



Habitat Advisory Visit to the River Wissey (Norfolk) By
Simon Johnson on behalf of the Foulden Lattimer Estate.



1.0 - Introduction

This report is the output of a site visit undertaken by Simon Johnson, REEF CPM, to the River Wissey which runs through the Foulden Lattimer Estate, Norfolk.

Comments in this report are based on observations on the day of the site visit and discussions with the land owner, Mr Michael Parker. Some further background on the status of the fishery has been provided by the Environment Agency, Brampton.

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated Left Hand Bank (LHB) or Right Hand Bank (RHB) whilst looking downstream.

2.0 – The fishery

The stretch surveyed during the site visit is approx 1.5 miles long starting at Northwold Footbridge (**grid refs?**) and finishing at the Sewerage Works pump house (**grid refs?**).

The stretch was last surveyed by the EA in 1993 with coarse fish and trout found to be present. Since that time the EA has subsequently visited the stretch removing coarse fish, but leaving large chub present.

During the site visit no observations of trout were confirmed indicating that at the present time low numbers of fish inhabit this stretch. Several sightings were made of chub, roach and minnow.

Stocking of trout at the fishery has been small scale with 50 browns released this year. There are thought to be a few resident wild trout in the stretch, with the odd sea trout present over the years. Fishing pressure is also very light, operating on a discretionary catch and release policy. Around the footbridge area there appears to be a certain degree of 'free fishing' being enjoyed by locals. This may have to be addressed in the future if the fishery starts to exhibit signs of recovery.

3.0 – General Habitat Overview

As with many streams in East Anglia, the Wissey has not escaped the attentions of post war dredging operations for land drainage purposes.

This has led to the majority of the stretch being over-widened/over-deepened. The dredging operations have also removed much of the original gravel bed of the stream leading to sand and silt dominated habitats. Brown trout require extensive areas of clean gravel habitat to fulfil their 'life cycle requirements' and the dominance of sands and silts has obvious negative implications for development of the stretch as a viable brown trout fishery in its present state.

Land use surrounding the river is a mix of arable/ grazing marsh and set-aside.

4.0 – Detailed habitat description and Management Recommendations

The text below will describe both the quality of in-channel and riparian habitat features moving down-stream from Northwold Footbridge. For each section described management recommendations will be suggested.

Section 1 – Upstream of Footbridge

Although not part of the attention of this visit it is important to note the characteristics of the stream here. The channel is shallow and narrow providing good flow conditions and evidence of gravel habitat. This stretch may be more representative of the Wissey before it was dredged in the 1940's, although it's straightness indicates past anthropogenic influences. This stretch provides useful clues as an aid to designing any restoration features down-stream.

Section 2 – Footbridge to Pool A

There appears to be a relict area of shallower gravel riffle habitat here, although the stretch has been deepened. Exiting the bend the stretch through to Pool A is characterised by shallow gravel runs and good aquatic weed growth (water crowfoot). The banks are steep due to spoil from previous dredging operations. There is a natural berm forming on the inside of the bend which is speeding up flow velocity nicely. The willow trees at the exit of Pool A provides excellent cover for adult fish. (cover picture)

Management recommendations.

1. There is scope for installing a low berm underneath the footbridge to speed up flow over existing riffle area. The existing riffle could also be further improved with a combination of high pressure water jetting, to purge the gravel of sands and silts, and the further introduction of further spawning sized gravel.
2. Pool A would also benefit from some limited bush planting to provide overhead cover for trout, and stabilise the banks.
3. Leave naturally forming berm in-tact.

Section 3 – Pool A – Pool B

Straight in its nature this stretch still provides good quality areas of gravel and weed growth. Gradient in the river appears to lessen towards Pool B with sands beginning to feature in the river bed. The Channel is also starting to widen due to dredging however there are still good pockets of depth for trout to reside in. Pool B has a good natural berm forming on the inside of the bend producing a good depth of flowing water. This pool provides excellent holding habitat for trout.

Management Recommendations.

1. There is scope again for some limited bush/ and tree planting to provide overhead cover and shade out some aquatic weed growth for trout to take up residence in.
2. Leave natural berm alone at Pool B.
3. Where sand are starting to deposit there may be scope for the introduction of one or two flow deflectors to speed the current up and create a scour pool. (See appendix A)
4. Steep banks may make angler access difficult, and one or two access locations should be considered to facilitate wading entry and exit points.
5. Bush at exit of Pool B needs pruning back, but should still provide valuable overhead cover.

Section 4 (Pool B – Pool C)

After Pool B the channel starts becoming more uniform and deep, with heavy weed growth. The width of the channel is approximately 7m wide but still benefits from a fairly good flow.

Pool C has no overhead cover and the stock access fence is in a state of disrepair.

Management Recommendations

1. There appears to be scope to introduce the first of a series of riffles (gravel shallows) at the entrance to the Pool C. This would start to address the lack of brown trout spawning and nursery areas currently lacking on the stretch. (See appendix A)
2. Limited bush planting on the section leading into and including the outside of the bend of Pool C to provide overhead cover..
3. Repair of stock fence (although this may not be estate owned land)

Section 5 (Pool C-Pool D)

This section is characterised by a wide uniform and deep channel, with heavy weed growth. Gravels are now almost non-existent and sands now predominate.

There is a cattle drink on the LHB which is providing a source of yet more unwanted silt into the channel.

Pool D has a good natural berm forming on the inside of the bend concentrating flow nicely.

Management Recommendations

1. The cattle drink should be improved with the introduction of gravel to a depth of 30cm to stop cattle introducing further sediment into the channel. The gravel could be further manipulated to form a riffle area but would need fencing off to prevent cattle from crossing the channel. This approach has recently worked very well on the Wensum providing good safe areas for cattle drinking whilst improving habitat.
2. There is also further scope for the introduction of another riffle towards the entrance to Pool D.
3. The straight nature of the channel and poor variation in depth between the two pools would lend itself to the introduction of flow deflectors. The deflectors should keep scoured habitat down stream clear of silt, by increasing flow velocity. In straightened channels flow deflectors can introduce more natural meandering flow patterns.
4. Limited planting of bushes for cover along whole section including outside of Pool D

Section 6 (Pool D-Pool E)

A relatively short section with a very sandy bottom as the channel enters Pool E it narrows and deepens nicely providing good holding habitat. Weed has accumulated on overhanging bushes at exit of pool.

Management Recommendations.

1. Introduction of riffle halfway between to the two pools.
2. Pruning of overhead cover at Pool E to stop cut weed accumulating.

Section 7 (Pool E – Pool F)

The Channel again is straight, wide and uniformly deep, with sand being the predominating substrate material.

Management Recommendations

1. Introduction of a long (20-30m) gravel riffle / glide with crest approximately in line with field boundary fence on LHB.

3. The channel is over wide and two possible prescriptions could be applied here:
 - a) Introduction of further flow deflectors (described above)
 - b) Narrowing the river with brushwood faggots. (see appendix A)

Installation of brushwood faggots may be a valuable technique here as the rivers flow velocity is slow and action needs to be taken to scour accumulated sands and silts. By narrowing the channel flow velocity will improve, scouring away fine material leaving behind cleaner gravels which favour the growth of aquatic plants such as Water Crowfoot, which in-turn trout will colonise.

The positive effects of brush wood faggots are well documented and this is a commonly employed technique on many chalk stream fisheries. However when compared to the introduction of flow deflectors installation costs are much higher. However installation costs could be made cheaper by using materials available from the nearby plantation.

Further work would have to be undertaken in selecting which bank is suitable for the narrowing to take place on, as access was difficult during the site visit.

Section 8– (Pool F- PoolG)

Habitat is now constant in being over-wide, deep, with a sandy substrate.

There is a cattle drink on the LHB.

Management Recommendations

1. Again the cattle drink could be improved with the introduction of gravel to a depth of 30cm to stop cattle introducing further sediment into the channel. The gravel could be further manipulated to form a riffle area but would need fencing off to prevent cattle from crossing the channel.

2. Installation of either flow deflectors or brushwood faggots, especially at entry point to Pool G to concentrate flow to outside of bend.
3. Limited planting of bushes on outside of bend a Pool G to provide overhead cover.

Section 9 (Pool G – Pool H)

Down stream of pool G the river narrows slightly. This area has no stock fencing present. After field boundary on LHB the river starts to again widen, displaying all of the poor channel characteristics highlighted above. Stretch bends round to another cattle drink on LHB. No pool habitat is evident here. A side stream enters the main Wissey from the RHB. At the time of visiting the water quality of the side stream was of concern, being very turbid.

Management Recommendations

1. Installation of gravel riffles at exit of Pool G and entrance to Pool H.
2. Again the cattle drink could be improved with the introduction of gravel to a depth of 30cm to stop cattle introducing further sediment into the channel. The gravel could be further manipulated to form a riffle area but would need fencing off to prevent cattle from crossing the channel.
3. Installation of either flow deflectors or brushwood faggots, especially at entry point to Pool H to concentrate flow to outside of bend.
4. Limited planting of bushes including outside of bend a Pool H to provide overhead cover.
5. Investigate side stream water quality.

Section 10 – (Pool H to Sewerage Pump House)

All of the above described poor channel characteristic are to be found in this stretch. Habitat quality is rapidly declining as the channel becomes wider and deeper.

Management Recommendations.

All of the above techniques could be utilised on this section, however the benefits of such works would have to be seriously weighed up against the costs.

However installation of a riffle at the exit of Pool H is recommended.

5.0 Conclusions

After visiting the stretch it appears that there is indeed scope for improving the stretch as a brown trout fishery. After completion of rehabilitation works the stretch will probably have to rely on stocking in the long term to be a viable angling prospect.

Costs of the project depend to a certain degree on the scale of works to be decided upon. As a **very rough guide** the following costs are suggested:

Riffles @ approx 75 tonnes each: £700-1000 each

Flow deflectors : £40-50 each

Cattle drinks: £500-750 each

Stock Proof fencing: £2.50 per metre

Bush planting: Minimal

Note: None of the above costs include detailed design, labour or plant hire costs. Plant hire costs could be significantly reduced if the Estate has suitable machinery and qualified operators available.

All works within 8 metres of, and including the river channel require Environment Agency Land Drainage Consent. It is advised that contact be established at the earliest possibility with Agency Development Control and Fisheries Officers to discuss the viability of any river rehabilitation schemes. Introductions of fish into the Wissey also require written Agency Consent under Section 30 of the salmon & Freshwater Fisheries Act (1975).

If the fishing is to be open club / syndicate access, the Agency may look favourably at part funding a potential partnership project at this location. Currently the Agency employs External Partnership Officers who will be able to provide guidance on funding for projects of this nature. Finally the Wild Trout Trust support a number of habitats project each year and it is suggested that contact should be established at an early stage at: office@wildtrout.org or postal address:

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