



Habitat Advisory visit to the Wellow Brook,
Somerset, undertaken by Vaughan Lewis,
Windrush AEC Ltd. on behalf of the Five
Valleys Trust and the Avon and Tributaries
Angling Association,
September 2004

1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd to the Avon and Tributaries Angling Association fishery on the Wellow Brook, Somerset on 24 September 2004. The visit was requested by the Association and the Five Valleys Trust, and was sponsored by Orvis and other private supporters, as part of their 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, discussions with committee members of the club and Steve Thomas, Team Leader for the Environment Agency's local fishery department. 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 Wellow Brook is a small tributary of the River Frome in Somerset. The stream arises near Radstock, flowing in a north easterly direction to join the Frome near Monkton Combe. The geology of the district is mixed, with Lias limestones, clays and sands overlain by Oolitic limestone and clay on the plateaus above the low-lying Keuper marl valleys, with the lower lias clays exposed in the narrow valley of the Wellow Brook.

Upstream of Hinton road bridge, (ST751583), the Wellow Brook has been run as a wild trout fishery by the club for the past seven years. No stocking has taken place during this time, with a presumption that members will operate a catch and release policy. Some bank maintenance and instream improvements have been undertaken.

The club has an aspiration to extend this 'wild trout' fishery upstream and downstream of the existing section. The 0.8km upstream has only been lightly fished, largely due to access difficulties associated with its unmanaged nature. Downstream of Hinton road bridge, a 1.5km section of river was last stocked in 2001. It potentially provides some of the best fishing on the clubs portfolio, but at present, results have not done justice to this potential.

3.0 Habitat Description

3.1 Upstream of Hinton Road Bridge

Above Hinton road bridge, the Wellow Brook had a moderately meandering planform, with a good gradient and a channel width that varied between 3-5m. The channel was significantly incised, possibly due to past dredging, with its banks heavily wooded by deciduous trees and shrubs, including hazel *Corylus avellana*, alder *Alnus glutinosa* and goat willow *Salix caprea*. The alder trees were infected with *Phytophthora*, with a number of individual specimens showing well advanced symptoms of the disease. The exposed tree roots present provided excellent instream cover for both juvenile and adult lifestages of brown trout *Salmo trutta*.



Wellow Brook upstream of Hinton Road Bridge

The exposed banks of the channel were comprised of what appeared to be friable sandstone. As a consequence, areas of significant local erosion were present in places. The process of erosion was also exacerbated by the presence of large amounts of Himalayan Balsam *Impatiens glandulifera*. This invasive alien plant shades out all ground cover, leaving large sections of bare earth on banks, increasing their vulnerability to erosion. The club had utilised a mix of live willow and deadwood faggots to protect the most vulnerable eroding areas. These had worked well, with willow cuttings having rooted in a number of instances.

Instream habitat quality was generally good, with a moderately well developed pool-riffle sequence. However, the sections of shallow riffle present, were generally poorly sorted with an homogeneous mix of fine gravel and sand dominating the substrate. Some short sections of larger stone/bed rock were visible, producing runs of steeper gradient. Instream vegetation (small stands of fool's cress *Apium nodiflorum*, and water crowfoot *Ranunculus spp.*) had developed in these runs. Branched bur-reed *Sparganium erectum* that had developed on the inside of meanders was the main emergent species present. The river was fenced along its LB, reducing access to the banks for agricultural stock.



Live willow and deadwood faggot bank protection. Note growing willow cuttings in centre of picture

Further upstream, stands of horned pond weed *Zannichellia palustris*, were present. This small, submerged plant species is found in a wide range of flowing and still water habitats, where the water is shallow and calcareous. Fencing was poor in the LB fields used for horses, with the consequence that there was some local over-grazing of banks. This had reduced the vegetation cover and had led to localised erosion.

There was a limited amount of Large woody Debris (LWD) retained within the channel. Where this remained, the bed had been scoured during higher discharges, producing significant and valuable depth variation, and sorting of the substrate. This process is essential in low energy streams such as the Wellow Brook, in order to form riffles comprised of gravel suitable for spawning and juvenile brown trout.



Faster riffle section, showing stands of water crowfoot and horned pondweed

Water quality in the Wellow Brook is now understood to be generally good, following improvements to the discharge from Badstock sewage treatment works near the top of the fishery.

Instream habitat generally improved towards the upstream end of the fishery, with increasing amounts of LWD enhancing the diversity of the bed profile and sorting of the substrate. This process was aided by the generally good gradient on this reach of the river. However, heavy shading of the channel by riparian trees continued to restrict in-channel vegetation growth, with the trees also restricting access for angling.

A number of World War II brick pill boxes, was present on the banks. Brief inspection showed that these were being used by bats (possibly horseshoe bats).



Section of the upper fishery, showing presence of LWD dam, and water crowfoot on gravel riffles.

3.2 Downstream of Hinton road bridge

Downstream of the road bridge, a significant programme of coppicing and pollarding had recently been undertaken by a tree surgeon on behalf of the association. This had reduced shading significantly in the reach below the bridge. The land adjacent to the Wellow Brook had been entered in the Countryside Stewardship scheme.

Habitat quality in the reach was generally good, although the channel was significantly incised. The river had a meandering planform with a good gradient. There was a number of deep pools that had developed on bends due to erosion of the steep, friable banks. These pools were interspersed with shallow, gravel dominated riffles. As with the upstream reach, these gravels were often poorly sorted, with a significant volume of sand present. Strongly growing stands of water crowfoot were present on the riffle areas.

Gravel point bars had developed on the inside of many of the meanders, showing that there was some active transport of bed material along sections of the brook. LWD was relatively scarce in this reach, with the felled timber having been stacked or removed from the site.



Typical section of the river downstream of Hinton road bridge. Note deeper pools on the bend, strong water crowfoot growth on the riffles and the tree canopy thinned by recent cutting

4.0 Fish stocks

No stocking had taken place upstream of Hinton road bridge for more than 7 years. Downstream of the bridge, the fishery was last stocked in 2001, the year of the Foot and Mouth outbreak. As a consequence of the access restrictions in place at the time, this stocking took place from the bridge. This was clearly not an ideal arrangement for the introduction of stock fish.

Good numbers of fish were seen throughout the fishery on the day of the site visit. These ranged in size from 10cm –25cm in length, a size distribution strongly indicative of them being of ‘wild’ origin. Large numbers of fish were particularly evident in the pools upstream of Hinton bridge, with 6-10 fish not uncommonly observed in individual pools.

5.0 Discussion and management recommendations

In essence, the Wellow Brook is a fine stream, with a good stock of wild spawned brown trout. No significant structural changes are recommended. Indeed, any such changes could prejudice the quality of the existing habitat. However, a number of smaller scale localised management prescriptions are discussed below:

- In many places, the bed of the river was relatively uniform, with a poorly sorted substrate. This resulted in a reduction not only in the diversity of in-channel habitat, but also in the quality of the gravel available for spawning and juvenile trout. In low energy streams such as the Wellow Brook, fallen timber (LWD) would normally provide the means by which flow was concentrated and energy increased locally. There was however a relative dearth of LWD in the brook. In order to rectify this situation, it is recommended that a programme of rotational coppicing of riparian trees is instigated adjacent to shallow riffle areas. This will reduce shading, and provide ample timber that could be placed in the channel in order to increase flow velocity locally. The simplest way of achieving this is to pin tree limbs to the bank facing upstream. More complex triangular groynes could also be constructed. Details can be found in the Wild Trout Trust's Guide to Improving Trout Streams. Whichever design is chosen for the brook, it is imperative that adequate care is taken to avoid significant erosion of the river's banks.

It is important that the introduction of LWD does not in any way increase the flood risk to any nearby properties. However, provided that local landowners find it acceptable, there is no reason why the periodicity and extent of flooding of agricultural land should not be increased. Indeed, doing so may in some circumstances increase flood attenuation, reducing flood risk to downstream properties. These issues should be discussed in detail with the EA, both with respect for the need for them to grant a Land Drainage consent for the work and to ensure that routine river maintenance by the Agency does not compromise any works carried out by the club.

- Fencing, either permanent, or temporary electric fencing, should be installed in order to prevent over-grazing by horses
- In order to improve hatching success, a regime of cleaning spawning gravels each September could be established. This can be achieved by either manual raking, or by the use of high-pressure water jets. Care must be taken to clean riffles rotationally, with only short sections being treated annually. It is important that the Environment Agency is contacted prior to any cleaning of gravel, due to the possible discoloration of water in the river resulting from the operation. The same concerns dictate that downstream neighbours should also be forewarned of the operation.
- The presence of Himalayan Balsam is undesirable. This species is classified as an alien invasive weed species. With respect to Himalayan Balsam, 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. However, it should be noted that both species can re-colonise a site by transport of seeds or plant material from upstream colonies. It is thus better if control is attempted on a catchment basis, working from the upstream limit of the river system.

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

- In many reaches of the fishery, the steeply incised nature of the channel effectively precludes fly fishing from the banks. As a consequence, the use of careful wading by anglers should be encouraged. In addition to being an effective method of fishing, the general adoption of wading by anglers will reduce the need to cut bankside vegetation. The impact of thoughtful wading

during the fishing season is minimal compared to the very significant impact of regular and heavy bankside cutting.

- It is important that the status of the discharge from Badstock STW is regularly monitored. The works will have a statutory discharge consent standard that the water company is legally obliged to meet. Regular samples are taken both by the EA and the water company. The results of these samples are placed, along with the consent standard, on a publicly accessible register at the EA offices. On payment of an administrative fee, members of the public can inspect the register and obtain copies of data. I would strongly recommend that the club approach the Environment Management team at the EA's, Area Offices, and ask for a copy of the data from the public register. The EA should also be asked in writing whether the works has met its discharge standard over the past 5 years and if not, what action the EA are taking regarding the matter. There is a right of prosecution, both to the EA and the general public if the works is failing. Any necessary improvements to STW discharges in the Wellow valley will be negotiated under the Asset Management Process. This is the mechanism by which prioritised investment by the water companies in order to achieve environmental objectives is agreed with the water regulator and the EA.

In addition, regular monitoring of invertebrate fauna in the river is a relatively simple method of checking longer term water quality. The identification of species and the use of the Biological Monitoring Working Party (BMWP) scoring system both require considerable skill. However, acquisition of the necessary knowledge lies within the capability of most anglers, with course regularly run by the John Spedan Lewis Trust on the River Test at Leckford. Details may be found on the WTT website www.wildtrout.org

- The pill boxes present on the banks could be developed as bat hibernacula. They are clearly already being used by some bats and it is likely that changes to the internal layout of the boxes could be undertaken to improve usage further. For more details contact the Bat Conservation Trust www.bats.org.uk
- It is recommended that no future restocking of the fishery is undertaken throughout the reaches walked during the site visit. This advice is based on a number of factors:
 - There were already significant numbers of fish present throughout the fishery. These fish were almost certainly wild spawned and provided ample evidence of the streams recruitment capacity.
 - The introduction of stocked fish has the capacity to disrupt the existing wild fish in a number of ways including behavioural interactions, intraggression of 'fish farm' trout genes, and predation. This issues have been well aired in past editions of '*Salmo Trutta*'
 - The low usage by members hardly seems to justify any additional stocking. It is understood that only a handful of anglers fished these reaches over the past couple of seasons. There is also a need for anglers to match their expectations of a fishery to suit its carrying capacity. Put bluntly, this does not mean that because one or more anglers expect to catch 0.5kg trout from a small stream fishery, they should be stocked into it.
 - There is a need to be cognisant of the aims of the recently produced EA Trout and Grayling strategy. The Wellow Brook supports exactly the type of wild brown trout fishery that the strategy was intended to protect.

6.0 Legal constraints

A number of legal constraints have been identified with respect to the works detailed above. These include:

- The riparian trees alongside the Wellow Brook are covered by a general Tree Preservation Order. As a result, the necessary consents for all tree work should be obtained from the local authority prior to the commencement of any works.
- 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.