



West Wales Rivers Trust
Llys Afon, Hawthorn Rise
Haverfordwest, Pembrokeshire
SA61 2BQ
25th January 2023

Llandewi Brefi Community Council
Glyn
Llanddewi Brefi
Tregaron
Ceredigion
SY25 6RL

Re: Blaendoethie Woodland Creation Plan

Refs: (Customer Reference Number (CRN) A0056606/Expression of Interest (EOI) Reference number 7725429)

Dear Ms L. Zanoni,

We are writing to you following your request for responses to the Llanddewi Brefi Community Council consultation on the above scheme.

West Wales Rivers Trust (WWRT) understands that as a country, Wales has a range of land use requirements and as such, land use pressures will always exist. This includes forestry, which provides essential resources and is an important part of the Welsh economy. With this in mind, **WWRT have two main concerns regarding the possible environmental impacts of the proposed Blaendoethie planting scheme:**

1. The location of the scheme within a 'Failing' Acid Sensitive Waterbody

The proposed site is situated within a Failing WFD Acid Sensitive Waterbody (Figure 1). The impacts of forestry on acidification have been well researched and are commonly known. Conifer trees collect and concentrate acid rain from the surrounding atmosphere, passing it into the peaty soils. Because the underlying rocks and soils in much of the headwaters of Welsh streams, including the River Tywi, are base poor, there are only a very limited concentration of minerals containing the calcium and magnesium ions capable of neutralising the highly acidified water that accompanies high episodic flows following heavy rain. Fifty years of accumulating acidification has caused severe declines to this river ecosystem.

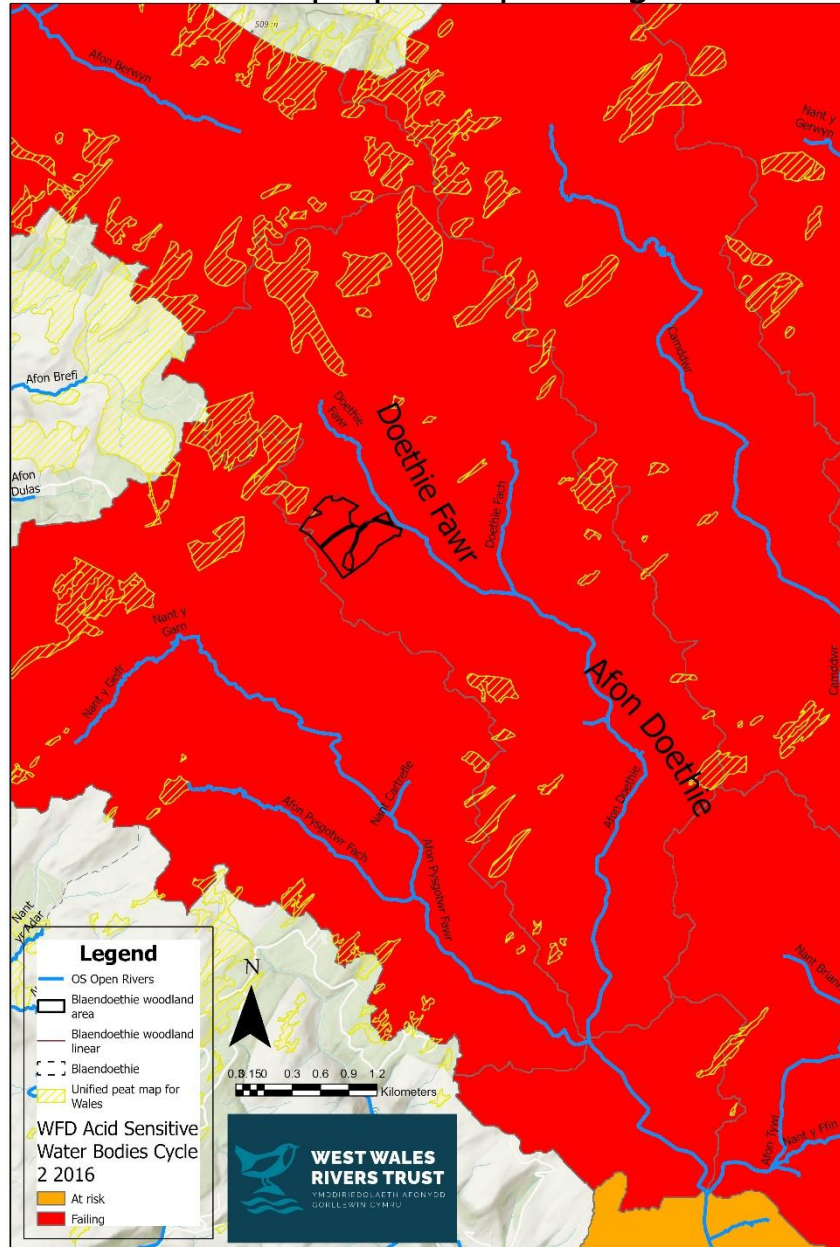
Both Natural Resources Wales (NRW) and WWRT have carried out monitoring programmes just a few kilometres downstream of the boundary of the proposed planting scheme. pH levels in the Doethie have regularly been concerningly acidic, at below 5.5, with pH values falling as low as 2.41 (Figure 2). River water with a pH below 5.5 does not support healthy juvenile salmonid populations as the lower pH inhibits the egg hatching enzyme, chorionase, leading to reduced breeding success. In addition, these acid episodes wash out aluminium from the soil's base poor mineral horizons (beneath surface peat/organic soil layers). The aluminium is deposited on salmonid gills more

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extensively in acid water together affect the gills of juvenile fish, impairing their survival. Low acidity levels are also detrimental to the main food source of salmonids, macroinvertebrates (small animals without backbones that live in water or near it).

Blaendoethie proposed planting scheme



Esri, Intermap, NASA, NGA, USGS, Esri UK, Esri HERE, Garmin, FourSquare, GeoTechnologies, Inc, METI, NASA, USGS

Figure 1. The proposed location of the Blaendoethie planting scheme, within the Failing WFD Acid Sensitive Area.

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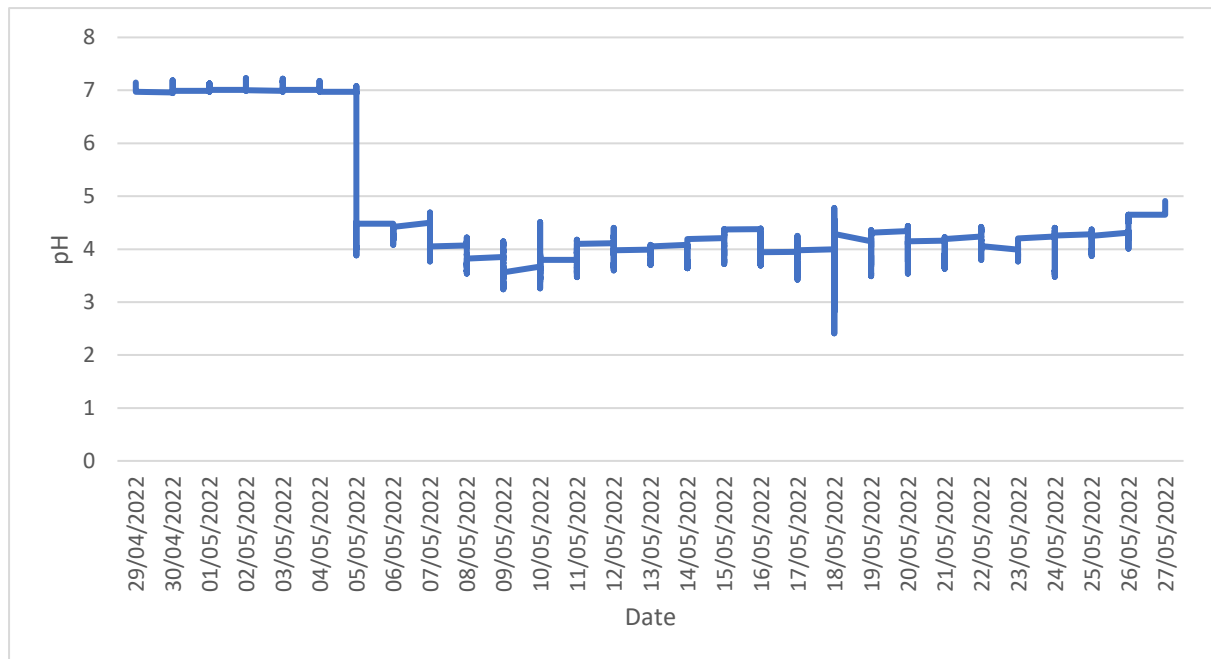


Figure 2. pH levels monitored on the Afon Doethie.

The proposed Blaendoethie planting location is also only a short distance from multiple sites where WWRT have been 'liming' the river channel and forestry road gullies, applying limestone sand and gravels in an attempt to raise pH levels and counteract the acidity. Whilst liming goes some way in addressing ongoing acidity levels, these applications are intended to be a temporary effort while land use change improvements are addressed. This plantation is therefore a further blow to our efforts to improve the long-term health of the Afon Doethie and Afon Tywi.

Despite the Planning Scheme Plan stating that it meets all the enhanced requirements needed within an Acid Sensitive Catchment, following guidelines set out in GN001 "Managing Forests in Acid Sensitive Water Catchments", we do not believe that the proposed unplanted buffer area either side of the Nant Meredydd and the unnamed watercourse will be sufficient to buffer run-off (acidity or sediment) from the coniferous plantations. We are also concerned with future self-seeding of coniferous trees within this unplanted buffer zone, an issue that is commonplace and appears to be poorly addressed amongst Welsh forestry schemes. Open ground buffers surrounding overhead powerlines may also provide a run-off pathway for sediment and acidified runoff into the Nant Meredydd and Afon Doethie.

WWRT are not content with NRW's response that 'As the field parcels are not within a designated site no further action and a Critical Load Assessment is not required at this stage' and will be raising this issue separately with NRW. We do not believe that these schemes can be considered in isolation when considering the threat they face for our rivers.

- 2. The proximity of the site to areas of deep peat:** Although nearby areas of deep peat will be excluded from the planting area, the western border of the site is less than 150 metres from



peat. It is extremely unlikely that this will have no impact on this essential and protected habitat, which are increasingly important for carbon sequestration. These impacts include, but are not limited to, lowering of the water table by increased water demands by trees, and groundwater pollution from herbicide application.

WWRT also have a number of other general concerns with forestry that should be considered for this scheme given the current WFD failure of the Afon Doethie for fish (trout and bullhead):

- **Hydrological effects of reducing inputs to adjacent streams:** Evapotranspiration from forestry depresses the water table, drying out adjacent areas, including peat. Conifers intercept precipitation which impacts on decreasing water volume in spawning streams during winter months, leading to increased water temperatures and subsequent mortality of salmonid eggs. Reduction of flow in drought conditions in spring and summer months degrades juvenile salmonid habitat. The high-water usage of conifer woodland can indirectly threaten water quality, with the low rate of groundwater recharge leading to greater nitrate concentrations in groundwater.
- **Microclimate impacts:** Albedo radiative forcing effect warming atmosphere and adjacent waters: Conifer plantations are dark green 365 days of the year and absorb light energy from the sun and radiate this back as infrared. This heats the air, that then heats the land and water nearby and reduces airflow downslope and along a stream valley. This impedes the formation of temperature inversions in the cooler months which would have cooled stream water. Deciduous trees form a reflective canopy when not in leaf and hence reduce the air temperature around them and in the stream valleys. Stream water is then also cooled in the winter, an essential requirement for successful salmonid egg development. Reduction of air flow in the valley reduces evaporation of stream water and its subsequent cooling effect. The ongoing Llyn Brianne study shows the numbers of macroinvertebrates were dropping by about a fifth for every one-degree centigrade rise in temperature.
- **Diffuse pollution from forestry:** Over recent decades a strong body of environmental evidence has come to light on forest management activities such as road construction, harvesting, and restocking having a deleterious effect on water quality. These include changes in surface water concentrations of nitrate (NO₃), phosphorus (P), suspended sediment (SS) and pesticides.

In summary, whilst the proposed planting scheme meets the tick box requirements required to pass this scheme under current legislation, we have serious concerns with the location of the proposed scheme and cannot support the proposal.

Yours sincerely

Harriet Alvis, Chief Executive Officer