Advisory Visit

Birkin Brook – Cheshire

10/03/2015

1.0 Introduction

This report is the output of a site visit to Birkin Brook Fly Fishing Association (BBFFA) waters on Birkin Brook and Mobberley Brook, undertaken by Gareth Pedley of the Wild Trout Trust. A previous visit has already been undertaken to the Brook by Tim Jacklin in 2013, and in that report, an overview of the fishery and more detailed introduction to the catchment can be found.

Normal convention is applied throughout this report with respect to bank identification, i.e. the banks are designated left bank (LB) or right bank (RB) whilst looking downstream (D/S). The Ordnance Survey National Grid Reference system is used for identifying locations. This report covers observations made at two sections of the Barlow Brook and one on the Mobberley Brook, and discusses options for future fish stock and riparian management.

Table 1. Overview of the Birkin Brook waterbody details

	Waterbody details
River	Birkin Brook
Waterbody Name	Birkin Brook
Waterbody ID	GB112069061340
Management Catchment	Bollin, Dean, Upper Mersey
River Basin District	North West
Current Ecological Quality	Poor (‘poor’ for fish, ‘good’ for invertebrates, ‘poor’ for phytobenthos and ‘moderate’ for macrophytes). ‘Good’ or ‘high’ for all parameters except phosphate (moderate)
U/S Grid Ref	SJ7753682106
D/S Grid Ref	SJ7569184582
Length of river inspected (km)	4km

(http://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061340)

Most of the ecological and chemical parameters for this waterbody are currently the same status as when assessed in the previous cycle (6 years ago), with three notable exceptions. The status for invertebrates has improved from 'good' to 'high', meaning that invertebrate assemblages at the site surveyed are better than would be expected there. The status for phosphate has deteriorated from 'good' to 'moderate', meaning that phosphate levels are now recorded as being elevated. The status for fish has fallen from 'good' to 'poor', meaning that there are now significantly fewer fish, or there is less species diversity than previously recorded. The latter corresponds with a reduction in angler catches that prompted the request for a further Wild Trout Trust (WTT) visit.

It is hard to ascribe exactly why these parameters have changed, although the habitat assessment section below will highlight several factors that could have a significant impact. It may also be that survey site selection/alteration has influenced the results, particularly on a waterbody comprising tributaries of quite contrasting character.

2.0 Catchment / Fishery Overview

Since the last WTT visit, BBFFA have initiated changes to the management practices for both the fish stocks and riparian habitat on their waters. Having observed declining catch rates over recent seasons, and realising the very poor returns from stocking, the Association moved to cease stocking for the 2015 fishing season. As part of the move towards promoting wild fishing, working parties have begun initiating habitat improvements. Work has also been undertaken to improving accessibility on certain beats that were previously under-utilised but provided good fishing to more adventurous members who persevered.

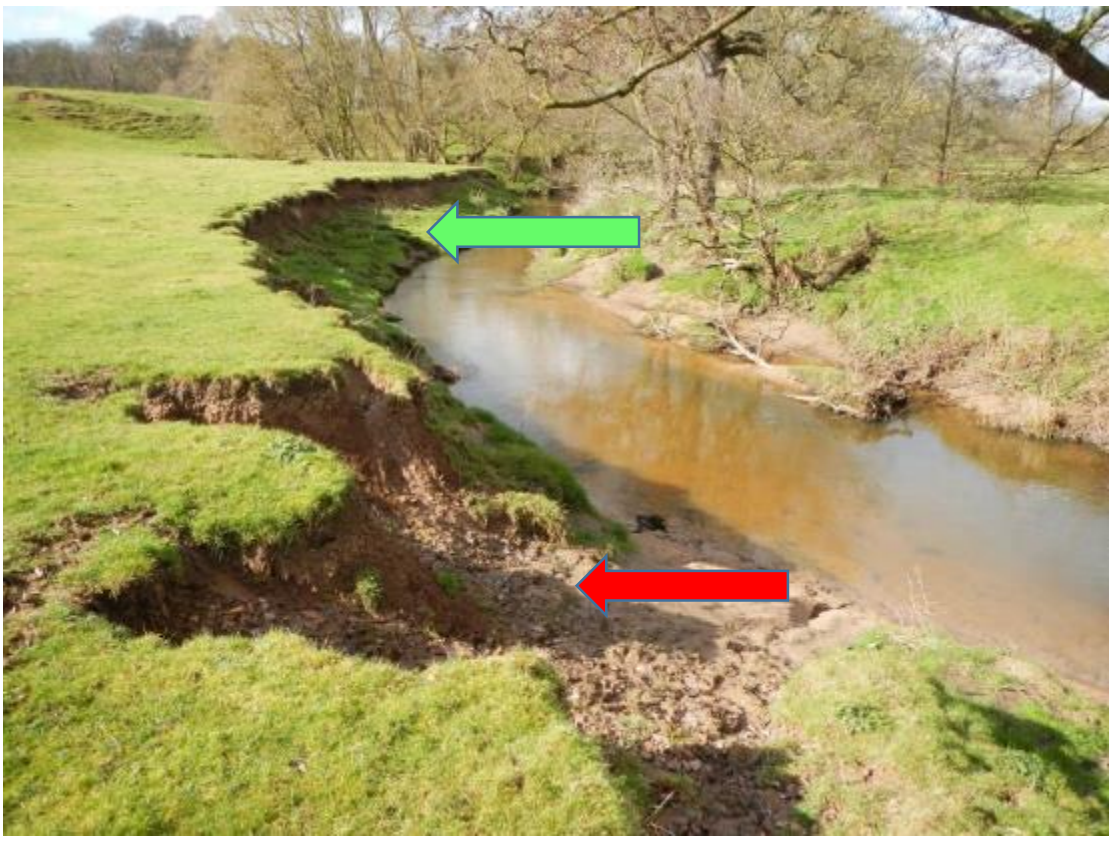
3.0 Habitat Assessment

3.1 Beats 1 & 2 – Upstream of Ashley Road

On beats 1 & 2, grazing still appears to the most notable and major negative impact upon the Brook (Photos 1 & 2). This issue is not to be taken lightly, as stock access to the banks and channel is seriously degrading marginal habitat and contributing to the already extensive sedimentation issues. Grazing and browsing, even at relatively low stock density, prevents any herbaceous vegetation from becoming established and halts the natural succession of saplings, primarily alder (*Alnus glutinosa*) and willow (*Salix spp.*), that should replace mature trees that are washed out or die.

These factors contribute to a significant lack of in-channel structure and low-level cover, both vital aspects of habitat that are required to retain fish within a reach. On friable, sandy soils, as found in this area, the additional root matrix that such shrubs and herbaceous vegetation provide are vital in stabilising the riverbank and reducing erosion rates; they not only help prevent erosion occurring, but can stabilise slumped areas allowing the bank to naturally re-grade and preventing further erosion, as should occur in Photo 2 if stock are excluded.

When the issues of accelerated erosion are combined with the significant physical damage that poaching of the ground by livestock causes, it is not surprising that fine sediment input to the Brook is such an issue. The land loss and serious habitat degradation could, however, be significantly reduced by simply excluding stock from the river bank.



Photograph 1. Stock access point (red arrow) and area of slumped bank that should naturally re-vegetate and stabilise if stock are excluded (green arrow).

Photograph 2. Significant bank destabilisation from stock access that could be prevented by linking the downstream and upstream sections of buffer fence.

There are signs of previous attempts at buffer fencing, as detailed in the previous report; however, the fact that the ends of the fence have been left open in most sections has allowed access into the buffer strip, negating their benefit (Photos 3 & 4). A similar problem exists where only one bank has been fenced, as cattle are quite willing to enter and cross a small brook, as evident by the numerous access points (Photos 1 & 2).

Where a buffer fence is present on both banks, there does appear to have been a slight improvement in marginal vegetation (Photo 5); however, subsequent stock access, as evident by the broken fence at the upstream end has greatly reduced its value. It may well be that the issue stems from livestock becoming trapped within the fence, having entered the buffer via the river. This would trap stock exactly where they are not wanted and be an inconvenience to the farmer who then has the task of getting them out of the buffer. This issue can be prevented by ensuring that the fencing is continuous and secure, and that stock cannot access either end.

There are two ways of ensuring stock do not access a buffer strip, one of which must be employed if future fencing is to be successful. The first and most secure method is to maintain continuous fencing along the watercourse, tying it in to the end field boundaries. This is likely to be the best method in this situation as the track bridge will still allow stock access to both banks. Pasture pumps or solar pumps would be required to water the livestock, but the benefits of complete stock exclusion to both the farmer and watercourse ecology would be well worth the increased expense.

The other method is to allow stock watering points with water-gates. This is not, however, advised on a watercourse with such sandy banks as focussing all stock access into one or two small sections of bank will greatly exacerbate erosion and sedimentation there.

Another point of note is that the buffer fencing appears to have been installed to a much higher standard than required (sheep netting). Where only cattle are present, three- or four-strand barbed wire is sufficient for exclusion. The significant benefit of this being that it is much cheaper per metre (cheaper materials and installation), easy to maintain and far less susceptible to flood damage, so can be installed in areas where netting is not advisable.

Photograph 3. Open end to buffer fence which allows stock access and completely negates its value.

Photograph 4. Downstream end of the fence on Photo 3, where livestock have unrestricted access (red arrow) and can also access from the unfenced RB (orange arrow).

Photograph 5. Slightly improved marginal vegetation and bank stabilisation now compromised by stock access (red arrow).

Where Mobberley Brook enters the Birkin, a small area of gravel substrate is present (Photo 6), before becoming smothered by sand, as on the rest of the Birkin Brook visited. This further highlights the scale of the fine sediment issue on Birkin Brook, but also that improvement measures to increase salmonid spawning may be best targeted on less impacted tributaries such as the Mobberley Brook.

A general lack of low level branches (within 1m of the water) on bankside trees was also noted (Photo 7 - often well-meaning but inappropriate management to improve angling access), which, combined with a lack of bed roughness (smoothed by a coating of sand) makes the Birkin Brook a pretty hostile environment with limited areas to shelter from high flows, particularly for small fish. Root structure provides the only real in-channel habitat or cover in most places. Coppicing the occasional tree to encourage low-level regrowth, planting trees along the river margin (both requiring stock exclusion) and laying branches into the channel (as occurs naturally in Photo 8) are all recommended to disrupt flows and create fish refuge. If undertaken, these measures may make access a bit trickier, but should greatly increase the fish carrying capacity of the Brook, which will ultimately improve the angling – better to have tricky access with plenty of fish than easy access to few or no fish!

Photograph 6. Mobberley Brook inputs some gravel (red arrow) to Birkin Brook, but it is quickly smothered by the high loading of fine sediment.

Photograph 7. A general lack of low-level cover makes casting easier but greatly reduces the number of fish the river will support and makes habitat heavily reliant upon root structure.

Photograph 8. Highly valuable low-level, trailing cover. This is likely to hold several fish and offers protection from high flows, predators, along with shade from direct sunlight. A great deal more of this type of habitat is required throughout Beats 1 & 2.

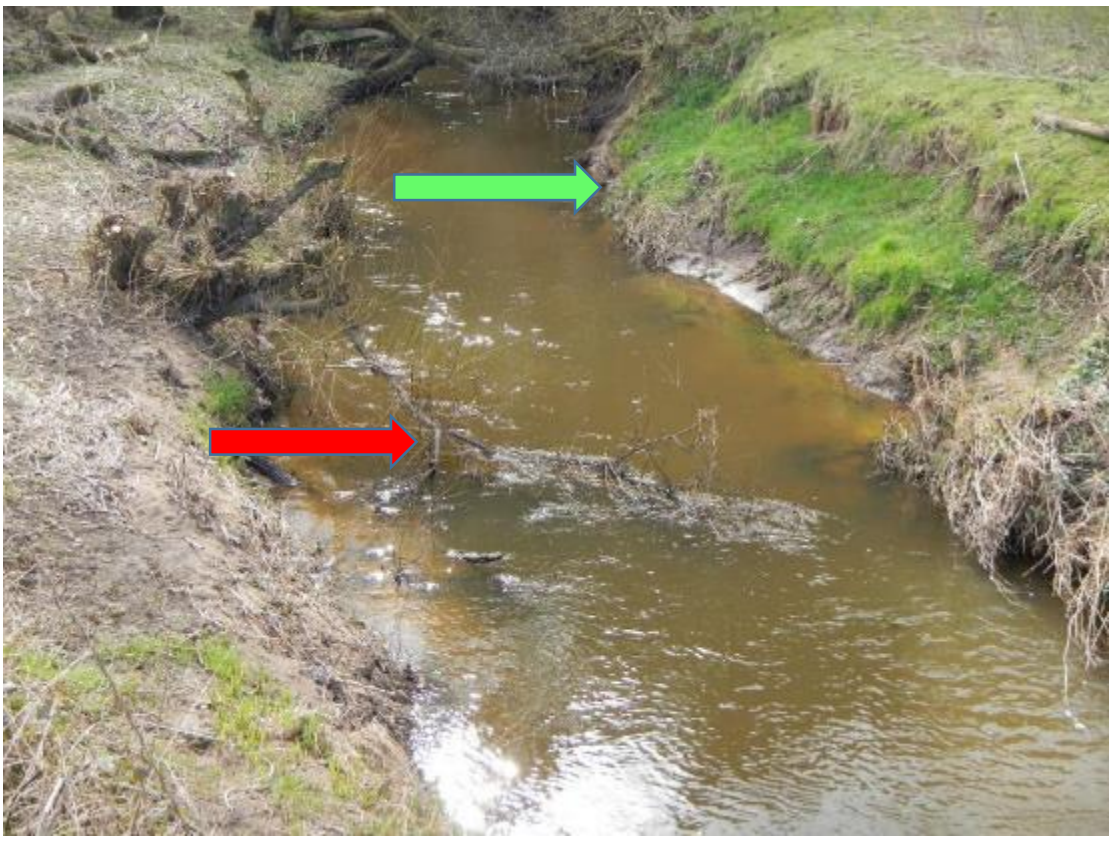
3.2 Beat 3 – Downstream of Ashley Road

Although subject to the same impact from fine sediment smothering as upstream on Beats 1 & 2, habitat along Beat 3 is generally of a higher quality. The absence of livestock from the banks in many areas (upper end and RB) and partially restricted access on the LB has allowed a much healthier array of marginal vegetation and trees to become established. In-channel large woody debris (Photos 9 & 10) and trailing branches (Photo 11 & 12) also provide valuable structure that is largely missing from the upstream Beats. Structures installed during previous working parties have also remained in situ and demonstrate the potential for further use of LWD improvements.

A major power line runs along sections of this beat and significant maintenance of trees beneath has been undertaken. Fortunately, some of the low/trailing branches have been left; these will be vital habitat features, particularly when in leaf (Photos 11 & 12). Evidence of Himalayan balsam (*Impatiens glandulifera*) was observed along the bank and this should be heeded as a warning that balsam control may be required where livestock are excluded.

Photograph 9. Valuable LWD creating flow diversity, cover and trapping sediment.

Photograph 10. LWD that has helped to stabilise the bank. Installation of more, or planting of willow around the remaining area of erosion (red arrow) should further increase stability.



Photograph 11. Willow below the power line that has been pruned for safety. Fortunately, the highly beneficial trailing branch (red arrow) has been retained and provides the only real fish holding feature. Planting a willow on the opposite bank, upstream (green arrow), to grow on and replicate the feature would create further fish-holding capacity.

Photograph 12. Another pruned willow with trailing branch providing low cover and shelter from high flows (green arrow). Previous pruning and maintenance has lifted what will be the canopy of several other stems (red arrow). These could be coppiced just above the waterline to encourage regrowth of fish-holding cover.

The water turbidity from fine sediment reduces visibility, but from what was visible, it appears that the high levels of sediment deposition is filling many of the deeper channel areas. For this reason, it is vital to preserve and promote in-channel structures such as the willows (Photos 11 & 12), tree stump (Photo 13) and logjam (Photo 14), that will narrow the channel, focussing flows to scour the bed to maintain areas of deeper water. Photo 15 highlights a willow tree that could be laid into the channel relatively easily to replicate the one naturally occurring in Photo 12.

Photograph 13. Highly valuable in-channel tree stump causing scour that should help maintain depth of the pool. Hopefully, small branches sprouting from the stump will further enhance the habitat by providing additonal low-level aerial cover. Any branches that do grow should be retained, as the branch causing the slight inconvenience for casting may be the feature that makes the difference between the spot holding a fish or not.

Photograph 14. Highly beneficial LWD/logjam. This will provide areas of scour to maintain the pool, abundant fish cover, and also provide much needed shelter from high flows that will assist fish retention within the reach.

Photograph 15. Willow that can be laid into the channel to increase cover and shelter.

A club initiative to open up Beat 3 was made after good fishing was reported there by some members. It is worth considering the reasons for this when devising plans for the wider fishery. As already described, one of the primary reasons for the beat holding fish is the in-channel structure. This superior habitat means not only will a greater number of fish reside there in normal conditions, but that more fish will remain there long-term, weathering floods and low water conditions. For this reason, it is recommended that when improving access on this beat (and elsewhere) minimal pruning should be undertaken to avoid removing the features that make it hold fish in the first instance.

A very lightly managed fishery where cover and structure are retained will be trickier to fish, and must be approached in a different manner, but will invariably hold more fish and provide better fishing. This point is even more pertinent on a water with significant impacts, where fish stocks are already under pressure. Photo 16 shows a section where maintenance has been undertaken to improve access, although now, unfortunately, there is a scarcity of in-channel and low-level cover. The ideal treatment here would actually be to lay the willow into the channel. This would restrict access from some angles, but would also provide a high quality fish-holding feature to fish up to, and would greatly increase the number of fish resident within the area.

Photograph 16. More low cover should increase the number of resident fish. To achieve this, the willow tree could be laid tight to the bank, as shown by the red tree outline.

3.3 Beat 4 – Mobberley Brook

Mobberley Brook and its tributary are less impacted by sediment than Birkin Brook, although they do still suffer an elevated input. In contrast to the Birkin Brook, they do present some opportunity for salmonid spawning, as evident in Photos 17 & 18. The flow conditions and gravel size are within suitable parameters for spawning, although survival rates will be reduced by silt smothering and reduced water flow through the gravel to oxygenate the eggs. Fish select spawning sites to ensure the greatest chance of survival of the offspring and overly silty areas are avoided. The fact that no redds were observed during the visit may indicate that the sediment levels within the gravels here are presently too high.

Just because the gravel areas are currently compromised for spawning does not mean that they must remain that way. Obviously, reducing sediment input to the brook and its tributaries should be the primary long-term goal. In the shorter-term, increasing the occurrence of in-channel structures like logjams and LWD (as discussed for the other Beats) would greatly assist by increasing bed scour and sorting the substrate to reduce sediment loading within the gravels in localised areas.

Photograph 17. Small tributary of Mobberley Brook with potential as a spawning and nursery tributary. Sediment input from upstream remains a significant impact.

Photograph 17. Mainstream Mobberley Brook suitable flows and gravel size for trout spawning. Signs of redds might be expected here, but none were observed.

Photo 18. High loading of fine sediment within the gravel.

As on other sections, it would be beneficial to increase low-level cover in some areas. Photo 19 shows a section of RB where coppicing and planting could be used to promote valuable low-level cover. Photos 20 & 21 demonstrate great examples of the type of valuable woody debris that is easily overlooked, and all too often 'tidied up', to the detriment of fish habitat. In the case of Photo 20, such habitat within a relatively shallow run is often the only feature enhancing the area for juvenile fish. Increasing these features is likely to improve juvenile survival rates and carrying capacity.

The logjam in Photo 20 is a great example of the type of feature that should be retained and can be recreated to force scouring flows into the bed, hopefully reducing sediment loading within the gravels to a state suitable for trout spawning. If such structures are to be recreated, it should be undertaken in areas with stable banks (ideally tree lined) so as not to increase the potential for bank erosion.

Photograph 19. Sparing alder coppicing to increase low regrowth and planting of willow would benefit this section.

Photo 20. A basic, easily overlooked feature (red arrow) that is actually key habitat for healthy juvenile trout populations.

Photograph 21. Valuable woody debris logjam that provides beneficial bed scour and shelters fish from high flows.

An island within the channel provides a good example of the two predominant willow types present on the Brook and provides guidance as to which should be used for habitat improvements (Photo 22). The two stems on the right are crack willow (*Salix fragilis*), a large fast-growing species that is tends to collapse and break under its own weight. This is useful for planned channel obstructions, as the trees will produce that effect if planted then left alone. In other scenarios, however, they often require a greater degree of future maintenance than other species. The willow clump to the left of shot is goat willow (*Salix caprea*), also known as pussy willow or sallow. This is a much smaller species, generally growing to around 4-6 metres, and therefore requiring less maintenance. They also tend to support a denser canopy and so provide a greater degree of low-level cover. Both species can be easily laid into the channel and will take from whip cuttings driven into the ground.

Photograph 22. Crack willow (right of shot) and goat willow (left of shot). Any of the limbs could be beneficially laid into the channel to increase low cover and in-channel structure.

As on other beats, in unfenced areas, grazing is a significant issue, with cattle fording the watercourse and causing significant damage and sedimentation through poaching. Again, options for stock exclusion from the watercourse should be investigated with the landowner and farmer. In this area, coppicing and installation of LWD/'tree kickers' (see Recommendations) to increase cover and bed scour would also be beneficial (Photos 23 & 24).

Photograph 23. Significant sedimentation issues at a cattle fording point. Coppicing here would encourage beneficial low cover but may be eaten by the cattle in the absence of fencing.

Photograph 24. An open pool, lacking in cover that would benefit from coppicing and utilisation of the trunk material as a 'tree kicker'.

4.0 Recommendations

4.1 Stocking

It is advised that BBFFA persevere with the planned no-stocking policy in favour of promoting high quality habitats capable of supporting wild fish. It may take a few seasons following any habitat improvements for a significant effect upon fish stocks, but as demonstrated by the good catches made in the less managed river sections, if you get the habitat right, the fish will use it.

The native trout populations of Great Britain possess great genetic diversity, making them amazingly resilient to changing environmental conditions and able to adapt to a wide range of habitats. This has enabled them to thrive in our rivers since the last ice age (without human interference) and they should continue to do so in the future if we can limit our impact upon them and their habitats. However, in the latter part of this period (last 50-100 years) human impact upon those fish stocks has increased exponentially, with major issues arising from the way in which we manage riparian land (e.g. significant intensification of agriculture) and how we manage rivers (e.g. dredging to increase flood conveyance, and denuding vital habitat to reduce perceived flood risk or to ease angler access to rivers). The latter has significant detrimental impacts on the fish stocks that rivers can support.

To compound these issues, interference with wild fish stocks has also increased, with large numbers of hatchery fish introduced to rivers. Stocked fish (both diploid and triploid), are affected by domestication and unnatural selection, even within one generation in the hatchery (e.g. including fish from wild broodstock schemes). Having grown and survived in an unnatural captive environment (concrete raceway, earth pond or tank) they are very poorly adapted for the very different conditions of a wild river. This adaptation to a farm environment is cumulative, with the wild traits (genetic diversity and behaviours), and survival rates when introduced to the wild, decreasing with each generation in captivity. The forced mating that occurs in a hatchery also bypasses vital chemical and visual aspects of wild mate selection that exist to ensure compatibility of mate pairing and maximise the fitness of wild stocks.

It's a *'catch 22'* situation, if stocked fish don't survive long enough to reproduce in the wild, or are infertile (triploids), they are just an additional impact upon the ecosystem (the river only has a limited amount of food and space); if, they do survive long enough to breed

with wild fish, they have the potential to suppress wild fish production through 'hybridisation', as their offspring (including crosses with wild fish) have much poorer survival than the native, wild fish.

Well managed, natural river habitats (without stocking) have a much greater capacity to produce and support healthy fish populations, at all life stages. From emerging out of the gravel, wild trout disperse throughout the available habitat to find territories appropriate to their individual size and dominance. They then constantly compete to maintain a "pecking order" which ensures dominant fish priority over the best lies, where drifting food is the easiest to intercept (least effort). They will then remain (often for years in the case of a large, dominant fish) until displaced by another more dominant individual or they die.

This process ensures that the available habitat is always used to best effect. In addition, as salmonid survival is density dependant, the greater the habitat variation and abundance available (cover and in-channel structure), the greater the number of trout that will survive each year and the more fish a reach can hold. For this reason, maximising the occurrence of those features and avoiding unnecessary tidying/pruning ensures that the river holds the maximum number of fish possible under the given conditions (something not possible through stocking).

In contrast, stocked fish are often transient and select less energy-efficient lies, where they use up far more energy to get food; they, therefore, lose condition and tend to leave or die within a few months (sometimes weeks) of being stocked. In the meantime however, they cause increased competition and potentially displace the wild fish.

Even without stocking, the river will be naturally re-stocked. Wild trout spawning and recruitment means that there will be new fish produced within, and entering, a river section each year for anglers to catch. The naïve fish may usually be the smaller ones, but the overall greater population will provide sport for all sizes of fish. **(N.B. Introducing stocked fish can easily disrupt this balance as habitat required for five 0.5kg stocked fish may have originally supported many more wild fish, in a range of sizes from parr upwards)**

For these reasons, although initially counterintuitive, stocking can often lead to less fish within a river and suppress a wild population (particularly if undertaken year upon year), whereas wild fisheries have the potential to support much greater overall fish populations.

Consequently, many angling clubs actually report increased catches after ceasing stocking (see case studies on the WTT website link below).

To further safeguard natural fish stocks, catch and release fishing is also advisable. This need not be mandatory but will greatly assist in preserving valuable wild spawning stock and improving natural trout production. Also consider the fact that the larger fish caught possess the characteristics necessary to survive well in the wild and, if these fish are returned, they have a good chance of attaining even larger size and further enhancing angling opportunities.

A more detailed, referenced explanation of this rationale can be found on the Wild Trout Trust website in the Trout Stocking section (www.wildtrout.org/content/trout-stocking).

4.2 Fencing

Effective fencing to exclude livestock from the riverbank is one of the most vital measures that could be implemented on BBFFA waters if significant improvements are to be realised, particularly on Beats 1 & 2. If sheep are not grazed in the Brook-side fields, this can be done much more cheaply and more easily than previously attempted, by simply using posts and three or four strands of barbed wire. Ideally, the fencing should completely exclude livestock from the river bank and so would require either solar pumps (Photo 25) to supply water troughs, or pasture pumps (Photo 26) at several locations for stock watering.

Negotiations regarding fencing will have to be undertaken with the landowner and tenant farmer. It would be hoped that if they are helped to understand the major impact that grazing is having upon the watercourse they would support BBFFA in finding a solution for stock exclusion.

Photograph 25. Cattle excluded from a riverbank and watered via a pasture pump. The cattle draw water from the river through a pump which they activate themselves by pushing it with their nose.

Photograph 26. Solar panel powered pumps employed to fill standard water troughs. Photograph courtesy of Ribble River Trust.

4.3 Tree Work

4.3.1 Planting

Planting is recommended wherever there is a lack of low cover and structure along the margins of the Brooks. It will be of particular use if trees are planted around the waterline and trained into the channel. Most native deciduous species would be beneficial but willow is by far the easiest to plant and manipulate. A great benefit of using crack willow is that, as it grows, it will crack and collapse under its own weight, naturally creating in-channel LWD. This treatment may not be appropriate in all locations, so thought should be given as to where crack willow could be employed without causing long-term implications or requiring maintenance. Alternatively, goat willow could be used where a smaller, slower-growing species is required.

The quickest and easiest way of planting is with willow, by pushing short sections of willow whip into the ground. 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-March). Whips should be planted into soft, wet earth/sediment so that there is a greater length within the ground than out of it, to minimise the distance that water has to be transported up the stem; 30-40cm of whip protruding from the ground is sufficient.

4.3.2 Laying

Where trees are already established along the bank, habitat improvements can be achieved by laying the trunks, or selected branches down into the watercourse to increase low cover and structure within the channel. The method is usually limited to species that can be easily manipulated without snapping (e.g. willow, elm, hazel, hawthorn and small alder), but some others can be laid carefully. Small to medium shrubs tend to work best, although quite large willow can be successfully laid.

The process involves cutting part way through the stem/trunk, a bit at a time (like laying a hawthorn hedge), until it can be forced over into the channel (Figures 27 & 28). The depth of the cut should be limited to only that which is required to bend the limb over, to retain maximum strength and health of the tree/shrub.

Photograph 27. Hinged willow.

Photograph 28. Hinged hazel.

4.3.3 Coppicing

Where trees are present but the canopy is well above the water level (over 1m), coppicing can be undertaken to encourage low-level re-growth and rejuvenate the tree. This can also be used to promote a more dappled light regime and can encourage better in-channel weed growth. The treatment should be undertaken sparingly, as tree canopies also provide habitat for many other species, create valuable shade over a watercourse and supply terrestrial invertebrates and leaf litter to supplement food webs in the river. When undertaking coppicing, existing low cover should also be retained and care should be taken to ensure that work does not disturb nesting birds, as this would constitute an offence under the Wildlife and Countryside Act 1981.

4.3.4 Tree kickers

The introduction of additional LWD and structures like tree kickers (live and dead) into the channel can also be used to encourage new areas of scour and deposition. Such structures can also help to concentrate flows in certain areas of the channel (usually towards the centre), and scour deeper pool habitat, while also creating slacker areas within the margins where deposition will increase (Photo. 29). The method simply involves cabling the trunk of a coppiced tree as tightly to its own stump as possible (Photos 30 & 31). (This technique requires a Flood Defence Consent).

Photograph 29. Note the narrowing effect through significant sediment accumulation (foreground centre and right of shot) in the sheltered area downstream of the tree kicker.

Photograph 30. Stump cabling for a tree kicker.

Photograph 31. Trunk cabling for a tree kicker.

4.4 Bank protection

In some areas, BBFFA have initiated bank protection measures using willow spilling. These have worked quite effectively, remaining in place and trapping sediment that will ultimately become vegetated and consolidate, demonstrating the potential for this type of work. A quicker method that is likely to achieve similar results is to use brash, rather than spiling (Photo 32 & 33). This simply requires pinning one or more pieces of brash (or brash faggots) into place, in a similar way to spiling, but much quicker and has less chance of washing out in long sections if an area does become destabilised.

Care should be taken as to what type of brash material is employed when using this method, or spiling, as freshly cut willow is likely to regrow rapidly. Often this is ideal for enhancing habitat and further consolidation a bank, but care should be taken not to use it in areas where maintenance may become onerous. It is far better to use live willow on non-angling banks, where it can become an angling feature and use dead material from other species on banks where angler access is required.

Photograph 32. Creating a line of posts along which brash bank protection can be installed.

Photograph 33. Willow brash installed along bank toe.

4.5 Himalayan balsam

Wherever present, balsam should be treated (pulling, strimming or herbicide) if possible, which should help reduce its spread and the erosion issue it causes through shading out other species. Local scale control (initial high effort – then a little ongoing weeding) can be extremely valuable to overall biodiversity, even when balsam is present in other areas of the catchment, although it should always be tackled from the farthest upstream point possible. The link below demonstrates how an urban volunteer group manage to maintain their small patch free of balsam despite massive stands upstream - http://urbantrout.blogspot.co.uk/2014/07/volunteer-action-on-urban-river.html.

It should also be anticipated that balsam control may be required within any buffer fenced sections.

4.6 Mink control

It was mentioned on the visit that there had been several mink caught in the area by the local gamekeeper. Where mink are a problem it can be very beneficial to install and operate mink rafts, as described in detail on the Game and Wildlife Conservation Trust website - www.gwct.org.uk/media/337674/GWCT-Mink-Raft-guidelines-2013.pdf.

The rafts work by creating an interesting floating feature that any mink in the area will investigate. Within the raft is a clay pad in which the mink will leave footprints if they access the raft. This is a great way of monitoring mink and identifying if they are in an area without having the sometimes onerous task of checking traps every day (a legal requirement). If mink are identified by footprints in the clay the trap can be installed and run for a few days, in which the mink will hopefully be caught.

More information on the measures discussed and many other enhancement and restoration techniques can be found in our various publications on the Wild Trout Trust website, under the library tab (http://www.wildtrout.org/content/library).

5.0 Making it Happen

WTT may be able to offer further assistance such as:

- WTT Project Proposal
  - Further to this report, WTT can devise a more detailed project proposal report. This would usually detail the next steps to take and highlighting specific areas for work, with the report forming part of a land drainage consent application.
- WTT Practical Visit
  - Where clubs are in need of assistance to carry out the kind of improvements highlighted in an advisory visit report, there is the possibility of WTT staff conducting a practical visit. This would consist of 1-3 days work with a WTT Conservation Officer teaming up with interested club members to demonstrate the habitat enhancement methods described above. The recipient would be asked to contribute only to reasonable travel and subsistence costs of the WTT Officer.

- 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

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 habitat management and 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 wish to thank the Environment Agency for the support and funding that made this visit possible.

7.0 Disclaimer

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