



Advisory Visit

River Elwy, Conwy, North Wales

14th September, 2008



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust on the River Elwy, near Llanfair Talhaiarn, Conwy, North Wales.

Comments in this report are based on observations on the day of the site visit and discussions with the owners of the fishing rights, David Bowen-Jones, Nick Geary, Ian Sherman and Stephen White.

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.

2.0 Fishery Overview

The River Elwy is a tributary of the River Clwyd which runs into the sea near Rhyl. The Elwy contains brown trout and has runs of sea trout and salmon. The fishery comprises 1300 yards of double bank and 350 yards of single bank fishing upstream of the village of Llanfair TH.

The current owners have held the fishing rights for approximately three years. In that time the river has been stocked three times with yearling (6 to 10-inch) diploid brown trout.

3.0 Habitat Assessment

The river was walked from the footbridge at the upstream limit of the fishery (SH 914696) in a downstream direction. The road runs close to the RHB here on the outside of a bend in the river. Here the bank is steep and has been heavily engineered with steel pilings and gabion baskets to prevent erosion undermining the road. The left bank has mature sycamores and alders at regular intervals. Land use on both banks throughout the reach was for livestock grazing. There is a lot of Himalayan balsam (*Impatiens glandulifera*) present here, and throughout the rest of the fishery (Photo 1).

Himalayan balsam *Impatiens glandulifera* was introduced to the UK in 1839, and is now naturalised, especially on riverbanks and waste ground and has become a problematical weed. It is a tall, robust annual producing clusters of purplish pink (or rarely white) helmet-shaped flowers. These are



Photo 1 Himalayan balsam – common throughout the fishery



Photo 2 Clean gravel at the head of a riffle and low overhead cover – ideal spawning habitat

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.

It tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. Being an annual plant it dies back in winter leaving large areas of bare bank vulnerable to erosion. Its presence along riverbanks is therefore undesirable.

The river bed comprises mainly gravel of an ideal size for salmonid spawning, and there are numerous riffle areas where the gradient of the river bed increases producing faster flows, and good spawning habitat. Flow of water through the gravel is critical for the survival of salmonid eggs during their winter incubation period, and this is often compromised by the ingress of fine materials (sand and silt). However, there appeared to be little problem of this nature in the likely spawning areas observed.

Another important aspect of spawning habitat is the presence of cover for adult fish to provide security from predation during spawning in shallow water. Woody debris or low, overhanging branches can greatly enhance the likelihood of fish using a particular area for spawning (Photo 2).

About halfway down the first LHB field from the upstream access, the mature trees give way to an open bank with an eroding river cliff (LHB) and large gravel shoal opposite (RHB) (Photo 3). A livestock drinking area has been left 'high & dry' on the right bank by the deposition of gravel in this area. At the downstream end of the river cliff a large mature tree has fallen from the LHB into the river (Photo 4). The presence of the tree in the river has caused localised scour of the river bed, creating deeper areas suitable for holding adult fish (Photo 5).

A large proportion of the banks of the fishery (particularly the LHB) have been reinforced with rip-rap comprising boulders and concrete blocks. Some of this dates back many years (as evidenced by the trees growing through the stonework), and some is very recent (within the last year). This reinforcement has been carried out by local farmers concerned about erosion and loss of land (Photos 6 and 7).

The extensive use of rip-rap has limited the opportunity for the river to create pool areas through erosion on the outside of bends, and has compromised the value of the bankside habitat for species such as water voles, otters and burrow-nesting birds such as kingfishers and sand martins.



Photo 3 River cliff (LHB), gravel shoal and isolated livestock drinking area (RHB)



Photo 4 Mature tree lost from the LHB



Photo 5 Scour and sorting of gravels caused by the presence of large woody debris in the channel



Photo 6 Concrete block rip-rap used to reinforce the river bank



Photo 7 Older stone revetment with tree growth



Photo 8 Shallow glide area with little depth variation

Throughout the fishery there is a relative lack of pool habitat, the reach being dominated by riffle and glide; this will tend to limit the capacity of the reach for holding adult trout (and sea trout and salmon). The water level was up by around 10—12" on the day of the visit, so many of the glide areas observed would be very shallow or exposed at low water (Photo 8).

Deeper pools are present where:

- There is sharp bend in river and erosion on the outside of the bend has created depth. There is limited opportunity for this process because of the extensively rip-rapped banks throughout the fishery.
- There is large woody debris (LWD) present which has created localised scour of the river bed. There is not much LWD present in the river as it is often removed by the local farmers (Photo 9).
- There are some stone groynes in one part of the lower fishery which have promoted some bed scour (Photo 10).

There is a varying extent of fencing throughout the fishery. Some areas fenced well back from the river (especially on the RHB), others are unfenced or fenced very close to the break of bank. The latter creates difficult access on the lower section of the fishery on the RHB where the owners have only single bank fishing. Where there is a generous margin between the river and the fence this has been colonised by Himalayan balsam.

Apart from the isolated livestock drinking point noted above, there were no obvious access points along the river for livestock watering, suggesting there is alternative provision for this, possibly because of the nature of the Elwy as a spate river and concern for the protection of livestock.

4.0 Recommendations

One of the key issues influencing the improvement of the river in this reach is establishing good relationships with local landowners, and working with them for the mutual benefit of the fishery and the farmland alongside. Many of the following recommendations will require agreement, co-operation and assistance of landowners.

- Control Himalayan balsam. This can be achieved by physical or chemical means:

Physical Control

The main method of control, and usually the most appropriate, is pulling or cutting plants before they flower and set seed. Working parties are the best means of doing this.

Limited grazing access to river margins through gates in fences can be used to control balsam, but stock access needs to be carefully controlled to prevent overgrazing of desirable species, damage to river banks, and loss of stock in the river. Access in late spring or early summer before the balsam has flowered would be the ideal time. In areas inaccessible to livestock, physical or chemical control is recommended.

Chemical Control

Before using weedkillers alongside waterways it is necessary to contact the Environment Agency and obtain their written consent via form WQM1 (www.environment-agency.gov.uk/subjects/conservation/840870/840941/). It can advise on suitably qualified contractors, as can the National Association of Agricultural and Amenity Contractors (Tel: 01733 362920).

Himalayan balsam can be controlled with a weedkiller based on glyphosate, such as Roundup. Glyphosate is a non-selective, systemic weedkiller that is applied to the foliage. It is inactivated on contact with the soil, so there is no risk of damage to the roots of nearby plants, but care must be taken that the spray doesn't drift onto their foliage. Glyphosate is most effective when weed growth is vigorous. This usually occurs at flowering stage but before die-back begins; with most weeds, this is not earlier than mid-summer.

It may take a couple of seasons to obtain good control due to the germination of more weed seedlings.

- The club should adopt a policy of retaining LWD in the river channel wherever possible. The West Country Rivers Trust provides a useful guide to the management of natural LWD:

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.

It appears that much of the LWD removed previously from this section of the river was carried out by local farmers. The key issue here will be liaison with the farmers over the management of LWD. Where LWD is causing flows to erode banks, repositioning it to protect the banks rather than removal would be a better option (Figures 1 and 2).

- Where there is a single tree line along a river bank, tree planting behind this should be considered to provide a succession of mature trees in the future. This will insure against severe erosion developing if a tree falls in the river leaving an exposed bank. This is particularly important on the outside of bends, and where alders are present as these are vulnerable to *Phytophthora* disease. There may be grants available to landowners under agri-environment schemes (e.g <http://www.forestry.gov.uk/forestry/infd-5z8jqk>).

It is also worth contacting Coed Cymru (<http://www.coedcymru.org.uk/objectives.htm>) for advice on tree planting, appropriate species, farmer liaison, etc.

- Where trees are planted, these will need to be fenced from livestock. This obviously encroaches onto currently farmed land, and there may be opportunities for creating fenced margins under the Tir Cynnal or Tir Gofal agri-environment schemes.

http://new.wales.gov.uk/topics/environmentcountryside/farmingandcountryside/farming/agri_env_schemes/?lang=en

- Where extensive stone revetment has been installed along sections of wide, shallow river, it may be possible to create more depth variation by constructing groynes similar to those in Photo 10. LWD should also be encouraged in these sections, as this will promote scour of the river bed and depth variation. Planting willows (goat willow *Salix caprea* and grey willow *Salix cinerea*) amongst the rock revetment will also help to provide cover for all trout life stages along the river margins.
- The value of introducing yearling brown trout is dubious. Many studies show that farmed trout do not persist for long in the wild, particularly in spate rivers such as the Elwy, with the vast majority failing to overwinter. There is also 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. More information on this subject can be found at:

<http://www.environment-agency.gov.uk/subjects/fish/165773/1791055/1800027/>

If brown trout stocking is to continue, it is recommended that triploid brown trout are used. It would be more cost effective to stock at a takeable size and selectively harvest these fish (in preference to wild fish) during the season they are introduced.

It is a legal requirement that all the works to the river require written Environment Agency (EA) consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Local Development Control officers can provide advice and assistance.



Photo 9 Valuable LWD in the river channel. Repositioning and securing is more desirable than removal



Photo 10 Stone groynes on the RHB creating bed scour and increased depth

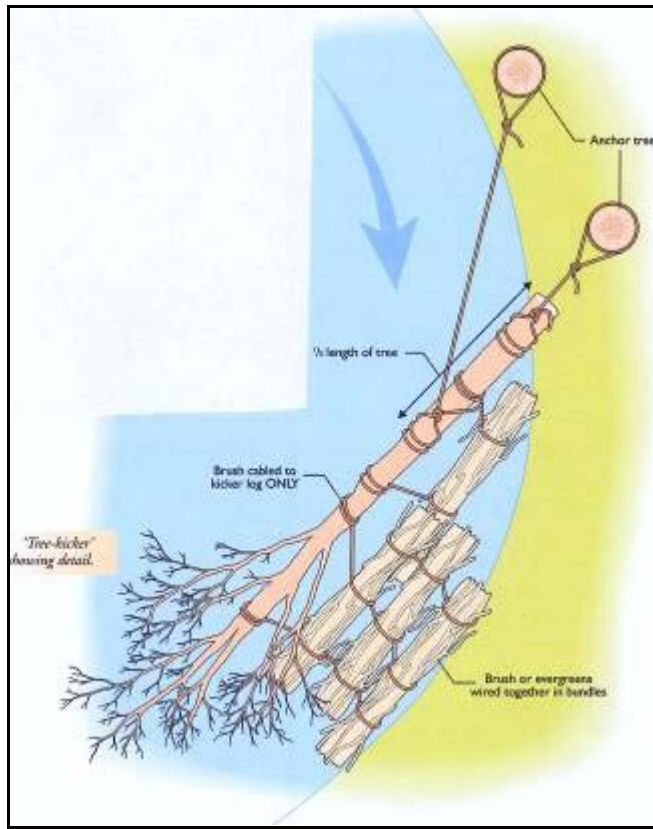


Figure 1 A 'tree kicker' – a method of securing LWD in high energy streams to protect banks from erosion

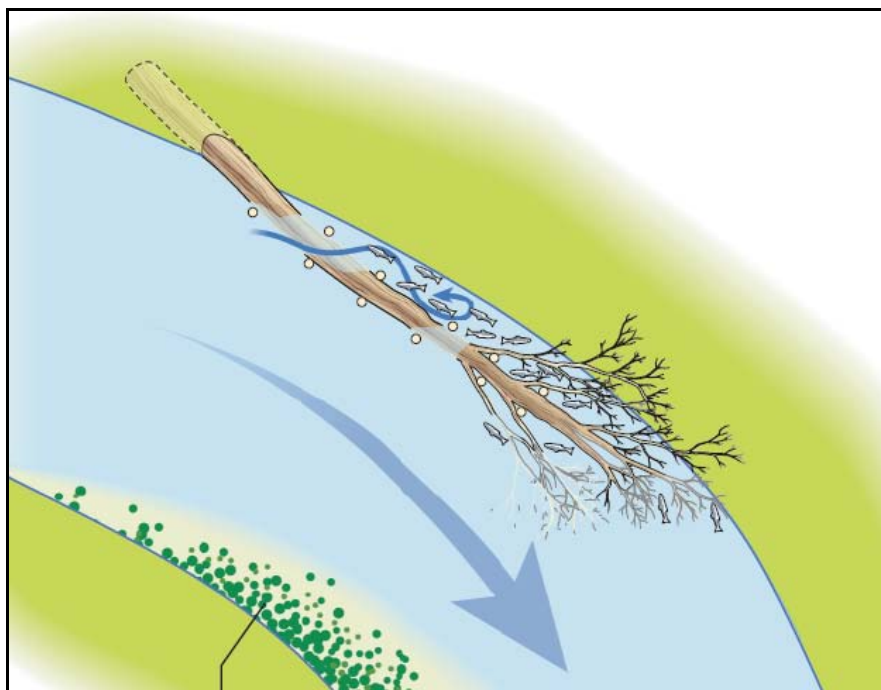


Figure 2 Fallen tree secured parallel to the bank to provide erosion protection and fish cover

5.0 Making it Happen

The WTT can provide further assistance in the following ways:

- Advice and support in formulating a worked-up project proposal and assistance with the preparation of Environment Agency Land Drainage consent applications.
- Seed corn funding of £500 to £1500 to kick start projects. These bursaries are intended to be used as matched funding to assist in raising money from other funders towards project works.
- Works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). The WTT will fund the cost of labour (two-man team) and materials. Recipient organisations will be expected to cover travel and accommodation expenses of the advisors. The use of specialist plant will be by separate negotiation.

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

- Tree Planting
- Fencing (Installation & Repair)
- Flow Deflectors
- Introduction of spawning substrate
- Introduction / Management of Woody Debris

Note: Recipients of the programme must have received a WTT AV and have obtained the appropriate consents from the Environment Agency, landowners, etc., prior to arrangements being made to undertake the PV.

Applications for all the above should be made via projects@wildtrout.org

Lastly, the Association should discuss this report with their local Environment Agency Wales Sustainable Fisheries Project Officer, Katrina Marshall (Katrina.Marshall@environment-agency.wales.gov.uk). EAW and WTT will be able to provide further technical advice and possibly assistance through the Wild Trout Wales Project.

6.0 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.

7.0 Acknowledgements

This Wild Trout Trust advisory visit was made possible through sponsorship provided by Environment Agency Wales under the Brithyll Gwyllt Cymru (Wild Trout Wales) initiative. The aim of the initiative is to provide professional advice and project support for fishing clubs, riparian owners and community groups throughout Wales wishing to undertake wild trout conservation projects.