

Wild Trout Trust Advisory Visit

Barrowford Angling Association (Pendle Water)



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Introduction

The brief for the visit to the trout waters of Barrowford Angling Association, was to preferably visit during a period of low water to see the chronic problems that the Association has experienced over the last few years with flash floods and extreme low flows. Since February, the North West has had very little rain and low flows have been of serious concern, unfortunately, the few days before the visit saw the first decent rain and river flows were reported to be approximately two thirds greater than the normal summer flows!

Barrowford Angling Association consists of 60+ members of mixed fishing interest from wild trout to coarse anglers. The trout water consists of the Pendle Water which rises behind Pendle Hill and joins the Ribble – Calder system. Day tickets are allowed on the river through the town of Barrowford. Trout fishing members of BAA remember an extremely productive river which has declined in recent times, this has been attributed by the members to various developments including the reservoir systems at the top of the catchment, an increase in intensive agriculture, illegal mineral extraction and pollution. The association has relied on stocking in recent years to supplement the fishery. This has been with adult trout and fingerlings in the top section of the water, once at the beginning of the season, with up to 10 fish introduced into a pool at a time. One season, all the stocked fish were marked, and a very high downstream migration was observed.

Members have great concerns about recent efforts by the Environment Agency to reintroduce salmon to the catchment. They feel that this will result in poaching activities and an increased demand on the association to police the water and a potential increase in rent on the leased waters. In addition; the club have over the last 25 years put a lot of effort into creating wild trout habitat, which does not necessarily complement the work of the EA to reintroduce salmon, and they are concerned that future works will not be permitted. Work parties are temporarily on hold due to a prohibitive cost of insuring volunteers. This has been quoted at over £30 per person.

There is a strong will amongst the members of the association to do whatever it takes to restore a sustainable wild population of trout. The main aim of the visit was to identify what measures the association may be able to carry out to achieve their objective bearing in mind the catchment scale of some of the problems.

Water quality data

Water quality data available from the Environment Agency shows that the chemical quality of the Pendle Water below the Colne Water has improved from a grade C to a grade B since 1998. The outfall of Lower Ogden reservoir is also a grade B. This water quality is fine for supporting trout fisheries. Biological data for the Pendle Water below the Colne Water has been a grade C in recent years, which is classed as “worse than expected for an unpolluted river”. The outfall of Lower Ogden reservoir is classed as a grade B or “a little short of an unpolluted river”. It must be remembered that this data is based on presence or absence of pollution intolerant invertebrate species and not quantity of invertebrates. One of the key problems with reservoir outfalls is

that reduced constant temperatures reduce the number of invertebrate life cycles in any one year.

Nitrates are moderately low in the Pendle Water below the Colne Water and very low below Ogden reservoir. However, the main limiting factor for algal growth is phosphate and this is very high in the Pendle Water below the Colne Water and is moderate below the reservoir. This is a cause for concern and does represent enrichment of the river system. Although not an acute factor for fisheries decline, it will in the long term change the nature of the river and possible habitat availability. It is a sign that there is land run-off or other inputs to the river that may be more damaging, and there may be a risk of sheep dips etc. United Utilities have reported that they have problems themselves with water quality from the Ogden feeder streams.

Fisheries survey data

No fisheries data has been received from the Environment Agency yet. If important data is received it will be forwarded as an addition.

Volunteers

Barrowford anglers have in the past carried out a considerable amount of work using the volunteer effort of the club. This work had stopped at the time of the visit due to concern about liability and insurance for volunteers. There are a couple of options for providing insurance cover for volunteers.

1. The British Trust for Conservation Volunteers (BTCV) has an insurance scheme available for organisations to join with premiums starting at £166. See www.btcv.org.uk for more information.
2. The club could ally themselves with a larger organisation to provide insurance cover. The Ribble Catchment Conservation Trust and the Mersey Basin Campaign River Valley Initiatives are two possible options.

Predation

At the bridge over the beck that runs through Blacko Foot, a mink was clearly seen hunting in daylight. As a non-native predator, action should be taken to control this animal as it is likely to be present in significant numbers. In a healthy system, small numbers of mink are unlikely to have a significant impact, however, the adult trout population in the Pendle system is already reported to be under pressure, and mink will be contributing to this. If the association prefer to try to quantify the problem before deciding on action, small wooden rafts or platforms may be secured under bridges and other pinch points with a thin layer of clay on top. Mink are extremely curious and will explore these platforms leaving footprints behind. By checking the rafts, volunteers can quickly establish whether mink are present in significant numbers. The rafts can also be used for sighting traps after mink have been identified. For details on best practice for mink control refer to the Game Conservancy Trust www.gct.org.uk .



Mink rafts can be used to monitor a mink population, but also double up as trapping platforms. Photo courtesy of Game Conservancy Trust.

Habitats

The top of the Pendle Water is fed from two different tributary systems. Both have reservoirs, but there are a couple of small natural streams between the two reservoir systems. The natural tributary viewed on the day of the visit appears to be quite healthy with loose gravel and good numbers of invertebrates. The stream does drain agricultural land, and the main use seems to be for grazing, and there is a risk of damage to juvenile areas from trampling and grazing of river bank vegetation. River bank fencing in any of the areas open to stock will be beneficial for juvenile trout survival. The tributaries flowing from the reservoir systems appear to have the character of many reservoir outfalls. Various factors make reservoir outfalls particularly unproductive, but this normally reverses from the first natural tributary. The only advantage is that “hands-off” or “compensation” water normally maintains better flows than in systems that have been widely drained for agriculture. However, systems with natural wetland storage at the top are by far preferable. In the case of the Pendle Water, the Black Moss reservoirs are providing 2.7 MI per day of compensation water in lieu of the Ogden reservoirs. The catchment is reported to be naturally very prone to flash flood and unfortunately the reservoir systems do not have the capacity to buffer this at all. It is unlikely that habitat work above the first natural tributary will be good value for money due to lack of flushing flows and low production of invertebrates.



The natural tributary appears to be healthy, but will have the common problems associated with agriculture and will benefit from fencing and protection from livestock.



Directly below the reservoir fisheries production is likely to be severely reduced and habitat works are unlikely to be beneficial.

At the top of the BAA water, volunteers have created new pool habitat using log and boulder weirs. These have increased pool habitat over a stretch that is regularly stocked and this will increase the residency time of stocked fish. The only problems that have been seen are erosion downstream of the weirs and the obvious need to maintain the structures through floods. Erosion problems associated with log weirs can be reduced by making them into upstream facing V-shaped weirs (see Helping Fish in Lowland Streams. The Game Conservancy). This concentrates the flow into the centre of the channel rather than directing it into the bank. The club should not be overly concerned by the lost weirs, certainly the boulders continue to provide variation in flow and fish habitat. Logs can be recycled into other areas with less gradient.



Bank erosion caused by weirs can be reduced by changing the design into an upstream facing V-shaped weir.

The tributary which comes in further downstream from Blacko Foot is causing some concern for the club at the moment. The nature of the large substrate and the gradient is more suited to juvenile salmon production than trout production and the Ribble Catchment Conservation Trust with the help of the Environment Agency have been stocking juvenile salmon. There is concern amongst the club that this will increase rents and have implications for policing the waters. On reflection, these areas will only ever be salmon production areas and not salmon fishing areas, so rent rise is very unlikely and certainly not justifiable. At the moment, the upper catchment is not freely open to salmon and policing will not be an issue in the short term. If this population does recover, the residency time of salmon in this part of the catchment is likely to be very short, and at a time when quality of the fish are unlikely to attract too much attention. It is unlikely that policing the waters are ever going to be an issue for the club but if this continues to be a concern, it

should be taken up with the Environment Agency who are ultimately responsible for this. It was discussed on the day of the visit that juvenile trout will outcompete juvenile salmon, so even though the habitat requirements are different, any overlap will favour trout. In summary, I feel that the club have more to gain in terms of conservation work for the whole river by allying themselves with the Ribble Catchment Conservation Trust to tackle some of the problems associated with their own water.



The tributary is more suited to juvenile salmon production than trout but interestingly will also be ideal for large migratory trout.

Below this stretch of water, the river width becomes much greater, but substrates remain very large in size. There is certainly little potential for wild trout production. The association has attempted to build small weirs and other structures to improve adult trout habitats in low flows, but these are quickly washed away by high flows. Statutory authorities are not encouraging instream habitat improvements, but this is unjustified. It is widely accepted that heavily modified rivers lose the natural habitats that support various life stages and the only way to maintain some populations is by recreating them. Large block weirs are unlikely to be permitted, although the most likely to last. In the short term, small partial weirs which only go part way across the river and reduce the overall width are most likely to provide some of the deeper water needed in low flow conditions. It is appreciated that this will continue to feel like a losing battle at times, but this is a consequence of modification of the river further upstream and is to be expected. The higher flows seen during the visit are certainly able to support much more suitable trout habitats and BAA should join others to lobby for better compensation or hands off flows for the Pendle Water, which unfortunately may only come with return of salmon to the river. Parts of this section may also benefit from some tree coppicing to increase light levels on the river and encourage vegetation to narrow the river.

This is ideally carried out on faster flowing “riffle” sections rather than pools! The advantage of vegetation narrowing the channel is that it tends to flatten in floods and remain intact.



Large substrate and wide channel with extended low flows have restricted adult trout habitat. A partial remedy may be channel restriction with partial upstream facing weirs.

The section of water through Barrowford was the most revealing in terms of problems. A single large weir at the top of the town water is a very obvious obstruction to fish passage. Trout were observed failing to pass the weir during the visit. Interestingly, trout were observed freely rising throughout the town water, which had not been seen upstream. With restricted habitat upstream of the weir, particularly during low flows, trout will migrate downstream in search of habitat. Once over the weir, they are unable to return, this will severely reduce natural recruitment in the headwaters. There is also a falls at Roughlee, which will have the same effect in the headwaters between the two reservoir systems. Whether the falls are natural or not is unknown, but they have certainly been built up by man and are impassable. Evidence for this process is the perceived improvement in the trout population on the Colne Water which joins the Pendle Water below the weirs. Incidentally, the character of the Pendle Water above Barrowford is very conducive to a migratory trout population, and this would certainly raise the value of BAA waters. The rest of the weirs through the town water are not severe obstructions to fish but may be a problem in certain flows.



The weir at the top of the town water is almost certainly a barrier to upstream fish movement and is most likely the cause of long term decline with the weir at Roughlee.

The other aspect of habitat to be considered, is the loss of small gravel moving down the system due to the weirs and reservoirs. This may contribute to the lack of trout spawning habitat and production. This can only be certified by a professional geohydromorphologist or similar specialist. This issue should perhaps be addressed with the EA and or United Utilities. Gravel has been successfully introduced in some areas where it has been lost, but in the case of the Pendle Water this will have to be investigated further.

Stocking

BAA currently supplement the fishing with stocked brown trout. Downstream migration has been reported as very high in the past. Stocking should be restricted to those areas with holding pools as it is pointless in other areas. Larger shoals will stay for longer than individuals but this can still be measured in weeks. If stocking is needed to supplement stocks, this should perhaps be carried out more often with fewer fish. Fish should be continued to be marked if possible to distinguish between any wild fish. There is no point in stocking fingerlings, survival within the waters will be very low. Above Roughlee, trout ova incubation boxes or Scotty boxes may be used to introduce native trout ova to some of the feeders unaffected by the reservoirs. The hope would be that these would migrate downstream throughout their lifespan and fill any adult trout habitat that is available. It is unlikely that enough will remain above the weir at Roughlee to create a natural population in the long term and passage over the weir should still be sought. If this plan is undertaken, catch and release fishing should be encouraged for wild fish to

maximise the wild population survival. Stocked ova should be placed at densities equivalent to the amount of fry habitat after finding out if there is a wild population already. If no wild fry are present, approximately one ova per square metre of riffle is a good starting stocking rate. The EA may be in a position to provide data on wild stock densities above the falls, but if not help is perhaps possible from one of the River Trusts or a private consultant that carries out electrofishing surveys. The Ribble Catchment Conservation Trust may also be in a position to help identify sources of native trout ova. Scotty boxes are filled with eggs and dug into the natural river bed on each riffle. Incubator boxes receive piped river water and sit on the bank next to a riffle. The box is filled with gravel and trout eggs and overflows into the river. There is also the possibility of construction of artificial spawning beds, and this may be possible below the Roughlee falls. Ova is introduced on a gravel bed above a small weir. The author has no direct experience of this technique but can provide a diagram if requested.



Scotty box (L) and incubator box (R).

Actions

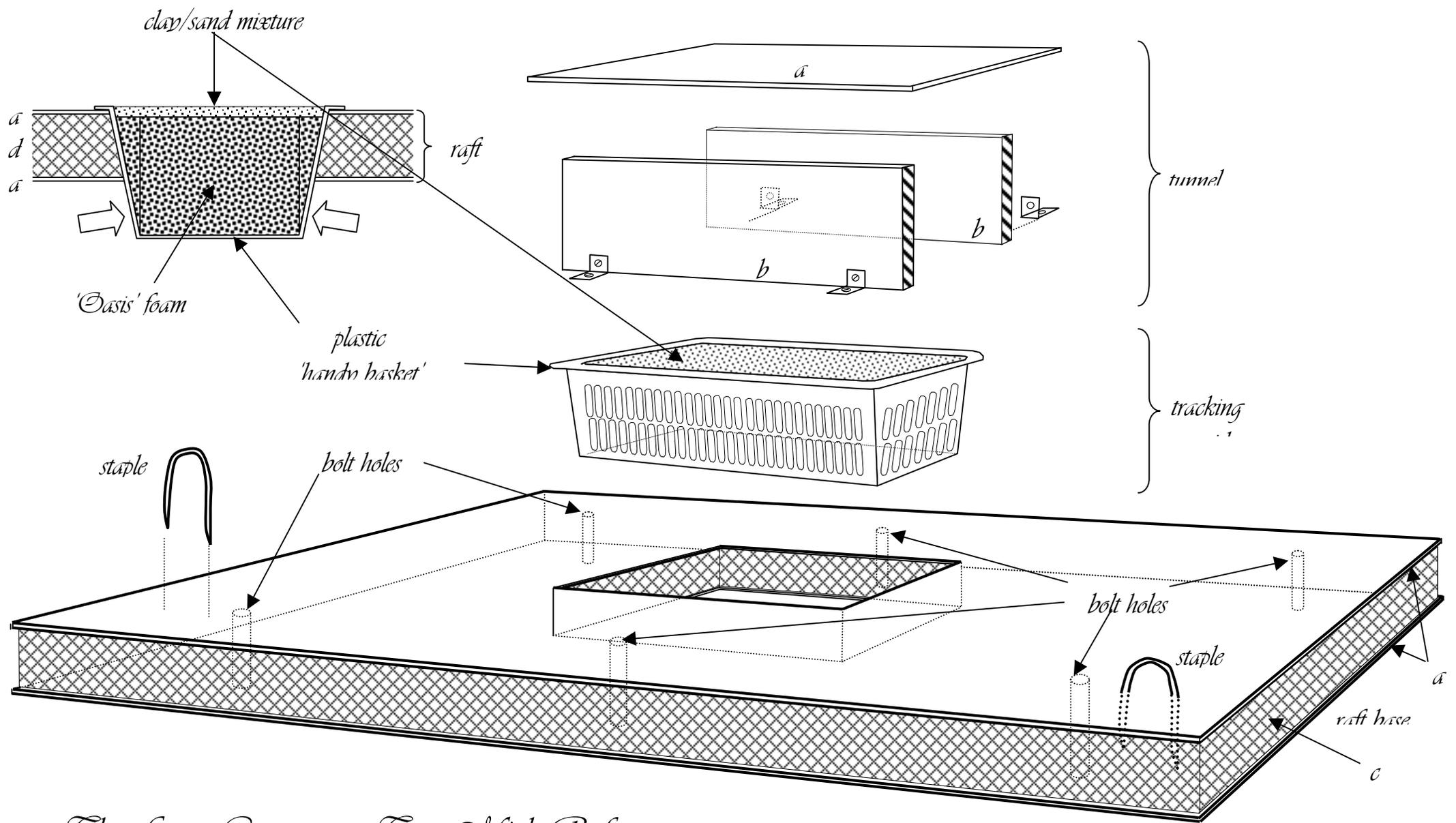
1. Maintain a vigil on the small tributaries due to the loss of fisheries production below the reservoirs. Particularly as there are limited trout spawning tributaries further down the Pendle Water.
2. Monitor and consider mink control on the Pendle Water and tributaries.
3. Investigate BTCV insurance scheme for conservation groups.
4. As weirs deteriorate, replace with upstream facing V-shaped weirs to reduce bank erosion.
5. Consider partial weirs through the middle section of Pendle Water to concentrate low flows, but keep small enough to prevent wash out and also consider coppicing and vegetation.
6. Make contact and build links with Ribble Catchment Conservation Trust over habitat and water quality improvements in the Pendle Water system, particularly with reference to passage over the Barrowford and Roughlee weirs.
7. Raise fisheries issues with the Environment Agency, particularly with reference to juvenile production above Roughlee. Due to loss of access to these spawning and juvenile areas, introduction of native juvenile

trout using an incubator type design could be advantageous. Fisheries survey data will be required.

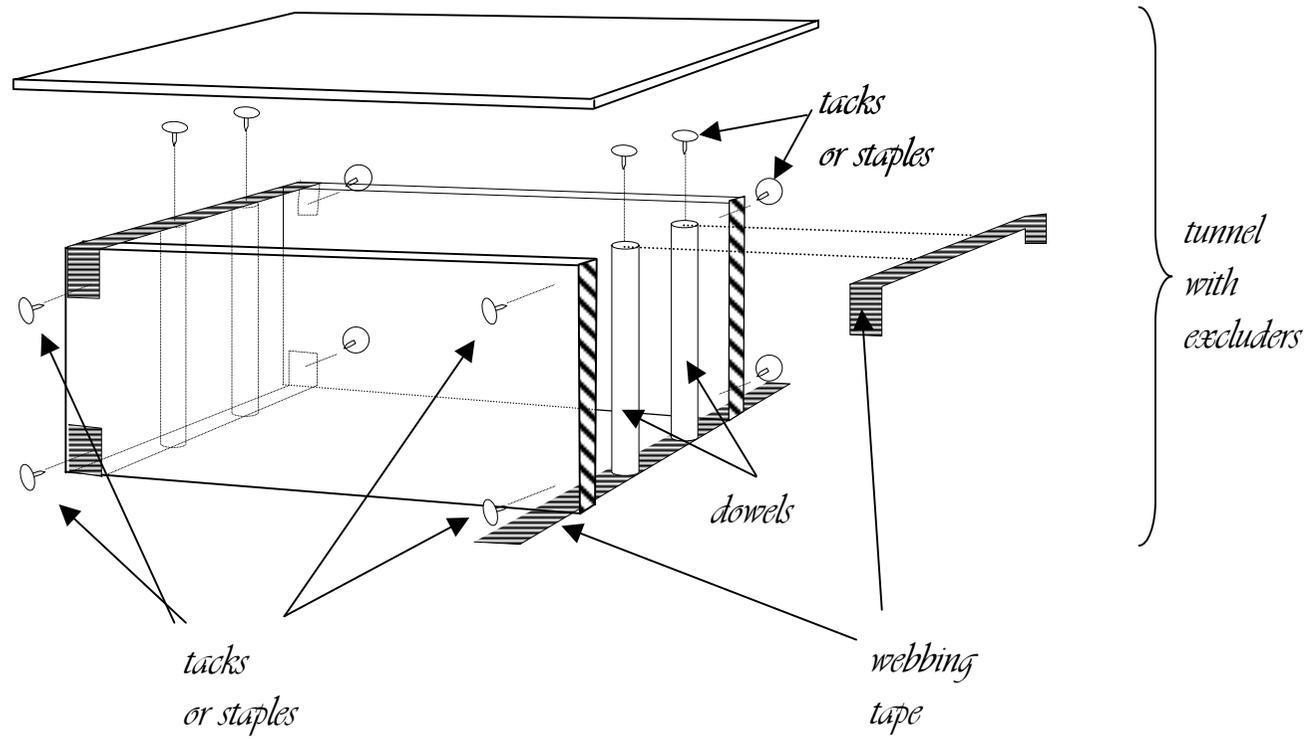
8. Raise issue of gravel loss in areas that are accessible to trout.

Appendix

Diagram of the Game Conservancy mink raft for monitoring mink populations follows.



The Game Conservancy Trust Mink Raft



Physical excluder to avoid non-targets