Advisory Visit to the Gopsal Fishery, River Scence, Leicestershire

Undertaken on behalf of the Wild Trout Trust, by Vaughan Lewis, Windrush AEC Ltd

June 2004

1.0 Introduction

This report is the output of a site visit undertaken to the Gopsal fishery, River Scence on 25th May 2004. The club has approximately 30 members. Further information on the fishery was provided by Peter Gopsal, Mark Owen and other members of the club.

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

2.0 Description of fishery

The river is divided into 3 sections: top, middle and bottom, with the upper boundary near to Tivey's Farm, Swepton and the downstream limit adjacent to Harris Bridge Farm, Sheepy.

Adjacent to Tivey's Farm, a large dairy herd had caused considerable damage to the banks, grazing riparian vegetation and physically trampling in the margins. The club has electric fenced the majority of the reach upstream of the road bridge in an effort to stop this damage. In addition, they have installed sections of willow spiling and faggoting to repair bank damage already caused. The benefits of the faggoting could be increased by using 'cut and fill to create a wide shallow berm behind the woody revetment.

Fencing to exclude cattle, with faggot revetment installed in order to repair previous bank damage

The river had a meandering planform, with a well developed pool-riffle regime, with sections of suitably sized gravel for spawning trout. However, some sections of the

bed were homogenous and relatively poorly sorted, due to a lack of instream features that would create diverse velocity across the channel.

Additional lengths of spiling undertaken further upstream during 2003 had taken very well, with a strong growth of willow visible on both vertical and lateral elements.

Strong growth of willow spiling on inside of bend upstream of Tivey's Farm

Moderate amounts of Large Woody Debris (LWD) were present in the channel. The club had, where possible, tried to retain as much of this as possible in order to create cover for fish and to encourage sorting of bed material.

A number of low, 'd' shaped weirs had been installed by the club, with their convex side facing downstream. These had created a more variable velocity regime, but in some places had increased localised erosion.

Riparian trees, primarily alder and crack willow were creating moderate shade over the river. The club had undertaken a large amount of coppicing and pollarding in order to open up the previously very dense canopy.

Downstream of Tivey's Farm roadbridge, there was clear evidence of past dredging of the river. The channel was moderately incised, with a raised flood berm on the RB in places up to 1m above the level of the surrounding land. Drainage on the land behind the berm was clearly affected, with water lying in the field for a long period after out of bank flooding.

Some low level weirs had been installed by the club. These were improving sorting of gravel and variation in velocity downstream, but had caused some deposition of fine sediment upstream.

Throughout the fishery, a total of 22 larger, concrete and/or stone weirs was present. These were, in places, quite close together, with for instance 5 weirs present in the Cricket Field (middle beat) alone. The weirs appeared to have been installed in the past in order to retain levels for fishing following extensive dredging. The club has a measure of control on some of the weirs, being able to add and remove stop logs in order to vary the retained head. As a rule, boards are removed during the winter period and replaced during summer.

In general, the weirs had created a large scour pool downstream and a moderate length of impounded, depositing water upstream, with in some cases, a strong growth of emergent vegetation. These sections are much favoured by many in the club as they provide good holding water for stock fish which are then vulnerable to capture by angling. However, the weirs significantly disturb the natural geomorphological processed of the river, interrupting sediment transport, with a consequent loss of shallow, spawning/juvenile habitat.

Typical small concrete weir on the Scence

The Cricket field section was relatively heavily shaded by riparian poplars and alders. The field suffers from stock poaching later in the summer when considerable numbers of cattle are grazed here.

The bottom beat upstream of Harris Bridge Farm was dredged in 1948 as part of a major drainage scheme. As a consequence, the channel was relatively straight and heavily incised (>1.5m), with a series of small sheet piled weirs installed to retain water. Surrounding land use was dominated by arable fields; the banks of the channel were thus not affected by grazing pressure.

Sheet piled weir upstream of Finch's Bridge

Weed growth in this reach was good, with stands of un-branched bur-reed *Sparganium emersum* and water crowfoot *Ranunculus spp.* present

A good pool-riffle regime had developed, with some moderately sorted sections of gravel dominated shallows suitable for trout spawning present. However, sections of relatively homogeneous, poorly sorted substrate were also present.

A major tributary stream, the Bosworth Brook, entered on the LB of the Scence towards the top of the beat. A major slurry pollution affected this stream during early 2004. No fish were apparently killed, although the presence of sewage fungus on the bed of the brook was testament to the organic nature of the pollutant. The brook was heavily shaded, reducing marginal growth and reducing the sorting of the extensive gravels present.

3.0 Fish Stocks

Recruitment of wild brown trout is moderate, with small fish caught by rod and line throughout much of the fishery.

The club stocks annually with some 800 12" plus brown trout and 200 12" plus rainbow trout. The annual returns from members suggest a rod catch of around 400 fish annually. An increasing number of members practice 'catch and release' on the fishery.

4.0 Recommendations

In general, the present management of the fishery is good, with the club actively addressing a number of key issues. A number of additional recommendations are made below with respect to the river's future management:

- Electric fencing of the banks where agricultural stock are present has significantly improved the river's form. Continuation and extension of this practice is recommended, particularly in the Cricket Field. Use can be made of Papa Pumps, (a modern version of a Ram Pump Tel:01288 354454 for details) in order to provide a reliable source of drinking water for stock during periods when the river is fenced.

- There are sections of the fishery that are still heavily shaded. This applies particularly to the Bosworth Brook. Continuation of the present policy of rotational coppicing and pollarding in order to create dappled shade is recommended.

- Woody brashings arising from tree works recommended above should be utilised to construct faggot bundles. These should be used to narrow the channel in strategic locations. The top of the faggot revetments should generally be finished approximately 100mm-150mm above summer water level and backfilled with a mixture of woody brashings and granular sub-soil obtained by localised 'cut and fill' of the banks. Using this technique, wide, low level marginal shelves will be created that are of great value to fish, macroinvertebrates and that will, in time increase access to anglers along the fishery.

- The present policy of retention of LWD should be continued, where Flood Defence considerations permit. Larger boughs should be retained using stakes and/or wire to stabilise them. Key areas for retention of LWD are on sections of uniform bed, where gravels are poorly sorted. LWD will effectively carry out this task, producing areas of relatively silt free gravel suitable for spawning trout.

- Access along the fishery could be improved by careful use of a modern reciprocal blade cutter such as the Tracmaster Commander (Tel: 01444 247689). It should be noted that it is an offence under the Wildlife and Countryside Act (1981) and The Countryside and Rights of Way Act (2000) to knowingly or recklessly disturb any nesting bird. Care must therefore be taken to avoid any such disturbance. The use of judicious wading can also be used to reduce the need for bankside cutting.

- Low level weirs do have some use in fisheries such as the Scence. They should usually be constructed with their convex edge facing upstream in order to reduce the risk of associated bank erosion. However, it is often better to use a series of upstream facing stub groynes, rather than low weirs, in order to increase flow diversity. Staggering the groynes on opposite banks creates a 'chicane' effect, with the flow of

the water harnessed to increase mid-channel scour, rather that impounded as is the case with weirs.

- The high berm on the RB below Tivey's farm bridge could usefully be removed. The excavation and thin spreading of this berm on the adjacent land would create a section of valuable low lying marginal shelf alongside the river, whilst improving access for anglers. If sufficient gravel is present in the berm (cut trial pits or auger cores to ascertain this), then consideration could be given to screening of the excavated berm and re-introduction of gravel/stone into the channel.

- It is important that the club liases with the Environment Agency's flood defence section in order to reduce the risk of bank revetment, groynes and carefully located LWD being removed.

- Consideration should be given to increasing the extent of catch and release on the fishery. The club currently gets an approximately 40% return on fish stocked. It is quite likely that the percentage return on stocked fish could be increased without sacrificing overall numbers caught, by a combination of catch and release, continued enhancement of the fishery and a reduction in numbers of fish stocked. It is recommended that a reduction of say, 100 fish stocked is trialed.

- The use of deep-substrate incubation boxes could be considered to further reduce the present reliance on larger hatchery origin fish. Basically, these are gravel filled boxes, approximately 0.6m in each dimension, that are filled with suitably sized gravel and seeded with 10,000 - 20,000 trout eggs. A water feed at the bottom of the box allows the eggs to incubate and hatch. Once they reach the swim-up fry stage, they leave the box via the overspill pipes, stocking themselves into the river. In effect, they are naturally reared fish without the unhelpful behavioural modifications associated with hatcheries. Such a system could be established using any of the existing larger weirs . More details on incubation boxes can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.

- In order to improve hatching success, a regime of cleaning spawning gravels each September should be established. This would be of particular benefit on the Bosworth Brook. 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 the large number of weirs on the fishery is problematical. They appear to have been installed in an attempt to address another problem, namely the low water levels left post-dredging. Their presence has significantly altered the nature of the river, with impounded, depositing reaches common. To remove them would to some extent restore a more natural geomorphological regime to the river, but at the expense of further incising its profile, increasing access difficulties and reducing its hydrological connectivity to the floodplain.

As a trial, it is recommended that no stop logs are installed into a selection of say 5 weirs after the winter period, and members views gauged. In addition, it is recommended that a single weir downstream of Tivey's Farm bridge, should be deliberately and sequentially lowered over a 2 year period. If this is done in conjunction with the removal of the flood berm detailed above, the relationship of the water and land levels should remain similar to the present.

On a more strategic level, it is recommended that a programme of 'managed obsolescence' should be adopted, with weirs not replaced as they fall into disrepair, unless there are other over-riding factors not connected with the fishery that make this policy unacceptable. In this way, the fishery will gradually adjust over time to the loss of the weirs. Any money saved by the club as a result of not having to repair the structures could be hypothecated for more beneficial habitat restoration work elsewhere on the fishery.

- The club is in a position to monitor the quality of point source discharges into the river. Major discharges will be from sewage treatment works and industrial premises. Each will have a statutory discharge consent standard agreed with the EA. Compliance with these standards is regularly monitored by the EA. Results are published on a public register, available for inspection at the EA's office or by post. It is important that the club finds out the major discharges into its fishery and in the upstream reaches. Compliance with statutory consent standard can then be checked on a regular (annual?) basis. Failure to comply with the standards allows the club to mount a prosecution or to claim civil damages via the Angler's Conservation Association. The EA should enforce this legislation, but have from time to time not been as rigorous in this matter as would be expected.

- 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 al relevant consents are obtained by the club.