



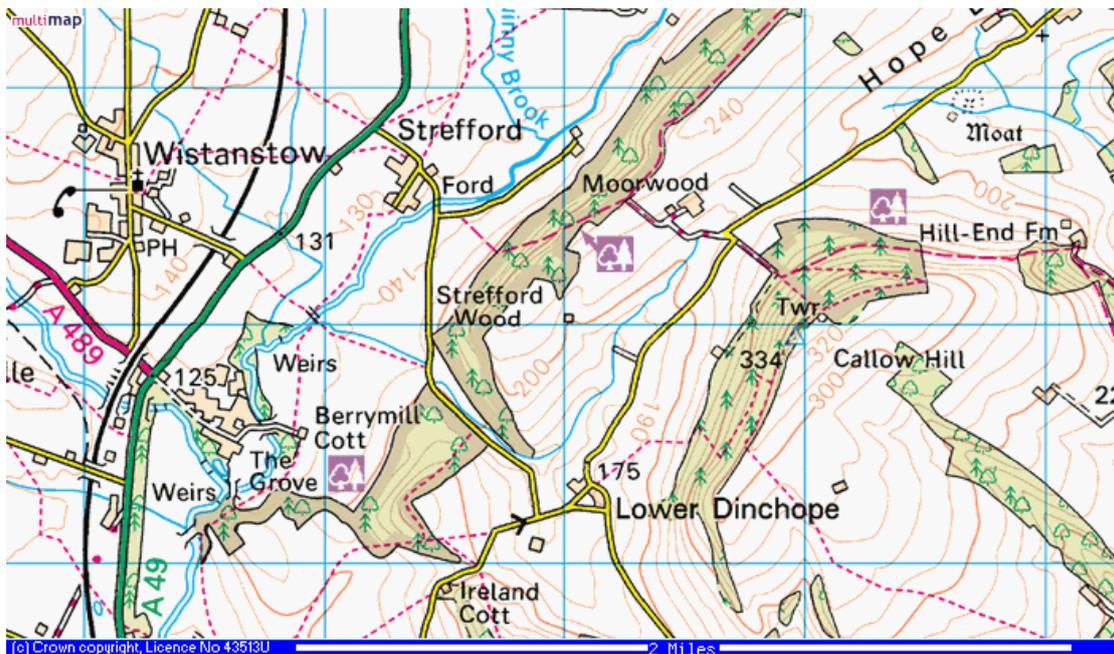
**HABITAT ADVISORY VISIT TO THE BYNE
BROOK, SHROPSHIRE.
UNDERTAKEN BY VAUGHAN LEWIS,
WINDRUSH AEC LTD ON BEHALF OF
MIDLAND FLYFISHERS**

APRIL 2007

1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd to the Byne Brook, a small tributary stream of the River Onny, near Craven Arms, Shropshire. The visit was undertaken on behalf of the Wild Trout Trust. Information contained within the report was obtained from observations on the day of the site visits and from discussions with Richard Garland.

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.



The Byne Brook had generally good instream habitat. Gradient was steep, with an abundance of pools, deep/shallow glides and riffles suitable for all lifestages of brown trout *Salmo trutta*. The river had a meandering course, through moderately wooded banks. There was abundant Large Woody Debris (LWD) in the channel, which in conjunction with undercut banks, extensive tree root systems and deep pools, provided excellent cover for trout and other fish species. Substrate was a mix of cobbles, gravel and sand eroded from the very friable banks.

Towards the upper end of the fishery, a number of alder *Alnus glutinosa* trees had been coppiced on the RB. This had reduced shading of the channel significantly. The coppice stools had been protected from cattle grazing by the erection of electric fencing, allowing for new tree growth to take place.

There was fencing along some sections of the fishery, effectively preventing stock grazing and poaching the riverbank. However, other sections remained either unfenced or had fencing that had failed. In these sections, considerable bank damage was apparent, with overgrazed vegetation, and excessive erosion typical. As a consequence, bankside cover was limited. In addition, eroded fine sediment was entering the river to the detriment of the gravel spawning beds.



Overgrazed, unprotected banks with associated excessive erosion and lack of cover



Typical section of the Byne Brook, with meandering form, LWD, and good variation of instream habitat

The Quinny Brook joined the Byne Brook towards the upper limit of the fishery. This was a small stream, with an abundance of apparently good quality habitat for spawning and juvenile brown trout. However, as in the main river, there were significant amounts of fine sediment entrained within gravel, potentially reducing the hatch rate of any trout eggs deposited.



The Quinny Brook showing good gradient and gravel substrate suitable for spawning and juvenile trout

Downstream of the ford, there was an increase in the amount of arable land present. Where this abutted the river, the presence of buffer strips prevented excessive erosion. Some sections of the grazing land adjacent to the river were fenced, preventing erosion due to grazing stock. However, there was significant and damaging erosion in at least one long unfenced section.



Bankside erosion from stock downstream of the ford

Water quality in the Byne Brook has been periodically poor, with at least two significant pollution events attributable to agricultural sources having taken place during the last 15 years. More recently, water quality appeared to be generally good, with hatches of mayfly in the river strong during the past few years.

Invertebrate fauna of the Quinny Brook appeared to be relatively restricted, with only cased caddis and leeches noted during a brief assessment of the underside of stones in shallow riffle areas.

Throughout the length of the fishery, Himalayan Balsam *Impatiens glandulifera* presented a real and increasing challenge, ousting native plants and contributing significantly to damaging erosion during high flow periods, particularly in the winter.

2.0 Fish stocks

There were good numbers of wild brown trout present in the fishery. No stocking has taken place in recent years. Angling pressure is very light, with the few members fishing returning virtually all fish caught.

3.0 Recommendations:

- The history of pollution events within the catchment and the apparently restricted invertebrate fauna of the Quinny Brook suggest that further information should be

obtained on the water quality of the system. The Environment Agency should be contacted with a view to obtaining historic and contemporaneous data on both river water quality and macroinvertebrate assemblages. These data should show how the present quality of the river relates to its historic status.

- The club should also consider undertaking some basic monitoring of macroinvertebrate populations in the river. This involves taking a series of three minute 'kick-samples' of the riverbed. A fine meshed net is placed on the bed of the river, which is then disturbed using the sampler's feet for a total of three minutes, sampling all habitat types in proportion to their abundance in the channel. The samples are then placed in a labelled container (they can be preserved with alcohol if required for future sorting).

Samples are then subsequently sorted into invertebrate families. Each family is assigned a score under a system known as the Biological Monitoring Working Party (BMWP) with the highest scores reserved for the most pollution sensitive families. Scores for all families are then added together, to give a total for each sample taken. This score can then be compared to a predicted score based on elevation, geographic location, gradient, and general habitat of the site. Deviation of the sample from the predicted score would be indicative of a water quality or perhaps flow, perturbation. Further details of 'DIY' sampling strategies can be obtained from the Riverfly website at <http://www.riverflies.org/> Suitable nets for sampling macroinvertebrates can be obtained from Alana Ecology www.alanaecology.com Tel: 01588 630173

- It is important that the unfenced sections of riverbank should be protected from grazing stock as soon as possible. Without the erection of fencing, damaging erosion of the banks will continue, reducing cover and reducing the hatch rate of deposited trout eggs. Where possible, fencing should be set back at least 5m from the riverbank in order to allow adequate growth of binding vegetation. Without this width of buffer strip, it is quite possible that erosion will proceed more quickly than plants can establish, resulting in failure of the bank and loss of the newly erected fence. There is a clear risk of this happening to the fence erected downstream of the ford.



New fence, erected too close to the bank top. It is very vulnerable to rapid erosion and failure of the bank

- The coppicing undertaken had been a positive management option, with the subsequent fencing vital to allow regrowth of the coppice stools. One small criticism is that ideally not all the trees in one section should be coppiced at one time. Sections of coppicing could be undertaken where shading is heavy throughout the fishery. Ideally, only 30-50% should be coppiced, with subsequent coppicing of remaining trees taking place after say 5 years, allowing for the development of ‘dappled shading’ and an uneven aged structure of trees alongside the stream. Excessive coppicing not only reduces cover for fish and other species, but can also lead to the development of damagingly high water temperatures during low flow periods.
- Some of the alder trees appeared to have contracted *Phytophthora* (a water borne fungal disease). This disease is often fatal. Consequently, it would be prudent to consider planting replacement trees of alternative species. Typically, these could include ash *Fraxinus excelsior*, hawthorn *Crateagus monogyna* or field maple *Acer campestre*. Any trees planted would require protection from cattle/sheep.
- The club had no detailed knowledge of where trout spawned in the fishery. It would be of great value if this information were obtained. Walking the river during periods of good water clarity during November-January would allow the club to locate and record areas used by spawning trout.
- 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.

- Note that all works to bed or banks of the river or within 8m of its banks requires 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.
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