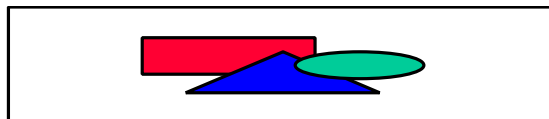




Habitat Advisory visit to the River  
Windrush, Gloucestershire,  
undertaken by Vaughan Lewis, Windrush  
AEC on behalf of Robert Symonds'  
syndicate

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## **1.0 Introduction**

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC to the River Windrush, upstream of Bourton on the Water, Glos. on 17<sup>th</sup> October 2001. This visit was sponsored by Orvis, as part of its commitment to support habitat enhancement schemes through the offices of the Wild Trout Trust.

Comments in the report are based on observations on the day of the site visit, discussion with the lessee, Robert Symonds, information provided by the Environment Agency (EA) and the River Windrush Study report produced by WS Atkins<sup>1</sup>. Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left hand Bank (LHB) or Right Hand Bank (RHB) whilst looking downstream.

## **2.0 The Fishery**

The syndicate leases approximately 1 km of the River Windrush, running from the crossing of the disused railway (SP151212) to the Fosse Road bridge (SP161210).

The River Windrush is a medium sized limestone stream, running in a generally south-eastern direction from the dip slope of the Cotswolds. Its water quality is generally excellent, with a base rich character as a consequence of its geology. Discharge is a mix of base flow and surface water run-off. The former component is modified by a number of small abstractions, most notably at Pinnock and Seven Springs.

Fish stocks are dominated by brown trout and grayling. Some brown trout have been historically stocked to the site. EA fisheries surveys<sup>2</sup> indicated reasonable recruitment of brown trout, with numbers of fish between 15cm and 25cm in length. Visual observation on the day of the site visit confirmed this fact. The surveys also noted the presence of brook lampreys, bullhead and sticklebacks at the site. The former two species are cited under Annex II of the EU Habitats Directive.

## **3.0 Habitat Assessment**

This reach of the River Windrush is characterised by four significant features:

- Extensive historic dredging has overwidened/overdeepened much of the channel. It has also removed much of the original gravel/stone bed, leaving in its place long stretches of sand/marl/silt dominated bed. This has obvious negative implications for brown trout and grayling spawning.
- Poaching of the banks by cattle has exacerbated the problem of overwidening.
- As a consequence of both of these processes, beds of emergent vegetation have become established on deposited silt, forming “flams”. These reed and sedge dominated features have in places totally occluded the river channel.
- Heavy riparian tree growth is present over much of this section. In places, this casts heavy shade over the channel, restricting the growth of marginal/in-channel vegetation and causing further over-widening.

The surrounding fields are managed as permanent pasture.

#### 4.0 Management Recommendations

A significant amount of work has already been carried out on this reach. Substantial lengths of bank have been coppiced/pollarded, whilst Sections 2 and 3 have been subject to dredging aimed at removing accumulated mid-channel silt and pulling back occluding silt flams. In places, the dredging has been rather too extensive, causing over-widening of the river and some localised loss of hard bed material. It is understood that this work did not receive formal consent from the Environment Agency.

Despite these criticisms, there is little doubt that the clearance undertaken has opened sections of the river for angling and laid the foundations for its remediation. Recommendations for future work include:

- It would be prudent to reduce damaging poaching of the banks by cattle. Mechanisms for this include fencing of the banks, or perhaps more positively, the entry of the riparian fields into an agri-environment scheme, particularly the Environmentally Sensitive Area Scheme. This provides financial compensation to landowners for reducing stock to an environmentally more acceptable level. Details can be obtained from the local DEFRA office.
- The coppicing/pollarding undertaken has opened up the channel, and reduced excessive shading. This is a positive long-term enhancement. However, in combination with the dredging work, the availability of in-channel cover has been dramatically reduced in Sections 2 and 3. The behaviour of the trout and grayling on the day of the site visit was clear evidence of the disturbance to stocks. Fish were shoaled in unnaturally large groups and were visibly unsettled. It is thus recommended that no further tree work be undertaken in these sections for at least two seasons, in order to allow some cover to develop.
- The arisings from the tree trimming should be used to create faggots, roughly 2m long with a diameter of approximately 300mm. This work has already begun. Once manufactured, the faggots can be used to reform a new edge to the river. The channel should be narrowed locally by 2-4m (use the line of deposited silt as a guide to the exact width of the new channel) using the faggots. They should be pinned in place using wooden stakes and backfilled with secured brushings or locally derived sub-soil/granular fill. The top of the faggots should be set at approximately 100-150mm above mean summer water level. The faggot bundles could be used in places to create mid-channel islands, effectively narrowing the river and creating an interesting and under-represented habitat type. Small willow “snow shoes” could also be manufactured and pinned to shallow sections of river bed in a chequer board fashion in order to trap water crowfoot, thus establishing new submerged weed beds.
- Section 3 has not been managed in any way in the recent past. It is significantly shaded by riparian trees. As a result it is very overwide in places, with extensive growth of emergent vegetation in mid-channel. Due to the general paucity of cover in the reach, it is recommended that no work should be undertaken here until winter 2002-2003 at the earliest, by which time, some in-channel and marginal cover should have re-established in Sections 1 and 2. Work in Section 3 should then focus on a reduction in shading by selective rotational coppicing (significant lengths should be left uncut in the first year and should be cut in subsequent years) and the consolidation of silt flams. It may be that this can be achieved by hand cutting of emergent vegetation and careful backfilling of the flams using timber brushings arising from the coppicing. Alternatively, it may be appropriate to selectively control short sections of emergent vegetation using the herbicide glyphosate. By controlling mid-channel growth, water can be trained into the newly opened central channel, drawing it away from behind the reed flams, encouraging their consolidation. It is vital that the use of

glyphosate or hand cutting does not overwiden the channel, as this will just promote deposition of silt and restart the unhelpful cycle of mid-channel vegetation growth. It is also important to note that the use of glyphosate requires written consent from the Environment Agency and should only be undertaken by suitably qualified operators.

- As previously mentioned, the quality and availability of gravel in the Windrush is a limiting factor on the recruitment of both trout and grayling. Simple cleaning of the existing gravel in September, either by hand raking/forking, the use of a scouring “mud-engine” or by pressure jetting the gravel with water, will significantly enhance the potential for recruitment. In addition, the creation of new areas of gravel riffle would be of great benefit, both in terms of the creation of new spawning/nursery habitat and to the overall form of the river. This would be a major undertaking and further professional advice should be sought at the planning stage.
- Despite the reasonable recruitment of brown trout and grayling in this reach of the Windrush, fish stocks are still very vulnerable to over-exploitation. It is thus recommended that the syndicate should operate a “catch and release” policy for the fishery. Even relatively small numbers of fish removed could have a significant impact on this fragile headwater fishery.
- Grants for this type of enhancement may be available under the ESA scheme, from the Environment Agency, Wild Trout Trust, landfill tax credits and heritage lottery funding. If the syndicate are seriously contemplating a significant enhancement programme on this reach of the river, it would be advisable to approach the Environment Agency, who have a full time partnership officer able to co-ordinate bids for work of this type.
- The Environment Agency is conducting a significant amount of research on the Windrush at present following the 1999 study of the river. It would be of great benefit to the syndicate to create good links with the Agency and tap into the output from the studies being undertaken.
- Finally, it is important to understand that all works to the bed of the river and its banks within 8m of the channel require the written consent of the Environment Agency under the Land Drainage legislation. Use of herbicide and the introduction of any fish or eggs also require a written consent from the Agency.

## **5.0 References cited**

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| 1. The River Windrush Study        | EA Report produced by WS Atkins, Dec.1999 |
| 2. River Windrush Fisheries Survey | EA, 1993/94                               |