River Blackwater – West Wellow, Hampshire

An advisory visit carried out by the Wild Trout Trust – April 2009

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on a 1km section of the River Blackwater in South Hampshire. The water is owned by Mr Anthony Carter and is managed primarily for conservation.

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 Carter and his daughter Miss Margot Carter. 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. Catchment overview

The River Blackwater rises just to the east of Red Lynch on the northern fringes of the New Forest. From here it flows south easterly for approximately 16km before joining the River Test at the upstream end of its tidal range. The Test has an international reputation as one of the finest chalk stream fisheries in the world. The Blackwater by contrast is not a chalkstream but rises from a network of small surface fed streams and gutters running over mainly tertiary clays and gravels. The Blackwater has long been recognised as a crucially important spawning tributary to the main River Test and is thought to be the destination of choice for the bulk of the migratory sea trout (*Salmo trutta*) that enter the system. The Blackwater does not enjoy any high level statutory protection as a Site of Special Scientific Interest (SSSI) unlike the River Test.

3. River overview

The Carters own approximately 1km of double bank and a further 300m of a small tributary that feeds in from the north near to the bottom boundary of the water. The river is not specially preserved as a fishery and there are no plans to exploit the fishery potential of the water. The owners are very keen, however, to protect the natural flora and fauna associated with the river. They also wish to take advice on sustainable management techniques to enable them to enhance local biodiversity, including the improvement of habitats for resident and migratory fish species.

4. Habitat assessment

The River Blackwater displays all the characteristics of a lowland spate river. The River sits down in a deeply incised clay channel and displays the classic geomorphological features of pool, riffle and glide. These features are regularly interspersed between a series of tight meanders. Like much of the Blackwater, the river here is comparatively heavily shaded by the steep banks as well as the canopy afforded by mature bankside alder (*Alnus glutinosa)* trees. In some shallower riffle sections where sufficient light reaches the river bed, water crowfoot (*Ranunculus spp*) is locally abundant . The presence of water crowfoot has much to do with the efforts of Mr Carter, who has opened up some areas for enhanced light penetration as well as transplanting clumps into some shallow runs.

The Blackwater can be a hostile environment for aquatic macrophytes such as water crowfoot due to the regular bank full spate conditions that follow local rainfall events. Between spates, there are often periods of extremely low flow resulting from prolonged drought conditions.

A bed of water crowfoot developed by the owner through local coppicing to provide enhanced light penetration and transplanting weed from another reach.

Examples of large woody debris (LWD) within the channel providing cover for fish and encouraging river bed scour. Good habitat for trout and crayfish

Throughout the reach the river was lined with mainly mature alder trees and the occasional goat willow or sallow (*Salix caprea*). Some of the alder roots in particular have created excellent in-channel cover which will be utilised by a range of fish species. Mr Carter reports having spotted a small crayfish in the river and it is possible that the river still supports some relict populations of the protected white clawed crayfish (*Austropotamobius pallipes*). Alder root systems are a particularly favoured habitat for native crayfish.

In addition to the well developed tree root systems there was good examples of large woody debris (LWD) sitting within the channel. Trees and shrubs are important natural components of riverine ecosystems. Shading of river banks and channels, the protection of banks from excessive erosion, the supply of LWD and the attenuation of surface run-off, are all vital contributions from riparian trees to the shaping of habitat quality.

In a truly natural system, trees would develop an uneven age structure, with the combined pressure of light grazing by animals, and the natural fall of timber, leading to a mosaic of light and shade. Fallen timber would create woody debris dams, leading to braiding and scouring of the channel, whilst open areas of riverbank would develop dense growth of valuable fringing vegetation. Nowhere in the British Isles are such rivers now found. The historic clearance of trees, over-grazing by domestic stock and wild mammals (notably deer), and agricultural developments have all impacted on the diversity and abundance of trees. However there are many ways in which trees can be managed to optimise habitat for wild trout. When doing so, it is important that any tree management undertaken should recognise their value for a wide range of species. Birds, mammals, invertebrates, lichen and fungi all utilise trees for food, shelter or both. The interests of trout should not be promoted in isolation from other species.

Small debris dam on the adjoining tributary. This dam presents no difficulty for migrating trout

Halfway down the reach the river is crossed by a ford. The hard invert of the ford is possibly acting as a slight impoundment to flow as habitats downstream of the ford were generally superior to those above. On the lower section there were numerous examples of high quality trout spawning sites where gravel bars have been thrown up on the tail of scour pools to form ideal gravel ramps for winter spawning trout. This section of river is likely to support small resident brown trout but it is highly likely that large sea trout will also run upstream from July onwards. Fish will take up residence in some of the deep, well covered pools that exist throughout the reach and wait for an autumn flood before moving upstream to spawn in December / January. Resident stocks will also be augmented by fresh fish arriving prior to either local spawning activity or further migrations upstream to shallow spawning habitats.

A typical glide running down onto a broken riffle. A likely area for winter trout spawning activity

Trout redds can be recognised as piles of gravel thrown up by spawning fish in relatively fast flowing, shallow water, generally on the 'up slope' at the tail of a pool. It would be advisable to walk the river in late December / January to identify spawning areas (see recommendations).

Riparian habitats varied from old poplar plantations to an area of arable farm land adjacent to the RB. The flashy nature of the catchment does leave the in channel spawning habitats vulnerable to sedimentation pressures. Some early autumn cleaning and loosening of gravels (see recommendations) will help to improve the survival rates of trout eggs.

Near the bottom boundary, a small tributary joins the main Blackwater from the north. This stream will almost certainly also support resident trout. Initial

inspections of the stream suggest it may be suffering from some local nutrient enrichment. Certainly there was more evidence of filamentous algae clinging to branches and stones on the river bed than in the adjoining main river. We would suggest making a call to the local Environment Agency Office to enquire as to whether this stream is ever subject of any water quality monitoring.
An excellent way of satisfying yourself that water quality is good is to undertake some simple monitoring of aquatic invertebrates. The Riverfly Partnership offers advice and straight forward training to river owners and angling clubs on how best to monitor water quality using some simple, robust techniques.. More information can be found at www.riverflies.org – see the 'Anglers Monitoring Intiative' section

The non native plant Himalayan balsam

Himalayan balsam *Impatiens glandulifera* was introduced to the UK in 1839, and is now naturalised, especially on riverbanks and waste ground and has become a problematical weed. 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.
It tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. Being an annual plant it dies back in winter leaving large areas of bare bank vulnerable to erosion. Its presence along riverbanks is therefore undesirable.

The control of Himalayan balsam can be achieved by physical or chemical means:

Physical Control

The main method of control, and usually the most appropriate, is pulling or cutting plants before they flower and set seed (usually in June or July). Working parties are the best means of doing this. Controlled access for grazing animals is also a technique that is frequently used but is probably not suited for your situation.

Chemical Control

Before using weedkillers alongside waterways it is necessary to contact the Environment Agency and obtain their written consent via form WQM1 (www.environment-agency.gov.uk/subjects/conservation/840870/840941/). It can also advise on suitably qualified contractors.

Himalayan balsam can be controlled with a weedkiller based on glyphosate, such as Roundup. Glyphosate is a non-selective, systemic weedkiller that is applied to the foliage. It is inactivated on contact with the soil, so there is no risk of damage to the roots of nearby plants, but care must be taken that the spray doesn't drift onto their foliage. Glyphosate is most effective when weed growth is vigorous. This usually occurs at flowering stage but before die-back begins; with most weeds, this is not earlier than mid-summer.

It may take a couple of seasons to obtain good control due to the germination of more weed seedlings.

5. Conclusions

This section of the River Blackwater provides the full range of freshwater habitats needed for all life stages of trout, including sea trout. It also provides some superb habitat for other important fish species such as bull head (*Cottus gobio*) and brook lamprey (*Lampetra planeri*).

Currently the river receives very sympathetic management and maintenance and the current relaxed approach to retaining woody debris within the channel is beneficial and should continue.

The dense stands of marginal alder would benefit from some selective coppicing to promote some dappled light and shade within the channel. When large stands of mature trees are left unmanaged there is always the danger that large numbers may collapse all at the same time. Undertaking some selective coppicing will help to preserve trees and if taken from the south bank may help to promote some enhanced weed growth within the channel.

This section of river will also undoubtedly be utilised for spawning by migrating sea trout. Spawning success can be enhanced by ensuring that spawning gravels are loose and silt free prior to spawning activity in the winter. Simple raking of gravels will help. Blasting the gravels to remove sediments with a high pressure water pump or backpack leaf blower will provide optimum conditions for spawning trout or sea trout. Trout are natal spawners so inspecting the river carefully in the winter should help to identify the areas most favoured for spawning and enable some targeted gravel preparation the following autumn.

Some discussion over threats to water quality were raised during the visit from nutrient enrichment via the tributary and also potentially via large manure heaps which are periodically stored by the neighbouring farm adjacent to the road leading down to the ford. Potentially the road can act as an arterial drain and could lead to some undesirable enrichment of the local river environment. Obtaining the skills and means to undertake some self monitoring (for example, through the Riverfly Partnership Anglers Monitoring Initiative) will enable samples to be taken and give an early warning to any potential threats. This will also provide evidence and impetus for the Environment Agency to carry out further investigations should any problems be detected.

Gravel cleaning in the autumn using a leaf blower

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.

6. Recommendations

- Whenever possible retain inchannel LWD
- Control the spread of Himalayan balsam
- Undertake some selective coppicing of alder from the south bank to preserve the trees and root systems and allow a little more light penetration
- Consider joining the Riverfly Partnership to enable some self monitoring of water quality
- Identify any areas where trout and sea trout are spawning (request help and advice from the WTT in identifying redds if required). Undertake a modest programme of gravel cleaning the following autumn to help boost egg survival.

5. Making it happen

There is the possibility that the WTT could help to start an enhancement programme. Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). PVs 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.

Alternatively the Trust may be able to help in the development of possible project plans for the creation of new spawning and nursery habitats.

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.

Acknowledgement

The WTT would like to thank the Environmnet 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.