Habitat Advisory visit to the River Tone, Nr Taunton, Somerset undertaken on behalf of Taunton Fly Fishing Club by Vaughan Lewis, Windrush AEC Ltd
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1.0 Introduction

This report forms the output of a site visit to the River Tone, Nr Taunton, Somerset on 24 January 2006 on behalf of Taunton Fly Fishing club. The club has some 120 members. Information in the report is based on observations on the day of the visit and additional comments provided by club members.

Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) of the river identified when looking downstream.

2.0 Fishery Description

Rising in the Blackdown Hills, the River Tone runs in a generally easterly direction through Wellington and Taunton before joining the River Parrett near to Langport.

It is a generally rain fed river, a characteristic which in combination with its predominantly red sandstone geology results in heavily coloured spates following periods of substantial rainfall. The club's fishery runs through mixed arable and stock farmland, with maize and sheep important to the area's agriculture. Upstream and downstream of Hele Bridge, the river had a strongly meandering planform and a relatively steep gradient. The channel was heavily incised (up to 2m from bank top to water). Instream habitat was generally good, with abundant lengths of riffle, shallow/deep glide and pool. The riffles were dominated by large gravel, pebbles and cobbles. The substrate was poorly sorted, with significant volumes of entrained fine sediment. In combination, these two factors were likely to reduce the hatching success for any salmonid eggs deposited.

Instream habitat on the Hele Bridge reach. Note incised nature of channel, build up of gravel on the RB and heavy tree shading

There was significant erosion along the whole of the reach, with block failure of the soft, friable sandstone banks in several locations. This erosion was worsened by overgrazing of the meadows by large numbers of sheep, and suppression of rough bankside vegetation by the numerous trees, particularly alder *Alnus glutinosa*. Many of these were infected with *Phytophthora*, a hybrid fungal disease that has developed throughout much of the UK during the past 15 years.

There was some Large Woody Debris (LWD) in the channel, although the club had a general policy to remove fallen trees and timber where possible. It is understood that the Environment Agency (EA) also regularly visited to the river in order to remove LWD.

Bank erosion. Note heavily cropped vegetation due to grazing sheep and shade cast by riparian trees

The mobile nature of the banks and the extent of erosion were also highlighted by the presence of well-developed, un-vegetated gravel/stone point bars on the inside of many bends.

There was little or no instream vegetation present in the river, probably as a result of the high discharges experienced and the very mobile nature of the streambed.

Downstream of Bradford on Tone bridge, the river was very uniform in appearance, with the impounding effect of the downstream weir all too apparent. Recent work by the EA had apparently removed much of the instream cover and LWD. The weir was a significant structure with a head loss of >1.5m. Passage for fish over the weir over the range of normal discharges was virtually impossible, although the presence of

adult salmon in upstream reaches proved that some large fish could traverse the weir at, presumably, higher discharges when the head difference was reduced.

Bradford weir

Downstream of the weir, instream habitat improved, with a meandering channel, and well-developed pool riffle regime. The bed was dominated by coarse gravel and cobble, with much of the substrate over large for trout spawning and more suited for salmon, a fact reinforced by the presence of spawning salmon in recent winters.

If anything, the river was more heavily shaded by trees than at Hele Bridge, with some sections effectively tunnelled. There was an extensive growth of nettles and other ruderal species on the banks where shading was not excessive. The banks were incised, with the water >1.5m below banktop for much of the reach.

Land use on the RB was dominated by an equestrian establishment, with fencing to prevent horse access to the river. Arable fields dominated the LB, with a wide (5m) headland alongside the river planted with grass. Unfortunately, the volume of pedestrian traffic along the path had severely restricted the growth of the grass, with exposed bare earth over much of the headland.

Fishery downstream of Bradford Weir showing heavy tree cover, and LB headland strip

Downstream of Luxley Bridge, the club owned a section of upper river fishing. The river was well fenced on both banks, with temporary fencing on the LB and permanent sheep netting and wooden fencing on the RB creating buffer strips around 3m in width. As a consequence, the banks were well vegetated, with very little bare sections of bank visible. Uncontrolled erosion was less prevalent along this reach.

Instream habitat of the river was again excellent, with abundant riffles, shallow/deep glides and pools present. The substrate present on the riffles was dominated by large gravel and pebbles, and was generally above the optimum size for trout. A large (>7kg) salmon was found dead on this reach during winter 2005-6, indicating the suitability of gravel size for spawning salmon. The river was less incised than downstream, perhaps reflecting differing geology and past management practices.

The channel was heavily lined with trees, with increased percentages of ash *Fraxinus excelsior* and hazel *Corylus avellana* mixed in with the ubiquitous alder.

Typical section of river downstream of Luxley Bridge

No stocking had been undertaken on the Luxley reach. The invertebrate population of this reach was excellent with good hatches of upwinged flies, including mayfly *Ephemera danica.* Otter *Lutra lutra* are known to be present on the river, with clear signs (spraints and padding) visible at Hele Bridge.

3.0 Fish stocks

The club stocks the Bradford reach of the fishery with approximately 300 10" triploid brown trout *Salmo trutta* annually. The fishery also had a reasonable stock of wild brown trout and grayling *Thymallus thymallus,* with individual fish of each species having been caught in excess of 600g. Atlantic salmon *Salmo salar* spawn annually on the club's fishery, with a fish in excess of 7kg having been found at Luxley Bridge during winter 2005/6. Numbers of coarse fish including chub *Leuciscus cephalus* were also present.

4.0 Recommendations

- The friable nature of the banks of the river renders it very vulnerable to erosion. Erosion is a natural process. However, the grazing pressure exerted by the large numbers of sheep present above Hele Bridge, had resulted in loss of marginal vegetation, physical degradation of the bank and an unacceptably high rate of bank erosion. The shade cast by the riparian trees further restricted the growth of fringing vegetation, exacerbating the damage caused by grazing sheep.

In order to address these issues, it is recommended that fencing be erected to prevent stock access to the riverbank. Fencing could be either permanent or temporary

electric. The provisions of the Single Farm Payment Cross Compliance regulations (see below) could potentially be used to help reinforce the message that protection of riverbanks from excessive erosion is of prime importance to the river.

Shade from the riparian trees, particularly the alders, was restricting the growth of marginal vegetation, with associated damaging impacts on the rate of erosion, the provision of marginal cover for fry, and water flow velocity. In order to address overshading, the establishment of a regime of rotational coppicing would be of great benefit. Increasing light penetration into presently overshaded river sections would be of benefit to instream vegetation and valuable fringing marginal vegetation. The aim should be to produce a pattern of dappled shade over the width of the channel. In order to achieve this, approximately 40% of the current trees should be coppiced during the first season, with subsequently smaller tranches taken in subsequent years in order to create a varied, uneven age structure. The conservation value of the existing trees should not be under-estimated and great care should be exercised in the selection of trees to be cut. A felling licence may be required from the Forestry Authority. Felling should cease by mid-March to minimise any risk to nesting birds.

- Gravel in many sections of the main River Tone was bigger than the optimum size for spawning trout. As a consequence, it is likely that main river trout spawning is limited in some of the reaches. It is therefore important that potential trout spawning sites on the upper river and tributary streams are protected and enhanced where possible. Without further investigation is it not possible to be precise regarding likely spawning locations. It would be useful if club members walked sections of the river during the period October-January in an effort to ascertain where trout and salmon actually spawn, with night searching using a torch a very effective way of spotting spawning fish. Sites where fish are noted spawning should be recorded on a large scale map for future reference.

- Much of the fishery had a significant growth of Himalayan Balsam *Impatiens glandulifera* during the summer months, with small stands of Japanese knotweed *Polygonum cuspidatum* also present. Both are undesirable and are classified as alien invasive weeds species. There is no policy for their 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 and smaller patches of knotweed present in some areas of the fishery. Chemical control with the herbicide glyphosate when the plants are actively growing in early spring can prove effective, although subsequent treatment of regrowth is normally required to control knotweed effectively. Alternatively, balsam 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.

- Whilst some LWD had been left in the channel, significant amounts were regularly removed, both by the angling club and the EA. The arguments for the retention of LWD are now well rehearsed, particularly in the upper reaches of river systems. Increased retention of LWD would be of great benefit to all reaches of the club's fishery on the River Tone. Measures to increase LWD should focus on the

provision of cover logs in marginal areas using the simple expedient of trimming fallen trees to an acceptable size and then pinning them into position alongside the banks using driven wooden stakes. Trees aligned in this manner can help to protect banks from, and can also help to promote sorting and scouring of the substrate. Stable LWD of this sort is of particular long term value, allowing the build up of weed/debris rafts and associated beneficial macroinvertebrates that are vital components of the energy cycle of river systems. Sediment accreting within and downstream of LWD will eventually be colonised by emergent vegetation, helping to narrow the river channel. Weed raft/ fallen tree complexes also provides excellent cover for adult fish.

Advice relating to the management of LWD in the channel is predicated on the assumption that its retention does not cause any increased risk of damaging flooding. This risk should be assessed in conjunction with the EA's Development Control and Flood Risk Management departments.

- There was clear evidence at Hele Bridge and downstream of Bradford weir that the current agricultural regime was increasing erosion of soil into the River Tone. Under the terms of the cross compliance scheme introduced with the new Single Farm Payment (copies obtainable from DEFRA Publications, Admail 6000, London, SW1A 2XX Tel: 0845 556000), the following prescriptions must be adhered to by farmers:

➢ Farmers must draw up a simple risk based soil management plan, which must be followed on the farm from 2007 (Policy GAEC1, paras.35 and 36)
➢ Farmers must ensure that during the post harvest period until March the following year, one or more of the following provisions is met (GAEC2, para.37):
i) stubble of the harvested crop remains in the land
ii) the land is left with a rough surface after cultivation to encourage the infiltration of rain
iii) the land is sown with a temporary cover crop
iv) the land is sown with another crop
➢ Cultivation of waterlogged soils is generally not permitted (there are a number of specific exceptions to this provision) (GAE3)
➢ Overgrazing of land so as to adversely affect the 'growth, quality or diversity of natural or semi-natural vegetation' is specifically prohibited (GAEC9).

These provision are of particular relevance to the club's fishery on the River Tone. It is recommended that if farming practices alongside the river appear to breach the guidelines above, and farming interests show no willingness to alter their management practices to meet them, DEFRA should be contacted with a view to ensuring compliance.

- 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 Windrush AEC Ltd as a result of any person, company or other organisation acting, or refraining from acting, upon comments made in this report

- Note that 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.