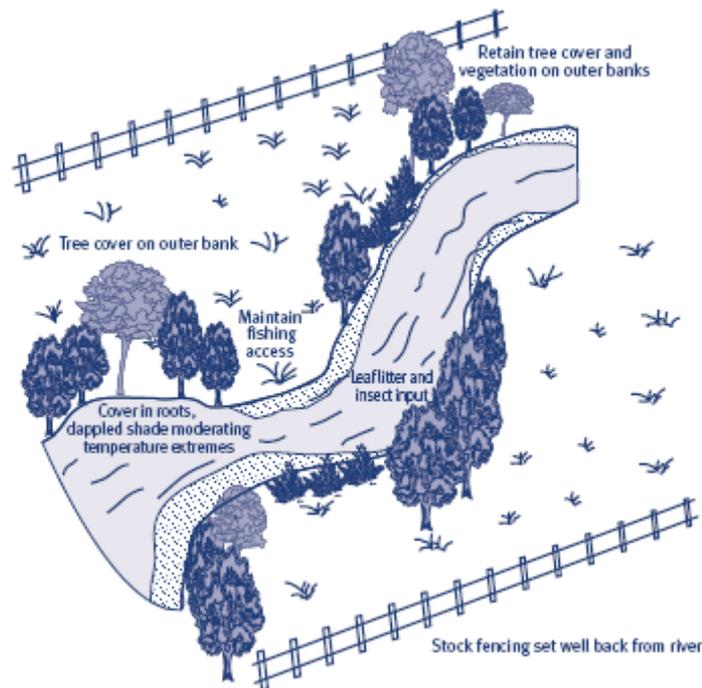


Figure 6. Constructing a Multiple-Row Revetment - Figure shows the general placement of cable. Cable should be wrapped around trunks only and not the outside branches. Compress the trees, pull the cable together as tight as possible and clamp tightly.

The fence line along the RHB 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.



The Wild Fishery

The club currently stock with several hundred 'takeable' domesticated triploid brown trout per annum. There are considerable opportunities to consider reverting to a wild fishery reliant purely on natural production. However before a bold decision of this nature can be considered it is vital the wild trout population the Ure is surveyed. A comprehensive survey of spawning burns should be undertaken to assess numbers of fry, and parr in the system. WTT may be in a position to offer partnership funding to Yorkshire Dales Rivers Trust to allow them to undertake a catchment-wide monitoring programme to assess trout and grayling populations. The Environment Agency may also consider a financial contribution. If populations are lower than predicted 'limiting factor analysis' will be undertaken looking a key physical and chemical factors that affect trout, such as water quality, quantity and the availability and quantity of habitat.

4.0 Making it all Happen

It is strongly recommended that the fishing club make contact with the Fisheries, Conservation and Development Control functions of the local Environment Agency to arrange a 'pre-application meeting'. Pre-application meetings are extremely useful to help scope out design work and to take into consideration any issues that could affect proposed works. The worked-up proposal should allow the club to complete a land drainage application. The WTT is happy to assist with the preparation of the application. This legal consent from the Environment Agency must be obtained in writing before works can commence. Consents can take up to two months to process.

The physical works could possibly be 'kick-started' by a WTT Practical Visit and indeed this is to be the centre-stage of the planned Open Day in May. Each year WTT funds several PV's which include the cost of labour (two /three man team for three days) and materials (£1800 max). Recipients will be expected to cover travel and accommodation expenses of the contractor. The use of specialist plant will be by separate negotiation. Added to this the Estate has donated two lots for the WTT Ebay auction of promises, the proceeds of which will be ring-fenced for this project. This will undoubtedly leave a shortfall in funding which could potentially be sourced from the Environment Agency, Yorkshire Dales National Park, Defra / Natural England (agri-environment schemes) and the Estate. Considerable savings on capital costs will be achieved if the Estate is able to provide labour, materials and machinery. The aim of the visit is to demonstrate the techniques required for the Estate to complete the biotechnical revetments outlined in this report.

It is also recommended that the club join and support the Yorkshire Dales Rivers Trust. The Yorkshire Dales Rivers Trust was established as a Registered Charity in 2004 in order to provide a concerted and holistic approach to the protection and enhancement of the rivers and catchments of the Swale, Ure, Nidd and Wharfe. Over the next decade, the Trust plans to deliver a real improvement to the rivers, floodplains and hills of this very special part of England. Further information can be found on their web pages.

<http://www.yorkshiredalesriverstrust.org.uk/YDRT/>

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.