Great Stour – Godinton Park

An advisory visit carried out by the Wild Trout Trust – July 2008

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Stour at Godinton Park in Kent on 2nd July 2008.

The request for advice came from the Godinton Park Piscatorials, who are a small syndicate who have actively managed and enhanced what was once a derelict section of the upper Stour. The fishery is now a viable stocked trout fishery with occasional wild fish and is very much a "work in progress" project. The syndicate are particularly keen to develop the wild component of the stock and are seeking to build on advice already given by the WTT in an earlier visit undertaken by Ron Holloway.

The comments and recommendations made in this report are based on the observations of the Trust's Conservation Officer, Andy Thomas and discussions with Mr Clive Pavey, Mr Mike Bates and Mr Nick Sandford from the Godinton Park Piscatorials and Dr Perikles Karageorgopoulos from the Environment Agency.

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.

2. Description of the Fishery

The Great Stour at Godinton Park forms the main one of five head water streams that eventually join in Ashford to form the main river Stour. This particular branch is derived from greensand springs which flow south east through a mainly greensand and gault clay catchment before swinging north east where the river cuts through a mainly chalk geology. The Great Stour running through the chalk is identified as a priority habitat in the UK Biodiversity Action Plan (BAP) and as such receives a high level of statutory protection.

The Godinton Park fishery is located very near to the source of the system and as such enjoys good water quality but can be vulnerable to low flows during prolonged dry spells. The river was historically managed and maintained to provide angling opportunities but fell into a derelict state before the current group were invited to take on the task of restoring the fishery. The flashy nature of the stream has lead to some minor erosion problems. This has been exacerbated by the significant dredging works that were probably undertaken in the post war years to improve agricultural drainage.

As well as trout, the river supports a mixed coarse fishery as well as being one of the last strong holds in the South East of the white clawed crayfish *Austropotamobuis pallipes.*

In the last few years the syndicate have made remarkable progress in restoring the middle reaches of their 2-mile long fishery. This has enabled the members to

enjoy a high quality fly fishing experience. Currently the fishery is sustained with an annual stocking of sterile brown trout but reasonable numbers of small wild fish are captured each year. These wild fish are probably being displaced from upstream reaches. A potential improvement to spawning and juvenile habitats within the Godinton Park estate has the potential to significantly contribute towards this population.

The lower third of the fishery has recently been subjected to an enhancement scheme designed and managed as part of an Environment Agency enhancement scheme. This project has taken a successful technique used on the River Darent, where a sinuous in-channel regime of pool, glide, riffle was created using an excavator to push existing bed gravels around within an historic over-wide river channel. The objective for the Stour project was to create some in-channel diversity along a realigned and dredged section of channel that was completely clogged with branched burr reed *Sparganium erectum*. Although some very deep pools have been created, it remains to be seen whether the work will benefit the fishery as a whole. Following some discussions about aspirations for the reach, it was decided that it would be sensible to allow the river to settle and for habitats to establish themselves before contemplating any further enhancements to this section.

Deep pool created using a exactor with the arisings used to narrow the channel

The long central beat has been extensively enhanced by the syndicate. A number of techniques have been employed to create glide and pool holding

habitat and to provide lies for trout and combat the encroachment of marginal emergent plants, which in places have choked the channel.

A low stone weir used to pinch the channel and create a central flume

An excellent marginal fringe protected by stock fencing. Shallow gravel bed with plenty of inchannel cover - good trout water.

On sections where works have been undertaken to pinch the channel, beds of submerged macrophytes have taken over from the in-channel burr reed, which has helped to create sustainable trout fishery habitat.

A recent enhancement has seen the syndicate narrow approximately twenty five metres of channel using a woven willow revetment and backfill obtained locally on the estate. The project has been very successful in terms of locally speeding up the river and creating a defined channel with good holding potential. Care should be taken in any future works to ensure that only appropriate local material is used in any backfilling operation. As most of the fishing is carried out from within the channel via wading there is no need to firm up the margins too much. A river bank, well protected with a thick fringe of suitable emergent plants and herbs is likely to become better established in soft, marshy soil, initially protected behind a natural woody revetment. Woven live willow is excellent but does sometimes have on-going maintenance requirements.

Live willow used to revet a newly narrowed section of channel

A number of small structures have been installed to promote local scour, deter plant encroachment and provide holding water for trout. Large pieces of fallen tree and stone has been used to create current deflectors. A number of the stone weirs have been present for many years and the material has simply been moved or replaced to create the desired outcome. Where these stone structures are obviously working they should be retained, however, it would be better to use large pieces of woody debris (LWD) in the future to promote scour and holding habitat. LWD has the benefit of being a natural material and so its

aesthetically in keeping with the river corridor and is also much more valuable than stone in terms of providing a primary habitat and food source for a variety of aquatic invertebrates, essential in promoting the food chain. That said, the stone blocks that are present are obviously an important habitat for native crayfish and even if not used in any groyne or half weir should be retained within the river channel as crayfish habitat.

LWD used a flow deflector

At the bottom of the improved section the syndicate have placed a rudimentary screen. This has been put in place to nominally deter pike from migrating up into the predominantly stocked and fished section. Excessive predation pressures are seen as a real issue for the syndicate members and controlling pike predation is seen as a priority. It is the opinion of the author that the screen is inappropriate and although it may at times deter large pike from migrating upstream it will also stop other species from navigating the river. In addition, pike are known to be well established further upstream. The screen will certainly not stop young of the year pike from making their way upstream and as a three year old jack is perfectly capable of taking a stocked trout there seems little point in keeping the screen. Screens also need regular maintenance and can pose significant flood risks. Pike in a stream of this size can easily be kept in check with two or three autumn pike fishing sessions. Research has confirmed that by leaving the odd larger female overall numbers are also trimmed through self predation. If this approach fails to work then it may be possible to have the reach electric fished. Hadlow College have in recent years carried out some pike removal work on behalf of a club further down the Stour and have agreed to relocate pike to a

suitable stillwater fishery. Please note that removing any fish with an instrument other than a rod and line requires Environment Agency consent.

It is recommended that the pike screen be removed

Overall, the work the syndicate have carried out in bringing the fishery into a usable condition is to be commended. Much of the work has been targeted at increasing water velocity by locally pinching the channel using various techniques. This has inevitably created slightly deeper, faster flowing water with some associated pool habitat, ideal for holding adult trout. In order to move to the next level and create habitats that will also promote wild trout production and survival the syndicate will need to consider how to enhance spawning and nursery habitats. Increasing local water velocity may still be required in some of the over wide channel sections but perhaps raising the bed to create shallow, fast flowing water over gravel rather than deeper holding water may provide the diversity in habitat required.

The unimproved top section is probably the best reach to concentrate future efforts. The top section connects the enhanced holding water with a section upstream of the park that is known to support good numbers of wild fish. Linking the two habitats will bring real benefits in not only promoting better wild stocks but also in giving the whole reach more resilience.

A stone half weir promoting increased water velocities

Care must be taken to ensure that where a flume is created it doesn't drown out potentially good habitat upstream

Much of the top section is choked by in-channel stands of burr reed. This has the net effect of backing the river up further, encouraging silt deposition and slower flows, which in turn favours the plant still further. It is highly likely that past land drainage works has resulted in the current imbalance and controlling this plant will be of fundamental importance in creating good trout habitat.

Bank to bank burr read choking the channel on the upper section

There was much bankside discussion about how best to tackle this problem. Solutions ranged from hand digging or grubbing out rhizomes to using an excavator to scrape the roots out. Having discussed this problem with several colleagues, it would seem that a possible solution would be to treat the plants with a contact herbicide and re-establish the channel by importing gravels to replace the dredged materials. Removing the plants with a machine may result in further loss of in-channel gravels.

It is difficult to estimate the potential for creating spawning riffles without further information about the gradient but it might be possible to pull water through by raising the bed level and lowering any impoundments downstream.

Herbicides should only be applied by trained operatives and any application within 8 metres of a river will require Environment agency consent.

The non native plant himalayan balsam was evident on several sections

An area of potential concern relates to the presence of non-native plants. Himalayan balsam (*Impatiens glandulifera*) was observed on several sections of the river. It is a relative of the busy Lizzie and is known by a wide variety of common names, including Indian balsam, jumping jack and policeman's helmet. It is a tall, robust, annual producing clusters of purplish pink (or rarely white) helmet-shaped flowers. These are followed by seed pods that open explosively when ripe, shooting their seeds up to 7m (22ft) away. Each plant can produce up to 800 seeds. Himalayan balsam tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. In the autumn, the plants die back, leaving the banks bare of vegetation and vulnerable to erosion.

Currently only small patches were observed and it is recommended that efforts are made to eradicate the plant before it spreads too widely.

These plants can be easily pulled up by hand or treated with a contact herbicide (Environment Agency consent required).

3. Conclusion

The Godinton Park Piscatorials have made huge improvements to the Great Stour and have restored long sections of river into a fishable condition.

Care should be taken to ensure that only materials that are likely to be found naturally within the river channel are used to create improved habitats.

The syndicate have an excellent feel for creating and managing good adult holding habitats.

To improve the wild component of the stock, it will be necessary to create some improved spawning and nursery habitats.

The upstream section, which is currently clogged with burr reed, is ripe for improvement. This could link good quality habitat found upstream with the excellent holding water already available on the middle part of the fishery.

Care should be taken when undertaking any trout stocking to give the best possible chance to wild fish and to ensure that the vulnerable crayfish population is protected from crayfish plague. Environment Agency consent is required for all fish stocking into inland waters.

4. Recommendations

- **Concentrate efforts on improving habitats on the upper reach of the fishery.**
- **Eradicate the dense stands of burr reed growing in the central section of the channel with a contact herbicide.**
- **Introduce new gravels to selected areas to raise the bed levels, locally increase water velocities and create spawning and juvenile trout habitats. Details on designs and sourcing materials can be obtained from the WTT Conservation Officer**
- **On heavily shaded sections carry out some selective tree management to increase the amount of light reaching the channel.**
- **Pin or stake large pieces of woody debris to create in-channel habitats on sections where weed growth is poor.**
- **Remove the screen**
- **Make efforts to eradicate Himalayan balsam from the reach.**

It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Any modifications to hard defences will require a land drainage consent on any river designated as "main river". Advice can be obtained from the Development Control Officer.

5. Making it happen

There is the possibility that the WTT could help the Godinton Park Piscatorials to start an enhancement programme. Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). PV's typically comprise a 1-3 day visit where approved WTT 'Wet-Work' 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.

The WTT can fund the cost of labour (two/ three man team) and materials (max £1800). Recipients will be expected to cover travel and accommodation expenses of the contractor.

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 clubs, syndicates and landowners through guidance and linking them up with others that have had experience in improving trout fisheries.

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