YTHAN DSFB HABITAT IMPROVEMENT PLAN 2024

Draft for Approval

Bronie Burn after weir removal and restoration works.

Introduction

This report is designed to illustrate opportunities for the delivery of restoration techniques on the Ythan catchment through the Ythan and Don SLA during 2024. Based on restoration techniques delivered in previous seasons by the Don DSFB staff through the SLA. Several key techniques and locations have been identified for restoration. These include but are not limited to the following.

1. Numerous Large Woody Structures reported by staff after recent storms.
2. Ranunculus weed cutting at Ebrie Burn spawning locations.
3. Further Habitat Surveys to identify key areas for restoration techniques.
4. Gravel washing the Fyvie redd counting site, compacted gravel identified.

We have selected the following activities to promote habitat restoration at these locations and to build on existing activities. However, we fully appreciate that there may be other priorities, identified by the Ythan DSFB. We have prepared this plan based on the previous allocation of 20-man days for the habitat restoration component of the SLA.

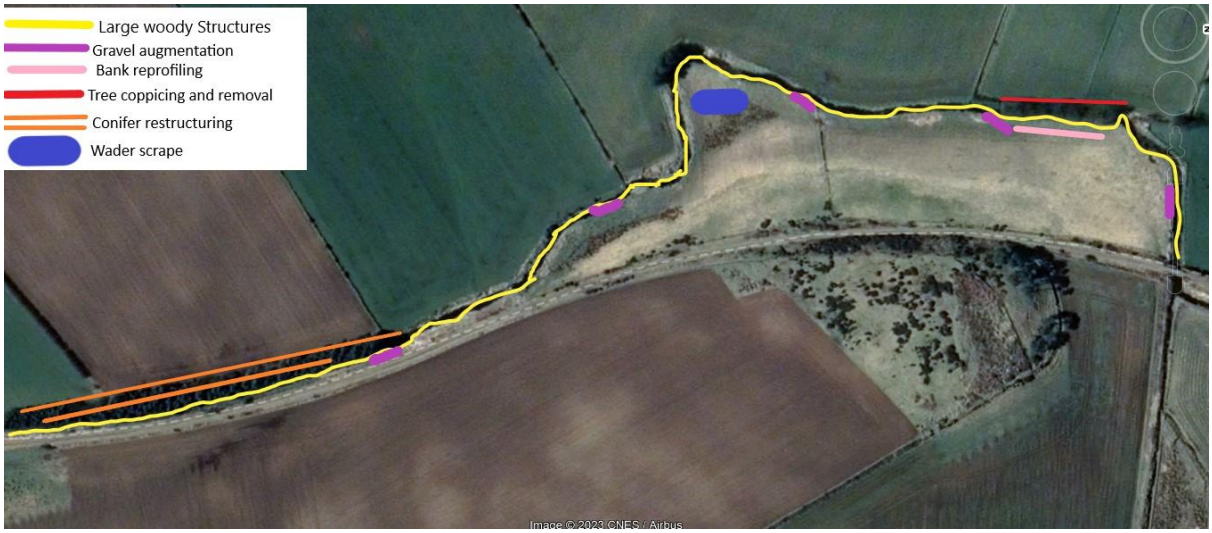

Figure 1. Example of habitat restoration proposal techniques, taken from Ebrie Burn Habitat Restoration Proposal 2024.

1. Large Wood Structures.

Don DSFB staff while carrying out redd counts have identified windblown trees down across parts of the river catchment. It's estimated that 6 to 8 trees have been blown down below Rothienorman, 1 large spruce tree down on the Ebrie Burn and 1 tree down on the Little Water.

These trees require evaluation to see if they are going to cause any obstruction to fish passage. If it is found they are going to cause an issue, they will be eased, however if not they will be left in situ and observed at key times of fish migration to ensure that they do not pose an obstacle.

These natural structures are what most fisheries managers are now trying to replicate in the form of Large Woody Structures (LWS). The installation of LWS is a recognised and accepted salmonid management technique designed to introduce habitat and flow diversity, provide cover and protection from predators, and create temperature refuges as well as act as nutrient traps that benefit of salmonids at all life stages.

We would advise that rather than seek to remove these structures that we use the time allocated to this task to assess these structures in advance of key migration periods i.e., smolting and spawning to review the structures and ensure that there are no issues for fish passage. We would also seek to remove any less porous manmade materials from theses structure such as fencing materials, plastics etc, which may increase the risk of the structure becoming an obstacle to fish migration.

Table 1. Allocated man days to the task.

River/Tributary	Allocated Days	Job Description
River Ythan Catchment area	6-man days	Monitor LWS at key periods of fish migration to ensure passage, intervene where required.

In 2023 there were 3 large wood obstacles removed and 2 obstacles eased over the Ythan catchment. I have allocated 6-man days for 2024 to address any obstacles, that require easement or removal from the River catchment. LWS removed and eased during 2023 below.

Figure 2. Before. blockage on the Fordoun Burn

Figure 3. After. Blockage removed.

Figure 4. Obstruction on the Ebrie Burn

Figure 5. Obstruction eased.

Figure 6. Rootie-Lin, Fish Passage blocked.

Figure 7. Blockage cleared.

2. Ranunculus Cutting

The removal of this aquatic weed when targeted at key points within the catchment can help improve the availability of key habitat types, such as spawning substrate. The Ythan catchment and the Ebrie Burn suffer from an excessive build-up of fine sediments trapped by the ranunculus from existing land use and underlying geology. In the Ebrie Burn coupled with historical canalisation, this results in a very uniform channel with limited habitat diversity and poses problems for suitable spawning substates, Figure 8.

Ranunculus impacts upon the flow, which is slowed by the plants which in turn causes mobilised sediments moving through the watercourse to drop out of suspension and gather on the stream bed and around these plants. This results in the stream bed being smothered out with very fine sediment restricting the essential oxygenated water reaching invertebrates or salmon or trout eggs buried in potential spawning gravels. It also benefits the plants by creating more suitable habitat for which to colonise resulting in their spread throughout the watercourse.

The cutting and clearing ranunculus are activities targeted at suitable spawning substrate on the Ebrie Burn, particularly those at risk of being impacted by the plant as described above. Please see images of works carried out in 2023 below.

We recognise that this approach only deals with the problem and doesn't tackle the issue in the longer term. A potential longer-term solution would be the development of a tree planting programme along the banks of the Ebrie. This could be taken from the Habitat surveys carried out in 2023. The primary aim of this approach would be to shade sections of the burn where spawning locations have been identified, thereby reducing the potential growth of ranunculus at these locations. Identifying key locations for planting trees to create shaded reaches have been identified in the Ebrie Burn Restoration Proposal document.

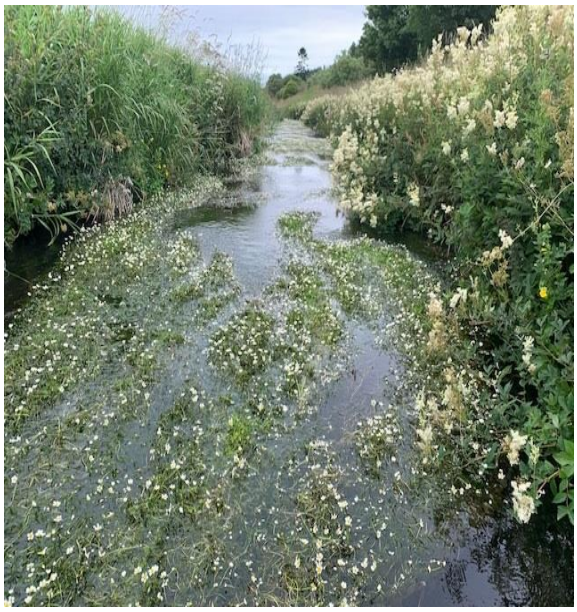

Figure 8. Before cutting

Figure 9. After cutting

Table 2. Allocated man days to the task.

River/Tributary	Allocated Days	Job Description
Ebrie Burn	6-man days	Cut Ranunculus at key spawning locations to prevent fine sediment smothering eggs.

3. Habitat Surveys

It was agreed by the Ythan DSFB at the Board meeting held on the 26th of January 2023, that habitat walkover surveys could be undertaken to identify areas for potential restoration. Short term techniques such as ranunculus clearing and gravel jetting at spawning sites and identifying new and monitoring existing large woody structures have all been identified and monitored through this approach.

However, the potential for medium to long term restoration projects which could create larger scale climate and catchment resilience through techniques such as tree planting, natural flood management, large woody structures, buffer strips and channel and floodplain reconnection have also been considered.

Surveys were carried out during September 2023 and a further survey was completed on the 9th of January 2024. These surveys have now been presented in Ebrie Burn Restoration Proposal document to the Ythan DSFB.

We propose to undertake further surveys of this style on the Little Water catchment during 2024.

Table 3. Allocated man days to the task.

River/Tributary	Allocated Days	Job Description
River Ythan Catchment area	8-man	Complete habitat surveys, and prepare restoration proposal report.

4. Gravel washing Fyvie redd counting site

Having previously employed the technique of gravel washing to great effect on the Ebrie burn we propose to undertake the same work on the Fyvie redd counting site on the Mainstem Ythan.

The Fyvie redd counting site has previously supported excellent spawning gravel and historically salmon and trout would utilise this area for spawning. Observations made during the last few years redd counts at this site have illustrated that there is potential for this site to improve. Upon closer inspection during low water conditions in the summer it became clear that the substrate is quite compacted with fine sediment and would prove difficult to ‘cut’ to create a redd, in fact this year’s redd counts were only a third of the five-year average.

The use of a backpack leaf blower enables staff to quickly and simply clean gravel at a site. Slight modifications to the nozzle have been made to maximise the force of the jet of air which is then

plunged into the gravel to mobilise the compacted fine sediments and 'clean' the gravel ready for spawning.

Table 4. Allocated man days to the task.

River/Tributary	Allocated Days	Job Description
Mainstem Ythan	6-man days	Clean gravel using leaf blower to remove fine sediments loosen prior to spawning. Prepare and acquire SEPA simple license for task.

Figure 10. Leaf blower being used for cleaning the spawning gravel.

Summary

This proposal for habitat restoration works is based upon existing improvements made to date. It has been prepared on the basis that works for the year 2024 and has been allocated the same 26-man days as allocated in the Ythan SLA agreement for 2023. The number of days proposed for each activity are estimated, if tasks are completed earlier than scheduled, time will be carried over onto the next activity, until all activities are completed.

Timing of Works

1. Assessing large wood structures for fish passage - (January – September)
2. Ranunculus Weed Cutting at Ebrie Burn spawning locations - (July-August)
3. Further Habitat Surveys to identify key areas for green engineering techniques - (January onwards)
4. Gravel washing Fyvie redd counting site, compacted gravel identified -(September)

Jim Kerr, Senior Fisheries Officer Don DSFB