Conserving Trout Populations in the Tributaries of the River Dee, Balmoral Estate

A Wild Trout Trust Advisory Visit undertaken by

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Report on Balmoral Estate Trout

Glenbeg Burn:

Glenbeg Burn is a medium sized tributary, entering the River Dee on the south bank approximately 200 metres above the Gharb Allt footbridge. The catchment is steep, with land use being heather moor land used for grouse and deer in the upper reaches, managed Caledonian pine forest in the lower. There is an impoundment in the upper reaches, at the Honka House.

The Burn has five difficult waterfalls and the upper reaches are inaccessible to spawning salmon- these areas have been stocked with salmon from the Dee District Salmon Fishery Board (DDSFB) hatchery. The steep gradient gives high flows during floods, not conducive to the deposition of spawning gravels suitable for either trout or salmon, particularly in the lower reaches. There is no problem with sediment levels, and natural bank erosion has created a superb instream habitat of cobbles and boulders. Trout populations in the upper reaches will be genetically unique, due to lack of adult access for spawning from further down.

Bankside vegetation cover is very good in the upper reaches, with dense heather over-hanging the burn and providing excellent cover, detritus input and invertebrate fall out. Bank vegetation is less good in the lower reaches, where the mature tree canopy has reduced ground vegetation- while light levels are perhaps lower than optimum, the burn is not “tunnelled”.

Electric fishing surveys of juvenile stocks have shown that the Glenbeg Burn supports a good population of trout throughout and healthy stocks of salmon in the lower reaches. Trout fry are more abundant above the Honka House impoundment, where there is a stretch of lower gradients that allows gravel deposition and therefore spawning. The lower reaches of the Burn hold some very good trout for a water of this size, living in the deeper pockets of water amongst the large boulders- trout over 200 mm. long have been caught during electric fishing surveys.

Length- frequency analysis of fish caught during electric fishing juvenile surveys has shown that growth rates in the Glenbeg Burn are surprisingly rapid. Most juvenile salmon will leave the burn as 2+ smolts, and trout will reach 200 mm. in four or five years. This is more akin to the tributaries lower down the valley that are richer in nutrients than is generally associated with this area. I have not seen a geological map of this area of the catchment, but it seems likely that the Glenbeg sub-catchment is not pure granite, as I had assumed.

Possible enhancement options:

The Glenbeg Burn is a relatively small burn, approximately 3 metres wide at the entrance to the Dee. It is on the whole fast and rocky, with an excellent instream habitat of cobbles and boulders. Spawning gravel is not prolific, but is sediment free and ideally distributed

to give optimal fry distribution. Food supply is good, as fish grow rapidly for a stream at this altitude.

Electric fishing juvenile surveys show that the Glenbeg Burn is currently at carrying capacity for both salmon (where access permits) and trout. Enhancement options are therefore limited to increasing the numbers of larger trout present. To do this requires attention to habitat and food supply. There is little that can be done to the instream habitat, which is excellent. The only area that could perhaps be improved to offer better cover for larger trout is the impounded loch at the Honka House dam- I am not sure what depth of water is available, but the bed appears somewhat featureless. If the water is deep enough to over-winter, this is an obvious area where larger trout could be found. Provision of cover such as tree stumps, branches or boulders in the deeper areas could greatly enhance stocks of larger trout. Overhanging riparian vegetation and tree roots within the water also offer excellent cover for trout. There is considerable weed growth already present, offering excellent cover.

Enhancing food supply basically requires attention to the riparian vegetation. There is very good vegetation present in the upper reaches of the burn, but the mature tree canopy in the lower reaches has reduced ground vegetation along the bank in this area. There is a fine balance required with tree cover- too few reduces detritus input, invertebrate input and fish cover, too many blocks out sun light and reduces invertebrate productivity and encourages instream algal growth. Routine forestry management practices will soon introduce more diversity in the canopy and restore a more favourable dappled shade to the burn.

Garbh Allt Burn:

The Garbh Allt Burn is a medium sized tributary of the River Dee, entering on the south side approximately 50 metres above the Garbh Allt footbridge. It is a steep catchment, prone to fierce flooding. The upper reaches are heather moor land, used for grouse and deer, the lower reaches are managed Caledonian pine forest.

There are three difficult waterfalls on the burn, one of which is completely impassable. Salmon are restricted to the lower reaches because of this. The upper reaches have been stocked with salmon from the Dee District Salmon Fishery Board hatchery. Trout are present throughout- the populations in the upper reaches will be genetically unique, due to lack of adult access for spawning from further down.

The instream habitat is mainly large boulders and cobbles, “scoured” clean by floods. There are well distributed pockets of spawning gravel throughout most of the burn, although the highest reaches contain substantial amount of bedrock. These highest reaches are quite “trouty”, consisting of rapids or small waterfalls spilling into deeper pools, but cover in these pools is often very limited due to a bedrock base. The central and lower reaches have abundant small pools and deep pockets of water amongst larger boulders, offering very good habitat for larger trout.

Riparian vegetation is mainly heather in the upper reaches, changing to managed Caledonian pine forest in the lower. As with the Glenbeg Burn, there is a mature tree canopy in the lower reaches, so ground vegetation is restricted. Again, the lower reaches of the burn are not “tunnelled”.

Electric fishing juvenile surveys show the Garbh Allt to support lower densities of both trout and salmon than found in the Glenbeg Burn. Growth rates are slower in the Garbh Allt, but not dramatically- juvenile salmon will still mainly smolt as 2+, but there will be a higher proportion of 3+ than found in Glenbeg. Trout of up to 240 mm. have been captured during surveys- it probably takes 5 years for a trout to reach 200 mm. The main limiting factor appears to be fierce flooding, which can have devastating impacts on fish stocks by rapid movement of large boulders along the burn.

Possible enhancement options:

The Garbh Allt Burn is a medium-sized burn, approximately 7.5 metres wide at the entrance to the Dee. It is whole fast and rocky, with an excellent instream habitat for parr. Spawning gravel well distributed in small patches and sediment free. Food supply is obviously reasonable- fish grow rapidly for a stream at this altitude, although less quickly than those in Glenbeg Burn.

Electric fishing juvenile surveys show that Garbh Allt Burn fish stocks vary tremendously from year to year, with year classes occasionally missing. This is particularly apparent in the upper and middle reaches of the burn. The cause of this is severe flooding. These severe floods do not occur every year, and when conditions are settled for a period the burn supports very good densities of both trout and salmon.

Riparian vegetation cover is good, especially in the upper reaches out with the forest, and there will be significant inputs of invertebrate food and debris. Draped or overhanging cover is often absent as a result of flooding, so there is limited shelter for trout at the banks.

Enhancement options are restricted. The main limiting factor for the Garbh Allt Burn appears to be the severe flooding regime. This is a natural feature caused by a combination of geology, topography and location. Severe flash floods are due to a combination of shallow soils and bedrock in the upper reaches of the Burn’s catchment and steep slopes. The most stable areas of the Burn are around the waterfalls, where deep pools are present- there are probably some nice trout present in these areas. The instream habitat in the rest of the burn is excellent, with fish stocks being restricted by flooding. Riparian vegetation along the length of the burn will be mitigating the worst effects of flooding, reducing bank erosion. The burn is largely sediment free, with the main inputs from erosion being cobble, boulder and gravel.

Gelder Burn:

The Gelder Burn is a medium sized tributary of the River Dee, entering on the south side approximately four kilometres above Crathie Bridge. The upper reaches are heather moor land, used for grouse and deer, the lower reaches are managed pine forest. There is an impoundment in the lower reaches and a diversion of water to a water-powered sawmill. The last couple of hundred metres down to the River Dee are agricultural land, fenced off from the burn.

There are two rocky “chutes” in the central reaches of the burn. These were thought to be impassable to adult salmon, but electric fishing surveys in 2004 found salmon fry present. The areas above these chutes had been stocked with salmon from the Dee DSFB hatchery, in order to utilize the excellent instream habitat, but this will now cease and the situation will be monitored.

The instream habitat reflects the three general areas of gradient found within the Gelder Burn catchment. The upper reaches are steep, instream habitat containing mainly boulders and cobbles, with gravel well distributed in small pockets of quieter flows, making it ideally suited to salmon parr, with good sized trout present amongst the deeper pockets in the boulders. The central reaches are relatively flat, allowing for a meandering water course and the development of deep pools and extensive spawning beds, thus being suitable for fry and parr of both salmon and trout, with good trout being present in the pools and deeper pockets. Most of the lower reaches are steep again, being mainly cobbles and boulders until the last couple of hundred metres over the floodplain to the River Dee, where instream habitat again becomes more diverse.

Riparian vegetation is mainly heather in the upper and central reaches, changing to managed pine forest in the lower reaches, with fenced off agriculture at the bottom. There is a region in the central area of the burn where intensive grazing by deer and rabbits has reduced the riparian vegetation to short grass. The lower forestry area is quite thickly planted and dark, allowing very little light into the burn. In most reaches of the burn there is a good amount of riparian and overhanging vegetation cover, providing shelter, invertebrate input and debris.

Electric fishing juvenile surveys show the Gelder Burn to support reasonable densities of fish in the upper zone above the chutes and excellent densities in the central zone. The lower reaches, below the impoundment, have not been surveyed. Survey sites in the upper reaches consist of large boulders and cobbles and are dominated by good sized trout parr, with fish between 160-180 mm being relatively common- deeper pockets of water are frequently found amongst the boulders, and it is likely that there are some good trout present.

Surveys in the central region show this area to be much more diverse, dominated by juvenile salmon. The lesser gradients have allowed large beds of spawning gravel to deposit, with large numbers of trout and salmon fry present. There are fairly frequent

deep pools through this stretch- these have not been surveyed, but it is likely that they contain some good trout.

Possible enhancement options:

The Gelder Burn is a medium-sized burn, approximately 9.5 metres wide above the sawmill impoundment. It has steeper gradients in the upper and lower reaches, with excellent parr habitat, less steep gradients in the central zone, with more diverse habitat and greater accumulations of spawning gravel. Spawning gravel is also well distributed in small patches in the steeper regions, although access to the upper reaches is hampered by rocky chutes. Food supply is fairly good, as even in the upper reaches trout will be reaching 200 mm in around four years.

Riparian vegetation cover is good, especially out with the forest and in the agricultural, fenced off lower reaches. There will be significant inputs of invertebrate food and debris. There is an area in the central region where heavy grazing has removed bankside vegetation, and the closed canopy in the forest has greatly reduced ground vegetation.

The Gelder Burn may well offer some good quality sport for wild burn trout, with a good possibility of fish to 1.5-2 lb in the deep central zone pools. The main enhancement options for the upper and central regions would be to ensure good riparian vegetation cover. There is plenty of long heather- an excellent source of invertebrates and leaf litter- but little in the way of tree cover to provide tree roots. In the area below the sawmill impoundment the burn would benefit from the thinning of the riparian trees to allow more light to penetrate.

The sawmill impoundment offers good opportunities for enhancement. The impoundment is effectively a large pond, with good riparian vegetation and deep water. However, the bed of the impoundment is basically featureless, offering little or no cover for fish. Providing cover by installing trees stumps, branches or boulders will greatly increase available territories for larger trout, as well as providing shelter from predators and floods. The increased diversity of available habitats will also improve food supply by providing shelter for aquatic invertebrates. Minnows are also present in and around the impoundment, offering excellent food for large trout.

Ballochbuie Burn:

The Ballochbuie Burn is a small tributary entering the River Dee on the south side approximately seven kilometres above Crathie Bridge. The upper reaches are heather moor land, used for grouse and deer, the lower reaches managed Caledonian pine forest. The burn is small, and slow flowing in its lowest reaches. In its central and upper reaches it is very steep and rocky- a series of small pools and waterfalls. There is an impassable dam approximately 600 metres from the River Dee, creating an impoundment.

There is no electric fishing survey data from the Ballochbuie Burn, but it is likely that the fish stocks are similar to those found in the nearby Garbh Allt and Glenbeg Burns.

Salmon are known to spawn in the lower reaches below the dam, but the burn is quite sedimented in this region, and the slow flows make it unsuitable for salmon parr (any salmon fry produced will drop out into the River Dee as parr).

Possible enhancement options:

The Ballochbuie Burn itself is too small to offer much in the way of fishing. Trout will be present through most of the burn, but are unlikely to grow to any significant size because of restrictions in available habitat. As trout grow they will drop downstream to find suitable territories, ending up in either the impoundment or River Dee. The impounded pond has good bank side vegetation and good aquatic vegetation and could well produce good quality trout if the water is deep enough to allow them to survive through the winter. With a burn of this size, there is little that can be done to enhance productivity- the instream habitat and riparian vegetation are already good.

Connachat Burn:

The Connachat Burn is a small tributary entering the River Dee on the south side approximately four kilometres above Crathie Bridge. The upper reaches are heather moor land, used for grouse and deer, the lower reaches managed pine forest. The burn is small, shallow and slow flowing in its lowest reaches. In its central and upper reaches it is fairly steep and rocky.

There is no electric fishing survey data available for the Connachat Burn, but fish stocks are likely to be similar to the nearby Gelder and Garbh Allt Burns. There are no records of salmon spawning in the burn. Trout are likely to be present throughout the burn- it is likely that fish stocks are made up of trout fry and one year old parr, with older trout having to drop back into the River Dee because of habitat limitations.

Possible enhancement options:

Some areas of the Connachat Burn are covered by a dense tree canopy, and would benefit from riparian tree thinning to allow more light to penetrate. In a burn this small, as with the Ballochbuie Burn, its main role will always be to act as a spawning tributary for the main stem.

Lochnagar Distillery Burn:

The Distillery Burn (which has no name on the map) is a small tributary entering the River Dee on the south side approximately 500 metres below Crathie Bridge. The upper reaches are heather moor land, used for grouse and deer, the central reaches agricultural land (fenced off), the lower reaches coniferous and mixed forestry. There is an impounded pond in the central zone, and there is an off-take to provide cooling water for Lochnagar Distillery. There are three difficult waterfalls in the lower reaches that may well impede access for spawning fish.

The Distillery Burn has been dredged in the past, and now contains ample spawning gravel but restricted parr habitat. There is no electric fishing survey data available, but it is likely- based on observation of fish seen in the burn- that trout stocks are quite prolific for fry and younger parr. There may be problems associated with the warm water being discharged into the burn from the distillery, but this may well simply increase growth rates. No salmon have ever been recorded spawning in the burn.

Possible enhancement options:

The burn itself has a very good riparian zone, with plenty of overhanging vegetation and tree roots. There is a lack of cobbles and boulders essential for salmon parr survival, but this is not critical for trout production. The burn is too small to offer many fishing opportunities, but it could be surprising what is present under some of the tree roots and undercut banks in the lower reaches where the warm water from the distillery discharge has an effect. The main enhancement opportunities are in the impounded pond and the distillery pond.

The impounded pond has very good riparian and aquatic vegetation. It appears to hold good numbers of trout already. The size that trout will achieve in the pond will depend on the depth of water- it needs to be deep enough to allow trout to survive through the winter- and on the cover available on the bed. Provision of this cover using tree stumps, branches and boulders dramatically increase holding capacity. The distillery pond is man made and featureless, although certainly deep enough to over winter trout. Industrial usage is obviously the key requirement it must fulfil, but provision of cover on the bed would enable it to hold trout, and the warmer water would certainly increase growth rates. Trout in the distillery pond would be dependent on aquatic invertebrates for food, as there is no riparian vegetation.

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