



**HABITAT ADVISORY VISIT TO THE PILLHILL  
BROOK, ABBOTTS ANN, HAMPSHIRE.**

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MRS EDWARD KEEN**

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## 1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd to the Pillhill Brook, near Andover, Hampshire on 10 February 2006. This visit was funded by English Nature as part of their commitment to the protection and enhancement of chalkstream fish and their habitat.

Comments in the report are based on observations on the day of the site visit, and discussion with the landowner, Mr Keen. 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.

## 2.0 Habitat Assessment

The Pillhill Brook is a chalkstream tributary of the River Anton, itself a tributary of the River Test. The Pillhill Brook rises upstream of Fyfield, flowing in roughly south easterly direction before entering the River Anton to the south of Andover. Total length of the Brook is some 9km.

The Keen's reach of the river ran through the grounds of their property in Abbots Ann, for a distance of perhaps 400m. The channel was some 6m-8m in width. Instream habitat of the fishery was predominantly gravel dominated shallow glide/riffle, with little variation in bed profile. Flow was very low due the sustained period of limited rainfall preceding the site visit. Water depth rarely exceeded 30cm, with the substrate poorly sorted due to the wide channel and lack of Large Woody Debris (LWD) or other physical components that would result in bed scouring. Where isolated sections of LWD were present, there was evidence of some sorting of the substrate, with short sections of deeper water present.



### **LWD (fallen tree branch), with associated bed scouring downstream**

There was a very limited amount of submerged weed present in the channel, with a few stands of starwort *Callitriche* Spp. the most abundant species.

Land use on both banks of the river was dominated by private gardens. The RB was heavily maintained, with short sections of hard bank revetment having been installed. The LB was more natural, with a well-developed fringe of emergent vegetation present, including sedge *Carex* spp. and reed canary grass *Phalaris arundinacea*. There was a considerable accumulation of fine sediment present in marginal areas, particularly on the inside of the bends. Despite the lack of heavy tree shading, the growth of marginal vegetation had not extended into these areas of silt.

A significant section of semi-improved pasture remained on the L.B. .



**Channel showing well-developed LB marginal growth and hard revetment on RB.**

A small pond was present on the LB. This was fed from the river via a screened inlet. There was a heavy growth of algae within the pond.

At the upper boundary of the fishery, the gradient increased, with a short section of riffle habitat present, suitable for spawning and juvenile trout.

### **3.0 Fish stocks**

There was a small stock of large grayling *Thymallus thymallus* present in the reach, along with small numbers of both brown trout *Salmo trutta* and rainbow trout *Onchorhynchus mykiss*. It is understood that no stocking of the fishery had been undertaken recently.

### **4.0 Recommendations**

- The instream habitat of the fishery was very uniform, with little variation in depth. In conjunction with the lack of instream cover, this was severely limiting both spawning success and subsequent recruitment of brown trout and grayling, and habitat availability for adult fish. It is recommended that the following management actions should be taken in order to enhance the fishery.

- Increase the amount of sorting of the substrate by introducing elements of LWD to the stream either in the form of large branches/small tree trunks or by the construction of wooden deflectors. Tree trunks and branches should be securely fixed to the bed and bank of the river to prevent them being washed away.



**LWD in a lowland stream. Note the weed raft built up against the fallen branch, providing cover and causing scour**

Wooden deflectors should be constructed either as upstream facing paired 'v' groynes (see illustration) or as staggered upstream facing individual deflectors



**Paired upstream facing wooden groynes. Note how ends are keyed into the bank in order to prevent erosion.**

The bankside end of all elements installed should be adequately keyed into the bank in order to prevent erosion at this vulnerable location.

It is important that the EA is made aware of any adopted policy to retain LWD in the channel, in order to prevent its removal during routine management operations undertaken by the Agency. It is also vital that neighbouring landowners, particularly those on the opposite bank, are aware of any works planned to the river. Their co-operation is vital if enhancements are to succeed. In addition, it is very likely that only half the river bed belongs to your property. Permission must therefore be obtained from the owner of the opposite bank for any works extending beyond the half way mark on the bed.

- Marginal vegetation should be encouraged to consolidate areas where sediment has already accumulated. Coppicing of some of the riparian trees (beware possible Tree Preservation Orders) would reduce any over-shading of the channel, promoting marginal and instream vegetation growth. Finer brash could be tied into faggot bundles (approximately 1.5m x 0.5m). Localised installation of faggot bundles held in place by vertically driven stakes could then be used to narrow the channel. The area between the faggot bundles and the existing bank should be backfilled with woody brash, wired or tied in place to prevent wash out in high flows. This backfill will act to encourage the deposition of additional fine sediment and the growth of emergent vegetation. Over time, the bank will consolidate, narrowing the river, increasing instream water velocity, and promoting scour of and variation in the bed profile.

Alternatively, a series of small mid-channel islands could be constructed using faggot bundles. These would be of particular benefit in overwide sections of the river where, in conjunction with fencing, they would encourage the growth of marginal vegetation and the consolidation of banks, as well as providing habitat for a wide range of species.



#### **Faggot bundles used to narrow the channel on a Hampshire chalkstream**

- The supply of water from the river to the small pond will increase the input of sediment and nutrient water, encouraging siltation of the pond and growth of algae and shortening its life as an area of open water. In addition it is likely that the activity

of ducks and growth of diatoms will at times result in mobilisation of this fine sediment into the river via the outlet. It is thus advisable to minimise the input of water into the pond, perhaps by the installation of a simple control structure

Barley straw can be used to partially control the growth of algae in small stillwaters. In order to be effective, it should be introduced to the water in late February/early March. Two small bales of barley will be adequate for the pond. They should be broken up and stuffed into tubular mesh sacking (of the type used to pack Christmas trees) in order to make barley straw 'sausages' of 2m-3m in length. These should be tied near to the water's surface, around the perimeter of the pond. In order to function correctly, the rolls need to be in the presence of sunlight and oxygen. Further details can be obtained from the Centre for Aquatic Plant Management <http://www.ceh.ac.uk/sections/wq/CAPM1.htm>

- The quality and availability of suitable spawning gravel within the fishery is likely to be limiting the abundance of trout. The quality of the gravel can be improved by establishing a regime of cleaning spawning gravels each September. This can be achieved by either manual raking, or by the use of high-pressure water jets. Care must be taken to clean riffles rotationally, with only short sections being treated annually. It is important that the EA are contacted prior to any cleaning of gravel, due to the possible discoloration of water in the river resulting from the operation. The same concerns dictate that downstream neighbours should also be forewarned of the operation.
- In order to protect and enhance the stocks of brown trout and grayling, catch and release should be the generally adopted policy for the fishery. Notwithstanding the moral arguments regarding this approach, the conservation benefits to fish stocks are well reported.
- The removal of pike *Esox lucius* from the river is not recommended. There is no well-documented evidence available to show that the practice is of benefit to wild trout stocks. Indeed, there is some evidence to suggest that culling pike selectively removes larger fish, thus reducing cannibalism, and resulting in an explosion of small pike. These are likely to predate on trout parr, increasing pressure on this vulnerable lifestage, and hence recruitment through successive years.
- It is recommended that contact should be made with the local Environment Agency fishery team. The Fishery Technical Specialist, Andy Thomas has indicated that he would be happy to provide further practical advice predicated on the known requirements of fisheries within the River Test catchment. He can be contacted on 01962 764850.
- Any works to the bed or banks within 8m of a river require the previous written consent of the Environment Agency. In addition, the Agency's consent is required under Section 30 of the Salmon and Freshwater Fisheries Act 1975, for the introduction of any fish or eggs to any inland water.
- 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 Windrush AEC Ltd as a result of any person, company or

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