



Advisory Visit to the River Ure

11th November, 2014



1.0 Introduction

This report is the output of a site visit undertaken by Gareth Pedley of the Wild Trout Trust to the River Ure on 11th November, 2014, at the request of the Bear Park Flyfishers (BPFF). Comments in this report are based on observations during the visit and discussions with Roger Lombard (secretary and treasurer), Terence Fish (committee member) and Philip Brown (committee member) of BPFF.

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated left hand bank (LB) or right hand bank (RB) whilst looking downstream. Location coordinates are given using the Ordnance Survey National Grid Reference system.

2.0 Catchment / Fishery Overview

Fishery details	
River	Ure
Waterbody Name	Ure from Duerley Beck to Thornton Steward Beck
Waterbody ID	GB104027069462
Management Catchment	Swale, Ure, Nidd and Upper Ouse
River Basin District	Humber
Current Ecological Quality	Moderate Status (at least one biological indicator was less abundant than expected)
U/S Grid Ref	SD 99567 88917
D/S Grid Ref	SE 11312 89061
Length of fishery inspected (km)	2.2

The River Ure rises within the Yorkshire Dales Natural Area, which lies between the Cumbrian Fells and Dales and the Forest of Bowland to the west and the Pennine Dales Fringe to the east. The area forms part of the Pennine chain and has obvious close associations with the North Pennines and Southern Pennines Natural Areas. It has, however, a distinct character, being dominated by gently sloping Carboniferous gritstones, limestones and shales that have been eroded by glaciation to form the expansive moors and generally broad dales (www.naturalareas.naturalengland.org.uk). Limestone is the predominant bedrock type within the Ure catchment and provides significant pH buffering to the acidic moorland runoff of the upper tributaries. The overlying superficial deposits of till and alluvium along the river valley result in relatively friable and easily erodible soils (particularly on the Wensley Water).

Over the centuries, the area has been utilised principally for low-intensity pastoral agriculture, forming the heather or grass moorland, with meadows and pastures in the dales and resulting in the very low level of native woodland cover. Land use across the area is concentrated on three main activities - pastoral agriculture (especially sheep), tourism and grouse shooting. Upland sheep farming is the most widespread land use. It has been practised in the area for centuries but both sheep numbers and the intensity of associated management have increased significantly in recent times (e.g. 70% increase in sheep numbers since the 1950s) (www.naturalareas.naturalengland.org.uk).

Moorland gripping (digging of extensive drainage ditch networks) has a significant impact upon the catchment which along with recent changes in rainfall patterns has increased the frequency and intensity of high flow events on the river. This, coupled with intensive grazing and the erodible nature of the soils often leads to issues with bank erosion and potential sedimentation of the river bed/spawning gravels. Correspondingly, away from areas of exposed bedrock, the gradient and mobile gravel/cobble bed material creates a naturally dynamic channel that is susceptible to changing course in high water events.

Historic straightening of the river has further increased channel gradient in areas, reducing sediment storage and leading to scouring and lowering the river bed. River bed and bank erosion rates are then increased as flows are

constrained within the incised channel for longer before dissipating onto the floodplain.

BPFF control two sections of the River Ure totalling approximately 3km in length. The upper, Bear Park Water, is located around Aysgarth Falls and the lower, Wensley Water, downstream of Wensley village. Both sections lie within the '*River Ure from Duerley Beck to Thornton Steward Beck*' Water Framework Directive (WFD) waterbody, which is currently classed as being in 'moderate' ecological status. Fish stocks are classed as being 'good' (as expected) and macro-invertebrate populations are classed as 'high' (better than expected); however, the status of the waterbody is downgraded by a 'moderate' status for diatoms (maps.environment-agency.gov.uk).

The club currently stock one hundred 280mm-330mm (11-13") brown trout (*Salmo trutta*) per season to each of the two river sections. Returns from these stocked fish are poor (Roger Lombard. pers. comm., 11th November 2014). This is as expected when introducing stock fish to a large dynamic river system. The fish stocked up to and including 2014 have been diploid; however, owing to the changes in Environment Agency policy, from 2015 all trout stocked to native trout waters must be infertile triploid fish.

There are currently around 35 members in the club, of which it was suggested that there is an approximate three way split, with a third of members actively fishing, a third occasionally fishing and a third rarely ever fishing. This represents very light angling pressure on 3km of medium/large river. Catch returns also indicate that the majority of anglers practise catch and release which further preserves the wild fish stocks.

3.0 Habitat Assessment

3.1 Bear Park Water – upstream of Aysgarth

Progressing downstream from the access bridge (u/s limit), low-level and trailing branch cover provides some areas of high quality adult trout habitat (Figure 1). However, grazing pressure from livestock in the first field downstream on each bank is preventing herbaceous vegetation from becoming established and inhibiting the formation of a naturally rough overhanging margin. This greatly increases the potential for bank erosion, reduces the level of juvenile cover available in the river margins, and

prevents natural channel narrowing that would occur if depositional features in the river margin consolidated with vegetation (Figure 2). Grazing also prevents the natural understory of self-set shrubs that would ordinarily replace larger trees as they die or wash out. This will ultimately lead to a loss of bankside trees and vital cover over time.

The river bed in this area comprised predominantly cobble, and while this provides valuable invertebrate habitat, it is unlikely to provide significant opportunity for spawning as the majority was too large for resident brown trout to be able to cut redds in. In addition, Aysgarth Falls prevents access upstream for the larger migratory salmonids that could utilise such substrate.



Figure 1. Good trout cover from large established trees (white arrows) but a lack of cover on the grazed LB.



Figure 2. Significant erosion on the inside bend, predominantly due to sheep grazing. Note the large mature trees but lack of smaller shrubs.

Downstream, where livestock are excluded, a much healthier diversity of grasses and herbaceous vegetation is present along the river banks. Limestone bedrock also becomes more noticeable, and forms the predominant river bed feature for the rest of the section. This limits the availability of deep deeper pool habitat, providing mainly riffles and glides with the occasional deep section around fissures in the rock. This fast flowing, well-oxygenated water provides high quality habitat for all trout and grayling life stages, except spawning gravels, which were in short supply.

It is likely that spawning and recruitment to this area occurs in gravel (10-50mm dia.) areas upstream, with the trout in particular favouring smaller tributaries in which to spawn. Fortunately, although fish stocks are likely to be reliant upon juvenile production upstream, the habitat is of sufficient quality to mitigate reduced juvenile numbers through increased survival rates of those that do colonise from elsewhere.



Figure 3. High quality habitat provided by long grasses and herbaceous vegetation along the un-grazed LB (foreground) with poor cover/bank protection on the grazed RB (background). The rough overhanging margins (foreground) and bedrock substrata provides a good range of flow disturbance and habitat niches for all life stages.

Trailing branches, particularly fallen/lying willows (*Salix* spp.) provide excellent habitat and refuge in the river margins for fish. The shade and cover provided enhances not only the immediate area (within the structure), but also the water alongside, allowing fish to sit in open water where food is readily available, but with the added security of an easily accessible bolt-hole nearby. Should the threat of a predator occur, fish can then utilise the structure as it will be less penetrable by most predator species in comparison to the bolting fish. Studies have shown that even a small reduction in the overall efficiency of predators causes them to give up earlier and move to more profitable hunting grounds.

While such structures (including low-hanging branches) are often perceived as an issue to fishermen, preventing an easy casting access, the benefits provided by those structures in terms of fish holding capability and the

protection they afford to fish should not be underestimated. In most cases, where such structures are pruned or removed, the associated habitat degradation will also lead to the loss of fish from that area, certainly the larger specimens. Fortunately, tree maintenance did not appear to be an issue on BPFF waters.



Figure 4. High quality trailing cover/structure that enhances both the fish holding potential of an area and the ability of fish to evade predators.

3.2 Wensley Water – downstream of Wensley

Habitat on the Wensley Water is in stark contrast to the bedrock dominated area above Aysgarth. The river valley is generally of a lower gradient and with a much more mobile substrate, comprising mainly gravel and cobble. Although difficult to ascertain from a short visit, it also appears that the Wensley Water is subject to a higher degree of realignment and historic channel maintenance. This is likely to account for the first 450m of the

section being particularly straight and lacking the deeper pool areas naturally associated with bends (Figure 5).

Livestock have access to both banks for most of this section and correspondingly, there was a lack of smaller self-set shrubs, particularly on the RB. Un-mown, rough ground along the majority of the LB does appear to be discouraging sheep from grazing that area so heavily (as they prefer the lush re-growth of the shorter mown grass); this has allowed some rougher grasses and herbaceous vegetation to become established although the lack of trees and cover over the river margins was notable and greatly reduced the potential fish carrying capacity of the area (Figure 5). Even light, periodic browsing can seriously inhibit new trees and shrubs from becoming established as livestock will invariably target lush young shrubs.



Figure 5. Rough margin and the occasional self-set shrub (LB) with a lack of vegetation and shrubs on the RB. The occasional established trees provide the only high quality natural cover features.

On the straight section, two diagonal groynes are present within the river channel (Figures 5 & 7). The structures do not appear to extend the full

width of the channel, and therefore should not create a significant issue to fish movement; however, they do potentially create an artificial fixed bed level that reduces the potential for bed scouring and natural pool creation upstream. The original purpose of the groynes it is not known, but such structures were often created as bed checks, to prevent incision of the bed, or as fishing structures. While they provide some beneficial flow disturbance, hard engineered structures that force changes to the channel often result in unintended negative consequences in the long term. Current best practice would be to reinstate natural features such as large woody debris/trees that work with natural river processes to facilitate formation of habitat.



Figure 6. Diagonal groyne, the benefits of which are outweighed by the detrimental side effects, particularly fixing of the bed level.

Figure 7 shows another land management issue on the RB. It appears that the tenant/landowner has attempted to counteract an area of erosion around a bankside willow (very probably caused by grazing and trampling/poaching of the bank by livestock) by tipping mud into the void. This is a highly inappropriate action and some of the material has obviously already washed

into the river; the rest has a high probability of washing out in the next high water as there will be no vegetation growth to consolidate the mud during the dormant winter season. When the rest of the mud does wash out it will be a significant and unnecessary sediment input to the river. This actually constitutes a potential pollution incident.



Figure 7. Area of erosion around a willow tree where mud has been tipped and now poses a sediment input to the river.

Further downstream, long sections of more significant erosion occur, leaving high exposed earth cliffs that are highly susceptible to further erosion (Figure 8). Where willow trees and shrubs are present the river banks are far more stable and high quality in-channel habitat is provided by their roots and trailing canopy. While the erosion issues are contributed to by grazing of the river banks, it is also probable that the long straight section upstream supplies excess sediment and accelerated flow velocities, due to the increased gradient and lack of pools/bends to slow flows and accumulate sediment. As a result, flows hit the bend harder than would naturally occur, scouring hard on the outside, and depositing bed material on the inside and

at the tail of that pool where velocities are lower (Figure 9). These depositional features then take up channel capacity and force flows further into the susceptible outside bank.



Figure 8. Where willows can become established they provide high quality trout cover and vital protection to the river bank.



Figure 9. Significant erosion of the RB further exacerbated by accumulations of bed material supplied from upstream forcing flows into the RB.

4.0 Recommendations

4.1 Fencing

Fencing in top fields and bottom section

Riverside buffer fencing would be beneficial along all sections where livestock have access, especially in the areas where banks are more heavily grazed. Both banks at the upstream limit of the Bear Park Water (Figures 1 & 2) and the RB of the Wensley Water (Figures 5, 6 & 7) are in the greatest need. Fencing throughout the Wensley Water, on both banks, would also be greatly beneficial.

There is always a potential risk of flood washout of fencing on spatey rivers; however, the protection to the river bank and vegetation, and the habitat enhancement that it facilitates make it worth the risk of having to reinstate a flood-damaged fence. The small loss of, usually, poor grazing to tenant/landowner is also mitigated in the long run by greatly reduced erosion rates.

If complete sheep exclusion from the banks is infeasible, it is possible to reduce the impact of grazing slightly by ensuring that the riverbank vegetation is allowed to become established before sheep are allowed access (as on the Wensley Water (LB)), or by at least excluding cattle from the river banks. This can help because sheep tend to favour shorter grass regrowth following mowing or through continual grazing, rather than rank mature grasses/vegetation. Complete exclusion is, however, usually required to allow self-set shrubs to become established as they are actively targeted and do not fare well with browsing/grazing pressure.

In established buffer strips, where vegetation and trees are mature and less susceptible (c.3-5 years old) light, periodic grazing can be beneficial. This can also help to control some non-native invasive species such as Himalayan balsam (*Impatiens glandulifera*).

It is recommended that Natural England and the Environment Agency are both approached to ascertain if any financial assistance is available for fencing work as it is highly likely to fit with their river management aspirations. Although the last phase of Environmental Stewardship and Catchment Sensitive Farming Schemes have now come to an end (2014), there may be potential for assistance through the new land management schemes due in 2016 and the land in question may already be targeted for schemes. Yorkshire Dale Rivers Trust may also be able to provide assistance.

4.2 Tree Management

4.2.1 Planting

If stock-proof fencing can be achieved, planting with species such as willow (*Salix spp.*), hazel (*Corylus avellana*), oak (*Quercus robur*), alder (*Alnus glutinosa*) and any other locally native broadleaves would be greatly beneficial in any areas where cover is lacking or bank stabilisation required.

Stock exclusion is, however, paramount before any major effort is placed into planting as otherwise livestock are likely to eat the saplings.

If livestock cannot be completely excluded, it would still be worth attempting to reinstate some bankside trees, but utilising a faster, low effort method that allows for significant wastage through browsing/grazing. Rather than formal planting, willow can be propagated by pushing short sections of willow whip into the ground around the water line and other areas of damp earth. This can be undertaken at any time of the year, but will have the greatest success if undertaken within the dormant season, shortly before spring growth begins (ideally late Jan-early March). The method simply involves driving 400-600mm (c.16-24") whips into soft, wet earth/sediment, ensuring that there is a greater length within the ground than out of it (c. $\frac{2}{3}$ in the ground, $\frac{1}{3}$ protruding out of it). This minimises the distance water has to be transported up the stem and the volume of shrub to be hydrated until a new root system becomes established.

Willow can also be planted as living willow bundles, comprising several willow branches tied together into a faggot. These can be staked along the waterline, ideally with the half the bundle submerged in most flows. If suitably secured, this method can rapidly increase the availability of low, dense canopy over and within the water and also protect/reinstate areas of erosion.

N.B. Both of these methods can be employed along the waterline, at the toe of the bank to reduce the potential for grazing/browsing damage. Both methods would also complement formal tree planting.

It is highly preferable to source native willow locally, from adjacent areas of the bank. This ensures that the species is suited to the conditions and helps to avoid potential issues with transportation of non-native species.

4.2.2 Pruning

It is recommended that the current practice of maintaining natural cover is continued, with minimal or no pruning of bankside trees undertaken. For an additional enhancement, where low-lying branches are present, they can be bent/trained down into the water to create additional lies. This may make

some casts more difficult, but the overall increase in habitat and fish holding capacity will far outweigh any inconvenience caused.

4.2.3 Stocking

There is a mounting weight of evidence to show that stocking provides poor returns on waters capable of supporting wild fish populations. Stocked trout usually have poor survival and are more susceptible to predators than wild fish. Stockies also often emigrate (usually downstream) within a short time after introduction to the river, rarely staying in the stocking location for long as they are poorly suited to the wild environment, particularly on dynamic upland rivers. There is still, however, potential for a negative impact upon the native, wild fish stocks before the stocked fish leave as food and space are a limited resource within the river environment and introduced fish can upset the natural balance.

Wild trout on the other hand have an affinity to the reach in which they are found as they are there by choice, having grown up with the challenges of a river environment to find their own ecological niche. Wild trout are also more adept at evading predation having evaded numerous assaults from emergence.

In favourable conditions, more juveniles than required are produced each year and straight from emerging they seek out the best habitat they can command, working hard to defend that territory from others. This is why individual fish are often be caught in the same area every season; they will only move to take up another better lie, or if they are displaced by a more dominant individual. Any excess individuals that are produced supply other reaches of the river or die off if insufficient habitat is available. This natural process ensures that maximum utilisation of available habitat is achieved and that, year on year, a healthy wild river should support more fish than a stocked one.

The level of angling pressure on BPFF waters is very light for what is a relatively large river, and although some aspects of the habitat is sub-optimal currently, the river is still more than capable of supporting a wild trout fishery, without the requirement for stocking. For these reasons, is recommended that BPFF move towards establishing a purely wild trout fishery.

A good first step towards development of a wild trout fishery would be limiting stocking to the Wensley Water as two introductions. Short-term, this should reduce the impact of stocked fish on the Bear Park Water and provide better returns on the stocked fish, while the impact of not stocking the Bear Park Water is assessed for a few years. It is fully anticipated that after this period the benefits of not stocking will be noticeable and members may opt to cease stocking completely in favour of promoting wild fish stocks. In this instance, some may argue that stocking on other club waters upstream is assisting/stocking the Bear Park Water, but by default, any fish received from upstream have already shown to be transient and are moving downstream.

In line with the wealth of literature proving poor returns and the negative impacts of stocking upon wild fish, many fisheries have also found that removing the impact of stocked fish leads to an increase in wild fish production and retention. Clubs such as **Hutton Rudby Fishing Club (River Leven)**, Manchester Anglers (River Ribble), Penrith Anglers (River Eden), **Denbigh and Clywd AC (Afon Clywd)**, Haddon Estate's Peacock Fly Fishing Club (Derbyshire Wye) and **Leek and District FF (River Dove)** have all showed improvements within a few seasons of ceasing stocking. More information and cases studies can be found on the Wild Trust website (<http://www.wildtrout.org/content/trout-stocking>).

As an additional measure, it is also recommended that any fish stocked are marked to assist members in identifying stocked fish from wildies. Members can be instructed to return all wild fish (preserving spawning stock) and to kill all stocked fish caught. Killing all stocked fish will further help to preserve wild stocks by removing them from the river, as placing numbers of naïve stocked fish into a wild environment is effectively feeding the predators (otters, cormorants, goosanders and herons) and making life easier for them.

There are several methods of marking fish but Panjet marking with alcian blue dye is usually the quickest, easiest and cheapest method, producing a small tattoo-ed spot on the fish's skin. Longer term retention of the dye can be poor, but this issue is lessened by the fact that majority stocked fish are unlikely to persist in BPFF waters for long anyway. The club's trout supplier should be able to Panjet mark the fish but may be reluctant to do so due to the increased work and the fact that it may highlight the poor returns from

stocking. There is also likely to be charge for the service, but the benefits to BPF should far outweigh the cost implication. Figure 10 shows a comparison between a stocked, panjet marked fish and the smaller wild fish. Note that the panjet mark can be quite subtle and anglers will have to look carefully at each fish.

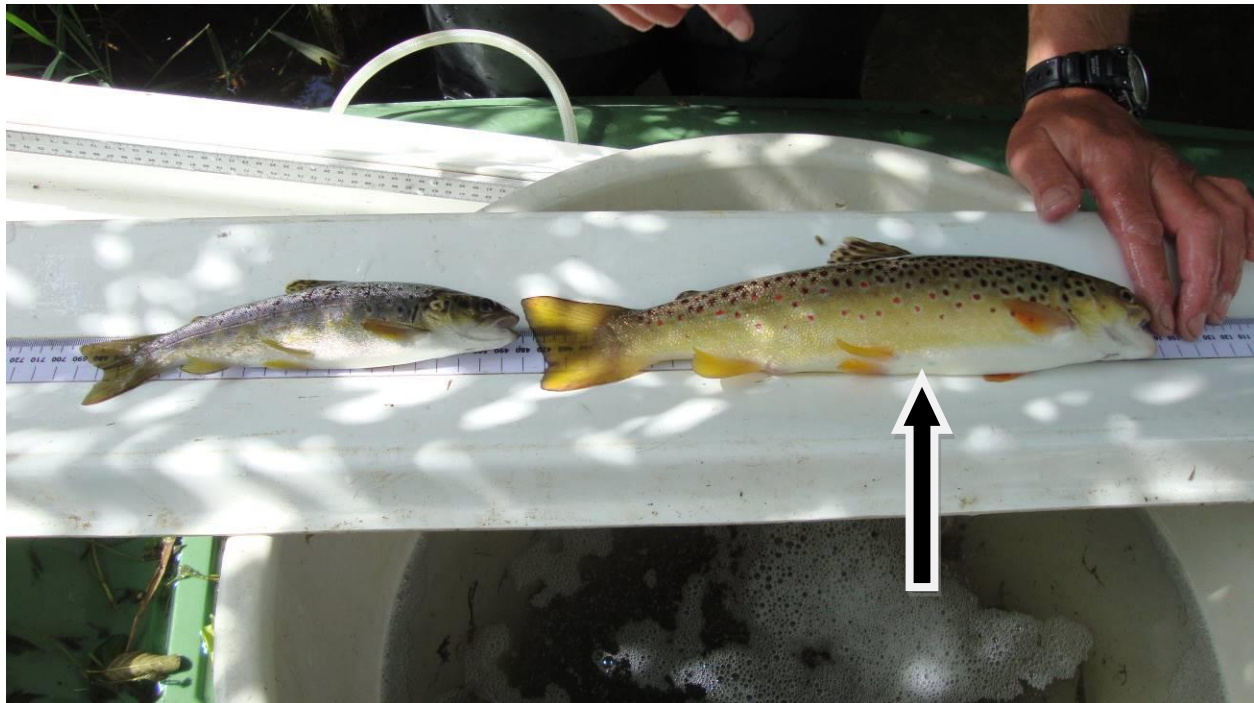


Figure 10. Small wild fish (left) and larger stoked fish (right), with panjet marks near pelvic fins (black arrow).

4.3 Catch returns/Logbooks

To complement any alterations to the club's fish stocking policy, it is also recommended that detailed angler logbook/catch returns be kept, so that catches can be accurately recorded. Ideally this would be done in the years leading up to stopping stocking, as well as after, but even without prior records it would be a very valuable dataset. If stocked fish are marked, records could also be created to show the returns from stocking and would help inform future stocking practice.

5.0 Future work

The Wild Trout Trust may be able to offer assistance to Bear Park Flyfishers with issues such as:

- WTT Fundraising advice
 - Help and advice on how to raise funds for habitat improvement work can be found on the WTT website - <http://www.wildtrout.org/content/project-funding>
- Presentation/evening talk to BPFF members on the merits of habitat improvement and promotion of wild fish stocks over stocking. Also see video via link - <https://vimeo.com/63397188>
- Support in working with the Environment Agency, Natural England, Rivers Trusts and other local stakeholders

The WTT officer responsible for fundraising advice is Denise Ashton: dashton@wildtrout.org

In addition, the WTT website library has a wide range of free materials in video and PDF format on fishery management and habitat improvement:

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

We have also 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.

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 only. 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.