



## **River Dun – Dunerley, Dunbridge**



**Advisory Visit January 2019**

## **Key Findings**

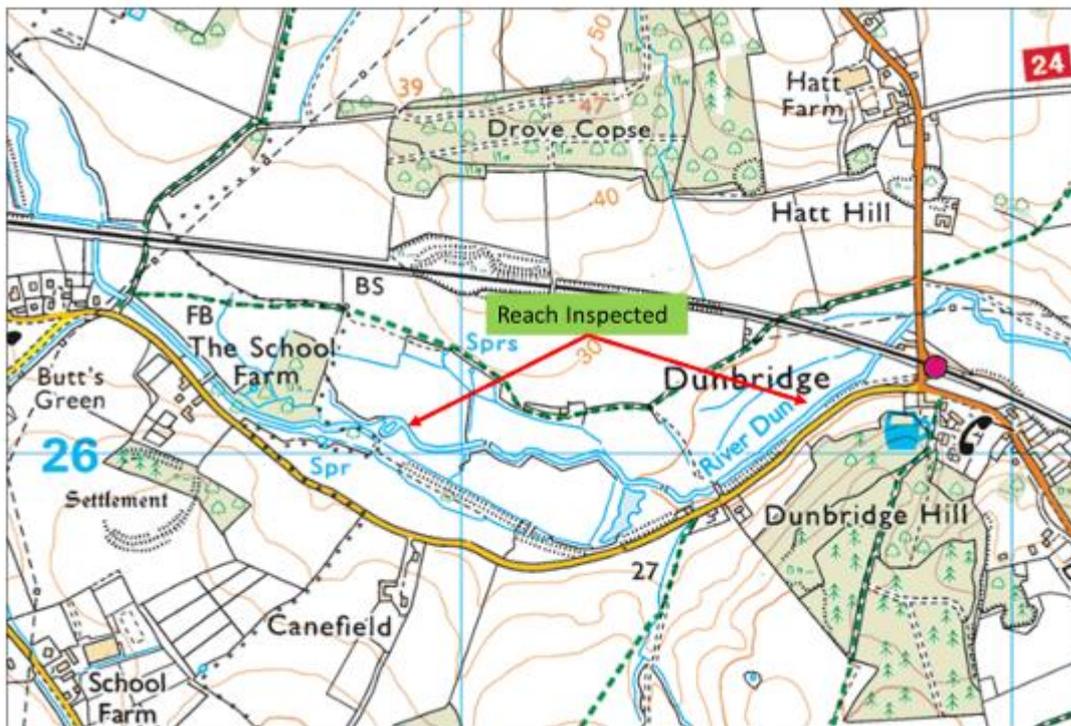
- **This section of the River supports a diverse range of high-quality habitat suitable for maintaining a wild trout and grayling fishery.**
- **The side stream loop and shallow gravel runs near the top boundary are particularly important as spawning and nursery sites, which are of critical value to the whole fishery.**
- **Tree work to tall, leggy alder trees is recommended. Material won from these works could usefully be used to enhance in-river habitat quality via the use of tree hinges, sweepers, cover logs and flow deflectors.**
- **In the more open sections, alternative native tree species such as goat willow and hawthorn should be planted to promote low-level marginal cover.**
- **Block stones in the low summer weir could be redistributed to improve upstream habitat.**
- **The section of high right bank bordered by a clipped alder hedge could be reprofiled to create a more valuable chalk stream margin.**
- **Dunerley might sustain a viable wild fishery, without the need for stocking with farm-reared trout. This option will not necessarily be a popular move for all the visiting rods and will require a change of emphasis with the management regime.**

## 1.0 Introduction

This report is the output of a site visit to a 1 km reach of the River Dun, near Dunbridge in Hampshire.

The request for the visit came from Mr. Mike Harrison who is the riparian owner of the right bank of the river. Mr. Harrison currently lets the fishing rights through a chalkstream fly fishing agency and enjoys a good working relationship with the National Trust, who own sections of the opposite left bank. Mr. Harrison is particularly keen on exploring opportunities for enhancing both the fishery and the ecological value of the river and the riparian corridor.

Comments in this report are based on observations made during the site visit and discussions on the day. Normal convention is applied with respect to bank identification, i.e. left bank (LB) or right bank (RB) whilst looking downstream. Upstream and downstream references are often abbreviated to u/s and d/s, respectively, for convenience. The Ordnance Survey National Grid Reference system is used for identifying specific locations.



Map 1. River Dun, Dunbridge. © streetmap

<b>River</b>	River Dun
<b>Waterbody Name</b>	Dun
<b>Waterbody ID</b>	GB 107042022640
<b>Management Catchment</b>	Test and Itchen
<b>River Basin District</b>	South East
<b>Current Ecological Quality</b>	Moderate Status
<b>U/S Grid Ref inspected</b>	SU 31010 26076
<b>D/S Grid Ref inspected</b>	SU 31647 26076
<b>Length of river inspected</b>	1.0km

**Table 1. Overview of the waterbody. Information sourced from:**  
<https://environment.data.gov.uk/catchment-planning/WaterBody/GB107042022640>

## 2.0 Catchment Overview

The River Dun usually rises from a network of chalk springs located between the villages of East and West Grimstead in Wiltshire and flows east for approximately 13km to join the Test at Kimbridge. The upper reaches of the river above West Dean are ephemeral and can dry up completely following drought periods.

The River Dun is listed by the Environment Agency as water body ID number GB107042022640 (summary sheet in table 1). This reach has been assessed as being in moderate ecological status and is failing targets for fish.

Habitat quality overall is very mixed and is heavily influenced by a series of water level control structures. The river displays many classic chalkstream features, even though much of the catchment drains tertiary clay and alluvial gravel geology, leading to slightly flashy flow characteristics and increased levels of suspended sediments, especially when compared to some of the other Test tributaries such as the Anton, or the Dever. The amount of high-quality habitat is limited and long reaches of the channel are heavily impacted by weirs and structures, which impound the flow, promote excessive siltation and fragment fish communities.

The Dun catchment also suffers from diffuse pollution issues associated with agriculture and rural land management, with fine, nutrient rich sediments impacting on fish egg survival rates.

The EA have targets for the river to meet good status by 2027 and have made good progress in working with the Wessex Chalkstreams and Rivers Trust and other local partners to improve fish passage.

### **3.0 Habitat Assessment**

Habitat quality on the Dunerley reach can be broadly described as mixed, with the river having three distinct sections. The top third is probably the most diverse, with good examples of pool, riffle and glide, conducive for all life stages of brown trout, *Salmo trutta*. The gently meandering planform adds to the value of this top section, with narrow deeper pools giving way to wider, shallow glides and occasional riffle sections.

At the very top boundary a small side stream/loop joins the main river from the RB. This stream potentially offers good spawning and nursery habitat and being located at the very top boundary is ideally located for naturally populating wild stocks into the reach below. The section immediately downstream of the loop confluence also supports good spawning habitat with evidence of redds clearly visible (photo 1).



Photo 1. A trout redd immediately downstream of the stream confluence near to the top boundary

The side-stream itself has a comparatively steep gradient flowing over what appeared to be a mainly gravel bed. It will be critically important to maintain lots of cover both in and over the stream. We often recommend tree management to promote more direct sunlight over shallow areas to help boost primary productivity but spawning and nursery sites like this are often best left as a tangle of scrubby tree cover to make spawning adults feel secure and to deter avian predators, giving newly hatched trout increased chances of survival. A very light touch to riparian habitat management adjacent to the loop and known spawning sites is therefore recommended.

Further downstream, riparian habitat is somewhat compromised by a heavily modified right bank, where in places it appears to have been made up with imported material and is comparatively high and dry, with the toe of the bank lined with a line of tightly coppiced alder hedge (photo 2).



Photo 2. The high right bank flanked by a tightly trimmed "hedge" of trees growing out from the toe of the bank

This RB margin provides complex root systems that will resist erosion, protect the bank and provide cover for fish but represents a very unnatural chalkstream margin. One option here is to "cut and fill" the margin by pushing the shrubby tree line down further into the wetted margin with the bucket of a tracked excavator. This will effectively narrow the channel width and increase mid river flow velocities and peg back encroachment of cress that currently marches in from the LB.

Along the whole of the LB reach there are examples of previously coppiced multi-stooped alder trees that are now very tall and leggy (photos 3, 4 & 5).

Some of these trees are ripe for “hinging” into the river margins to create high quality holding lies for adult trout, as well as complex woody habitat for invertebrates. In addition to laying in the odd tree trunk parallel with the bank, occasional stools should be rotationally coppiced to create diversity in the canopy and increase the longevity of the tree and protect its valuable root systems. When coppiced, the new growth forms low-level cover and casts shade in the margins, whilst still allowing shafts of light to hit the river bed in central channel locations. With no rotational coppicing plan, there is always the risk that the trees will get taller and prone to falling, potentially with many falling at a similar time.



Photo 3. One of many multi-stooped alder trees on the LB



Photo 4. The start of a long line of alders, some of which are ripe for hinging into the margins



Photo 5. A combination of coppicing and hinging will improve channel cover and canopy diversity

The middle section running down to near the house can be mainly characterised as deep glide habitat which will no doubt be popular with the visiting rods. This section is comparatively deep and slow flowing and although adult trout and grayling will undoubtedly lie up in this reach, it does lack flow pattern diversity. Adult trout will lie up in comparatively sluggish flow, provided they are adjacent to fast flows where a constant supply of food items can be intercepted with the minimum of effort.

This particular reach could benefit from some large-scale woody flow deflectors to promote flow pattern diversity, as well as changes in bed and bank topography. Potentially alder trunks won from coppicing could be utilised to kick the flow patterns from margin to margin and make this section much more dynamic. There were some good examples of flow deflectors that have been previously installed but they really need to be big and bold to be effective.



Photo 5. A typical example of the middle of the beat where the river is best described as deep glide and lacking in flow pattern variation

Further downstream, below the footbridge, there was evidence of an old stone or block weir (photo 6). Although this structure is very low, it will be responsible for trapping fine sediments in the reach immediately upstream. These low stone weirs are a common sight on River Test and tributaries and are often referred to as "summer weirs", many having been rapidly built during the drought summer of 1976, to retain water depth upstream. What has subsequently happened in the intervening years is that the upstream depth originally created has been lost through increased deposition, as fine sediments have become trapped. This structure is very low and poses no problems for fish migration but habitat quality

in the reach immediately upstream would be improved if the centre of the structure were to be removed. By removing one or two of the central blocks, a downstream flume will be created to maintain a scour pool and high-quality fish holding lie.



Photo 6. A low summer weir. The bed upstream has regraded and filled with small gravels and fine silt sediments. Removing a central block or two to the original bed level will improve habitat both above and below the structure

The bottom section below the field access bridge looks to have been heavily modified and straightened, possibly linked to the railway crossing, or the original construction of the Dunbridge road which runs parallel to this lower stretch. Even though this section is arrow straight, it does support some interesting and extremely valuable habitat.

Long sections of the Test and its tributaries are frequently contained within vertically revetted river margins and finding sections where the water depths gradually taper off to very shallow margins is comparatively rare (photo 7). When these very shallow, slow flowing river margins are immediately adjacent to shallow gravel glides, or riffles and contain lots of riparian cover then they usually support good densities of juvenile wild trout. Wild brown trout, as opposed to domesticated stocked trout, are usually fiercely territorial at virtually ever stage of their life cycle. Rivers that contain a varied topography and lots of complex cover, either via fallen woody material, or luxuriant weed growth will generally hold more fish. For trout fry emerging from their gravel nest (redd) into a deep, open section of river will almost certainly result in it ending up as a meal for a larger fish. Very small trout therefore actively seek areas that are hostile to larger fish. Initially, they will gravitate to extremely shallow, slow

flowing areas to hide, gradually migrating to more central channel lies as they get older and larger. Good quality juvenile trout habitat therefore encompasses a range of habitat types. The bottom reach at Dunerley has this in spades and has been further improved with the addition of whole trees being felled and pegged into the river margins (Photo 8).



Photo 7. A good example of a section of river that supports both good quality parr habitat (shallow riffle under crowfoot beds) and high quality fry habitat in amongst the virtually still water found in the very shallow water just under the cress fringe

This long, comparatively straight section of the Dun would benefit from further tree works to the RB. This is the southern bank of the river and punching the odd hole in the canopy will improve weed growth on this mainly shallow section. The woody materials should then be utilised in a similar fashion to that already successfully deployed to create meandering flow patterns and additional cover which will be particularly valuable in the winter months.

Although there was plenty of tall tree shading on the lower section and on the non-shading northern bank in the middle reaches, there was scope for more low-level cover, particularly on the LB of the bottom reach and on the RB of the middle and upper sections. Native trees such as goat willow *Salix caprea*, and hawthorn *Crataegus monogyna* are considered to be particularly valuable when planted into the toe of the bank, providing, low-level, dense scrubby cover. In addition, it is recommended to maintain marginal fringes of emergent plants as thick and luxuriant stands and these should be allowed to fold into the margins at the end of the season, rather than being topped. Footpaths and access points for anglers should be kept well back from the top of the bank and although some of the rods might find a thick, tall fringe a tad more challenging to fish, the

habitat created will benefit the fish and the adult stages of many of the river invertebrates the anglers rely on to make dry-fly fishing worthwhile.

Overall, the river has been sensitively maintained to provide a decent balance between the ecological needs of the river and access for anglers but encouraging even more marginal cover is recommended, especially for a beat where solely wild fish may sustain a viable and interesting fishery.



Photo 8. A lovely example of good quality habitat where the woody tree complete with its associated brushwood has been nailed into the river bed with chestnut clefts.

#### **4.0 Stocking**

Whilst many land owners, clubs and commercial fisheries still stock rivers and streams with domesticated, farm-reared trout, increasingly more fishery managers are realising the benefits of investing in better habitat management and a reduction or cessation of stocking, to see increasing numbers of wild trout repopulating the river. Fishing for wild fish in a wild environment is sustainable when properly managed and is deemed by many to be more rewarding than angling for stocked fish. The Test and its tributaries form the most heavily trout-stocked system in the country but attitudes towards stocking and the value attached to catching truly wild fish is changing, with some fishery owners and many anglers now appreciating the cache attached to fly fishing for wild trout in a natural environment.

A significant number of land owners, fishery managers and anglers on the southern chalkstreams believe that stocking is necessary to maintain viable fisheries. There is a view too that on beats that have been stocked for over 100

years, the presence of wild fish indicates that stocking does not impact the wildies or, conversely, that the stocking has long-since eliminated the wild fish. Science from around the world suggests strongly that original, wild trout can survive, even alongside heavy and long-term stocking regimes and that the genetic impact of stocking with fertile, farmed fish is variable and unpredictable. The move in England and elsewhere to stocking with all-female triploid brown trout should have reduced these potential genetic impacts, though issues remain of stocked fish competing with, displacing and possibly predated wild trout. It is my view that the existing habitat variety at Dunerley, coupled with further habitat work and a reduction in stocking would see wild fish thrive in these beats.

## **5.0 Conclusion and Recommendations**

This reach of the River Dun supports a diverse range of high-quality chalk stream habitat but could be improved further. A combination of tree management to the leggy alders and the use of any woody material won to create improved in-channel flow patterns and cover is recommended. Tree hinging is a technique that could work well here. The WTT can demonstrate these techniques via a practical visit (PV). Further details about the WTT PV service can be found on the WTT website here:

<https://www.wildtrout.org/content/advice-and-practical-help>

In some of the more open sections, additional low-level tree shading would be beneficial, with the planting of low scrubby species, such as willow/goat willow and hawthorn. When planting willow, it should ideally take place on the toe of the bank, rather than on top of the bank to promote low, scrubby cover.

The section of clipped alder hedge adjacent to the RB is unusual on a chalkstream river bank and is potentially a maintenance liability. The bank along this reach is particularly hard and high and this section could be the subject of a significant enhancement project. Work to radically change the profile of the river banks will require a Flood Risk Activity Permit obtained via the Environment Agency.

Riparian bank maintenance should ideally be more relaxed, with summer annual and aquatic perennial plants allowed to grow taller and fold into the river margins during the autumn and winter period. Sites adjacent to shallow spawning and nursery sites should receive reduced maintenance work. The river is too narrow to facilitate double bank fishing and the non-fishing margin should be allowed to develop a much more luxuriant fauna.

The low summer block stone weir could be modified to improve sediment transport and upstream habitat quality.

You may consider options for changing the emphasis of the fishery from wholly stocked perhaps to wild, managed on a "catch & release" basis, following further work to enhance habitat. An alternative is to divide the reach into beats with stocking purely restricted to the sluggish middle section and the top and bottom

sections left for wild fish only, accepting of course that some stockies will wander.

Support for habitat enhancement work may well be forth coming via potential funding [either directly from the Environment Agency, as part of their Water Framework Directive improvement programme or via the Test and Itchen Catchment Partnership](#). More information about the TICP can be found here: <http://www.ticp.org.uk/>

## **6.0 Making it Happen**

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 [www.wildtrout.org/product/rivers-working-wild-trout-dvd-0](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.

## **7. Acknowledgement**

The Wild Trout Trust would like to thank the Environment Agency for their continued support of the advisory visit service, in part funded by income from rod licence sales.

## **8. Disclaimer**

This report is produced for guidance; 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.

