THE RIVER ALYN (aka ALUN)

MOLD FLY FISHING CLUB
Advisory Visit Report Undertaken
On behalf of the Wild Trout Trust
By Ron Holloway MIF
23rd April 2002-04-28

River Alyn.

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The Mold Fly Fishing Club

This Advisory Visit was undertaken by Ron Holloway (R H Associates) on behalf of the Wild Trout Trust, in the company of Brian McManus (Chairman Mold FFC) and another Club Member.

Objective of Visit:

To look at the River Alyn within the boundaries of the Mold Fly Fishing Club waters and pinpoint and identify any problems there may be in the brown trout habitat which are controlling the natural breeding, survival and holding capacity of the water and to recommend such measures that could be taken by the club to mitigate or remedy any of these problems.

Background:

The River Alyn rises in the Clwydian range of hills to the west of the town of Mold in Flintshire and flows over a limestone strata wherein at low water flows the stream actually disappears underground at Loggerheads park. Once it has re-emerged, it flows east towards Mold, the reach visited runs from the roadbridge on the A451 upstream for one and a half miles. The stream here has historically held a self sustaining stock of wild brown trout with occasional sighting of sizeable sea trout. In fact the signs of substantial redds were observed at one point in the upper reaches of the beat. The whole river system of the Alyn was subjected to a five hundred year flood event during the winter of 2000/2001 when considerable damage was done throughout the whole system. The volume and energy of the floodwaters has caused serious erosion and, in many places, the river has been dramatically altered with a section of completely new channel being cut by the floods, by-passing an old mill weir system. The effect of the flood has also taken its toll on trout habitat, although on the return to a normal flow regime, the river has naturally adjusted and is continuing to adjust to these changes.

The substrates comprise of well sorted gravels, cobble, with considerable deposits of silt, sand and fines in the slower flowing reaches. The stream has maintained a good, natural pool/riffle sequence for most of its length. Aquatic plant life is very poor, with only the odd rather sickly clump of rununculus present.

Struggling Rununculus!

Historically, anecdotal evidence states that rununculus was at one time abundant. There is a good and varied population of invertebrates with shrimp, caddis and ephemyoptera present. Given the presence of the diversity of invertebrates - water quality is satisfactory, however there is concern that water temperatures may be a problem at low flows in a hot summer.

There are adequate spawning areas that hold good size gravel which would be attractive to trout spawners and this is substantiated by the observed presence of a vigorous population of brown trout swim up fry along the stream margins, particularly in the tails of well oxygenated, clean riffles.

Spawning gravel area.

The re-sorting of the substrates by the big flood has moved a great deal of gravel which, in turn, has filled in many of the deeper trout holding areas, furthermore, instream trout cover that can provide bolt holes and feeding lies have also been removed or severely damaged by the floods.

The stream has migrated across the flood plain in places which has created substantial areas of erosion into the aluvial deposits that make up the flood plain. This damage has been exacerbated considerably by a high density of cattle grazing all along the river margins which has removed essential soil stabilising bankside vegetation and, along with the effects of the trampling by many cattle, it has broken down the vulnerable soft river banks. Once overgrazed and trampled, the soil in these banks becomes very susceptible to washout in any high, or bank full, flows.

Erosion!

Comments:

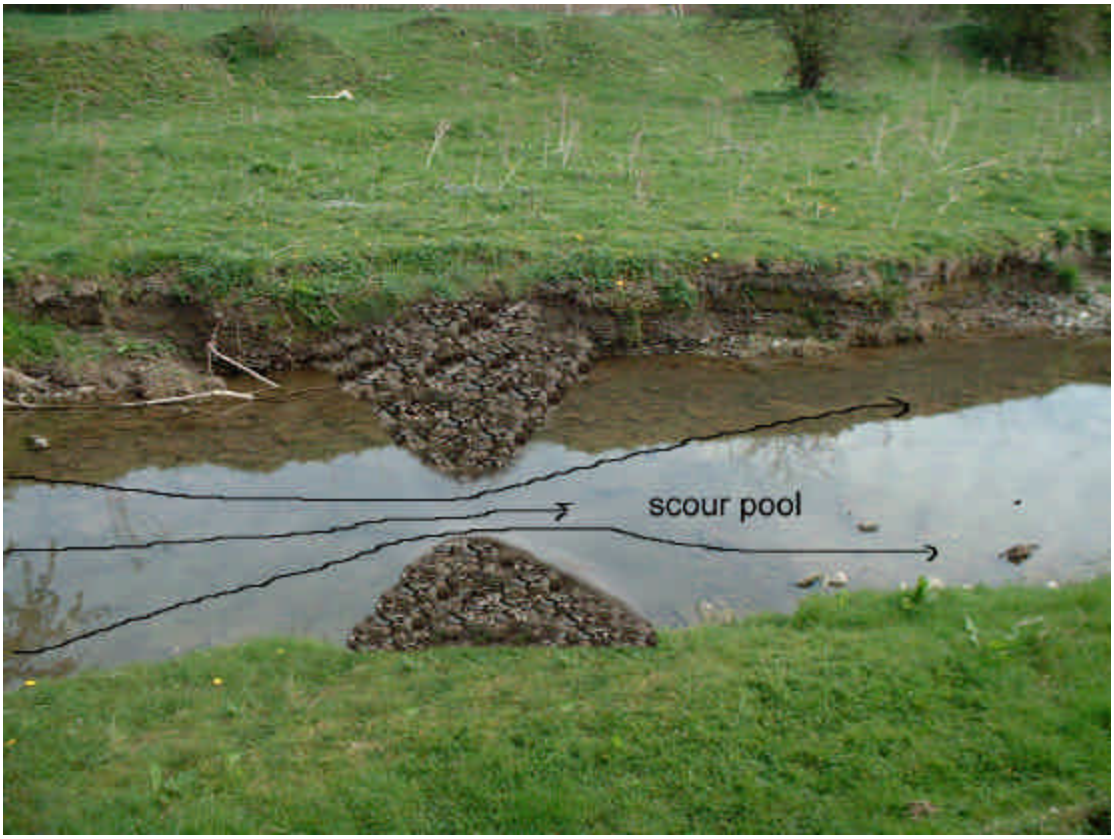
Allowing for all the damage that the river has suffered from the huge flood, trout habit has survived and a resident population of brown trout is evident from this years' swim up fry. Disregarding the erosion problems for a moment, it is my opinion that the main limiting factors which appear to be controlling the density of the resident brown trout population are:-

1. Lack of instream/midstream cover and feeding lies for adult trout.
2. Insufficient deep holding areas for over wintering adult trout and for trout in low summer flows.
3. Insufficient food supply to sustain a large increase in the population of resident brown trout.
4. I have concern about water temperatures at low summer flows, particularly during extreme hot weather.

Recommendations:

Addressing numbers 1 to 4 above I would comment as follows:-

1. Place random rocks and boulders along the stream to create cover and to energise flows to scour river bed of silt and fines. Place these rocks to be 6" out of water at mean base flow. The surface disturbance caused will further offer trout cover in the broken water. Choose the size of rocks which can be manhandled (2 men) to ensure they will not move at normal bank full flows. Place in single and groups of rocks.
2. Encourage the water to scour deeper holding areas for adult trout by constructing pairs of triangular stone deflectors in cover deficient areas.



Rock Deflectors.

It is suggested that more substantial sizes rocks be used than illustrated above. No suitable sized rocks were available when this illustration was constructed! When submerged at high water the shape of the construction will ensure the flows will always be directed into the scour hole and therefore reduce bank erosion downstream. The points of the triangular structure to out of water by 6inches at mean base flow. The concentrated flow will scour a depression in the bed and create a useful holding area for trout. Several of these structures could be strategically placed at numerous

points along the whole beat. Consult with Max Gooch (EA Fisheries) as to the siting and placement of same.

3. It is recommended that consideration be given to embarking on a programme of reintroduction of Ranunculas by replanting with plants obtained from within the Alyn catchment. Max Gooch will advise on availability of plants and the methods of planting. Ensure that plants are reintroduced into fast flowing water without shade and suggested sites would be at the heads and tails of fast flowing riffles. The plant is not emergent so requires to be under water at all times. Do not contemplate replanting until all of the instream rock work is completed. Once the plants are established in order to help protect them a programme of Autmn cutting would help by trimming the tresses back to within 6 inches of the roots and this will help protect the plants from being torn out in any high winter flows. Once established the Summer growth will not only provide extra cover for all age groups of trout but also augment the food supply with aquatic insects that will abound within the growths .

4. Although there is room for some judicious tree planting to provide shading along the open banks there are other areas where some systematic pollarding is required to allow more sunlight to reach the river. In these shaded areas it is suggested that a

Needs Pollarding

that a ratio of 40% shade and 60% sunlight should be achieved.

5. Woody debris can be of benefit in a river as it can not only provide trout cover it also affords good insect habitat as well as assisting in the scouring the river bed of accumulated sediments. However the two substantial debris dams need to be removed as in one (Picture 1) it has done its job of scouring a large hole under and downstream creating an excellent trout holding area, but if left will continue to scour and could start to cause more damage than good .

Debris Dam. Pic.1

Whereas the second dam (See pic.2) will only collect further debris on the next flood which could further dam the river and encourage it to cut around the obstruction and make a further unwanted channel.

Debris Dam. (Pic.2)

At the top of the stretch where the river wrecked the old weir and totally re-aligned itself by cutting a completely new channel, it would be wise to wait until all the new structural repair work has been completed by the contractors and then time given to allow the river to settle into its new course. If the large pool below this work is cleared out and left, it could provide a very interesting feature for the fishery as it would initially provide excellent holding capacity for adult trout and sea trout. However, it could also provide other benefits, such as acting as a silt trap and a flood defence safety valve which would reduce the velocity of flow during flood events. It would, therefore, be wise not to include this area in the overall restoration plan for at least a couple of years. Wait and see what nature and the river wants to do at this site.

In my opinion the cause of the devastation around the old weir was due to the effect of the manmade concrete trapedzoidal channel upstream which, during the 500year flood event, flowed at bankfull and with the nature of the construction (smooth, concrete, open culvert) accelerated the flood water velocity to such an extent that it wrecked the stonework of the weir. To treat this problem is totally within the land

drainage/flood defence department of the Environment Agency's remit and certainly not the responsibility of the fishery.

There is a great deal which can be done on this reach and the recommendations above highlight the areas for consideration. It is suggested that the way forward would be to set down all that needs attention and discuss with Max Gooch (EA Fisheries) for further ideas and advice and for obtaining the necessary consents etc. It is suggested that the whole project then be broken down into yearly achievable projects that the Club can confidently handle and implement. One of the final essential considerations is the need to fence off the river banks to protect them from grazing cattle. The over grazing and trampling of the vulnerable banks has been one of the major contributory factors in the streams' degradation over the years. Once these banks have been protected, natural vegetation, including young trees, will stabilise the soft banks which will enable them to withstand not only the annual bankfull flows, but also the ten to fifty year flood events.

The areas of major erosion should be addressed, but this could necessitate some civil engineering work. Some suggested courses of action are:-

1. Large rock riprap firmly placed along the foot of the erosion wall and the bank behind re-profiled to slope back from the riprap which is then planted with natural vegetation, willow and alder.
2. A tree trunk wall constructed along the foot of the erosion wall, which is then backfilled with rock, cobble and gravel and also planted up with natural vegetation , willow, alder etc. It is advised that consultation with the EA be sought on both these operations.

Exact costings of this work is difficult to ascertain at this stage but guidance on the procedures recommended are set down in the Wild Trout Trust Guidelines Booklet enclosed with this advisory report. However, it cannot be over emphasised of the necessity of consulting with the EA on all aspects.

It is my opinion that this reach of the River Alyn has the potential to hold a better natural selection of self sustaining wild brown trout and this stock could be strengthened even more once the suggested work has been completed.