Advisory Visit for Lancashire Fly Fishing Association

Rivers Ribble and Hodder

April 16th 2013

1.0 Introduction

This report presents the results of a site visit undertaken by Gareth Pedley of the Wild Trout Trust to the River Ribble and Hodder on 16th April 2012. Comments in this report are based on observations on the day of the site visit and discussions with John Shorrock, Jim Dewhurst, Bob Garnett and Eric Beaghan.

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

Originating on the western edge of the Yorkshire dales, within the Yorkshire Dales Natural Area; the River Ribble rises from an area of predominantly limestone geology, with some subordinate sandstones. Proceeding downstream, into the Forest of Bowland Natural Area, the geology of the catchment changes, becoming more heavily dominated by sandstone and mudstones; however, bands of limestone bedrock are a continued influence (www.naturalareas.naturalengland.org.uk/Science/natural/NA_search.asp). This sequence is reflected in the catchment of most of the Ribble's tributaries, including the Hodder, where limestone is a significant geological component within the catchment. The relatively permeable nature of this geology, with high calcium content is likely to buffer water pH within the rivers to neutral or alkaline in most section, improving their productivity, to the benefit of both fish and invertebrates.

Unlike many more southerly limestone rivers, which are fed predominantly from groundwater and maintain higher, stable base flows; the Yorkshire Dales limestone rivers tend to receive a higher proportion of surface water. This difference in water supply, coupled with relatively steep valley gradients, leads to flashier rivers which rise and subside quickly following rain.

Land use in the areas of the Ribble catchment visited consists predominantly of sheep grazing on medium to low productivity grassland, making even medium density livestock grazing relatively high intensity. Land around the

river Ribble in Gisburn lies within an area eligible for entry level and higher level stewardship, and may be reflected in the more sympathetic land use. The section of the River Hodder visited, however, lies within an area only eligible for entry level stewardship and this is unlikely to provide land management options that will benefit the river (http://www.magic.gov.uk/website/magic/).

The section of River Ribble visited covers two different Water Framework Directive (WFD) waterbodies, each of which achieves a different status for its fish populations, as assessed by electrofishing surveys. The upper waterbody (River Ribble US Stock Beck - GB112071065611) is classified as moderate for fish, suggesting that juvenile trout were present within the waterbody, but at a lower abundance than would be expected. The lower waterbody (River Ribble DS Stock Beck - GB112071065612) has been classified as high for fish, suggesting that there were very good numbers of juvenile salmonids present. The section of the Hodder visited all lies within one WFD waterbody (River Hodder - GB112071065560), which has been classified as good, meaning that good populations of juvenile salmonids were present (as many as would be expected) when assessed.

Prior to this visit, previous Wild Trout Trust advisory visits were conducted on the River Ribble and can be found on the Wild Trout Trust website (http://www.wildtrout.org/avs). These reports can be accessed for free, but registration of username and password will be required. With access to the site, information on trout habitat requirements (WTT Trout Survival Guide) and information on practical habitat enhancements (Habitat Manuals) can also be accessed.

3.0 Fishery Information

Lancashire Fly Fishing Association (LFFA) consists of approximately 100 members and controls fishing on several sections of river including Ribble, Hodder, Lune and Irt, along with Dean Clough and Stocks Reservoirs. This report will focus upon two sections of river that were walked on the day, which are as follows:

- **River Ribble at Gisburn**, from SD8254949895 (approximately 600m upstream of Mill Lane Bridge), to SD8147549379 (approximately 800m downstream of the bridge), which covered approximately two thirds of

the total fishery length. This area has historically been stocked with 160 23-28cm (9-11”) brown trout, twice per year (April and May); however, this year it will only be stocked once in April.

- **River Hodder at Newton-In-Bowland**; from SD7025750449 (approximately 600m upstream of Newton Bridge), to SD6917049863 (approximately 1800m downstream of the bridge), which again covers approximately two thirds of the fishery length. This section has historically been stocked with 120 brown trout twice per year (June and July). All fish stocked this year will be introduced below Newton Bridge.

Both sections are mixed game fisheries supporting stocks of trout, grayling, salmon, sea trout and the occasional chub, with diploid brown trout stocked annually.

4.0 Habitat Assessment

4.1 River Ribble at Gisburn

The Ribble around Gisburn is a medium sized (c.15-20m wide) river, flowing within a steep gradient valley and narrow floodplain. This generates high flow velocities and results in a relatively straight watercourse, generally lacking in sharp meander bends (Figure 1). This results in an elongated pool and riffle sequence, typical of many upland rivers, characterised by long straight pools, of a much shallower depth in relation to river size than more sharply meandering, low gradient watercourses. This is due to flows being more evenly distributed across the channel width, rather than focused in specific areas where localised scouring would create deeper pools (e.g. deeper outside of bends).

This creates a river that transports bed material actively, particularly in high flow events, displacing much of the finer silt and small gravels to leave a wide, coarse river bed dominated by cobble and boulders, but susceptible to sedimentation and algal growth during lower summer flow periods. Slower flow areas on the inside of bends and tails of pools where valuable sediment deposition (particularly gravel) and fish shelter from high flows would occur are also limited. As a consequence, much of the main channel spawning in this reach is likely to be limited to larger migratory salmonids (salmon and

sea trout), with smaller tributaries and the occasional sheltered areas within the main channel (around obstructions) being vital for resident brown trout production.

Current Ribble Rivers Trust work on several tributaries of LFFA waters was discussed on the walkover and it is strongly advised that these initiatives are supported by the club, as it will ultimately benefit the fisheries by optimising juvenile production and naturally restocking the river. Any financial, or contributions in kind (e.g. volunteer work) that the club can make towards this work on the tributaries is likely to increase the availability of funding to RRT from other organisations (such as the EA).

Figure 1. Gradually meandering river course, typical of many higher gradient upland rivers.

The dynamic nature of the river tends to displace in-channel features such as large woody debris (LWD) and gravel bars; this increases the importance of the bed material (bedrock, cobbles and boulders) and associated depth and flow variation in providing trout habitat and cover. This also means that where present LWD, riverside trees and vegetation (particularly low level

and trailing into the watercourse, as Figure 2) are vital for enhancing trout habitat and it is imperative that they be retained to optimise the carrying capacity of the river (number of fish the river can support).

Pruning of riverside trees and removal of trailing and fallen trees/branches is often undertaken on fisheries with the best of intentions, particularly where easy casting access is wanted for salmon and sea trout fishing (Figure 3). However, removal of these features is ultimately detrimental to angling. It reduces the number of fish that the river can support, making trout more heavily reliant upon other in-channel features, and potentially even putting them into more direct competition with salmon (particularly juveniles) for the remaining habitat. As such, it is strongly recommended that pruning of low level and trailing tree branches on club waters ceases.

Figure 2. Valuable low-level and trailing cover. Over deeper water this greatly enhanced the ability of areas to hold adult fish and over shallow areas it can provide protection from flows and predation for juveniles. The value of this type of cover can be improved further by laying some branches into the water.

It would be highly beneficial to encourage more low-level growth of this type by selective coppicing of suitable bank side trees (willows *Salix spp*, alder *Alnus glutinosa*, hazel *Corylus avellana*, elm *Ulmus minor* and sycamore *Acer pseudoplantus*), along with laying (as you would lay hawthorn for a hedge) willow, hazel and elm down into the channel, to encourage low level growth (particularly where the canopy has been lifted through pruning).

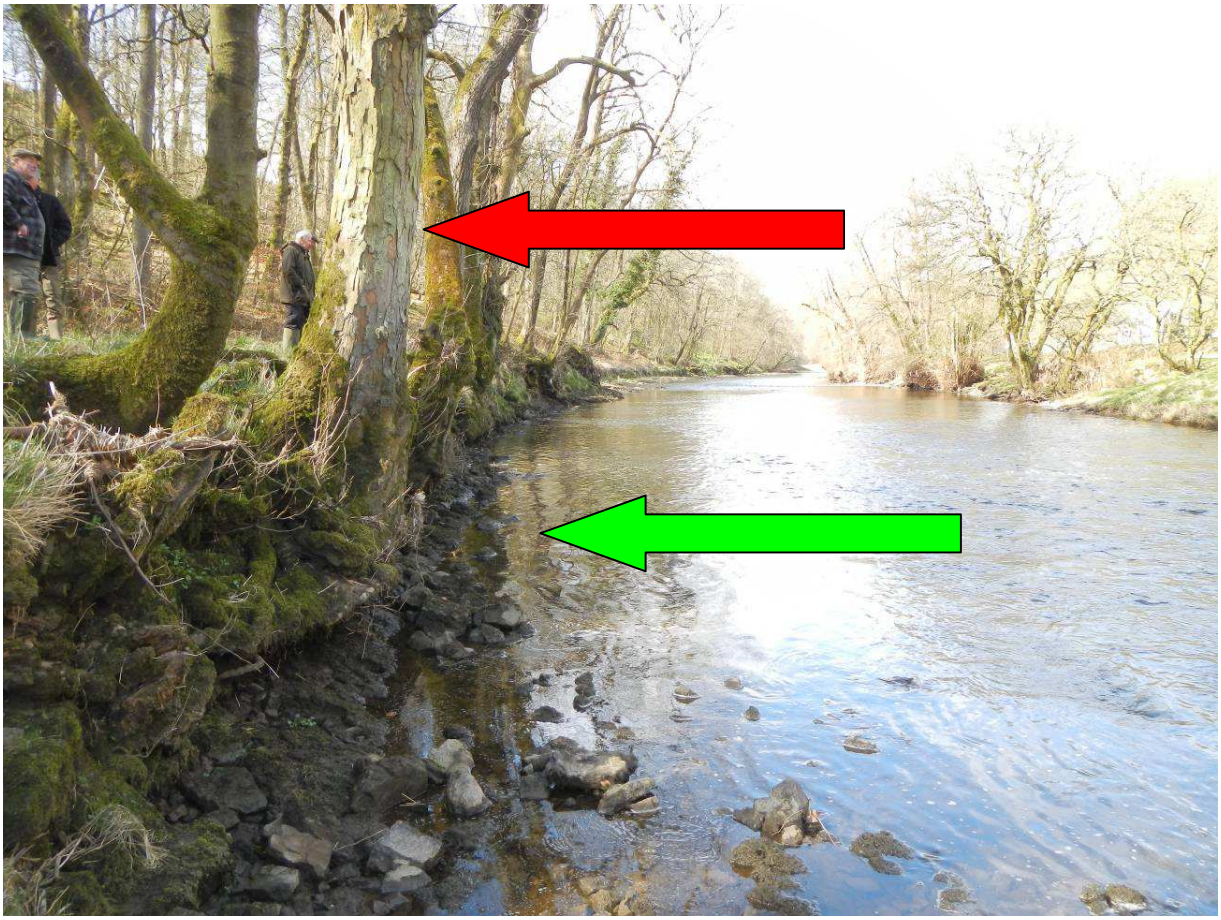

Figure 3. Lower level branches have been removed (red arrow), leaving a complete lack of low level or trailing cover in the vital area (green arrow). This was the case in many areas. To an extent, this also occurs naturally, as lower branches are broken during floods or sloughed in favour of higher branches, which makes it even more vital to retain and enhance low cover habitat.

Land use adjacent to this section of the Ribble was of a lesser concern than on some LFFA waters, with the only real issue being in the field at the upper limit of the beat, where riverside fencing consisted of two strand barbed wire. While this will exclude larger livestock it is ineffective against sheep, which are likely to suppress the growth of herbaceous river bank vegetation and browse off any naturally regenerated shrubs before they can become established. This can seriously limit the availability of river bank cover and

habitat available for fish and invertebrates (both aquatic and terrestrial). It is therefore recommended that the potential for installation of sheep-proof fencing in the upper field is investigated. In other areas, un-grazed land and generous buffer strips along the river provide good protection of the river bank and its vegetation.

Wherever stock are excluded from the river bank, planting of trees/shrubs to increase the availability of cover would be highly beneficial. Planting of saplings at low level along the bank, or planting of willow whips at the average water line presents a great way of rapidly increasing cover while protecting the river bank (Figure 4; also see recommendations for further locations). Equally, bundles of living willow brash can be staked along the water line, ideally partially submerged. These methods would be beneficial in any areas lacking cover and particularly where willow is used, can provide trees to lay over into the channel once they become established.

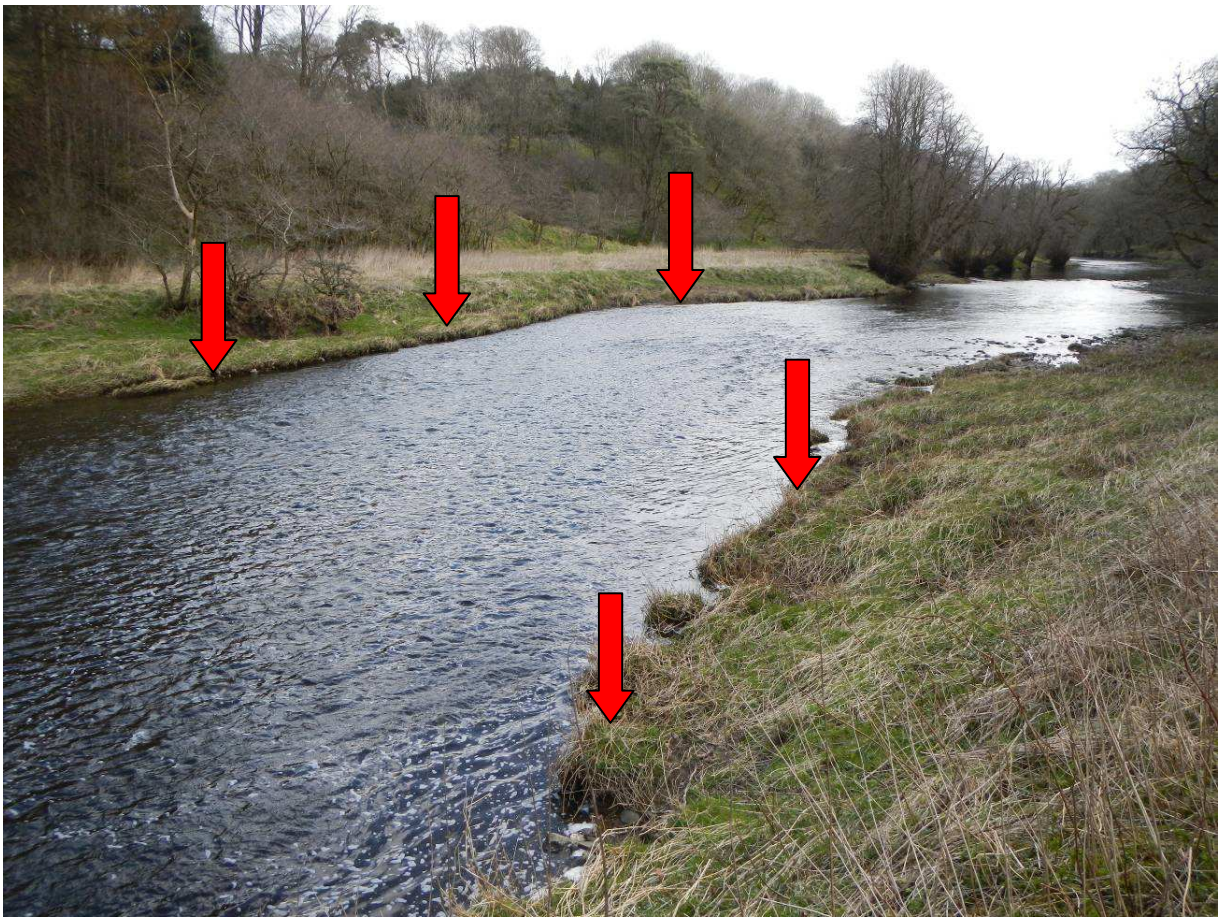

Figure 4. Open river banks where planting of trees, or more easily, willow whips and bundles could offer greatly enhanced habitat quality and fish holding potential. Potential planting locations indicated in red. These would ideally be small clumps of two or tree whips planted at uneven intervals.

Two potential water quality issues were observed within this section; the first was Stock Beck, which has been identified by the EA as having issues with phosphate and having poorer invertebrate and fish communities than would be expected. The second issue was the discharge from the sewage works (Figure 5), which by its grey colouration and presence of sewage fungus, appeared to still contain a high nutrient level. Any issue created by this discharge is likely to be exacerbated by the fact it is discharging into slack water along the LB margin, where there is little mixing and dilution from main river flow. The effect of this discharge is visible for some distance downstream and has the potential for a significant negative impact upon water quality (esp. oxygen content), particularly in warm dry periods.

Figure 5. Sewage works discharge. Note the grey discharge water and sewage fungus on the cascade.

4.2 River Hodder at Newton-In-Bowland

The section of River Hodder walked is a much smaller watercourse than the Ribble, situated within a lower gradient valley and wider floodplain. While this would usually naturally produce a more sinuous watercourse, it appears that historic straightening and dredging have led to significant alterations. The present day channel is unnaturally straightened, and unlike the Ribble, is over-deepened and widened in many areas. This again leaves a channel that is sub-optimal for trout spawning, but with some limited potential in discrete areas. On the whole the importance of smaller tributaries is again paramount for providing spawning and nursery areas.

Barring the first field upstream of Newton Bridge (LB), habitat was generally of a better quality than that downstream of the bridge, primarily due to stock exclusion in many areas, which has helped to retain tree cover and allowed some semblance of bank side vegetation to become established. The area, upstream of Easington Brook is quite well tree-lined, but appeared to lack fencing to exclude livestock from the river bank. This could ultimately lead to a loss of valuable cover and possibly even trees, so the grazing situation within that field should be closely monitored. If vegetation along the bank begins to suffer through over grazing, it is recommended that buffer fencing of that section is investigated. The availability of low cover provided by the trees in this section should also be assessed, with a view to selective coppicing if it is lacking.

The Ribble Rivers Trust has also undertaken work to improve habitat on the Easington Brook. Again, any support possible from the club should be offered to such initiatives, now and in the future, to optimise the environmental gains that can be achieved. To complement the work on this tributary, planting of willow around the confluence of the Brook and the River Hodder (Figure 6) would increase the cover and protection from predation for fry and juvenile fish as they leave the brook. This will in turn increase their chances of survival, optimising the Brook's contribution to fish stocks, and would therefore be a particularly beneficial action for the club to take.

Figure 6. Confluence of the Easington Brook and River Hodder. Planting of bank side trees here, to trail into the water and provide cover and structure in the channel is likely to increase the survival of juvenile fish emigrating from the brook.

In stark contrast to the Ribble, there was a significant issue with overgrazing by sheep on the Hodder (Figure 7), starting in the field above Newton Bridge and continuing downstream. The grass has been grazed almost to bare earth in many places and although it has been a slow start to the spring, which will have limited the availability of grass this year, the significant scarring to the river banks, lack of herbaceous vegetation and shrubs and excessive erosion, even on the inside of bends and straight sections of river bank indicates a history of overgrazing.

Figure 7. Obvious signs of overgrazing in the field upstream of Newton Bridge, as shown by lack of grass and trees, and erosion, even on the inside of a bend.

The detrimental effects of overgrazing are not limited to the removal of grasses and herbaceous vegetation, but in the long-term, can also lead to the loss of trees. This may seem unlikely, but a multi-fold effect is in action. First, the river bank becomes destabilised by a lack of grass and vegetation to directly protect the bank from river flows. Second, the root mass of heavily grazed vegetation is far less extensive than that of lush healthy growth, as all the growth is put into foliage, rather than roots, so there is far less structure within the soil to protect the bank. Finally, any growth of new shrubs and trees is eaten off before they can become established, so there is no natural succession, and as older trees die, or wash out through the afore mentioned erosion, there is nothing left but bare unprotected bank that is even more exposed to future erosion. This also leads to wide, shallow river channels with poor fish holding potential.

In this way, over grazing can actually even lead to a loss of mature trees over time, and is why exclusion of livestock from the river bank is beneficial

not only to river habitats and fisheries, but also to landowners and farmers, as retention of trees and vegetation protects riverbanks, greatly reducing the rate erosion and loss of land. It is therefore highly recommended that discussions are held with the landowner/farmer to convey these issues, with a strong drive towards obtaining permission that buffer fencing be allowed. If possible, this would also allow planting of additional trees to stabilise the riverbank and provide cover, away from livestock. The Ribble Rivers Trust may also be able to provide support and assistance with the task.

As on the Ribble, in many areas, the low hanging tree branches have been removed, and it is highly recommended that this practice is ceased. Selective coppicing of suitable bank side tree species, along with laying (willow, hazel and elm) would help to promote low level re-growth through new branches.

Figure 7. Upstream of Newton Bridge on the Hodder, where low level branches have been removed, lifting the tree canopy well above the optimum height for trout habitat and optimal fish holding capacity.

Some areas of higher quality habitat were available in the section downstream of Newton Bridge, primarily where willow and alder trees were present, providing cover and shelter amongst their roots and trailing limbs. Beneficial planting by LFFA members has also helped to enhance this habitat, providing additional cover in several places. However, evidence of detrimental pruning of the willow trees was also observed on the RB (Figure 8). Regardless of whether this was undertaken by the farmer or angling club members, discussion with the responsible party and education of the negative impacts of removing cover would be highly be beneficial.

Additional planting would be highly beneficial, and while this can be undertaken along the water line, keeping the saplings as far away from livestock as possible to reduce their impact, the buffer fencing described previously will be vital to long term success of tree planting schemes and habitat enhancements, and ultimately, key to reducing bank erosion.

Figure 8. River bank willow trees that have been recently pruned. The upstream end of these trees provide good cover through roots and branches, but recent pruning has degraded the quality of habitat they provide.

5.0 Recommendations

5.1 Catch and Release

On relatively natural upland rivers, one of the primary methods for enhancement of trout fisheries is the promotion of catch and release. Although many clubs consider their exploitation of fish stocks minimal, and far lower than historic levels, even a few anglers taking a couple of fish per season can mount up, particularly if older, larger fish are removed. With this in mind it is recommended that initiatives to reduce the numbers of fish killed, as much as possible, are undertaken. Key to this will be promoting greater understanding that this will not only improve the quality of angling, but the health of the wild fish population.

5.2 Cease stocking

Although habitat on both sections of river was subject to significant issues, it should be remembered that trout are amazingly resilient species and can adapt to take advantage of a range of habitats. This is reflected in the current WFD statuses of both rivers, which are based upon juvenile salmonid surveys and demonstrate that although some areas produced lower densities than expected, naturally produced, wild fish are present within both river sections. Ceasing stocking in favour of habitat enhancements, will therefore be the surest way of assisting natural production and enhancing fish stocks that will remain resident, rather than emigrating, as the majority of any fish stocked are likely to do.

The suggestion of stocking only once on the Ribble in April (rather than in both April and May), and restricting stocking on the Hodder to the section below Newton Bridge presents a good trial option. A further step would be to reduce these numbers until stocking is no longer undertaken and the money saved can be used for habitat enhancement schemes.

5.3 Tree management

It is strongly recommended that low-level aerial cover and trailing vegetation be actively promoted on all LFFA waters, with pruning of such features ceased completely. In areas where this cover has been lost selective coppicing should be undertaken. In section significantly lacking low cover, one in every 3-5 trees could be coppiced on an annual rotational basis

to maximise the benefits, while retaining a good variety of habitat types for both fish and other wildlife.

Tethering some of the felled trees and branches to their stumps, to create tree kickers (Figures 9 & 10) would also be beneficial. These would provide cover and shelter from flows for fish, while also increasing valuable flow diversity and creating areas within the river margins for sediment storage.

Figure 9. Note the narrowing effect through significant gravel and sediment accumulation (centre and right of shot) in the sheltered area downstream of the tree kicker. This same area provides significant shelter for smaller fish in high flows.

Figure 10. Cabling for a tree kicker.

Before any work is undertaken to a watercourse, or within 8 metres, it is important to first contact your local Environment Agency Development Control team. The EA will be able to inform you whether there is a legal requirement for Flood Defence Consent, and supply you with any necessary forms, which they or the WTT will be able to assist you in completing.

The Flood Defence Consent process allows the Environment Agency to assess and manage the potential flood risk and biodiversity implications of any work.

5.4 Tree Planting

Liberal tree planting is recommended throughout both the Ribble and Hodder, wherever there is a lack of low cover or issues with bank erosion. This method will be particularly beneficial within the upper end of the upper section and throughout the lower section. Over time these trees will begin to consolidate the banks, while also providing some of the beneficial scour and deposition benefits described for tree kickers.

Tree planting can be used to provide important cover around the riffles and discrete pools that already exist, but planting discrete clusters along the straighter sections to redirect flows will also greatly enhance the habitat. As such, it is often beneficial to plant these clusters alternately along each bank, with gaps between them.

The quickest and easiest way to plant willow is by pushing short sections of willow whip into the ground around the water line (where it will get plenty of water). 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). 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; 300-400mm of whip protruding from the ground is sufficient.

Willow can also be planted as living willow bundles, which consist of a several willow branches tied together into a faggot. These can then be staked along the waterline, ideally with the majority of the bundle submerges in most flows. If they take, this method can rapidly increase the availability of low, dense canopy over the water.

It is preferable to source willow locally, from adjacent areas of the bank. This ensures that it is suited to the conditions and helps to avoid potential issues with transportation of non-native species. There are numerous willow species found on river banks, but the smaller shrub varieties are usually the best for habitat enhancement, as they remain small and low to the water and require less maintenance.

5.5 Tree Laying

Where trees are already established along the bank side habitat improvements can often be attained through laying some, or all of the branches/trunks down into the watercourse to increase low cover and structure within the channel. This method is generally limited to species that can be easily manipulated without snapping (e.g. willow, elm, hazel, hawthorn and small alder). For this reason, 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) until it can be forced over into the channel (Figures 11 & 12). Care should be taken to limit the depth of the cut to that which is required to bend the limb over, to retain maximum strength and health.

Figure 11. Hinged willow.

Figure 12. Hinged hazel.

5.6 Buffer fencing

Due to the heavy grazing in many areas, particularly on the River Hodder around Newton Bridge and downstream, it is suggested buffer fencing is vital for significant habitat improvements to be achieved. Major habitat issues are already arising from the lack of vegetation cover on the banks, with the associated loss of protection and root structure within the bank also leading to major erosion issues. Stock exclusion from the river bank would therefore be of benefit to both the habitat within and along the river and also the landowner/tenant, reducing the rate of land loss through erosion.

This is another area where the Ribble Rivers Trust may be able to assist, with both funding and support.

6.0 Making it Happen

Further to the advice in this report, the Wild Trout Trust may be able to offer assistance with the following:

- WTT Project Proposal
    - The 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 practical days for a club. 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. Lancashire Fly Fishers 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

7.0 Acknowledgement

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

8.0 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.