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Proposed Reservoir Enhancement and Maintenance Works at Pen y Gwaith Reservoir Ecological Impact Assessment

30.07.2020



Report by: Kate Williamson CIEEM

Client: Natural Resources Wales, c/o Liam McCarthy

Planning Authority: Snowdonia National Park Authority (SNPA)

Grid Reference: SH 77461 60108 (Approximate site centre)

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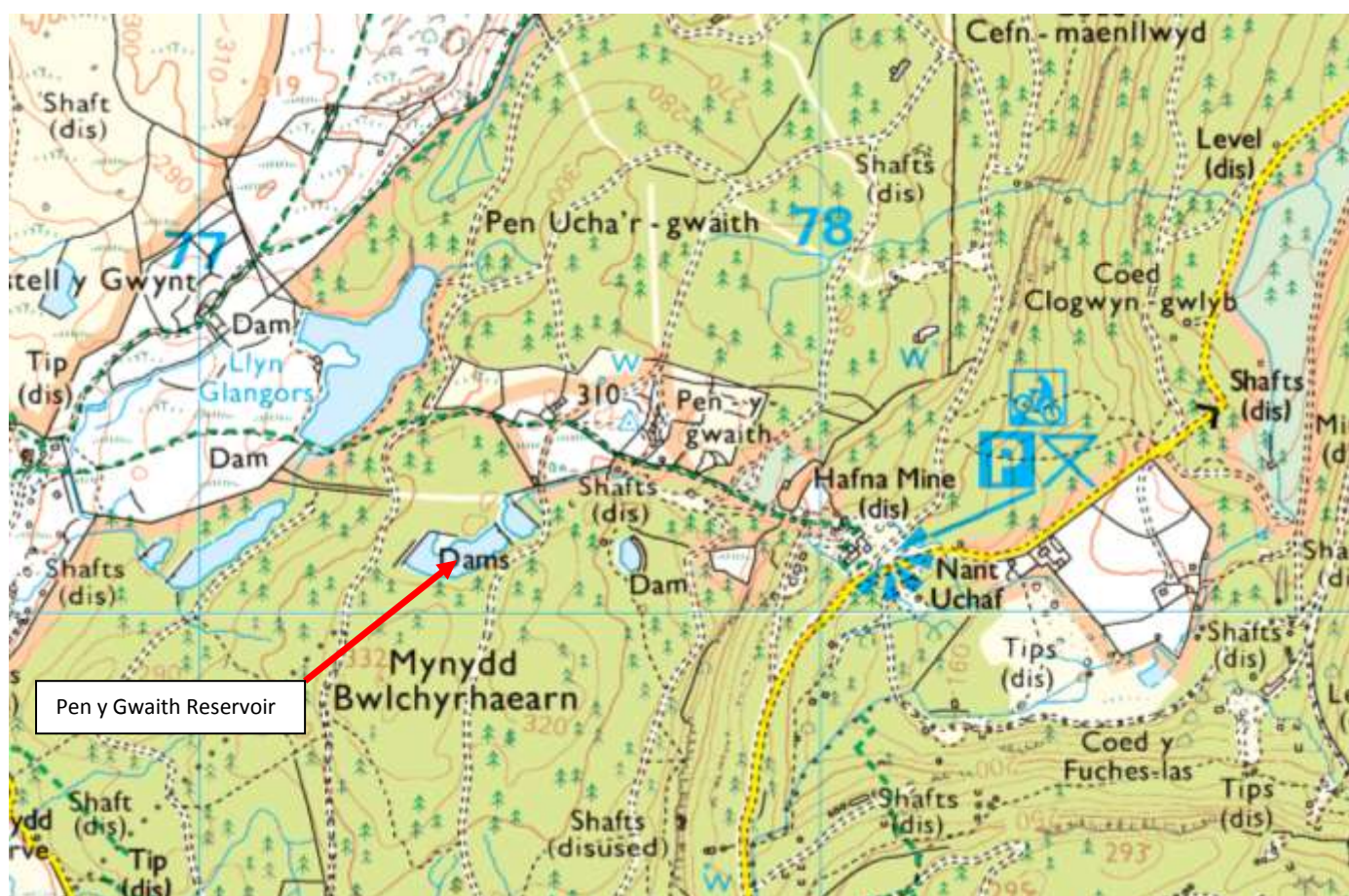


Figure 1: Site location

**Pen y Gwaith Reservoir
Gwydir Forest
Conwy**

**Proposed Enhancement and Maintenance Works
Ecological Impact Assessment**

30th July 2020

1. Summary

It is proposed to carry out works at Pen y Gwaith reservoir, including vegetation clearance of the embankments and spillway, in addition to works to the dams themselves. An application to Snowdonia National Park Authority (SNPA) will be required to proceed with the works.

A Preliminary Ecological Appraisal (PEA) was carried out by Mott McDonald in December 2015 and an Ecological Impact Assessment (EcIA) for the enabling works by Jan Baylis in November 2019. This report provides an EcIA for the proposed works themselves, updating both the 2015 PEA and the 2019 EcIA.

A site visit was conducted on 23rd July 2020 by Kate Williamson MCIEEM and Chris Hall ACIEEM. The site was assessed on its potential to support protected species, as well as recording any priority or protected species and habitats. The Phase I survey carried out in 2015 was ground-truthed and an assessment was made of any likely impacts to protected species, habitats or sites.

A data search was conducted with the local environmental records centre; Cofnod. This data search revealed no records of protected species for the site itself. The Pandora Reservoirs Site of Special Scientific Interest (SSSI) covers the site and Mwyngloddiau a Chreigiau Gwydyr SSSI lies immediately adjacent. The nearest area of the Mwyngloddiau Fforest Gwydir Special Area of Conservation (SAC) lies within 50m of the reservoir to the East.

The Phase I survey conducted in 2015 was found to be largely reflective of the current situation, apart from some further scrubbing over of the wet heath around the northern margins of the lower waterbody. No signs of any protected species were recorded during the survey visit and conclusions agree with those in the 2019 EcIA.

The proposed works are immediately adjacent to Mwyngloddiau a Chreigiau Gwydir SSSI and less than 50m from Mwyngloddiau Fforest Gwydir Special Area of Conservation SAC, of which the lesser horseshoe bat (*Rhinolophus hipposideros*) is a feature. The removal of some trees along the dam crests may impact on flight paths, but these will be modified slightly and not removed or fragmented. The required plant movements and construction phase are not considered to represent any potential disturbance over and above that already present due to regular forestry operations, traffic on the haulage roads and the enabling works already completed. For these reasons, it is not considered that the proposed works themselves will have any significant impact on the species.

All other species survey results mirror those within the 2019 EcIA report. Recommendations are made to address the issues identified within previous reports and confirmed during the 2020 site visit. Some of the previous recommendations are repeated here, with additions. These recommendations include timing restrictions to various aspects of the job to avoid or minimise potential impacts on nesting birds, a contractor induction and strict adherence to best practice guidelines for working near water. It is concluded that if all of these recommendations are followed there will be no negative impact on Biodiversity or landscape due to the proposals.

Many of these recommendations will also lead to potential gains for Biodiversity, in particular bird species that can take advantage of the additional planting and structure for shelter and nesting.

Key Messages:

1. Results of the Phase I survey are largely in line with the 2015 results
2. All species surveys were negative
3. It is not considered that the proposed works themselves will have any significant impact on lesser horseshoe bats, a feature of the adjacent designated sites
4. Recommendations include timing restrictions on aspects of the works, a contractor induction and strict adherence to good practice working methods, see Section 5
5. If all the recommendations within this report are adopted, it is not considered that there will be any negative impact on Biodiversity, including designated sites and their features, due to the proposed works

2 Introduction



Figure 2: Overview of proposed works at Pen y Gwaith

It is proposed to carry out works at Pen y Gwaith reservoir, including vegetation clearance of the embankments and spillway, in addition to works to the dams themselves, see Fig.2 above. An application to SNPA will be required to proceed with the works.

A PEA was carried out by Mott McDonald in December 2015, including a Phase I habitat survey and protected species surveys. An EcIA for the enabling works was subsequently undertaken by Jan Baylis in November 2019.

This report provides an EcIA for the proposed works themselves, updating both the 2015 PEA and the 2019 EcIA. In order to assess the impacts, a site visit was conducted on 23rd July 2020 by Kate Williamson MCIEEM and Chris Hall ACIEEM. The site was assessed on its potential to support protected species, and changes to the situation as noted in 2015 and 2019, as well as recording any priority or protected species and habitats present.

3 Desktop Survey

Cofnod Search

A data search was conducted with the local environmental records centre; Cofnod. This data search revealed any records of protected species within 2km of the site, along with any protected sites.

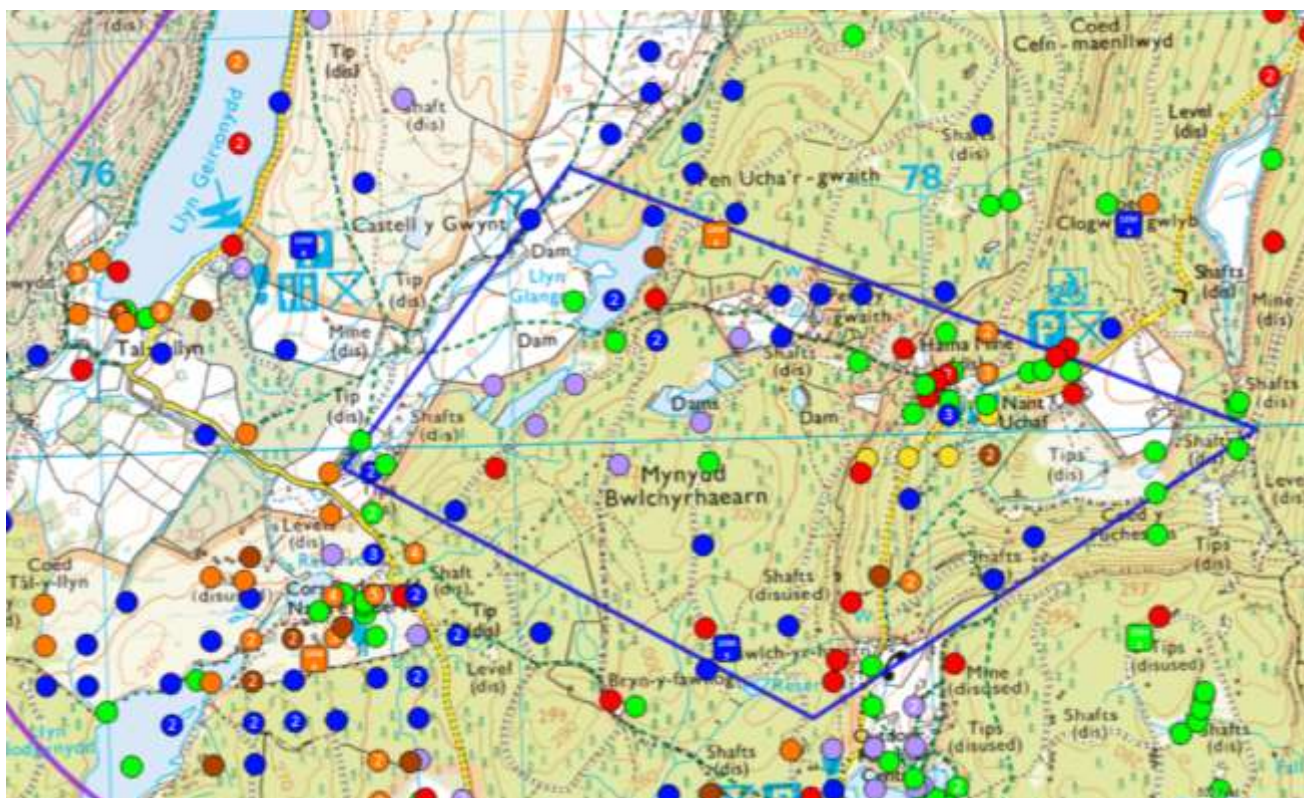


Figure 3: Protected species records – mammals (red), plants (green), ants (yellow), invertebrates (purple), reptiles and amphibians (brown), butterflies and moths (orange) and birds (blue)

As can be seen, there are no records for the Pen y Gwaith reservoir itself. The closest records are for various species of damselflies and dragonflies.

The Pandora Reservoirs SSSI covers the site and Mwyngloddiau a Chreigiau Gwydyr SSSI lies immediately adjacent. The nearest area of the Mwyngloddiau Fforest Gwydir SAC lies within 50m of the reservoir to the East.

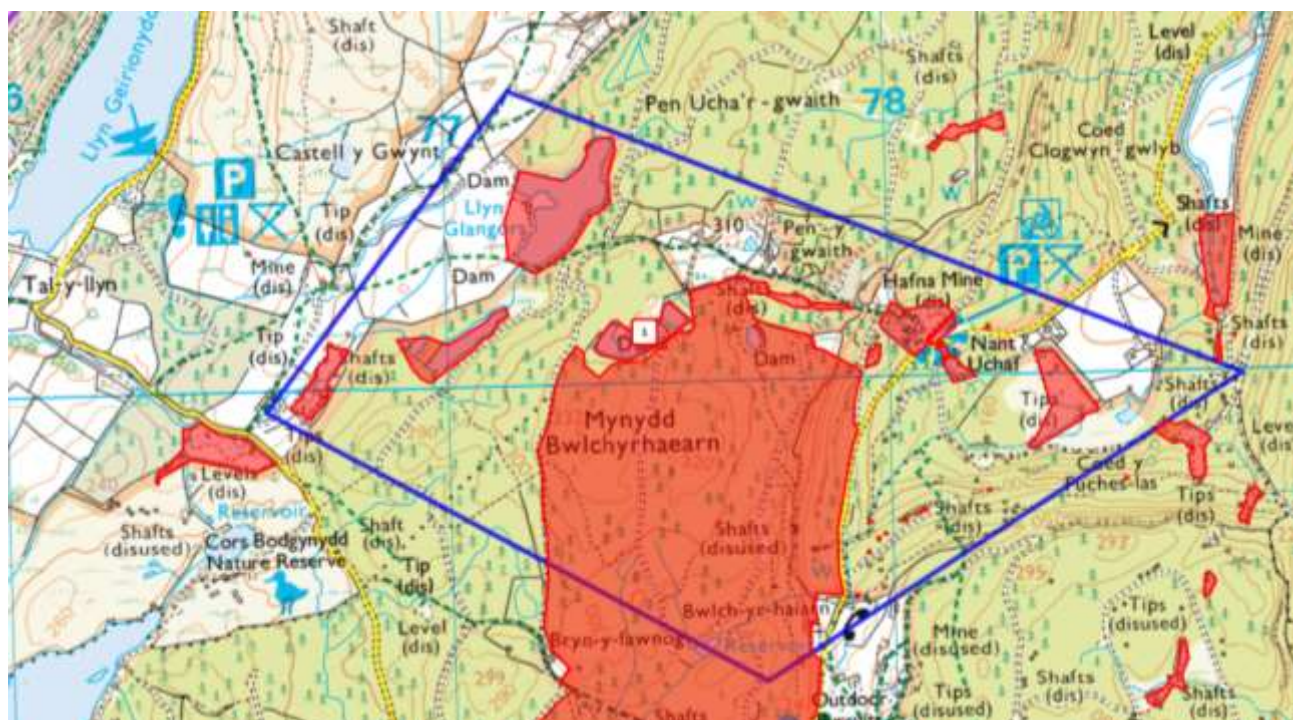


Figure 4: Location of the Pandora Reservoirs SSSI (1) and the Mwyngloddiau a Chreigiau Gwydyr SSSI

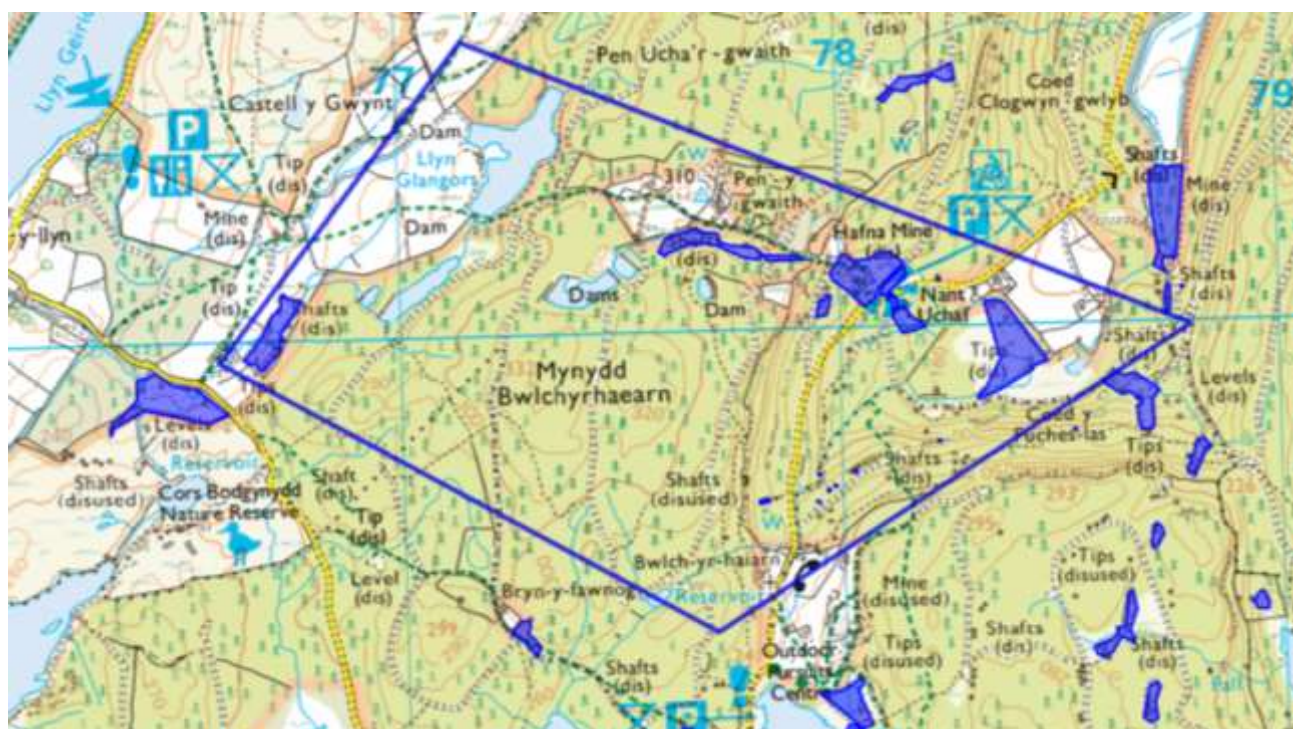


Figure 5: Location of the Mwyngloddiau Fforest Gwydir SAC

4 Results

4.1 Habitat

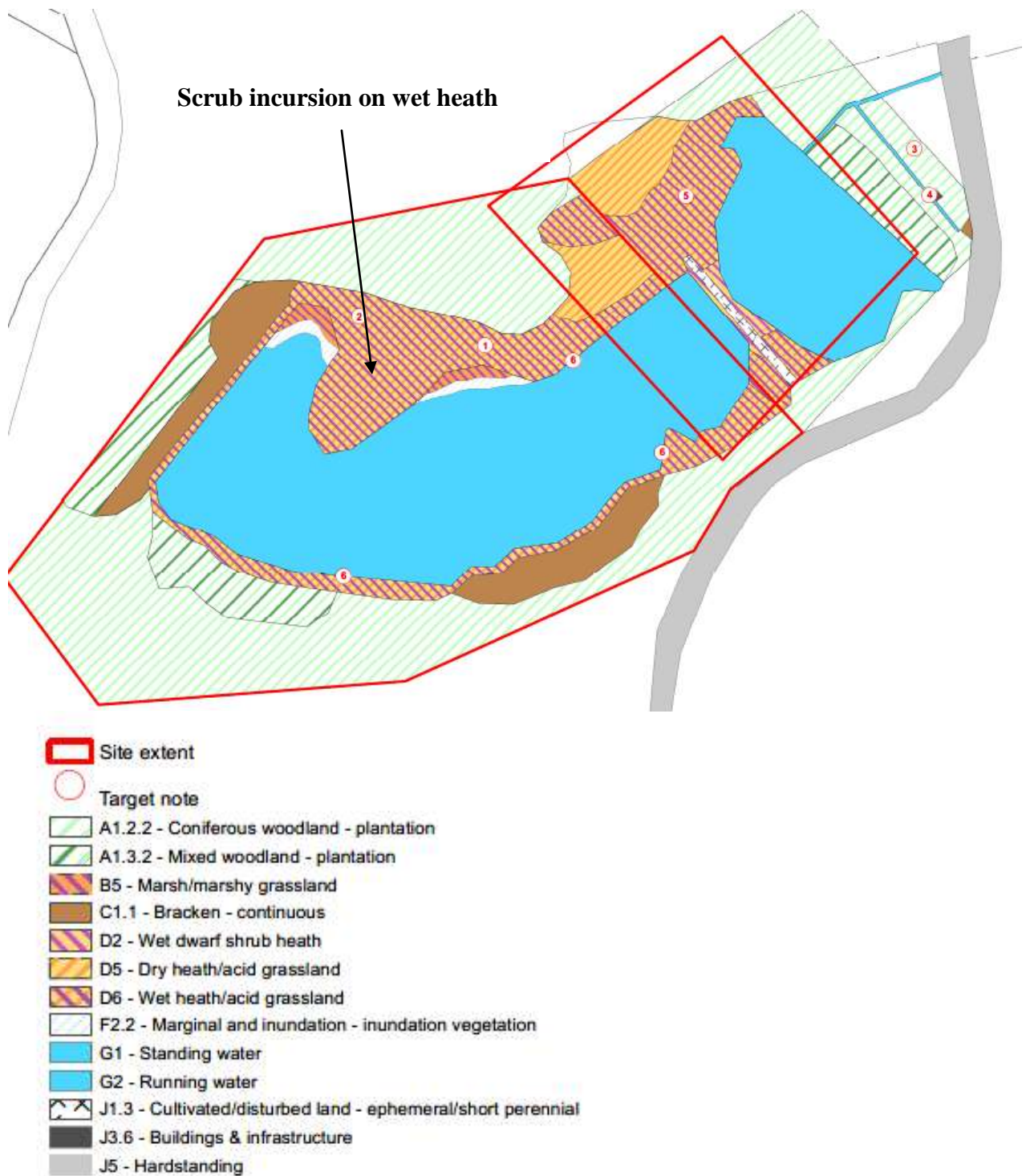


Fig.6: Phase I habitat map with target note changes since 2015

4.2 Protected Species

No field signs of protected species were recorded during the site visit on 23rd July 2020. The site was found to have changed very little since the previous surveys and all assessments of potential presence are in line with the 2019 findings.

- The site is likely to support common amphibian species.
- The site has the potential to support reptiles, with grass snake (*Natrix helvetica*) in the wetter areas and slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and adder (*Vipera berus*) considered possible in drier areas.
- Nesting birds are highly likely to be present within most terrestrial habitats, in particular the scrub and woodlands.
- There are no potential bat roosting crevices within trees or hibernation sites within adits in the working area itself.
- There is some potential for dormice on the periphery of the working area.
- There is some potential for otters to be present, most likely utilising the waterbody as a seasonal prey source during the amphibian breeding period. There is minimal opportunity for lying up due to sparse understorey under conifer and lack of dense scrub areas around the working area. Habitat connectivity for this species is very poor.
- There is no potential for water voles to be present
- There is no obvious sign of badgers in the vicinity although it is possible that they may be present in the wider area.

5 Conclusions & Recommendations

The recommendations made in this section are largely in line with those in the 2019 EcIA report for the enabling works. Many of those recommendations are reiterated here, with some additions where relevant. An ecological site induction will be given to all contractor staff prior to works commencing on site. This induction will go through the recommendations below, along with the 'Construction Environmental Management Plan' (CEMP) produced by the contractors to ensure that all staff are familiar with the ecological restrictions and issues.

It is concluded that if all these recommendations are followed, there will be no significant impact on the Mwyngloddiau a Chreigiau Gwydir SSSI or the Mwyngloddiau Fforest Gwydir SAC and no negative impact on wider Biodiversity, including protected species.

5.1 Habitats

Due to the proximity of the waterbody, strict measures will need to be put in place to ensure no pollution incidents during the construction phase of the works. The influence of pollution in the reservoir, including sedimentation and run-off from construction and earth moving activities could spread wider via small streams and wet ground with small runnels leading downslope.

Recommendations:

- All works must be carried out in accordance with GPP5 and PPG6: ‘Works in, near or over watercourses’ and ‘Working at construction and demolition sites’. Guidance is available at <https://www.sepa.org.uk/media/60125/ppg-6-working-at-construction-and-demolition-sites.pdf> and <http://www.netregs.org.uk/media/1303/gpp-5-works-and-maintenance-in-or-near-water.pdf> In addition, Forestry Operations have a best practice guideline and techniques for water quality management, highlighted in their Forests and Water Guidelines (Fifth edition); Forestry Commission, 2017).
- A CEMP should be produced by the contractors to show how any negative impacts on the environment will be avoided. By producing this document, the contractors are also showing that they clearly understand the implications and responsibilities involved.
- No construction works should be undertaken during periods of very heavy rain, flooding or waterlogged ground.
- Use protective matting on wet areas which will not be part of the compound or track, such as temporary access track sheeting. Any machinery, materials and equipment, as well as personnel, should use tracked matting to spread the weight across the soft ground and minimise the damage.
- Areas of known lead-moss areas will be highlighted before work commences and emphasised during the pre-start talk, and care should be taken not to extend vehicle/personnel trampling access into these areas.
- Equipment and plant must be cleaned/jet washed and dried prior to deployment to ensure that no invasive species are introduced.
- Compound areas will be clearly marked and there will be strictly no plant allowed outside of these areas. The compounds are immediately adjacent to two protected sites and it is important that work does not extend into these areas.

5.2 Protected Species

Amphibians

Personnel should be aware that amphibians are likely to be present.

Recommendations:

- Move any amphibians at risk to an identified safe location away from the work zone. This will be discussed with contractors during the ecological site induction.

Badgers

There is a low potential for badgers to be present within the working area on occasion and contractors will be made aware of this during the site induction.

Recommendations:

- A pre-start check for badgers and signs of the species will be conducted by the site ecologist at the time of the ecological induction.
- Any excavations must be covered overnight or escape ramps provided to prevent wildlife, including badgers, becoming trapped.

Bats

The proposed works are immediately adjacent to Mwyngloddiau a Chreigiau Gwydir SSSI and less than 50m from Mwyngloddiau Fforest Gwydir SAC, of which the lesser horseshoe bat is a feature. The removal of some trees along the dam crests may impact on potential bat flight paths, but these will only be modified slightly by cutting back up to 10m from the crest of the dams and not removed or fragmented. There are no potential bat roosting within any of the trees proposed for removal and the works themselves will be short-lived.

The required plant movements and construction phase are not considered to represent any potential disturbance over and above that already present due to regular forestry operations, traffic on the haulage roads and the enabling works already completed. For these reasons, it is not considered that the proposed works themselves will have any significant impact on the species.

Recommendations:

- No working during the hours of darkness or within an hour of sunrise or sunset to prevent disturbance to bats

Dormice

There is some potential for dormice to be present within habitats around the working area periphery, although the habitat is generally sub-optimal. It is considered reasonable to utilise some avoidance measures to ensure no disturbance to the species due to the restricted nature of the works and low potential for impacts.

Recommendations:

- All scrub or woody material will be first inspected by the site ecologist prior to clearance. The vegetation removal will then be directly supervised by the ecologist and will entail only using hand tools.
- If works commence between November and March, a pre-start check for hibernating dormice will be conducted by the site ecologist.

Nesting birds

There is a very high potential for nesting birds to be present within most of the habitats on site during the breeding season, recognised as 1st March to 31st August. Any disturbance to nesting birds that causes them to abandon the nest or chicks is an illegal activity.

Recommendations:

- Any vegetation removal should be conducted outside of the recognised bird nesting season above.
- If this is not possible, a thorough search of the area must be made immediately prior to the clearance works by an experienced ecologist. This is likely to involve two visits to the site and a

watching survey methodology. If any nests are present, these areas will need to be avoided until such time as the site ecologist can confirm that all chicks have fledged.

Otters

There will be no significant impact on otters due to the proposed works as the site contains no habitat suitable for otters to lie up in and only limited prey availability. Any animals present in the area are likely to be moving through the area, concentrating on more optimal foraging areas in the lowlands. The closest record for this species on the Cofnod database is approximately 250m from the site.

Recommendations:

- All personnel will be made aware of the potential for otters on the site.
- A pre-start check for otters will be conducted by the site ecologist.
- Any scrub removal must be inspected immediately prior to cutting by the licenced site ecologist. The ecologist will then directly supervise the removal of this vegetation by hand.
- The avoidance of night time working will help ensure no disturbance to otters.

Reptiles

There is the potential for reptiles to be present within the working area. The following measures should ensure minimal impact on these species.

Recommendations:

- Any vegetation clearance will be directly supervised by an experienced ecologist, as above. Any reptiles encountered will be moved to a designated place of safety.
- A pre-start check will be conducted by the site ecologist
- Move any reptiles at risk to an identified safe location away from the work zone, if practical or allow to move of their own accord. In the case of adders, advice should be sought from the site ecologist if this species is encountered on the site. A more detailed method statement may then be produced for reptiles to prevent any inadvertent injury/death to reptiles or health and safety issues for contractors. This will be discussed with contractors during the ecological site induction.

6 Biodiversity Enhancements

Under Chapter 6 of Planning Policy Wales 10, planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This policy addresses the Section 6 Duty of the Environment (Wales) Act 2016 and results in the likelihood of planning applications being refused unless they can show a positive impact on biodiversity.

There is a large area of potential bat foraging habitat within the surrounding forestry plantation, with the tree-lined tracks also providing sheltered corridors for foraging bats. There is however an absence of roosts which will be a limiting factor with regards to bats accessing these potentially productive foraging areas. It is recommended that this opportunity is taken to enhance the habitat for

bats by providing new roosts. A total of eight bat boxes should be provided along woodland rides in the vicinity in locations agreed with the site ecologist. These locations must be carefully selected so that boxes are not mounted on trees that will eventually be harvested. The boxes should be 'woodcrete' to provide long-term roosting accommodation. The exact design will be agreed with the site ecologist and is left open at this stage due to problems with supply of specific models.

It is also recommended that brash piles are created using cleared vegetation to provide a valuable refuge for reptiles, amphibians and nesting birds.

7 Legal Implications

Under European law, the Conservation of Habitats and Species Regulations 2017 states that damage to a significant group of a European Protected Species (EPS), which includes otter, all bat species and dormouse, or its resting/breeding place as an 'incidental result' of an otherwise lawful activity, is illegal. To deliberately affect an EPS, where deliberately can mean where an EPS has been recorded and then damage to it occurs as a result of an activity, is a breach of the Regulations. Where a habitat looks suitable for an EPS, then a survey should be carried out to assess if it is present. If present, a licence from NRW may be granted so that an activity can be done under certain conditions.

Wild birds and their active nests, all UK reptiles, and water voles, are protected under the Wildlife & Countryside Act 1981 (as amended). Badgers and their setts are protected under The Protection of Badgers Act 1992.

In addition, some species discussed below that are relevant to this site are included under Section 7 of the Environment (Wales) Act 2016. These are water vole, otter, dormouse, all reptiles, common toad, tree pipit (*Anthus trivialis*), skylark (*Alauda arvensis*), spotted flycatcher (*Muscicapa striata*), European nightjar (*Caprimulgus europaeus*), all bat species and the nationally rare lead-moss *Ditrichum plumbicola*. As this area is within Snowdonia National Park, all of these Section 7 species apart from the reptile group, are given 'priority' status under the Park's Biodiversity Action Plan, generally meaning they are given priority consideration for conservation projects and development work.

8 Appendices

8.1 Site Photographs



Lower dam at the Eastern end of the site



Site of proposed compound at Eastern end of the reservoir



Central dam



Tree clearance required from the dam crest up to 10m back



Habitat mapped as marshy grassland that is experiencing scrub encroachment



Tree clearance also to be undertaken from crest of western dam towards the access road



Access road installed as part of the enabling works

8.2 Revision Table

Name	Task	Date
Kate Williamson	Author	30.07.2020
Chris Hall	Review	06.08.2020