

**HABITAT ADVISORY VISIT, LANGFORD LAKES
NATURE RESERVE,
RIVER WYLYE, WILTSHIRE
UNDERTAKEN BY VAUGHAN LEWIS,
WINDRUSH AEC ON BEHALF OF
WILTSHIRE WILDLIFE TRUST.
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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC to the Langford Lakes Nature Reserve, River Wylde, Berkshire on March 18 2003. The visit was sponsored by English Nature, as part of its commitment to support the biodiversity of chalk rivers 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 Chris Riley (Reserve Manager) and information provided in the Langford Lakes Nature Reserve Conservation Management Plan. 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 site

Wiltshire Wildlife Trust owns and controls some 1km of the RHB of the River Wylde, adjacent to Langford Lakes Nature Reserve. The Wylde forms part of the River Avon system Site of Special Scientific Interest (SSSI) and Candidate Special Area of Conservation (cSAC). The river has been designated for a range of species and habitat types including water crowfoot *Ranunculus spp.*, brook lamprey *Lampetra planeri*, bullhead *Cottus gobio*, Atlantic salmon *Salmo salar*, Desmoulin's whorl snail *Vertigo moulinsiana* and water vole *Arvicola terrestris*.

Brown trout and Salmon are known to have spawned on the Trust's stretch of the river, with a 75cm long salmon carcass found during the winter of 2002-2003. No quantitative records of either salmon, brown trout or grayling spawning have been kept.

Fishing rights are owned by the Trust on both banks for the whole of the reach. The fishing is let on a day ticket basis, for fly fishing for brown trout and grayling *Thymallus thymallus*. Fishing commences for brown trout on 15 April and ceases for grayling on 14 March, thus allowing a close period of one month. Fishing is strictly on a 'no-kill' basis with all fish returned to the river after capture. No stocking of the river has taken place for more than two years. Pike have historically been removed from the river by electrofishing in an effort to reduce predation on brown trout and grayling.

Since acquiring the fishery in 2001, the Trust has undertaken a variety of habitat management:

- Significant pollarding and coppicing work has been undertaken on the RHB in order to reduce the shading of the channel.
- 50m of bank stabilisation has been installed using live willow and dead hazel revetment in order to reduce the impact of erosion in vulnerable areas (Photo 1).
- Four wooden groynes/flow deflectors have been installed, in order to create deeper areas of water suitable for adult brown trout and grayling.
- Twelve cover log structures have been constructed to increase the amount of instream cover available for adult brown trout and grayling.



Photo 1: Live willow spiling on RHB of Wylve

3.0 Recommended future management

The River Wylve at Langford fisheries is a structurally excellent section of chalkstream, with a range of features valuable to all life-stages of brown trout and

grayling. Recent work undertaken on behalf of Wiltshire Wildlife Trust has to some extent addressed issues of overshadowing, bank erosion and lack of in-channel cover for adult fish.

In addition to the work already undertaken, there is a number of enhancements and management recommendations that if adopted will improve the fishery quality of the reach.

On the LHB at the upstream end of the fishery, a large number of free-range chickens have caused an almost total loss of ground cover due to their foraging activity (Photo 2).



Photo 2: Loss of bankside cover due to chicken grazing.

This has resulted in a significant length of bare bank, which provides limited fringing cover for juvenile fish and will be prone to erosion during high discharge events. This bank is not within the ownership of the Trust. However, it is recommended that the owners of the land should be approached with a view to the installation of fencing that will exclude the chickens from a riparian margin of >4m, allowing the re-growth of fringing vegetation.

The lack of Large Woody Debris (LWD) in the channel is noted in the Reserve management plan. Measures to increase LWD have focused on the provision of cover logs in marginal areas. More LWD cover can be provided by the simple expedient of trimming small to medium sized trees to an acceptable size and the felling them into the river channel. They can then be pinned into position using driven wooden stakes.

Stable LWD of this sort is of particular long term value, allowing the build up of weed/debris rafts and associated beneficial macroinvertebrates that are vital components of the energy cycle of river systems. Sediment accreting within and downstream of LWD tangles will eventually be colonised by emergent vegetation, helping to narrow the river channel. The weed raft/ fallen tree complex also provides excellent cover for adult fish.

It is also recommended that the Trust should adopt a presumption against the removal of any naturally fallen timber. Such material can be pinned in place as described above with all the associated advantages stated. Advice relating to the management of LWD in the channel is predicated on the assumption that its retention does not cause any increased risk of damaging flooding. This risk should be assessed in conjunction with the Environment Agency's Development Control department.

Further down the fishery on the RHB, the river has cut a small channel through the bank to the adjacent Brockbank Lake during periods of high discharge. Options for resolution of this issue include:

- Do nothing. This will result in a gradual widening and deepening of the cut, with the river remaining in continuity with the lake over a greater range of discharges. Fish and water will be able to move between the lake and the river. There are some risks that non-native species of fish could enter the river and that river water quality could be adversely affected by that of the lake during periods of warm weather when algal blooms may be present in the lake. The uncontrolled long term erosion may also cause access difficulties along the RHB access path. More positively, the interconnection of the river with the lake does provide some potential benefits to a range of species, particularly during periods of high discharge.
- Prevent the overspill of water by localised bank raising and revetment. This would prevent all erosion of the bankside path and would minimise the risk of non-native fish and lake water entering the Wylde. This risk would still not be totally eliminated as it could occur at very high discharges even if the bank were to be repaired. Finally, benefits to species from access between the river and lake would be lost.
- Manage the rate of erosion. If the present bank breach were to be formalised, the rate of erosion and connectivity of the two water bodies could be controlled. The bank could be cut into a shallow depression at an agreed level and protected with a mix of stone rip-rap and natural vegetation protected by erosion control matting. This approach would significantly reduce the rate of bank erosion, would allow mixing of the water-bodies at high discharges only, minimising the risk of water quality impacts on the river, whilst preserving temporary access between lake and river for a range of species. The adoption of this option is recommended.

Suitable gravel for spawning trout and grayling was available within the reach. However, in common with most southern rivers, the presence of a relatively high loading of fine sediment is likely to reduce the hatch rate of deposited eggs. In order to improve hatching success, a regime of cleaning spawning gravels each September should be established. 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 Environment Agency is 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.

There was still considerable channel shading from riparian trees. It is recommended that the present policy of rotational coppicing and pollarding should be continued in order to further reduce shading. It was noticeable that there was some unconsolidated sediment in the shaded areas where marginal vegetation growth was being suppressed. Arisings from the trimming work here and elsewhere on the Reserve could be used to install woody revetment (spiling/faggoting) along these sections in order to establish strong marginal growth and narrow the channel. Channel narrowing could also be usefully undertaken by the creation of small, mid-channel islands. These islands not only help narrow the channel but also provide a habitat type not represented elsewhere on the fishery. If they are carefully constructed using faggot bundles and woody infill, they can appear very natural.

Some of the alder *Alnus glutinosa* trees on the riverbank showed clear signs of being infected with *Phytophthora*. There is presently no cure for this often fatal disease. As a consequence, it would be prudent to formulate proposals for the replacement of any dead alders with an alternative species such as ash or hawthorn. Dead alder trees can be allowed to remain without increasing the risk of further spread of the disease. They have considerable value for fungi, invertebrates and insectivorous birds.

Some light trimming of overhanging branches at strategic locations might be beneficial in order to allow anglers to cast their flies at fish near to tree cover.

In order to help establish more stands of water crowfoot, small willow 'snowshoes' should be installed. These are small, hand woven willow structures made to the rough size and shape of a snow shoe. They are pegged just above the bed of the river and catch up any weed floating down the river, providing it with a suitable area in which to establish. Early hand cutting of the milfoil beds may also encourage the growth of water crowfoot. Experience is that in some locations, has shown that the more vigorous submerged macrophytes can swamp water crowfoot and prevent it flourishing. However, by selective cutting, its establishment and subsequent growth can be helped.

Towards the downstream limit of the fishery is an old weir (photo 3)



Photo 3: Old weir at downstream end of the fishery

This is constructed of a mixture of concrete and stone, forming an impoundment of some 0.6m. in height. It is believed to have been constructed in order to flood water meadows adjacent to the river. Whilst the downstream pool provides excellent habitat for adult fish and a significant area of spawning gravel at the pool tail, the upstream reach is affected by the backwater influence of the weir, with some detriment to the river's natural form. There are four main options for the future management of the weir:

- Do nothing. In its present state, the weir does provide an example of the impact of such structures on riverine habitat. This is a valuable tool for a demonstration site such as Langford. On the debit side, the upstream impact of the weir on instream habitat will remain. The decrepit state of the weir may also pose a health and safety risk to visitors to the site. Overtime, the structure of the weir will continue to degrade and will eventually collapse.
- Allow the weir to remain in place but ensure its long term structural stability by repairing it. Impacts on the river will be identical, but a major risk to health and safety will be removed.
- The weir could be removed and replaced with one or more constructed stone and gravel riffles. This would increase the length of flow dependent gravel

spawning habitat, although the weir pool would be lost. Through careful use of the fall over the weir, the backwater effect of the constructed riffles could be minimised. The health and safety risks associated with the existing weir structure would be removed. The removal of the weir would represent a loss of architectural and agricultural heritage.

- Remove the weir as above but allow the river to re-adjust its form and function naturally. This would be a valuable exercise and would provide a range of educational and research opportunities. However, the benefits to brown trout and other flow dependent species would not be realised so immediately.

A small overspill channel from the LHB lake entered the fishery towards its downstream limit. If perennial flow occurs in the channel, it may be worth surveying it to see if it could be provide a useful recruitment area for trout fry, either naturally or via their introduction from an incubation box (see below). Some enhancement of the channel, for instance the introduction of bed gravels or encouragement of overhanging vegetation, may be necessary in order to optimise its value for juvenile brown trout.

Pike removal is a controversial subject with fisheries professionals still hotly disputing the case for and against. There is a general feeling that removal of large pike is a bad management practice, as it reduces cannibalistic control of smaller pike numbers. Both electrofishing and recreational angling are size selective removal methods, with larger fish selected for. Removal of larger pike may increase both the numbers of small pike and predation on juvenile salmonids. This is undesirable where attempts are being made to establish self-sustaining fish populations. Given this, serious consideration should be given to a cessation of pike removal from the River Wylfe.

Whilst it is understood that the desire at Langford fisheries is to achieve a self-sustaining stock of brown trout, it may be necessary from time to time to augment stock for recreational angling. This can most usefully be undertaken by the utilisation of deep substrate spawning boxes. . These are plastic boxes, approximately 0.6m in each dimension that are filled with suitably sized gravel and seeded with 10,000 - 20,000 trout eggs. A water feed at the bottom of the box allows the eggs to incubate and hatch. A box could be located at the site of the overspill from Brockbank Lake, using the discharge from the lake as a water feed.

Once they reach the swim-up fry stage, fish leave the box via the overspill pipes, where they can be collected in a small trap box and transferred into the river or allowed to enter the river unaided and disperse. In effect, these are naturally reared fish without the unhelpful behavioural modifications associated with hatcheries. More details on incubation boxes can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.

In addition to the practical advantages of the incubation boxes, they also represent a very useful educational opportunity for visitors to the site.

The lack of data on spawning of brown trout, salmon and grayling in the Wylfe should be addressed. It would be a relatively simple task to count and map redd sites in the river. Brown trout and salmon redds can be differentiated by size, whilst grayling spawning sites can be separated in time, with grayling spawning between

March-May, as opposed to trout and salmon which spawn between October and January. Yearly records of redd counts can be very useful in assessing spawning activity over time.

With respect to angling practices in the fishery, the present arrangements appear excellent. Catch and release is the only realistic policy to promote if stocks of wild fish are to be maintained with the current level of rod pressure. It would be very useful to start a log book/catch return system so that anglers' catches are accurately recorded. It would be worth providing an incentive for anglers to file returns; for instance a draw for some free tickets for all who have completed returns.

It would be beneficial to promote access to the river by wading during the trout season. Careful wading will not do much harm and will avoid the need to heavily manage the marginal areas for casting room. A series of entrances to the river should be cut through the margins and anglers encouraged to access the rest of the fishery by wading. Wading should not be allowed after 30 September (i.e. for grayling fishing) due to the risk of damage to trout eggs.

It should be noted that 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.