



Habitat Advisory visit to the Morden
Hall Park, River Wandle, London

Undertaken on behalf of The National
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1.0 Introduction

This report forms the output of a site visit to Morden Hall Park, River Wandle, Merton, London on 1 November 2006. Information in the report is based on observations on the day of the visit and additional comments provided by Chris Heels and Zoe Colbeck, National Trust staff at the Estate. Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) of the river identified when looking downstream.

The River Wandle was a renowned chalkstream, with catches of large brown trout *Salmo trutta* commonly made by anglers. Nelson regularly fished the river, whilst Halford was reputed to have caught his first trout from the Wandle. However, during the period from the late 1800's to the 1990's, the river suffered badly from anthropomorphic impacts, including abstraction, poor water quality and major modification of the channel. As a consequence, fish stocks in the river declined. More positively, during the last 10-15 years, water quality in the river has improved, allowing a partial recovery of fish stocks, particularly coarse fish. The idea of habitat enhancements at Morden Hall Park have been promoted by the Environment Agency (EA), the National Trust (NT) and the Wild Trout Trust (WTT) since the late 1990's

2.0 Fishery Description

The effective source of the River Wandle was immediately upstream of Carshalton Ponds. Groundwater recharge to the river had been significantly affected by abstraction. As a consequence, augmentation flow was provided by Sutton and East Surrey Water Company, using a recirculation system. Water was abstracted from the Wandle immediately upstream of the discharge of the Beddington STW outfall, with water subsequently being discharged into a channel feeding the upper pond in Grove Park. It is understood that under the abstraction licence held by Sutton and East Surrey Water Company, this augmentation should provide a guaranteed minimum flow of 4.5 MI/d. Contemporaneous records from local groups report that this condition of the abstraction licence has been breached on a number of occasions, with augmentation flow reduced to zero.

Further downstream, flow in the river was substantially increased due to the discharge from Beddington Sewage Treatment Works (STW), operated by Thame Water Utilities Limited. Some 27 MI/d of treated effluent was discharged from the works to the Wandle via a concrete lined effluent channel across Mill Green. This effluent was generally of good quality. This fact and the general demise of heavy industry in the catchment had resulted in an improvement of baseline water quality in the river. However, contaminated surface run-off from roads and other hard surfaces remained of concern, with large volumes of potentially contaminated sediment entering the river after heavy rainfall.

The Wandle entered the grounds of Morden Hall Park downstream of Mitcham road bridge. Within the grounds of Morden Hall, the river split into a number of channels, with the main river running through the snuff mill and past Morden Cottage, before it bifurcated downstream of Morden Hall. Most of the channels within the park had been historically reveted using wooden toe boarding, with a consequent impact on natural erosion processes and the growth of marginal vegetation. Since 2000, staff at

the property have 'zoned' the river channels into areas where this toe boarding is to be retained and repaired (the more formal areas, generally in the centre of the estate, including the Rose Garden), or where it is to be removed (areas of limited historical value) allowing the development of a more natural river bank. Active removal of the boarding began in 2002. Latterly, discussions have also taken place with the EA and the London Wildlife Trust (LWT) regarding the possible re-introduction of water vole *Arvicola terrestris* into these naturalising areas of the park. The intention is to begin this process in NT/LWT reserve sites elsewhere on the Wandle in 2007/08, with releases made at Morden Hall subsequent to these dates.

In addition to the wooden toe boarding, a section of hard concrete revetment was present in the main channel downstream of the Snuff Mill. This was unsightly and reduced the conservation value of this section of bank.

Trust staff have also undertaken significant amounts of riparian tree work, in order to reduce shading of the riverbanks, further increasing the potential for the growth of valuable emergent vegetation. A major NT/EA partnership project was planned for 2006. This involved the creation of shallow, gravel dominated riffles areas, suitable for spawning and juvenile stages of rheophilic coarse fish and brown trout *Salmo trutta*. It also proposed the development of densely vegetated marginal berms suitable for foraging water voles. Unfortunately, budgetary restrictions at the EA have resulted in the postponement of this work for the foreseeable future.



Main channel of the Wandle downstream of the Snuff Mill



Wooden toe boarding

Both the main channels and the minor distributaries within the park had a potentially high value as recruitment areas for both coarse fish and trout. Typically, the smaller channels had a wetted width of between 2m-4m, with an unsorted fine gravel and sand dominated substrate. Flow division within the channel was controlled by a number of instream structures within the channels, with the backwater effect of these channels having a significant impact on upstream habitat quality, reducing flow velocity and causing accumulation of fine sediment.

A key management issue for the Trust remains the continued presence and growth of the introduced aquatic plant, floating pennywort *Hydrocotyle ranunculoides*. This is a very invasive species, capable of totally occluding even large waterbodies. The EA has recognised this fact, recently placing floating pennywort amongst the 'top ten' undesirable aquatic introductions to this country. The estate currently manages the weed by manual clearance on a regular basis.



Extensive, dense bed of floating pennywort

In addition to floating pennywort, both Himalayan Balsam *Impatiens glandulifera* and Japanese knotweed *Polygonum cuspidatum* were present alongside the river. These introduced species are also highly invasive. They have been controlled within the park by a combination of mechanical control and the use of the approved herbicide, glyphosate.

Large numbers of small roach *Rutilus rutilus*, gudgeon *Gobio gobio*, common carp *Cyprinus carpio* and other coarse fish were noted in the Wandle within the grounds of Morden Hall. This increase in the number of fish present in the river is largely testament to the improving water quality, along with beneficial habitat changes taking place at a number of locations along its length. It has however created a significant management issue for staff at Morden Hall, with correspondingly increasing numbers of anglers illegally fishing the river within the park's boundaries. Many of these anglers are vociferous in defending their 'right' to fish, a fact witnessed during the advisory visit to the property. The property manager is aiming to address this issue by formalising fishing at the property, ideally by the formation of an angling club.

3.0 Future management recommendations

In many ways, Morden Hall Park is an unusual Trust property. Its location near to central London and the requirement placed on it to maintain open access to the public, means that usage of the park is very high. This presents significant management challenges to property staff and informs many of the decisions taken by them.

Key challenges to the management of the river remain. These are discussed below:

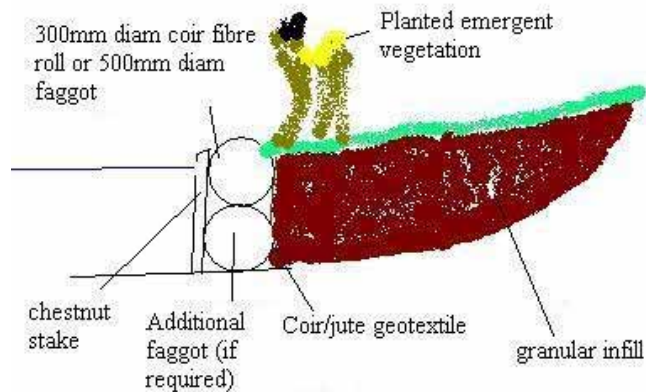
- **Habitat**

The Trust's approach to removal of toe boarding is excellent. The 'zoning' of the river channels within the estate provides clear direction for future management and recognises the landscape, historic and ecological value of the park. With reference to the ecological and fishery value, it would clearly be of benefit to maximise the areas zoned for toe board removal. Where toe boarding has already been removed, there is little evidence of any damaging erosion, a concern initially expressed by some Trust staff. Even more positively, there had been some development of marginal vegetation, with Water crowfoot *Ranunculus* spp present in some sections of the channel.



Section of removed toe boarding showing development of marginal vegetation (unfortunately floating pennywort) and instream water crowfoot

In order to further optimise the benefits in these reaches, it is recommended that selective channel narrowing should be undertaken. Utilising softy bank revetment techniques such as coir fibre rolls, a narrower channel cross section could be created. The area between the new line and existing bank lines could be infilled using 'cut and fill' techniques. This would create a potentially wide, well vegetated margin ideal for water voles, whilst increasing water velocity locally, promoting development of a diverse bed profile and gravel bedded instream habitat suitable for a range of species. An indicative design for this type of channel narrowing is shown below. A similar design could potentially be used to replace the sections of concrete bank revetment present downstream of the Snuff Mill.



Coir fibre/faggot bank revetment

The presence of floating pennywort does provide an additional complication, by increasing the difficulty of establishing a fringe of native aquatic plants along the channel margins. If allowed to remain, the pennywort smothers out other vegetation, producing a near monoculture of a non-native species, whilst its effective removal inevitably also removes some stands of more desirable native vegetation.

Further tree works to reduce shading of the riverbank adjacent to any channel narrowing will optimise the ecological benefits of these enhancements, particularly for water vole.

- **Flow**

The multi-channel nature of the River Wandle through the Morden Hall park site tends to produce sub-optimal flow conditions for conservation interests in some of the channels. Low flows have resulted in the accumulation of fine sediment over the bed of some channels, a reduction in bed scour and hence poor diversity of habitat, and a generally poor instream habitat. In order to produce optimal ecological benefit within the Wandle, it is recommended that a systematic assessment of the flow requirements for each channel should be undertaken. There is no need for this to be a quantified assessment; rather, it should seek to prioritise the channels with respect to their ecological requirement for water flow. Several of the channels, and perhaps the wetland area, could provide as much conservation interest with a significantly reduced flow, effectively releasing more water for the ecologically more important watercourses. By this methodology, it should be possible to restrict flow to the least

ecologically important channels, and maximise flow in those with the most ecological interest.

Seasonal prioritisation of flows may be possible. For instance, maximising flow along key channels at prime spawning time for selected fish species, with a subsequent gradual reduction in flow within the channel, may result in strong recruitment of those species. A systematic approach to this issue should enable the property to divide water between channels in order to create maximum benefit to key conservation species and habitats.

It may also be possible to replace some of the present control sluices within the park with gravel bedded riffles. These would be constructed from a mix of stone and gravel and would act to dissipate the retained head over a distance of say 15m-30m. This would not only provide an additional length of presently under-represented and valuable flow dependent habitat, but would also encourage fish migration, linking previously spatially isolated sections of the river. Any changes to channel capacity or flow control structures should be discussed in detail with the EA in order to prevent any unacceptable increase in flood risk to local properties.

- **Fishing**

The present position of angling within the park is not sustainable. Staff are expending considerable time and resources trying to prevent anglers from fishing the river, often without success. Many anglers refuse to leave, with some becoming abusive to staff. Given the Trust's general principle of support with respect to angling, it is recommended that angling should be permitted within at least part of the park. The expectation is that responsible anglers will, in part, self regulate access to the fishery. The Trust's willingness to allow well-organised angling within the park will also support the forthcoming Heritage Lottery Funding (HLF) bid. The HLF sets great store by public access and participation at recipient sites. Finally, staff time saved by not having to challenge illegal anglers can be utilised more positively on other core tasks within the property.

Trust staff have indicated that they would not expect to allow angling in the central section of the park, particularly near to the Snuff Mill, garden centre and Rose Garden. They would be happy to see regulated angling taking place outwith these key areas. With the exception of the Snuff Mill weir that will remain a 'draw' for anglers, the other areas in which no fishing would be permitted are not likely to provide good angling and hence should be relatively easy to police.

For any angling group on the estate to be successful, it should have a high degree of local angler input. It is recommended that initial contact should be made with the EA fishery team member for the area (Chris Dutton) in order to seek advice regarding suitable local contacts for the establishment of such a group. The local fisheries consultative and fishing tackle shop may provide a valuable starting point for members. Any club/group formed should agree to abide by the requirements of the fishery management plan prepared for the river. Assistance should be obtained from Mark Walsingham at Cirencester who will be able to help in the formulation of a suitable lease for the fishery. Whilst the Trust has a presumption of providing day ticket access to its fisheries, the difficulties of policing anglers at Mordon Hall may preclude such an arrangement here.

