



## **Rother - Adhurst**



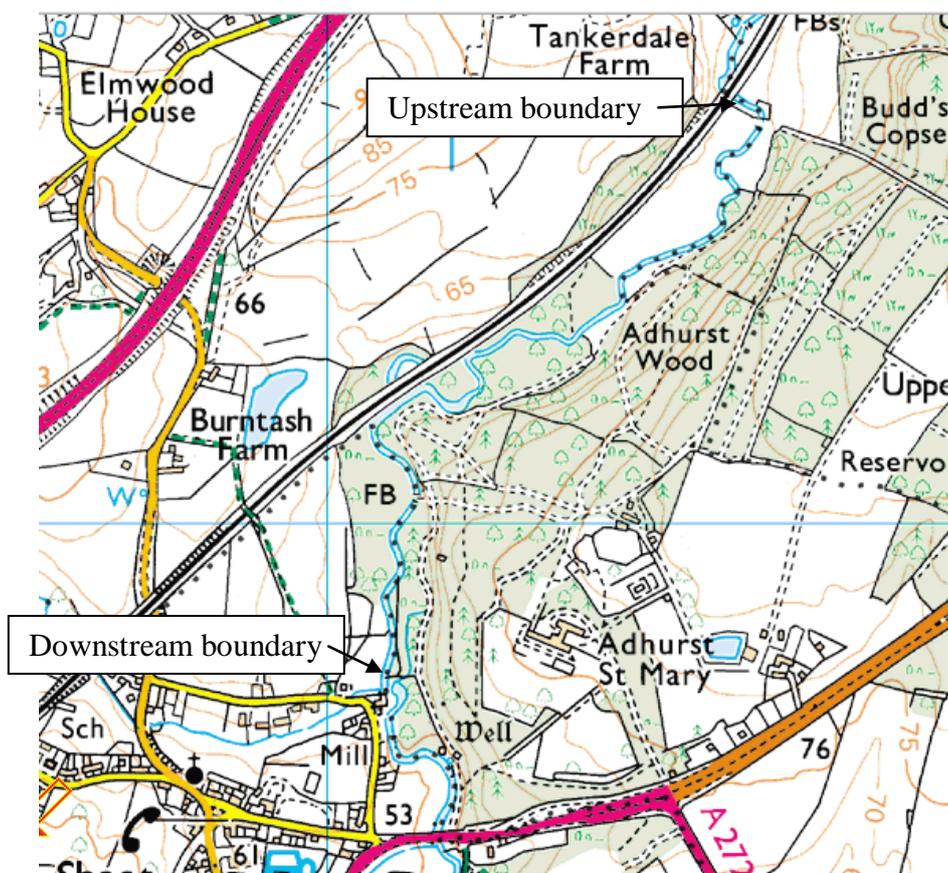
**An advisory visit carried out by the Wild Trout Trust – May 2013**

## 1. Introduction

This report is the output of a Wild Trout Trust Advisory Visit (AV) undertaken on a 1.5-km section of the River Western Rother at Adhurst, near Sheet. The beat inspected ran from the railway bridge on the upstream boundary at NGR SU 766 256 down to the Mill in Sheet at SU 760 247.

The request for the visit was made by Alison and Guy Lubbock, who own and manage the Adhurst Estate. The Lubbocks are developing a woodland yurt holiday business on the estate and are keen to explore if this section of Rother could be marketed as a viable wild trout fishery to attract visitors to stay on the estate. Comments in this report are based on observations on the day of the site visit and discussions with Alison Lubbock.

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.



Map 1 River Rother Adhurst Estate

## 2. Catchment overview

The Rother (Waterbody ID 107041012840) has been assessed as being in 'moderate status' under the Water Framework Directive although the river is known to be both over abstracted and over licensed for abstraction under the EA's Catchment Abstraction Management Plan. The middle and lower Rother are failing WFD targets for siltation pressures and impoverished fish communities. The WFD assessment process for the upper Rother does not reflect the fact that the local trout population is performing well.

Western Rother (Upstream Petersfield)	
Waterbody ID	GB107041012840
Waterbody Name	Western Rother (Upstream Petersfield)
Management Catchment	Arun and Western Streams
River Basin District	South East
Typology Description	Low, Small, Siliceous
Hydromorphological Status	Not Designated A/HMWB
Current Ecological Quality	Moderate Status
Current Chemical Quality	Does Not Require Assessment
2015 Predicted Ecological Quality	Moderate Status
2015 Predicted Chemical Quality	Does Not Require Assessment
Overall Risk	At Risk
Protected Area	Yes
Number of Measures Listed (waterbody level only)	2

[Summary of Water Framework Directive information for the River Rother taken from EA web site](#)

The Western Rother is the main tributary of the River Arun and rises from the chalk hanger near Hawkley. The Rother is augmented by a number of small streams that percolate from springs rising from the chalk to the west and south, as well as springs that rise from the greensand ridge to the north. The Rother then flows due east to join the Arun at Hardham at the head of the tidal river.

Much of the Rother is characterised by a soft sand substrate, a function of the local greensand geology. River bed gravels are relatively scarce here. Those that are present tend to be derived from two principle sources: either from broken outcrops of sandstone, or from the small quantities of flint that have eroded from the streams that drain the chalk slopes. Although strong populations of wild brown trout are to be found upstream of Petersfield, generally low densities of both trout and coarse fish are found through the middle reaches where the substrate is quite soft and habitat relatively uniform. However, localised sections

that possess a firmer substrate and more varied habitat support better fish populations.

The Rother supports a good population of migratory sea trout which run the lower and middle river and tend to spawn in small tributaries. Access all the way to Petersfield is extremely difficult as numerous weirs and milling structures block and delay upstream migration. Some fish have been reported as far upstream as Sheet following a high flow autumn.

Water quality is generally good, particularly above Petersfield. Occasional pollution incidents have been reported in the area, with a serious pollution occurring a few years ago on the Tillmore Brook, which enters the Rother a short distance downstream of Sheet.

The river suffers periodically from low flows, and the intensive nature of the agricultural land use downstream of Petersfield can put enormous pressure on the river. Large quantities of water are removed for spray irrigation and in recent years intensive arable and salad crop production has led to concerns over increased siltation derived from finely tilled soils in the flood plain and surrounding valley slopes. The huge quantities of fine sediment finding their way into the Rother are thought to be compounded by intensive rainfall events regularly experienced during the last decade.

### **3. Local Fishery Overview**

Angling activity on the Adhurst water has been extremely light. The fishery has been managed and maintained by Mr Andy Platt who occasionally fishes the water along with friends and guests of the owners. Active management has consisted largely of tree works where the dominant alders have been selectively coppiced to allow more light into the river and to facilitate some improved access for angling. Mr Platt has actively managed the river bed on known spawning sites by raking the gravels prior to winter trout spawning. Some relocation of water crowfoot (*Ranunculus spp*) has also been undertaken (*A Platt pers comms*). Mr. Platt stocks a modest number of farm reared trout in most seasons to augment the catch of wild fish. It is presumed that this stocking is carried out to provide larger fish as the density of wild trout is very healthy.

The Rother at Adhurst has been used as an Environment Agency fishery monitoring site. Information obtained from Damon Block, EA Fisheries Technical Officer suggests that the site performs extremely well for brown trout (*Salmo trutta*) with above average densities recorded (*D.Block pers comms*). A number of other important fish species have also been recorded at Adhurst including eel (*Anguilla anguilla*), Bullhead (*Cottus gobio*) and Brook Lamprey (*Lampetra planeri*) the latter two species being protected under the European Habitats directive.

Until comparatively recently the Upper Rother also supported one of the last populations of native White Clawed Crayfish in the south. It is possible that this population is still present in one or two of the small tributaries that feed into the upper Rother system.

#### 4. Habitat assessment

The River Rother at Adhurst supports a diverse range of in-channel habitat that is ideal for all life stages of brown trout. The channel benefits from a comparatively steep gradient, which has promoted a series of classic pools, riffles and glides, especially on the upper sections of the beat where the river is not impounded by the old mill structure at Sheet.

The lower section is adversely impacted by the impounding effect of the old milling impoundment at Sheet. This structure has the effect of backing up the flow and slowing the water velocities. This has resulted in significant sand deposition, particularly where the channel is wide, or on the inside of any bend.

It is unrealistic and undesirable to manipulate the channel to mobilise all of the settled fine sediment. Much of this material is stable and naturally deposited on the inside of bends, or trapped behind woody debris. Settled sediments can provide good habitat for a range of other important river species, including eel (*Anguilla anguilla*) and brook lamprey (*Lampetra planeri*) as well as specialised burrowing invertebrates such as the larval mayfly (*Ephemera danica*). Maintaining good quality habitat for aquatic invertebrates is an essential component for supporting a good quality trout fishery.

As well as maintaining some areas of settled sediment for burrowing insects, retaining both coarse and large woody debris within the channel helps to provide essential habitat and a primary source of food for shredding invertebrates such as shrimp (*Gammarus pulex*) and a variety of caddis species. Submerged woody material is also essential in helping to shape and scour sediments and gravels and sort the bed material so that it is available for a wide range of species and uses. Large woody debris (LWD) such as fallen tree trunks or large branches, is usually responsible for forming pool habitat. When a tree falls, or leans over, the river scours the bed material below to form a deeper pool, creating an ideal residence for adult trout. The gravels scoured from the bed are then deposited downstream of the pool as an upward sloping ramp. These areas are used by trout for spawning in the winter, where they cut their nest (or redd) in the loose gravel bed. Further downstream of the pool, there is often an area of very shallow broken riffle and these areas are favoured by juvenile trout as they can hide from bigger fish which otherwise might eat them. Larger fish prefer deeper water as they are vulnerable themselves to predation when they venture into shallow water. Coarse woody debris, brushwood or brash, trailing annual plants, or low scrubby cover spilling into the water margins are all extremely valuable on these shallow runs as they protect juvenile fish from predation by herons and egrets. Larger cobbles or pieces of LWD that settle onto shallow sections also provide refuge for fish of a range of sizes dependant on water depth and velocity.

The retention of woody material within the channel is therefore essential and must be balanced with any need for maintaining access for angling. If the woody material is situated in an area where it renders fishing impossible then it can simply be moved and secured so that there is room to cast a fly but essentially still be retained nearby as a bolt hole for the fish.

Mature trees and shrubs line the bank of the river for almost all of the reach. On the positive side, this has a number of advantages: the shade has a cooling effect on the water in periods of low flow in the summer; insects drop from the trees to augment the food supply in the river; tree roots and trailing vegetation protect fish from predators and the root systems stabilise the banks and prevent excessive erosion.

Where direct sunlight was penetrating the channel there were beds of water crowfoot especially where the flow was brisk and the river bed stable. Starwort (*Callitriche* spp.) was also present growing in areas of lower flow velocity over softer river bed material. Both plants provide excellent cover for trout and are important habitats for a range of aquatic invertebrates. Species such as water crowfoot need plenty of sunlight, and these plants are hosts to many of the invertebrates that trout and other fish will feed upon. A mix of 50:50 direct sunlight and shade is a good ratio to aim for.

The Rother at Adhurst appeared to have the right balance of light and shade. A regular and close inspection of the alder trees should be made as these do tend to suffer from disease. Early coppicing when disease is detected can often prolong the life of the tree. Alder trees when coppiced survive well and will re-grow as a multi stemmed tree. Coppicing out the occasional clump of mature trees creates a varied structure to the canopy and avoids issues associated with large numbers of mature trees collapsing at the same time following severe weather. When choosing trees to coppice, it is advisable to concentrate on thinning those trees casting more shade from the southern bank.

When carrying out tree work, bear in mind that rotational coppicing over a 5 or 7 year period is the best approach. Large-scale works in one year will promote rapid re-growth and create a management problem a few years down the line. Small scale and selective tree work to allow light to fall onto shallow glides and riffles will promote the growth of in-channel plants. Leaving the shade over deep pools will allow trout to feel secure and keep water cool in hot summers.

A very welcome and somewhat unusual component of the habitat at Adhurst compared to the middle and lower Rother are the regular outcrops of flint based gravels. Where these have eroded out from the bank or bed, usually adjacent to a leaning or previously fallen tree, they have provided some high quality trout and lamprey spawning sites. In addition, where sufficient light penetrates to the river bed, the hard gravel bottom has provided a suitable environment for beds of water crowfoot to establish. This plant is a comparatively unusual site on the Western Rother and is synonymous with high quality trout habitat. The plant is particularly important because as well as trapping fine sediments, it sweeps the bed clean in between the weed tresses and provides valuable in-channel cover for trout of all sizes. Water crowfoot is the preferred habitat for the larval stage of a number of important river invertebrates, many of which form an important component of trout diet and also provide the adult river flies so important to the trout fly fisherman.



Photo 1 Healthy beds of water crowfoot flourishing where the river bed is gravel lined and where the sunlight hits the water.



Photo 2. Diversity in channel shape - promoting great trout habitat



Photo 3 A rich gravel seam and potentially good habitat for all life stages.

There were numerous examples of good quality habitat for trout, ranging from deep holding pools for adults through to the tail of pools flowing over clean gravels which are ideal for spawning and holding juveniles. Habitat could be further improved with the provision of more brashy cover (coarse woody debris), particularly adjacent to shallow margins (Photo 3) to provide improved cover for fry and parr. This is particularly important in helping to reduce predation pressures.

River margin habitat was generally more luxurious from the LB compared to the RB, mainly due to local grazing pressures (photo 4). High densities of grazing animals with unrestricted access to the river bank can do serious harm to in-channel habitat by leaving soft banks vulnerable to erosion under high flow conditions (photo 5). The low, scrubby cover which overhangs the river channel on un-grazed sections provides improved cover and a source of food via terrestrial insects that fall into the channel. Many landowners and fishery managers choose to erect fences to create a buffer zone between the livestock and the river. Suitable areas to provide drinking opportunities can be created and fencing is a very effective method of providing improved bank protection and erosion control. Some maintenance will be required inside any buffer zone to avoid too much high scrub developing.



Photo 4. Livestock grazing can leave banks vulnerable to erosion pressures.



Photo 5. Erosion caused by winter back eddy impacting on a heavily grazed bank

The presence of non native plants on the Adhurst estate is of concern. Himalayan balsam *Impatiens glandulifera* is prevalent in many sections. This plant 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.

Himalayan Balsam can be controlled with determination. The plant can be easily hand pulled and composted away from the river provided seeds have not formed. The plant can also be strimmed below the first node prior to flowering. Alternatively the plant can also be controlled with a contact herbicide. The use of herbicides anywhere near to a watercourse will require consent from the EA.

Of more concern was the presence of a modest sized clump of Japanese knotweed *Fallopia japonica* (photo 6). This plant is potentially extremely invasive and damages river banks in a similar way to balsam. The eradication of this plant at an early stage is a priority action and it is recommended that some specialist advice is taken over control methods.

A single skunk cabbage *Lysichiton americanus* (photo 7) was also seen and should be removed before the plant becomes established.



Photo 6. Japanese knotweed on the river bank at Adhurst. Potentially a big threat to the local Rother ecology.



Photo 7. Skunk cabbage. Should be controlled now before it becomes a problem

#### **4. Angling opportunities at Adhurst**

The Rother at Adhurst would be of interest to any wild trout enthusiast, providing a high quality fishing experience in a beautiful setting. The river has been well maintained and is perfectly fishable for any competent fly fisherman. The opportunity to have access for river fly fishing for wild fish in a location so close to the capital is unusual and will be of interest to many anglers.

The river would not be able to sustain intense angling pressure but good quality sport could be expected provided that the river is not over fished. The reach is long enough to provide a full day's sport for one or two rods. Angling should ideally be restricted to two or three days a week, with access controlled via a simple booking scheme to either accompany the yurt business or even as a stand-alone fishery. The fishery is a valuable asset that complements the yurt accommodation.

The fishing would need to be strictly controlled and although some bait fishing tactics might be acceptable on rare occasions, particularly for children who may not be able to wade or fly fish, the trout fishing would be best protected if the method was restricted to fly only on a "catch-and-release" basis. This is perfectly acceptable to most modern trout anglers, who enjoy the challenge of catching a wild fish on the fly and are not necessarily interested in turning their catch into a meal. With fly fishing and catch-and-release tactics the fishery can sustain regular visits. Bait fishing (e.g. with worms) has the major disadvantage that trout tend to swallow the bait and become deeply hooked, leading to high rates of mortality post-capture, even where catch-and-release fishing is intended.

If some guests were tempted by the idea of catching a fish for breakfast then the fishery could sustain the occasional fish taken for the table. A maximum of two fish per stay and of at least 23cm in length (Local EA byelaw size limit) would be reasonable but should not be actively encouraged.

It might be useful to make contact with a local guide/instructor so that opportunities for providing tuition for the novice fly fisherman are also available. This might be an area that Andy Platt could help with. There are associations for angling guides/instructors e.g. <http://www.aapgai.co.uk> or <http://www.gameanglinginstructors.co.uk>.

Fly fishing for brown trout can commence from 3<sup>rd</sup> April, with the season ending on the 30<sup>th</sup> October. Anglers would need to be in possession of a valid Environment Agency rod licence (available on-line, or from a local post office) but the responsibility for complying with angling legislation is with the angler and not with the fishery owner. It is however helpful if the fishery owner is aware of the local byelaws and can provide at least some information. Further information about the local EA byelaws is available via the EA website.

## **5. Trout stocking**

Currently the fishery is being stocked with domesticated farm reared fish. At best the stocking is unnecessary and at worst potentially damaging to the wild populations. There are several issues associated with the impacts of stocking on wild fish, including competition and predation pressures as well as the risks of introducing dangerous pathogens.

A major concern when stocking mixed sex, fertile (diploid) fish is that there is the possibility of interbreeding with the wild stocks resulting the potential loss of genetic fitness. If stocking is deemed absolutely necessary to provide larger fish then it is recommended that all female sterile stock (triploid) are used to avoid genetic introgression into the wild population.

If the fishery is managed on a "catch and release" basis then larger fish will eventually come through and stocking will be unnecessary.

## **6. Conclusions**

The River Rother at Adhurst supports a delightful and viable wild trout fishery that would be of interest to many visiting anglers.

The current maintenance regime is sympathetic to the needs of the river. A close eye needs to be kept on the grazing pressures on the RB. Grants for fencing might be available via the South Downs National Park Authority which is very supportive to landowners keen to protect valuable habitat.

The SDNPA is also be keen to support businesses that are looking to attract visitors to the area. Opportunities for wild trout flyfishing located in such a lovely environment will complement the existing yurt business.

It is the view of the WTT that trout stocking is not required to sustain a viable fishery on this section of river.

Priority actions include the eradication of the non native species currently established at Adhurst. Help is available via the SDNPA.

## **6. Recommendations**

- Monitor the densities of sheep grazing adjacent to the RB and consider fencing the area to create an un-grazed buffer zone.
- Take advice from professionals on the control and hopefully eradication of the Japanese knotweed.
- Speak to the SDNPA about linking up with other voluntary groups who are engaged in work parties to pull up Himalayan balsam.
- Leave as much fallen woody debris in the channel as possible. If fallen wood is causing an access issue then move it and secure it but don't remove it from the channel.
- Consider introducing more brashy woody debris into shallow margins on riffle habitat.
- Cease the programme of trout stocking and encourage anglers to undertake "catch and release" tactics.
- Regulate and restrict angling activity to fly only, with a maximum of two anglers fishing on any one day and fishing activity undertaken on a maximum of four days a week.
- Protect the fishery by ensuring anglers comply with local byelaws.

**It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking those 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 EA's Development Control Officer.**

## **7. Making it happen**

There is the possibility that the WTT could help to start a project via a Project Proposal (PP) or a Practical Visit (PV). PV's typically comprise a 1-3 day visit where approved WTT 'Wet-Work' experts will complete a demonstration on the site to be restored. This will enable fishery managers to obtain on the ground training regarding the appropriate techniques and materials required to enhance trout habitat. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

Recipients will be expected to cover travel and accommodation expenses (if required) of the PV leader.

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 organisations and landowners through guidance and linking them up with others that have had experience in improving river habitat.

### **Acknowledgement**

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

### **Disclaimer**

This report is produced for guidance and not for specific advice; 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 guidance made in this report.