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ADVISORY VISIT TO THE RIVER CEIRIOG, WALES, UNDERTAKEN BY VAUGHAN LEWIS, WINDRUSH AEC LTD, ON BEHALF OF CEIRIOG FLY FISHING CLUB MAY 2008

1.0 Introduction

This report forms the output of a site visit undertaken on 14 May 2008 to the River Ceiriog, near Crick, Wales on behalf of the Ceiriog Flyfishers (CFF). CFF has 66 members, who fish approximately 11km of the River Ceiriog. Fishing is by fly only.

Information for the report was gathered during the site visit. Additional information was provided by club members. Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

2.0 Overview of the fishery

The River Ceiriog is a major tributary of the Welsh Dee, and forms the boundary between Wales (LB) and Shropshire (LB). The river is designated as a Site of Special Scientific Interest (SSSI) with responsibility for this designation apparently shared between the Countryside Council for Wales (CCW) and Natural England (NE).

Habitat within the river was generally good, with abundant sections of fast flowing gravel/cobble riffles suitable for spawning and juvenile salmonids. However, concern was expressed by club members that large flood events, particularly in 2000, had radically altered the bed profile of the river. Many of the deeper pools had been in-filled by shifting bed material, resulting in a loss of much of the adult habitat. The club were keen to re-establish these areas, probably by creating areas of increased scour.

Much of the fishery was fringed by large deciduous trees, with a wood on the RB of the river in the reach adjacent to and above the fish farm. As a consequence, the channel was significantly shaded in these sections.

Some of the lower reaches of the fishery were protected from overgrazing by agricultural stock by the presence of a fence. Other reaches remained unfenced. Despite the relatively low numbers of stock in these reaches, there was still evidence of some overgrazing, and consequent damaging erosion of the banks in these locations.

Typical reach of the middle river

Water quality in the Ceiriog was good, with excellent hatches of various upwinged flies noted throughout the year, and a dipper seen feeding in the river during the visit. One significant decline had been that of the mayfly. The club has tentatively liked this decline to the floods of 2000, when large amounts of fine sediment had been removed from the river. They surmised that this had caused a catastrophic decline in the numbers of all lifestages of mayfly, from which the species had never recovered.

Stands of Japanese knotweed were present along the length of the river. This invasive, non-native species has the potential to spread at an alarming rate, to the detriment of both native plant species and bank stability.

3.0 Fish Stocks

The river contains moderate/good stocks of brown trout which the club supplements with some 1,500 hatchery reared fish in order to improve angling opportunities to members. At present, these are diploid fish obtained from Chirk fish farm that is located on the banks of the river. However, future changes to the EA's Trout and Grayling strategy may result in a requirement to stock triploid fish.

In addition to brown trout, the river holds stocks of migratory sea trout, and Atlantic salmon. Indeed, the river is one of the most important spawning tributaries for

migratory fish in the River Dee catchment. The EA were monitoring smolt migration using a rotary screw trap installed in the clubs' fishery. The club has a policy of generally not fishing for migratory fish, which generally run later in the season, largely regarding their section of the river as a sanctuary.

The Ceiriog also contains a good stock of grayling. However, an EA installed weir at Avondale currently the limits the access of these fish into the club's fishery. It is understood that the EA are examining the feasibility of modifying the existing fish pass in the weir in order to allow upstream migration for grayling.

Rotary screw smolt trap

Upstream of Gatehouse Bridge, the channel was more open, with fewer trees lining the riverbank. The banks were unfenced and subject to
Grazing by low/moderate densities of stock. There was some evidence of local overgrazing, contributing to excessive erosion. The club had been informed that works were planned to the LB of the fishery in order to repair bank undercutting that was threatening the stability of the nearby main road.

From the Chippings to the Broken Bridge, the channel as rather overwide with limited instream feature following the severe flood in 2000. This had lowered the bed on the RB of the fishery by some 0.75m, taking the main flow away from its original LB path and along the RB. As a consequence, this as steep and very unstable with a significant damaging erosion taking place each year.

4.0 Recommendations

The key issues identified during the visit and in discussion with club members were the reduction in deeper pool habitat for adult fish, and the increased erosion of the bank in specific areas. Recommended actions to address these and other issues raised are as follows:

· The simplest and most robust method of increasing local scour of the bed, and hence increasing habitat diversity, is by felling carefully selected bankside trees into the river. The selection of suitable trees requires consideration of a number of issues including:

Ø Location. The felled trees should be located in areas with a bed dominated by gravel or cobble substrate suitable for spawning salmonids. This will ensure optimum benefit. Areas of bedrock should be avoided, as there will be no meaningful change to the bed profile.

Ø Fixing of the felled timber. By far the best fixing can be obtained by partially cutting through the selected tree and 'hinging it' into the water. By locating the end of the hinged timber behind and upstream of an existing tree on the opposite bank, a very firm fixing is thus obtained at both of its ends. A Tirfor winch is a very useful tool for this type of operation. Short of the impact of a massive flood event, the stability of the felled tree will then be assured. Further security can be obtained by drilling through the trunk of both ends of the felled tree and securing them to standing trees using cable laid wire.

Ø Bats. Trees with significant amounts of ivy growing up them and those trees which have holes in their trunks or major limbs, can harbour colonies of bats. To avoid risk to these protected mammals, trees should be selected for felling that have limited or no growth of ivy, and which do not contain holes suitable for bats.

Other considerations include obtaining the necessary consents from EA, CCW and/or NE. The Agency should be able to confirm whether they deem tree introduction of this type to require consent under the Land Drainage legislation. Trees should be felled only by a properly qualified and insured tree surgeon. Whilst this type of felling is not a difficult operation, it has the potential to be very dangerous if undertaken by inexperienced workers.

It is recommended that a small number (<5) trees should be felled in the first instance. This will give both the angling club and the relevant authorities the opportunity to monitor both their efficacy and impact on river flows.

· Further tree cutting should be considered along the heavily wooded sections of the fishery. By instigating a well-planned programme of rotational coppicing, shading of the channel can be reduced, thus encouraging the growth of valuable marginal vegetation. Care must be taken to avoid excessive coppicing as this can lead to over-warming of the water, to the detriment of fish. The aim should be to produce dappled shade over the channel, with between 40% and 60% shading. The reach above Castle Mill Bridge was an example showing the desired mix of shading and light. Selected trees should be clearly marked before cutting. A period of around 5-7 years should be

maintained between successive coppicing. It a significant cut of timber if proposed, it may be necessary to obtain a felling licence from the Forestry Commission.

· The integrity of some of the fencing along the river had been lost, partly due to erosion of the bank, and partly due to sheep being able to force their way through sections of the fence. It is recommend that any fencing erected in the future is made sheep proof, and that it is erected at least 5m from the bank top in order to allow the development of a wide, well-vegetated buffer strip.

Fencing should ideally be erected along all reaches subject to significant grazing pressure from stock.

Bank erosion as a result of fencing being erected too close to the bank top

Recent coppicing

· It may be possible to redress the apparent loss of mayfly from the fishery by a reintroduction process. Such schemes have been undertaken successfully by Dr Cyril Bennett who can be contacted via the Riverfly Partnership http://www.riverflies.org/

· The presence of Japanese Knotweed 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 stands of the plant present in some areas of the fishery. Repeat chemical control with the herbicide glyphosate when the plant is actively growing in early spring should be effective over time.

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

· Additional funding for some of the work recommended might be forthcoming from the Wild Trout Trust who holds small 'pump priming' pots of money for projects of this nature. There is also a scheme whereby a top quality rod can be purchased by the club at cost price and subsequently raffled to raise funding. The Trust also operates a 'Practical Visit' scheme whereby a river restoration specialist undertakes up to 2 days work at the site in order to demonstrate techniques that are suitable to address the issues raised in this report. It may be that the WTT could arrange for a PV to be undertaken to show best practice with respect to felling and fixing trees in the channel as described above. Contact Tim Jacklin at the Trust at project@wildtrout.org for further details. Other potential funding sources include the

Environment Agency or the Sharegift charity. This is a charity that collects unwanted share allocations and donates the profits to smaller groups undertaking a variety of work. Contact them at http://www.sharegift.org/

· It is understood that repairs planned by the local council to the reach upstream of Gatehouse Bridge will involve the installation of stone filled gabion baskets in order to protect the LB from further undercutting. In order to install the gabions, the council will probably need to cut down many of the riparian trees, leaving the bank devoid of cover. It is recommended that the club approach the council; with a view to gaining an assurance that they will reintroduce cover as part of the scheme. A simple option would be to include some live willow logs along the face and top of the installed gabions. The willow logs will grow into the gabions, providing shade and overhanging cover relatively quickly. It may also be necessary to cover the reinstated bank with a coarse coir geotextile in order to reduce the risk of excessive sediment run-off into the river.

The club would also be well advised to a practical or financial contribution to works elsewhere on the fishery in recognition of the disturbance caused by the forthcoming works. It may be that the council would be in a position to offer a small amount of staff time to tackle some of the tree work recommended above.

· The overwide section of river upstream of the Chippings could be addressed by cutting down between 5-10 alder trunks on the LB and winching them across to the RB, where they would be installed in a line facing upstream at around 30^0 upstream. This would tend to push the flow away from the RB into the middle of the channel, protecting the RB from excessive erosion. In conjunction with a temporary (electric) or permanent (post and wire) fence to protect the bank from stock erosion, this would, overtime, reduce erosion and allow the riverbanks to recover, eventually narrowing the river.

Realigned and badly eroded section of river upstream of The Chippings. Note that the channel along the RB is some 0.75m lower than the LB, with the former RB now effectively an island in the centre of the river

· 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.

As the Ceiriog is a SSSI, there is also a requirement to obtain consent for most operations from CCW and NE. These organisations should have established a Memorandum of Understanding between themselves and the EA to avoid the need for multiple consent applications to all three organisations.

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