River Fynn – Fynn & Lark Fly Fishing Club

An advisory visit carried out by the Wild Trout Trust – March 2010

1. Introduction

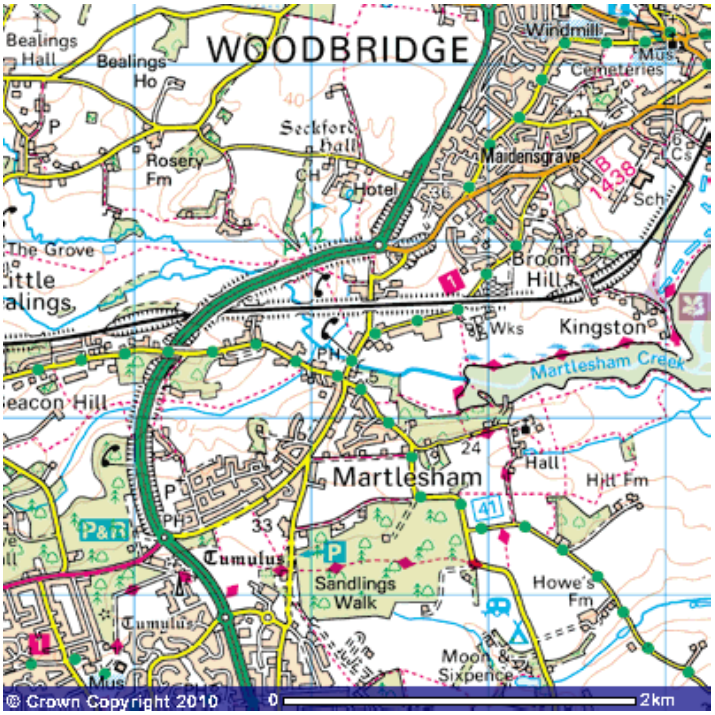
This report is the output of a Wild Trout Trust advisory visit (AV) undertaken on the River Fynn near Martlesham. The advisory visit was undertaken at the request of Mr Louis Deliss representing the Fynn and Lark Fly Fishing Club (F&LFFC) and is a follow up to a previous WTT AV carried out by Ron Holloway in 2002.

Comments in this report are based on observations on the day of the site visit and discussions with Mr Deliss and Mr John Symes. 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. Fishing rights controlled by the club are restricted to the LB.

Unfortunately on the day of the visit the river was in spate, making an accurate assessment of the extent and quality of particularly spawning gravels difficult.

2. Catchment overview

The River Fynn rises near Henley, north of Ipswich and travels south and then east to join the tidal River Dedham near Martlesham. There is chalk underlying the catchment, but this is covered with a thick layer of deposited material from the last ice age, and these deposits determine the morphology and substrate of the river. The land use is very largely agricultural and the Fynn valley is one of the Suffolk River Valleys designated as an Environmentally Sensitive Area (ESA, now replaced by Environmental Stewardship). Downstream of the River Fynn, the River Dedham is a Special Protection Area (SPA) and a Site of Special Scientific Interest (SSSI). The Suffolk Coast and Heaths also lie within an Area of Outstanding Natural Beauty (AONB) which includes the Dedham estuary, but not the River Fynn.



3. Fishery overview

The F&LFFC waters extend to approximately 1km of mainly single bank fishing. The stretch is located upstream of Martlesham bridge and straddles the A12 dual carriageway. The downstream boundary of the fishery is less than 1km above the tidal hatches where the river spills into Martlesham creek, forming part of the Deben estuary.

The fishery is primarily managed as a stocked brown trout (*Salmo trutta*) fishery with most of the fishing effort undertaken on the section of river lying between the A12 road-bridge and Martlesham bridge. The club has made considerable efforts to improve in-channel habitats on this section through the introduction of willow faggot flow deflectors. Progress has also been made since 2002 on extending the marginal buffer strip adjacent to the LB.

The club is reliant on stocking with farmed trout to sustain the current levels of fishing effort. Trout stocking is discussed further in the conclusions section of this report. In addition to hatchery derived trout, occasional small wild fish are taken, as well as the occasional sea trout. It is possible that a proportion of those small trout taken are in fact progeny of sea run fish and some may well be pre-smolts.

4. Habitat assessment.

An accurate assessment of the quality of spawning habitat was impossible due to the high water levels and turbid nature of the water following extremely heavy rainfall. Ron Holloway's 2002 report suggests that "substrates along this stretch show good gravel quality for trout although on closer inspection, the trapped silt and fines would constrain the incubation of trout eggs." This is an extremely common problem on many lowland trout streams. The lack of channel gradient, coupled with arable farmland within flood plains can lead to excessive sediment getting washed into the river and onto potential spawning sites. Mitigating against the impacts of compacted, silt-rich gravels can lead to substantial increases in wild trout production. Some ideas and suggestions on how to improve spawning success are outlined in the conclusions and recommendations sections of this report.

Despite the conditions, some good beds of submerged weed could just be seen, although not accurately identified. The 2002 report confirmed the presence of water crowfoot (*Ranunculus sp*) and this plant is synonymous with trout habitat on lowland streams and chalkstreams in particular. Crowfoot is a superb plant for providing cover for all stages of trout, as well as being an important habitat for some species of macro invertebrates, such as the blue winged olive (*Serratella ignita).*

Some areas of bank on the lower section were eroding slightly but this is largely thought to be due to the fluctuating water levels caused by the river backing up under the influence of the tidal sluices below. This is not a huge problem and it will be very difficult to encourage marginal plant growth to become established in these areas due to the constant change in water levels. Erosion can be arrested by stabilising the margin with a mattress of brushwood pegged and wired to any eroding face. This not only absorbs some of the erosion force but

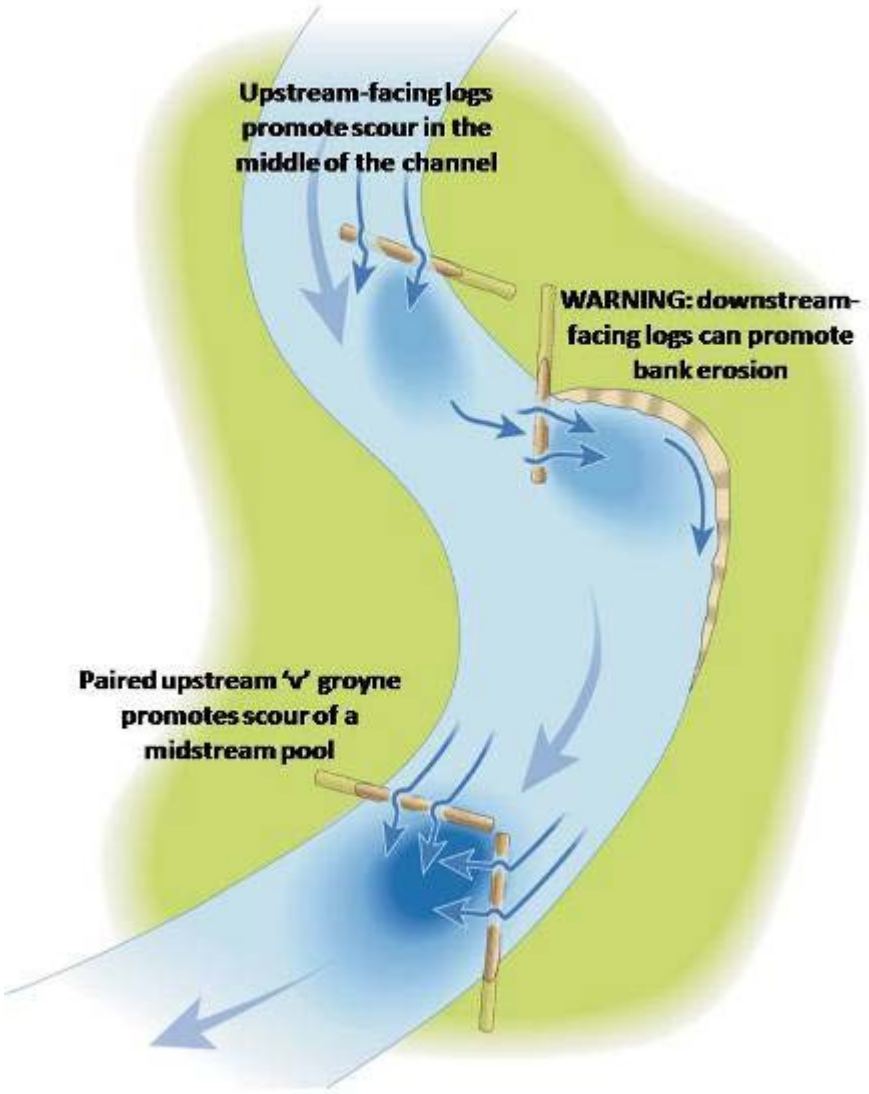
can also create cover for small fish wishing to tuck into the margins away from potential predators.

A brushwood mattress installed adjacent to an eroding bank on a spate river. A variation of this technique could be used on the Fynn.

An excellent buffer strip protecting the river from diffuse pollution. Note the eroded margin which has slumped

A short distance upstream and just below the railway bridge the club have installed some faggot flow deflectors. Deflectors are much more effective if they

are configured to point slightly upstream. Flow deflectors designed to work together should be set apart at a distance of at least 5 times the mean channel width (e.g. if the mean channel width is 6m then the deflectors should be at least 30m apart). When deflectors are configured to point downstream they can cause marginal erosion rather than central channel scour. This process can be better understood from the schematic below.



Deflectors made from sections of tree trunk or large branches will last much longer than faggots. It is understood that there are some local sensitivities about using large woody debris deflectors due to the risk of causing blockages to structures downstream. This risk can be mitigated by constructing the deflectors from individual short sections (less than 2m) butted together so that in the event of a major flood ripping one out then they will not risk blocking a structure downstream. Also, sections of woody debris can be tethered with a wire to a live tree or bankside post so that, if dislodged, the section can swing around into the bank and be removed or re-secured.

Two individual sections of trunk secured to the bed with steel rebar and to each other by fencing wire – The marginal trunk is also wired to a live tree. If one piece breaks away it will just swing round in the current and not cause a hazard downstream.

This technique is widely used by the WTT and Land Drainage Consent can be achieved, even in high risk environments, provided these measures to reduce flood risk are taken.

As much naturally fallen woody debris should be left in the channel as possible. Fallen trees or large branches, often referred to as large woody debris (LWD) is a general term referring to all wood naturally occurring in streams including branches, stumps and logs. Almost all LWD in streams is derived from trees located within the riparian corridor. Streams with adequate LWD tend to have greater habitat diversity, a natural meandering shape and greater resistance to high water events. Therefore LWD is an essential component of a healthy stream's ecology and is beneficial by maintaining the diversity of biological communities and physical habitat.

Traditionally many land managers and riparian owners have treated LWD in streams as a nuisance and have removed it, often with uncertain consequences. Stream clearance can reduce the amount of organic material necessary to support the aquatic food web, remove vital in-stream habitats that fish will utilise for shelter and spawning and reduce the level of erosion resistance provided against high flows. In addition LWD improves the stream structure by enhancing the substrate and diverting the stream current in such a way that pools and spawning riffles are likely to develop. A stream with a heterogeneous substrate and pools and riffles is ideal for benthic (bottom dwelling) organisms as well as for fish species like trout.

If the wood is causing a problem, or if it is in an inconvenient location, then move and secure it rather than take it out altogether.

It was noted that on the LB in particular there was very little low tree cover. Low scrubby cover provided by marginal shrubs and small trees can provide fantastic cover for both adult and juvenile trout. Pools or potential holding areas can be made much more productive with the addition of a small strip of overhanging cover. Trout (including stocked trout) will feel much more comfortable near a "bolt hole" with cover. In-channel weed beds provide excellent cover but when combined with the occasional marginal bush, it can dramatically improve the holding capacity of the reach. It should be recognised that adult trout are not gregarious and will individually seek out secure holding spots, safe from predators and close to areas where they can save energy and easily intercept food items. The number and quality of these locations will determine to a large extent on how many fish you can hold in the reach. If good holding habitat is at a premium then many of the fish will be competing for handful of good quality lies. If the number of trout stocked significantly exceeds this number then many will simply drop out of the reach.

A nice marginal thicket of bramble on the RB – potentially a good lie for a trout

Upstream of the railway bridge there was a section of bank that had been reveted with sheet steel piles. This is a biologically sterile environment but could still provide a spot for fish to lie up if planted with a few low goat willows or sallow (*Salix caprea*) immediately behind the piles.

Hard revetment and no cover – a hostile environment for trout

Upstream of the A12 road bridge the river looked to have some better quality habitats for wild fish in some areas. It is understood that a long section upstream of the bridge is lined with gabion basket, installed when the road was widened. This may well put off anglers from fishing but the section did appear to have a reasonable gradient and in places some good marginal cover. A short distance further up there appeared to be a reasonable gravel riffle lined with the alder trees. This is the most likely spot on the whole beat where some fish might spawn. This section could be further enhanced with the addition of some short sections of LWD pegged at right angles to the flow to promote local scouring and sorting of river bed gravels (see recommendations).

A nice shallow riffle habitat with some marginal alder cover – potentially good spawning and juvenile trout habitat

Near the bottom boundary of the fishery a small side stream enters from the LB. This stream has apparently been recently dredged, however, on inspection there appeared to be some sections with decent quality gravels which may provide some spawning habitat. Even very small side streams and tributaries can be favoured locations for spawning, particularly by sea trout and this little stream should not be overlooked. There were some concerns expressed over water quality but a quick inspection of the substrate revealed a range of pollution sensitive invertebrates present.

Although this stream looks to be insignificant, it is thought that it could be easily improved to provide a good quality spawning and nursery habitat. Introducing a few pieces of LWD to promote some bed scour and the odd holding pot for adult fish, coupled with promoting some low overhead cover, either by planting some willows, or temporarily placing brashings over the stream, will make this a much more productive site. Before embarking on any improvements it is recommended that the stream be regularly inspected from mid November to January to see if any fish are running into the bottom end, potentially looking for spawning sites.

Trout and sea trout can and do use even the smallest side streams for spawning. The little stream running into the Fynn near the bottom boundary might provide spawning opportunities and should be monitored during the early winter period for any signs of spawning activity

5. Trout stocking

There was considerable discussion and debate surrounding the club stocking policy. Data forwarded on the number of fish stocked, angler visits and catch rates indicated that a recent increase (last five years) in stock fish density has not improved catch rates. This may well be linked to habitat availability because the reach is quite limited in terms of high quality adult trout lies. Fish stocked that can't find a suitable lie and settle will, in all probability, keep moving downstream and perish in the estuary. A better return will almost certainly be obtained from stocking with a much lower density and, if possible, stocking more frequently than the current twice yearly stocking. The fishery appeared to respond quite well when stocking was restricted to two batches of 100 fish and it is quite possible that the same, or better catch rate might be achieved with three batches of 50 fish. Early season stocking should be avoided to restrict losses and avoid any possible damage to sea trout smolts.

Stocking with juveniles will only mask any improvements you are making with improving habitats for wild fish so it is recommended to continue stocking takeable sized adults. There is mounting evidence that interbreeding between domesticated farmed trout and wild fish can lead to lower fitness and survival amongst the offspring, reducing the numbers of river-bred fish in the population. Recent changes to the Environment Agency's National Trout & Grayling Strategy reflect this concern, and by 2015 all farmed trout stocked to rivers will be required to be sterile all-female triploids, or derived from local broodstock. More information on this subject can be found at:
http://www.environment-agency.gov.uk/subjects/fish/165773/1791055/1800027/

6. Sea trout

The proximity of this fishery to the estuary and the fact that the occasional sea trout does figure in the catch returns is very exciting. Significant sea trout stocks are known to be present around the East Anglian coastline and there is no reason why the Fynn should not enjoy improved sea trout catches. The WTT is currently engaged in an East Anglian sea trout project as we, along with our partners, recognise that there is real scope for providing improved access and habitat for sea trout. The first action that needs to be taken on the Fynn is to open a dialogue with the local EA fisheries team over any assessment that has been made on the tidal gates at the bottom of the system. Are these gates passable for migratory fish sometimes, always or very rarely? Actions to improve fish migration and river connectivity are currently being formulated by the EA as part of their Water Framework Directive responsibilities. Now is a very good time to ask if there are any plans for the Fynn.

7. Conclusions

Overall impressions of the reach suggested that there is considerable scope for improving holding habitats for adult trout. There are opportunities to create improved lies by undertaking a modest programme of tree planting. Pushing in stakes of goat willow at water level will provide some much needed low scrubby cover, particularly on the outside of bends and over potential pool habitat. The willows will provide cooling shade during long hot dry spells, an external food

source via terrestrial invertebrates and root systems and submerged branches that can both tie in bank soils and provide refuge from fish eating predators. If access for sea trout can be improved then any measures taken to improve holding habitats for stocked fish may well result in a boost in sea trout rod catches.

The reach above the A12 road bridge appeared to offer some possibilities for trout spawning and also provided some juvenile trout habitat but a further inspection is desirable under normal flow conditions.

All sections of lowland stream, especially near the bottom of the system, are vulnerable to poor water quality. Macro-invertebrate data collected by the Environment Agency suggests that the blue winged olive and true mayfly (*Ephemera danica*) may be scarce although the presence of large dark olives was confirmed (*Baetis rhodani*) in most samples. Although water quality is potentially a concern on this fishery, the presence of high scoring taxa found in the invertebrate data supplied by the EA is encouraging. BMWP scores collected at Martlesham bridge consistently scored in the 50-100 range, which indicates good water quality.

Many angling clubs now take part in the Anglers Monitoring Initiative in order to maintain a close eye on water quality, which is reflected in the invertebrate populations. One excellent method of monitoring water quality is to link up with the Riverfly Partnership. The Partnership provides simple training and a robust method of assessing fly life through periodic sampling of macro-invertebrates. This is a simple and effective way of keeping a close eye on water quality performance. More information can be found at www.riverflies.org .

Of slight concern during the visit was the water quality emanating from a small ditch on the RB just above Martlesham Bridge, which was extremely dark in colour. Any concerns over water quality should be reported immediately to the EA via their 24 hour hotline number 0800 80 70 60.

Very dark water joining the main channel just above Martlesham bridge

On those sections where there are shallow gravel runs, some effort should be made in October to break or loosen the crust prior to the trout spawning season. This can be achieved with fencing spikes and rakes, as well as high pressure pumps or leaf blowers to remove fine sediments which restrict egg survival.

Gravel cleaning can significantly boost spawning success on rivers with compacted gravels

Another good method of improving spawning success is to use pegged down pieces of large woody debris to help scour, clean and sort river bed gravels. This method is extensively used by the WTT as it not only helps to boost spawning success but also provides holding habitats and cover for a range of fish species. The wood also provides a primary source of food for aquatic invertebrates.

Two pieces of LWD configured to form an upstream “V”. Structures like this scour local pots in the shallow bed and promote a clean, loose ramp of gravel downstream.

Getting the balance between maintaining fishable access and providing a good fringe of marginal plants is very important. Marginal plants provide superb bank defence and can help to promote better quality mid channel habitats by concentrating flows through a constricted channel. They are also a critically important habitat for the adult life stages of many aquatic invertebrates. Removing some of the plants that can potentially block central channel areas is a good compromise.

It is recommended that efforts are made to eradicate any invasive non native plants from the margins and bankside areas. Himalayan balsam may be present on this reach. This plant is undesirable because its suppression of other vegetation, coupled with its winter die back, combine to leave extensive areas of bare bank, contributing to excessive erosion.

The control of Himalayan balsam can be achieved by physical or chemical means:

Physical Control

The main method of control, and usually the most appropriate, is pulling or cutting plants before they flower and set seed (usually in June or July). Working parties are the best means of doing this.

Limited grazing access appears to be controlling balsam in some sections of the fishery. This could be continued, but needs to be carefully controlled and balanced with preventing overgrazing of desirable species, damage to coppice re-growth or damage to river banks. Access in late spring or early summer

before the balsam has flowered would be ideal. In areas inaccessible to livestock, physical or chemical control is recommended.

Chemical Control

Before using weedkillers alongside waterways it is necessary to contact the Environment Agency and obtain their written consent via form WQM1 (http://www.environment-agency.gov.uk/homeandleisure/wildlife/31350.aspx). It can also advise on suitably qualified contractors.

Himalayan balsam can be controlled with a weedkiller based on glyphosate, such as Roundup. Glyphosate is a non-selective, systemic weedkiller that is applied to the foliage. It is inactivated on contact with the soil, so there is no risk of damage to the roots of nearby plants, but care must be taken that the spray doesn't drift onto their foliage. Glyphosate is most effective when weed growth is vigorous. This usually occurs at flowering stage but before die-back begins; with most weeds, this is not earlier than mid-summer.
It may take a couple of seasons to obtain good control due to the germination of more weed seedlings.

It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Any modifications to hard defences will require a land drainage consent on any river designated as "main river". Advice can be obtained from the EA's Development Control Officer.

6. Recommendations

- Make contact with the local EA office and find out if any assessments or plans have been formulated to look into improving access for migratory fish.
- Leave as much woody material in the channel as possible
- Plant some additional willows (sallow) to give overhead cover on the long open sections.
- Consider introducing more structure into the channel, particularly on shallow gravel sections by using LWD flow deflectors.
- Instigate an early autumn programme of gravel cleaning to boost trout egg survival rates.
- Explore the potential for restoring the small side stream that joins the LB near the bottom boundary by monitoring any presence of trout during the spawning season

- Consider signing up for some training in undertaking simple surveys as part of the Anglers Monitoring Initiative. This is an excellent initiative and will give you a much better understanding about the productivity of your stream and an indication of long term water quality performance.

- Restrict stocking activities to mature sterile fish on a 'little and often basis' as far as is practical in order to match adult fish densities to the number of available lies.

- Control invasive Himalayan balsam through pulling or spraying.

7. Making it happen

There is the possibility that the WTT could help to start an enhancement programme. Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). PV's typically comprise a 1-3 day visit where approved WTT 'Wet-Work' experts will complete a demonstration plot on the site to be restored. This will enable project leaders and teams to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

The WTT can fund the cost of labour (two/ three man team) and materials (max £1800). Recipients will be expected to cover travel and accommodation expenses of the contractor.

There is currently a big demand for practical assistance and the WTT has to prioritise exactly where it can deploy its limited resources. The Trust is always available to provide free advice and help to clubs, syndicates and landowners through guidance and linking them up with others that have had experience in improving trout fisheries.

Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.