



Advisory Visit
River Rea, Shropshire
February 2015



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust to the River Rea, at Cleobury Mortimer and Detton, Shropshire on 10th February, 2015. Comments in this report are based on observations on the day of the site visit and discussions with Ian Marson, John Hey and Alan Robinson of White Swan Piscatorials (www.whiteswanpiscatorials.org.uk) and Emma Buckingham of Severn Rivers Trust (SRT) (<http://severnriverstrust.com>).

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

White Swan Piscatorials is a club of around 400 members providing coarse and game fishing at a range of locations in the West Midlands. The club owns fishing rights on two stretches of the River Rea (a tributary of the Teme in the River Severn catchment), one at Pinkham Mill, Cleobury Mortimer and the other at Detton. Approximately 1km of river was inspected at Cleobury and 1.75km at Detton.

The club have owned the water at Cleobury since 1979; it was stocked with trout for two years in the early 1980s, but has not had any fish introduced since. The water at Detton has never been stocked. Fishing is fly-only, catch-and-release with barbless hooks and fishing only allowed during the trout season (18th March – 7th October). Native white-clawed crayfish (*Austropotamobius pallipes*) were present when the club acquired the water but have not been recorded in recent years. Alan Robinson carries out riverfly sampling for the club (last done November 2014) and the results include pollution-sensitive species such as stone-clinging mayfly nymphs and *Ephemera danica* mayfly nymphs. The Rea enjoys a large hatch of the latter and yellow May duns are also reported. Turning stones in the margins of the river at Cleobury on this visit revealed some stone-clinging mayfly nymphs.

This section of the Rea is classified as being “poor status” for ecological quality under the Water Framework Directive (see Table 1). The factor causing this classification is a failure of fish populations to meet expected

levels, the suspected reason being diffuse source sediment pollution from agriculture. The Rea (as part of the Teme) is a priority catchment and a capital grant scheme target area under the Catchment Sensitive Farming Delivery Initiative England (2011-16).

Waterbody ID	GB109054044260
Waterbody Name	R Rea - conf Farlow Bk to conf R Teme
Management Catchment	Teme
River Basin District	Severn
Typology Description	Low, Medium, Calcareous
Hydromorphological Status	Not Designated A/HMWB
Current Ecological Quality	Poor Status
Current Chemical Quality	Does Not Require Assessment
2015 Predicted Ecological Quality	Moderate Status
2015 Predicted Chemical Quality	Does Not Require Assessment
Overall Risk	At Risk
Protected Area	Yes
Number of Measures Listed (waterbody level only)	-

Table 1 Current Ecological Quality information from the 2009 River Basin Management Plans on the Environment Agency website.

3.0 Habitat Assessment

Pinkham Mill to downstream boundary (SO6795775760 to SO6855675737 approx.)

The weir at Pinkham Mill is much reduced in height from historic levels, now around being around 40cm (Photo 1). This represents a barrier to the migration of smaller trout and other species; although it is likely to be quickly drowned out at higher water, lowering the central portion of the weir crest would increase the opportunity for free fish passage. There is minimal impoundment upstream of the weir given the relatively steep gradient of the Rea. The weir is recognised as an obstacle to migration by SRT which is currently focussing on higher priority barriers downstream, such as Lower Forge weir.

The club reports a decline in trout catches in recent years but unfortunately has not collected catch return information during this period. Catch returns were previously collected via a box (still present) at the top of the Pinkham Mill beat, but this has lapsed because of poor completion rates by members. It is strongly recommended that catch returns are re-instated because even incomplete information is better than anecdote for detecting trends in catches and making informed decisions on fishery management. An incentive (e.g. a draw for a free membership) may encourage members to complete catch returns.

Poorer water quality through increasing housing development and pressure on Cleobury Mortimer sewage treatment works (STW) was cited as a concern. Information on the performance of the STW from the public record indicates it has operated within its consent conditions for at least the last five years. The club carry out riverfly sampling which records pollution-sensitive species as noted above and should detect any gross changes in water quality. It therefore seems unlikely that a point-source pollution such as the STW is affecting the fishery.

It is evident throughout the reaches inspected that fine sediment ingress and accumulation is a problem on the Rea (Photo 2 and other pictures), as recognised in the Water Framework Classification noted above. High levels of fine sediment reduces the survival of trout eggs which spend the winter buried in gravel 'nests' (redds). If the gaps between the gravel particles are

filled with fine sediment, the flow of fresh water over the eggs is reduced and they can suffocate. Increased levels of fine sediment can also impact upon invertebrate diversity. The high levels of fine sediment are associated with the geology of the area (sandstone) and intensive farming. This is recognised with the wider Teme catchment being a priority under the Catchment Sensitive Farming Delivery Initiative and the work being done by SRT with farmers.

On the Pinkham Mill beat, riparian land use is benign with low intensity grazing on the right bank (Photo 4) and arable on the left bank, but buffered from the river by a grass buffer strip and wooded river banks. The invasive, non-native plant Himalayan balsam is present (Photos 4, 6) which can thrive in shady areas, preventing other plants from colonising the banks. When it dies back in winter it leaves bare banks more vulnerable to erosion, exacerbating fine sediment inputs to the river. Controlling balsam by hand-pulling before it flowers in early summer is recommended.

There are a number of low fishing weirs along this beat which were constructed by the club shortly after the water was acquired in 1979 (Photo 5). The weirs were made with large rocks from the river bed rather than imported material. The construction of such weirs is not recommended because they impound water upstream and can lead to the accumulation of coarse sediment (gravel, cobbles), negating the increase depth gained in the short-term by building the weir. In this case, the impounding effect is minor because of the steep gradient of the channel, but re-arranging some of the stones to reduce the impoundment is recommended.

A much greater impounding effect is evident at the lower end of the beat where the character of the river changes markedly, becoming much slower flowing (Photo 6). This is because of what appears to be a natural bedrock outcrop just beyond the lower boundary of the beat. There is evidence of historic, man-made modification to this impoundment but this does not appear to have raised the height of the natural feature.

The majority of this beat is lined with native trees, such as alder and hazel. The canopy provides valuable shade for the river which helps to regulate water temperature, particularly during periods of low flow and hot weather. The trees roots also provide bank stability which is very important in a sandy catchment like this. Retaining tree cover for these reasons is very important to the health of the river. Many of the trees have been previously coppiced

and there is ample opportunity for hinging and laying smaller trees into the margins of the river to provide valuable cover for juvenile trout; this has been shown to greatly increase juvenile survival rates. Areas where such as Photo 3 where there is little marginal cover are ideal for this. See Recommendations for more details.

Where trees fall into the river, it is recommended that they are retained as woody debris wherever possible. This provides localised scour, depth variety, sorting of river bed substrate and good habitat for both fish and invertebrates.



Photo 1 Pinkham Mill area.



Photo 2 Fine sediment accumulation amongst the larger gravel and stones.



Photo 3 Just downstream of Pinkham Mill – a good area for hinging some trees to create marginal cover



Photo 4 Right bank land use - low intensity grazing, but Himalayan balsam is present.



Photo 5 Fishing weirs



Photo 6 Slower flowing section



Photo 7 Natural bedrock outcrop

Detton Bridge to Titford Bridge (SO6627579540 to SO6661078655)

The Detton beat is about 5km upstream of the Pinkham Mill beat. Upstream of the road bridge at Detton the riparian tree cover was completely coppiced by the landowner the previous year (Photo 9). Coppicing riverside trees can be a useful technique for prolonging the life of ageing trees and retaining rootmass and bank stability. However, rather than cutting down all the trees in one go, a better approach is to employ a rotational coppice taking down between one-in-five and one-in-ten trees each year. The re-growth will then provide a range of different tree heights and valuable diversity of habitats, such as low cover over the water and higher shading from the canopy. Leaving any dead wood standing is also good practice for providing a diversity of invertebrates for woodpeckers and other birds. The coppiced trees need to be fenced from grazing to allow re-growth (which appears to be the case here).

Just downstream of the bridge on the right bank, there is an access point to the river for sheep in the adjacent field which has become severely poached and a source of fine sediment input to the river (Photo 10). Ideally a hard-standing drinking area or fencing and an alternative water source should be provided here (possibly with help from the Catchment Sensitive Farming Initiative).

A short distance downstream of the bridge, the river is impounded above Detton Mill weir. The mill is no longer in operation and is a private residence and the weir has a head loss of about 2 metres (Photo 11). Severn Rivers Trust built a fish and eel pass here recently, the fish pass being an Alaskan steep-pass located against the left bank and the eel pass being stippled plastic tiles on the face of the weir. At the time of the visit, the flow through the fish pass was low, providing poor attraction to the downstream entrance. This may have been due to partial blockage by debris, but the reason should be investigated and addressed to ensure efficient attraction flow at all times.



Photo 8 Upstream of Detton Bridge, where trees have been coppiced



Photo 9 Drinking point for sheep in the field adjacent to Detton Bridge is a source of fine sediment pollution.



Photo 10 Detton Mill weir with an Alaskan fish pass (right of picture) and eel pass (right of white water). There was very little attraction flow from the fish pass at the time of the visit.



Photo 11 A wide buffer strip between the river and fields downstream of Detton Mill – good practice reflecting the Higher Level Stewardship agreement on this land.



Photo 12 In contrast on the opposite bank, tree removal and heavy livestock trampling causing excessive fine sediment ingress.



Photo 13 Typical section of the Rea downstream of Detton Mill – good habitat.



Photo 14 Near Titford Bridge, the buffer between fields and river is much smaller with run-off pathways for fine sediment evident.



Photo 15 Large woody debris provides good in-stream habitat and should be retained.

Downstream of Detton Mill, there is some good in-stream habitat (Photos 12, 14) with varied depths, flow patterns and sediment sizes, good tree cover and stable banks. Riparian land use is buffered from the river by wide grass margins and wooded river banks. One area of concern was a left-bank field where riverside trees had all been coppiced and livestock access was causing a fine sediment input (Photo 13). A little further downstream towards Titford Bridge, the field margins on the right bank were much narrower (Photo 15) and soil erosion and runoff was evident.

Fallen trees in the river were present in a number of locations (Photo 16). As noted above, these are beneficial for river habitat and should be retained wherever possible. There are many areas where trees could be hinged and laid into the river to provide valuable low-level cover (see Recommendations).

4.0 Recommendations

- Reinststate catch returns to provide information on the numbers of fish being caught by members. As a minimum, the date of the visit, number of fish caught and the length of time fished should be recorded. Additional useful information includes fish sizes (split into categories for example, under 6", 6-8", 8-12", 12-14" and over 14"), water and weather conditions and fly hatches. A prize draw incentive may increase the number of catch returns.
- Continue with the riverfly monitoring – support and advice is available at www.riverflies.org
- Hinge trees into the margins of the river to provide valuable cover for juvenile trout and greatly increase their survival chances (Photos 16, 17). This technique is the same as hedge-laying, using trees up to about 15cm diameter; species such as alder, hazel and willow are ideal and it can be easily carried out on working parties. The ideal locations are shallow (ankle to mid-thigh depth) marginal areas where there is a constant flow at all water levels.



Photo 16 Young alders partially cut and laid into the margins to provide fantastic juvenile trout habitat



Photo 17 Partial cut and laying technique detail

- Investigate the fish pass at Detton Mill to check for a blockage and whether there is enough flow to provide sufficient attraction for migrating fish. If a blockage is the cause, make sure an effective maintenance regime is in place.
- Retain large woody debris (LWD) in the river channel wherever possible. To achieve this liaison with landowners and the Environment Agency internal workforce may be required (if either of these routinely remove fallen timber). A useful guide for managing LWD can be found here:
http://www.wildtrout.org/sites/default/files/library/Woody_Debris_Apr_2012_WEB.pdf
- Preserve the existing good riverside habitat that is present along the majority of the Pinkham and Detton beats. The shading and bank stability provided by the well-wooded banks is vital in maintaining the health of the river and preventing the excessive bank erosion that affects many other rivers in this area (and other parts of the Rea). The Higher Level Stewardship agreements in place also provide valuable buffer zones between arable fields and the river.
- Notch the weir at Pinkham Mill and consider altering the fishing weirs along this beat to reduce the upstream impounding effects.
- Control Himalayan balsam by hand-pulling prior to flowering in early summer
- Liaise with the relevant landowner over adopting best practice in coppicing of trees. A guide is provided in the Appendix.
- Support catchment-wide initiatives such as Catchment Sensitive Farming and Severn Rivers Trust work to reduce the impact of diffuse-source pollution on the river.

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

The WTT can provide further assistance to help implement the above recommendations. This includes help in preparing a project proposal with more detailed information on design, costs and information required for obtaining consents to carry out the works. If required, a practical visit can be arranged to demonstrate habitat improvement techniques. Demand for these services is currently high but WTT is able to provide further advice and information as required. Further advice on fund-raising can be found at <http://www.wildtrout.org/content/project-funding>.

6.0 Acknowledgement

The Wild trout Trust would like to thank the Environment Agency for their continued support of the advisory visit service.

7.0 Disclaimer

This report is produced for guidance and not for specific advice; 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 guidance made in this report. 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.

We have produced a 70 minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody debris, enhancing fish stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop <http://www.wildtrout.org/product/rivers-working-wild-trout-dvd-0> or by calling the WTT office on 02392 570985.

The WTT website library has a wide range of materials in video and PDF format on habitat management and improvement:

<http://www.wildtrout.org/content/index>

Appendix 1 – Good Practice Code for Coppicing

Coppicing of riparian trees during the winter is a traditional method of management. This can benefit the river, the farm and the whole catchment area. One of the aims is to increase the amount of light falling on the banks and bed of the river to promote the growth of bankside grasses and aquatic macrophytes and algae. Coppicing should be planned on a minimum of a five to nine year cycle.

1. Before carrying out any coppicing a plan should be drawn up. For this the presence of protected species (including bats and otters) should be determined (see below), and their habitat requirements taken into account.
2. In heavily shaded sections, coppicing should be concentrated in fast flowing shallow 'riffle' areas with lighter work around the glides and pools.
3. Try to leave most of the remaining shading on the south bank along glides.
4. Coppice trees only from October to March and, in any case, well before they come into leaf in the spring.
5. Avoid cutting right back to old growth. Aim to cut to knee height, retaining at least 200mm of new growth. This helps promote good re-growth of the coppice stool.
6. Preferentially leave ivy covered trunks.
7. Leave old and dead trees unless dangerous. Very old or "veteran" trees provide valuable habitat for a variety of wildlife and can contain a rich lichen flora. Some bat species are known to roost under loose bark and in tree holes.
8. Do not take mature timber. It does not coppice well. Any trees with good holes, cavities, splits, or loose bark should be retained.
9. Do not use machinery in the river. There are risks of pollution from fuel, oils and silt associated with use of machinery, which could result in prosecution.
10. Do not damage riverbanks or tree roots with machinery as this may lead to additional erosion. Avoid the use of machinery within 3m of the bank edge or tree stems.

11. Do not work **in** the river between 1 October and 31 March to prevent disturbance to spawning trout, trout eggs and newly hatched fry.
12. Coppiced timber and brash can form valuable habitat for a wide variety of wildlife. Where possible, it should be used to create LWD in the channel, or stacked and secured in such a way as to avoid it washing away and either endangering fences downstream or accumulating on obstructions (bridges etc) and causing a flood risk. If material cannot be securely stacked then it should be removed from the flood plain completely. Should any material be burnt then this should be done no nearer than 50m to any other tree. In no circumstance should burning take place in the river channel. Ash must not be allowed to enter the watercourse.
13. Leave the stumps in the bank as they help to protect the bank from erosion and provide valuable habitat for fish. Tree roots also provide lying up sites for otters and nest sites for riverine birds such as grey wagtail and dippers.
14. Coppicing should be fenced to prevent damage to new growth from browsing stock.
15. Before working in areas with wildlife designations - Natura 2000 sites, Sites of Special Scientific Interest, National and Local Nature Reserves – you must first consult the relevant authorities, to avoid breaching wildlife legislation.

PROTECTED SPECIES

Many of the animals associated with river corridors (including bats, otters and dormice) are protected under Schedule 5 of the Wildlife and Countryside Act (1981), as amended by the Countryside and Rights of Way Act (2000) (CROW 2000) and The Conservation (Natural Habitats, &c.) Regulations 1994. This now extends the offence in section 9(4) of the 1981 Act to 'subject to the provisions of this Part, if any person intentionally or recklessly kills, injures or takes any wild animal included in Schedule 5, he shall be guilty of an offence.

BATS

All work that may affect bats should be discussed in advance with Natural England as a bat licence is required to survey (licensed consultant/bat worker) or carry out work on roost sites (DEFRA license). Under the Bonn

Convention (Agreement on the Conservation of Bats in Europe) the UK is also required to protect their habitats, requiring the identification and protection from damage or disturbance of important feeding areas.

Bank side trees form important habitats for bats, as certain species are dependent on trees. Check trees for signs of bat roosts:

- obvious holes, cavities and splits in trunks and limbs
- dark staining on the tree below a hole
- staining around a hole caused by the natural oils in bats' fur
- tiny scratch marks around the hole from bats' claws
- droppings below a hole - they look similar to those of rodents but crumble to a powder of insect fragments
- noise (squeaking or chittering) coming from a hole
- check holes by inserting a mirror and watching the hole at dawn or dusk
- bats will also roost behind loose bark, which should be checked similarly.

If a roost is identified or suspected a more detailed inspection must be undertaken by someone with the relevant experience and correct license to assess, obtain and implement a DEFRA license where tree roosts will be damaged or lost. Whether bats are found or not, any trees with good holes, cavities, splits, or loose bark should be retained. An assessment should be made of the impact the work will have on bat roosts, feeding habitats and commuting routes before determining the final coppice plan, which may require alteration to accommodate the requirements of the bats.

OTTERS

Otter holts are found in cavities in large tree root systems, so any work on trees should be preceded by a root inspection. If a holt or lying-up place is *identified or suspected* a more detailed inspection must be undertaken by someone with relevant experience to ascertain whether otters are present. Coppicing should be carried out so that the coppice cut is taken some height above the stool, to allow for the protection of the cavity. Otter holts are protected by law and a licence may be required if disturbance is likely. All

such works should be discussed and agreed with Natural England before proceeding.