

Wild Trout Trust Advisory Visit

Urswick Tarn Angling and Conservation Society



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Introduction

This visit was carried out on behalf of the Wild Trout Trust for the Urswick Tarn Angling and Conservation Society. This group is independent from the Tarn Association, who manage the site. It has been formed by a group of anglers for the sole purpose of carrying out improvement works for conservation based on a decline of the angling in both the tarn and Gleaston Beck. There appears to be some historical conflict between the two organisations and this report is not intended to be biased to either party. It is very rare to find a group who are as passionate and pro-active as the UTACS, and it is for this reason that the WTT is keen to assist with recommendations for best practice. It is important to stress that the UTACS should try and work closely with the TA in achieving their aims, and conversely, the TA should try and reconcile differences with the UTACS and see them as an extremely valuable and rare volunteer labour source and ally for their own work. It should be remembered that all environmental improvements will improve the fishery, and if the tarn and its surrounding land are managed properly, the fishery will manage itself. Any problems with the fishery following this, are most likely due to problems managing people rather than managing the environment, but there is no reason why angling in the tarn should have an adverse effect on it, in fact, the promotion and maintenance of recreational activities on the tarn will underwrite sustainable long term management.

Residents of the Urswick area remember large wild trout being caught in the tarn, although it was principally a coarse fishery, and there were photographs in the local pub for a number of years. It would be extremely surprising if the tarn did not historically support trout, due to the region it is in and the limestone character that would have provided ideal growing conditions. The large nature of these fish may be partially supported by this, but is more likely to be due to the very short river that connects the tarn to the sea. The trout population was most likely a migratory population of trout, which spent at least a proportion of time at sea. A number of factors have probably contributed to trout not being observed in the tarn for a long time, and it is the aim of UTACS to tackle some of these problems to restore an important historic species to the tarn and Gleaston Beck. The tarn also appears to be supporting a healthy population of eels, which are of national conservation interest at the present time. As in many areas in the UK, concern has also been raised about an apparent increase in fish-eating birds.

A single site visit was carried out with a representative of the Environment Agency on the 2nd May 2003. The report summarises proposed actions separately for Urswick Tarn and Gleaston Beck. There then follows discussion concerning the actions.

Urswick Tarn

Actions:

1. Eradicate Japanese Knotweed as a matter of urgency.
2. Protect remaining reed beds from wave action on the South - West side of the tarn using brushwood faggots.
3. Protect key reed beds from grazing animals and waterfowl.
4. Control Canada geese.
5. Restore floating marginal vegetation in conservation areas.
6. Assess potential for transplantation of reeds to restore lost reed beds.
7. Assess potential water quality impacts of input water and investigate remedial action.

Eradicate Japanese Knotweed as a matter of urgency.

Japanese Knotweed is an exotic plant that was imported for ornamental purposes. It is extremely invasive and is causing extensive problems on waterways in other parts of the country. It will out-compete native flora completely, and die back in winter leaving a bare bank with no wildlife value but more importantly extremely vulnerable to erosion. It is an offence under the Wildlife & Countryside Act (1981) to allow the growth of Japanese Knotweed, but no statutory organisation has taken responsibility for the enforcement of this rule.

Only the female plant is present in the UK and will not produce fertile seeds. All spreading has been carried out by manual means. A single node on the stem is capable of travelling down waterways and establishing a new plant elsewhere and this is a real threat to habitats all the way down Gleaston Beck. In the case of the small stand beginning to develop adjacent to the tarn, it appears that some rhizome (root) has been imported during the creation of the new track down to the area know as the "Landings".

Eradication of Japanese Knotweed is difficult and should not be attempted without thorough research. The plant cannot be removed by pulling, as this breaks up the rhizome into small pieces that re-grow vigorously. The plant tops must be disposed of as "Special Waste" if cut. The best approach for this small stand would be to take measures to prevent spreading of the plant and individually treat individual stems with a translocated herbicide such as glyphosate (trade name RoundUp) twice a year, in Spring and Autumn when the growth is most vigorous. This approach may still take up to 3 years to work. If this approach does not work, the rhizome root system is already well established and much more aggressive measures need to be used. If this is the case, seek specialist advice.



Figure 1: Isolated patch of Japanese Knotweed beginning to establish at the Landings.

Protect remaining reed beds from wave action on the South-West side of the tarn using brushwood faggots.

Urswick Tarn is typified by some fantastic reed beds. These have been lost in parts of the tarn. This has been recognised by residents and some attempts to protect remnant reed beds have been quite rightly taken using randomly placed brushwood. Where there are breaks in the brushwood, erosion of the tarn bank by wave action has been concentrated.

Restoration of reed beds has been successfully carried out elsewhere in the country, by protecting the recovering vegetation and exposed bank, using continuous lengths of brushwood faggots. These are either pinned into the tarn bed using long road-pins or willow stakes, or can be strung along a wire line attached to the tarn bank at either side of the length of bank being restored. It is important that there are no breaks in the protection for waves to pass through while the reed beds are recovering.



Figure 2: Breaks in the recovering reed bed allow wave action to cause excessive erosion behind the recovering reed bed. Note grazed bank.

Protect key reed beds from grazing animals and waterfowl.

It is obvious that wave action did not cause the original deterioration and loss of reed beds, in fact, the reed beds are probably the best protection for the tarn bank against wave action. The most direct physical damage to the reed beds is likely to have been caused by grazing animals and waterfowl. Steps have already been taken to protect reed beds from animals in some parts of the tarn and appear to be very successful. It must be recognised that reed beds in other parts of the tarn will not recover without appropriate fencing. Where land is part of an agricultural holding, protection work (fencing, planting etc.) may form part of a Countryside Stewardship or other agri-environment scheme for which the farmer is paid on an annual basis.



Figure 3: Fenced reed beds in the background, and those naturally sheltered show much better recovery.

Control Canada geese and non-native waterfowl

Reed bed decline is not only attributable to direct damage from grazing animals. In the meso-oligotrophic waters of the North West, reeds have been thought to be increasingly at risk from damage by wave and livestock due to an increased growth rate. This is because it produces a thinner stem and less dense reed bed. The cause has been put down to eutrophication (enrichment of the water). This may be from various factors, agricultural run-off, septic tank discharge, but in many small water bodies, resident waterfowl have been blamed, in particular Canada geese. This animal is not native to the UK and as such can be resident at a favourable location for long periods at a time. Native geese will migrate and either over-winter or pass through sites such as Urswick Tarn. Six Canada geese can produce the same amount of waste as one dairy cow, so a large resident population can introduce the same amount of fertiliser to the tarn as a small farm.

Control of resident birds can be a sensitive issue with local people and this issue should be addressed carefully with all parties involved in the conservation of the tarn, but does need to be considered as a potential serious impact on water quality. Egg pricking is one way to maintain a population of birds that some residents will appreciate, without allowing the problem to grow out of control.

Restore floating marginal vegetation in conservation areas.

Loss of floating marginal vegetation appears to be closely linked with the perceived fishery problem in the tarn.

There has been a lot of concern about the health of the current resident coarse fish population in Urswick Tarn. A recent hydroacoustic study of the tarn has shown that the potential coarse fish population may be high in comparison to similar lakes in the region.

This is not surprising based on the fact that this tarn more than many in the region, has been managed historically as a coarse fishery and has had received significant stocking effort in the past.

The reported densities from the hydroacoustic survey compare well with recommended starting densities for commercial coarse fisheries (150-250 kg/ha), assuming that the average Urswick Tarn fish is 100g then the average density would be 200 kg/ha.

The main problem with the fishery appears to be low daytime catches by anglers. The hydroacoustic study showed a mass congregation of fish in the middle of the tarn during daylight, which then dispersed back into the margins at night.

This appears to be behaviour associated with predatory birds resulting in fish taking refuge in a shoal. The tarn historically had large beds of floating marginal vegetation that has been lost due to intensive management for angling in the past.

The increase in fish-eating birds is not disputed and is a national issue. The latest advice is that the problem cannot be tackled by culling, due to the size and mobility of the bird population and can only be tackled by reducing the floating structures for birds to roost on (e.g. rafts etc.) and increasing refuge structures for fish. If allowed to continue, it is likely that fish eating birds will have a detrimental impact on the tarn fish population.

It is important to increase daytime refuge within the tarn in order to prevent the shoaling behaviour of the fish, which is not contributing to the long-term health of the population. It is recommended to try and restore some marginal floating vegetation in parts of the tarn where there is limited public access and treat these areas as conservation areas.

There are details of floating vegetation that was historically present in the tarn in the Cumbria Wildlife Trust conservation strategy for the tarn. Efforts should be made to try and restore some of these. The labour offered by the UTACS will be essential to help achieve this.

Restoring marginal floating vegetation as well as the already well established emergent vegetation will also help increase survival of juvenile coarse fish. It was identified during the site visit that coarse fish at this latitude need a long warm year to get good survival rates, however, this is irrelevant with the current lack of safe juvenile habitat.



Figure 4: Restoration of floating vegetation close to residential areas, where angling is not favoured, will create important conservation areas for the fishery.

Assess potential for transplantation of reeds to restore lost reed beds.

The reed beds are an extremely important component in the Urswick Tarn ecosystem and this has been recognised by the TA and UTACS in their recent conservation work. There appears to have been significant loss of reed beds by reclamation of wetland at the rear of adjoining gardens, whether to enhance views or increase property size, and this has probably had some detrimental impact, but is certainly understandable. There must therefore be an objective to re-establish reed beds in other places where they have been lost, to make up for the losses on private property that cannot be restored. There have often been problems with restoration of reed bed systems where they have been lost completely due to the loss of the natural protection that reeds offer each other. One technique that has been used successfully is where the root ball of individual reed plants is bound in hessian with suitable compost, and sometimes a stone as weight. These are planted where there is access, but also can be thrown from the shore or dropped in from a boat into deeper water. This must be carried out at the beginning of the growing season in order to allow them to root. Reeds that are in the process of establishing may also be cut right back at the end of the growing season, in order to avoid the growth causing the plant to be uprooted by severe weather. Great care must be taken not to compromise existing reed beds, to establish new ones. Removal of plants from one may enable wave action, or birds to cause a long-term decline in the bed. It may be extremely helpful to establish some reeds in one of the drains at the top of Gleaston Beck, and use these to re-establish new reed beds in the tarn. This would also help with water quality issues in any of these watercourses. It must be remembered that all new or

recovering reed beds must be protected with fencing as the beds are on the Eastern side of the tarn.



Figure 5: It may be safer to establish reeds for replanting in one of the drains rather than compromise reeds in the tarn. This will also assist with water quality improvements (drains should also be fenced).

Assess potential water quality impacts of input water and investigate remedial action.

The tarn is probably mostly fed from groundwater sources, hence its rich limestone character. The only visible tributary that feeds the tarn is the small beck that enters on the West side.

On inspection, this beck displayed a very poor range of invertebrates, implying water quality that is below standard. The cause of this poor water quality is unknown and an attempt to trace any negative inputs into this beck should be made. This could, for instance, be due to septic tank leakage or similar inputs, but suggestion has also been made of a historic mine leakage into this watercourse. The EA water quality department should be asked for their opinion and the potential risk to the tarn assessed.

Failing treatment of the cause of the poor water quality, some protection to the tarn may be afforded by increasing the amount of vegetation on the beck. This can act as a sediment trap for noxious substances, and vegetation will help clean the water. First step should be to increase the light that gets to the beck; this will increase in-stream vegetation growth. The beck should also be fenced to allow bankside vegetation to establish, and prevent stock from disturbing any trapped sediment. The reeds in the tarn are ideal for treatment of poor quality water, establishing these along the length of the beck would also be helpful.

In an ideal world, the beck should be increased in length, turned into the field, a couple of ponds created to really slow water and allow sediment to drop out and be treated by vegetation, before entering the tarn. The landowner will probably be resistant to this, however, if they are an agricultural holding, this work may form part of a Countryside Stewardship or other agri-environment scheme, that would also pay for some of the tarn improvements over this piece of land.



Figure 6: The beck entering from the Western side carries water of questionable quality. Natural treatment of this beck offers potential for some remediation.

Gleaston Beck

Actions:

1. Attempt to reconcile flood defence concerns with fisheries restoration needs.
2. Where possible address water quality issues in partnership with statutory agencies and maintain vigilance.
3. Recreate pool habitat for older life stages of trout throughout Gleaston Beck whilst maintaining flood defence capacity.
4. Monitor impact of tidal flap on migratory fish and liaise closely with Environment Agency on potential impact.

Attempt to reconcile flood defence concerns with fisheries restoration needs.

The past flood defence management of Gleaston Beck was not favourable and has compromised conservation. The EA flood defence department is attempting to remedy the mistakes of the past and representation should be made to them during the development of long term restoration plans.

The flood defence concern is that a high rainfall incident will raise the water level in the tarn and flood Great Urswick, so vegetation has been cleared from Gleaston Beck and it has been straightened to allow water to get to the sea as quickly as possible. The flood risk is exacerbated by the very low gradient of parts of Gleaston Beck.

New policies on flood defence should allow the creation of a low flow beck of high conservation interest, while also allowing a high flow channel (two stage channel) with additional unpopulated areas serving as flooding zones.

It is important that all improvements are carried out in partnership with the EA flood defence department and this may also lever some restoration funding. Even large rocks throughout Gleaston Beck have been removed, and these are essential for providing trout habitat, especially where no vegetation is allowed, and do not significantly affect the ability of the channel to move water in high flows. In fact, sediment that builds up in these straightened channels does reduce ground infiltration and can increase flood risk in some situations.



Figure 7: Gleaston beck has been cleared of vegetation from where it leaves Urswick Tarn. This has left a watercourse with very little conservation value. New policies should allow restoration of a low flow channel and allow a certain amount of agricultural land to flood without compromising residential areas.



Figure 8: Gleaston Beck is characterised by a straight featureless flood defence management routine and is probably not relative to its flood risk.

Where possible address water quality issues in partnership with statutory agencies and maintain vigilance.

Water quality in Gleaston Beck should echo the water quality of the tarn, however, there is evidence of small pollution inputs and a history of acute agricultural problems.

An increased interest in the conservation of Gleaston Beck will help solve these problems, but individuals should maintain vigilance, as one major incident could undo any restoration works.

The statutory agencies can only respond to events reported by the public, so continue to monitor suspect areas, take samples and photos and report the incident to the Environment Agency as it occurs. Talk to the local water quality officer about how to take a sample, and ask to be provided with some sample bottles, if time constraints make it difficult for the authorities to catch the event.

UTACS (and the TA) should as a matter of urgency join the ACA (www.a-c-a.org) in order to legally protect their interest in both the tarn and beck, especially where pollution is concerned.



Figure 9: This grey coloured discharge from a clean water drain was definitely sewerage related and by the deposit on the vegetation was high flow at some point. This could have come from a number of sources, both acute and diffuse, but either way will contribute to long-term problems in the beck.

Recreate pool habitat for older life stages of trout throughout Gleaston Beck whilst maintaining flood defence capacity.

The transformation of Gleaston Beck where a single pool has been allowed to form is outstanding and provides considerable evidence of the potential for the beck where habitat and water disturbance is allowed to increase. In this location, mayfly was observed hatching and a single trout was seen. The landowner reported the mortality of a very large hen trout earlier in the year, which lends more evidence to the argument that Gleaston Beck should be supporting a migratory trout population, and that they may recolonise without assistance from artificial stocking.

Where landowners approve, recreation of pool – riffle habitat will transform the ability for Gleaston Beck to support trout. Examples of techniques needed were recently observed by members of UTACS at a visit to a WTT demonstration event and may also be seen in the Game Conservancy Trust publication, “Helping fish in lowland streams”. Of particular interest in Gleaston Beck is the upstream V-shaped weir, which is easy to construct, does not necessarily need much height (not affecting flood risk), and keeps river flow central so not losing the straight channel where it is essential for flood defence. Where possible, other techniques could be used to produce a meandering channel on flood plain land where it can safely flood, or flood within a second flood channel. These plans should be discussed with the EA, but may well be possible to include within agri-environment schemes with landowners.



Figure 10: A simple structure has created a pool that now supports salmonids and a far increased range of invertebrates.



Figure 11: Pool – riffle creation, return of large stones, and fencing to promote vegetation will restore Gleaston Beck from the featureless drainage channel above to a point where it can support a healthy salmonid population in a surprisingly short time.

Monitor impact of tidal flap on migratory fish and liaise closely with Environment Agency on potential impact.

Where Gleaston Beck meets the sea, a tidal flap has been constructed, which presumably acts to prevent flooding of agricultural land by saline water in very high tides. Tidal water will close the flap at exactly the point when migratory trout are likely be wanting to enter the beck. This structure, and the culvert that carries water under the road and out to sea, may appear to be very unattractive to fish, however, trout were observed below the tidal flap and seemed to enjoy the little bit of disturbance and in-stream feature that the flap has produced, much like the small weir upstream.

This feature has the potential to severely impact on any migratory fish population and negotiation with the EA should identify a means to enable access by fish without compromising the flood defence purpose, if this purpose is still required. The flap may either be controlled so that it is only operated on extreme tides (either manually, remotely or automatically) or a fish pass structure constructed.

One other concern is that the flap and culvert has destroyed any “estuarine” habitat where migratory trout may slowly adapt to increasing saline levels. Ideally, this could be recreated upstream of the flap within a two stage channel if necessary. Whether this may compromise survival of sea trout in Gleaston Beck is unknown. Restoration of this point of the beck may be achieved in partnership with the Morecambe Bay Partnership.



Figure 12: The tidal flap and pool supports trout, but probably is a barrier to migratory fish populations.



Figure 13: Where Gleaston Beck meets the sea, is heavily modified, but does not appear to be a barrier to fish.



Figure 14: A big wide world for a Gleaston Beck sea trout, but Morecambe Bay is ideal habitat and supports other migratory trout populations.

Conclusions

The UTACS has undertaken no small task in the restoration of the Urswick Tarn and Gleaston Beck fishery. Their dedication and approach will determine the level of success that they have.

There are a number of factors in favour of a rapid recovery of the system and success by UTACS and their partners:

- The catchment is relatively short and simple facilitating catchment wide restoration.
- The main work needed is habitat restoration, with remnant fish populations still in evidence.
- Work on the tarn should complement current conservation activity.
- There is strong potential of partnership with the EA flood defence department, the Tarn Association and perhaps the Morecambe Bay Partnership with BNFL and regeneration funding a strong possibility.
- There are a number of landowners who appear to be strongly in favour of restoration of the beck.
- Individual members of both the TA and UTACS appear to have the dedication required to be successful in delivery of conservation work.

The only potential obstacle to success seems to be current conflict with the Tarn Association, which appears to be groundless based on both organisations recognition that past management of the fishery left a lot to be desired. Perhaps the way forward would be the production of a new action plan (CWT would I am sure agree that the current management plan is out of date) that is more inclusive, recognises that Urswick Tarn is a part of a much larger catchment system, involves wider groups in restoration and conservation work, and provides objectives that contribute to sustainable development. This "Action Plan" can be used to polarise different groups fundraising and conservation activities to complement each other. It is important to note that during the process of taking this work forward, further professional assistance will be required to detail much of the work. This report could only describe the potential rather than each step. These professionals will have to be identified through the development of the Action Plan but could include the WTT, EA, CWT, and English Nature.

Contacts

Morecambe Bay Partnership www.morecambebay.org.uk
Anglers Conservation Association www.a-c-a.org

Further Reading

Helping Fish in Lowland Streams by Nick Giles and David Summers. The Game Conservancy Trust 1996. ISBN 0 9500130 9 9.