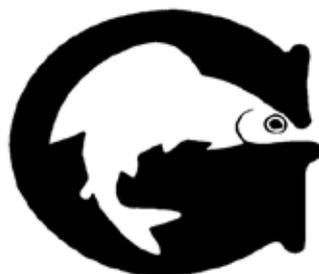




**ADVISORY VISIT TO THE RIVER MANIFOLD,  
DERBYSHIRE,  
UNDERTAKEN BY TIM JACKLIN, WILD TROUT  
TRUST ON BEHALF OF SWAINSLEY FISHING  
CLUB  
JUNE 2008**

**Co-sponsored by**



**The Grayling Society**

## **1.0 Introduction**

This report forms the output of a site visit undertaken on 3<sup>rd</sup> June 2008 to the Swainsley Fishing Club's fishery on the River Manifold, near Butterton, Staffordshire. The club's fishery runs from Ecton in the north to Wetton Mill in the south, a length of some 4 km, the upper part of the fishery (above Swainsley Bridge) being shared water with Derbyshire County Angling Club. Swainsley Fishing Club has 26 members and lease the fishing rights from the owners of Swainsley Hall. Land ownership comprises private individuals (farmers) on the northern part of the fishery, and the National Trust on the southern part.

Information for the report was gathered during the site visit and from Chris Williams, a Swainsley Fishing Club member of 30 years standing. Additional information was provided by the Environment Agency (EA). Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

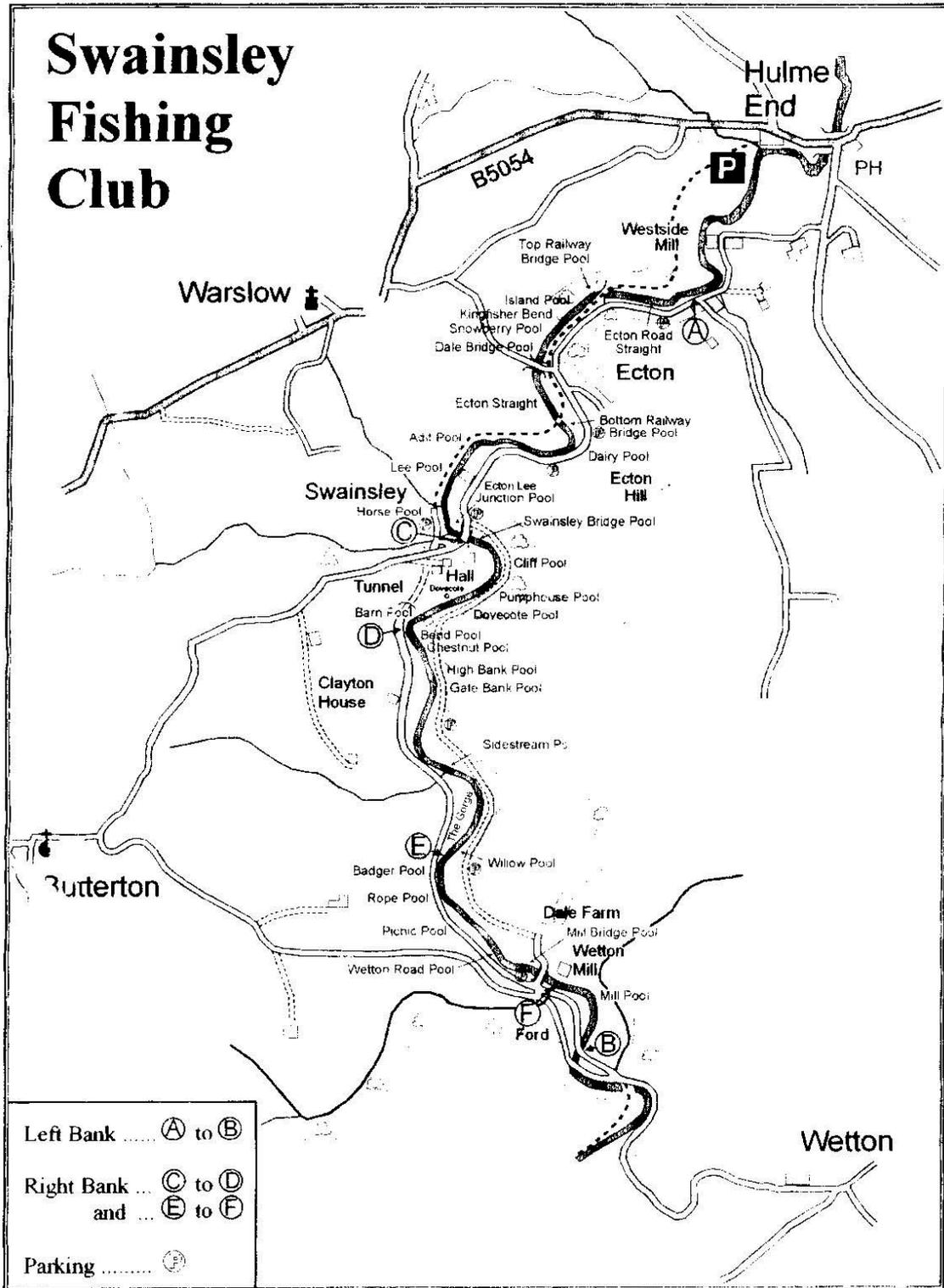
## **2.0 Fishery Description**

The Manifold is a tributary of the River Dove, rising at Flash Head and joining the Dove at Ilam. In its upper reaches, it runs over geology dominated by millstone grit. Further downstream near Wetton, the geology is predominantly limestone, resulting in seasonal losses from the river to groundwater. In summer, this can result in the total loss of the river between Wetton Mill and Ilam.

The River Manifold flows through the Peak District Dales Special Area of Conservation (SAC). Although this site is designated a SAC mainly for terrestrial habitats, it includes the Annex II (EC Habitats Directive) species white-clawed crayfish (*Autropotamobius pallipes*) as a primary reason for the selection of the site, and brook lamprey (*Lampetra planeri*) and bullhead (*Cottus gobio*) as qualifying features. White-clawed crayfish are present in the Manifold and its tributaries and following the outbreak of crayfish plague on the River Dove in 2006 now represent the sole population of this species within the SAC. Bullhead and brook lamprey are also present in the Manifold and were caught on EA electric fishing surveys near Longnor earlier this year.

The Manifold falls within a Catchment Sensitive Farming Area, with many farmers actively participating in efforts to reduce point source and diffuse pollution. There have been significant issues in the past with ingress of sheep dip into the Manifold, resulting in mortalities of invertebrates. More recently, this issue appears to have been brought under control.

# Swainsley Fishing Club



Fishery Map

The Manifold valley is a popular rural tourism destination in the Peak District and the fishery is bordered by a minor road and the Manifold Trail cycle track (on the course of a disused railway) for much of its length.



Ecton Road straight at the upper end of the fishery

Throughout the fishery instream habitat was good. There was a balance of chutes, gravel bedded riffles, shallow glides and deeper pool areas, providing habitat for all life stages of brown trout *Salmo trutta* and grayling *Thymallus thymallus*. There was good tree cover throughout the fishery, mainly alder *Alnus glutinosa*, willow and sallows *Salix* spp, ash *Fraxinus excelsior* and hawthorn *Crataegus monogyna*.

Within the fishery boundaries the Manifold is joined on the right bank by the Warslow Brook just upstream of Swainsley Bridge, and the Hoo Brook opposite Wetton Mill Cafe. Environment Agency electric fishing surveys in the mid-1990s showed the Warslow Brook to contain good numbers of juvenile trout, and this is probably an important spawning tributary. The Hoo Brook is known to contain a good population of white-clawed crayfish and hence is a very important site for the conservation of this locally and nationally

threatened species. The value of the Hoo Brook as a trout spawning tributary is unknown, although the ford just upstream of its confluence with the Manifold probably limits access for adult fish from the latter.

Adjacent land use is influenced by the steep valley sides and comprises mainly wooded valley sides or low intensity grazing and hawthorn / gorse scrub. Mowing grass is cultivated in some small fields on the valley floor, and there were a couple of fields with grazing horses. Most of the fishery was inaccessible to livestock because of fencing or steep banks, and there were no problems of stock poaching or bank erosion evident.



Typical land use alongside the river: grass meadow on the right bank, looking over the river to woodland, gorse and hawthorn on the valley sides (High Bank / Gate Bank Pool area)

One area of the left bank next to Picnic Pool had signs of loss of vegetation, possibly because of livestock access, that could potentially cause erosion problems in the future. This field also showed clear signs of the use of selective herbicides on nettles and docks very close to the fall of the bank.



**Dying nettles indicating use of selective herbicide close to the river on the right bank alongside Picnic Pool**

There is only one permanent weir on the fishery, a low structure at the tail of the pool below Swainsley bridge. The club have also installed a small number of stone groyne to maintain water levels in some pools. These structures are limited to a short section of river between Swainsley Bridge and Dovecote Pool.



Stone groynes at the tail of Dovecote Pool

Despite the presence of large numbers of riparian trees, there was a general lack of Large Woody Debris (LWD) in the channel, limiting both overall diversity and the availability of cover for fish. The club have working parties on the river and generally remove LWD. A good example of LWD left *in situ* was a fallen willow in Willow Pool.



**Fallen willow which has taken root and become stable in Willow Pool**

There were a number of aquatic invertebrates evident during the visit including hatching Mayfly *Ephemera danica*, Yellow May Dun *Heptagenia sulphurea* and smaller upwinged flies. Chris Williams reported that other Heptagenidae were present (brook duns, false March browns) but that hatches of upwinged flies (apart from Mayfly) had generally declined.

Mink *Mustela vison* numbers have been controlled using a combination of mink rafts (to track the presence of mink) and traps, in conjunction with Charlie Horsford of Derbyshire Wildlife Trust. Thirteen mink were caught in the first week of trapping, but the catch rate has since fallen (C. Horsford, pers.comm.).

### **3.0 Fish Stocks**

Swainsley Fishing Club do not undertake any fish stocking, although the two clubs that fish the Manifold upstream do; Derbyshire County AC stock 600 10-12" diploid brown trout per annum; Dove & Manifold Fly Fishers are also thought to have stocked in the past although there have been no introductions in the last two years. The introduced fish are not marked to identify them as stock fish.

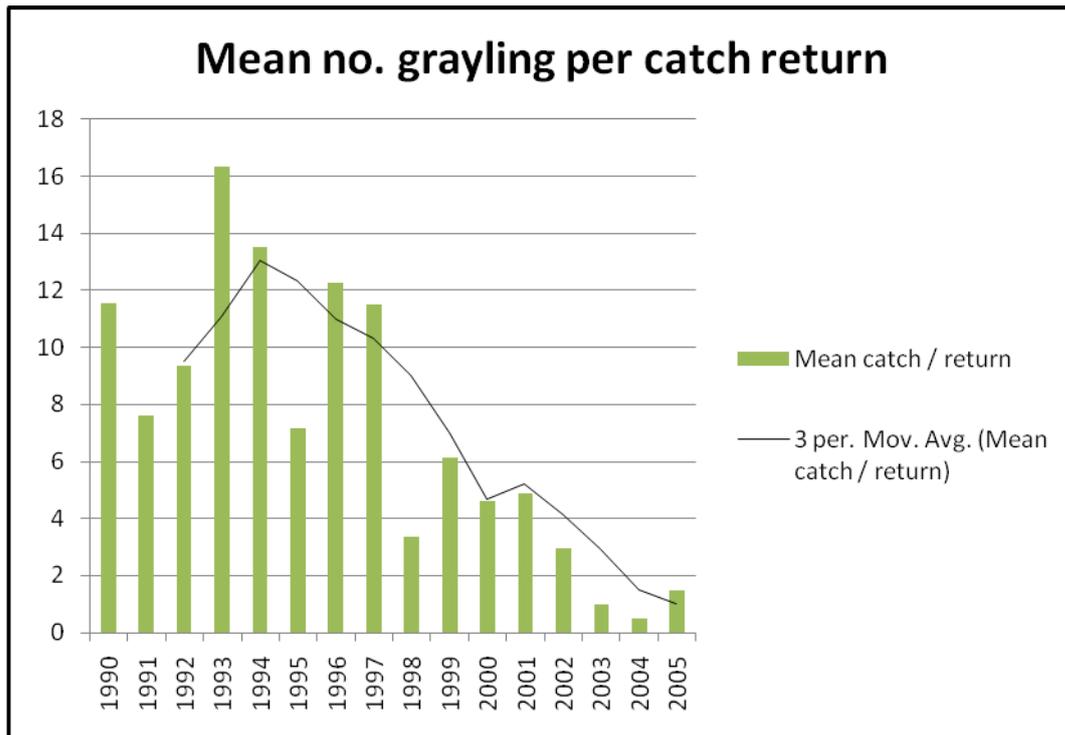
It is likely that trout stocks therefore comprise some stock fish migrating from upstream in addition to wild brown trout. The club has a two-fish bag limit, although this is rarely exercised and catch-and-release is prevalent.

Wild brown trout and grayling are present throughout the fishery, and around 800 trout were caught last season by Swainsley members. There has been a marked and persistent decline in the numbers of grayling caught over the last several years; it is now rare to catch them and those caught are large fish (over 1½ lb ) (Table 1 and Figure 1). This contrasts sharply with catches in the past when grayling were more numerous than trout. This is a pattern which has been repeated in many smaller Peak District rivers such as the upper Dove, Hamps and upper Manifold over the same timescale. The Environment Agency have stocked several thousand grayling fingerlings into these rivers in recent years in response to this decline, but it appears to have had little effect on grayling abundance.

Swainsley catch reports also indicate a decline in the number of smaller trout, and an increase in the frequency of capture of large trout (over 1¼ lb); around 50 large trout were caught last season compared with typically less than five in a season 15 years ago.

Table 1 and Figure 1 – Grayling catch records for Swainsley Fishing Club 1990 – 2005 (Source © H. Dutton, Swainsley Fishing Club)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Rod Returns</b>	14	15	14	12	12	12	14	10	14	17	15	16	18	18	12	12
<b>Total Grayling</b>	162	114	131	196	162	86	172	115	47	104	69	78	53	18	6	18
<b>Mean catch / return</b>	11.6	7.6	9.4	16.3	13.5	7.2	12.3	11.5	3.4	6.1	4.6	4.9	2.9	1.0	0.5	1.5



There appear to be two possible local reasons for the decline in grayling numbers:

- Predation by sawbill ducks (primarily goosander). Increasing numbers of goosander have been observed on Peak District rivers in recent years, and a female with a brood of about seven young was observed during the visit. The author has also observed similar broods on the upper Dove and Hamps within the last month. Swainsley Fishing Club have held a DEFRA licence for five years to shoot up to 6 (now 5) goosander between August and 31<sup>st</sup> March, as an aid to scaring, and this has been fully utilised. This appears to have had little effect on either bird numbers or the decline in grayling and small trout. Shoaling species like grayling are particularly vulnerable to the hunting tactics of goosander as a number of birds can work together to herd fish upstream against shallower water at the head of pools; this contrasts with the more solitary and territorial trout which will dash for cover when disturbed.
- Water quality impacts via diffuse pollution on grayling egg and fry survival. Recent research in Germany has demonstrated poor survival of grayling eggs and fry in rivers affected by eutrophication (nutrient enrichment). Grayling deposit their eggs in river gravels on riffles in spring, often coinciding with algal blooms on the riverbed of enriched rivers. The algae

blooms have been shown to reduce water quality (lowering dissolved oxygen) in the boundary layer close to the riverbed adversely affecting grayling egg survival. Trout eggs are probably unaffected because their winter spawning and emergence of fry in early spring avoids the algae blooms.

Whilst the Manifold does suffer from catchment-wide diffuse agricultural pollution, and algae blooms are evident on the river bed, the large numbers of grayling juveniles stocked by the Environment Agency in recent years should have bypassed this bottleneck in grayling production, but have failed to increase numbers. This suggests that increased bird predation is an important factor in the reducing grayling numbers compared to previous years.

#### **4.0 Recommendations**

· Generally the instream habitat throughout the reach is excellent, apart from the lack of LWD in the river channel. Where possible Large Woody Debris (LWD) should be retained in the channel. LWD is an integral component of stream ecology. The benefits for retaining it are clearly laid out in the recent EA R&D document, "Large Woody Debris in British Headwater Rivers". Key conclusions of the report include:

- Ø An increase in both mean flow depth and velocity and variability of both parameters.
- Ø The development of high physical habitat diversity both in-channel and in the floodplain. Removal of LWD reduces both habitat quality and availability for juvenile and adult brown trout.
- Ø Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.
- Ø LWD have significant benefits to the control of run-off at the catchment scale.
- Ø River and riparian management has important effects on the distribution and character of dead wood accumulation within the river system.

The report also provides recommendations for the management of LWD, the most important of which is "although there are certain situations that may require wood removal to eliminate stream blockage, the wisest management is no management".

Given the possible impact of piscivorous birds on the grayling and trout populations and a possible lack of effectiveness of shooting as an aid to scaring as a control measure, it is recommended that woody debris is introduced in key areas to provide refuge areas for

fish, and decrease the foraging efficiency of the birds. Trials on stillwater coarse fisheries have demonstrated the effectiveness of fish refuges in reducing the impacts of predation ([http://www.defra.gov.uk/rds/publications/technical/tan\\_50.pdf](http://www.defra.gov.uk/rds/publications/technical/tan_50.pdf)), and the introduction of woody debris to the river could achieve similar benefits.

Woody debris could be introduced by 'hinging' selected trees (partially cutting through the trunk and pushing over), or by the introduction of brushwood bundles anchored to the river bed with stakes and wire. The latter may be difficult given the extensive areas of bedrock in this part of the Manifold. The areas for introduction could be chosen based on club members' experience and observations of where bird predation has had the greatest impact. Also downstream of known fish spawning areas are prime points for brushwood bundles to provide refuge for juvenile fish.

It is recommended that Charles Horsford of Derbyshire Wildlife Trust (DWT) and Andrew Heath of Trent Rivers Trust (TRT) are contacted to discuss the practicalities of introducing LWD and whether this can be incorporated into their work programme. The Wild Trout Trust can also provide further support via a Practical Visit, maybe combined with DWT / TRT, and an Advisory Visit bursary to assist with funding the work (contact Tim Jacklin, [tjacklin@wildtrout.org](mailto:tjacklin@wildtrout.org) ).

It is important that landowner agreement is sought and appropriate surveys for protected species (such as bats and water voles) are carried out by a qualified person before any trees are felled for the purposes of introducing LWD. The club should also discuss this management option with the EA, both in terms of the need for Land Drainage consent and also to attempt to modify the maintenance regime for the river, in order to allow the LWD to remain in place. There is little point in trying to promote LWD in the channel if it is subsequently removed by the EA. Further information on LWD can be found in the 'Wild Trout Survival' guidelines provided with the visit.

- The control of mink should be continued in association with DWT to benefit water vole, water fowl and fish populations.
- Given the history of sheep dip pollution on the Manifold it is recommended the club take part in the anglers' invertebrate monitoring initiative instigated by the Riverfly Partnership. Details of sampling strategies and training days can be obtained from the Riverfly website at <http://www.riverflies.org/>. Suitable nets for

sampling macroinvertebrates can be obtained from Alana Ecology  
[www.alanaecology.com](http://www.alanaecology.com) Tel: 01588 630173

- The use of herbicide close to the river in the field upstream of Wetton Mill was of concern given the proximity to the river, and the possibility of overspray. The Environment Agency regulates the use of herbicides to control aquatic or bankside weeds, and their written agreement is required ([http://www.environment-agency.gov.uk/commondata/acrobat/wqm1\\_notes201\\_1797478.pdf](http://www.environment-agency.gov.uk/commondata/acrobat/wqm1_notes201_1797478.pdf)). It is recommended that the club approach the National Trust (the landowner) to discuss this issue, and the possibility of the introduction of a buffer strip alongside the river. The latter would also prevent the worsening of the (currently minor) stock damage to the bank in this area.
- A few examples of Himalayan balsam *Impatiens glandulifera* were seen during the visit, growing on gravel side bars in the river channel. Introduced to the UK in 1839, it is now naturalised, especially on riverbanks and waste ground and has become a problematical weed. Himalayan balsam tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. Currently there is not a problem with balsam on this part of the Manifold, but club members should be encouraged to identify and pull up plants before they flower.



Himalayan balsam at the edge of the Manifold

- The importance of the River Manifold for the conservation of white-clawed crayfish in the Peak District cannot be over stated. It is recommended that club members and guests ensure their fishing equipment (especially nets, waders and felt-soled wading boots) are thoroughly dried (preferably in direct sunlight) or disinfected before use on the river to prevent the spread of the crayfish plague. Further details can be found at [http://publications.environment-agency.gov.uk/pdf/GENW0606BLAI-e-e.pdf?lang=\\_e](http://publications.environment-agency.gov.uk/pdf/GENW0606BLAI-e-e.pdf?lang=_e) .
- There are clearly a number of significant issues affecting the Manifold on a catchment scale. These include diffuse source run-off from agriculture, and possible ingress of sheep dip. The club should positively support the Environment Agency, DEFRA and Natural England in their efforts to address this problems, with the establishment of the Catchment Sensitive Farming officer a very positive initiative.

- The club should continue to maintain catch returns as these are a valuable source of information on the performance of the fishery. Ideally the returns should include a record of the amount of time spent fishing by each angler, in addition to the fish caught. The data will enable an objective assessment of the success of any management actions.
- Note that all works to bed or banks of the river or within 8m of its banks require the written consent from the Environment Agency under the Land Drainage legislation. The introduction of any fish or eggs into any inland water requires the consent of the EA under the Salmon and Freshwater Fisheries Act, 1975. It is imperative that all relevant consents are obtained by the club.

## **5.0 Disclaimer**

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 the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.