



Habitat Advisory visit to the River
Fergus system Co.Clare, Eire.
Undertaken on behalf of Ennis and
District Anglers Association, by
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1.0 Introduction

This report forms the output of a site visit to the River Fergus system, Co. Clare, Eire on 4 April 2006 on behalf of Ennis and District Anglers' Association (EDAA). Information in the report is based on observations on the day of the visit and additional comments provided by club members Philip Comber and John Weir.

Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) of the river identified when looking downstream.

The Fergus was a large and complex catchment, rising to the north-west of Corofin and entering the Shannon estuary at Ennis. The catchment comprised many interconnected lakes and streams, draining part of the internationally renowned Burren limestone hills. The catchment covered 1041 km², with the main River Fergus designated as a salmonid fishery under the EC Fish Directive. Due to the size and complexity of the catchment, only a small percentage was visited.

Following a significant decline in angling quality in the Fergus system during the latter part of the 1990's, EDAA initiated a fishery recovery plan for the system. The plan was well thought out and strategic in nature. A consultant's report was commissioned that investigated the distribution and abundance of not only fish, but iconic mammal and invertebrate species throughout the catchment. Building on these data, a further report undertaken in 2004 detailed a strategic Fergus rehabilitation plan. Costed enhancement opportunities were identified on a reach basis, with key structural elements required to achieve good habitat quality highlighted.

In parallel to the preparation of habitat enhancement plans, the club commissioned the production of an educational ecology pack for local schools. This excellent bilingual (Irish and English) publication has since been extended to cover all schools within Clare.

It is hard to overstate the quality and value of these reports. They are amongst the best seen by the WTT and are testament to the commitment and enthusiasm of EDAA and its members. Delivery of the enhancements recommended in these projects has been undertaken by club members in conjunction with staff from Shannon Fisheries Development Board.

2.0 Habitat Assessment

Millbrook downstream of Inchicronan

An opportunistic enhancement was undertaken at this location resulting from the need for a gas pipeline to be laid across the river. Selective coppicing/felling of trees had been undertaken in order to 'skylight' the channel. Significant volumes of gravel and stone were introduced to the river, creating lengths of riffle, with individual large stone lies. Fencing was erected along much of the reach, with cattle drains formed where appropriate.



Enhanced section of the Millbrook below Inchicronan Lough

Further work downstream, agricultural practices on sections of the Millbrook were not ideal, with some insensitive clearance alongside the river. Agricultural stock were being fed close to the watercourse, with consequent mobilisation of fine sediment and excrement into the channel.



Cattle feed station adjacent to the river

Some tree trimming had been undertaken in order to reduce shading of the channel, with open sections of the river fenced. However, only limited amounts of Large Woody Debris (LWD) were present in the channel.

Water velocity was high, with the channel substrate dominated by a mixed gravel and stone substrate with a strong growth of water crowfoot *Ranunculus* spp. visible. Spoil piles on the RB indicated that the river might have been dredged historically, leaving this bank some 0.75m higher than the LB. Land use on both banks was dominated by semi-improved grassland. A significant amount of broadleaved tree planting had

recently taken place in the RB field, with species including oak *Quercus* Spp. and ash *Fraxinus excelsior*. Further downstream, no riparian tree cutting had taken place, with a consequent increase in channel shading. The club had the intention of undertaking more coppicing this year, along with the introduction of additional gravel and the construction of vortex weirs within the channel.

At Moyree, the river entered the main River Fergus. The river was in flood, restricting observation of the channel



Confluence of the river channel with the Fergus showing flooded fence line

Downstream of the bridge, the channel had a very steep gradient, with a well-sorted mixed boulder, cobble and gravel substrate. The erection/repair of fencing was proposed downstream of the bridge in order to prevent uncontrolled stock access to the river. Ideally, a buffer zone in excess of 10m in width should be created to optimise benefit to the river from reduced sediment run-off. A formalised cattle drink would be required for stock access along the LB.



River downstream of bridge

The gradient of the river reduced immediately downstream of the bridge and for around 60m upstream. The club planned to introduce gravel to this reach under their enhancement plan, creating a length of valuable trout spawning. Channel width at this point was some 6m-10m.

River Fergus



Inchiquin Lake

Inchiquin Lake is perhaps the most famous of the Fergus system fisheries, with a long angling history well recorded in literature. A fish pass had been constructed upstream of the lake in order to allow the passage of both trout and salmon around a mill site. The pass subsequently fell into disrepair, with fish now able to move upstream via a broken mill sluice.



Derelict fish pass upstream on Inchiquin

Near to Elm Bridge, there was around 2km of excellent natural and recently enhanced spawning habitat. The banks had been fenced, and large volumes of suitably sized gravel for trout spawning introduced to a significant length of the river. Trout spawning activity had been exceptional in this reach during the past two or three seasons.



Enhanced section of the River Fergus upstream of Inchiquin Lake

A small spring fed stream, the Elm Vale stream, entered the Fergus on the RB. The stream was some 300m long, with an overwide cross section, little variation in bed profile and a substrate dominated by fine sediment. As a consequence, it was of limited benefit for brown trout spawning or recruitment.

3.0 Fish stocks

The club no longer introduced hatchery reared fish to the system, although some stocking was still undertaken by others. The club had also tried to install the practice of catch and release amongst members. This had been largely successful, with increasing numbers of anglers choosing to return their fish. However, as a free fishery, the club had no control on angler activity in the Fergus system.

A combination of increasing rates of catch and release, and the successful implementation of habitat enhancements had led to an increase in catches of brown trout.

The Fergus system also supported a good population of Atlantic salmon. Results from the fishery surveys undertaken as part of the rehabilitation plan revealed that salmon parr were well distributed throughout the system, with the Castle, Claureen and Inchicronan sub-catchments producing high percentages of 0+ fish.

4.0 Recommendations for habitat management

It is hard to make any significant additions to what is such a well-structured and carefully planned enhancement strategy. However, there are one or two minor points that could usefully be incorporated into the plan in order to increase benefits to wild trout populations.

- Good use has been made of stone and gravel in order to enhance habitat throughout the system. However, the retention and introduction of Large Woody Debris (LWD) has been less widespread. Where possible LWD should be retained in the channel. It is an integral component of stream ecology. The benefits for retaining it are clearly laid out in the recent Environment Agency (England and Wales) R&D document, “Large Woody Debris in British Headwater Rivers”. Key conclusions of the report include:
 - LWD results in an increase in both mean flow depth and velocity and variability of both parameters.
 - It promotes 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.
 - Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.
 - LWD have significant benefits to the control of run-off at the catchment scale.
 - 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”. Building on this simple truism, it is recommended that before any future work to remove LWD from river channels is undertaken, the wider implications of the proposal on the whole river system are considered, rather than just the potential (in many cases unproven) benefits to salmonid populations. In addition, the impact of planned riparian tree work on the supply of LWD to the river should be considered. In some circumstances, it may be beneficial to allow trees to fall into the channel, provided the risk of increased flooding is acceptable.

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 in order to create wooden groynes. 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.

- The Elm Vale stream could be enhanced for brown trout spawning and subsequent recruitment of juvenile fish. Principle components of recommended rehabilitation include the narrowing of the channel using faggot bundles (made from brushwood) in combination with LWD. Faggot bundles could be pinned in place using wooden stakes in order to form a new bankline that could be backfilled with additional brushwood in order to promote preferential deposition of fine sediment and associated growth of emergent vegetation. In addition, faggot bundles could be used to create a series of small midstream islands that could again be infilled with brushwood.

Imported 20mm-40mm diameter gravel could then be distributed within the narrowed channel in order to create shallow riffles suitable for spawning trout. Ideally, water velocity over these areas should be in excess of 225cm/sec during the spawning period. The presence of the 'soft' faggot edges will provide ideal condition for post emergence fry.



Channel narrowing using faggot bundles and posts. Area between new and old banklines is subsequently infilled with brushwood, and the posts cut off at summer water level



Outline of mid-channel island formed by posts driven into the bed. Faggot bundles are subsequently woven between stakes and the body of the island infilled with secured brushwood

- Cattle feed stations should be moved into locations remote from watercourses and field gates in order to minimise run-off of fine sediment into the river system.
- It is not clear that the policy of pike removal from the system is beneficial to trout stocks. This practice has never been adequately proven to be beneficial, and may, in some cases, result in an explosion of small pike that prey selectively on juvenile fish including trout and salmon. Serious consideration should be given to the cessation of this practice.
- Given the huge work programme that the club has proposed, it is strongly recommended that it should apply to the Wild Trout Trust for financial support for this work. In some cases, the Trust is able to provide small amounts of pump priming money that can be used to raise increased funding via partnership projects.
- It is also strongly recommended that EDAA enter the Fergus system rehabilitation project and education package into the WTT Annual Conservation awards. This event provides cash prizes for the best fisheries conservation projects. This money can then be used to fund future enhancement works.