



Habitat Advisory visit to the River
Tanat, on behalf of Upper Tanat fishing
club undertaken by Vaughan Lewis,
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1.0 Introduction

This report forms the output of a site visit to the River Tanat, Llangedwyn, Powys on 10 June 2005 on behalf of Upper Tanat Fishing Club (UTFC). Information in the report is based on observations on the day of the visit and additional comments provided by club members and Chris Banger of the Environment Agency.

Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) of the river identified when looking downstream.

2.0 Fishery Description

The fishery is divided into a number of beats. Due to the long length of fishery controlled by the club, only some of the beats were walked during the site visit. Descriptions of individual beats visited are provided below:

Beat 8:

This beat was walked downstream from Llantanat Bridge. The river below the bridge was approximately 12m-14m in width, with a gently meandering planform and a well developed pool and riffle regime. The bed was dominated by mixed gravel, cobble and boulders. The channel appeared very active, with large deposits of exposed gravel and cobbles throughout the length of the reach.

The banks over much of the reach length were relatively open, with few riparian trees or shrubs present. This was largely a consequence of the extensive grazing by sheep of the riverside meadows, and the prevalence of *Phytopthora* disease in the alder *Alnus glutinosa* trees. The grazing pressure was sufficient to have resulted not only in the loss of tree cover, but also in impoverishment of the grass and herb layer, leading to widespread and damaging erosion of the banks. As the banks had eroded, considerable volumes of fine and coarse sediment ad been release into the channel. The overgrazing of the banks had, in part, contributed to the very mobile nature of the riverbed.



Exposed gravel/fine sediment as a result of bank erosion, accelerated by sheep grazing. Note the three parallel ‘sheep path’s’, with the first two not now used as a result of the erosion they have caused

The erosive nature of the banks had provided an ample supply of suitable vertical banks for excavation of nest holes by sand martins *Riparia riparia*.



Exposed bank following erosion. Note horizon of coarse sediment and sand martin nest holes

In an attempt to address issues of over-grazing and lack of riparian tree cover, the Environment Agency (EA) had fenced off small sections of the riverbank and installed overhanging wooden cover boards. The success of the former intervention can be seen in the lush tree growth, and the establishment of Water crowfoot *Ranunculus* spp, and hemlock water dropwort *Oenanthe* Spp., alongside the enclosures. Empirical observations have shown the value of the cover boards, particularly to chub *Leuciscus cephalus*.

Much of the bed of the river was covered with a fine layer of filamentous algae and diatoms. The gravel was lightly/moderately imbedded with moderate amounts of entrained sediment. The EA had undertaken freeze-coring assessment of the gravel in the recent past.

The EA had also been pro-active in working with landowners in an attempt to minimise erosion, and diffuse sediment and nutrient run-off on a catchment basis using agri-environment schemes such as Tyr Gofal.



Trees growing within fenced compound. Note the growth of water crowfoot in the foreground

Much of the shallow riffle areas of the river bed were poorly sorted, with a relatively uniform profile over long lengths. The EA had recently removed significant amounts of Large Woody Debris from the channel and its marginal areas.

Increasing amounts of water crowfoot and starwort *Callitrichie* Spp., were present further upstream. Himalayan Balsam *Impatiens glandulifera* was present along sections of the beat, with a small number of very large, spatially isolated stands. The impact of these was evident, with little/no growth of any other plants beneath them.

In an attempt to address excessive erosion, the EA had installed a length of some 50m of willow *Salix* Spp. spiling and mixed tree planting on the RB. Fencing had been erected to protect the new planting from stock grazing. The planting had been very successful in protecting the bank, with the overhanging fine willow shoots and roots providing valuable cover for juvenile brown trout. The spiling had recently been ‘pleached’ (laid), and the individual trees coppiced/pollarded. Woody risings from this work will be used to reinforce other sections of bank elsewhere on the fishery.

The EA had also introduced a number of individual large boulders to the downstream section of the reach. These had scoured small pools, ideal as holding areas for adult brown trout. In the same section, a medium sized tree had fallen into the river and had become stabilised due to gravel accumulating around it. Localised scour around the tree had also produced ideal holding areas for adult trout.



Fenced spiling and tree planting successfully protecting the river bank from excessive erosion



Individual large boulder introduced to the river by the EA



Stabilised fallen tree providing good cover for adult trout

Macroinvertebrate life in the river appeared to be good, with hatches of grannom *Brachycentrus subnubilis*, yellow may dun *Heptagenia sulphurea* and mayfly *Ephemera danica* noted by members. A cursory examination of a few stones in riffle areas revealed a number of nymphs of Ephemeral species including flattened Baetids, along with large numbers of cased caddis (Trichoptera). Chris Banger confirmed that the river had a high Biological Monitoring Working Party score, confirming the river's good water quality.

The river had a strong population of Otter *Lutra lutra*, with fresh spraint and pad marks clearly visible on the day of the AV.

Beat 2:

Downstream of Llanyblodwel, there was a maize field on the RB. Whilst maize and other arable crops have been grown in the catchment for a considerable time, the amount of arable cultivation is increasing, with potential consequent effects on the river including increased peak run-off, mobilisation of fine sediment and ingress of agricultural pesticides and nutrients.

A gauging weir downstream of the bridge previously had a secondary use as a fish counter. However, the counter has recently been replaced by a new installation elsewhere.

Habitat in this beat of the river was generally excellent, with a well developed pool and riffle sequence, moderate amounts of riparian shading and in contrast to Beat 8, an absence of uncontrolled/excessive erosion. Both banks were well vegetated, with stands of emergent vegetation present.

The river gradient was relatively steep, with the gravel bed moderately to well sorted.



Beat 2 downstream of Llanyblodwel Bridge showing well vegetated banks and dappled shading of the channel.

3.0 Fish stocks

The river had good stocks of both brown trout and grayling. The latter were re-introduced into the river in the recent past. The club stocks the river annually with hatchery reared brown trout. Beat 8 receives some 450 11"/13" fish annually in 3 stockings, with Beat 2 receiving between 50 –100 fish annually.

The club's holding on the River Tanat is a major salmon spawning area for the Severn catchment, with more than 200 redds regularly counted. The Tanat is an EA indicator river for assessment of compliance with spawning targets under the Salmon Action Plan (SAP). One or two salmon are hooked/ caught by members in most years.

The majority of club members operate on a catch and release basis for all their fishing on the River Tanat.

4.0 Recommendations

UTFC are very fortunate in that the local EA staff, in particular Chris Banger have an excellent knowledge of the River Tanat built up over many years, and have also been pro-active in attempting to address some of the habitat issues identified. The club should build upon this professional knowledge and goodwill in order to further improve both the river's instream and riparian habitat. More specifically, the following recommendations are made following the site visit to the club's waters.

- The key issue constraining river habitat quality, particularly on Beat 8, is uncontrolled erosion. Erosion is a natural process that is essential to the production of varying habitat types, for instance the eroding vertical faces required by nesting sand martins. However, when other pressures, in this case sheep grazing, exert pressure on the process of erosion, it can become uncontrolled with damaging consequences to riverine systems.

In order to reduce the rate of erosion in the Tanat catchment, it is essential that grazing pressure be reduced within the riparian zone. The recent removal of headage payments and the introduction of a Single Farm Payment under the Common Agricultural Policy may reduce the incentive for higher density sheep stocking, thus reducing grazing pressure. However, it is likely that this will not in itself prove sufficient. Additional protection could be provided by the erection of fencing to isolate an ungrazed strip, ideally, more than 10m in width. Some financial support for this and other initiatives may be available from the WTT. This ‘pump priming’ money may be sufficient to release other partnership funding from the EA.

- Once fencing has been erected, other enhancements may be considered. These include the installation of willow spiling, and tree planting, both of which have already been shown to be successful on the Tanat. Funding for this type of work and in particular, its aftercare may be available via the Tyr Gofal scheme.

- In areas where a good growth of vegetation has been established, it may be possible to introduce and stabilise Large Woody Debris (LWD) in order to promote controlled bed scouring. The benefits for retaining LWD are clearly laid out in the recent EA R&D document, “Large Woody Debris in British Headwater Rivers”. Key conclusions of the report include:

- An increase in both mean flow depth and velocity and variability of both parameters.
- The development of high physical habitat diversity both in-channel and in the floodplain. Removal of LWD reduces both habitat quality and availability for juvenile and adult brown trout.
- Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.
- LWD have significant benefits to the control of run-off at the catchment scale.
- River and riparian management has important effects on the distribution and character of dead wood accumulation within the river system.

Practical management options to increase LWD include making use of fallen timber in order to create simple flow deflectors by wiring/staking these to the bank. These can be used to scour relatively homogeneous riffle areas in order to create deeper pools used by adult fish. These small pools can provide shelter areas adjacent to riffles during spawning periods, increasing the numbers of spawning fish.

LWD is a simpler, cheaper and more ‘natural’ way to achieve the same objectives as the introduction of the large boulders by the EA.

It is important that the Environment Agency is made aware of any adopted policy to retain LWD in the channel, in order to prevent its removal during routine management

operations undertaken by the Agency.



Natural woody debris stabilised in Beat 8. Note that it is not recommended that LWD should be introduced until banks have become well-vegetated following fencing to reduce stock grazing

- The presence of Himalayan Balsam is undesirable. It is classified as an alien invasive weed species. There is no policy for its control on a catchment basis, with no authority having a remit to undertake this work. Despite this, it may be possible for the club to undertake limited control of the large stands of balsam present in some areas of the fishery. Chemical control with the herbicide glyphosate when the plant is actively growing in early spring should be effective. Alternatively, the plants can be cut at ground level before the flowering stage (June) or they can be pulled up by the roots and disposed of by composting or burning unless seeds are present.

Note that the use of glyphosate or any other herbicide on or near water requires the consent in writing of the Environment Agency.

- The macroinvertebrate population of the river is good. However, the club should maintain a watching brief on the long term trend in diversity and abundance of invertebrates. Data can be obtained from the EA regarding the Biological Monitoring Working Park score for the river, a measure of the status of the invertebrate population.
- Note that all works to bed or banks of the river or within 8m of its banks require the written consent from the Environment Agency under the Land Drainage legislation. The introduction of any fish or eggs into any inland water requires the consent of the EA under the Salmon and Freshwater Fisheries Act, 1975. It is imperative that all relevant consents are obtained by the club.

5.0 Disclaimer

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