



Advisory Visit to the River
Swarbourne, Staffordshire

Undertaken on behalf of the Wild Trout
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AEC Ltd

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Introduction:

This report is the output of a site visit undertaken to the River Swarbourne on 22 September 2006. The River Swarbourne is a small tributary of the River Trent. Rising near to the north of Newborough, the river flowed in a roughly southerly direction before joining the Trent near to Alrewas.

The fishery was close to the village of Barton Under Needwood, Staffs, and was fished by a syndicate of 12 members. The syndicate controlled approximately 3 km of the river. Further information on the fishery was provided by the secretary of the syndicate, Hedley Fletcher.

Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

Description of fishery:

The upper reach of the river ran through a wooded area. The river was relatively wide, generally between 4m-5m. In the wider sections, the bed was poorly differentiated, with a uniform, poorly sorted bed, often dominated by mixed gravel and sand. This type of habitat offered only limited habitat for all lifestages of trout.

**Poorly sorted, uniform section of upper fishery**

Within the wood, much of the channel was heavily shaded, often by large, mature trees. Where the shade was heavy there was little marginal vegetation with a consequently wider (5m-6m) channel. In the more open sections or where fallen timber had been allowed to remain, the channel was considerably narrower, with deeper scoured pools present.



Fallen timber (LWD) narrowing the channel and promoting scour of the substrate

Undercut tree roots and banks provided excellent cover for trout throughout the wooded section of the fishery. There was an abundance of good and potentially good habitat for juvenile and spawning trout: shallow, gravel-dominated riffle areas with a good gradient and high velocity. The upstream limit of the fishery ran through a section of open pasture. There was some light cattle poaching of the banks, although this had not as yet caused any significant damage.

The river bifurcated in the middle of the fishery, with the high level (LB) channel feeding a downstream mill. The mill had effective control on both river levels and the flow allocation to the low level (RB) channel. As a consequence, flow to this channel was often restricted, with little management undertaken on it by the syndicate. Despite this, and its significant incision (water level some 1.5m from the bank top), the low level channel offered potentially excellent habitat for trout. There were some large stands of water crowfoot *Ranunculus* Spp. and starwort *Callitriche* Spp. present, with abundant areas of moderate quality gravel in the shallow riffle areas that were suitable for spawning and juvenile trout. The bed of the river in the shallower sections had a significant cover of filamentous algae and diatoms, indicative of upstream enrichment. Channel width varied between 1m and 3m, with the banks heavily wooded in places. A number of deep pools were present, particularly on the bends in this very strongly meandering section of river. These deeper areas provided good habitat for adult fish. Cover was provided by tree roots systems, undercut banks and some large woody debris (LWD). Where the tree cover was less dense, the riparian vegetation was dominated by stands of rose bay willow herb *Epilobium angustifolium* and nettle *Urtica dioica*. Some areas of marginal aquatic vegetation were present, including reed canary grass *Phalaris arundinacea*, brook lime *Veronica beccabunga* and fool's water cress *Apium nodiflorum*.

Simple stone turning revealed a varied invertebrate fauna, with Baetid nymphs, freshwater shrimp *Gammarus pulex*, cased and caseless caddis, and leeches present in

abundance. The presence of the more pollution intolerant of these species and the abundant mayfly *Ephemera danica* hatch reported by the syndicate, indicated that baseline water quality was not an issue on this reach of the Swarbourne.



Typical section of the lower fishery

Fish stocks:

There were abundant small wild brown trout in the river, with fish typically reaching 25cm in length. The syndicate stocked with some 100 12"/13" brown trout annually. Nets had been erected across the river to prevent loss of stock fish from the fishery. Fishing was almost exclusively catch and release with virtually no fish killed by members.

The river also contained numbers of bullhead *Cottus gobio*, a species cited in Annex II of the Habitats Directive as recognition of its conservation importance.

Recommendations for management:

- The use of netting to prevent the loss of stock fish is probably not necessary and is also likely to be illegal under the provisions of both the Salmon and Freshwater Fisheries Act 1975 and the Land Drainage Act. Whilst stock fish can and do move post stocking, these movements are generally relatively localised during the angling season. Larger scale movement takes place later in the year, often post spawning, with fish lost to the fishery. If there is a desire to monitor movement of stock fish more accurately, it may be possible to mark the fish pre-stocking, probably using a simple injection of dye from a Panjet system. The local Environment Agency fisheries team should be able to offer more detailed advice on this subject.

In order to optimise retention of stocked trout, it would be prudent to trickle stock fish in the upper reach of the fishery. Regular, light feeding with proprietary floating trout pellets can also be used in the close season to optimise overwintering survival of stocked trout.

- The balance between shade, light and LWD is the key to managing the woodland sections of the fishery. Where the river was shady, the channel was wider, with poorly differentiated substrate. Less shade and the addition of LWD generally encouraged scour, promoting a more diverse bed profile and better sorted gravel, valuable for spawning and juvenile trout. In theory it would be good to reduce shade in some parts of the river, in order to allow growth of marginal vegetation. However, this is not likely to be practical in a lot of areas, due to the large size and landscape importance of many of the trees.
- However, where sections of overwide, uniform channel existed, it is recommended that LWD should be used to create scour and sort the bed material, improving diversity and producing better conditions for spawning and juvenile trout. LWD can be introduced in the form of large branches or tree trunks securely anchored to the bend and banks using stakes and/or wire. Alternatively, LWD can be arranged to form upstream facing 'v' shaped groynes that will effectively scour small pools with an associated downstream length of clean spawning gravel.



Upstream facing 'v' shaped groynes creating mid-stream scour

Care should be taken to position all groynes so as to create scour where required, and to avoid excessive erosion either bank.

- Where access to pools for angling is required, careful cutting of fallen LWD should ensure that individual large branches and tree trunks can be allowed to remain, whilst still permitting fly fishing to take place. Generally, unless other reasons dictate, there should be a presumption against the removal of LWD from the river, with individual woody elements trimmed and secured in place using stakes driven into the beds and wire attached from the wood to the bank to hold them in place. If timber does need to be removed or relocated, a Tirfor winch www.terrainmaster.com/tirfor_winches.html provides a practical and cost effective way of achieving this.

- The cattle grazing the upper length of the river have the potential to cause significant damage to the banks if their numbers increase. A careful watching brief should be maintained, with suitable stock proof fencing erected if any damage begins to be apparent.