



Habitat Advisory visit to the River
Cynllaith, Wales, undertaken by Vaughan
Lewis, Windrush AEC Ltd. on behalf of
Cynllaith Fishing Syndicate
September 2003

1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd, to the River Cynllaith fishery, near Oswestry, on 23 September 2003. The visit was sponsored by Orvis, as part of its commitment to support habitat enhancement schemes through the offices of the Wild Trout Trust. Comments in the report are based on observations on the day of the site visit, and discussions with Jeffrey Olstead (Cynllaith fishing syndicate). 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.

2.0 The fishery

The Cynllaith is small tributary of the River Tannat, which it joins near Pen-y-Bont Llanerch Emrys (SJ 218235). The fishing syndicate controls some 3km of the Cynllaith above Nant Goch (SJ 212242). The river runs through predominantly pasture land, with sheep and cattle grazing on both banks.

3.0 Habitat Description

The river was structurally excellent, with a steep gradient, meandering planform and well developed pool riffle sequence. Channel width was between 3m-6m. Flow and water level were very low on the day of the visit, with the river some 15cm-20cm below normal level for the time of year. The only submerged weed present in the fishery was willow moss *Fontinalis antipyretica*.

At the lower end of the fishery, the substrate was dominated by a relatively un-imbedded coarse gravel, cobble and boulder mix, with a moderate overlying loading of fine sediment. Mean substrate size was larger than that preferred by spawning brown trout, appearing to be more suitable for Atlantic salmon, which are known to spawn in the River Tannat.



Section of the lower fishery showing coarse substrate

A brief examination of the stones on the bed revealed an excellent macroinvertebrate fauna, including numbers of Ephemeropterid nymphs and cased caddis nymphs. Good hatches of upwinged flies were reported by the syndicate, including mayfly *Ephemera danica*.



Cased caddis on underside of rock in the River Cynllaith

Cover in the channel for brown trout was provided by the presence of deeper pools, undercut banks, tree root systems and large woody debris (LWD). In a number of places LWD had gathered to form dams across the stream.

Short sections of the bank had been overgrazed and poached by agricultural stock, resulting in the loss of valuable riparian vegetation and mobilisation of fine sediment into the channel. Grazing had also prevented the development of young riparian trees, with the result that the no recruitment of new trees was apparent.

There was heavy and extensive shading along several lengths of river due to the presence of large numbers of riparian trees, particularly in the middle reach of the river. Fringing vegetation had been suppressed as a consequence.

There was evidence of some local removal of bed material by dredging, with large banks of cobbles and gravel deposited on the bank in two locations. In addition, there had been attempts made to minimise bank erosion by the deposition of builder's waste on the LB.

In the middle reach of the river, the bed was dominated in places by exposed bedrock, with extensive deposition of sand in some of the deep glide sections. Suitably sized gravel for spawning brown trout remained rare in these sections.

The upper reach of the river had a shallower gradient, with smaller sized, relatively unimbedded gravel dominating the substrate as a consequence. This gravel was of a suitable size for trout spawning. Agricultural stock poaching was minimal in this reach, with only small areas of erosion present. Shading by riparian trees was light to moderate. This section of the river had the best habitat for brown trout recruitment.



Builder's waste deposited on the LB in an attempt to stop erosion

3.0 Discussion and management recommendations

The River Cynllaith is a structurally excellent fishery, with an abundance of good quality habitat for juvenile and adult lifestages of brown trout. However, the large mean size of the substrate in the middle and lower sections of the river is likely to limit the availability of suitable spawning habitat for brown trout. The preferred gravel size for spawning brown trout is between 1cm-7.5cm diameter. Most of the large gravel, pebble and cobble present in the lower/middle reaches was substantially large than this. Gravel in the upper reach of the river is of a more suitable size. It is likely that the availability of suitable spawning habitat in the upper reach of the fishery is adequate to provide stock to the reaches below.

There is a lack of data regarding the syndicate's fishery on the Cynllaith. It is important that as a minimum, data should be obtained from the Environment Agency regarding macroinvertebrate, fish and water quality in the river. In the event that the Agency does not have these data, the syndicate should request that surveys for fish and macroinvertebrates should be undertaken along with water quality sampling. Results from this work will not only give an indication of the current quality of the fishery, but will form a useful baseline for the assessment of changes over time.

Cover in the stream, particularly during low flow periods, is largely provided by LWD. Where possible this should be retained in the channel. Large woody debris (LWD) is an integral component of stream ecology. The benefits for retaining it 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.

The report also provides recommendations for the management of LWD, the most important of which is “although there are certain situations that may require wood removal to eliminate stream blockage, the wisest management is no management”. Building on this simple truism, it is recommended that before any future work to remove LWD from river channels is undertaken, the wider implications of the proposal on the whole river system are considered, rather than just the potential (in many cases unproven) benefits to salmonid populations. In addition, the impact of planned riparian tree work on the supply of LWD to the river should be considered. In some circumstances, it may be beneficial to allow trees to fall into the channel, provided the risk of increased flooding is acceptable.

Whilst LWD in the channel is an important structural component of the fishery, the value of riparian trees should not be underestimated. Their root systems are vital as cover for both adult and juvenile brown trout, and also help to bind together the banks, reducing erosion. In order to protect the root systems and also reduce over-shading of the banks in some locations, it is recommended that a rotational coppicing regime should be adopted. Increasing light penetration into presently tunnelled river sections would be of benefit to instream vegetation and valuable fringing marginal vegetation. The conservation value of the existing trees should not be under-estimated and great care should be exercised in the selection of trees to be cut. Coppice stools will need to be protected from grazing by agricultural stock during re-growth. This can be achieved by erection of localised fencing or by piling brush arisings onto the stools to reduce grazing opportunity. Given the general lack of new trees recruiting along the river bank, it is recommended that additional tree planting would be valuable, using local provenance stock of species already represented along the river. Fencing and tree guards will be required during the early years of establishment.

Fencing, either permanent or temporary electric should be used to prevent excessive stock grazing of river banks at a number of locations on the fishery. The small scale dredging activity in the river and the tipping of builders waste onto the banks should be discouraged. Rather than trying to work against the natural geomorphological processes of sediment movement and erosion, it is better to try and manage them. Selective coppicing and fencing of banks to allow strong growth of marginal vegetation are both management prescriptions that are useful in this respect.

There was some evidence of poor farming practice on the day of the visit. Spreading of cattle slurry near to the river or to connecting drains does carry a significant risk of pollution of the river. This risk should be highlighted to local landowners and, if necessary, the Environment Agency.