Advisory Visit

River Carron

20/08/2018

Undertaken by Gareth Pedley

Key findings

- Three significant barriers are present in the sections of the river visited. These undoubtedly create a negative impact upon the fish populations of the river and should be removed if at all possible. Only if it is identified that the structures absolutely cannot be removed should other, less beneficial fish passage improvements be considered.
- Resisting the urge to over-manage in-channel woody material would be greatly beneficial to the fish and invertebrate habitat of the river. Leaving overhanging, trailing and fallen trees and branches within the channel will provide much higher quality habitat and facilitate the development of new features.

1.0 Introduction

This report is the output of a site visit to the River Carron, at the request of Larbert and Stenhousemuir Angling Club (LASAC), accompanied by several members of the club. The visit was undertake on the 20th August, 2018 to provide a general habitat assessment and offer recommendations of how the fishery could developed to improve habitat and the wild fish populations. The visit was conducted as a series of spot-checks, walking sections of the river to get a feel for the general character and to look at specific known and suspected issues. The sites were not visited in a sequential downstream order but they will be reported that way for clarity.

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. The Ordnance Survey National Grid Reference system is used for identifying specific locations and references to upstream and downstream are often abbreviated to u/s and d/s, respectively, for convenience.

2.0 Catchment and fishery overview

<table>
<tr><td colspan="3">Table 1. Overview of the waterbody details for the section of River Carron visited</td></tr>
<tr><td></td><td colspan="2">Waterbody details</td></tr>
<tr><td>River</td><td colspan="2">Carron</td></tr>
<tr><td>Waterbody Name(s)</td><td colspan="2">River Carron (4200 Bonny Water confluence to estuary & 4201 Avon to Bonny Water Confluence)</td></tr>
<tr><td>River Basin District</td><td colspan="2">Scotland</td></tr>
<tr><td rowspan="2">Current Ecological Quality 2016</td><td>4200</td><td>Poor: being poor for ‘Pre-HMWB Status’ and ‘Fish Ecology’ and moderate for ‘Phosphorus’, ‘Phytobenthos’, and ‘morphology’.</td></tr>
<tr><td>4201</td><td>Moderate: being moderate for ‘Soluble Reactive Phosphorus’, ‘Hydromorphology’ and ‘Overall Hydrology’. Other aspects achieve pass or higher.</td></tr>
<tr><td>U/S Grid Ref of reach inspected</td><td colspan="2">NS 83206 81777</td></tr>
<tr><td>D/S Grid Ref of reach inspected</td><td colspan="2">NS 85105 81491</td></tr>
<tr><td>Length of river inspected (km)</td><td colspan="2">~2km</td></tr>
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(https://www.sepa.org.uk/data-visualisation/water-classification-hub/)

LASAC is a medium sized club that currently supports a little over 200 members offering season, weekly and daily permits. The club stocks the lower, most frequented sections of the river with farm-reared brown trout. The upper end of the river (not visited on the day) is not stocked and, according to members, supports a good head of wild trout.

3.0 Habitat Assessment

3.1 M876 road bridge and d/s section

At the u/s end of the section visited, immediately u/s of the M876, a medium sized flat-vee flow gauging weir creates notable obstruction to fish passage and impoundment (Fig. 1). While this structure will be passable at certain flows, it undoubtedly inhibits the migration and dispersal of both resident and migratory fish, of all sizes. Larger, more powerful fish will ascend it more easily in higher flows but the step, with fast/shallow water and hydraulic jump (a standing wave where the high velocity water meets the slower water d/s) hinders the approach. Smaller fish may find their way up either side in certain flows, but the structure is far from ideal.

All too often, the impact of obstructions is overlooked, simply because they are, theoretically, passable. What should also be considered is whether fish can easily pass them when they need to (e.g. to meet tight timings within the lifecycle like short spawning or smolt emigration windows or simply just to make full use of habitat within a system). Animals that are subject to highly density-dependent mortality (like salmonids) require easy access all of the available habitat at all stages of their lifecycle if they are to fully utilise that habitat and achieve optimal population sizes. Restricting any size-class of fish from easily dispersing into new habitat as their requirements change or they become overcrowded will therefore result in increased mortality. This is the unnecessary death of fish that would have otherwise survived without the additional competition that occurs within restricted river sections. Conversely, naturally free fish passage throughout a river system allows fish to disperse and find new territories helping to maximise the number of fish a river can support within the available habitat.

The channel d/s of the weir has been lined with block stone and likely realigned in the past (Fig. 2). This limits the habitat potential somewhat, although a healthy abundance of riparian trees and trailing branches/vegetation does provide some reasonable quality habitat in areas. Retaining as much of the bankside vegetation as possible and increasing the occurrence of trailing branches will help to optimise the potential of the modified channel.

Figure 1. The flow gauging weir at NS 83201 81774 creates poorly passable obstacle to fish passage.

Figure 2. The very straight and consequently uniform channel d/s of the gauging weir is greatly enhanced by low and trailing bankside cover.

At the next road bridge d/s (B905) the channel widens significantly, which has led to deposition and the formation of a gravel/cobble bar (now vegetated) u/s of the bridge (Fig. 3). This is a natural consequence of the channel being too wide for the usual flow volume it receives and the increased channel roughness caused by the bridge footings (possibly also impacted by the impounding effect of a weir further d/s at higher flows).

The impacted hydrological regime of the river (reservoir abstraction) may also contribute to the problem, with the artificially reduced occurrence of higher cleansing flows allowing the deposited material to remain *in situ* long enough to consolidate with the vegetation. The flow constriction of the bridge and inability of the stone-lined channel to adjust, coupled with the potential flood risk created, make this an ongoing issue, leading to a potential, localised requirement for periodic dredging u/s of the bridge. Between the periodic dredging, the more natural channel capacity created by the narrowing creates good quality habitat in the channels either side of the bar.

Figure 3. Looking u/s at the over-capacity channel (in low flows) and now vegetated depositional bar, u/s of the B905 road bridge.

The channel immediately d/s of the bridge provides relatively good quality habitat, with areas of shallower riffle and glide, coupled with deeper areas. Some (possibly all) of the channel down to the weir is suspected to be stone lined (according to LSAC members) but overhanging and trailing branches provide vital flow diversity, cover, and shelter – ideal habitat features for holding adult trout (Fig. 4). Where flow diversity is lower, particularly in areas lacking in-channel structure, habitat quality is poorer (Fig. 5).

Figure 4. Valuable, shallow glide habitat, greatly enhanced by the availability of shade and cover from overhanging and particularly low, trailing branches. Note the food lane created by the trailing willow and associated woody material on the far bank. The bubble line (red ellipse) identifies an area in which flow and food are focused, creating a valuable lie for a larger adult trout that would be unlikely to hold there otherwise.

Figure 5. Areas with less in-channel structure (less woody material and/or bed variation) have reduced flow diversity and provide poorer quality habitat. This area could be improved by planting willows on the far bank that will ultimately grow into the channel to increase flow diversity and help improve the bed morphology.

Progressing d/s, there is a good availability of overhanging cover but the canopy is often too far above the water to be providing maximum benefit for fish holding. When branches are much above the water level their ability to provide cover and shelter to fish is reduced when compared to trailing/partially submerged branches. Branches can be broken by high flows but it is often also common practice for pruning of low branches to be undertaken to allow improved casting access; this is usually counterproductive, and actually often maintains branches at a height that is neither optimal for fish holding or casting access (Fig. 6).

Allowing, or even encouraging, branches to trail down onto water on the other hand is greatly beneficial as this actually creates better habitat, with many more fish lies in areas around the branches, rather than one or two tucked underneath them. Yes, some of those fish may be hard to access, but the greater number held in the area actually means that there are still more to fish for, and for varying abilities of angler. Figure 7 provides a perfect example of an area of structure that will undoubtedly hold several trout (also migratory fish when present in the river), with a range of lies accessible to a range of angling abilities. Removing this kind of structure to assist less proficient casters will only result in less fish being held in those areas (within the river as a whole) and less fish for everyone!

Figure 6. Relatively uniform canopy raised well above the water level in most areas, creating a tricky cast to limited fish habitat - note the lack of discrete fish lies. The main area likely to hold good fish is the one piece of trailing branch (red circle). Fish will be found in other areas, possibly patrolling the open water, but fewer than there would be with more in-channel structure and discrete habitat features.

Figure 7. A nice habitat feature of trailing, in-channel structure. This kind of feature holds a range of fish (both sizes and species), each being available to a different angling abilities. These features also provide refuge for fish from predators and high flows and the flow diversity they create also helps to develop discrete areas of scour and deposition which in turn create a more varied bed profile and more fish and invertebrate habitat.

A large, stone weir then creates an impoundment through the next section of channel, where the habitat is consequently degraded for fish and invertebrates (Fig. 8). This weir also negatively impacts upon sediment (bed material) transport through the reach and u/s and d/s. Overhanging and trailing willows provide some cover and shelter but the impoundment is impossible to mitigate fully. For this reason, all non-essential weirs and channel modifications should always be removed, to reinstate more natural conditions and preserve the wildlife of our rivers, including fish populations.

The design of the weir is particularly problematic to fish, owing to the wide span which spreads the available flow thinly, providing little depth and high flow velocities over the steep face. This will inhibit larger fish in low and medium flows but will remain an obstacle even at higher water. Smaller fish will struggle to ascend this in most flow conditions creating the migration, dispersal and recruitment issues discussed previously.

The habitat rapidly improves downstream of the weir and although undoubtedly impacted somewhat by impoundment of sediments u/s of the weir, a more natural pool and riffle sequence is present (Figs 10 & 11). This provides a greater variability in depth, flow and an associated improvement in habitat quality.

Figure 8. The impounded reach above the weir (NS 83877 81586). This ponded area provides greatly reduced habitat quality for flow loving species like trout, salmon and many of the natural invertebrates upon which they feed.

Figure 9. The steep weir face, shallow water and high flow velocities make this weir an obstacle in all flows. Fish will ascend it at certain times of the year, in certain flows, but for how much of the year are fish prevented from moving where they need to?

Figure 10. Habitat d/s of the weir improves, with the river developing a pool and riffle sequence. Note the valuable low/trailing cover along the far bank.

Figure 11. Note how, in the absence of any impounding structures, the bend and associated gravel bar create a valuable riffle and pinch in the channel. This greatly improves flow diversity, accelerating flows into the pool d/s, improving the habitat of the area. Also note the Himalayan balsam in the foreground (pink flowers).

In the area immediately d/s of the weir a strong sewage smell was noted. The source of the smell was investigated but it is likely that there is a discharge somewhere nearby. Inspection of the bed also revealed elevated algal growth which is usually a sign of raised levels of nutrient within a watercourse. Further investigation of the area would be beneficial to try and identify the source of what is likely to be pollution of the river.

Figure 10. Strong sewage smells were noted in the area d/s of the weir and elevated algal growth was observed on the bed.

3.2 The viaduct section

A large weir at an area of bedrock outcrop creates another large obstruction. Slightly elevated water on the day of the visit made it difficult to ascertain what was man-made and what was natural; however, it did appear that a large portion of the upper structure and large step was created by dressed stone blocks, suggesting the greatest impact to be man-made. The straight lines and sharp edges of man-made structures invariably make them more difficult for fish to ascend than even similar sized natural, erratic structures. As the man-made portion of this structure appears no longer to serve any meaningful purpose, its removal could be an easy and significant improvement to habitat quality and fish movement. The obvious bedrock presence in the area should reduce any risks associated with removal.

The river continues to flow steeply over bedrock immediately d/s of the weir. This creates a naturally rugged channel which provides chaotic flow and a wide range of salmonid and invertebrate habitat.

Figure 11. A natural obstacle that appears to have been made significantly less passable through the installation of a block stone weir (red circle).

Figure 12. The rugged, bedrock channel d/s of the weir creates great habitat diversity for a range of salmonid life stages.

Below the influence of the bedrock, the gentler, shallower gradient channel facilitates the retention of more gravel and cobble substrate, providing very different but equally valuable habitat. It is the range of different habitat types and regular transitions between them that really contribute to overall habitat quality. Too much of any one type of habitat is bad (e.g. the continuous slow, deep, water within the impounded area u/s of a weir).

Bankside willows in the area d/s create a valuable addition along the river margins. These trees should be allowed or even encouraged out into the river channel, allowing them to remain there as and when they fall in. Removing them from the channel only serves to denude the river of vital fish-holding features when, if left alone, they will invariably move and adjust on subsequent high flow events, usually swinging in to the bankside or sometimes breaking off to wash d/s to create habitat in other areas. In the process of doing so, new pools and areas of deeper water are also often created by localised bed scour and deposition that will not occur if the tress/branches are simply removed. As such, branches should only be removed or altered if they pose a real (not perceived) flood risk.

Figure 13. Valuable bankside willows. Trees like this should be left wherever possible when they fall into the river, to provide, and help to develop, new habitat features. The perceived, short-term benefit of removing fallen trees is nonsense if the number of fish an area can hold is less without the structure being there. It's far better to simply work out how to fish the area in a different way, taking full advantage of the new habitat and improved fish-holding features.

3.3 Checkbat Bridge section

The furthest d/s section of river visited is more lowland in appearance, likely as a consequence of it being in the lower end of the catchment where the valley gradient would be expected to reduce. Where present, bankside willows provide good cover and natural areas of deposition create channel and flow diversity, providing some good habitat and lies for salmonids. Despite this, the channel appears relatively straight (low gradient rivers generally meander more than those on a steep gradient). Inspection of aerial photography identifies an area of ponds/wetlands along the RB side of the river and this may represent the location of a past, more sinuous channel, from which the river naturally migrated or was possibly even realigned. Failing sheet-piling bank protection was also observed on the RB, which appears to be an attempt to prevent the river from migrating into that area.

Figure 14. Faster flow alongside a bank protected by willow roots creates a deeper run along the LB, and provides good habitat. Failing bank protection highlights the rivers migration into the RB (red circle).

Naturally, larger, slower pools in this area of the river provide good habitat for older salmonids but fish will be heavily reliant upon in-channel structure to protect them from predators and high flows, owing to the large areas of open water (Fig. 15). Bankside shrubs provide valuable fish-holding features and should be retained and promoted. The riffles between the pools in these areas are likely to provide particularly important juvenile and invertebrate habitat owing to the lack of suitability of the larger pools.

At the furthest d/s area inspected, the remains of some hard structures in the RB are undoubtedly contributing to the issues with bank erosion there. In general, when river banks are in a natural state they are relatively stable, bound together by the roots of bankside vegetation and trees and protected by their foliage. The diffuse nature of foliage further dissipates the erosive energy of high flows and protects the surface of the bank. However, hard structures placed along or installed into a bank, prevent colonisation of that bank with diverse root matrices and provide no dissipation of flow energy. This means that any flow hitting the hard structures is simply deflected onto other areas where the erosive forces are then even greater. The issues in this area are further exacerbated by Himalayan balsam which grows fast, out-competes and shades-out the more beneficial native vegetation, only to die-off in the winter leaving un-vegetated banks that are even more susceptible to erosion. It is not known what the purpose of the hard structures is but as the issue only affects a short section of bank it is not considered to be a major issue for LASAC.

Figure 15. The larger pools of the lower river provide habitat for older fish and some juveniles but are also relatively easy hunting grounds for predators. For this reason, the more in-channel structure that can be retained, or even introduced, the better.

Figure 16. An area of erosion on the RB is being exacerbated by the presence of hard structures and Himalayan balsam.

4.0 Recommendations

4.1 Weirs

4.1.1 Gauging Weir

As this is a flow gauging weir, it is suspected to be owned by the Scottish Environment Protection Agency (SEPA) whose responsibility it should be to provide free fish passage at the structure. Ideally, the goal should be replacement of the structure with less intrusive flow monitoring technology that allows uninhibited fish passage, but this will be at SEPA's discretion and is unlikely to occur in the short-term. This should not prevent significant improvements at the site from being a key aspiration.

4.1.2 Stone weir (d/s of M876)

It appears that this weir no longer serves its original purpose and investigation should be undertaken into the feasibility of its removal to allow naturally free fish passage through the reach. This site is somewhat complicated by the potential of the channel u/s being stone-lined but this should not preclude the investigation or removal of the structures if at all possible.

4.1.3 Large stone weir on bedrock outcrop (u/s of the viaduct)

The majority of the upper obstruction appears to be created by a large block stone weir on top of a natural bedrock outcrop. The weir appears to serve no present day function and removing the block stones should be investigated as a priority action to greatly improve fish passage.

These weirs should all be removed to allow a natural channel morphology to reinstate, allowing sediment transport through the reaches would also allow scour to create and maintain more natural riverbed features u/s and d/s of the weirs.

4.2 Tree management

Less is most definitely more when it comes to tree removal, with no removal at all almost invariably the best course of action for the habitat and fish populations of the river. In the reaches inspected, the River Carron is large enough to naturally deal with any trees that fall into the channel and will adjust their location in high flows, thereby alleviating the requirement for intervention. If it is considered absolutely necessary to manage fallen trees, winching them round into the river margin would be the least counterproductive course of action. It should be considered, however, that many of the highly beneficial habitat improvements through bed scour and pool creation may be lost.

4.2.1 Planting

In areas lacking trees, planting with locally native, deciduous tree species is recommended. Saplings could be purchased but the quickest and easiest way of establishing trees is by pushing short sections of freshly cut willow whip into areas of wet ground, ideally close to the waterline. Whip planting can be undertaken at any time of the year, but will have the greatest success during the dormant season, shortly before spring growth begins (ideally late Jan-March). This kind of planting should be undertaken sparingly to avoid a proliferation of willows alone.

Whips should be planted into the ground so that there is a greater length ($^2/_3$) within the ground, to minimise the distance that water has to be transported up the stem. Planting them on a shallow d/s angle will also ease water transport within the developing shrub and reduce the potential for it catching debris and being ripped out. Leaving 300-400mm of whip protruding from the ground is often sufficient, providing this reaches past the surrounding vegetation (to allow access to light). Whips of 5mm-25mm diameter tend to take best, but even large branches can be used. If undertaken during the growing season, care should be taken not to leave excessive amounts of foliage on the whips as these greatly increase the rate of transpiration and can lead to their dehydration.

The species of willow whip used will depend upon the required result and what is native locally. Small shrub willow / sallow species, particularly grey willow and goat willow (*Salix cinerea and S. caprea*) tend to be best for creating low, dense fish holding cover, with larger individual trees eventually growing out into the channel, which can also be ideal for laying into the river margin. The larger tree species like crack willow (*Salix fragilis*) tend to grow fast and collapse under their own weight, so creating a great method of naturally introducing woody material and structure into a channel over time. The desired outcome and array of species naturally present should dictate what are used.

4.3 Tree Laying

Being fast growing, willow can even be strategically planted in areas lacking low/trailing cover in anticipation of laying them into the channel once they become established. Laying involves cutting part way through the branch, quickly through the first two thirds, then continuing until it collapses down over the river (Fig. 19). The depth of the cut should be limited to only that which is required to bend the limb over, as this will maintain maximum size and strength of the hinge and the health of the tree/shrub.

Figure 17. Willow hinged into the river margin to increase cover and structure

4.4 Invasive species management

Himalayan balsam plants should be pulled up by hand, cut below the first node (with a strimmer) or treated with herbicide by a licensed operative. It is accepted that the Himalayan balsam issue is rife throughout the areas of the Carron catchment visited but it is not an issue that should be ignored as it will ultimately outcompete most other vegetation. It would be worth collaborating with other river users and catchment stakeholders to identify the u/s extent of the infestation and working gradually d/s through the catchment to eradicate it.

5.0 Fish population management

The management of wild fish populations is a complex subject, well-worthy of a dedicated section within this report. As such, the following is a brief overview of the main considerations.

The native salmonid populations of Britain possess great genetic diversity, being the product of several separate colonisations following the last ice age. Most are now much further distinct from each other, having specifically adapted to their local environments over time. The natural genetic variability of these populations makes them amazingly resilient and adaptable to changing environmental conditions, which they should continue to do, providing human impacts upon them and their habitats can be limited.

However, over the last 150 years or so, human impacts upon fish populations have increased exponentially, with major issues arising from the way in which we manage land and rivers. To compound these issues, direct interference with wild fish populations also increased, with large numbers of hatchery-bred fish being introduced to rivers.

The artificial mating that occurs within hatcheries bypasses vital chemical and visual aspects of mate selection; a process that ensures mate compatibility and maximises the fitness of wild fish. Hatchery reared fish (both diploid and triploid), are also affected by domestication and selection for the farm environment, even within one generation in the hatchery (<u>so this includes fish from wild brood-stock schemes</u>). After all, farmed fish are individuals that have survived within a concrete raceway, earth pond or tank etc. and have become conditioned to those habitats. They are therefore poorly adapted for the very different conditions of a natural river. Adaptation to a farm environment is cumulative, with genetic diversity, natural behaviours, and survival rates when released to the wild all decreasing with each generation in captivity.

Stocking fish therefore produces a *'no-win'* situation: if they don't successfully reproduce in the wild, or are infertile (triploids), they are simply a negative impact upon the ecosystem; if they do survive long enough to breed, their offspring have much poorer survival than the offspring of fit wild fish. Stocked fish do, however, temporarily take up space and resources within a river that could have been used much more effectively by wild fish which would contribute to the overall population.

Naïve hatchery fish also make an easy prey target, potentially increasing predator survival rates and the time they spend in areas with stocked fish, thereby increasing the impact they have. Why waste money introducing unfit stocked fish that are destined to do poorly in the wild when a river will produce its own healthy wild fish populations for free, if allowed to do so?

So, what's the other option?

Natural rivers (without stocking) have a far greater capacity to produce and hold healthy fish populations. They were successfully producing an abundance of fish for a long time before we started interfering.

A major key to the success of wild salmonids is their life strategy: over-production of offspring that are then subject to density-dependant mortality. The greater the habitat availability in any year, the greater the number of trout that will survive, thereby mitigating for mortalities and annual fluctuations in the population. This also means that underperforming populations can be easily increased by simply improving habitat quality.

As soon as trout fry emerge from the gravel, they disperse throughout the available habitat, constantly competing to maintain territories. This ensures that the fittest, dominant fish control the best lies with easy feeding for low energy expenditure. They will remain there until they challenge for a new territory or are displaced by a more dominant individual. Wild fish production therefore ensures habitat is fully utilised and a river holds the optimal number of fish, with the available space being naturally repopulated each year. Such efficient habitat utilisation is impossible to achieve through artificial stocking or even alongside stocking, because stocked fish disrupt the wild population structure and hierarchies.

Wild fish will constantly defend their adopted territory and strive to stay within it, while hatchery fish have little affinity or suitability to the arbitrary reach in which they are introduced. A large proportion of fish stocked into rivers therefore leave the stocking location or lose condition and die within a short time (particularly during high flows). Consider where the thousands of fish stocked all over the country in previous years are at the beginning of each season, and why there is even a requirement to restock (which there invariably is). In contrast, un-stocked wild fisheries provide some of their best fishing early season, as the resident wild fish take advantage of early season hatches to regain condition after the winter.

Consequently, most angling clubs actually report increased catches after ceasing stocking, many within the first year, as demonstrated by the ever-increasing number of case studies on the WTT website - www.wildtrout.org/content/trout-stocking. There is sometimes a lag period as the wild fish population begins to recover from the impact of stocking, but increased catches of juvenile trout and grayling are often reported from year one.

An excellent video produced by Wild Fish Conservancy North West documents how the whole state of Montana in North America ceased stocking after realising the major negative impact it was having on their fisheries – www.youtube.com/watch?v=U_rjouN65-Q&app=desktop

To further improve the river's wild trout populations, it is also recommended that catch and release (C&R) is promoted. C&R is an excellent way of ensuring trout achieve their full size potential. This is well-demonstrated on numerous wild fisheries that now support many more large fish than have appeared historically (in the past 100-150 years).

Consider that a take-able fish may be four, probably more, years old (depending upon river productivity and growth rates); a 0.5kg fish (1lb +) usually five or more. It is also a myth to think that just because some rivers are less productive that the fish will not attain large sizes, they often just need to be left in the river long enough to do so.

Once established, those larger wild fish are very valuable, taking the longest to replace. In addition, as they attain larger sizes, survival rate also naturally improves (fewer other animals are capable of eating them), making them more likely to remain in the river long-term if anglers do return them. These fish will then continue to grow, attaining even larger sizes and further contributing to the spawning population and improving angling opportunities each year - it's a win-win. Catch and kill angling on the other hand usually artificially limits the fish sizes within a population and, potentially, the overall population success.

This document is intended as an introduction to the pitfalls of stocking. The fully referenced, official WTT position paper can be found at - www.wildtrout.org/sites/default/files/library/Stocking_position_2012_final.pdf

6.0 Next steps

WTT may be able to offer further assistance such as:

- River walkovers
    - This report covers the main issues identified on the sections of river visited on the day. Further to this, the WTT can also undertake a walkover survey of the range of issues impacting upon the broader catchment. Walkover reports identify the main issues impacting upon the habitat quality and wildlife populations of a river, often identifying areas for future project work.
- WTT Practical Visit
    - Where recipients are in need of assistance to carry out the 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(s) teaming up with interested parties to demonstrate habitat enhancement methods (e.g. tree kickers and willow laying etc.).

In these examples, the recipient would be asked to contribute to the reasonable travel and subsistence costs of the WTT Office. Some subsidisation of those costs may be possible, depending upon the availability of funding and the range WTT projects that are running at the time.

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

www.wildtrout.org/content/wtt-publications

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 populations 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.

7.0 Disclaimer

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