

Lands of Blackdyke, Burn O'Need (River Ayr catchment)

Advisory visit report undertaken by Dr Alistair Duguid on
behalf of the Wild Trout Trust

10th November 2004



Ayrshire Rivers Trust

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Objectives

The advisory visit was undertaken by Dr Alistair Duguid of the Ayrshire Rivers Trust, on behalf of the Wild Trout Trust. The owner of the property, Ms Sheena Fuhrmann, was present for part of the day to outline the extent of the property and explain the main plans for the land.

This report complements a more general habitat survey in summer 2004, which aimed to give a catchment wide assessment of salmonid habitat in the Ayr. This wider survey, which was also supported by the Wild Trout Trust, revealed that the Burn O' Need is an extremely important stream for both salmon and trout, and it contains a higher proportion of good quality spawning and nursery habitat than most streams elsewhere in the catchment. The results of an electrofishing survey carried out by the Ayrshire Rivers Trust in 2002 also show that relatively high densities of both salmon and trout juveniles are present in the stream.

The advisory visit provided the ideal opportunity to examine the Blackdyke section of the burn in more detail than was possible during the wider survey, and offer more specific advice on improving the natural production and holding potential of the habitat there. Given the importance of the Burn O'Need for producing wild trout (and salmon) to the River Ayr, the habitat improvements suggested will benefit the wider river, as well as improving the fishery potential and environmental value of the property itself.

Overview of the Burn O'Need

The Burn O'Need is a moderately sized stream, which drains from high moorland on the north slope of the River Ayr valley. The Lands of Blackdyke stretch is found in the middle reaches of the burn, where the surrounding land is mainly used for livestock farming, with pockets of native woodland.

This part of the catchment flows through rich soils, and the burn is highly productive. There are no obvious problems with water quality though, and the abundance of mayfly and caddis larvae found on the riverbed suggests that the burn does not suffer from the severe nutrient enrichment problems which affect many of the streams further down the catchment.

Opportunities for Fishery Development

The development of a fishery within the Burn O'Need is severely hampered by the small size of the burn. The stream is undoubtedly very important as a spawning and nursery area for producing adult trout, sea trout and salmon to the wider River Ayr system, but is unlikely to support a large population of resident adult trout itself.

Nevertheless, there are a few deeper areas which may hold a small number of adult trout, and two pools in particular which could conceivably provide some limited

angling. However it is vital that angling pressure is limited, as the population of resident trout is likely to be extremely small, and even low fishing pressure will remove a significant proportion of the larger fish. Late season angling could also put additional pressure on spawning trout entering the burn from the River Ayr. Given these factors, any angling would have to be on a catch and release basis, and promoting the burn widely as a fishery is not advised.

If small-scale angling is to take place, the main pools which offer potential for angling are marked on the map in Figure 1. The lowest of these is found on the sharp bend between fields 5 and 13. This pool would require a considerable amount of work, as it is currently full of fallen trees- if the pool were cleared, it could be fished effectively from the left bank and appears to be the best spot for angling in the stretch. The long-term benefit of debris removal should be carefully considered however, as the trees are not blocking migration for adult fish, and are currently offering good shelter for larger parr and adults, which would be removed if the trees are cleared.



Picture 1. The lower pool, which could be fished following the removal of the fallen trees.

The upper pool is found near the bottom of field 16. It is shallower, but provides potential habitat for adult trout in the main channel and along the right bank. Again, this pool would be best fished from the left bank. If this pool is to be developed for fly fishing, then several trees would need to be felled along the bankside and banktop, as can be seen in picture 2.



Picture 2. The uppermost pool, at the bottom of field 16. This could be fished from the left bank, if some of the trees were cleared.

Improvements to Spawning and Nursery Habitat

As noted previously, the Burn O'Need is an important resource for spawning and juvenile trout, and there is considerable potential for making further improvements to the habitat at Blackdykes to increase production here. While this may not benefit the fishery on the property itself, it will provide a benefit to the River Ayr fishery, and will help to conserve the vulnerable trout populations in the wider catchment. This should be the main focus of work on the burn.

At present, the stream throughout the property generally contains a good mixture of habitat types. Pictures 3 & 4 show examples of suitable spawning gravel, shallow areas with cover for emerging trout fry, and deeper areas with slower flow which are capable of supporting parr. Habitat here is amongst the best quality available anywhere in the River Ayr catchment.

However, several areas were noted during the visit which are a cause for concern, and where improvement could be made. Most of these are related to livestock grazing on the banksides, which is relatively intense in places, and has resulted in bank erosion and associated siltation of the streambed.



Pictures 3 & 4. Mixed habitat types throughout the Burn O'Need. The stream contains deeper areas for parr, (left) and several areas with suitable spawning gravel (right).

Overgrazing

The areas where overgrazing was most severe are marked in figure 1. Erecting stock proof fencing to create a vegetated buffer strip is the main enhancement activity which should be carried out here, although this will not be simple in all areas.

Site 1.

The lowest section which requires fencing is a short section of the right bank, at the downstream limit of the property. This trampled and overgrazed section covers less than 100 metres between the junction with a small side burn and the lowermost watergate. Fencing here would be relatively simple, and should be combined with low density planting of native broadleaved trees.



Picture 5. The downstream limit of the property, which would benefit from fencing and water margin work on the right bank.

Site 2.

The main area which requires fencing is the stretch between the bottom of field 13 and the watergate at the upper limit of the property in field 16. The right bank is unfenced throughout this stretch, and top priority should be given to fencing this whole length, as grazing pressure is causing problems in many places. The worst affected area is the lower half of field 16, where cattle grazing has caused particularly severe problems.

The left bank is also unfenced for part of this stretch, and the section above the watergate in field 13, and through the lower part of field 16 should also be fenced. Fencing this area could be problematic, as it would leave a small enclosed section of land on the left bank. Consideration could perhaps be given to putting this area into a forestry grant scheme, as it appears to be ideal for planting with native riparian woodland.



Picture 6. Problems with overgrazing and trampling at a cattle crossing point in field 13. This is reducing bank stability and resulting in silt entering the stream.

Sites 3 & 4

There are a further two sections further up the burn where the property adjoins the burn. Although both of these are very short, they are currently used as watering holes, and the livestock exclusion and water margin work which are planned in future RSS work will help to reduce siltation in the burn.

Bank erosion

In addition to the areas where fencing is recommended, there are also three areas where additional protection is needed to stabilise the banks. In all of these cases, the most appropriate type of stabilisation would be to use to “log-and-Christmas-tree” technique, which is detailed in the SEPA document “Managing River Habitats for Fisheries”. This involves pinning large logs (approximately 30cm diameter) into the foot of the bank with metal bars. Conifer treetops and brash should then be nailed onto these, to cushion the banks from the impact of water flow. Conifer tops are used because they can provide enhanced fish cover and help prevent bank erosion. If this is combined with fencing, then the eroded bank should start to revegetate and the scheme may provide a permanent solution to the erosion problems.

The top priority sites should be the 50 metre long section in the middle of field 13, and the 100 metre long section below the watergate in the middle of field 16. Both areas require attention quickly, as the erosion problems are severe, and will continue to worsen without protection and fencing.



Pictures 7 & 8. The two worst areas of bank erosion, in field 13 (left) and along the lower half of field 16 (right).

Creation of a pond and stillwater fishery

The potential pond that was discussed during the visit offers the best option of directly improving fishery opportunities at Blackdyke, both in terms of creating maximum angling potential and also to avoid over-exploiting local wild fish populations. Although the site is small, and will only provide a modest pond, there is certainly potential for development, as the site is currently waterlogged, and there is a small stream nearby which could be diverted to provide a constant supply of fresh water. There are many factors that should be considered when designing and implementing the pond, some of which are discussed below. It is recommended that advice and opinions are sought at all stages from the local SEPA and SNH offices.



Picture 9. The potential site for the fishery pond.

Pond design

The pond could either be created simply blocking drains, digging a hole and allowing this to fill with rainwater. This would create a closed system, with no inflow and outflow. However, as there is a small ditch running near to the site, this could be diverted into the pond, to provide an open system with a through flow. This would be a better option, provided that there are currently no salmonid populations in the ditch which could be affected by the new dam- this should be assessed by detailed surveying, which could be carried out by the Ayrshire Rivers Trust.

It is recommended that at least part of the pond be dug to a depth of approximately 3 metres, to provide suitable habitat for fish and maximise the productivity of the fishery. A range of depths, including some shallow reed beds will increase the general habitat diversity and will benefit other wildlife by providing fish free sanctuaries,

where invertebrates can thrive. An island could be included in the pond which would provide excellent habitat for birds but might interfere with casting due to limited space. The pond is too small to consider varying the shape of the outline significantly, as any projections are likely to result in casting problems. Structures made of submerged pipes or logs could be included to improve fish cover. However, these can interfere with anglers lines, leading to considerable frustration and should perhaps be considered at a later date if necessary, once the nature of the fishery is established.

It is important that any fish released into the pond do not escape, both in terms of the loss of fish production and perhaps more importantly, because escaped farmed brown trout could interbreed with native fish. Escaped rainbow trout could also have a negative impact on the natural ecosystem in the Burn O'Need. If an open system is planned, consideration therefore needs to be given to installing adequate screens on the outflow, and the designs for these should be assessed by experienced advisors before fish are stocked.

Water Quality

Water quality is an important consideration in a scheme of this nature, particularly because the surrounding area is used for relatively intensive farming, which raises the likelihood of eutrophication. In the first instance, it is recommended that the landowner contact the Ayr SEPA office and ask for water quality in the proposed inlet ditch to be tested. Follow up samples should also be analysed as the pond is created to check that it will be capable of supporting salmonids.

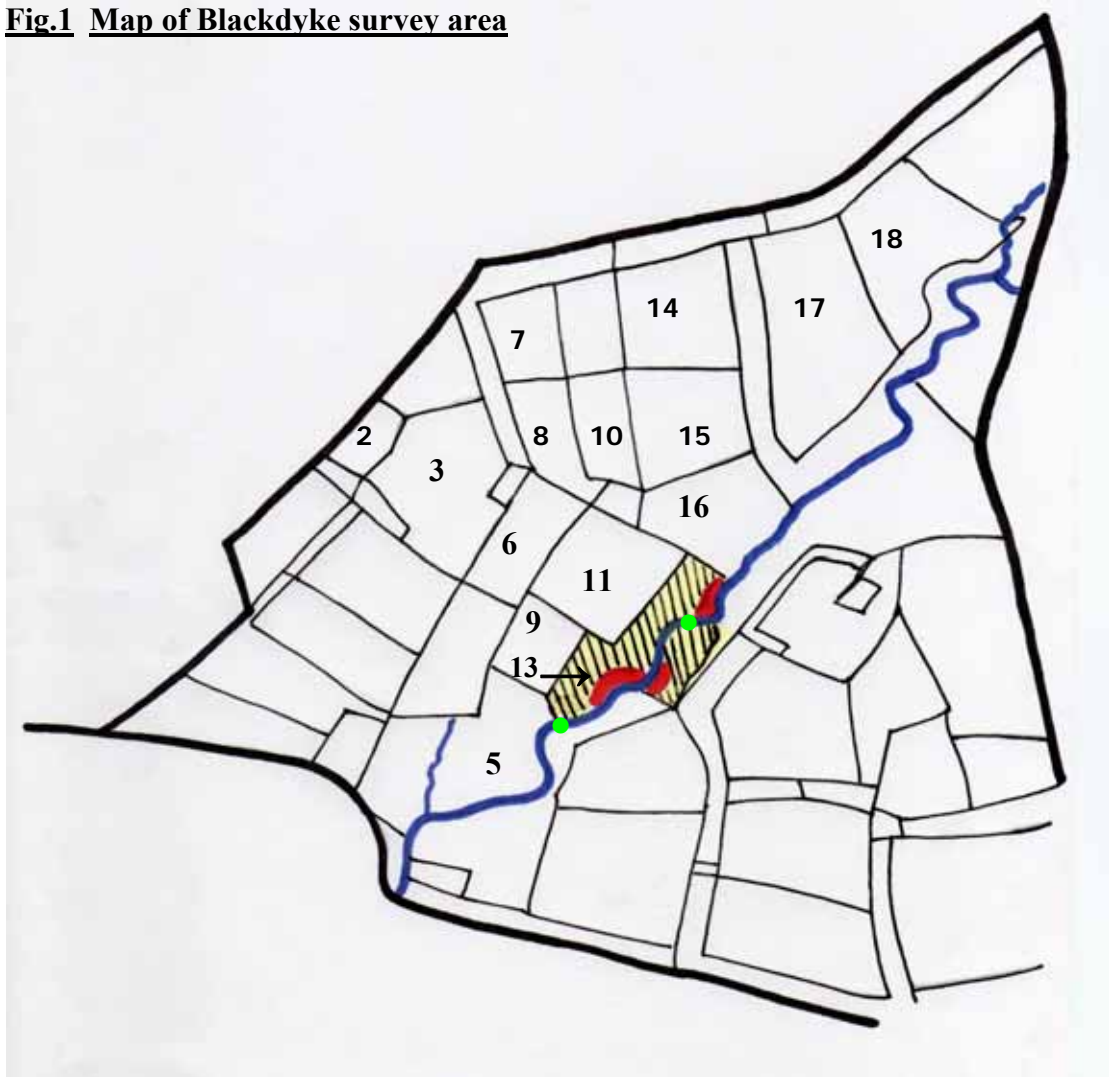
Stocking considerations

Consideration needs to be given whether to stock brown trout, rainbow trout, or a mixture of the two. The final decision should be taken after water quality is tested, as rainbow trout are slightly more tolerant of poor water quality. Regardless of the species, it is likely to take the pond at least a year after creation to stabilise and become capable of supporting a salmonid population. When stocking is carried out, a mixture of sizes should be stocked, although if predation by birds is likely to be a risk, then a higher proportion of larger fish (3lbs and upwards) should be introduced. The Ayrshire Rivers Trust will be able to provide more detailed advice on stocking densities once the pond design is finalised.

Surrounding Habitat

In order to allow sufficient space for casting some of the hawthorn trees which are currently present may need to be removed. In order to protect the biodiversity of the area if native species of plant are removed then these should be replaced by planting the same species in a slightly different location. Encouraging native plant species will result in a wider variety of invertebrate life, including terrestrial and aquatic insects which will improve the productivity of the fishery.

Fig.1 Map of Blackdyke survey area



Key

- | | | |
|----------|---|-------------------------------------|
| Blue | = | watercourse |
| Red | = | bank erosion |
| Diagonal | = | section in need of bankside fencing |
| Green | = | pool |

Further Information

Key Reading Material

Ponds, Pools And Lochans, Guidance on Good Practice in the Management and Creation of Small Waterbodies in Scotland. SEPA advice booklet 69pp.

ISBN 1-901322-16-5

Managing River Habitats for Fisheries: SEPA advice Booklet 32pp.

ISBN 1-901322-23-8

Local contact details

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SNH

Scottish Natural Heritage, 19 Wellington Square, Ayr KA7 1EZ. Tel: 01292 261392

East Ayrshire Woodlands: Underwood Depot, Auchinleck Road, Cumnock KA18 1RS. Tel: 01290 426973