TULLAGHOBEGLEY BANK PROTECTION
AND HABITAT ENHANCEMENT PROJECT REPORT










CAA 2021

INTRODUCTION

Cloughaneely Angling Association manages the fishery on the rivers Ray and Tullaghobegley and the associated catchment area. Over the years the fishery has not only been a much valued local amenity but, through its attraction for visiting anglers, it has also been a significant contributor to the local economy. In recent years CAA has expanded its role to address issues of significance to the health of the catchment environment as a whole. To this end it has engaged with the key statutory agencies and voluntary bodies in a structured and programmed manner. The basis for this is set out in CAA's Strategic Plan and the Catchment Management Plan, both of which may be viewed on the Association's website www.cloughaneelyanglingassociation.com.

Multiple factors have contributed to a degrading of the water quality and the riverine environment in the catchment. A major factor is siltation of river gravels and associated excessive macrophyte growth. This is of core importance because clean, well aerated gravel beds are vital to enable migratory salmon and sea trout, and indigenous brown trout, to spawn successfully. In the case of the Tullaghobegley river, it is also crucial to the survival of the remaining fresh water pearl mussel population. It is the fundamental requirement for the sustainability of a healthy and productive river system.

The project sets out to address this issue on a section of the upper Tullaghobegley river. This location was chosen because it presents clear instances of the problems and because the landowner in the proposed project area of operation was very positively disposed to supporting environmental improvement and measures to enhance biodiversity. Were it not for the committed and active participation of the landowner, the project could not have been delivered. It demonstrated clearly that the benefits of landowner support in a partnership approach to environmental management is vital to long term sustainability in the catchment.

PROJECT LOCATION

The project undertook measures along a specified reach of the Tullaghobegley River to protect river banks from a number of pressures and remediate existing impacts. The reach which is the subject of this project is in the Tullaghobegly_020 River Waterbody. This is currently at WFD Good Status and is assigned to 'Not at risk' category in the WFD Risk 3rd Cycle. The accuracy of this latter categorisation has been questioned for reasons set out in the CAA Catchment Management Plan. CAA believes the waterbody to be at risk.

The location of the project reach is almost precisely one kilometre in channel length. It is in the middle reaches of the river and is a lowland meandering channel in character with some pool-riffle-glide sections (Figure 1).

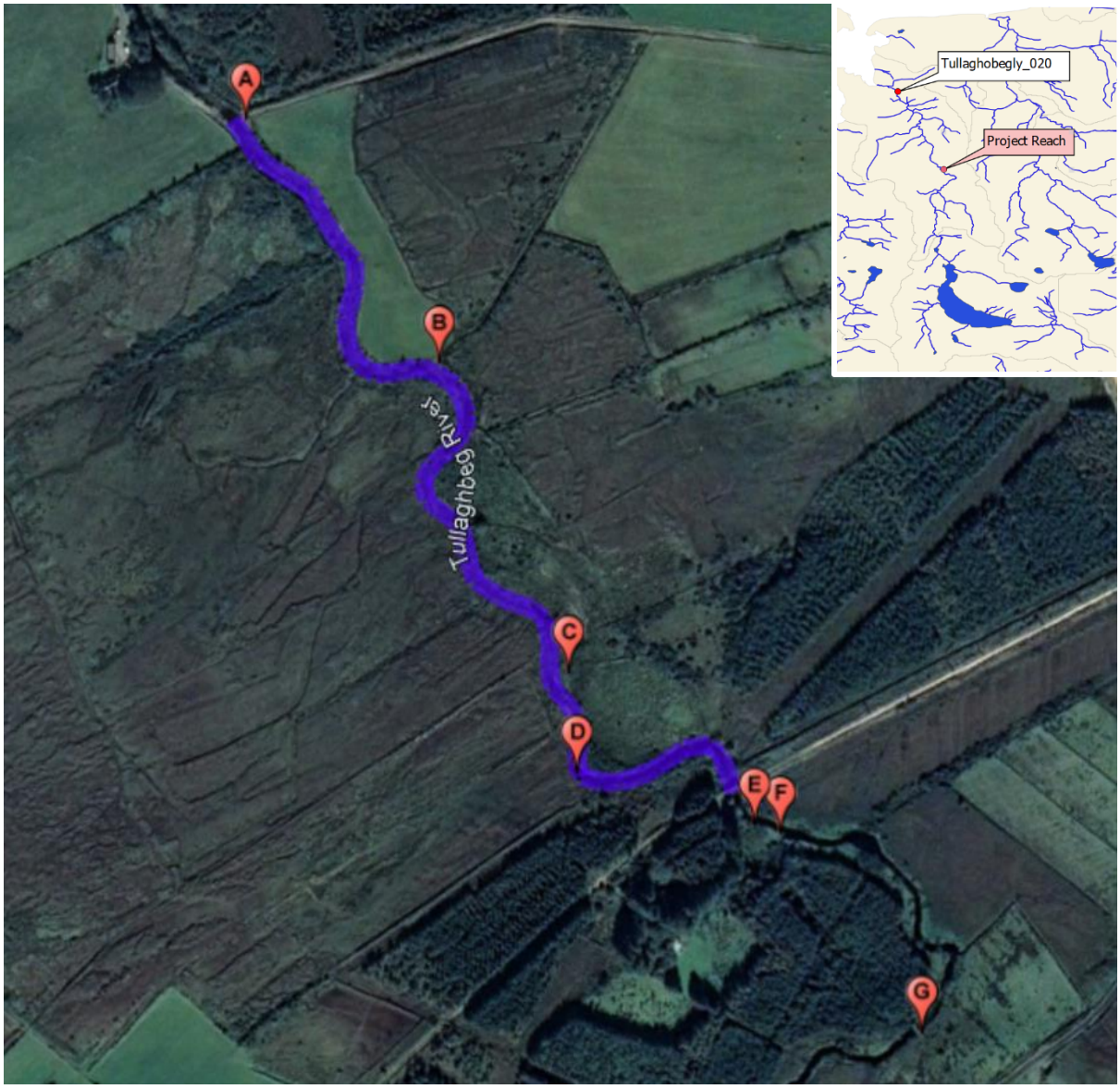


Figure 1 Tullaghobegley River (inset), and the river reach (Blue) which is the operational area of the project. Flags A to G mark the locations at which photographs shown in Appendix 1 were taken, some of which are upstream of the works area.

Photographs taken at the sites labelled A to G are presented in Appendix 1. The surrounding land use is pasture, improved grassland and bog, with some coniferous forestry. At the upper extent of the project reach there is excessive macrophyte growth (*Callitriche*) in the channel which is associated with silt deposition. Areas of clean gravels with coarse cobble are present and provide spawning habitat for salmon and sea trout. In recent years, land use in this section of the catchment had intensified. New land drainage had been installed and existing drains had been deepened. Cattle access at watering points had resulted in some damage to banks. Some lands were in production to the river bank without defined buffer zones.

FENCING

595 metres of fencing has been installed along the right bank of the river (Figure 2). The fencing meets standard specifications in relation to stakes, posts and wire used, and height and construction details. The fence has been installed by CAA's river team in conjunction with the landowner, all of whom are competent operators experienced in working in riparian zones. The fencing has been set back from the river bank to provide a buffer zone and access route for anglers. Buffer zone width was determined by local topography, river bank condition, strategic location, adjacent land use and permanent vegetation, and landowner agreement. An average minimum width of 3m has been achieved (Figure 3). The river is now protected from invasion by livestock. To meet the needs of livestock for water, two aquamat pumps with side bowls and c/w strainers have been provided.

Figure 2 Newly installed fencing along the right bank and gated access point

Figure 3 Riparian buffer strip 3m wide on average

DRAIN MITIGATION WORKS

Approximately 7 existing drains (sheughs) were identified that required mitigation measures to reduce silt export to the river. These deep drains also created obstacles to access along the bank. The drains were bridged using a stone ramp near their discharge end to allow pedestrian passage. The stone used in the ramp was clean local quartzite (Figure 4). To prevent any elevation of pH in this naturally acidic soft water river, no limestone was used.

Straw bales were used to effectively block the ditch outfall before works commenced and during works to provide separation and filtration and prevent any sediment reaching the river (Figure 5). Drain mitigation works were carried out in dry/low flow conditions. Culverts have been installed to allow drainage water to pass through the ramps. Although the drains are artificial managed systems and not currently a habitat suitable for fish, the culvert inverts have been carefully positioned at a level that does not create obstacles or barriers to passage of fish. Such areas could provide a function as nursery streams in the future.

Upstream of the stone ramps the ditch bed has been deepened to provide settlement sumps for silt carried in the drains and to prevent export to the river (Figure 6). These sumps will be managed as part of the normal drain cleaning cycle and CAA will work with the landowner to ensure implementation of best practice during drain management to mitigate any environmental impacts and maintain biodiversity. In one major ditch, a pond has been created at both the input end and the downstream end. This provides more opportunities for treatment of drain discharges and greatly enhances biodiversity. Current vegetation in drains will colonise ponds but if necessary, and to accelerate pond maturation, local macrophytes may be planted.

Such retention ponds/wetlands have an indicative suspended solids removal capability of 60% (DN-DNG-03022, TII 2015). The stretch of river involved was identified as an area in which silt impacts were occurring. It is also a reach of the river that supports a population of the Freshwater Pearl Mussel (FPM). The Tullaghobegley River Catchment Characterisation report (2014) estimated that a population of about 550 individual mussels was present in the river. It also stated that the Tullaghobegley has good stable substrate across a wide range of the river and has the potential to support a large Margaritifera (FPM) population if the condition of the habitat could be maintained in good status without periods of nutrient and sediment pollution.

Figure 4 Culvert construction using clean quartzite stone

Figure 5 Use of straw bales to dam ditch outfalls during works

Figure 6 Deepening and widening of drains to create settlement sumps at the outfall

TREE PLANTING AND RESEEDING

Tree planting at appropriate locations to establish riparian woodland and copses has been carried out in conjunction with NPWS and Coillte. Species planted include birch, alder, oak and holly. Approximately one hundred and fifty trees have been planted. The location of each tree planted has been marked with a stake to facilitate ongoing maintenance to aid growth in the early stages e.g. clearing competitive vegetation in the immediate area (Figure 7). Where banks have been reprofiled, a species diverse mixture of native grasses and herbs suitable for acid soils has been used to re-seed bare soils.

Figure 7 Planting of riparian trees of mixed species composition

BANK RESCUE INTERVENTIONS

At locations where the river bank substrate had become perilously weakened, the area was strengthened by the introduction of reinforcement using stone harvested from the adjoining land (Figure 8). This will be covered in topsoil and reseeded as noted above.

In some places established trees had grown through river bank faces and posed a grave threat to the integrity and long term survival of the immediate riparian area. In these cases the tree was trimmed to ensure the protection of the river bank (Figure 9).

Figure 8 Stone protection on damaged bank surfaces in the riparian buffer strip

Figure 9 Trimming of tree stems projecting through the river bank at vulnerable locations

CONCLUSION

The project has comprehensively addressed several issues which were having an ongoing and cumulative serious detrimental impact on the water quality and riverine environment of a stretch of the Tullaghobegley which is of recognised importance as an important spawning area for migratory fish and a habitat for the threatened pearl mussel population. The beneficial effects of the work done will accumulate over the years to come. The project has also added a significant asset to the CAA fishery which will strengthen the contribution the fishery makes to the local economy by enhancing its attraction for visiting anglers, as well as enhancing the benefit to local anglers.

A complex undertaking such as this can only be successfully accomplished through the cooperation of multiple actors working closely in partnership. CAA gratefully acknowledges the assistance of those partners without whom the project could not have been undertaken, far less delivered to such a high standard: LAWPRO for the essential funding support, UDARAS for providing our invaluable river work team whose commitment and excellence is evidenced throughout the fishery, as here, NPWS in the person Seán O Gaoithín, head gardener, Glenveagh National Park for providing the trees and advice in relation to same, IFI for support and encouragement, and finally, Peter Doohan, landowner, whose enthusiastic support and active participation not only rendered the project possible but made a major contribution to its successful realisation.

The completion of the project has addressed the key land-based issues impacting on the wellbeing of the river, as detailed above. In the course of the work it became evident that two further issues of crucial importance remain to be addressed as a matter of urgency. These are:

1 The exponential growth of weed which is posing an existential threat to the life and functioning of the river and all creatures dependent on it.

2 The parlous state of the fresh water pearl mussel population.

For the river to be properly restored and protected for future generations, these issues must be addressed to complement the work already carried out. This will require in-stream intervention. CAA will engage with the relevant bodies to devise a project which will aim to deal with these matters while there is still time.

APPENDIX 1

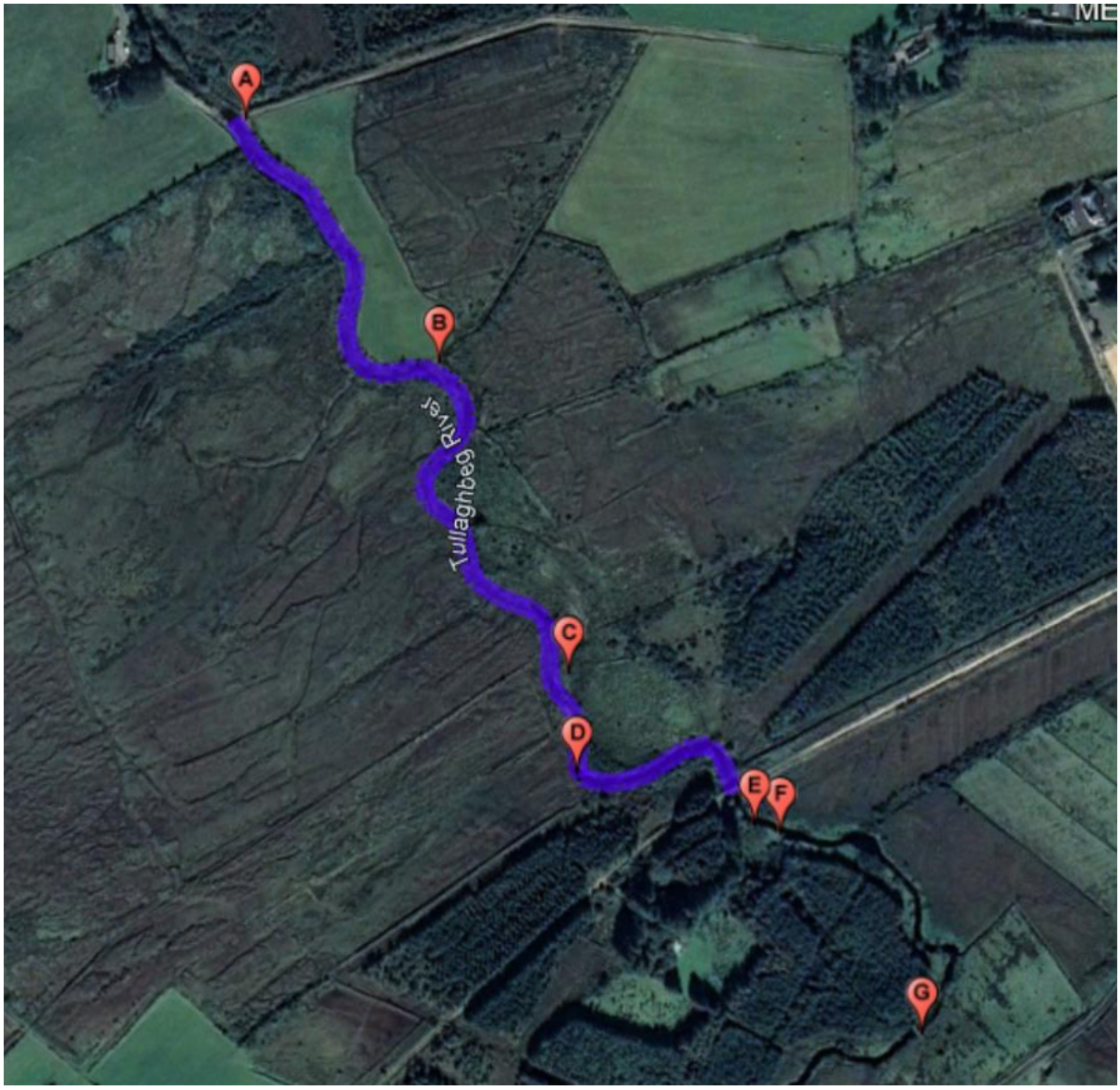


Figure 10 Location of operational area of the project. Flags A to G mark the locations at which photographs shown below were taken

Table 1 Locations of points A to G shown in Figure 10 above.

Location	Grid Reference	X	Y	Latitude	Longitude
A	NV 11131 96383	11131	596383	55.10873	-8.10091
B	NV 11253 96199	11253	596199	55.10718	-8.09876
C	NV 11325 95973	11325	595973	55.10521	-8.09733
D	NV 11325 95903	11325	595903	55.10458	-8.09724
E	NV 11446 95855	11446	595855	55.10425	-8.09528
F	NV 11464 95847	11464	595847	55.1042	-8.09499
G	NV 11551 95699	11551	595699	55.10294	-8.09344

APPENDIX 2 – PHOTOGRAPHS OF PROJECT RIVER REACH

Point A *View downstream at the ford at the downstream end of the project reach*

Point B *View downstream on right bank at southern end of improved field*

Point C *View downstream on right bank*

Point D *View upstream on right bank with undercutting resulting in bank slippage and collapsing fence line at rear*

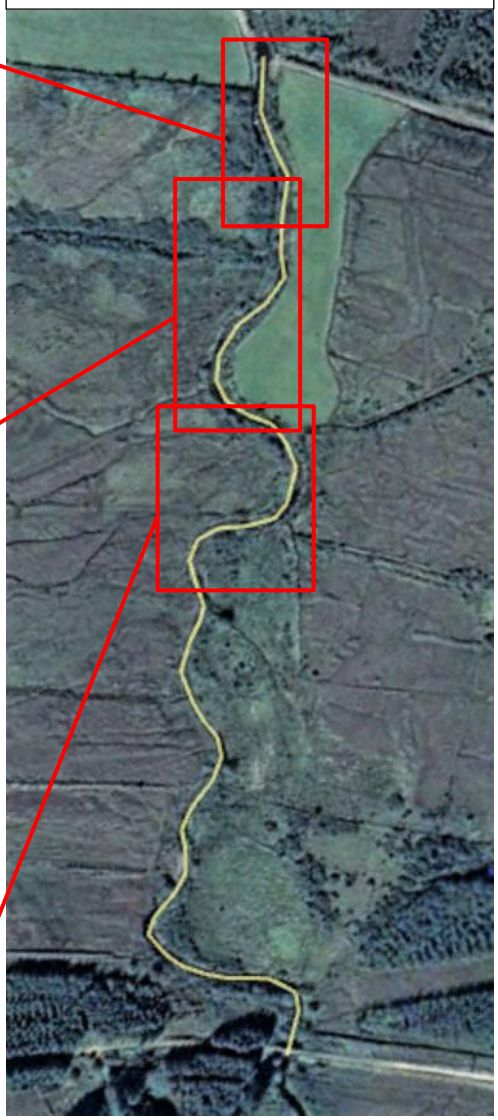
Point E *View downstream on left bank to railway bridge, with bank and fence collapse on right bank*

Point F *View upstream on left bank with forestry in background*

Point G *View downstream at old tractor bridge showing extensive macrophyte growth*

APPENDIX 3 – AERIAL PHOTOGRAPHS OF PROJECT RIVER REACH

Project Reach and Aerial Photo Coverage



Project Reach and Aerial Photo Coverage

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