



**Advisory Visit**

**River Blithe, Staffordshire**

**May 2011**



## **1.0 Introduction**

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust to the River Blithe at Field, Staffordshire on 16<sup>th</sup> May, 2011. Comments in this report are based on observations on the day of the site visit and discussions with Peter Atkin (landowner), David Blench (representative of potential fishing lessees) and subsequently with Chris Farmer (Environment Agency, Biodiversity Officer).

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

## **2.0 Catchment / Fishery Overview**

The River Blithe rises on the eastern outskirts of Stoke-on-Trent near Blythe Bridge and flows in a south easterly direction, draining a catchment between Stone and Uttoxeter, to join the River Trent at Nethertown (between Rugeley and Alrewas). About three-quarters of the way along its course it is impounded by Blithfield Reservoir (a potable water supply reservoir operated by South Staffordshire Water plc).

The section of river seen during this visit is located well upstream of the reservoir at Field, 7 km west of Uttoxeter. The visit was suggested by Chris Farmer, Environment Agency (EA) Biodiversity Officer following a meeting with Peter Atkin (landowner) regarding ways he could reduce flooding on his land adjacent to the river at lower return periods (minor flooding events). The lease for fishing on the river was recently given up by Hanley Angling Society and this visit was attended by David Blench who represents a club which is interested in taking on the fishing. The purpose of the visit was to assess the habitat within the river and its potential as a trout fishery, and to suggest ways of improving flood conveyance which would not compromise fishery and habitat quality.

The Environment Agency is responsible for delivering the objectives of the Water Framework Directive, which aims to achieve "good ecological status" for all watercourses by certain target dates (the first being 2015). There is a strong imperative to achieve these aims because the UK Government faces infraction proceedings and large fines from the European Union for failure.

This section of the River Blithe has been assessed as currently achieving good ecological status, so it is important that it is maintained in this condition.

Mr, Atkin owns the left bank on this section of the Blithe, which is divided into two beats (upper and lower; Appendix 1), separated by a short section which is under different ownership. The right bank of the lower beat is owned by Mr. John Hollins and this was also previously leased by Hanley AS. The right bank of the upper beat is not fished. It is recommended that this report and its recommendations are discussed with all riparian owners to get the maximum benefit.

### **3.0 Habitat Assessment**

This reach of the River Blithe has a generally meandering plan-form although it is evident that some sections have previously been straightened and some river bed lowering (dredging) has occurred. In the past the river was maintained for drainage by the Environment Agency (and predecessor organisations) but this is no longer carried out. Maintenance activities such as dredging, straightening and tree removal are, broadly speaking, damaging to the fishery and conservation value of the river.

The cessation of maintenance has resulted in the Blithe starting to recover its natural features including a pool-and-riffle sequence, a gravel bed and some bankside trees. This recovery is reflected in the fish community of the river which includes a good stock of wild brown trout and riverine coarse fish such as dace and chub.

Whilst it may seem that there is a conflict between the objectives of reducing the frequency of flooding and retaining the natural conservation and fishery value of the river, there are ways of approaching the issue which would see improvements for both. These are covered in the recommendations section of this report.

A typical example of a section of river which has been straightened and dredged is shown in Photo 1. A meander has been cut off and a spoil bank created on the left bank from the dredgings from the river. The result is a river channel with a trapezoidal cross-section which tends to be over-wide (immediately after the works) and have a uniform depth; this promotes the deposition of fine bed material (sand and silt) which colonises with rushes and reeds. The spoil bank may prevent inundation of the fields in this

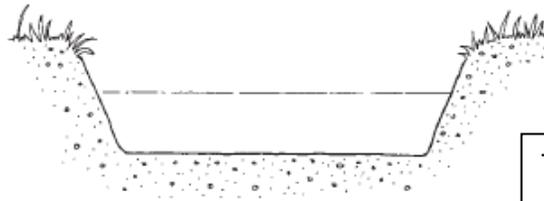
specific location, but it could contribute to increased retention of water on the fields if the river overtops the bank further upstream.

Two woody debris dams were observed during the visit and these filled the entire width of the river channel. Features like this are valuable in-stream habitats for fish, invertebrates and other wildlife; they also promote the formation of natural channel features like pools and riffles. The preferred option from a conservation standpoint is to retain woody debris; however the extent of these particular dams and their colonisation with live willow does represent an impediment to conveyance of high flows.

On the middle to lower part of the upstream beat there are sections where willow (sallow) trees have grown out across the channel in dense stands. These are causing heavy shading of the channel and also make angling access very difficult; flood conveyance will also be impeded by the dense growth. Many of the willows are growing on the inside of bends (generally on the left bank) and the opposite outside banks are treeless; this is increasing the rate of bank erosion on the right bank. Ideally, the blocks of trees should be on the outside of the bends to increase bank stability and resistance to erosion.



Photo 1 A section of the Blithe which has been previously straightened and dredged. Note the former meander (A) and spoil embankment alongside the river (B). The trapezoidal channel cross-section (below) resulting from this work lacks variety and is very poor for the fishery and conservation value of the river; it is also prone to silting and excessive emergent vegetation growth which can impede drainage.



Trapezoidal cross-section





Photo 2 Woody debris dam



Photo 3 Willow (sallow) growing on the inside of a bend



Photo 4 Sections of river with cattle access tend to be wide and shallow because of bank poaching and subsequent erosion: not good for habitat or angling.



Photo 5 Sections with restricted livestock access have much better habitat and are vastly better for angling.



**Photo 6** A section of river with fenced banks, headlands and recently established tree plantations. This is an ideal situation for river management for the fishery and conservation: the river has room for the natural processes of erosion and deposition to take place at acceptable rates, without impinging upon adjacent land use.



**Photo 7** Not so good...grazing to the edge of the river exacerbates the rate of bank erosion leading to an over-wide, shallow channel.



**Photo 8** Some areas of eroding bank have been reinforced with concrete rip-rap. A more lasting and river-friendly solution would be to use soft revetments and protect the bank from grazing (see recommendations).

#### 4.0 Recommendations

- Manage the willow trees and woody debris dams on the lower part of the upper beat to improve conveyance. It is recommended that this is undertaken by the angling club with Wild Trout Trust assistance. The reduction in the amount of willow on the inside of meanders in this location should be complemented by establishment of blocks of native trees on the opposite bank to assist with erosion control; this would require fencing of a headland or buffer strip alongside the river to allow the trees to establish.
- Re-profile the river banks on the sections of river which have been previously straightened and dredged. On straight sections, the aim should be to create a two-stage channel which leaves the existing channel intact, but creates a low berm alongside the river which will accommodate higher flows (Figure 1). On meandering sections which have a trapezoidal cross-section, the aim should be to remove material from the inside of bends to restore a more natural cross-section which will also improve flood conveyance (Figure 2).

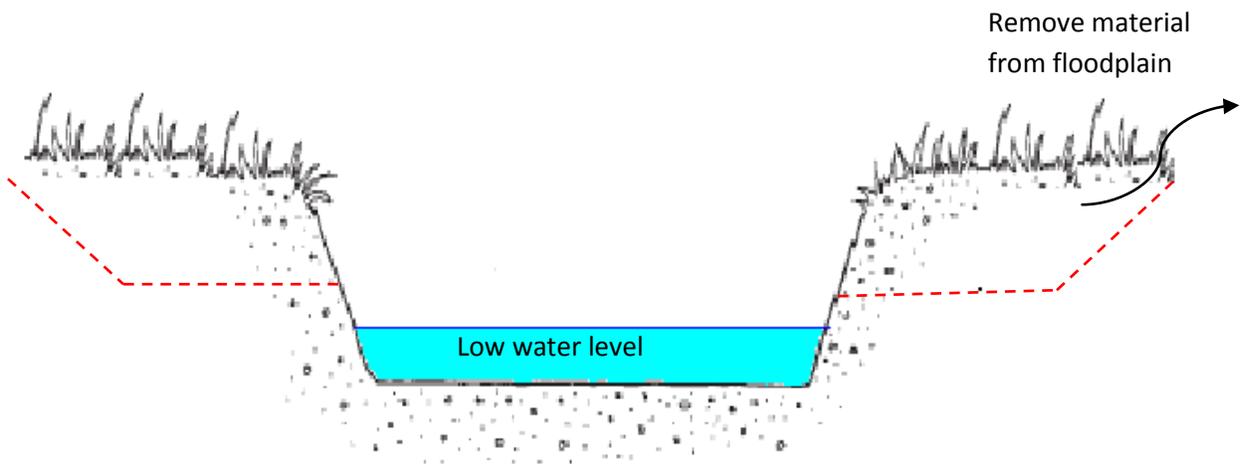


Figure 1 Creating a two-stage channel on previously straightened sections of river

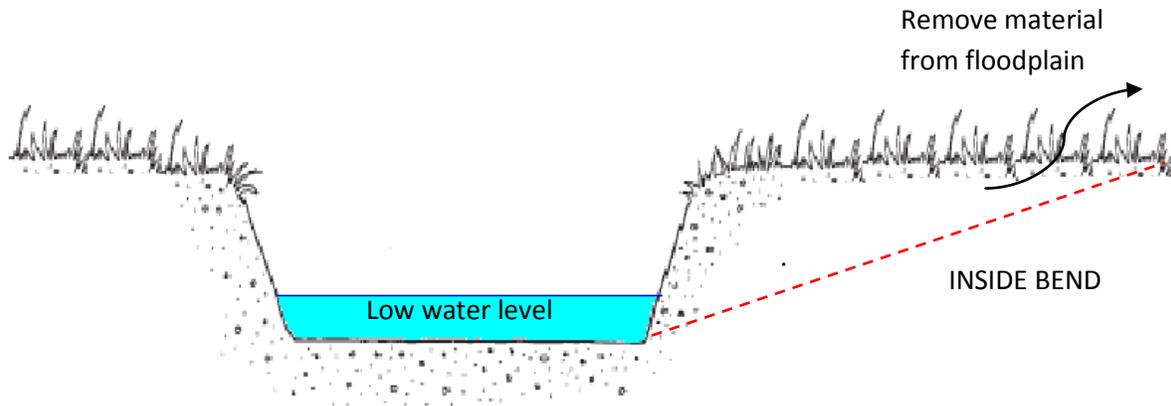


Figure 2 Re-profiling the bank on the inside of a bend

- Consider creating areas of wetland, for example in former meanders, which would provide some flood storage capacity and hence protect other areas from inundation.



Photo 9 Remove spoil from former meander to create wetland / flood storage area. Could be done in conjunction with two-stage channel creation and spoil bank removal.

- The river should be fenced and formal livestock drinking areas created. Ideally, the fencing should be set back to create a wide buffer zone between fields and the river (Photo 6, Figure 3) and the recently established woodland areas on Mr. Atkin's land are ideal in this respect.

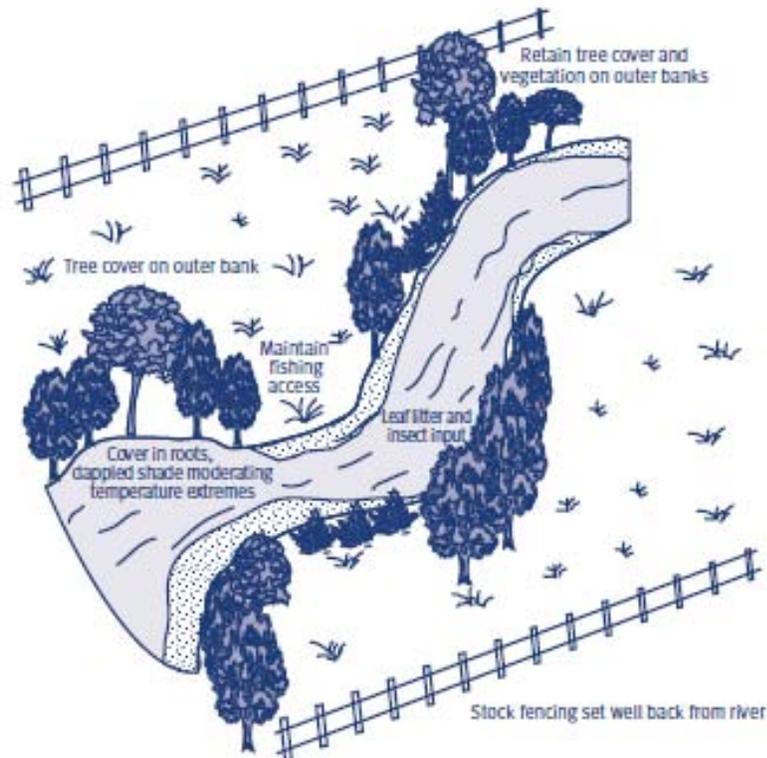


Figure 3

- Soft revetment using brushwood bundles should be used to protect banks which are eroding at an accelerated rate (Photo 8). This technique requires banks to be fenced off from grazing to be successful but has numerous advantages over hard revetment like concrete blocks. The bundles cause water velocities to slow and deposit sediment amongst the brushwood; this then vegetates and consolidates the bank (Photos 10, 11). In contrast, hard surfaces like concrete do not slow the water but tend to pass the problem

downstream, causing erosion at the boundaries between the hard surface and the bank.



**Photo 10** Newly installed brushwood bank revetments and stock fencing (River Manifold, Staffordshire)



Photo 11 The same area as Photo 10 a year later.

**Please Note:** It is a legal requirement that all the works to the river require written Environment Agency (EA) consent prior to undertaking any works, either in-channel or within 8 metres of the bank.

## **5.0 Making it Happen**

Some of the recommendations can be carried out relatively easily, for example the work on the willows and debris dams which can be done by the potential new angling tenants with Wild Trout Trust support during the coming autumn / winter.

Other recommendations such as the bank re-profiling and fencing require more planning and consultation; in order to put these into action it is recommended that this report is discussed with the landowners along both banks of this part of the River Blithe. A more detailed proposal with an indication of costs and how the works could be delivered can then be put together; this could form the basis for a consent application to the Environment Agency and a document to support applications for grant or partnership funding. There is good potential at this site to carry out a partnership project involving landowners, potential new lessees of the fishing rights, the Wild Trout Trust, and the Environment Agency.

The Wild Trout Trust can provide further assistance in the following ways:

- Preparing a more detailed project proposal, bill of quantities and consent application
- Providing practical advice and demonstrations for the techniques
- Project managing any works (subject to funding).

## **6.0 Acknowledgement**

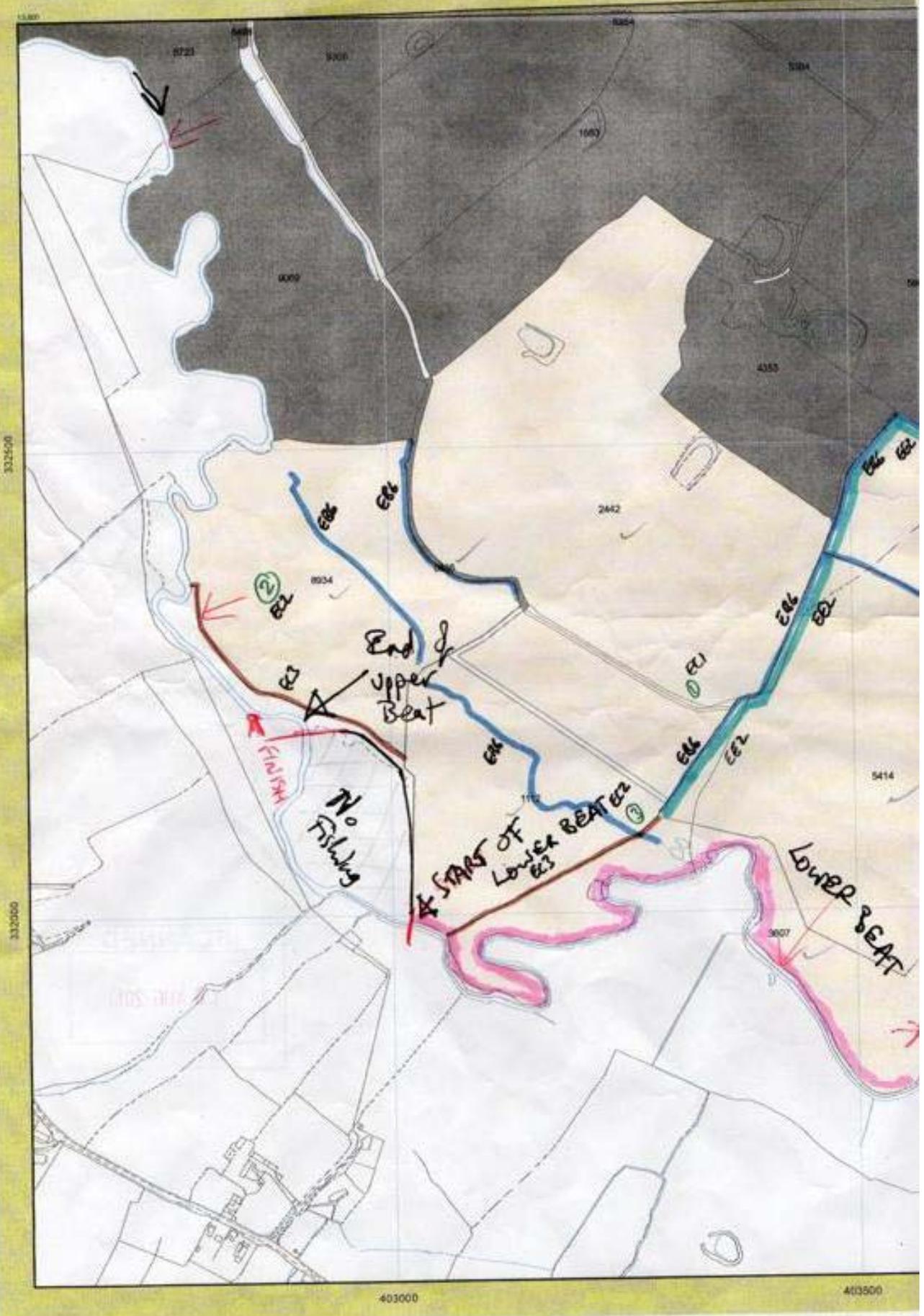
The Wild Trout Trust would like to thank the Environment Agency for the support which made this visit possible.

## **7.0 Disclaimer**

This report is produced for guidance only and should not be used as a substitute for full professional advice. Accordingly, no liability or

responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.





332500

332000

403000

403500

End of Upper Beat

No Fishing

STARTS OF LOWER BEAT

LOWER BEAT

②

③

FINISH

E2

E2

E2

E2

E2

E2

E2

E2

2442

E2

