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For the attention of:

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29th May 2015

Planning Application NP4/26/323
Proposed hydro scheme up to 5MW comprising construction of intake weir, tunnel, buried pipeline, buried powerhouse building with outfall, switchgear room and transformer, and including biodiversity and recreational enhancement proposals, and alterations to existing vehicular access off the A470(T) near Fairy Glen Hotel, Betws y Coed.

Response from Cymdeithas Eryri the Snowdonia Society

Contents

Introduction

This submission is made on behalf of Cymdeithas Eryri the Snowdonia Society, a member-based charity which since 1967 has worked to protect, enhance, and celebrate Snowdonia and Snowdonia National Park.

With regard to the application to develop a hydro-electric scheme at Conwy Falls, the Society would like to draw attention to a number of areas which give cause for concern. We respectfully request that these points be given full and careful consideration as part of the decision process.

We further highlight the need to protect the designated features of nature conservation importance. This specific issue is of sufficient gravity that we find it necessary to formally object to the proposed development.

Policy and legislative context for the development

The proposed development lies inside the National Park and must be taken in the context of the primary National Park purpose – to 'conserve and enhance the natural beauty, wildlife and cultural heritage'

The 'special qualities' for which Snowdonia was designated as a National Park are highlighted on the National Parks website www.nationalparks.gov.uk and include, after the mountain ranges themselves, *'Snowdonia is a delightfully varied landscape of steep river gorges, waterfalls and green valleys.'*

The proposed development is situated within the Fairy Glen Woods Site of Special Scientific Interest (SSSI). SSSI's are a UK national conservation instrument, designated under the Wildlife and Countryside Act 1981 (as amended).

Natural Resources Wales gives the following description of the role of SSSIs in Wales:

'Sites of Special Scientific Interest are the most important sites for Wales' natural heritage. They are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Wales. They are the cornerstones of conservation work, protecting the core of our natural heritage.'

The NRW website gives no further information on Fairy Glen Woods SSSI. The citation document for Fairy Glen Woods SSSI, however, includes specific reference to lower plants as qualifying features for SSSI designation. 'Lower plants' is a term used to cover mosses, liverworts, ferns, lichens and a few other allied groups of plants.

Welsh Government TAN 5 Nature Conservation and Planning:

2.1 The town and country planning system in Wales should:

ensure that the UK's international and ***national obligations for site, species and habitat protection are fully met in all planning decisions*** *(PPW 5.3.8-10);*

Snowdonia National Park SPG 6 Nature Conservation and Biodiversity:

4.7 All public bodies in the UK have ***a statutory duty to further the conservation and enhancement of SSSIs and their special interest features****. This duty applies to public bodies when they plan and undertake their own projects and also when authorising the plans and projects of others (e.g. through grant of planning consent).*

Planning Policy Wales Edition 4 - Feb 2011

5.5.8 With regard to SSSIs, which are of national importance, the Wildlife and Countryside Act, as amended by the Countryside and Rights of Way Act 2000, places a duty on all public bodies (including local planning authorities) to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of the features by reason of which a SSSI is of special interest. SSSIs can be damaged by developments within or adjacent to their boundaries, and in some cases, by development some distance away. ***There is a presumption against development likely to damage a SSSI****.*

Welsh Government TAN 8 Renewable Energy:

3.12 Most new hydro-power structures involve "run-of-river" schemes, by far the most likely for developments in Wales. These are ***relatively small****, with some flexibility in siting along a length of river or stream, although as with any power generation scheme, there should be cost-effective access to the electricity network.*

3.13 Though generally supported, there could be occasions where ***some hydro schemes are unacceptable because of potential ecological damage****.*

Snowdonia National Park SPG10 Renewable Energy:

2.8 (p. 4) *PPW considers that in order to meet the Government's renewable energy target of 4TWH per annum, local planning authorities should support proposals for renewable energy projects provided environmental impacts are avoided or minimised, and* ***the integrity of nationally and internationally designated areas are not compromised****.*

2.23 (p. 7) refers to large scale energy generation projects as being *'…**likely to be incompatible with National Park status**…*' whereas *'…scope might exist to contribute to reduce demand for electricity derived from fossil fuels through efficiency savings and through **small-scale renewable energy developments to meet domestic or community needs**.'*

3.21 (p. 16) notes that the total installed capacity of hydro power stations in the National Park *'exceeds local electricity demand by an estimated factor of 3 and results in the area being a net exporter of electricity.*'
[This estimate pre-dates the addition of a large number of more recently installed and/or permitted schemes.]

3.22 (p. 16) identifies almost all the areas with potential for further development of hydro schemes in Snowdonia as being *'…**in areas of high environmental sensitivity**.'*

3.23 (p. 16) and 3.24 (p. 17) refer to the fact that the assessment of hydropower opportunities in Snowdonia comes from an Environment Agency report which did not specifically look at high-head run-of-river schemes. These represent virtually all of the schemes currently coming through the planning system, including the one under consideration here.

Scale of the proposed development

The scale of the proposed development needs to be considered against its costs and benefits - we are concerned that there may be an imbalance between these three elements.

- The development is on a significant scale in terms of the size of the physical works and duration and effects of the disturbance caused.
- In terms of renewable energy generation, this development is larger than 'domestic or community' in scale, but falls within the 'small-scale' 5MW limit for Feed-in Tariff schemes. Given the mismatch between scale/cost of the project and the modest generation capacity, we are concerned that the current application could be an example of a 'Trojan horse' - a stepping stone to a further application to increase the quantity of power generated using the same physical facilities; our concern is that this would entail an attempt to renegotiate the water abstraction regime.
- The project offers relatively modest benefits in terms of renewable power generation.
- The employment benefits across the scheme's lifespan are negligible.
- In terms of the scheme's costs there appears to be a high likelihood of serious disruption and disturbance during construction.
- The majority of the disturbance and disruption will be borne by motorists, walkers, local residents and local businesses.
- Other costs include the scheme's short-term and long-term impacts on landscape, visual amenity, access, ecological impacts and impacts on specific users such as anglers and kayakers/canoeists.

Given the site's intrinsic importance, including its national importance as a SSSI, we suggest that the scheme does not sit comfortably within the Snowdonia National Park SPG 10 category of '*small-scale renewable energy developments to meet domestic or community needs.'* Any presumption in favour of granting permission may therefore be weakened or extinguished.

Given the fact that the National Park is a net exporter of electricity, the need for this scheme must be rigorously tested. That need would have to clearly outweigh the established negative impacts and the risks of further potential negative impacts of the proposal in order for the Authority to grant planning permission.

Local communities and businesses.

The Snowdonia Society is concerned by the direct impacts of the construction phase on local individuals and businesses.

The impacts include;

- Disturbance to local residents and their living and working environments
- Traffic disruption at bottleneck locations on major routes and visitor hotspots
- Noise, vibration, dust, and dirt associated with heavy lorries, construction machinery, rock-blasting/tunnelling
- Lengthy duration of the construction phase
- Loss of trade for local service businesses
- Degradation of the local area's image as an unspoilt haven and destination location
- Wider damage to Snowdonia's reputation due to traffic problems and perception of large-scale development in a historic beauty spot

These impacts appear likely to be significant and we urge the Authority to give them careful attention. Should the project be granted permission we would expect clear conditions to be imposed to ensure the best possible protection for local people, communities and businesses.

Landscape, visual amenity and special qualities

The Snowdonia Society is concerned that the proposed development will detract from the outstanding landscape value of the site which has been recognised and celebrated for centuries.

Construction phase impacts of the scheme on the landscape are acknowledged by the developer as being several and significant.

The Visual Impact Assessment acknowledges that during the operation phase at periods of medium and medium-high river flow, there will be a significant diminution of the Conwy's

appearance. This is not to be dismissed lightly – the impressive appearance of the river is the primary driver behind most visits to the site.

The historical and artistic heritage of the river at this site should also be considered – there is a well-documented tradition in art and in writing of the falls being seen and visited as an iconic place on an important river.

The Conwy Falls is an example of a place that encapsulates the spirit of Snowdonia National Park; wild and dramatic, yet beautiful and accessible, enjoyed by vast numbers of people from all walks of life. Such places are a finite resource.

Access, recreation and responsible use.

The Snowdonia Society stands up for responsible access and use, where such use is compatible with the National Park's purposes. We are seriously concerned about the impacts of the proposed development on kayakers, canoeists, and anglers. We have consulted with those groups, agree that their concerns are both valid and substantial, and support them in representing their particular interests.

We are concerned at the prospect of lengthy footpath closures or diversions and disruption to users of footpaths. The affected walking routes include promoted routes in one of the most scenic and valued visitor hotspots in the National Park. Walking is the lifeblood of the local area and its economy.

We are concerned by the prospect of serious damage to the fabric and the setting of the old A5 route which runs below the pipeline's proposed route through fields. This is a genuinely historic fragment associated with the current 'historic route'.

Designated nature conservation importance

Because of its national and indeed international importance we focus our comments on conservation of the 'lower plants' for which the Fairy Glen Woods Site of Special Scientific Interest is designated.

'Lower plants' is a term used to cover mosses, liverworts, ferns, lichens and a few other allied groups of plants.

NB. It is of the utmost importance that this point is adequately addressed in the decision-making process. Because of the importance and complexity of this subject we have provided at some length relevant extracts from a range of documents.

The following extracts may help with understanding the issues around the permitting of hydroelectric run-of-river schemes in sites which are nationally important for the

conservation of bryophytes, followed by extracts specifically relevant to the site of the current development proposal.

Oceanic bryophytes in Atlantic oakwoods and ravines www.plantlife.org Plantlife is a respected science-based national plant conservation charity.

'A particular threat to oceanic ravines comes from the development of large numbers of small-scale run-of-the-river hydro-electricity schemes. These schemes take water out of the river, pipe it down to the powerhouse and then return it to the river. This leaves a stretch of the watercourse between the intake and the powerhouse with the hydrology radically altered.

There are no long-term studies of the effects on bryophytes and lichens of a lower level of discharge down ravines, but knowledge of the ecology of the plants involved and observations on the extant communities in ravines altered by hydro-schemes tens of years ago gives some pointers.

The most likely effects are
•a downward shift to the new median water level of riparian species
•a growth of more robust, woodland floor species on the rocks above this
•a loss of habitat for the community of small liverworts on rock faces as a result of increased competition
• a decrease in frequency of spate flows and resultant erosion which frees-up habitat for the smaller liverworts

The interplay between the various factors is complex and it is not always clear what the limiting factors for any one plant are, but the precautionary principle suggests that hydro-schemes should not be sited on ravines with nationally and internationally important bryophyte and lichen communities

The change in hydrology will change both the riparian habitat and the humidity regime in the ravine and this will have an effect on the plants. There is no obvious mitigation for this. Unfortunately what little monitoring of these effects that has taken place has been 'after the event' and without baseline data for comparison, and this should be rectified. If the scheme precludes all but the highest spate flows then it is likely to have a greater effect than one that allows through more than just peak flows. The uncertainty is with regard to the extent of the effect of the reduced flow on humidity-demanding oceanic species and this suggests that the best ravines for oceanic bryophytes should not be used for hydro-schemes.

The precautionary principle suggests that those sites with nationally important oceanic bryophyte communities should not be used for hydro-schemes because of the uncertainty over the long term effects of the changes in humidity.'

Scottish Natural Heritage Commissioned Report No. 421
Demars, B. O. L. and Britton, A.(2011). Assessing the impacts of small scale hydroelectric schemes on rare bryophytes and lichens.

'Small hydroelectric schemes are seen as a solution to mitigating and adapting to climate change and so their number is predicted to increase.

Their impact on river flows suggests that drought conditions could increase dramatically (from 5 to 50% of the time) in stream sections impacted by water abstraction.

The impact on sediment transport (fine sediment deposition upstream from the weir and fine sediment depletion downstream from the weir) may also be substantial depending on stream slope.

There is virtually no information on the impact of small hydroelectric schemes on stream bryophytes and lichens. This is partly because the distribution of lower plants in small streams is largely unknown, but also because of a lack of information on the impact of water abstraction on local humidity and of the impact of altered humidity on individual species. There have also been too few EIAs reporting bryophyte or lichen status on which to base a judgement. Morever, most EIAs have not had post appraisal survey carried out.

Impacts of small scale hydroelectric schemes on rare bryophytes and lichens are NOT likely to be detected (by monitoring programmes), because rare species distribution cannot be reliably linked to environmental conditions.'

[Consequent to this, the report stresses that there is no known appropriate mitigation for the impacts of water abstraction on ravine bryophytes, and that a post-development monitoring programme cannot in any sense be a substitute for mitigation.]

Response by Natural Resources Wales to information request ATI-07250a

The following responses by NRW refer specifically to the proposed hydro scheme under consideration here and to the Fairy Glen Woods SSSI. The full information request responses from NRW will be attached with this submission for reference.

Do you agree with the evaluation and conclusions of the main Bryophyte survey, specifically that the Oceanic Ravine habitats which will be affected by the hydro development meet objective criteria for national significance and SSSI status?
NRW response: *I agree that the oceanic ravine habitat that may be affected by the HEP development meet the criteria for national significance and SSSI status. The proposed depleted reach supports a rich array of indicators of the NERC Section 42 'Oceanic Ravine Bryophyte Assemblage', including some that indicate importance in their own right and others that indicate importance in combination. These species also contribute to an assemblage score that passes the qualification thresholds for SSSI selection according to Guidelines for Selection of Biological SSSI: non-vascular plants (Hodgetts, 1992), whether the site is assessed as falling within the Clwyd or East Gwynedd Areas of Search (the river is the*

AoS boundary, Nationally Scarce species score either 30 or 50 depending on the AoS, and the threshold is either 200 or 300).

Do you agree with the evaluation and conclusions of the main Bryophyte survey, specifically that the site is likely to be amongst the top 10 in Wales for these bryophyte assemblages?
NRW response: *The proposed depleted reach is ranked 12th out of more than 360 Welsh sites assessed using the Weighted Ravine Markers Score (Bosanquet, 2011) and 8th using the West Highlands Score of Averis et al. (2011).*

Do you agree with the evaluation and conclusions of the main Bryophyte survey, specifically that the development has the potential for significant negative impacts on the bryophyte interest of the site?
NRW response: *The development would have the potential for significant negative impacts on the bryophyte interest of the SSSI if it was constructed inappropriately or if the proposed abstraction caused large-scale changes to the environment of the gorge.*

Given that the site is already designated as a SSSI for lower plants (but in particular for its lichens and ferns), do you agree that these findings strengthen the basis for protection of this SSSI against potentially damaging operations?
NRW response: *The bryophyte survey confirms that the SSSI supports a qualifying bryophyte assemblage (according to the 1992 Guidelines for Selection of Biological SSSIs), as well as being important for its lichens and ferns. Legislation requires that NRW therefore assess the potential for damage to this SSSI feature from the proposed HEP.*

Has NRW carried out an evaluation of the likely impacts of the scheme on the bryophyte assemblages of conservation importance?
NRW Response: *My conclusion (in an internal report from November 2014) was: "There is considerable bryophyte interest throughout the proposed depleted reach, judging by the three available surveys, but the majority of this interest is made up of oceanic bryophytes that seem to be dependent more on ravine depth and localised seepage on this site rather than on mist zones generated by cascades. As such, Fairy Glen is likely to be more resilient to small scale flow modifications than some ravine systems where cascades are more significant drivers of humidity. The level of resilience is almost impossible to quantify as, therefore, is the likelihood of damage to the SSSI bryophyte flora."*

Bryophyte survey and assessment of the Afon Conwy (Conwy Falls to Fairy Glen)
Report by Dr Des Callaghan, Ecostudy on behalf of RWE Innogy. (March 2013)

A total of 180 mosses and liverworts were recorded during the survey. When combined with records from other surveys, this provides a total of 221 species for the Fairy Glen Woods SSSI.

Whilst species known only from old records (e.g. Grimmia donniana and Philonotis rigida) may have been lost from the site, others no doubt await discovery.

Nationally rare and scarce species:

Campylopus subulatus (nationally scarce)
Recorded once by M. Yeo in 1993, when found in small quantity on top of a large boulder beside the river (approx. SH80705368). It is probably still present within the site, but is clearly rare.

Heterocladium wulfsbergii (nationally scarce)
Frequent throughout the river sections surveyed, most commonly occurring just above the normal river level, often on large boulders within cascades and on rock faces within ravines.

Philonotis arnellii (nationally scarce)
A plant not previously known from the site, but found in small quantity during the present survey in the main ravine at Fairy Glen (SH8018354060) in a damp and shaded recess of the ravine cliff-face.

Philonotis rigida (nationally scarce)
Known only from one old record (Broome 1909) and possibly lost from the site.

Porella pinnata (nationally scarce)
Frequent within the Cinclidotus zone along the river, sometimes occurring in quantity but more often in small amounts.

Racomitrium macounii (nationally scarce)
There are two records of this scarce moss from the site. Firstly, a few small patches were found by M.E. Newton in 2010, on top of a large riverside boulder between Conwy Falls and Fairy Glen (approx. SH80405380). Secondly, a couple of small patches were found during the present survey on a rocky knoll deep within the ravine of Conwy Falls, close to the head of the fish-pass (SH8089353414). The moss can be difficult to detect when present in small quantity and growing within the patchwork of other mosses on boulder-tops, so is likely to be more frequent than these two records suggest, though is clearly scarce within the site.

SSSI site selection. An assessment of the site against the SSSI selection criteria for bryophytes (Hodgetts, 1992) is provided …, which shows that the flora is of national conservation interest and clearly surpasses the threshold for site selection.
SSSI selection threshold: 250 points
Conwy Falls site score: 480 points
[now 490 points as two more target species have been discovered at the site]

S42 Oceanic Ravine Bryophytes assessment
An assessment of the site against the Section 42 criteria for Oceanic Ravine Bryophytes is provided in Table 3. The site meets three of the four criteria and clearly qualifies as an important site for this bryophyte assemblage, including a broad mixture of both the commoner and rarer species.

Scottish Natural Heritage HEP assessment
An assessment of the site against the SNH HEP system (Averis et al., 2011) is provided in Table 4. The site scores 10 points, well above the 5-point threshold for nationally important sites.

[This evaluation against the Scottish system is significant. It is generally understood that the bryophyte flora of Scottish ravines is more diverse and contains more rare and specialised species than examples in Snowdonia. While this is undoubtedly the case, it is clear that a Snowdonia site which scores twice the 'national importance' threshold on this system is of extremely high conservation value in a UK as well as Wales context.]

By far the most important habitat is closely associated with the river, including large boulders and rock faces subject to periodic inundation and mature native trees (especially oak and ash) growing close to the riverbank. This is where the scarcer oceanic species occur (Aphanolejeunea microscopica, Drepanolejeunea hamatifolia and Harpalejeunea molleri) and the more interesting nationally scarce species (Porella pinnata and Racomitrium macounii).

All of the Afon Conwy accessed within the survey area is of significant interest in this regard, with no lengths being particularly better or worse than others.

Effects of HEP development.
The presence and distribution of the bryophyte species of interest within the site are dictated by a complex of environmental conditions and the resources that the plants require for growth and reproduction. In this regard, the river clearly has a major influence, in particular with regards to:
•Inter-specific competition – spate flows maintain scoured rock faces and boulders along the river, where competition from robust species is reduced and many of the species of interest are therefore able to survive; and
•Desiccation – many of the species of interest are likely to be particularly sensitive to desiccation and it seems likely that the river contributes to microclimates where desiccation events, if they occur, are relatively short and less severe.

The effects of the proposed HEP development on environmental conditions such as the above cannot be considered in any detail at the moment since as yet there has been no assessment of how the development may affect river level dynamics. Even with such information, predictions will likely be difficult due to the inherent complexity of ecological systems.

Together with previous surveys, the present study provides a reasonably comprehensive inventory of the mosses and liverworts present along a 2.2 km length of the Afon Conwy (between Conwy Falls and Fairy Glen), located within the Fairy Glen Woods SSSI. The bryophyte assemblage is of national conservation interest and is likely to be within the top ten sites in Wales for Oceanic Ravine Bryophytes (a species assemblage of national conservation importance under Section 42 of the Natural Environment and Rural Communities Act 2006).

The main habitat supporting the species of interest is closely associated with the river, including large boulders and rock faces subject to periodic inundation by spate flows and mature native trees growing close to the riverbank.

All of the river accessed within the survey area is of significant interest in this regard, with no lengths being particularly better or worse than others. The proposed HEP development has the potential to have a significant effect on this bryophyte assemblage though this has not been considered in any detail since effects on river level dynamics have not yet been predicted.

Non-Technical Summary report submitted by RWE Innogy as part of the application

Environmental Impact Assessment Results.
Assessments of environmental impacts have been undertaken by several environmental specialists in accordance with the methods described in Section 5 above and the results have been compiled by an EIA coordinator. The EIA process entails the prediction of the potential changes and effects to the baseline environment surrounding the scheme based upon the infrastructure requirements for the Conwy Falls HEP and the typical construction and operational processes associated with such a scheme. The results of the assessments are summarised below.

Lower Plants
Surveys for bryophytes identified that the fields through which the pipeline will run and the small patch of woodland where the powerhouse is proposed are not of significant interest for bryophytes. Similarly, the woodland on both sides of the Conwy, where the intake point and associated access tracks will be located, are also not of significant interest.

By far the most important habitats are associated with the river itself, including large boulders and rock faces subject to periodic inundation and mature native trees (especially oak and ash) growing close to the riverbank. This is where the scarcer oceanic species and the more interesting nationally scarce species occur. Further presence of liverworts was identified close to the steps leading down to the Fairy Glen gorge and two points close to the intake. The location of the scheme is therefore an important site for Oceanic Ravine Bryophytes, including a broad mixture of both the commoner and rarer species. Therefore, the gorge as a whole is rated as of national level of value for its bryophytes.

The fact that the Fairy Glen gorge is already designated as a SSSI on account of its lichen (and fern) assemblage indicates that the site should be rated as of national value in this respect. This rating was borne out by the surveys conducted for this proposal.

[NB The Non-Technical Summary provides **no** evaluation of the impacts of the proposed development on the nationally important bryophyte features of the site. As this is the most significant ecological issue associated with the scheme, this is a serious flaw in a document which should be informative for non-specialist readers.]

8.6.10 The Fairy Glen gorge as a whole was assessed against the SSSI selection criteria for bryophytes (Hodgetts, 1992) and was found to clearly surpass the threshold for site selection. This was on account of the presence of a number of Nationally Scarce, Atlantic, Sub-Atlantic and Western British species. The score for the site was 480, against a SSSI site selection threshold of 250. The additionally recorded Western British species Marchesinia mackaii and Jamesoniella autumnalis means that the site score now stands at 490. The site also clearly qualifies against the Section 42 criteria for Oceanic Ravine Bryophytes. It meets three of the four criteria and clearly qualifies as an important site for this bryophyte assemblage, including a broad mixture of both the commoner and rarer species. Therefore, the gorge as a whole should be rated as of national level of value for its bryophytes.

8.6.11 The fact that the Fairy Glen gorge is already designated as a SSSI on account of its lichen (and fern) assemblage indicates that it should be rated as of national value in this respect. This rating was borne out by the surveys conducted for this proposal. It is possible that the quality of the Lobarion community (those species usually associated with old and long-established woodland) may have declined since the site was first designated (potentially as a result of shading or increases in atmospheric pollution). However, both the macro-lobarion species (e.g. Lobaria, Sticta) and micro-lobarion species (e.g. Catinaria atropurpurea, Mycobilimbia pilularis and Thelotrema lepadinum) were still present, albeit relatively sparsely. Furthermore, a number of young sycamores (approximately 30 years old) and older goat willow north - west of the Conwy Falls café were found to support healthy colonies of Lobaria pulmonaria and it is probable that this species is returning to suitable trees in the area (i.e. those receiving good light levels and with base-rich bark). The Fairy Glen woodland as a whole would certainly qualify under the S.42 'Lobarion community'.

8.6.12 Furthermore, since the site was designated, the importance of the suite of species associated with the riparian zone has become more fully recognised. Within the Conwy gorge, species associated with the upper and lower riparian zones, were found to be of conservation value. Indeed, collectively these would rate as of national value (certainly at a Wales level). Therefore, the lichen assemblage associated with the gorge as a whole should be rated as of national value (in line with the SSSI designation).

Lower Plants - Effects of humidity

8.7.50 A number of lower plants of conservation concern (in particular, a range of liverwort species) are dependent on high humidity levels, and are often found in 'mist zone' areas generated by waterfalls and cascades. The operation of the hydro-electric scheme could potentially have an impact on these levels of humidity, thus reducing the suitability of existing habitats and micro-niches for these species. In conjunction with NRW (S. Bosanquet, S. Hearn), investigation took place of the populations of lower plants within the site generally considered to be dependent on high humidity levels. These included liverworts such as Harpalejeunea molleri, Drepanolejeunea hamatifolia

and Aphanolejeunea microscopica. It was found that these were not tied to areas of humidity generated by cascades and waterfalls. At this particular site (i.e. Fairy Glen), they appeared to be influenced more by their proximity to small areas of seepage than by humidity generated by the stream itself. Nevertheless, there remained the potential for further populations of these species in the area between the intake point and the confluence with the Afon Machno. This is a key area, as it was determined that to the west of this point (i.e. after the point at which the Machno joins the Conwy), humidity levels would not be significantly affected (due to the additional water provided by the Machno). Further survey and investigation took place of this area. This revealed that no obvious cascades or waterfalls were generated by the river between these locations (apart from at the confluence itself). In addition, part of this area was viewed through binoculars, and generally appeared to be highly acidic rock (with species such as rhododendron Rhododendron ponticum) being prominent. It was therefore deemed unsuitable for supporting most of the more localised humidity-demanding species. The combination of sub-optimal substrate and the lack of cascades and waterfalls means that there are highly unlikely to be significant populations of humidity-demanding species in this locality. Therefore, these findings strongly suggest that localised effects on humidity from operation of the hydro-electric scheme will not have significant effects on lower plant populations.

Lower Plants - Effects of water levels

8.7.51 A number of lower plants, and in particular several lichen species, are favoured by intermittent inundation by water. They therefore grow in the lower riparian zone, close to the water's edge. The operation of the hydro-electric scheme could have an effect on the periodicity of these inundation events. However, the Run of River nature of the scheme and the Hands off Flow proposals, added to the natural river variability, means that water levels won't be substantially affected. The scheme will not therefore have a resultant significant effect on inundation sensitive species.

Note the last two sentences from the RWE Innogy evaluation statement in the extract above:

- *'However, the Run of River nature of the scheme and the Hands off Flow proposals, added to the natural river variability, means that water levels won't be substantially affected.'*

This statement is incorrect. As currently envisaged the scheme will significantly affect (reduce) water levels on a great number of days per year. This is clear from the data and analysis provided by the developer. It may be the case that the highest and lowest flows will remain similar to current patterns, but that is a completely different point. Sensitive plants growing around the current median water level, for example, will experience inundation and spray on significantly less occasions per year than at present.

- *'The scheme will not therefore have a resultant significant effect on inundation sensitive species.'*

This statement is unsubstantiated and runs contrary to the published opinion of bryologists of national expert standing. Natural Resources Wales' bryologist, for example (quoted above in NRW response to our information request) states that**:**

- 'The level of resilience is almost impossible to quantify as, therefore, is the likelihood of damage to the SSSI bryophyte flora'.

Conclusion

The Snowdonia Society has significant concerns about the impact of the proposed development on local communities, businesses, access, recreation, landscape, and wildlife habitats. We suggest that these are important potential disbenefits of the project which need to be given careful consideration. Viewed in this context the project appears to offer negligible benefits to society in terms of employment, and only modest benefits in terms of renewable energy generation.

We have specific concerns regarding the future of nature conservation features of the site should the development be allowed to go ahead.

Fairy Glen Woods, within which the proposed development is sited, is designated at the UK national level as a SSSI for its lower plant interest.

At the Wales level the SSSI's Oceanic Ravine Bryophyte Assemblage qualifies as being 'of principle importance for conservation of biological diversity in Wales' under Section 42 of the NERC Act.

Together these facts mean that the site of the proposed development is of primary importance for the delivery of Snowdonia National Park Authority's primary conservation purpose.

For its bryophytes alone (even disregarding the lichens and ferns for which it was originally designated) the site demonstrably far exceeds the qualifying threshold for SSSI designation.

According to Natural Resources Wales, the site ranks as either the 12th or 8th best in Wales (out of more than 350 evaluated sites) for its oceanic ravine bryophytes, depending which scoring system is used.

For its lower plants, therefore, the site is indisputably of national importance – at the Wales and UK levels.

The lower plant assemblages are entirely dependent on a complex of environmental factors amongst which the site's hydrological regime is vitally important. This is not a point of debate. If the proposed scheme were to abstract too much water for too much of the year,

virtually all of the bryophyte interest would be destroyed. The damage caused by the proposed scheme is, therefore, a question of degree.

Natural Resources Wales cannot predict the likelihood or severity of damage to the oceanic ravine bryophyte flora of the SSSI which it is charged to protect. We are unclear as to why Natural Resources Wales is not more clearly advocating the application of the precautionary principle in this case.

It may be possible to meet our energy needs by a great number of different means, but we only have one reliable means of conserving the special qualities of the Fairy Glen Woods SSSI. The special plants and their habitat are there solely because of the special ravine conditions which have prevailed over time. As such they are an irreplaceable part of Snowdonia's special qualities.

In these circumstances we humbly suggest that the National Park Authority should apply the precautionary principle in order to uphold its primary conservation purpose.

On the grounds of the likelihood of damage to irreplaceable designated nationally-important nature conservation features, and the impossibility of mitigating against such damage, we formally object to the proposed development.

John Harold

Cyfarwyddwr - Director
Cymdeithas Eryri the Snowdonia Society