



Advisory Visit
River Greet, Nottinghamshire
March 2014



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust to the River Greet, near Rolleston, Nottinghamshire, on 16th March, 2014. Comments in this report are based on observations on the day of the site visit and discussions with Dale Whittaker, James Brown and Keith Horsley of Nottingham Piscatorial Society (NPS), Ryan Taylor (Fisheries Officer, Environment Agency) and Radoslaw Papiewski (Angling Trust).

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 Catchment / Fishery Overview

The Greet is a small river rising near the village of Kirklington in Nottinghamshire and flowing south east past Southwell and Rolleston to join the River Trent at Fiskerton near Newark. The catchment area is small (46 km²) and lies on sandstone and mudstone geology overlain with gravel, sand and clay alluvium. The mean flow of the river at Southwell is 0.301 m³/sec, low flow (Q95) is 0.098 m³/sec and high flow (Q10) 0.533 m³/sec (www.ceh.ac.uk/data/nrfa/data/time_series.html?28072). Runoff is influenced by groundwater and agricultural abstraction and no further consumptive abstraction licences are available (Environment Agency, [Lower Trent and Erewash Abstraction Licencing Strategy](#)).

The Greet was well-known as a trout stream in former times. J.W. Martin ("The Trent Otter") writing in 1906 in *My Fishing Days and Ways* includes a chapter on trout fishing on the Greet, describing it as *one of the splendid trout preserves of the Midlands, with a ten- or twelve-guinea annual subscription...Permission to fish it was very, very difficult to obtain*. Prolific mayfly hatches and large catches of trout are also described, along with a comment on the habitat of the stream: *that little river was more diversified in its character than any other stream I ever saw...the turns and twists it took in its course were wonderful – it literally doubled back upon itself in lots of places*.

The river still has a meandering planform in some sections, for example upstream of Southwell racecourse and upstream of Southwell, but the

channel has been heavily modified for land drainage and flood defence since Martin's time. Trout are still present, particularly in the upper reaches of the river and NPS report catching some from the section inspected.

NPS have recently leased the fishing on the Greet between the road bridge at Rolleston (SK7401252572) and Fiskerton Mill (SK7417451712), a distance of approximately 1.2 km (Figure 1).

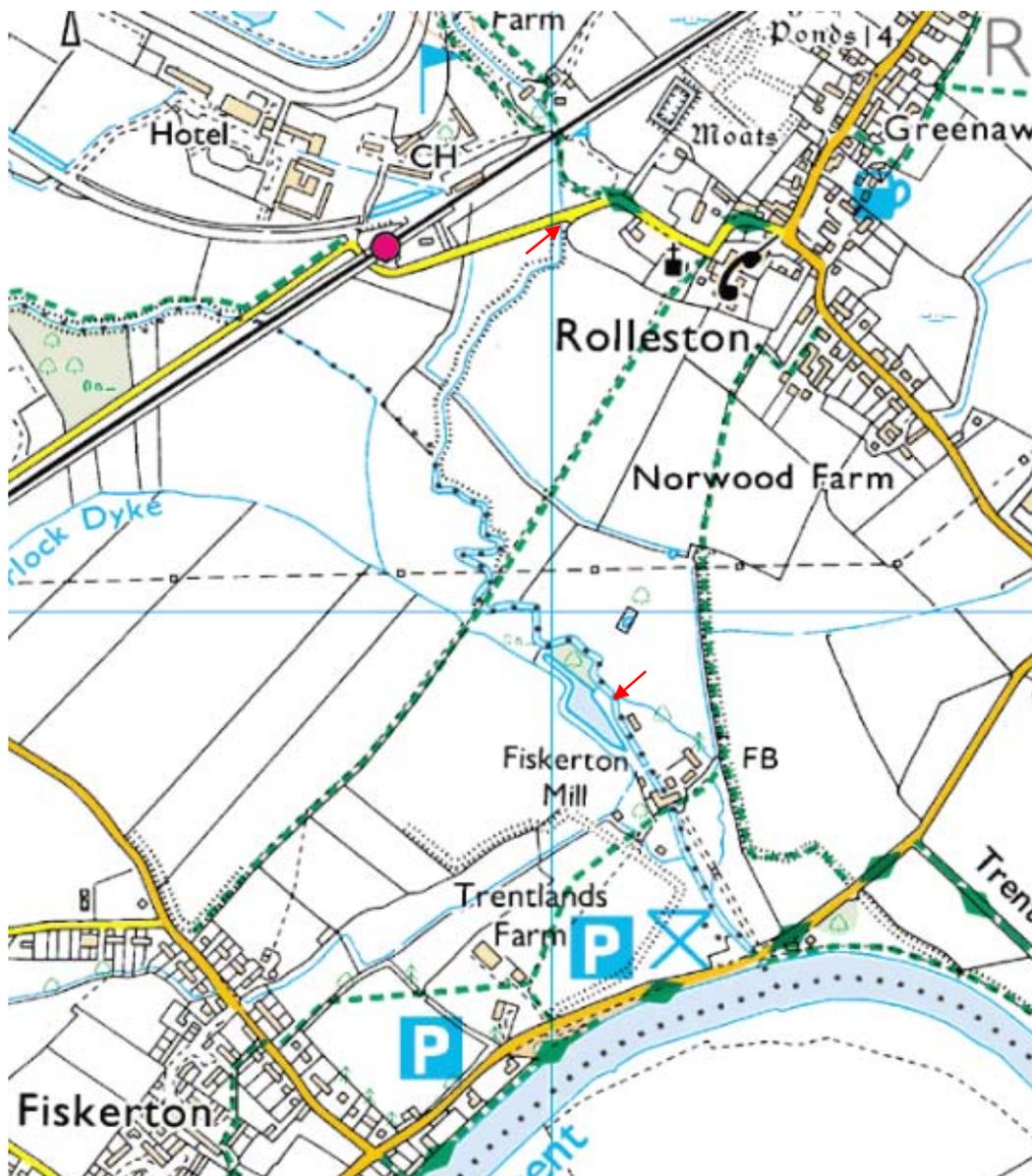


Figure 1 Location map showing approximate upstream and downstream boundaries of NPS water on the Greet (red arrows)

The Greet is classified as moderate status under the Water Framework Directive (waterbody ID GB104028053410). The factors which currently prevent it reaching the required good status are the presence of non-native signal crayfish, elevated phosphate levels and low flows due to abstraction.

3.0 Habitat Assessment

The river was walked in a downstream direction from the road bridge (SK7401252572). In-stream habitat quality is generally poor throughout the length due to a number of factors.

The channel has been engineered for flood defence and land drainage purposes and undergoes regular maintenance including dredging. Rolleston village has been flooded previously leading to the local community initiating and funding a project to construct a new flood defence bund. The photographs below show the generally uniform, embanked, steep-sided nature of the channel. The trapezoid-shaped channel cross-section means there is very little shallow, marginal habitat to provide refuge for juvenile fish during high flows.

Fiskerton Mill impounds the river for much of the downstream part of this section, slowing the flow and encouraging deposition of fine sediment (Photo 6). The impoundment means the river has little energy; hence introducing structures which rely on scour to create or improve habitat features would not have the desired effect in the lower reach. With progress downstream towards the mill, the channel becomes perched above the level of the adjacent land, particularly the land on the left bank. Dykes adjacent to the river are at a lower level than the river; one is culverted underneath the river channel. Another, the Marlock Dyke, joins the Greet downstream of Fiskerton Mill, below the impoundment (Photos 5, 8). The perched channel limits the opportunity to connect the river to the adjacent land and create wet marginal areas suitable for fish fry; there may however be some limited scope (see Recommendations).

The channel is very open for much of its length, with few bankside trees or bushes. Where there are riparian trees (Photo 3), these provide good cover in and over the watercourse and greatly improve habitat quality. The trees also provide bank stability which prevents erosion. On bends without trees, some limited bank erosion was noted (Photo 2); this could be repaired with

soft revetment techniques which would also benefit fish by providing cover (see Recommendations).

Although the river channel has been engineered, giving it very uniform dimensions, the channel has not been straightened and retains its natural, sinuous planform. This means there is some variety in depth, with deeper areas occurring on the outside of bends (Photos 4, 7). The deep water is valuable habitat for adult fish but could be greatly improved by planting trees on the outside of the bends. Also, if land levels allow, the bank on the inside of bends could be re-profiled, pulling back the embankment and creating shallow marginal areas; these would be valuable refuge areas for juvenile fish (see Recommendations).

In addition to the NPS section, the river was inspected downstream at Fiskerton Mill (Photos 8, 9) and upstream alongside Southwell racecourse (Photos 10, 11). The culvert and impoundment under Fiskerton Mill is an obstacle to fish passage that prevents access for fish from the River Trent into the Greet. This lack of connection between the main river and its tributary limits the diversity and abundance of fish, not just for recognised migratory species like eels, lampreys and sea-trout but also for coarse fish which move considerable distances to breed. The habitat on the Trent is adversely affected by navigation weirs, so having well-connected tributary habitats is important for fish stocks in the main river. For these reasons it would be desirable to improve fish passage at Fiskerton Mill; a similar project was completed recently at Glandford Mill on the River Glaven in Norfolk (www.aquaticcontrol.co.uk/news/288/how-do-you-get-fish-swim-under-house).

Upstream of the NPS section, another former mill is present alongside Southwell racecourse. This is also a barrier to fish migration, although the head loss across the structure appears much smaller. The river habitat upstream of the mill is poor, the channel having been straightened in addition to the factors affecting the NPS stretch.



Photo 1 View upstream towards road bridge and Rolleston church. Little in the way of cover for holding fish.



Photo 2 Bank erosion on the outside of a bend. Soft revetment would protect such areas and provide some valuable cover for fish.



Photo 3 Trees on the left bank provide some low cover and a holding area for fish – areas like this are rare on this section of river



Photo 4 A sharp bend in the river provides some valuable depth variation in the channel, but this could be greatly enhanced by establishing low-growing, bushy trees on the far bank to provide cover and shade



Photo 5 The Marlock Dyke runs parallel to the river on the right bank, but at a lower level, joining the Greet downstream of Fiskerton Mill (Photo 8)



Photo 6 View downstream from the footbridge, showing impounded nature of the river above Fiskerton Mill



Photo 7 View upstream from the footbridge. There may be scope to move the embankment on the true right (far) bank back from the river edge to create some wet marginal habitat.



Photo 8 View upstream towards Fiskerton Mill from the Marlock Dyke confluence.



Photo 9 The culvert under Fiskerton Mill is a barrier to fish passage.



Photo 10 Upstream of the NPS section is another mill at Mill Farm. This is also a barrier to fish migration.



Photo 11 The Greet alongside Southwell racecourse – very poor in-stream habitat, lacking riparian vegetation, cover and shade.

4.0 Recommendations

The most important factor influencing what is possible in terms of habitat improvement along this stretch of river is flood risk. The screen grab below from the Environment Agency website (What's in my Backyard?) shows the flood risk zones in dark blue (zone 3, high risk) and light blue (zone 2, medium risk), plus areas benefiting from defences (hatched areas).

Any habitat improvement proposals require written consent from the Environment Agency (Flood Defence Consent) and must not increase flood risk. In addition, because of the regular channel maintenance carried out, it is essential that any proposals are agreed with the body which carries out the maintenance operations. Downstream of Southwell, the Greet is designated as "main river" and therefore the responsibility of the Environment Agency, although it is understood that maintenance may be carried out on behalf of the EA by the Newark Area Internal Drainage Board (IDB). It is recommended that NPS make contact with the relevant staff at the EA and IDB to discuss these recommendations.

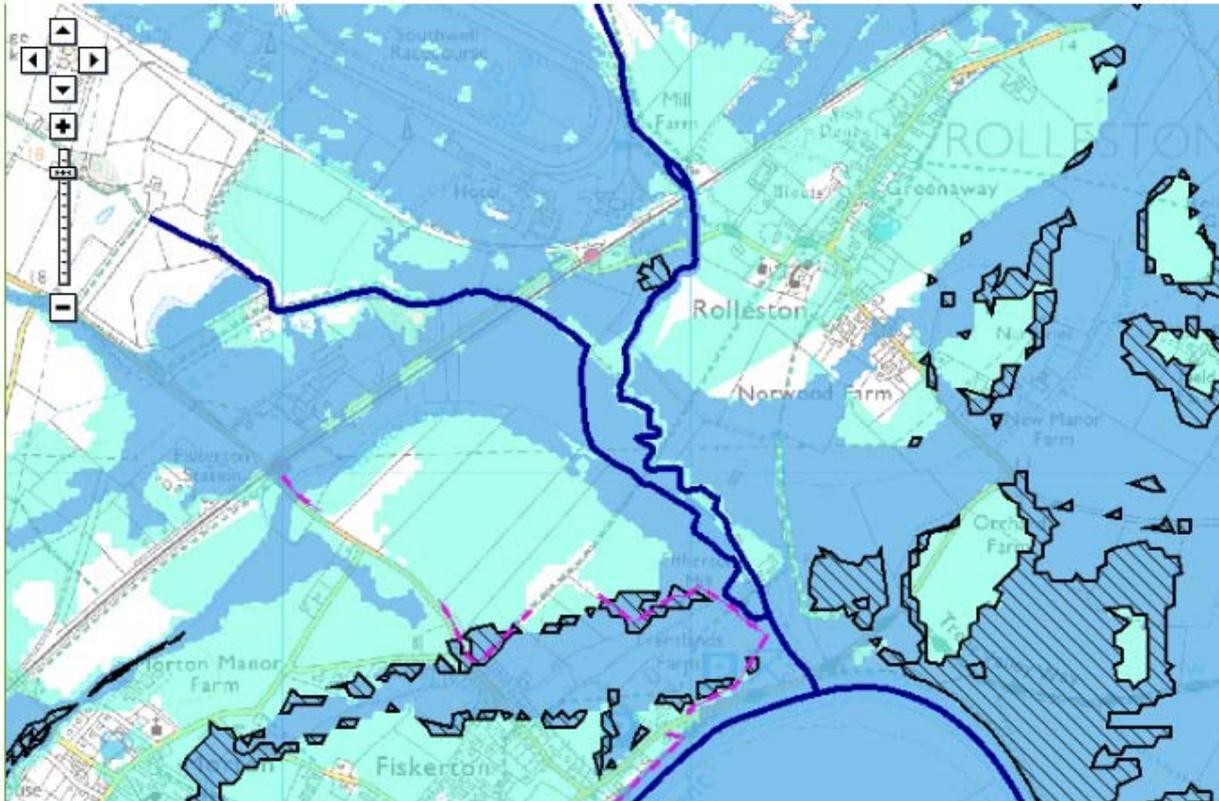


Figure 2 Flood risk areas in the vicinity of the lower Greet (from Environment Agency website).

- Plant trees, particularly on the outside of meanders where deeper water is present. These should be native trees species, preferably of local provenance. Most suitable would be low-growing species with a bushy habit that could be coppiced; these include willow (*Salix caprea*, *S. cinerea*), hawthorn, blackthorn, hazel, and field maple. Willows are common along the Trent and could easily be transplanted from cuttings.
- Re-profile the river banks on the inside of bends to create low-level, wet margins alongside the river. This may require the re-alignment of existing embankments (Photos 12, 13, Figure 3). Liaison with the body responsible for channel maintenance may provide the opportunity for partnership working to achieve this, as it would also improve channel capacity and flood conveyance.



Photo 12 Possible area for re-aligning embankment, along the line indicated

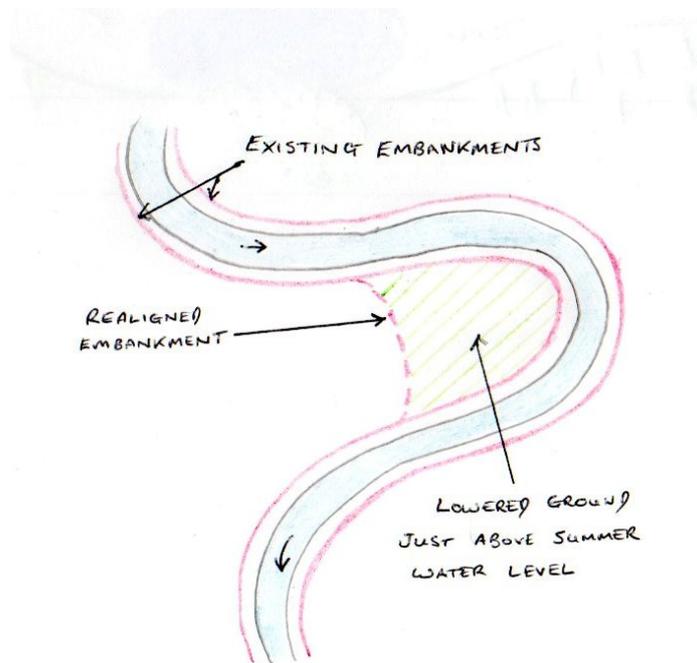


Figure 3



Photo 13 Example of re-profiled bank, River Trent, Aston-by-Stone.

- Install brushwood bundles on the outside of bends which are experiencing erosion (Photo 2). These will take up minimal channel capacity and provide protection to the toe of the bank, plus some fish shelter (Photo 14).
- On straighter sections of channel, create a submerged berm that can colonise with emergent plants, providing improved marginal habitat for fish fry, invertebrates, etc. (Figure 4). Liaison with the body which carries out routine channel maintenance may allow this to be incorporated into their programme of works, i.e. bank works carried out by machine, re-planting carried out by NPS.



Photo 14 Brushwood bank protection, River Cam, Cambs., lining the far bank.

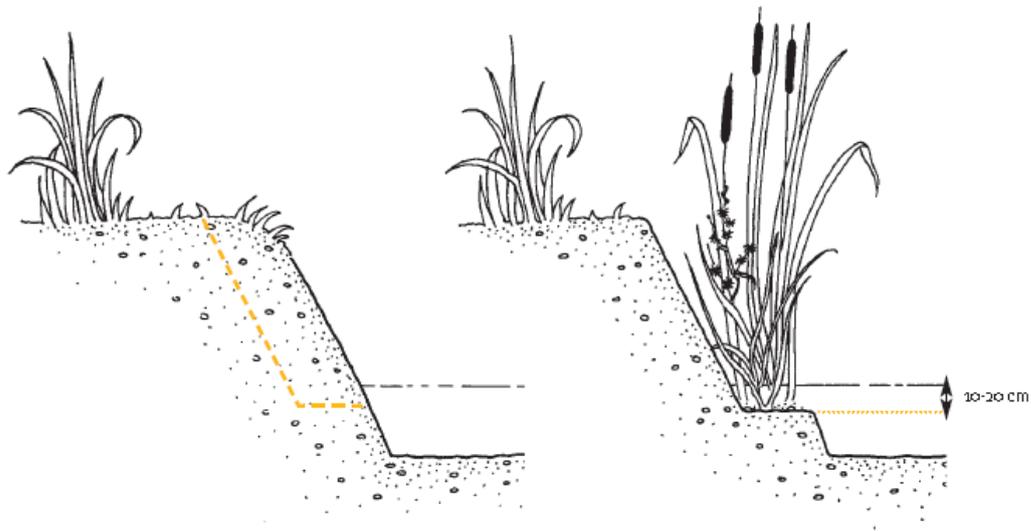


Figure 4 Creation of a marginal berm

5.0 Making it Happen

The Wild Trout Trust can provide further assistance in the following ways:

- Preparation of a more detailed project proposal that can be used as the basis for consent applications
- Once consents and permissions have been secured, a practical visit to demonstrate techniques that could be implemented by NPS members on working parties, e.g. brushwood bundle construction and installation.

We have produced a 70 minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody debris, enhancing fish stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop <http://www.wildtrout.org/product/rivers-working-wild-trout-dvd-0> or by calling the WTT office on 02392 570985.

The WTT website library has a wide range of materials in video and PDF format on habitat management and improvement:
<http://www.wildtrout.org/content/index>

6.0 Acknowledgement

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

7.0 Disclaimer

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