



River Avon (Western Arm) – Willowdene Farm, Charlton Manor



An Advisory Visit by Nick Lawrence on behalf of the Wild Trout Trust
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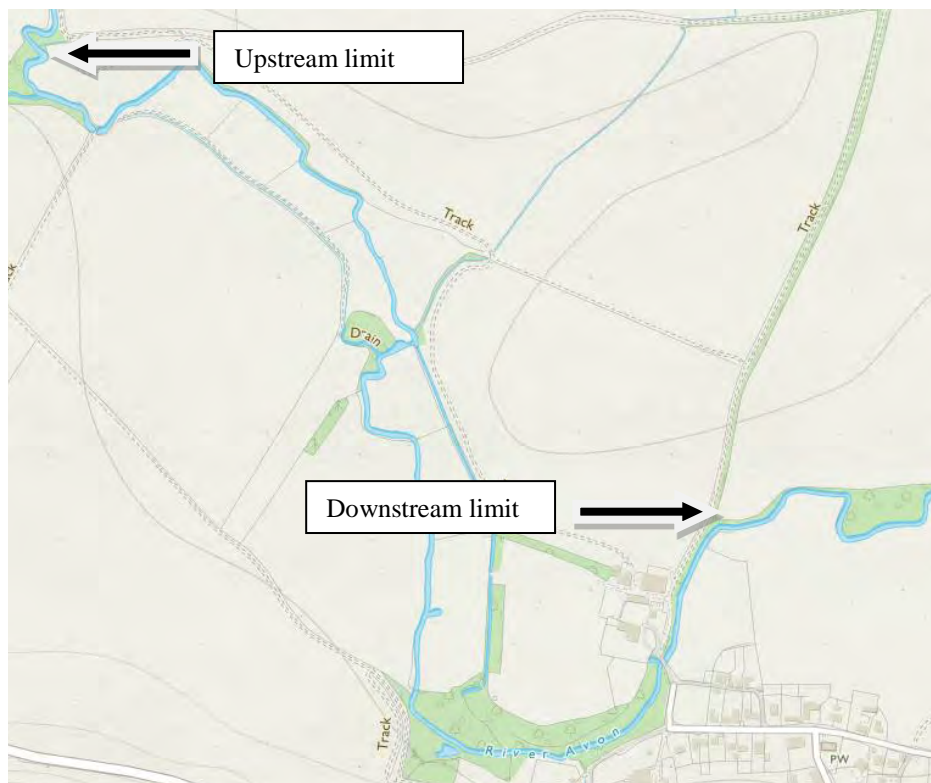
1. Introduction

This report is the output of a site meeting and walk-over survey of the River Avon (Western Arm) from upstream of the village of Charlton St Peter to downstream of the village of Wilsford. The section visited is marked on map 1.

The request for the visit came from the land owner, who is keen to explore opportunities to enhance and improve the fishery, as well as review management practices. The visit and report were to assess habitat for trout and other wildlife and to make recommendations to improve that habitat. The land owner owns Charlton Manor at Charlton St Peter and the river and surrounding land up to near the village of Wilsford. They are interested in improving the river and surrounding land for wildlife and fish.

Comments in this report are based on observations on the day of the site visit and discussions between the land owner and myself, Nick Lawrence.

Throughout the report, normal convention is followed with respect to bank identification, i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.



Map 1 Willowdene Farm reach on the River Avon

The Willowdene Farm fishery visited lies downstream of the village of Wilsford. The downstream end of the fishery below Charlton Manor [SU 11591 56337](#) and the upstream end below the village of Wilsford [SU 10775 56919](#).

The fishery itself consists of one section of main river channel, with a few small channels joining it from groundwater sources. There is a weir near the middle of the fishery. In all, the fishery extends to approximately 1 mile of channel.

The river Avon (Western) water body classification is available on the Environment Agency website:

<https://environment.data.gov.uk/catchment-planning/WaterBody/GB108043022370>

2. Catchment and fishery overview

The Hampshire Avon is recognised as one of the most important river habitats in the UK. It supports a diverse range of fish and invertebrates and over 180 different aquatic plant species, designated as a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) – see Appendix 1.

However, much of the Avon and its tributaries have been heavily modified for land drainage, agriculture, milling and even navigation.

Many of the historic land uses for which the river was modified are no longer relevant and a strategy has been compiled by the Environment Agency (EA) and partner organisations to restore the Hampshire Avon and its tributaries, with a **goal of moving towards “more naturally functioning and less constrained rivers that can adjust and respond to changes with minimal intervention”**. This strategy means that public money has been earmarked for habitat restoration works across the Avon and its tributaries.

The Hampshire Avon begins as two separate rivers in the Vale of Pewsey, the Avon West and Avon East, rising near Devizes and Pewsey respectively. The Avon West is designated as a SSSI whilst for reasons unknown, the Avon East is not.

The two rivers meet at Rushall and the Avon then flows south towards Salisbury through Upavon, Netheravon and Amesbury.

The Willowdene landowners’ grandfather previously managed the river for fly fishing, on the Avon West. The river has since been rather neglected which has produced some nice habitat for holding trout, but some management is needed to improve the fishability. The family have expressed their wish to carry on managing the waters as a wild trout fishery, focusing on maintaining the best possible habitat conditions for fish and wildlife alike.

The Wiltshire Wildlife Trust (WWT) have a restoration project planned for Autumn 2019 and the plans for this look promising, with a view to improving habitat for fish, invertebrates and wildlife. Part of the main project is a reconnection to the floodplain, to be delivered by Cain Bio Engineering. Although improvements are planned there is still more that can be done in-house to improve the river and surrounding land. With the river being neglected for so long, there are many natural habitat features that should be allowed to stay, which need to be stressed to the project managers. Consent for habitat improvements are conservative and with that in mind, natural woody material that has fallen in the channel can be 50-100% of the channel and create fantastic pools and fish habitat. If this was attempted within a project it would be shot down because of the perceived flood risk.

These natural habitat features should be key to the health of the fishery and the habitat enhancement project should work around these, rather than trying to adjust them.

3. Habitat assessment

The habitat quality within the River Avon is mainly determined by flow, channel morphology, geology, river bed gradient and local river maintenance regimes, both historical and latter day.

The majority of channels which form the River Avon are man-made and vary enormously in terms of habitat quality. Many of the habitats which support the SSSI are associated with high water levels, maintaining comparatively damp riparian habitats. However, some of the key features of interest cited under the SAC are dependent on flow velocities within the channel (see Appendix 1). High quality in-channel habitats require the river to run relatively fast in order to achieve favourable condition. Chalkstream reaches, such as the Willowdene Farm reach, have some variety in channel shape and form (pools, riffles and glides) and provide more valuable wild trout habitat than long sections of impounded channel, usually uniformly characterised by a smooth glide and laminar flows.

In the bottom section, as viewed from the road bridge that leads to Charlton Manor (Photo 1), there is a nice bend in the river and then the river runs into a straightened section by a farm track; the watermeadow on the RB is fairly dry and was possibly once the original course of the river. This section is not included within the habitat enhancement project planned by the WWT so there is scope to do some improvements here too.



Photo 1 Looking downstream from near Charlton Manor, note incised bank and lack of marginal plants.

The RB in photo 1 is incised, as a result, space for water-loving marginal plants is limited and terrestrial species such as common nettle dominate the upper bank.

In this straightened section (Photo 2), it is also evident how the RB has poor marginal growth with common nettles seeming dominant. There are a few nice stands of willow on the LB which are ripe for introduction into the channel, to create some channel diversity in a relatively bland section of water.



Photo 2. Near bottom boundary: straightened, poor marginal plants with willows ripe for introducing to the channel to create some diversity.

Upstream of Charlton Manor is where the river starts to become very interesting: there is a long section of wet woodland approximately 250 meters, marked in Map 1 in green. This reach is very valuable in terms of habitat because by comparison to the rest of the Charlton Manor, it is unique (Photo 3). Due to the unmanaged nature of the river, this habitat is a fantastic refuge for wildlife. It was discussed on the visit that Natural England and WWT have both commented on this section; **the WTT's stance is very similar.**

The naturally-fallen trees and wild nature of this section are a good blueprint for the management of a reach of water: benign neglect can be very beneficial to the habitat of a river and its surrounding wildlife.

It is understood that there needs to be some access to this section of water with a view to a nature walk, for guests staying at the campsite or holiday cottages. This can be managed in a light touch way by cutting a walkable path through with minimal disturbance to the river.



Photo 3. Wet woodland oasis, a valuable habitat, a great variety of natural woody material, to diversify the channel and a perfect nursery and refuge for fish and wildlife.

Upstream of the wet woodland is potentially a fantastic location for a wetland **creation, in some ways it's** already there, it just needs expanding. This is a 150-metre section which is already connected to the floodplain on the LB as seen in Photo 4.



Photo 4. Historic water meadow, floodplain connected, possible site for wetland creation/improvement.

This watermeadow appears to be flooded in most riverine conditions which renders the field of no value to farming but of high value to wildlife. This semi-inundated land is populated by a community of wetland marginal plants and provides an excellent wetland habitat, important for invertebrates, amphibians and birds that benefit the overall ecology of the river.

The possible reason for this wetland habitat is the wet woodland which is backing up the flow and creating a natural flood management (NFM) scheme. This is a great reason to leave the wet woodland section alone as it is benefiting this piece of land.



Photo 5. Duck flight pond online to river, within watermeadow, potential for improvements and a useful area for flood storage.

Within the watermeadow on the LB, there is an old duck flight pond (Photo 5) which has been scraped like a fry refuge bay, this area has potential to be a fantastic wetland area for all kinds of wildlife, fish and birds in particular. The pond is small and the areas around it are boggy, if this was made bigger you could have a wetland and river working in harmony together as well as storage for thousands of litres of flood water as well as creating a backwater habitat. The village does have some small flooding issues and this could alleviate that and add to the biodiversity of the river and surrounding land.

It's worth noting that this meadow (Photo 4 & 5) isn't within the planning for the existing restoration plan; perhaps worth considering for future improvements.



Photo 6. Field on perched RB opposite watermeadow, lacking biodiversity.

After the jungle of the wet woodland, the rest of the fishery has an exposed feel, with tree growth fairly sparse and in small clumps. From a management point of view this is easy; there is sparse tree growth, so most of these trees should stay as these provide small oases of habitat in an otherwise barren landscape. Photo 6 illustrates this to the extreme. It was discussed that some strategic tree and scrub be planted or left to develop to break up the open feel. A set back hedge would work here to break up the field and make the river feel less exposed, and add some wanted biodiversity.



Photo 7. This naturally fallen wood, and low tree cover shows the gems that benign neglect can produce.

The small clumps of unmanaged trees have produced some wonderful gifts from nature; photo 7 and the cover photo are prime examples of this type of habitat. Areas like this should be encouraged, as these are where the fish will hold and feel safe. There might be some minor tweaking required with regards to fishing these spots, but the structure should be left alone. As explained in the fishery overview, no woody material consented and installed can compare to these naturally-formed areas. They are bigger and bolder, and consent would not allow structures this big.



Photo 8. Typifies the nature of an artificial, dredged channel.

Unfortunately, due to historic dredging and milling processes, many of our rivers have degraded channels. Photo 8 typifies the majority of the channel on the Willowdene reach. The upper reaches of the river should be pristine, but like many reaches on the Avon (West), there has been some significant historic manipulation of the channel which means there is little variety in flow apart from the areas with woody material. There are very few shallow areas and no riffles of note, probably due to the dredging; this may have a knock-on effect for fish recruitment, though without a survey, it would be hard to tell. The habitat improvements planned include some gravel addition that will produce a riffle and possible spawning habitat.



Photo 9. Lush *Ranunculus* grow evident in the upper section.

There was very little *Ranunculus* growth evident along the whole of the 1-mile reach. But in the upper section, there was some good weed showing, no coincidence it was where the best habitat was evident. The majority of the water as shown in Photo 8 was dredged and slower flowing. But these areas where the weed was evident had good gradient and nice gravels; more areas need to be created like this to get the river functioning better, in combination with woody material to give some better spawning habitat.



Photo 10. Old derelict hatches, previously used to flood the watermeadow being reconnected in the project by the WWT.

The old hatches (photo 10) were historically used to control the water level to flood the watermeadows. They are now long since derelict and have little effect on fish passage or impounding the reach above as they are constantly open. There

is a classic hatch pool reach downstream of the hatches which looks like it would be good holding water for larger trout.

The building blocks are there for this reach to be improved. There will be some dramatic improvements after the WWT project. There still needs to be some careful light touch habitat management to improve the fishability; further advice should be sought on this after the WWT project settles.

The restoration project will be an interesting addition to the fishery but the Willowdene owners should still have some input assuring the best natural habitat be left in the channel.

4. Conclusions and Recommendations

This reach has enormous potential to be a prosperous environment for wildlife, and in many ways, it is already so. With the neglect the river channel has received over the years, this has created some very interesting natural habitat features as demonstrated in the cover photo and photo 7. These features are key to the health of this particular fishery. This rough, messy feel has a knock-on effect and means more fish, bigger fish and more food - which in turn will mean better fishing for the clients that will fish it.

There is some good habitat within the reach, not to mention the sublime oasis that is the wet woodland section that is extremely valuable habitat (Photo 3). This is the most diverse in terms of refuge habitat for juvenile fish and adults alike, as well as having the most diverse tree species and wildlife habitat. This area should be nurtured and carefully managed to retain its ecological value. There were discussions on the advisory visit that a nature walk will be cut through here to enable the guests staying at the farm to engage with the wet woodland; this should be encouraged whilst retaining as much habitat as possible.

The restoration covers a fair amount of the improvements that this reach needs but within the restoration, there is still some scope for on-the-ground changes. Primarily the natural woody habitat that has great ecological value should be not adjusted because the design of the project deems it so; these should be kept as they have a higher value than any habitat features that will be installed.

There does need to be some light touch tree and bank management to enable some fishing access, advice should be sought as the best way to achieve this while providing the balance for fisherman, fish and wildlife.

The project will be adding habitat features as detailed in Appendix 2 which will allow the river to change on its own using natural processes. But there are some **processes that can't be changed, the seeming lack of shallow water riffles and spawning gravels**, due to historic manipulation of the channel. These can only be replaced through addition of gravels, possibilities could be explored for future restoration by additions of gravels once the restoration is complete to help improve the recruitment.

There are also a couple of areas within the reach that aren't included within the restoration but will benefit from additional works/ restoration. This phase 2 of the western arm restoration of the river Avon could carry on into phase 3 if more

funding could be found and these areas deemed credible for more restoration; there could be more NFM/wetland works centring around the flight pond and water meadow (photo 4 & 5). There is scope to extend this potential project down to the boundary of the fishery with either some woody debris or rechannelling/ re meandering of the existing straightened channel.

Another area where habitat can be added without consent is tree planting, although advice should be sought as to the best location to plant these trees/ scrub/hedges. As noted in photo 6, there are some areas that feel very open with little tree or hedge cover, I have seen some fisheries use a hedge as a buffer strip from a field and this can be a great break from the elements for wildlife and fisherman.

On the whole, the habitat and management of the reach is fairly good in terms of woody material in the channel and natural processes that are occurring around these areas. Many issues will be addressed within the restoration project delivered by the WWT. There is a possibility of a knock-on project (Phase 3) after the works are complete, with some gravel riffles added, NFM around the wet water meadow and some remeandering works.

The Willowdene reach is already being managed in a responsible way and the fish and the wildlife should be flourishing because of this.

5. Suggested Action Plan

- Get involved in the hands-on process of the delivery of the WWT project. They employ volunteer help to deliver these projects. If the Willowdene landowners volunteered and installed these structures in a hands-on way, then they are set up with the building blocks for managing the river better in the future and understanding how the ecosystem works. Photos 11, 12 and 13 show some examples of the type of structures that could be installed.
- Give personal input into the project to ensure that the best quality habitat features remain within the reach. These are integral to the health of the fishery.
- Continue to employ light touch management, e.g. leave fallen trees if they are not impounding the river or causing excessive bank erosion. If a fallen tree does fall in a place where it might cause a problem, adjust it into a more favourable position and secure it with posts and sisal rope to retain the ecological (and fishery) benefit.
- Plant trees, scrub and hedges in barren open areas on and set back from the bank, especially in areas like photo 6; this will give the river a less exposed feel and add some wanted biodiversity. Advice should be sought on the positioning of these saplings, to ensure they add to the ecosystem. Hedging/tree planting grants are available from the Woodland Trust (www.woodlandtrust.org.uk/plant-trees).

- Explore the possibilities of **'Phase 3'** with the WWT, extending the project downstream to do more improvements, and the possibility of improving the wetland area (photos 4 & 5) and using it as an NFM area, which would possibly alleviate some localised flooding downstream in the village.
- Within **these 'Phase 3' possibilities look into the spawning habitat**, to assess fish recruitment within the reach. The Wessex Chalkstream & Rivers Trust may help with electrofishing survey work. This could be used as ammunition for some additions of gravels to improve the recruitment on the reach.
- A possible **'Phase 3' could be extended** further into the straightened reach downstream of the road bridge that extends to the bottom boundary (photo 2). This could be some rechannelling/meandering works or just some simple woody material in the existing channel.

Note: All work within 8m of the top of the bank will require a consultation with the EA and may require a formal, written Bespoke Environmental Permit prior to any work being carried out.

Making It Happen

There is the possibility that the WTT could help to start a project via a Practical Visit (PV). PV's typically comprise a 1-3 day visit where approved WTT 'WetWork' experts will complete a demonstration plot on the site to be restored. This will enable project leaders and teams to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety, equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives. Recipients will be expected to cover travel and accommodation (if required) expenses of the PV leader. There is currently a big demand for practical assistance and the WTT has to prioritise exactly where it can deploy its limited resources. The Trust is always available to provide free advice and help to organisations and landowners through guidance and linking them up with others that have had experience in improving river habitat.

The best way to see these techniques in this case would be when the WWT is delivering the project, this may well be a partnership project involving the WTT. If the Willowdene landowners were to get involved and volunteer with WWT and see first-hand how these habitat features are installed, a blueprint can be created of how to manage the fishery in the future.

Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

Disclaimer

This report is produced for guidance only and should not be used as a substitute for full professional advice. 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.

Appendix 1 – River Avon Conservation Designations

The River Avon is a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI).

Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). Of the Annex I habitat types, 78 are believed to occur in the UK. Of the Annex II species, 43 are native to, and normally resident in, the UK. Details of the process of SAC selection and designation are available on the Joint Nature Conservation Committee's web pages at www.jncc.gov.uk

The habitats and species present on the River Avon leading to its designation as a SAC are:

- Annex I habitats that are a primary reason for selection of this site

□ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

The Avon is a classic example of a sub-type 1 chalk river. The river is dominated throughout by aquatic *Ranunculus* spp. The headwaters contain pond water-crowfoot *Ranunculus peltatus*, while two *Ranunculus* species occur further downstream: stream water-crowfoot *R. penicillatus* ssp. *pseudofluitans*, a species especially characteristic of calcium-rich rivers, and river water-crowfoot *R. fluitans*.

- Annex II species that are a primary reason for selection of this site

□ Southern damselfly *Coenagrion mercuriale*

Strong populations of southern damselfly *Coenagrion mercuriale* occur here, estimated to be in the hundreds of individuals. The site in central southern England represents one of the major population centres in the UK. It also represents a population in a managed chalk-river flood plain, an unusual habitat for this species in the UK, rather than on heathland.

□ Bullhead *Cottus gobio*

The Avon is a classic chalk river that supports high densities of bullhead *Cottus gobio* throughout much of its length. The river provides good water quality, extensive beds of submerged plants that act as a refuge for the species, and coarse sediments that are vital for spawning and juvenile development.

- Annex II species present as a qualifying feature, but not a primary reason for site selection

- White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*
- Brook lamprey *Lampetra planeri*
- Atlantic salmon *Salmo salar*
- Otter *Lutra*

Further details on the River Avon SAC can be found at

<http://publications.naturalengland.org.uk/publication/6048472272732160>

Notification as a SSSI gives legal protection to the best sites for wildlife and geology in England. Natural England has responsibility for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000). Each SSSI has a citation which details the 'features of interest' for which it has been notified. Each citation shows details of the SSSI location, size and the date of notification. It also describes the general reasons for notification and the habitats, plants and animals that are found at the site. The citation for the River Avon can be viewed at

<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000183>

The SSSI is sub-divided into units and these have been the subject of a review by Natural England to assess their status in relation to the original designation. The Government's Public Service Agreement target is for 95% of SSSI land to be in '**favourable**' or '**recovering**'.

Appendix 2 – Exemplar Work On Similar Rivers



Photo 11. Brushwood mattress constructed with coppiced willow.



Photo 12. Log deflector.



Photo 13. Log deflector combined with folded willow.