An Taisce
The National Trust for Ireland

An Bord Pleanala
64 Marlborough St
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31.01.19

**Re:** **Strategic Infrastructure Application titled West Offaly Power (WOP) to An Bord Pleanala for continued peat burning and phased bio mass conversion at non heat capture electricity generating combustion plant and extension of Ash Disposal facility (ADF) at Shannon Bridge Co Offaly by ESB**
**ABP SID Ref: 303108**

Dear Sir/Madam,

An Taisce wishes to make a submission on the above Strategic Infrastrcture Development application that has been lodged with An Bord Pleanala.

Please acknowledge our submission and advise us on any decision made.

Yours faithfully,

Ian Lumley,

*Advocacy Office,*
*An Taisce – The National Trust for Ireland*

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# 1.0 PLANNING BACKGROUND

This Strategic Infrastructure Development ("**SID**") application is being lodged with a parallel application being prepared for submission to Longford County Council for the combustion plant and ash disposal facility at Lanesborough.

Both applications, situated on the River Shannon arise from one of the worst strategic investment errors in the history of Irish public infrastructure by the Electricity Supply Board ("**ESB**") in conjunction with Bord na Mona ("**BnM**"), in the early part of this century.

When the first National Climate Strategy was being prepared in 1999, it was recommended that peat burning would be phased out by 2008. Instead, the published 2000 Strategy provided for continued peat extraction and combustion. Political lobbying for the subsidy of continued peat extraction and burning was allowed to prevail with consequent energy consumer cost through a Public Service Obligation ("**PSO**") levy, and a disastrous diversion of investment which could have gone into energy efficiency, decarbonisation and alternative sustainable employment in the Midlands.

This resulted in the ESB obtaining Government support for the development of two new peat power plants at the current application site, and at Lanesborough, Co. Longford. Both applications were approved by the two relevant local authorities and by An Bord Pleanala ("**ABP**") following an appeal by An Taisce.

However the basis on which the Board granted permission for the two plants was subsequently ruled to be in breach of the Environment Impact Assessment ("**EIA**") Directive[1] in the High Court case taken on the extended operation of the peat and biomass co-firing plant at Edenderry, Co. Offaly in 2015, which found that the decision failed to assess the impact of the peat extraction required to serve the feeding of the combustion plant.[2]

[1] EIA Directive 2011/92/EU

[2] IrIsh Times Article. 2015. "*Bord na Móna loses Offaly power plant planning case*" https://www.irishtimes.com/news/crime-and-law/courts/high-court/bord-na-m%C3%B3na-loses-offaly-power-plant-planning-case-1.2407326

[2] IrIsh Times Article. 2015. "*Bord na Móna loses Offaly power plant planning case*" https://www.irishtimes.com/news/crime-and-law/courts/high-court/bord-na-m%C3%B3na-loses-offaly-power-plant-planning-case-1.2407326

The meeting of Paris Agreement targets is going to leave the major part of global fossil energy extraction, transportation and combustion infrastructure a valueless stranded asset. The Shannonbridge plant should now be classified a failed investment asset, where there is no sustainable basis for continued peat burning, and where immediate or phased conversion to open combustion biomass does not stand up to sustainability evaluation either in efficient electricity generation and resource use, or sustainable import or national biomass supply .

Paris Agreement compliance will require transboundary carbon pollution accounting from all carbon dioxide and GHG emissions, including those from the cultivating, harvesting, transporting and the burning of biomass. Consent therefore willl need to be limited to:

- Biomass projects that meet strict sustainability criteria in sourcing;
- Show real emission reductions; and
- Demonstrate that the project is the most optimal and efficient use of a biomass resource in energy return.

Should any biomass project not meet these stated requirements, the project should not be accommodated with grid connection.

# 2.0 CHANGE IN CIRCUMSTANCES IN IRISH CLIMATE LEGISLATION AND POLICY SINCE DETERMINATION OF PREVIOUS APPLICATION

An Bord Pleanala has determined previous applications for the two Midland peat plants, as well as applications for other fossil energy infrastructure including motorways, Dublin Airport expansion, and milk powder processing applications. These projects, both individually and cumulatively, are significantly increasing climate emission impact on the basis of Government policies prevailing before 2015.

This has been a major contributing factor to Ireland's status as a climate laggard to which An Taoiseach Leo Varadkar has referred.
The latest Environmental Protection Agency ("**EPA**") projection is that Ireland is failing to meet its EU 2020 targets to reduce emission by 20% on 1990 levels. Current projections are that Ireland will achieve a reduction of 'at best 1%' on 2005 levels.

The International Climate Change Performance Index is produced annually on the basis of joint analysis by two organizations: Germanwatch and the New Climate Institute. The 2019 projections report was launched at the UNFCCC Climate Conference in Poland in December 2018. The report placed Ireland 48th out of 56 developed countries worldwide and worst in the EU.[3]

There are two major changes in circumstances since 2015, which require that the previous practice of An Bord Pleanala in approving projects worsening climate emissions is no longer tenable. Namely Climate Legislation and the 2015 Planning Policy Guidelines.

## 2.1 Climate Legislation

The Board, in determining the subject proposal, must have regard to the Climate Action and Low Carbon Development Act (2015) and the Planning and Development Act 2000 (as amended).

The Climate Action and Low Carbon Development Act 2015, stated under s.15(1)(d) 'Duties of Certain Bodies' that a:

*"Relevant body shall in the performance of its function have regard to a range of considerations including:*

> *(d) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the state*".[4]

This provision applies to all State and public Bodies including An Bord Pleanala.

## 2.2 Department of the Environment, Community and Local Government 'Planning Policy Guidelines 2015'

The Department of the Environment, Community and Local Government set out Planning Policy Guidelines 2015, which is the overriding national planning policy and states:

[3] Climate Change Performance Index 2019. Link: https://www.climate-change-performance-index.org/
[4] S.15(1)(d) Climate Action and Low Carbon Development Act 2015

*"The planning process plays a very significant role in promoting patterns of development which help Ireland meet its international obligation by:*

- *tackling the sources of climate change by reducing Ireland's carbon footprint;*
- *securing less energy and travel intensive development patterns;*
- *facilitating the generation of energy from low carbon sources; and*
- *adapting to the effects of climate change.*".[5]

On this basis the West Offaly Power proposal cannot be justified.

# 3.0 OVERARCHING CONSIDERATIONS ON SUSTAINABILITY OF WEST OFFALY POWER APPLICATION

In addition to climate action, there is an imperative for developed countries like Ireland to take leadership on protecting the natural world, and reduce use of and pressure on natural resources and ecosystems both at national level and in international action.

The basis for this was established by the UN Biodiversity Convention 1992 and integrated with the 2015 UN Sustainable Development Goals ("**SDGs**"). Of particular relevance to a proposal seeking to justify the sustainable sourcing and burning of biomass is SDG Goal 15 which provides the following:

**Goal 15:** "*To sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss"*.[6]

The 2012 UN Rio Plus 20 Conference recognised and gave further status to *"the intrinsic value of biodiversity*" and "*its critical role in maintaining ecosystems that provide essential services, which are critical foundations for sustainable development and human well-being*".

[5] DECLG. Planning Policy Guidelines 2015
[6] Sustainable Development Goals. Goal no. 15

The 2012 EU Bio-Economy Strategy "*Innovating for Sustainable Growth: A Bioeconomy for Europe* " opens with the statement:

> *"In order to cope with an increasing global population, rapid depletion of many resources, increasing environmental pressures and climate change, Europe needs to radically change its approach to production, consumption, processing, storage, recycling and disposal of biological resources"*.[7]

The Strategy goes on to raise the overriding concern on biodiversity loss:

> *"Europe is confronted with an unprecedented and unsustainable exploitation of its natural resources, significant and potentially irreversible changes to its climate and a continued loss in biodiversity that threaten the stability of the living systems on which it depends"*.

Biomass is problematic in its use of imported material, as shown by BnM use of palm kernels from south east Asia in its Edenderry biomass co-firing plant, and the lack of identification of the scale of sustainable indigenous biomass required, as well as the carbon efficiency of biomass burning for electricity generation.[8]

This places a particular onus to address the sustainability of any biomass based proposal.

## 3.1 Adverse Climate Impact

Bord na Mona is the effective partner with the ESB in this application with continued peat extraction and burning to 2027 proposed.

Projected Annual CO2 emission tonnage from the combustion of peat in the plant is stated in the Environmental Impact Assessment Report ("**EIAR**") to be 673,000 tonnes from 2020 to 2024 and

[7] European Commission. (2012) "I*nnovating for Sustainable Growth: A Bioeconomy for Europe*" Link: https://ec.europa.eu/research/bioeconomy/pdf/official-strategy_en.pdf
[8] Irish Times Article. (2017) "Bord na Mona to stop importing palm kernel shells over concerns". Link: https://www.irishtimes.com/news/environment/bord-na-m%C3%B3na-to-stop-importing-palm-kernel-shells-over-concerns-1.2926384

450,000 tonnes to 2027. In addition to the direct emissions from burning, there is the impact of extraction from the supply bogs.

Section 10.5.5 of the EIAR on Climate sets out the additional emissions impact from the supply bog extraction:

> *"Greenhouse gas emissions from the peatlands used to supply peat to WOP Station are counted under land use change and forestry emissions (IPC Sector 5). The peat supply bogs do not function as active carbon sinks as they have been drained and are bare of vegetation. Emissions of greenhouse gases CO2, CH4 and N2O can arise from the active peat production surface areas and milled peat stockpiles through the oxidative loss of carbon. Estimates of greenhouse gas losses have been made based on the area extent of peat bogs serving WOP and using the IPCC Supplementary Guideline for Wetlands (Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. Intergovernmental Panel on Climate Change, 201318F18 F18, Tier 1) emissions for boreal zone (i.e. sub-arctic) and temperate wetlands in peat production as follows:*
>
> - *Carbon dioxide 2.8 tonnes CO2-C/ha/yr.*
> - *Methane - peat surface 0.0061 tonnes CH4 /ha/yr.*
> - *Methane – ditches 0.542 tonnes CH4 /ha/yr.*
> - *Nitrous oxide 0.00094 tonnes N2O /ha/yr.*
>
> *Using these values and gross production surface area ranging from circa 13,390 ha down to 12,997, which reflects the reducing supply of peat to WOP, the estimated annual greenhouse gas emissions between 2020 and 2028 are estimated to range as follows: 133,231 to 137,474 tonnes of CO2, 797 to 799 tonnes of CH4 and 12.2 to 12.6 tonnes of N2O."*

On top of this is an additional emission figure for drying stockpiled peat.

## 3.2 Biomass Will not Continue to be Rated As Zero Carbon in Nature

A UK Chatham House report published in February 2017 establishes that the burning of Biomass is not carbon neutral, as it *"emits more carbon per unit of energy than most fossil fuels*" and has a range of sustainability impacts.[9]

It is essential to ensure that an action designed to ensure one positive benefit, such as replacing fossil fuel with bio-energy is not negative in other impacts. The EU Biofuels Obligation Scheme introduced as a climate mitigation measure is having multiple adverse impacts.

The concept of providing a progressive blend of biofuel to be brought up to 10 % biofuel content from 2019 in Ireland, has proved negative in effect, as it does not address air pollution impact in perpetuating polluting diesel vehicle use, and reinforces the continued use of polluting internal combustion engine vehicles, dis-incentivizing a switch to electric vehicles.

Similarly, the unsustainable Irish import of bio-material from across the world and its associated carbon and biodiversity impacts cannot be justified.

Strategic planning and emission calculation planning for the new or continued use of biomass into the late 2020s cannot be estimated to be zero carbon as EU Article 5 of the Paris Agreement and EU accounting rules for Land Use, Land Use Change and Forestry ("**LULUCF**") will require full emission calculation of forestry and all other land use activities.

The EIAR does not properly address the emission impact from the proposed biomass use. The application correctly states that *"Under existing EU Rules generation of electricity from biomass is considered to be zero carbon in nature*."

The measurement and accounting of all emission pathways is currently the subject of ongoing UNFCCC negotiation to achieve a rulebook for the implementation of the Paris Agreement by 2020.

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[9] Chatham House. Royal Institute of International Affairs (2017) "*The Impacts of the Demand for Woody Biomass for Power and Heat on Climate and Forests*" Link:
https://www.chathamhouse.org/publication/impacts-demand-woody-biomass-power-and-heat-climate-and-forests

All energy sources including biomass will need to accounted for in accordance with actual emission impact.

## 3.3 Efficiency of Open Combustion

The proposal is for the continued operation of a failed energy investment asset for the mass combustion generation of electricity without heat capture or integrated with Combined Heat and Power ("**CHP**"). Open combustion for electricity generation is fundamentally inefficient. Even if an indigenous sustainable bio-source for combustion can be secured, it is wasteful in resource consumption to use in open combustion, as opposed to CHP serving local catchments.

The proposal is dependent on obtaining a subsidy under the Renewable Energy Support ("**RES**") scheme. It has not been demonstrated that the proposal represents the most appropriate or sustainable means of achieving energy efficiency and decarbonisation.

A 2009 policy statement by the US-based Biomass Energy Resource Center which assessed the efficiency of different energy uses of biomass provides an overwhelming case against the efficiency and therefore wastage of using biomass for electricity generation without CHP.

> *"Used for heat or heat-led combined heat and power (CHP), biomass energy is approximately 75-80 percent efficient, while generation of electricity is only 20-25 percent efficient, and conversion to liquid fuels for transportation applications are even less efficient overall*".[10]

The following more efficient uses of biomass are set out :

> *"The most energy efficient use for biomass in general is thermal energy at the community scale, where local wood resources are produced and used to provide local energy, fueling the local economy, and at heat-led CHP operations of a scale that can be accommodated by the resource. Directing biomass into appropriately scaled applications such as heat (or CHP) for schools, hospitals, office buildings, college campuses, and district heating systems is*

[10] Biomass Energy Resource Centre (2009) "BIOMASS ENERGY: Efficiency, Scale, and Sustainability". Link: https://www.biomasscenter.org/policy-statements/FSE-Policy.pdf

*essential for creating a wood-energy economy that is flexible and resilient over time. Biomass also has the potential for high efficiency use at industrial applications that are large heat and electricity users. Producing biomass through an array of appropriately scaled and local chip and pellet plants is also a critical component of a wood-energy supply chain and a dynamic and resilient local wood-energy economy*".[11]

One of the main recommendations of the policy was for:

*"National and state carbon policies and greenhouse gas emissions programs that support the* ***most efficient*** *thermal uses of biomass*"

Ireland does not have a sustainable biomass energy policy or strategy in place, either with regard to the appropriate sourcing of biomass, the optimum efficiency and appropriate use.

The West Offaly Power application fails entirely to provide for an energy efficient use of biomass, even if a sustainable feed source could be secured.

The West Offaly Power proposal is premature since Ireland does not have a national policy in place for maximising the efficient use of the finite biomass supply.

## 3.4 Impact on Delayed Rehabilitation of Peat Supply Bogs and Area Around Ash Disposal Facility

A sustainable future for Irish peatlands requires large scale engagement with rural communities and the wider public on the multiple benefits of peatland conservation for biodiversity, flood attenuation, carbon storage and amenity. This requires enhanced direction of resources, and timetables and targets for action which are entirely lacking in the content and of the current Department of Culture Heritage and Gaeltacht National Peatlands Strategy 2015.

[11] Biomass Energy Resource Centre (2009) "BIOMASS ENERGY: Efficiency, Scale, and Sustainability". Link: https://www.biomasscenter.org/policy-statements/FSE-Policy.pdf

BnM, although advertising itself as "Naturally Driven" is continuing large scale industrial extraction without being subject to Strategic Environmental Assessment ("**SEA**"), Environmental Impact Assessment ("**EIA**") or Appropriate Assessment ("**AA**").

It has no strategy in place for exiting industrial peat extraction and the restoration and carbon management of the degraded, cut-away peatlands. A 2027 target has been adopted for ceasing peat burning for electricity, but there is no exit date for horticultural peat extraction, and unsustainable new uses for peat such as for animal bedding are being promoted.

Neither BnM nor the other companies involved in large scale peat extraction for horticulture have adopted an exit date for what is a destructive extractive industry, and the phasing in of alternative sustainably sourced and produced compost products. Continued peat extraction in all categories of exploitation is occurring without EIA, despite a European Court judgment against Ireland in 1999.

It has only been in January 2019 that the Department of Housing Planning and Local Government has introduced regulation for peat extraction (S.I. No.4 of 2019 European Union (Environmental Impact Assessment) (Peat Extraction) Regulations 2019).[12]

The existing supply bogs have not been subject to EIA or AA and there is no rehabilitation plan in place. Extraction is carried out under EPA Industrial Pollution Control licence ("**IPC**"), from a defined number of existing supply bog groupings:

- P0500-01 (Boora Group);
- P0501-01 (Derrygreenagh Group);
- P0502-01 (Blackwater Group); and
- P0503- 01 (Allen Group)

Section 6.2.2.1 of the EIAR reveals that while a Draft Rehabilitation Plan has been submitted to the EPA, no plan has been agreed or published by BnM.

[12]S.I. No. 4 of 2019 European Union (Environmental Impact Assessment)(Peat Extraction) Regulations 2019. Link: https://www.dccae.gov.ie/en-ie/environment/legislation/Pages/Peat-Extraction-Regulations-2019.aspx

The EPA *Bogland Sustainable Management of Peatlands in Ireland* report 2011 sets out science-based overarching recommendations for the future of Irish peatland, and includes recommendations for the after use of cutaway peatlands for which the first option "*should be to promote where possible the return to a natural functioning peatland system*". This action would be delayed by continued extraction to 2027.

The application fails to provide information on the impact of the extension of the Ash Disposal Facility ("**ADF**") on the future management of the surrounding cutaway bog:

> *"The ADF is constructed on a decommissioned peat harvesting field; consequently much of the surrounding habitat comprises topographically flat cutover bog in varying stages of recolonization……. Areas of cutover bog around the periphery of the ADF at the early stages of recolonization (ED3)".*

If the surrounding bog were to be rehabilitated by flooding and raising of water table, it has not been explained how this would affect the continued extension of the ADF.

# 4.0 SUSTAINABILITY OF BIOMASS SOURCING

## 4.1 Overarching Considerations on Biomass Sustainability

ESB International in providing the contents of the EIAR has systematiically failed to address biomass sustainability.

Current EU energy and climate policy has facilitated the development of wood biomass burning for electricity generation, both for material produced within the EU and imported, mainly from the US.

To date the only major use of biomass material for electricity production in Ireland is increasing co-firing in the BnM Edenderry Power Plant. This undesirably perpetuates unsustainable peat burning use, and has included the unsustainable import of palm kernels.

Ireland must avoid the superficially attractive option of using biomass to replace coal and peat with biomass. In 2014 the UK Department of Energy and Climate Change published a report "Life Cycle of Biomass Electricity in 2012" by Dr Anna Stephenson and Prof David J MacKay FRS. Conclusions on different bioenergy scenarios are stated:

> "*However, there are other bioenergy scenarios that could lead to high GHG intensities (e.g. greater than electricity from coal, when analysed over 40 or 100 years) but would be found to have GHG intensities less than 200 kg CO2e/MWh by the Renewable Energy Directive LCA methodology*".[13]

Limited modelling has been done on what a decarbonised Ireland towards 2050 would be through EPA funded research to University College Cork.[14]

This is based on modelling of both significant increased bioenergy sourcing and import in Ireland, for transport, electricity generation and heating.

Current European energy and climate policy has created a trans-boundary distortion favouring the import of bioenergy into Europe. This is a fundamentally perverse and inappropriate model which is resulting in the transfer of emissions, land and resource impacts to other countries, creating food production displacement, biodiversity loss or unsustainable water consumption.

It makes no sense for countries which are themselves fossil fuel consumers to export bioenergy no matter how ”sustainable” to the EU. Furthermore, the adequacy of the vetting of information on the sustainability of bioenergy sources, either imported from outside or produced in the EU, is problematic since so much is left to the supplier in what amounts to a self-certifying system. The Volkswagen emissions scandal has undermined confidence in any industry supplied data.[15]

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[13] Department of Energy & Climate Change (UK), (2014). "*Life Cycle Impacts of Biomass Electricity in 2020. Scenarios for Assessing the Greenhouse Gas Impacts and Energy Input Requirements of Using North American Woody Biomass for Electricity Generation in the UK*". Link: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.696.6944&rep=rep1&type=pdf

[14] Energy Ireland. "The Future of Renewable Energy in Ireland". Link: https://www.energyireland.ie/the-future-of-renewable-energy-in-ireland/

[15] Irish Times Article. (2018). "*VW emissions cheating. Who knew what and when?*" Link: https://www.irishtimes.com/business/transport-and-tourism/vw-emission-cheating-who-knew-what-and-when-1.3537754

The adoption of bioenergy as "carbon neutral" under the Kyoto Protocol in 1992 was the result of the limited accounting capacity at that time. The accounting methodology is now available to measure the actual emission level of different biofuels.

In 2012 the EU published research showing the actual emission impact of different types of biofuel compared to petrol. Accounting methodologies also allow the full emission impact of combustion of bio-material for power generation.

A 2015 report by the European NGO Transport & Environment Europe stated:

> "*We must also consider the potential time delay between release of carbon from biomass burning and its recapturing by plant growth (also known as carbon debt). The payback times range from zero (short rotation plantation in Austria on marginal agricultural land with low carbon stocks) to almost 500 years (forest biomass removed for fire prevention on old growth forest in Western Cascades in US*)".[16]

Capacity to produce bioenergy from forest thinning or sawmill is limited. This material is better used for building insulation productions that sequester carbon rather than burning it.

In 2015 the lead international development NGOs published a significant evidence-based policy position to inform EU policy - *"Pitfalls and Potentials: The role of bioenergy on the EU climate and Energy policy post 2020"*.

The report recognises that sustainable bioenergy has a role to play in Europe's transition to an energy system based on renewable energy and energy efficiency.

However identifying the potential of bioenergy exploitation to have negative consequences for carbon emissions, biodiversity and in creating land use conflicts, the report, which has been endorsed by European NGOs, recommended the introduction of four main safeguards for bioenergy use as part of the EU's 2020 to 2030 climate and energy policies:

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[16] *Transport & Environment (2015) "Reasons to change the zero-rated criteria for biomass in the EU ETS*". Link: https://www.transportenvironment.org/sites/te/files/publications/2015%2001%20biomass%20ets_rating_FINAL.pdf

1. *Introduce a cap to limit the use of biomass for energy production to levels that can be sustainably supplied;*
2. *Ensure efficient and optimal use of biomass resources, in line with the principle of cascading use;*
3. *Include correct carbon accounting for biomass; and*
4. *Introduce comprehensive binding sustainability criteria*.

These recommendations need to inform the Department of Communications, Climate Action and Environment application of the proposed Renewable Electricity Support Scheme ("**RESS**") for Ireland.

The application of these principles is irreconcilable with the the import dependent and resource wasteful open flue biomass burning proposed by the West Offaly Power project.

## 4.2 Requirement Under EIA Directive to Consider Alternatives

The EIAR does not meet the requirement of Article 5(1)(d) the EIA Directive (Directive 2014/52/EU) in relation to alternatives, which provides that:

> "*Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least:*
>
> > […](d) *A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment* […]".[17]

[17] EIA Directive 2014/52/EU. Article 5(1)(d)

In this case there is need to assess more suitable alternative uses for forest biomass, and alternative means of reducing the climate impact of energy.

The optimum use of forest biomass including thinnings and sawmill waste is to produce building insulation or other products that sequester carbon, rather than burn it.

If the Irish midlands is to play its part in achieving the Paris Agreement emission reduction targets, the energy generated by the existing polluting plant should be replaced by a combination of wind, solar and geothermal investment in the area, using the grid connection capacity which the existing site provides. This would avoid unsustainable biomass import and national timber use, and the perpetuation of an inefficient, polluting and technically redundant combustion power plant.

The EIAR fails even to provide an adequate assessment of the evaluation of alternative biomass options considered in advance of this proposal.

When it was initially mooted that the lifetime of the doomed white elephant peat burning plants could be perpetuated by phased conversion to biomass, it was envisaged that this would be achieved by supporting a local biomass supply crop such as miscanthus or willow in the immediate catchment around the plants, creating local employment to compensate for the end of peat harvesting.

The absurdity of importing biomass material or even bringing it from long distances around Ireland was not even remotely considered.

Major problems then arose in researching the potential use of miscanthus in causing chlorine corrosion of boilers of the type contained in the Shannonbridge, making its use therefore not viable.

Alternative projections for cultivation of willow in the local catchment area also evaporated, as Irish Government policy in Food Harvest 2020 and now FoodWise2025, is to use EU subsidy to intensify bovine agriculture product export and is now supporting Gas Networks Ireland in bio-methane production and injection into the fossil gas pipe network. There is no viable potential or capacity for willow, and the long term strategic planning and land use availability which would be required.

The EIAR is entirely deficient in consideration of alternative energy feed sources, or alternative more sustainable efficient uses for biomass in climate mitigation.

Considering the absence of such information, the EIA is non-compliant with the information requirements set out under Article 5 of the EIA Directive.

## 4.3 Sustainability of Ireland Importing Biomass

This application is dependent on an uncertain and unquantified dependence on imported biomass. This application leaves the level of biomass to be imported and produced within the State to be resolved by the applicant. Indeed in the immediate term, the 40.6% of biomass proposed to be used from 2020 could be entirely imported, as it is stated that in the early years the bulk of biomass would need to be sourced on the international market.

The import of bio material whether from within or outside the EU is unsustainable in principle. Forest felling for the EU biomass subsidised industry is causing major deforestation on Romania, with carbon store loss and ecological damage, and has brought about the unsustainable import of forestry biomass from the USA into the EU.

The EU through a policy of bioenergy support including biomass for power generation or bio fuel has created a distorted international market whereby bioenergy material is imported into the EU or between EU countries, which if sustainable and if the real intention is to meet coordinated global action on climate targets, would be better used in the country of production.

A European Commission funded report by FERN, the sustainable land use and forestry NGO, established that EU policy in supporting biomass had resulted in the EU taking 80% of the global wood pellet market, in particular through import from the US.

> "*By importing wood pellets, the EU is outsourcing the production of its carbon-based fuel. Under the (still current) Kyoto Protocol this enables the EU to claim that its carbon emissions are decreasing, as signatories to the protocol must report their emissions from production rather than consumption or both".*[18]

[18] FERN. (2011) "*Flows of Biomass to and from the EU. An Analysis of Data and Trends*". Link: https://fern.org/sites/default/files/news-pdf/Biomass%20imports%20to%20the%20EU%20final_0.pdf

## 4.4 Sustainability of Irish Sourced Biomass

The application fails to address the High Court Judgment An Taisce v. An Bord Pleanala[19] in relation to the Edenderry peat co-firing biomass power plant.

While the 2015 judgment related to the lack of assessment of the peat supply for the continued operation of the plant, there is a similar issue in relation to the assessment of the sourcing of biomass for a power plant. The existing BnM plant at Edenderry is using 400,000 tonnes of biomass of which 70% is taking the entire available thinning and residue supply available from Coillte.[20] Therefore there is no further available Coillte source available for the West Offaly Power plant.

The European NGO Transport and the Environment ("**T&E**") have researched the limited capacity of sustainable biomass production and sourcing in the EU.[21]

The proposal is accordingly dependent on unquantified and non-time limited import of biomass, and an unquantified Irish non-Coillte forest supply source.

An Taisce has particular insight into the Irish forestry consent and management regime through being a consultee on the Forest Service application process. Since An Taisce's founder Robert Lloyd Praeger raised concern on the developing "*regimented rows of conifers*" in 1948, Ireland has pursued a continuing policy of non-native conifer plantations with negative impact on biodiversity, landscape, carbon and water quality, chemical use and causing of soil erosion. The only difference is that new forestry development is now occurring on private land, with the Coillte landholding no longer being expanded. New conifer forestry is also causing increasing concern on social impact in counties like Leitrim.

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[19] Case: [2015] IEHC 633

[20] Irish Times Article. (2017) "*Foreign biofuel defeating Bord na Móna sustainability plans*". Link: https://www.irishtimes.com/news/environment/foreign-biofuel-defeating-bord-na-m%C3%B3na-sustainability-plans-1.2926448

[21] Transport & Environment. (2016). "*How much sustainable biomass does Europe have in 2030*?"Link: https://www.transportenvironment.org/publications/how-much-sustainable-biomass-does-europe-have-2030

This continued model conflicts with more sophisticated alternative strategies of supporting High Nature Value woodland and farming schemes and restoration of historic native woodland in ecologically appropriate locations.

Only 2% of the country is covered by what is native or semi natural woodland and much of this is highly fragmented. The current forest programme has to date failed to achieve the modest targets set for increasing native woodland and broadleaf cover.

The EU and the State is supporting a forestry programme which is not meeting its stated objectives and is creating biodiversity loss rather than enhancement. New forestry development is focused on semi natural habitats associated with low agricultural output. This afforestation is continuing without adequate ecological assessment in breach of Article 6(3) of Council Directive 92/43/EEC ( the "**Habitats Directive**").

The need for a full AA is often screened out and cumulative impacts not properly assessed including on Hen Harrier breeding and foraging habitats. Drainage to enable plantation, use of herbicides and pesticides and clear felling have run-off effects thus impacting on water quality and ecosystems, including catchments in the vulnerable Fresh Water Pearl Mussel population areas.

In Ireland's 2013 report to the European Commission on Habitats and Species, forestry rated as the second greatest pressure and threat on designated habitats and species after agriculture.

Forestry regulations are failing to protect Annex I Peatland habitats such as Wet Heath, Dry Heath, Alpine and Sub Alpine Heath Rhyncisporian depressions, Active Blanket Bog, Rare Grasslands such as Annex 1 Molina Meadows and other species rich grasslands which are being lost in areas like the Comeraghs, Devils Bit and Slieve Blooms. Seminatural grasslands are important for the Irish hare and a range of birds including Lapwing, Curlew and Hen Harrier as well as bees and butterflies. The Hen Harrier in particular has been affected by the loss of its traditional foraging and nesting habitats.

An Taisce made a detailed submission and recommendations on these issues to the Forest Service through the consultation on the Mid-Term Review of the Forestry programme for 2014-2020.[22]

[22] An Taisce. (2017) "An Taisce Submission Mid Term Review - Forestry programme for 2014 – 2020". Link: http://www.antaisce.org/sites/antaisce.org/files/20170502001_an_taisce_submission_mid_te

The application fails to provide supply location areas, tonnage level or exact nature of the biomass proposed to be used from within Ireland.

The main target material summarised in the non technical summary is forest biomass.

> *"As the Irish forest estate matures, particularly with the private forest estate increasingly reaching thinning and harvesting phases of its cycle, reliance on imported biomass is expected to decrease*".

No map is provided to show sourcing of biomass material. A 100 km radius curve is shown on a map which does not allow location impact to be assessed. The EIAR also provides for material to be sourced from a wider catchment.

Section 6.5.3.4 of the EIAR assesses the biomass to be sourced from within Ireland

> "*The principle source of indigenous fuel will be by-products from the Irish forest sector (brash, thinnings and residues), by-products from Irish sawmills, agricultural by-products and residues and energy crops. The primary biodiversity issues associated with forestry activity which generates biomass are habitat change arising during afforestation, roading or harvesting and aquatic discharges arising from clear-felling and management activities such as fertilisation.* ***The exact location of biomass source within Ireland has not been yet been identified*** *but will be a combination of state and privately owned forest estates and agricultural lands generally within a 100 km radius of WOP station*." (An Taisce emphasis added)

A summary is provided of the Irish Forestry licencing regime including screening to determine whether afforestation, clear felling, aerial fertilization or other activities are*" likely to have a significant effect on a SAC or SPA, either individually or in combination with other plans or projects, in view of both the conservation objectives of that Natura site (available at www.npws.ie/protectedsites/) and best scientific knowledg*e."

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rm_review_-_forestry_programme_for_2014_-_2020.pdf

These considerations of what exists on paper and in regulations fails to address the reality that the existing and continuing Irish forestry regime is being carried out in systemic breach of the EIA Directive and the Habitats Directive. Continued planting and clear-felling on both Coillte and the private forest estates is being carried out:

- Without an EIA regime being in pace including EIAR for cumulative impacts;
- Without proper screening for AA under the Habitats Directive.

The effect of this is that Ireland does not have a forestry management and planting regime that is in compliance with EU law and that there is a systemic failure to assess and regulate impacts on: carbon and mineral storage in soils; soil erosion; ecology and habitats; birds and other species; water quality; herbicides and pesticides; and landscape and archaeology.

Consequently the West Offaly Power application cannot demonstrate a sustainable source of biomass material from the Irish forest sectors as is claimed by the EIAR, which is based on desktop information on the provisions which are supposed to govern Irish forestry management rather than the reality. ( Refer to the An Taisce Forestry Policy Submission. APPENDIX 2 )

# 5.0 ASSESSMENT OF ECOLOGICAL IMPACT OF CONTINUED PEAT EXTRACTION

## 5.1 Buffer Areas to Natura 2000 Sites

Section 6.5.3 of the EIAR seeks to assess the impact of continued peat extraction on the supply bogs on designated sites

A particular issue is identified with regard to the adequacy of buffer areas between the extraction areas and Natura 2000 designated sites:

> "*A GIS-based proximity analysis of the respective WOP supply bogs undertaken to inform this EIAR indicated that a number of supply bog IPC licence boundaries overlapped or are adjacent to a number of designated sites; as a result of practical constraints, harvesting of*

*peat does not typically extend to these boundaries, so this is considered a conservative estimate of the extent of the respective active harvesting area*s."

While stating that "*a 100 m external buffer from the IPC Licence boundaries*" is utilised as the current level *"however, it should be noted that Bord Na Móna have commenced investigations on a number of sites to determine appropriate buffers between designated sites and actual production area boundaries to mitigate against any potential dust and hydrology impacts. Actual production area boundaries generally have greater separation distance from designated sites when compared to IPC boundaries. The peat production area boundary and up-to-date aerial imagery was also reviewed subsequent to the initial proximity analysis to assess feasible source-receptor pathways at the respective sites."*

This means that the determination of appropriate buffers for continuing extraction is not resolved.

## 5.2 Impact from Continued Extraction on Supply Bogs on Aquatic Ecology

Section 6.5.3.4 of the EIAR on Aquatic ecology states :

*"Water quality status for the water bodies receiving discharges from the peat production bogs have been sourced from the EPA and are tabulated in Appendix 8.3. As illustrated in Appendix 8.3…*

*The River Basin Management Plan (RBMP) for Ireland, published in 2018, identified peat extraction as causing a significant risk to ecological status objectives in 119 (8%) of the assessed waterbodies. Additionally, peat extraction is identified as a significant pressure in 16 (13%) high ecological status water bodies. The plan relates environmental impacts to suspended solids, ammonia and hydromorphological alterations (DHPLG, 2017)…*

*The environmental impacts generally relate to suspended solids, ammonia and hydromorphological alterations. There is evidence that high levels of ammonia are being released from peat-extraction activities during the draining process and, along with suspended solids, may be causing ecological impacts in receiving water bodies. The EPA*

*plans to investigate the background concentrations of ammonia in peatlands to determine if they can be a contributory factor in elevated ammonia concentrations in water bodies. It should be noted in relation to the above, that high levels of naturally occurring ammonia are known to be released from pristine bogs, bogs where peat extraction has ceased and bogs where peat extraction is currently active, though ammonia release from the former tends to be higher than the latter site types. Section 7.4 of the RBMP also notes that of the 119 river water bodies that are At Risk because of activities taking place within peatlands, 46 (39%) of them are in areas that have peatlands owned by Bord na Móna, which has 87 peatlands in these areas. The remaining 73 water bodies are at risk from other activities, such as domestic turf extraction, unauthorised peat extraction, wind-farm construction, forestry or other commercial peat activities".*

Section 6.6.4 on Aquatic Ecology impact on the peat supply bogs states that:

*"Potential indirect impacts also arise as a result of ongoing drainage and discharges occurring at each supply bog. The majority of the bogs that supply WOP are located within water body catchment areas of Moderate / Poor Status. The Ireland River Basin Management Plan 2018 – 2021 notes that "Peat extraction has been identified as causing a significant risk to ecological status in 119 water bodies, which represents 8% of all water bodies that have been identified as At Risk […] Of these, 115 are rivers, 3 are lakes and 1 is groundwater. The environmental impacts generally relate to suspended solids, ammonia and hydromorphological alterations.*

However the EIAR does not propose any further assessment and mitigation measures.

Instead the issue is being left to future research:

*"By 2021, Bord Na Móna will rehabilitate an additional 25 peatlands covering approximately 9,000ha. This is subject to several assumptions, including the availability of cutaway bogs for rehabilitation. The EPA has identified this priority issue as the subject of a research proposal for inclusion in its 2018 research call. The proposal involves evaluating mitigation strategies for improving water quality from drained peatlands. The project proposal, if selected, is intended to integrate with the ongoing mitigation trials being undertaken by Bord Na Móna. As part of the above, Bord na Móna, in conjunction with the*

*EPA, are assessing whether peat harvesting gives rise to ammonia release and measures to mitigate the generation and impact of ammonia from their cutaway peatlands if these are required. In addition Bord Na Móna commenced work in 2017 on preparing Environmental Impact Assessments on all of its peatlands including AA, where necessary, in anticipation of the new streamlined licensing system for large-scale peat extraction (> 30ha) that will be operated by the EPA".*

It is accordingly submitted that the data is not in place to allow the assessment of impact of continued peat cutting to be determined. This means that mitigation measures cannot be determined, as is required under Annex IV(7) of the EIA Directive.

The statement in the EIAR that the " *Impacts on aquatic ecology as a result of water quality pressures from the continued operation of the WOP supply bogs in the absence of mitigation are considered to be Indirect Moderate Negative and Medium-term*." needs to be reviewed.

Section 6.8 of the EIAR states that no difficulties were encountered in ecological assessment. We submit that there is a particular issue with regard to the evaluation of ammonia impact. In relation to cumulative impact, Section 6.9 of the EIAR states that:

*"Third-party harvesting of peat also occurs on bogs throughout the Midlands, ranging from small scale turbary for domestic fuel to commercial scale peat removal for horticultural purposes. Several of these are located in close proximity to Bord na Móna properties and drains from these sites discharge to the same receiving waterbodies via sediment control systems of varying scales. Impacts arising from the proposed development at WOP station and ADF, cumulatively with these third-party peat harvesting activities are considered to be negligible."*

Given that the land area and extent of this unregulated extraction is unknown and discharge from this extraction is not monitored or even measured, the justification for the claim of lack of cumulative impact cannot be substantiated.

# 6.0 IMPACT OF COOLING WATER DISCHARGE ON AQUATIC ECOLOGY

Section 6.5.2.1 of the EIAR states:

> *"The WOP station including the ADF currently operates under the EPA IE licence P0611-02. It also underwent a full planning cycle accompanied by an Environmental Impact Assessment at the time of planning. A suite of established mitigation measures are in place for existing surface water discharges from the site, and these are presented in Chapter 8 – Surface Water*."

The data for the EIS for the original application needs to be reassessed with regard to current up to date projections from climate change induced impact in Irish rainfall patterns which projects a greater variation in rainfall, with the increased potential for drought and consequent low river level and flow periods as occurred in 2018.

The findings of studies on ecological indicators and physical parameters in the River Shannon upstream and downstream of the cooling water discharge which the applicants rely on and is based on ESB studies undertaken only up to the pre-drought year of 2018 in Appendix 6.2. The main conclusions are summarised as follows:

> "*River Shannon Temperature Monitoring: Continuous monitoring of temperature in the River Shannon has been undertaken at seven defined sampling points on the eastern and western banks at WOP (Six downstream, one upstream) during 2016 and 2017. Data from the monitoring programme indicates that there is no observable temperature rise at any of the western bank monitoring locations until water levels fall below 2.4 m at the Shannonbridge gauge. OPW records indicate that the 75 percentile level at this gauge is 2.392 m. At water levels above 2. 4 m, the thermal plume tends to flow along the eastern bank of the River Shannon. From the continuous temperature monitoring at the 6 locations downstream, it is not possible to determine if the thermal plume covers more than 25% of the cross sectional area at any location when levels are above approximately 2.3 m. There is evidence of the simultaneous presence of thermal plume at all monitoring locations on a number of occasions from May 2017 to August 2017. From the data it can be inferred that when water*

*levels at the Shannonbridge gauge falls below 2.3 m the thermal plume extends across the river cross channel. However, it is noted that there is no evidence of a significant environmental impact on aquatic species or habitats in the receiving water (refer to biotic communities and fisheries studies outlined below)".*

Any fall below the 2.3 m level at the Shannonbrige gauge is therefore critical. Given the lower river levels during the 2018 drought, up-to date baseline information on river level is required as well as future modelling of climate change impact on Irish rainfall and river flow variability.

For this reason the conclusions reached in the EIAR on potential impacts on the River Shannon arising from the cooling water discharge from the plant to be *"Direct, Not significant, Medium-term Negative*" requires revaluation.

Section 6.8 of the EIAR states that no difficulties were encountered in ecological assessment.

We submit the there is particular issue with regard to the evaluation of future climate impacts on the River Shannon water levels and flow variations.

# 7.0 AIR POLLUTION

ESB International in providing the contents of the Chapter 10 of the EIAR have failed to properly address international data on air pollution from peat and biomass power plants.

The emission of carcinogenic substances such as benzopyrene from peat burning should now be required to be monitored and a long term health impact study of residents in the vicinity of continuing and former peat burning power stations.

The burning of biomass whether for electricity generation or directly for heating has a range of other polluting emission impacts.[23]

[23] Biofuel Watch. "Burning wood in power stations: Public Health Impacts". Link: http://www.biofuelwatch.org.uk/wp-content/uploads/Biomass-Air-Pollution-Briefing.pdf

There has been an increase in PM2.5 emissions in Europe recently due to increased use of biomass for heating which has been incentivised by governments.[24]

The president and CEO of the American Lung Association of the Northwest, Jess Seyler has opposed the granting of renewable energy subsidies for biomass combustion precisely because it is so polluting.[25]

The BnM Edenderry Plant is co-firing biomass with peat, with co-firing now being proposed for the other two midland peat power stations including this application. The air pollution impact of this needs full research in addition to all of the concerns relating to carbon emissions and other sustainability considerations.

A 2017 Finish study on a co-fired biomass and peat heating boiler found that *"co-firing with biomass actually reduced PM1 from peat due to the alkali metals combining with silicates from the peat. On the other hand, the co-firing of peat with woody biomass significantly increased NOX, SO2 and HCl emissions, and both NOx and SO2 are important precursors for secondary aerosol formation in the atmosphere. Due to this and the non-renewable nature of peat, the co-firing of peat has also negative environmental effects*".[26]

Bioenergy from indigenous and imported sources is currently modelled as a significant component of Ireland's future energy mix by the EPA-supported work by the Sustainable Energy Research Group at UCC.

In 2015 the EPA submitted a "*SEA Scoping Submission on the Proposed National Bioenergy Plan*" setting out the EPA's recommendations to be considered in the preparation of the Plan and associated SEA Environmental Report. In relation to the issues of air pollution it stated:

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[24] International Energy Agency. (2016). "*World Energy Outlook Report 2016*"
[25] EcoWatch. (2014) "Biomass Electricity More Polluting Than Coal". Link: http://www.ecowatch.com/biomass-electricity-more-polluting-than-coal-1881884788.html
[26] Sippula, S *et. al*. (2017). "*Emissions and ash behavior in a 500 kW pellet boiler operated with various blends of woody biomass and peat*". Link: http://www.sciencedirect.com/science/article/pii/S0016236117303988

"*Combustion of biomass will also result in emissions of other pollutants such as nitrogen oxides (NOX), sulphur dioxide (SO2), carbon monoxide, polycyclic aromatic hydrocarbons (PAH) and PM10 particulates. The EPA report "Air Quality in Ireland 2013 – Key Indicators of Ambient Air Quality" stated that future PAH concentrations in Ireland will likely depend on the choices of fuel for home heating that is used by the public in Ireland in the coming years. The report notes that peat, wood and biomass are high in PAH, especially when burnt inefficiently. The overall impact of switching to biomass on the concentrations of these pollutants in the atmosphere should be considered as part of the SEA. To meet the PM2.5 National Exposure Reduction Target ("**NERT**") Ireland must reduce PM2.5 emissions by 10% by 2020. This should be included as part of any consideration of the impacts of the plan.*

*In particular the potential for emissions abatement techniques or technology to address increased particulate emissions due to biomass should be analysed. Policies encouraging the use of biomass should be tailored to ensure facilities and consumers are directed towards efficient combustion methods and biofuels with the lowest emissions*".[27]

There are multiple grounds for ceasing both the operation of the peat power plants and the further development of biomass co-firing. Ireland needs to enforce emission limits in current power plants [30microgram/m³ for PM and 200 microgram/m³ for NOx and SOx] and in biomass boilers [ 40 to 60 microgram/m³ for PM and 200 microgram/m³ for NOx ].

The adoption of a truly low carbon electricity supply will free us to electrify our transport and domestic heating demand and dramatically cut emissions of VOCs , NOx, SOx and O3 as well as CO2 .

[27] EPA Proposed Bioenergy Plan Scoping Report (2015). Link: http://www.epa.ie/pubs/epasub/SCP150801.1%20EPA%20SEA%20Scoping%20Submission%20Bioenergy%20Plan%20%2005%2011%202015%20.pdf

# 8.0 TRANSPORT AND TRAFFIC IMPACT

## 8.1 Information Obligations under Article 5 of the EIA Directive

ESB International in providing the contents of the EIAR has failed to meet the requirement of the EIA Directive to identify the transport impact of the proposal, thereby nullifying its ability to put forward mitigation measures.

It is claimed in Section 12.2 of the EIAR that the following methodologies were adhered to:

> "*Transport Infrastructure Ireland's (TII's) Traffic and Transport Assessment (TTA) Guidelines (2014), which is the industry-accepted methodology for traffic and transport assessments.*
>
> *The assessment of the impact follows the EPA's "Guidelines on the Information to be contained in Environmental Impact Assessment Reports" (Draft – August 2017)."*

The consultants also carried out "*a review of the traffic associated within the existing planning permission*" and "*Traffic count data on the volume of non-haulage traffic and haulage traffic at the existing WOP Station was also reviewed as part of this methodology*".

However it is the impact of the new biomass generated traffic which matters both in local amenity impact, as well as traffic generation It is noted that "*Information on the anticipated traffic volumes associated with the transport of the biomass have been provided to Atkins by ESB and is based on detailed calculations on the energy produced by burning biomass and the volume of the delivery vehicles. Similarly, information of the likelihood and volume of peat traffic to the proposed development has also been provided to Atkins by ESB / BnM.*"

However the peat traffic would continue to be delivered by the internal rail system, therefore it is the new biomass delivery traffic which will cause the NEW impact.

## 8.2 Level and Impact of HGV Volumes on Local Amenity

As the peat supply to the existing plant is by the internal BnM rail system, the implication of progressively increased biomass delivery by road vehicles has major amenity implications on the local area, towns and villages.

In seeking to downplay the impact of HGV traffic from progressively increasing biomass traffic to the site, the EIAR disingenuously makes an irrelevant comparison to the road traffic modelling provided in the 2001 EIS for the peat delivery to the existing plant. While the 2001 EIS did model haulage of peat by road, the application provided for predominantly BnM internal rail access and this is how the site has and continues to operate. As explained in the EIAR some level of road delivery has arisen when wet weather conditions affect the peat supply from the tip heads serving the rail supply network.

This application requires "*de novo*" assessment and the reality is a major new impact of HGV biomass traffic on Shannonbridge.

Section 12.6.3 of the EIAR states

> "*ESB and BnM have estimated that the 95th percentile hourly delivery flow will be 15 HGV deliveries per hour or lower, and that the 97.5% percentile will be 20 HGV deliveries or lower.*"

The return of empty vehicles from the site of course doubles this. The attempt to downplay this by reference the 2001 EIS is disingenuous and has no basis:

> "*The previous EIS (February 2001) outlined an average number of deliveries by road per day and a maximum number of 74 per day. Comparing the proposed application to the existing operation, means that on average there will be 26 additional HGV deliveries by road.*"

The reality is that there is very little HGV traffic generated by existing peat delivery to the site.

As is standard for Irish traffic consultants the focus of consideration in addressing increased traffic is on the local road network and junction capacity

> "*The impact of these additional HGVs on the capacity of the surrounding roads and junctions has been assessed within the TTA*."

Absent is consideration of the local amenity impact of the new HGV traffic entering and leaving the site.

## 8.3 Local Traffic Access Impact

Section 12.4.4 and Figure 10.4 of the EIAR on 'Supply Routes and Local Area Deliveries' assesses the supply routes to the plant from the different ports proposed which would also apply to Irish sourced biomass.

From the east, Greenore Port, Co. Louth and Dublin Port are two routes which are identified. The first would take the M6 to Ballinasloe and the R357 to Shannonbridge:

> "*Delivery vehicles entering from this direction would utilise the main access within Shannonbridge to enter the site but would typically exit via the BnM site access (this is to reduce the turning movements within Shannonbridge village centre). Traffic from this direction could also pass through Shannonbridge without turning at the main entrance junction and then access the station via the Bord na Móna works access*".

The latter route:

> "*would turn off the M6 at Athlone and use the national secondary route, N62, and continue along this road until Cloghan. At Cloghan it would turn at the junction of the N62/R357/Hill Street and continue along the R357 to Shannonbridge. Delivery vehicles from this direction would enter the power plant using the BnM works access and similarly would typically exit the power plant using the BnM works access*."

Two routes are identified for deliveries from the west including Foynes Port.

"*One of these routes would use the M6 and turn off at Junction 14 (Ballinasloe) and take the R357 to travel to Shannonbridge. Delivery vehicles entering from this direction would utilise the main access within Shannonbridge to enter the site but would typically exit via road used by BnM for site access. Traffic from this direction could also pass through Shannonbridge without turning at the main entrance junction and then access the station via the south eastern road.*"

The other route would travel along the N52 to Birr, then turn onto the N62 just north of Birr.

"It would then continue along the N62 until Cloghan. At Cloghan it would turn at the new signalised junction and continue along the R357 to Shannonbridge. Delivery vehicles from this direction would enter the power plant using the BnM works access and exit the power plant using the BnM works access"

Similarly two routes for the deliveries from the north from Killybegs.

"*The route from Killybegs would use the N56, N15, N4 and then follow the N61 until Athlone. At Athlone it would connect to the M6 and can either continue along the M6 until Junction 14 (Ballinasloe) and then take the R357 to travel to Shannonbridge. Delivery vehicles entering from this direction would utilise the main access within Shannonbridge to enter the site but would typically exit via the BnM site access (this is to reduce the turning movements within Shannonbridge village centre). Traffic from this direction could also pass through Shannonbridge without turning at the main entrance junction and then access the station via the south eastern road.*

*Alternatively, the route from Killybegs would be off the N6 at Athlone and use the national secondary route, N62, and continue along this road until Cloghan. At Cloghan it would turn at the new signalised junction and continue along the R357 to Shannonbridge. Delivery vehicles from this direction would enter the power plant using the BnM works access and similarly would typically exit the power plant using the BnM works access*."

All of this leaves the actual traffic and impact on the village unresolved.

## 8.4 Wider Traffic Impact

Section 12.2 of the EIAR confirms that the consultants are unable to identify, assess and mitigate wider traffic impact.

The port which is actually proposed for importing biomass is not identified, the quantity is unresolved of import levels and for Irish-sourced biomass only a vague consideration is given to traffic generation impact.

> "*Indigenous supplies will use other roads at the start of their journey, but will join onto the national road or regional road network as soon as practical*."

It is simply not known what will be the ratio of imported versus Irish-sourced biomass, what ports imported material will come in through, and where and how far from the catchment the Irish-sourced material will come.

This is admitted in Section 12.1 of the EIAR:

> "*Indigenous biomass will typically come from sources within a 100 kilometre radius of WOP but could also be sourced at greater distance depending on economic factors. Imported biomass, will be landed by bulk transporters of approximately 30,000 tonne capacity at key ports with facilities to handle biomass –such as Dublin Port and Greenore, Co. Louth on the east coast or Foynes Port, Co. Limerick in the Shannon Estuary on the West coast. It will also be possible to utilise Killybegs Harbour, Co. Donegal on the north west coast*."

And in Section 12.2

> "*The traffic source of the biomass will be variable, the international biomass will arrive at major ports such as at Greenore Port, Dublin Port, Foynes Port or Killybegs and would be delivered to WOP via the national road network. Similarly, the indigenous biomass will be derived from state and private forestry operations and agriculture and will be delivered from many parts of the country including sawmills and forest plantations, but invariably would utilise the national road network to deliver and would converge onto the same routes as the imported biomass."*

Section 12.8 of the EIAR 'Difficulties Encountered in Compiling Information' states that:

> "*The variability of the sources of indigenous biomass fuel supply meant it was difficult to determine the exact future distribution of HGV traffic to the WOP Station. As it originates from multiple sources as shown on Figure 12.4 it will utilise the national road network to deliver biomass to WOP Station and would converge onto the same delivery routes as discussed above*."

Accordingly, it is admitted that the traffic and transportation information in the EIAR does not meet the basic information requirement of Article 5 of the EIA Directive.

# 9.0 CONCLUSION

Measures to reduce GHG emissions and energy import dependence through bio energy use need to be subject to full carbon and biodiversity impact assessment as well as sustainability accounting and address transboundary impacts, and be integrated with wider public health objectives including reduction of air pollutants, in line with UN SDG 15.

The counting of biomass sourcing, harvesting and burning as "zero carbon" has no physical or scientific basis. Securing a reduction in the production processes and consumption patterns that create waste should take precedence.

Stimulating market demand for any energy source that is unsustainable in its sourcing and inefficient in resource use in meeting the level of emission cuts needed in the next decade is inappropriate in principle.

The application comes under the 2014 EIA Directive and requires a "*De Novo*" assessment. There should be no presumption that the application should be facilitated with an extension of time either on a short term or longer term basis to 2027.

There is a legal onus on consent bodies including ABP to apply the EIA Directive, to ensure that:

1. Adequate information is provided as required under Article 5 of the EIA Directive, to require the adequacy of mitigation measures to be assessed.
2. The direct and indirect impacts of a project including climate impact, efficient resource use and transport are identified and mitigated by the applicant in the EIAR and appropriate alternatives considered, .

The Board is obliged to consider consent for any project, only when it can be demonstrated that the issue of alternatives is properly addressed, that the direct and indirect impacts have been identified and any significant adverse effects mitigated, and that if adverse impacts cannot be mitigated that consent therefore cannot be allowed.

These considerations would form the basis of Judicial Review proceedings on any consent granted without alternatives being addressed or adverse impacts being either addressed or mitigated.

The Board in executing its function as a Competent Authority for this application needs to satisfy itself on its regard to the application of national and EU law including Section 15 of the Climate Action and Low Carbon Development Act 2015, which requires all public bodies to have regard to climate mitigation.

The project unjustifiably perpetuates carbon emitting peat extraction and burning, delays peatland rehabilitation, is dependent on the unsustainable sourcing and inefficient use of forest biomass causing adverse ecological, air pollution, traffic generation and local amenity impacts with poor local socio-economic gain.

Most importantly, it is an irredeemably unsustainable development, which fails to address alternatives on genuine renewable energy use, and better use of forest biomass in sequestering carbon.

-END-

# APPENDIX 1 – Biofuelwatch. Letter from 33 environmental organisations in the USA

August 2018 Letter from 33 environmental organisations in the USA. Circulated by Biofuel Watch. https://www.biofuelwatch.org.uk/




**Open letter by 33 environmental organisations in the USA**

**Click here for the full version of the letter with references and the list of signatories.**
https://www.biofuelwatch.org.uk/2018/ireland-peat-biomass-open-letter/
As conservation and environmental justice organizations in the United States, we are deeply concerned about plans by Irish companies, ESB and Bord na Móna, to co–fire increasing amounts of wood pellets in the three remaining peat power stations and to convert them to burn 100% biomass by 2030 (1).

Wood pellets from forests and pine plantations in the Southern US are the most likely biomass source for any industrial–scale co–firing and future power station conversions in Ireland. This would further increase forest degradation and conversion to monoculture tree plantations in a region that is the world's 36th biodiversity hotspot. The forests in the region need to, instead, be left standing to protect communities, fight climate change, and provide habitat for plants and animals.

Science shows that replacing peat with burning wood pellets from forests will not benefit the climate. The upfront carbon emissions of burning wood for electricity are even greater than those of burning peat or coal. Biomass advocates argue that those emissions can be ignored because new trees will "recapture the CO2 emitted." However, this claim has been exposed as dangerously misleading by a large number of scientific studies (2). In January 2018, 800 scientists wrote to the European

Union, warning: "*Even if forests are allowed to regrow, using wood deliberately harvested for burning will increase carbon in the atmosphere and warming for decades to centuries. The reasons are fundamental and occur regardless of whether forest management is 'sustainable*'(3)."
If we hope to limit warming to 1.5C, we need to bring about a rapid shift to genuine low–carbon renewable energy, together with greater energy efficiency and conservation, as well as the protection and expansion of forest ecosystems which continuously sequester carbon from the atmosphere.

Even more, there is no prospect of replacing peat with biomass from domestic Irish sources. We are aware that energy plantations, particularly of willow, are being proposed as a biomass feedstock for the three peat power stations. However, there is no realistic prospect of Ireland producing enough biomass from energy crops for industrial -scale burning in peat power stations, in addition to meeting the growing demand for biomass heat. Even more, it is not a realistic economic prospect (4). Finally, if the power station was run on woodchips or pellets, full peat–to–biomass conversions would require more wood than Ireland produces annually.

The large–scale burning of wood in Irish power stations poses a serious threat to Southern US forests. Given that Irish biomass sourcing is not a realistic option on the scale required for the proposed power station conversions or large–scale co–firing, wood pellet imports would be inevitable (5).

The southern US is the world's largest pellet producing region. Pellet production heavily targets coastal hardwood forests which lie at the heart of a global biodiversity hotspot, called the North Atlantic Coastal Plain region. The region is home to hundreds of species of plants, amphibians and reptiles found nowhere else in the world and a large percentage of those depend on hardwood forests for their survival. Those are now being increasingly clearcut for pellet production for export to Europe, often followed by conversion to monoculture pine plantations bereft of wildlife. The largest pellet producer in the region, Enviva, sources wood from hardwood forests. Standing forests are a vital component in the fight against the climate crisis and the maintenance of standing forests as a carbon sink must be prioritized over the unnecessary burning of it in power stations.

We believe that closing down peat power stations is vital for meeting the goals of the Paris Climate Agreement. Burning peat and burning biomass for electricity are both clearly incompatible with the goal of the Paris Climate Agreement to keep global warming to 1.5C. Ireland's three remaining peat

power stations must be shut down, with the capacity being replaced by genuine low–carbon renewable energy and greater energy efficiency and conservation.

**We therefore call on the Irish Government to ensure that all three peat power stations are closed down no later than 2020, that no further subsidies for co–firingwood pellets will be paid and that ESB's forthcoming planning application for co–firing wood pellets in its two peat power stations is not approved**

# APPENDIX 2 – An Taisce submission mid-term review – Forestry programme for 2014-2020

Appendix 2

An Taisce
The National Trust for Ireland

# An Taisce Submission

# Re: An Taisce Submission Mid Term Review - Forestry programme for 2014 - 2020

Mr. Alan Sheridan
Forest Service,
Department of Agriculture, Food and the Marine
Johnstown Castle Estate, Co. Wexford

forestryprogram2014-2020@agriculture.gov.ie

2nd May 2017

**Re: An Taisce Submission Mid Term Review - Forestry programme for 2014 - 2020**

Dear Sir/Madam,

An Taisce would like to make the following comments in relation to the public consultation on the Mid Term Review - Forestry programme for 2014 – 2020 which we request the Department take into consideration.

Yours sincerely,

**Fintan Kelly**

**Natural Environment Officer**

An Taisce - The National Trust for Ireland

naturalenvironment @antaisce.org

# An Taisce Submission Mid Term Review- Forestry programme for 2014 - 2020

## Introduction

An Taisce are one of Ireland's oldest and largest environmental organisations. An Taisce is a charity that works to preserve and protect Ireland's natural and built heritage. An Taisce recognises the important role that the Forestry Programme 2014-2020 has to play in supporting the development of the rural and national economy. We are also aware of the potential positive and negative impacts of forestry on our environment and the negative role that forestry can play in postponing meaningful climate action in the land use sector. An Taisce welcomes the opportunity to contribute to this public consultation which should be viewed in conjunction with the views and concerns expressed in our original submission on the Forestry Programme 2014-2020. As a statutory consultee in the forestry consent system under the European Communities (Forest Consent and Assessment) Regulations 2010 (S.I. 558 of 2010) and as key stakeholders in the development of the forestry related policies such as the Hen Harrier Threat Response Plan and the National Biodiversity Action Plan 2017-2021 An Taisce are well placed to comment on the shortcomings of the current Forestry Programme.

**An Taisce submission on the Consultation on the Forestry Programme 2014-2020 (2014)**
http://www.antaisce.org/articles/taisce-submission-consultation-forestry-programme-2014-2020

The current Forestry Programme had set out to encourage planting by private landholders in order to achieve a forest cover of 18% by the year 2046. The Forestry Programme 2014-2020 proposed the establishment of over 46,000 ha of new forests, the construction of 960km of forest roads and improved levels of support for the establishment and conservation of native woodlands. All of this had to be achieved while adhering to the overarching EU Policy Framework Europe 2020 strategy for "*smart, sustainable and inclusive growth*". Under the EU's Strategic Environmental Assessment Directive, the Department of Agriculture, Food and the Marine (DAFM), as the programming authority, must assess the likely significant effects of its plans and programmes on: "*the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship of the above factors*" including "*secondary, cumulative, synergistic, short, medium, and long-term, permanent and temporary positive and negative effects*".

An Taisce originally highlighted in the public consultation on the Forestry Programme and in numerous consultations in the mean time that we are deeply concerned that many aspects of the current programme fall short of the overarching objectives to achieve a sustainable and environmentally friendly forestry sector. Indeed many aspects of the programme are just a continuation of Ireland's historically unsustainable forestry model whose practices

over the preceding decades have negatively impacted on biodiversity, landscape, soil carbon and water quality. Commercial forestry plantations have a number of negative impacts on the environment. Non-native conifer plantations negatively impact on soil erosion and water quality and drive biodiversity loss through habitat loss and degradation. Non-native blocks of conifers sustain low levels of biodiversity compared to native ecosystems and traditional semi-natural habitats associated with High Nature Value farming systems. What has also become increasingly clear since 2014 is the negative socio-economic impact that commercial forestry is having on many parts of the country. These concerns have been raised by An Taisce with Minister Doyle himself at the inaugural COFORD Forest Policy Review Group (CFPRG) stakeholders meeting. These concerns have more importantly been repeatedly raised by affected communities in places like Leitrim within the national press and by the local Irish Farmers Association reps and by Macra Na Feirme. The Macra na Feirme afforestation policy position in particular has raised the impact which afforestation grants is having on the cost of land and land mobility. They have also highlighted their concern for the negative impact of forestry on High Nature Value farming which is shared by ourselves.

**Afforestation Policy Macra na Feirme (2017)**
http://www.macra.ie/system/assets/300/original/macra-na-feirme-afforestation-policy.pdf?1487860954

There is a clear lack of a national dialogue and accountability in relation to the inevitable consequences of the market pressures have been released by the lifting of the dairy quota and the payments/tax breaks available for commercial forestry. The socio-economic consequences of these actions are accepted to result in the decline of small farmers and number of farming families, the loss of traditional hill farming/marginal farming in many areas with associated impacts on the structure of rural communities. This is likely to manifest itself in the irreversible decline and collapse of social cohesion in many rural communities around the country. The negative impacts of rural decline such as emigration and an aging population will only be exacerbate by the replacement of farming with a passive land use like forestry. The long term costs/benefits of such drastic changes for the effected communities have not been adequately debated. Groups who have voiced genuine concerns such as local IFA reps in Leitrim and Macra na Feirme and eNGOs like An Taisce have been discounted. Fact based arguments about the negative impacts on water quality and freshwater ecology and farmland biodiversity have yet to be adequately addressed. The incompatibility of certain models of forestry and indeed afforestation in general in certain areas is clear from the role that forestry has played in national conservation issues such as the Hen Harrier Threat Response Plan and the Curlew Action Plan. The announcement in recent months that the European Investment Bank has announced funding of over €200m for forestry related investment in Ireland and that Dasos a private forestry investment fund is looking to buy up Irish forestry only increases the concern that communities and wildlife will be displaced by foreign investors and sitka spruce plantations.

Within the COFORD Forest Policy Review Group (CFPRG) Minister Doyle and the forestry sectoral expressed the view that the decline of farming in certain areas was due to the lack of interest from younger generations due to the hardship and poor financial returns. The forestry reps felt that forestry was stepping into the void created by other forces rather than driving the negative trends in rural decline. An Taisce accept that the forestry sector is not alone responsible for these negative trends but that it is a contributing factor which is exacerbating rural decline in certain areas. Increasing the profitability of HNV farming through agri-environmental schemes, market supports such as certification and the

diversification of the rural economy through the promotion of ecotourism and the delivery of broadband where strategically feasible would breathe life back into many marginalised communities. Without a national dialogue on the social and environmental consequences of the collapse of farming in marginal areas there can be no mandate for the inevitable consequences of government policies such as the Forestry Programme 2014-2020.

## Biodiversity

The current Forestry Programme claimed to meet many of its environmental targets by virtue of its role in increasing the cover of native woodland and native tree species within the Irish landscape. Ireland is one of the least forested countries in Europe with about 10.5% of its area under forest cover; however the majority of this is composed of non-native conifer species. These monoculture blocks of conifers account for 72.8% of the national forest estate, of this 52.4% is made up of just one species, Sitka spruce (*Picea sitchensis*) (Forestry-Service, 2014). While trees like Sitka spruce support biodiversity in their native distribution along the north-western seaboard of North America they support relatively low levels of biodiversity in Ireland. Only around 2% of the country is covered by what is termed native or semi-natural woodland, and much of this is highly fragmented and modified (Gallagher, et al., 2001). In the case of native woodland there is therefore a clear need to increase its cover nationally both from a biodiversity perspective and due to the multitude of ecosystem services that native woodlands provide. The current forestry programme however has to date failed to achieve the modest targets set for increasing native woodland or broadleaf cover. The targets that were set for native species were purely aspirational and were never going to be achieved without a mechanism to implement their planting. On the admission of the Forestry Service the "*annual broadleaf planting target has fallen considerably short of the 30% target included in the EU Commission's State aid approval for the forestry programme*." The blame for this must not only lie with the Irish Government but also the European Commission. Groups like An Taisce had highlighted in 2014 that these targets would not be met and that based on scientific evidence that the programme would result in biodiversity loss rather than biodiversity enhancement. These concerns were not taken on board by the Government or the Commission. Questions must now be asked how EU taxpayer money can continue to be invested in programmes that fail to meet the conditions of the Commissions State Aid rules.

Afforestation in Ireland is today mainly privately driven by land owners and moving forward by private investment funds. It is at the discretion of the land owner and the contracted forester to apply to the Forestry Service for whatever type of forestry they wish and it is clear that Sitka spruce plantations remain by far the most common planting choice even within sensitive areas such as Natura 2000 sites. This is based on factors such as the quick return from sitka spruce, its comparatively easier establishment and the market demand from the UK, an ingrained bias towards the species due to familiarity amongst foresters and the ready availability of saw mills equipped to handle the species and other conifer species like lodgepole. Without sufficient regulation, incentives and knowledge transfer to encourage the planting of native species a continuation of the status quo was inevitable and this is what has come to pass. Many excuses can be made for these failings such as the spread of Ash dieback disease (*Chalara fraxinea*) but these constraints were known in advance of the delivery of the current programme. Indeed the threat of such outbreaks is only increased by the lack of species diversity within the sector. Something which is accepted but not being

addressed quickly enough. There are numerous native broadleaf species which could be planted across all soil types. In addition our native conifer Scots Pine is not planted as often as it should be.

The overbearing role that market forces continue to play in the configuration of Ireland's forestry policy both at the expense of the social, economic and environmental sustainability of many communities must be urgently addressed. With 80% of panel and 70% of saw wood being exported mainly to UK markets this is clearly having an overbearing role in the development of the sector. Other countries within the EU have recognised the need to counter this by regulation, investment in sustainable forestry and by creating new markets which will drive sustainable forestry practices. Greater efforts must be made to increase the amount of lumber being used in the construction industry. Likewise by developing the national and export market for hard wood products the establishment of broadleaves will be incentivised. This would have the spin off benefit of reducing the demand for tropical hardwoods. In areas where there is a need to replace traditional turf cutting with a local sustainable source of fuel native woodland should be established which can be coppiced to supply local communities with fire wood. An example of the tradition of coppicing was carried out in an Irish context is St Johns Wood, Lecarrow, Co Roscommon.

Some ways in which the sector could improve its environmental credentials include altering policies in relation to reforestation. Currently there a 10% reforestation figure for broadleaves but it is at the discretion of the owner whether or not they want to replant 10% of the land with broadleaves. This 10% obligation should be mandatory. All current environmental guidelines which apply to afforestation should apply to reforestation and in particular water quality guidelines. Coillte as a semi-state with a huge land holding and operating in some of the most environmentally sensitive areas in the country should have to lead by example. All reforestation within Coillte plantations should have to adhere to the current Environmental Requirement's for Afforestation Guidelines (2016) and should be in line with the obligations of Article 6(3) of the Habitats Directive and other relevant legislation such as the Birds Directive and the Wildlife Acts. The majority of Coillte plantations predate environmental guidelines and are therefore not achieving the levels of high environmental integrity that one would expect from a semi-state. Coillte should have to be as transparent in their actions as private land owners and should be subjected to third party oversight by An Taisce, Inland Fisheries Ireland and the National Parks and Wildlife Services for any plans or projects within their land holdings. The use of the synthetic pyrethroid cypertherin should be banned in all Coillte land holdings.




The impact of afforestation will vary from site to site and will be dependent on what habitat the forestry/woodland replaces. The environmental impact of native woodland establishment is greatest where it replaces intensively managed agricultural land and worst where it replaces priority or Annex I semi-nature habitats. In particular forestry in an Irish context is a major threat and pressure on semi-natural habitats associated with extensive farming. This threat has yet to be addressed as afforestation has in the past and according to Government policy will continue into the foreseeable future to be focused primarily on marginal land with low agricultural output (Farrelly & Gallagher, 2013). These areas are often important reservoirs for habitats and species of high conservation value which have persisted due to the continuation of traditional land uses such as extensive grazing. Afforestation in these areas results in a range of negative impacts on biodiversity including direct impacts such as habitat loss, indirect impacts like water pollution and cumulative impacts such as fragmentation. Despite the comparatively low level of forest cover in Ireland the concentration of afforestation in areas of high biodiversity value magnify its negative impact as a threat and pressure on biodiversity. The environmental impact of Irish forestry is further exacerbated by its intensive management. Common practices such as drainage during ground preparation, the use of pesticides and clear-felling result in many negative impacts on water quality and fresh water ecosystems. It is open for debate whether the establishment of native woodland on High Nature Value farmland is positive or negative from a biodiversity perspective. It would be fair to say however that in order to conserve populations of species and an adequate distribution of certain habitats that a representative proportion of the best sites would be protected from afforestation of any kind and through regulation and through support via agri-environmental schemes. In order to achieve this High Nature Value farmland and Natura 2000 sites with relevant qualifying interests must be protected from afforestation. These sites should be identified through a landscape level mapping exercise with site level resolution. This is currently not the case and afforestation within inappropriate sites is ongoing without adequate ecological assessment and in breach of EU laws and regulations. Establishing a network of protected sites using a sensitivity

mapping tool and ground truthing should be an essential biodiversity safeguard in the Forestry Programme moving forward. The suitability of non-native plantations of conifers in many Natura 2000 or NHA sites should be reviewed.

## Biodiversity impact of Irish Forestry

### Habitats loss

In Ireland's most recent report to the EU Commission on the habitats and species listed in the annexes of the Habitats Directive, forestry ranked as the second greatest pressure and threat on designated habitats and species in Ireland after agriculture. Forestry is also closely linked directly to the 8th, 9th and 10th ranked national high level pressures/threats of pollution, invasive and problematic species and natural system modifications (NPWS, 2013). Almost 40% of designated habitats under the Habitats Directive have forestry as a pressure or threat of high, medium and low intensity. The associated pressures of pollution, invasive and problematic species and natural system modifications are each negatively impacting upon over 70% of designated habitats under the Habitats Directive as a pressure or threat of high, medium and low intensity (NPWS, 2013).

Designated habitats in Ireland whose conservation status is being most negatively impacted upon by forestry are peatlands, grasslands, wetlands and coastal habitats. According to Ireland's National Parks and Wildlife Service areas of Annex I habitats which lie outside of designated sites are particularly vulnerable to afforestation. The NPWS have identified that forestry regulations are currently failing to protect Annex I peatland habitats such as Wet Heath, Dry Heath, Alpine and Sub Alpine Heath, Rhyncosporion depressions and the priority habitat Active Blanket Bog (NPWS, 2013). Rare grasslands such as the Annex I classified Molinia Meadows and the priority habitat Species-rich Nardus grasslands are being lost due to afforestation. Species-rich Nardus grassland for example has been completely obliterated by forestry in many areas of the country such as the Comeragh Mountains, the Devils Bit Range and the Slieve Blooms (NPWS, 2013).



Orchid-rich Calcareous Grassland. Credit Fintan Kelly

## Species Loss

Protecting plant and animal populations in agricultural landscapes is important for both maintaining ecosystem services and the conservation of threatened species (Tscharntke, et al., 2002). Habitat loss is the primary driver of species extinctions globally with 40% of all ice-free terrestrial habitats converted to agriculture or urban settlements and 37% of the remaining semi-natural habitats being embedded within this highly modified landscape matrix (Ellis, et al., 2010). It is clear from a number of recent reports that the Irish forestry sector has earmarked areas of unenclosed land, and in particular rough grasslands dominated by purple moor grass (*Molinia caerulea*) for afforestation (COFORD, 2016) (Farrelly & Gallagher, 2013). The aggressive targets for afforestation in Ireland will alter the landscape radically in many parts of the country (Buscardo, et al., 2008). To achieve this the current cap which exists on the area of unenclosed land which can be afforested will be removed. This is one of the few environmental restrictions outside of protected areas. The loss of undesignated grasslands due to forestry has been highlighted by the NPWS as a

driver of biodiversity loss nationally (NPWS, 2013). Semi-natural grasslands in Ireland and the UK are an important habitat for a range of species, such as the Irish hare (*Lepus timidus hibernicus*) (Tangney, et al., 1995), waders such as Lapwing (*Vanellus vanellus*), Curlew (*Numenius arquata*), Snipe (*Gallinago gallinago*) and Redshank (*Tringa tetanus*) (Baines, 1988; Henderson, et al., 2002), passerines such as Meadow Pipit (*Anthus pratensis*) and Skylark (*Alauda arvensis*) (Henderson, et al., 2004), and Annex I species under the Birds Directive such as Short-eared Owls (*Asio flammeus*) (Glue, 1977) and Hen Harriers (*Circus cyaneus*) (Ruddock et al., 2012). The cumulative environmental impact of the expansion of forest cover nationally and in particular the loss of unenclosed land and semi-natural grassland on the scale proposed will have far reaching implications for biodiversity (Buscardo, et al., 2008; Smith, et al., 2006 ).

The loss and fragmentation of semi-natural grasslands on a landscape level is known to negatively impact on bees and butterfly populations (Öckinger & Smith, 2007). Across the EU 37–65% of bee species have been identified as being of conservation concern (Patiny, et al., 2009). While in Ireland one third of bee species are threatened with extinction (Centre, 2015). The loss of semi-natural grassland is considered the main threat to Irish bees (Fitzpatrick, et al., 2007). The loss and fragmentation of semi-natural grasslands due to forestry expansion and agricultural intensification will drive the extinction of many pollinator species in Ireland.

Wild bird population trends are indicative of broader ecosystem health and are therefore useful indicators of biodiversity loss. The implications of forestry expansion on bird diversity in an Irish context have been investigated in a number of studies, all arriving at similar conclusions i.e. that the net effect of afforestation will depend on the biodiversity of the habitat it replaces and is related to the previous land management intensity at the site (Buscardo, et al., 2008) (Graham, et al., 2015). Common bird species associated with woodland will benefit from afforestation in Ireland (Walsh, et al., 2000). Woodland birds are not considered to be a major conservation concern in Ireland (Colhoun & Cummins, 2013). While forestry might initially favour some species associated with open-habitats, through increases in shrub and herb cover associated with the relaxation of grazing pressure on recently planted land, they are lost from plantations at canopy closure (Walsh, et al., 2000). The recently published report by Scotland's Moorland Forum on the issue of upland predation summarised the negative impacts of forestry on ground-nesting birds associated with open upland habitats. The findings are directly applicable to Ireland:

> *"Extensive commercial afforestation in the Southern Uplands has destroyed large areas of suitable habitat for a whole range of wild birds, bringing predators onto open hills and fragmenting moorland into small pockets. This has been disastrous, particularly for Black Grouse. In many areas suitable habitat remains, but it is not present in sufficient quantity to support birds on a landscape scale, and a general reluctance to manage heather and upland vegetation near forestry by traditional methods (or often any methods) has meant that these remaining islands are becoming increasingly degraded (Ainsworth, et al., 2016)."*

Afforestation causes direct habitat loss and fragmentation of remaining open ground; moreover, such fragmented wooded landscapes host high abundances of predators including red foxes, corvids relative to continuous open landscapes. Afforestation is associated with edge effects on adjacent open ground across a range of systems, by altering habitat configuration and through the association of predators with woodland. Increased

predation pressure on open ground adjacent to woodland, coupled with potential behavioural avoidance of edge habitats, are established negative impacts of forestry on ground nesting upland bird species and waders and acts cumulatively with the direct losses of habitat due to afforestation (Douglas, et al., 2014). These negative impacts have been established for species such as Curlew, Dunlin and European Golden Plover and Hen Harrier (Douglas, et al., 2014) (Wilson, et al., 2014) (Ruddock, et al., 2016). Because of its short- and long-term effects, afforestation will have a detrimental effect on many semi-natural habitats, breeding waders and other birds of upland and moorland habitats (particularly red/amber-listed species) (Buscardo, et al., 2008; O'Connell, et al., 2015; Smith, et al., 2006; Wilson, et al., 2006). Numerous studies in Ireland have all concluded that in order to prevent the loss of open habitat and bird species of conservation concern, afforestation should be focused in areas of improved grassland.

> *"new afforestation should not take place in areas with diverse communities of open-habitat birds"* (Wilson, et al., 2006)
>
> *"Areas of open habitat which support diverse assemblages of open-habitat specialists (particularly when these are red/amber-listed species) should therefore be safeguarded from afforestation, and managed in such a way as to ensure their continued suitability for these species."* (Walsh, et al., 2000)
>
> *"afforestation should target habitats with relatively impoverished bird assemblages. By far the most abundant of these is improved grassland"…"other open habitats generally cannot be afforested without negatively impacting on birds, particularly where elements of the bird community are of national or international conservation interest."* (Smith, et al., 2006 )
>
> *"forest management should encourage any proposed future exotic plantations to be located in areas of high management intensity such as improved agricultural land rather than in low management intensity peatlands that typically support bird communities of high conservation value."* (Graham, et al., 2015)



Hunting female Hen Harrier by Radovan Václav

Recent research has established a strong overlap between newly planted forests and the distribution of Birds of Conservation Concern in Ireland (BoCCI) which are associated with farmland habitats (Corkery, et al., 2015). Recent forest planting was found to overlap with 78% of the 10 x 10 km squares occupied by birds of conservation concern, with 11% of these squares being planted with 100ha or more. Species associated with rough grassland had a 78% overlap with new forestry (Snipe (81%), Curlew (84%), Lapwing (76%), Redshank (72%), Meadow Pipit (78%), and Skylark (11%)) with an average of 12.5% of the squares which hosted these species being planted with 100 ha or more. This study again concluded that "*afforestation may represent a threat at a regional and national scales to some of these bird species in the near future. At least for the already threatened species, which depend on grassland areas for foraging, plantation forests may already be having a negative impact*."

For many species it is already clear that further habitat loss over the next few decades will drive their national populations to the brink of extinction. The Hen Harrier in this one of the species that has been impacted most by the loss and degradation of its traditional foraging and nesting habitats. Rough grassland constitutes 11.02% of the area of the six Hen Harrier SPAs and is the largest open habitat type within these protected sites (Moran & Wilson-Parr, 2015). **The main threat identified for each of the six Special Protection Areas (SPA) designated for the species protection is further afforestation** - "The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity." (NPWS, 2007). The population within the six SPAs has **declined by 26.6% since 2005**. The SPAs are essential for the species supporting between 44% and 47% of the national population (51 – 69 pairs) (Barton, et al., 2006; Ruddock, et al., 2016). Afforestation and the maturation and canopy closure of established plantations has been a major driver of this decline (NPWS, 2015).

Likewise waders such as Lapwing, Red Shank and Curlew are Red listed birds of high conservation concern having undergone declines of 88%, 88% and >80% respectively in their breeding populations between 1988/91 and 2008 (Crowe, et al., 2010). Declines in Irish waders have been attributed to habitat loss linked to afforestation, land drainage, intensification of agriculture and increased predation (Wilson, et al., 2004; Henderson, et al., 2002).

## High Nature Value Farmland Loss

The ongoing loss of biodiversity associated with semi-natural ecosystems both within and outside of the Natura 2000 network is an issue right across the EU. More than 50% of Europe's most highly valued biotopes occur on low-intensity farmland (Bignal & McCracken, 1996). The need to protect farming systems in Europe of greatest biodiversity value or 'High Nature Value (HNV) farming' has been embraced at an EU level and it is recognised that the conservation of HNV farming is essential if the EU is to meet its 2020 biodiversity targets (Cooper, et al., 2007; Keenleyside, et al., 2014). In EU regulation No 807/2014 of 11 March 2014 (supplementing Regulation (EU) No 1305/2013) of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) have provided some provisions relating to the protection of HNV

farmland from afforestation: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0807&from=en

Article 6 of the regulation reads (emphasis added):

> "Minimum environmental requirements with which the afforestation of agricultural land must comply should be laid down ensuring that **no inappropriate afforestation of sensitive habitats including areas under high natural value farming takes place** and that the need for resilience to climate change is taken into account. **On sites designated as Natura 2000, afforestation should be consistent with the management objectives of the sites concerned. Special attention should be paid to specific environmental needs for particular sites such as the prevention of soil erosion. More stringent rules should be provided for afforestation operations leading to the creation of larger forests in order to take into account the impact of scale of those operations on the ecosystems and to ensure that they comply with the objectives of the Green Infrastructure Strategy (1) and new EU Forest Strategy (2)**."

An Taisce know from experience that the forestry service are not regularly carrying out ecological assessments prior to approving afforestation and as a result inappropriate afforestation of sensitive habitats including areas of HNV farming is taking place. In effect there is no policy in place to implement the obligation to protect HNV sites (Kelly, 2016).

In recent times there has been a lot of research carried out in relation to the availability of land in Ireland for forestry expansion. This research has been ongoing at a time when mapping projects are also identifying the distribution of HNV farmland in Ireland. Based on the most recent produced maps it is clear that there is a **direct overlap with land which is being earmarked for afforestation and HNV farmland** (Teagasc Research, 2016). This is a clear indication of the threat posed by forestry to Irish biodiversity.

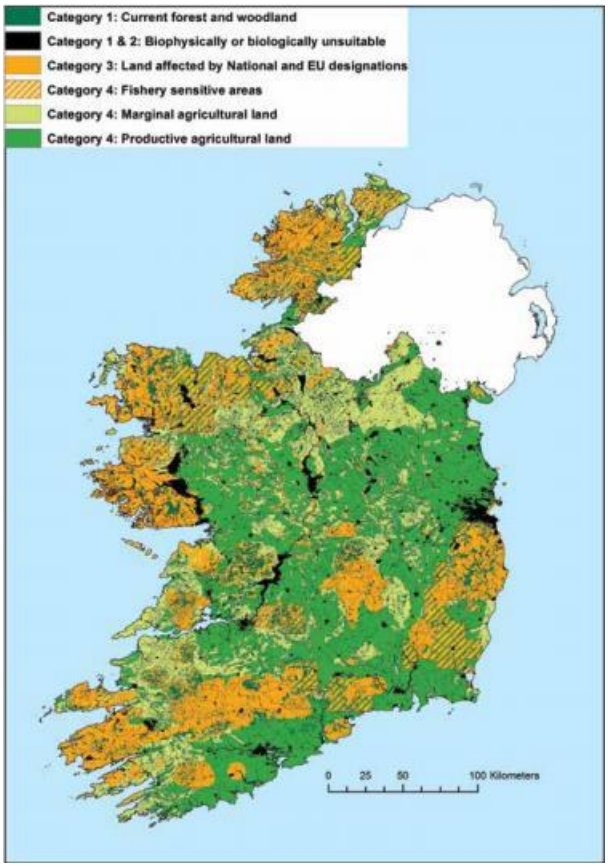



Figure 1. Classification of Ireland's land area in relation to availability for forestry expansion and the area of productive and marginal agricultural land with most potential for forestry expansion (Teagasc, 2016).

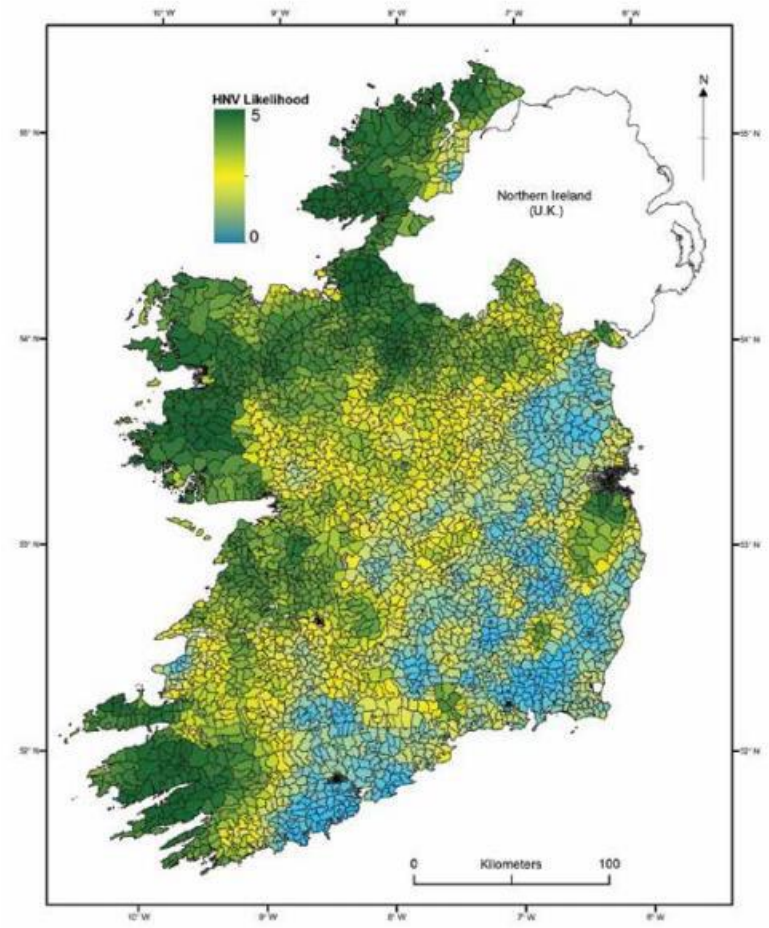



Figure 2. Likely occurrence and distribution of HNV farmland in each Electoral Division, based on a scale ranging from low (blue) to intermediate (yellow) to high (green). Note that non-HNV farmland may still occur in areas with high likelihood of HNV farmland, and vice versa (Teagasc, 2016)

## Noncompliance with environmental legislation

In An Taisce's submission on the Draft Environmental Requirements for Afforestation (2016) we highlighted that the Irish forestry sector is non-compliant with the requirements of the Habitats Directive (Council Directive 92/43/EEC) or the Birds Directive (Directive 2009/147/EC) and backed up our claims with specific cases (Kelly, 2016). One of the biggest issues is that the Forest Service have consistently failed to properly implement the requirements of Article 6 (3) of the Habitats Directive during the forestry approvals process. The need for a full Appropriate Assessment is often screened out despite the obvious negative direct, indirect and cumulative impacts that afforestation would have in light of the conservation objectives for various Natura 2000 sites.

As part of the BIOFOREST project a review of forestry Environmental Impact Statements (EIS) in Ireland was carried out (Iremonger, et al., 2006). One of the findings of the review was that the personnel involved in biodiversity assessment for afforestation do not currently receive adequate training or other guidance (e.g. in the Forest Service publication the Forest Biodiversity Guidelines) for the identification of habitats and fauna and flora of biodiversity

importance. The report noted that the employment of an ecologist by the Forest Service was a welcome development, however more were needed. The review also found that none of the EIS contained adequate assessments of overall biodiversity. The main deficiencies were insufficient scoping, non-standardised habitat/vegetation classifications, reliance on incomplete lists of species with little or no information on abundance or distribution within the site, and little or no evaluation of the conservation importance of the site. Despite these deficiencies six of the nine afforestation projects for which an EIS was submitted were approved. This indicates that assessment by the appropriate authorities was deficient. The report concluded that "***lack of adequate strategic assessment, failure of regulations to require biodiversity assessment for the vast majority of afforestation proposals, and serious deficiencies in those biodiversity assessments that are carried out mean that sites of high biodiversity importance are currently at risk of being damaged by afforestation***."

The lack of adequate biodiversity assessment and the approval of afforestation in inappropriate locations as highlighted by this report is still an ongoing issue.

Outside of designated sites, the Birds and Habitats Directives impose certain additional requirements to protect biodiversity. Article 4(4) of the Birds Directive requires Member States to "*avoid pollution or deterioration of habitats*," while Article 10 of the Habitats Directive requires Member States to "*encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure…or their function as stepping stones… are essential for the migration, dispersal and genetic exchange of wild species*." Ireland has a poor record in protecting biodiversity in the wider countryside as evidenced by the open CJEU Ruling C418-04 in which the Court held that despite a requirement for Member States to "*make a serious attempt at protecting those habitats which lie outside the SPAs*," Ireland has not "*transposed that provision fully and correctly by taking suitable steps to avoid pollution or deterioration of the habitats lying outside the SPAs. It is thus clear, in the present case that Ireland must endeavour to take suitable steps to avoid pollution or disturbances of the habitats*." The ongoing failure of Ireland to provide sufficient protection to biodiversity from afforestation is a clear indication that issues highlighted in this case have yet to be resolved.

## An eNGO perspective of forestry AAs in Ireland

As a prescribed consultee An Taisce have valuable insight into the forestry consent process in Ireland. Full compliance with environmental law is not only a legal obligation but one of the most effective ways of ensuring that the forestry sector can contribute to the conservation of species like the hen harrier, and also serves to avoid the sector falling into disrepute and costly legal actions. It is in this constructive and supportive context that we wish to make our observations on the Forestry Services current shortcomings in the implementation of Article 6(3) of the Habitats Directive, on the legislative requirements and relevant directives and case law. This part of the submission will use the hen harrier as a case study of these shortcomings.

The European Commissions 'Study on alleviating and improving the article 6(3) permit procedure for Natura 2000 sites' provides a valuable overview of the historical and current issues with AA implementation in the EU from the point of view of various stakeholders (Sundseth & Roth, 2013).

On-going problems highlighted by the report include the following:

- Poor quality of the Appropriate Assessment undertaken
- Lack of skills/ knowledge /capacity in the Article 6.3 procedure
- An inadequate knowledge base on which to assess impacts
- Inconsistent screening of plans and projects
- Lack of understanding of key concepts and legal terms
- Persistent lack of assessment of cumulative effects
- Confusion with the EIA/SEA Procedure
- Lack of early dialogue
- Lack of effectiveness of AAs on plans
- Problems during public consultation

Many of these issues of course are also relevant to Irish AAs. Within the report the report the Forestry Services Appropriate Assessment Procedure is highlighted as best practice in the case study "Adopting a Systematic Approach to the Screening and Appropriate Assessment of Plans and Projects Related to Forestry Activities (Ireland)."

The key strengths of the Forestry Services approach were identified as:

- The establishment of a robust and consistent framework ensuring the AA permit procedure is implemented in a more systematic way across the country.
- reduced administrative burden on all concerned since it leads to better recording of the Article 6.3 process in the forestry sector and helps increase the overall level of understanding and awareness of how to carry out an AA screening or full scale assessment correctly for activities in this sector.
- The wide ranging consultations with other statutory authorities (especially NPWS) and NGOs.

However issues which were raised include:

- There is however a need to ensure that the guidelines and new procedures are now fully and correctly implemented, and do not merely lead to a kind of **'tick-box' exercise in practice**.
- There is as yet no mechanism in place for an independent review of the process and its application. Nor are the AA procedures and associated tools (such as the iFORES system), or the screening and AA permit results readily available to the public. This would allow for better scrutiny of the procedures and greater public confidence that guidelines and AA procedures for forest activities are being correctly implemented in practice.
- Hen Harrier and Fresh Water Pearl Mussel, two key species found in areas where forestry-related decision-making is important, continue to be seriously at risk, with the former in decline in SPAs and the latter no longer reproducing. *It has yet to be demonstrated that forestry is being managed in a way that ensures the favourable*

*conservation status of these species. Furthermore, the context in which the AA system operates remains incomplete as site management plans that would bring together the full range of actions needed to conserve these species are still in preparation.*

We would fully agree that on paper the procedure set out by the Forestry Services AAP is excellent and seems to address the main issues however in our experience there are still serious weaknesses in the implementation of appropriate assessment (AA) within Irish forestry sector.

### The failure to carry out a proper screening for appropriate assessment

Screening is a crucial step of the Article 6 (3) permit procedure however in our experience this stage of the process has the capacity to act as a "loophole" through which plans/projects likely to have an impact may escape the assessment if the screening process is too simple or incomplete. Too often the process is something of a 'tick box' exercise. In our experience the need to carry out a full AA is frequently and inappropriately screened out at the screening stage. An Taisce regularly call on the forestry service to carry out an AA and we clearly indicate our reasoning for doing so with specific references to the site in question, its features of interest and the potential direct, indirect and cumulative impacts of afforestation. The failure of the forestry service to carry out a proper screening assessment is often compounded by the NPWSs failure to call for an AA in their submissions.

The failure of the forestry, farming and fisheries sectors to carry out AAs is not unique to Ireland and has been highlighted at an EU level (Sundseth & Roth, 2013). One of the reasons may be a lack of understanding of key legal terms and the implications of the relevant EU case law. There seems to be confusion around key legal terms such as the definition of a 'plan or project'. There certainly seems to be confusion about the 'trigger' for AA at the screening stage. Given the low threshold set by the Waddenzee judgment (C-127/02) regarding the trigger for appropriate assessment, it is likely that a land use like forestry which is so prevalent in many Natura 2000 sites and which has so many negative impacts on biodiversity should result in many more appropriate assessments being carried out than is currently the case.

### The need to carry out a full Appropriate Assessment

Given the known and potential direct, indirect and cumulative impacts of forestry on species such as hen harriers (*Circus cyaneus*) (NPWS, 2015), it is essential that all forestry applications which have the potential to negatively impact upon the six Special Protection Areas (SPA) designated for the species are subjected to an Article 6(3) assessment. The habitat types and species for which a Natura 2000 site is designated are influenced by a wide range of intrinsic and extrinsic factors which means that the assessment of impacts has to be studied on a case by case basis and must be supported by good baseline knowledge. Poor baseline data and information on local pressures is a complicating factor as is the lack of site specific conservation objectives. Often the information provided within the forestry applications is inaccurate or incomplete.

### The lack of assessment of cumulative impacts

Another key issue which is relevant for all AAs in Ireland is the lack of assessment of cumulative impacts. This is one of the biggest issues in Irish AA implementation and it is still recognised as a major gap in most AA reports at an EU level with 41.4% of surveyed respondents stating that assessment of cumulative impacts is 'rarely' or 'never' done. The

analysis of the significance of the effects and of effective mitigation measures is also 'sometimes' a problem (33.3% and 40.4% of the cases respectively) (Sundseth &Roth, 2013). The Forest Service operates an electronic iFORIS system for use by its inspectors (showing proposed afforestation, existing afforestation, details of that afforestation, Natura 2000 boundaries, etc.). The Forest Service also provides a version of this system – iNET – to professional foresters on a username and password basis. However, the public is not permitted access to the iNET system, despite recent requests; moreover, An Taisce is not permitted to access the iNET system, notwithstanding our prescribed status. Providing An Taisce access to this system would improve the transparency of the Forestry Services AAP and it would allow the eNGO sector greater input into the assessment of cumulative impacts.

### The lack of protection afforded to Hen Harriers outside of the Six SPAs

Another issue is the lack of protection for designated habitats and species outside of the Natura 2000 network. Ireland has a poor record in implementing our broader obligations outside of the Natura 2000 network as demonstrated by the Fourth complaint in the judgment of the Court of Justice of the European Union (CJEU) in Case C 418/04 Commission v Ireland "The Birds Case," in which the Court found that Ireland had failed to transpose and apply obligations to protect birds in the wider countryside as required by Article 4(4) of the Birds Directive. There is also the issue that even within Irelands designated sites species such as hen harriers are not being afforded a high enough level of protection.

In the EPAs 'Management Strategies for the Protection of High Status Water Bodies' report Ní Chatháin et al (2012) analysed many of the pressures on High Status sites including forestry and windfarms. The report concluded that "*Current AA levels need to be radically improved with regard to their acceptance under Article 6 of the Habitat's Directive, including the assessment of the level of rehabilitation needed to allow a catchment to function sustainably. It would be beneficial if this were extended to potential impacts to high status sites that lie outside the cSAC network, e.g. via independent EIA routes*." The report also highlighted the lack of consideration of cumulative impacts in AAs. These observations are directed more generally at the planning system but are relevant for forestry consent.

A review of AA in relation to forestry and other plans and projects within Hen Harrier SPAs should be carried out. An appropriate assessment procedure should be put in place for forestry in other sites outside of the six SPAs which are of national importance for species like the Hen Harrier and the Freshwater Peal Mussel.

As part of the BIOFOREST project a review of forestry Environmental Impact Statements in Ireland was carried out (Iremonger et al., 2006). One of the finding of the review was that the personnel involved in biodiversity assessment for afforestation do not currently receive adequate training or other guidance (e.g. in the Forest Service publication the Forest Biodiversity Guidelines) for the identification of habitats and fauna and flora of biodiversity importance. The report noted that the employment of an ecologist by the Forest Service was a welcome development, however more were needed.

The review found that none of the EISs contained adequate assessments of overall biodiversity. The main deficiencies were insufficient scoping, non-standardised habitat/vegetation classifications, reliance on incomplete lists of species with little or no information on abundance or distribution within the site, and little or no evaluation of the conservation importance of the site. Despite these deficiencies six of the nine afforestation projects for which an EIS was submitted were approved. This indicates that assessment by the appropriate authorities was deficient. The report concluded that ***"lack of adequate***

***strategic assessment, failure of regulations to require biodiversity assessment for the vast majority of afforestation proposals, and serious deficiencies in those biodiversity assessments that are carried out mean that sites of high biodiversity importance are currently at risk of being damaged by afforestation."***

The lack of adequate biodiversity assessment and the approval of afforestation in inappropriate locations as highlighted by this report is still an ongoing issue.

### The Birds Directive

*Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds*

Member States unanimously adopted the Birds Directive (Directive 79/409/EEC) in April 1979. It is the oldest piece of EU legislation on the environment and one of its cornerstones. Amended in 2009, it became Directive 2009/147/EC.

Article 4 of the Birds Directive addresses the designation of SPAs and the protection afforded to Annex I species and their habitats within the SPA network and provides as follows:

> "Article 4
>
> 1. The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.
>
> In this connection, account shall be taken of:
>
> (a) species in danger of extinction;
>
> (b) species vulnerable to specific changes in their habitat;
>
> (c) species considered rare because of small populations or restricted local distribution;
>
> (d) other species requiring particular attention for reasons of the specific nature of their habitat.
>
> Trends and variations in population levels shall be taken into account as a background for evaluations.
>
> Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species in the geographical sea and land area where this Directive applies.
>
> 2. Member States shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes. To this end, Member States shall pay particular attention to the protection of wetlands and particularly to wetlands of international importance.
>
> 3. Member States shall send the Commission all relevant information so that it may take appropriate initiatives with a view to the coordination necessary to ensure that

the areas provided for in paragraphs 1 and 2 form a coherent whole which meets the protection requirements of these species in the geographical sea and land area where this Directive applies.

4. In respect of the protection areas referred to in paragraphs 1 and 2, Member States shall take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Outside these protection areas, Member States shall also strive to avoid pollution or deterioration of habitats."



Eurasian Curlew by Andreas Trepte

## The Habitats Directive

*Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora*

EU governments adopted the Habitats Directive in 1992 (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora) in order to ensure the protection of a broader range of European habitats and species and habitats for species than provided for by the Birds Directive. Together with the Birds Directive, it sets the standard for nature conservation across the EU and enables all 28 Member States to work together within a consistent and strong legislative framework in order to protect the most vulnerable species and habitat types across their entire natural range within the EU.

Article 3 (1) of the Habitats Directive provides for a coherent ecological network of special areas of conservation under the title of Natura 2000, and this shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC . It also provides that this Network: (emphasis added)

> "**SHALL** enable the natural habitat types and the species' habitats concerned **to be maintained or**, where appropriate, **restored at a favourable conservation status in their natural range**."

Importantly this identifies an obligation to address a Natura 2000 provision which addresses **the natural range of the species**.

According to article 7 of the Habitats Directive (92/43/EEC):

> "*Obligations arising under Article 6 (2), (3) and (4) of this Directive shall replace any obligations arising under the first sentence of Article 4 (4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4 (1) or similarly recognized under Article 4 (2) thereof, as from the date of implementation of this Directive or the date of classification or recognition by a Member State under Directive 79/409/EEC, where the latter date is later*."

In other words the obligation on Member States to take appropriate steps within the SPA network *"to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article,"* has been replaced by the legal obligations set out in Article 6 (2), (3) and (4) of the Habitats Directive.

The remaining element then of Birds Directive Article 4(4) is unchanged and provides for obligations on Member States in respect of avoidance of pollution or deterioration of habitats of Annex I species outside of the SPA network. Indeed the obligation for protection outside the network is further strengthened by Article 10 of the Habitats Directive, and the broader provisions of the Birds Directive.

### Article 6(3) of the Habitats Directive

Article 6(3) places specific obligations on the relevant competent authority to assess the impact of **ANY** plan or project on European sites. It requires that any plan or project which, is not directly concerned with or necessary to the management of the site and is likely to have a significant effect on a site, individually or in combination with other plans or projects must be subject to 'appropriate assessment' of the implications of the proposed plan or development in view of the site's conservation objectives.

> **Article 6 (2-4) of the Habitats Directive**
>
> 2. Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.
>
> 3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

Council Directive 92/43/EEC

### The need to screen forestry applications for AA

While large infrastructural projects usually do not raise any doubts as to the need for AA, small-scale projects, especially those not subject to EIA and linked to land management issues, might pass unnoticed, especially if there is no consistent framework in place to screen these projects for their potential impact and need for a full AA. This confusion around the definition of a 'plan or project' is recognised at an EU level and it is an ongoing issue in relation to the proper implementation of Art 6(3) (Sundseth and Roth, 2013). The potential confusion around the definition of a plan or project may be one of the reasons that forestry activities are not being screened for AA. The Waddenzee case ('the Waddenzee case' – Case C-127/02, Landelijke Verening tot Behoud van de Waddenzee and Netherlandse Vereninging tot Bescherming van Vogels v Staatssecretaris van Landouw, Natuurbeheer en Visserij [2004] I-07405) made a number of important clarifications on how the obligations in respect of appropriate assessment should be construed and approached. The Waddenzee case held that:

30…"*for unintentional damage to Natura 2000 sites to be avoided effectively,* ***all potentially harmful measures*** *must, where possible, be subject to the procedure laid down in Article 6(3) of the habitats directive. Therefore, the terms 'plan' and 'project' should be interpreted broadly, not restrictively. This is also consistent with the wording, which expressly refers to any plan or project in almost all language versions.*"

"39*…The words 'plan and project'…also cover an activity which has already been carried on for many years but for which an authorisation is in principle granted each year for a limited period."*

### Stage One Screening for the need for Appropriate Assessment

The obligations of the EU Birds and Habitats Directives are purportedly transposed into Irish legislation through a variety of instruments. For our present purposes most notable amongst these are the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011 ) (referred to below as the Birds & Habitats Regulations 2011) and the Planning and Development (Amendment) Act 2010, as amended by the Environment (Miscellaneous Provisions) Act 2011 (see Irish Statute Book, http://www.irishstatutebook.ie/) and the Forestry legislation.

The Forest Service of the Department of Agriculture, Food and the Marine is the relevant authority responsible for assessing applications for consent, grant approval and licences relating to various forestry activities, they are the authority who apply the appropriate assessment procedure. The obligation to conduct a lawful evaluation and decision-making procedure, lies with the Forestry Service and to do so in consultation with the National Parks and Wildlife Service and a number of other prescribed bodies. The Forestry services Forest Service Appropriate Assessment Procedure Information Note March 2012 indicates that it "sets out the Forest Service Appropriate Assessment Procedure (AAP)"

This 'Appropriate Assessment' of the implications of the proposed plan or development in view of the site's conservation objectives is set out as a two-stage process and initially requiring a preliminary screening for appropriate assessment. It states in Section 4 of the Forest Service AAP that:

> "Screening is required in relation to all applications within, partially within, or outside of a Natura site."

According to the 2009 National Parks and Wildlife Service (NPWS) Guidance on Appropriate Assessment of Plans and Projects in Ireland:

> *"…the first test is to establish whether, in relation to a particular plan or project, appropriate assessment is required. This is termed AA screening. Its purpose is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project,* ***alone and in combination*** *with other plans or projects, could have significant effects on a Natura 2000 site in view of the site's conservation objectives.* ***The need to apply the precautionary principle in making any key decisions in relation to the tests of AA has been confirmed by European Court of Justice case law. Therefore, where significant effects are likely, uncertain or unknown at screening stage, AA will be required.****"*

The case law of the CJEU provided important clarification on the very low threshold for the trigger for an appropriate assessment. In the Case C-127/02 *('the Waddenzee case'* – Case C-127/02, *Landelijke Verening tot Behoud van de Waddenzee and Netherlandse Vereninging tot Bescherming van Vogels v Staatssecretaris van Landouw, Natuurbeheer en Visserij* [2004] I-07405*)* it was held that the trigger for an appropriate assessment is a very light one, and the mere probability or a risk that a plan or project might have a significant effect is sufficient to make an 'appropriate assessment' mandatory. Therefore, an appropriate assessment is always necessary where reasonable doubt exists as to the absence of significant adverse effects:

> *"43…It follows that the first sentence of Art 6(3) of the Habitats Directive subordinates the requirement for an appropriate assessment of the implications of a plan or project to the condition that there be a probability or a risk that the latter will have significant effects on the site concerned.*
>
> *44…In the light, in particular, of the precautionary principle, which is one of the foundations of the high level of protection pursued by Community policy on the environment, in accordance with the first subparagraph of Article 174(2) EC, and by reference to which the Habitats Directive must be interpreted, such a risk exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the site concerned (see, by analogy, inter alia Case C-*

*180/96 United Kingdom v Commission [1998] ECR I-2265, paragraphs 50, 105 and 107). Such an interpretation of the condition to which the assessment of the implications of a plan or project for a specific site is subject, which implies that in case of doubt as to the absence of significant effects such an assessment must be carried out, makes it possible to ensure effectively that plans or projects which adversely affect the integrity of the site concerned are not authorised, and thereby contributes to achieving, in accordance with the third recital in the preamble to the Habitats Directive and Article 2(1) thereof, its main aim, namely, ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora."*

In Case C-258/11, Sweetman & Ors. V An Bord Pleanála & Ors., Advocate General Sharpston opined:

> "46…*that the test is set at a lower level and that the question is simply whether the plan or project concerned is capable of having an effect. It is in that sense that the English 'likely to' should be understood."*

Thus allowing for a more expansive linguistic interpretation, the test would appear to involve a lower threshold than that of likelihood which connotes 'probability' as distinct from 'possibility'. Where doubt exists as to the absence of significant effects an appropriate assessment must be carried out. The approach to appropriate assessment is further reinforced by the precautionary principle which is set out in the Treaty of the Functioning of the EU (TFEU) and underpins EU Environmental legislation such as the Habitats Directive.

Article 191 of the TFEU provides *inter alia* for the Precautionary Approach which is required to inform action and decisions in environmental matters. Consequently where there is uncertainty – the obligation is to take the cautious route – unless scientific evidence can provide certainty there are no impacts.

Clearly C-127/02 is most helpful on the Precautionary principle of Article 191 of the treaty of the Functioning of the EU, TFEU some clarifications from the CJEU and Irish High Court are included below:

Artegodan a.o. v Commission[2002] ECR II-4945, clarified that:

> "184*. . . the precautionary principle can be defined as a general principle of Community law requiring the competent authorities to take appropriate measures to prevent specific potential risks to public health, safety and the environment, by giving precedence to the requirements related to the protection of those interests over economic interests."*

The absence of certainty as regards the possibility of a significant negative effect as the result of forestry activities is clearly enough to trigger a Stage I and Stage II appropriate assessment, and to trigger the screening threshold identified as being '*capable of having an effect*' by AG Sharpston in c-258/11.

Without expanding on the established direct and indirect negative impacts of forestry on Hen Harriers and other habitats and species at this point it is sufficient to note that this absence of certainty in relation to effects has been acknowledged time and again within the Irish forestry sector. The recently published COFORD report titled Land Availability for

Afforestation - Exploring opportunities for expanding Ireland's forest resource acknowledges that:

> *"The impact of afforestation on specific bird populations is not yet fully understood e.g. hen harrier, merlin."*

Given this uncertainty forestry activities which have the potential to impact upon a hen harrier SPA will trigger a stage I screening assessment.

### Stage Two Appropriate Assessment

In the absence of certainty as to the likelihood of a negative impact of a plan or project on a Natura 2000 site at the screening stage a full Stage II AA is required. The obligations imposed under Article 6(3) of the Habitats Directive has been affirmed and expanded upon in subsequent decisions of the CJEU.

In Case C-258/11, Sweetman & Ors. V An Bord Pleanála & Ors . it was held that the provisions of Art 6 (2) –(4) of the Habitats Directive must be interpreted together

> "32…*as a coherent whole in the light of the conservation objectives pursued by the directive*"

and that they impose a series of specific obligations necessary to achieve and maintain favourable conservation status. A plan or project will negatively impact upon a site if it prevented the

> "39…*lasting preservation of the constitutive characteristics*"

of the site for which it was designated, with reference to the sites conservation objectives. Significantly it was determined that

> "40…*authorisation for a plan or project ….may therefore be given only on condition that the competent authorities ….are certain that the plan or project will not have lasting adverse effects on the integrity of the site. That is so where no reasonable scientific doubt remains as to the absence of such effects*."

In Kelly v An Bord Pleanála & Ors.,[2013 No 802 J.R. ] with reference to Commission v Spain c-404/09 the High Court held in para 36 that that the competent authority must carry out an AA for a plan or project in light of the **best scientific knowledge in the field and that the final determination of the competent authority must include complete, precise and definitive findings**.

> "36…*This formulation as to the nature of the obligations imposed under Article 6(3) of the Habitats Directive has been affirmed and expanded upon in subsequent decisions of the CJEU. In Commission v. Spain (Case C-404/09) [2011] E.C.R. I-11853, the CJEU referred again to the obligation to identify the affects of the proposed development on the European sites conservation objectives "in the light of the best scientific knowledge in the field" and referred again to the test that "no reasonable scientific doubt remains as to the absence of such effects". At paras. 99 and 100, the CJEU stated:*
>
> "99*. Under Article 6(3) of the Habitats Directive, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its*

*approval, all aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities are to authorise an activity on the protected site only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects (see, in particular, Commission v Ireland, at paragraph 243).*

*100. An assessment made under Article 6(3) of the Habitats Directive cannot be regarded as appropriate if it contains gaps and lacks complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the SPA concerned (see, to that effect, Case C-304/05 Commission v Italy [2007] ECR1-7495, paragraph 69."*

The case repeated the conclusion of CJEU at in Case C-258/11, namely that an AA

> "44… *cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt*."

And in Waddenzee Case c-127/02:

> *"61…under Article 6(3) of the Habitats Directive, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities…concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects."*

The Kelly Judgement has provided a very helpful clarification of the requirements of an AA and in particular in a summary of what must be delivered by the process in order for it to be lawfully conducted

> "40*…(i) Must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives. This clearly requires both examination and analysis.*
>
> *(ii) Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field.*
>
> *(iii) May only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made the Board decides that no reasonable scientific doubt remains as to the absence of the identified potential effects."*

## Appropriate Assessment and Forestry

A complete appropriate assessment for forestry must clearly identify, in the light of the best scientific knowledge in the field, all aspects of planting, management and harvesting which can, by itself or in combination with other plans or projects, affect a European site.

The site synopsis provided by the NPWS for each of the six SPAs provide important information about the conservation status of the Hen Harrier populations within each site and also about the major threats and pressures within each site. This information should inform how a particular plan or project will impact on the Hen Harrier population within each site. The impact on the Hen Harrier population will then feed into the conservation objectives for the species on a national level. Despite the fact that the population within the six SPAs has declined by 26.6% since the 2005 survey it is still clear that the SPAs are essential for the species supporting between 44% and 47% of the national population (51 – 69 pairs) (Barton et al., 2006; Ruddock et al., 2015).

The main threat identified by the NPWS for each of the six SPAs is further afforestation while windfarm development is also highlighted as a potential threat within several of the SPA: Mullaghanish to Musheramore Mountains (004162), Slieve Aughty Mountains (004168), Slieve Beagh (004167), Slieve Bloom Mountains (004160), Slievefelim to Silvermines Mountains (004165), Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle (004161)

> "*The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity*."

Much of the scientific literature underpinning this conclusion is presented in the 'Hen Harrier Conservation and the Forestry Sector in Ireland' document, which was written by the Golden Eagle Trust in consultation with the Forestry Services and the National Parks and Wildlife Service (NPWS, 2015).

The threats and potential threats identified in the 'Forestry Report' will have to be addressed in any AA. Some of these threats include direct impact of forestry on hen harriers due to habitat alteration and loss relevant to the breeding season both within and outside the SPA network. Another impact of forestry identified within the report and the scientific literature include the loss of foraging habitat. According to the scientific literature post-thicket or mature forest is generally avoided by Hen Harriers for hunting (Barton et al. 2006; Madders, 2000; Madders, 2003; O'Donoghue, 2004). Using remote tracking technology Irwin et al. (2012) found that Hen Harriers within forested habitats appear to avoid forest stands less than 3 years and greater than 15 years of age. These finding are supported by the findings of the WIND HARRIER report (unpublished) presented to the HH TRP consultative committee which demonstrated that foraging Hen Harriers strongly favoured peatlands habitats relative to availability and strongly avoided closed canopy forestry relative to availability. The avoidance of closed canopy forestry would mean that forestry plantations are only useful as foraging habitat for about 12 years (Irwin et al. (2012). Data provided by COFORD indicates that the silvicultural rotation length of sitka spruce in Ireland ranges from 45-70 years with an average age of 57.5 years (Horgan et al., 2003). This is in agreement with the average rotation time for sitka spruce in the UK of 59 years (Dewar & Cannell, 1992). Therefore the conversion of a suitable foraging habitat would lead to a loss of

foraging habitat for an average of 45.5 years. An AA would have to demonstrate that the foraging opportunities provided by pre-thicket and in particular second rotation forestry outweigh the loss of open habitat due to afforestation. Such an assessment should pay particular attention to the impact of afforestation on Meadow Pipit (Anthus pratensis) Skylark (Alauda arvensis), Willow Warbler (Phylloscopus trochilus) and Stonechat (Saxicola torquata) given their importance as prey species during the breeding season (O'Donoghue, 2010) and their intolerance of these species to afforestation (O'Connell et al., 2015). There is currently a knowledge gap regarding the relative value of different habitats for hen harriers. This lack of knowledge was highlighted by the BIOFOREST project as being particularly critical in relation to the quality of second-rotation forests (Iremonger et al., 2006).

The importance of hedgerows and other linear features as foraging habitat for hen harriers is well established (Irwin et al., 2012, O'Donoghue, 2012). The envelopment of hedgerows and other linear features by blocks of forestry may therefore result in the loss of foraging habitat. An AA will have to address this potential negative impact.

The foraging distances of Irish hen harriers as recorded by Irwin et al (2012) is greater than that recorded for in Scotland (Arroyo et al., 2009; Arroyo et al., 2014). This may be due to Irish Hen Harriers breeding in forested landscapes having to forage over larger areas in order to provision their broods. It has been suggested that the loss of foraging habitat and the fragmentation of foraging habitat due to forest maturation is likely to be the driving force behind the greater foraging distances observed in Ireland than in the UK (Arroyo et al., 2009; Irwin et al., 2012; Arroyo et al., 2014). Irish Hen Harriers breeding in forested landscapes will have to forage over larger areas in order to provision their broods. If this is the case it has serious implications for the condition of breeding Hen Harriers and the productivity of Irish broods. Any AA would have to disprove such an impact.

Other impacts of forestry on hen harrier ecology identified within the report include habitat fragmentation on a site and landscape level and as a result reduced habitat quality/extent. The forestry document also highlighted direct disturbance issues associated with forestry (NPWS, 2015). These are recognised by the forestry service appropriate assessment procedure (2012) as including: timber felling (thinning, clearfell); timber extraction to roadside; timber loading at roadside; mechanical cultivation for both afforestation and reforestation; forest road construction (and associated developments); the driving of fencing posts; and any other operation(s) the Forest Service may deem as creating disturbance. A number of pressures related to forestry were identified in the most recent national hen harrier survey (Ruddock et al., 2015).

One of the key interactions between hen harrier and forestry highlighted within the forestry report was the ecological trap caused by the mismatch between breeding success and hen harrier preference for second rotation pre-thicket forestry (Irwin et al., 2012; Wilson et al., 2009).

The forestry document also highlighted issues relating to edge effects and susceptibility to predation. Increased afforestation may be causing indirect negative impacts on Hen Harriers as forest habitats may act as reservoirs for predators such as corvids, Fox, Mink and Pine Marten that prey on the ground-nesting birds in the surrounding area and close to forest edges (Ainsworth et al., 2016; Douglas et al., 2014; NPWS, 2015; Wilson et al., 2014). These predators which typically persist at higher abundances in fragmented landscapes and

may show behavioural associations with habitat edges (Ainsworth et al., 2016). Predation of Hen Harriers by Pine Martens has been observed in the Slieve Blooms SPA (Ruddock et al., 2015). The predation of Hen Harriers by Pine Martens is especially noteworthy as Pine Martens are arboreal predators and their presence on a regional and national level is linked to forest cover and the connectivity of forest cover (O'Mahony et al., 2006). In Ireland evidence of pine marten have found in a variety of habitat types from conifer plantations, to semi-natural woodland, scrub dominated habitats and mixed forest (O'Mahony et al., 2006). Pine Martens are however known to favour mature forest stands and avoid open habitats such as bogs and fields (Brainerd and Rolstad, 2002; Storch et al., 1990). Habitats traditionally associated with Hen Harriers (Ruddock et al., 2015). A number of studies also demonstrate that the probability of predator occurrence tends to decrease with increasing distance from forest edges and that predators prefer smaller forest fragments (Chalfoun et al., 2002; Cervinka et al., 2011). Any AA must consider the increased risk of predation as an indirect impact of increased forest cover. Increased levels of predation may also impact on hen harrier indirectly through increased competition with other predators for prey items such as passerines and mammals.

Wilson et al (2012) found that Hen Harrier breeding success can decrease noticeably when the percentage of second rotation pre-thicket forest in the surrounding landscape is greater than 10%. On this point Irwin et al (2012) sets out that 'In a forest landscape with a well-balanced age-structure, approximately one quarter of the forest estate will be in pre-thicket stage at any one time. A maximum threshold of 40% for total forest cover in the landscape would therefore ensure that the percentage of pre-thicket forest did not regularly exceed 10%.'

**The question when carrying out an appropriate assessment is not at what point will forestry drive the collapse of a hen harrier population regionally but rather at what threshold will a negative impact occur?**

## Significance of effects in view of the SPA conservation objectives

According to Article 6(3) of the Habitats Directive any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

There are six SPAs designated for the Hen Harrier within the Republic of Ireland: Mullaghanish to Musheramore Mountains (004162), Slieve Aughty Mountains (004168), Slieve Beagh (004167), Slieve Bloom Mountains (004160), Slievefelim to Silvermines Mountains (004165), Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle (004161).

The conservation objectives for all six SPAs are:

To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: A082 - Hen Harrier - *Circus cyaneus*.

The favourable conservation status of a species is defined in the Habitats Directive and is achieved when:

• Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

• The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

• There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

### Population Dynamics

There have been four national surveys of the Hen Harrier in Ireland to date (Norriss et al., 2002, Barton et al., 2006, Ruddock et al., 2012, Ruddock et al., 2015). Based on the analysis of the population dynamics data carried out in the most recent survey for the Hen Harrier it can be concluded that the species is not maintaining itself on a long-term basis. The subset analyses carried out as part of the most recent survey in order to standardise the comparison of numbers between years and reduce biases associated with increasing survey effort between surveys has revealed that the national population has undergone declines in the short, medium and long term (Ruddock ey al., 2015).

• The first subset comparison shows a decline of -16.4% over the last five years in the maximum population estimate;

• The second subset comparison shows a total decline of -16.7% from 2010 to 2015 and -9.7% between 2005 and 2015 in the maximum population estimates; and

• The third subset comparison shows an overall decline of -33.5% from 1998 – 2000 to 2015 (Ruddock et al., 2015).

### Natural Range and Suitable Habitat Availability

There has been an increase in recorded distribution since the last survey in 2010 particularly with the number of possible pairs and whilst some of this may be due to increasing survey effort, some of this may be due to redistribution from the loss of pairs from within core breeding areas this may indicate a shifting range from formerly suitable areas to other areas which may be less suitable and hence the high number of additional possible pairs recorded (Ruddock et al., 2015). This redistribution theory however has yet to be substantiated. In any regard the ongoing decline in the national population will inevitably impact upon the species national range and this has been recorded historically with the loss of breeding hen harriers from former strongholds like the Wicklow Mountains (Ruddock et al., 2012).

The range of the species in the medium to long term will be linked to the quality and availability of suitable habitat. As Hen Harriers are traditionally associated with upland habitats, peatlands and rough grasslands the conservation status of these habitats is a valuable reference for the species long term prospects. According to the NPWS many activities including drainage, reclamation, agricultural improvement, peat extraction, erosion, burning, and afforestation and overstocking have resulted in large scale loss and degradation of upland habitats. The focus of wind energy developments on upland areas has also had serious impacts on sensitive habitats through fragmentation, disturbance, hydrological changes, soil erosion and landslides (Perrin et al., 2014). The ongoing loss of semi-natural grasslands to pressures such as agricultural improvement, afforestation and scrub encroachment is well established (O'Neill et al., 2013). Many of these pressures will continue to increase due to factors such as the ongoing intensification of the agricultural sector under Food Harvest 2020 and Food Wise 2025, the expansion of national forest

estate towards 2046 and the increase in windfarm development. The NPWS in 'The Status of EU Protected Habitats and Species in Ireland' report list the overall conservation status of Irelands peatlands (4010 Wet heath Bad, 4030 Dry heaths, 7110 Raised bog (active)*, 7120 Degraded raised bogs, 7130 Blanket bog (active)*) as bad. Each of the Annex I grassland habitats were also considered to have a bad conservation status (NPWS, 2013).

Based on the current trends the long term outlook for the species and its traditional habitats are unfavourable. Any AA for a plan or project is required to be considered in light of the precautionary principle and the conservation objectives for the sites designated for the species, and falls to be considered amongst extensive pressures on the Hen Harrier and its habitat impacting on its favourable conservation status.

## Specific examples of improper procedure

An Taisce have made somewhere in the region of 80 submissions in relation to forestry applications in or adjacent to the Six Hen Harrier SPAs since 2013. This does not include submissions made in relation to other sites of conservation interest to Hen Harriers which lie outside of the SPA network. This figure is significant given that An Taisce only makes observations in instances where it is deemed that a potential significant negative impact may occur. The figure is also large given that there has been a moratorium on further afforestation in the Six Hen Harrier SPAs (Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA, Slievefelim to Silvermine Mountains SPA, Slieve Beagh SPA and Slieve Aughty Mountains SPA).

In the case of application CN72850 afforestation was approved within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle (004161). No screening for AA or a full AA were carried out. The NPWS acknowledged that the site lay within a Hen Harrier SPA but did not object to the application or call for an AA. The site also lay within a Hen Harrier Red Zone. This example highlights confusion around the definition of a plan or project as well as the conditions which trigger an AA. This application should have been subjected to an AA and approval should have been refused based on the direct, indirect and cumulative negative impacts associated with forestry.

Application CN67351 and CN67361 were both approved despite the fact they lie within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) and also in the Lower River Shannon cSAC (002165).

In relation to CN72821 technical approval was given for afforestation within Flughany Bog SAC/NHA, Site Code: 000497. An Taisce had clearly identified the need to carry out an Appropriate Assessment (AA) to consider any possible impact of approval on the direct, indirect and cumulative effect of afforesting plot 3 which is directly within the SAC/NHA and the effect of afforesting plot 1, 2 and 4 which lie directly adjacent to the Fulghany Bog SAC/NHA. The NPWS made 'No Comment' on this application. This is despite the fact that Conifer forestry was highlighted by the NPWS as one of the key conservation issues within the site. Afforesting the site would be in clear contradiction of the Conservation Objectives of the site and would not be in line with the main issues for the site which are clearly identified in the NPWS Conservation Plan for Fulghany Bog SAC (2005) - http://www.npws.ie/sites/default/files/publications/pdf/CP000497.pdf

Following An Taisce's appeal of the approval of CN72821 the application was only then referred to the Forestry Services Ecologist Katherine Duff for observation and comment. Following a site visit the ecologist opinioned that Plot 3 lay within the SAC/NHA boundary and that Plot 3 had direct hydrological connectivity with some of the best active raised bog habitat within the SAC. Active raised bog habitat (a priority habitat) lies within 220m of plot 3 while the edge of the high bog comprising a mosaic of pools, hummocks and hollows with a high sphagnum cover >60% lay within a mere 80m of Plot 3. The ecologist opinioned that ground preparation in plots 3, 2 and 1 are likely to result in indirect negative impacts on the hydrology of the SAC. Plot 1 was found to directly adjoin an area of Annex I habitat Wet Heath. Plot 2 contains Fen Meadow and potential Marsh Fritillary habitat. The fact approval was given for CN72821 by the forest service without any objection from the NPWS demonstrates that there are clear failures in the current approach to forestry approvals. This approval would have led to both direct and indirect negative impacts on a number of Annex I habitats and Annex II species under the Habitats Directive including a designated SAC/NHA priority habitat.

In relation to application CN71582, approval was given for a large forestry plantation partly within and partly outside of Slieve Rushen Bog NHA (site code: 00009). This site is of national importance for hen harriers and other upland habitats and species. This approval highlights the lack of protection afforded to Annexed species like hen harriers outside of their six SPAs and the lack of protection afforded to NHAs in general. It also highlights a failure to accept the clear negative impact of forestry on upland biodiversity and the damage that fragmentation and edge effects cause upland species. An Taisce successfully appealed the approval of this application and afforestation of plots within Slieve Rusheen Bog NHA. Our objection to another plot on that basis that it would create a barrier to movement for species within the landscape and fragment suitable habitat was also upheld. A field inspection by the Forest Service Ecologist deemed that plot 4 of the application was wet heath, an Annex I habitat. By virtue of the habitats size and quality and its connectivity to Slieve Rusheen Bog NHA the approval of afforestation in this plot was also overturned. The fact that approval was given by the Forest Service to afforest an Annex I habitat warrants review. As does the failure of the NPWS to object to this application. Field surveys of sites which are likely to harbour important habitats or species should be carried out mandatorily by a trained ecologist.

The afforestation of NHAs is a recurring issue. Even NHAs containing habitats as threatened and sensitive as raised bogs have been approved for afforestation (CN67700 - Black Castle Bog NHA, Site Code:000570, CN68771 - Lough Tee Bog NHA, Site Code: 000307).

## Recommendations

The forestry service must ensure that the protection of Annex I and priority habitats as required under Irish and EU law and the Forestry Services Environmental Requirements for Afforestation Guidelines (2016) are implemented. This may require appointing more trained ecologists within the Forestry Service and/or training for foresters in habitat classification. The protection of any site which is likely to host an Annex I habitat due to its location, altitude, soil type etc should be assessed by a trained ecologist. The protection of Annex I peatlands such as Wet Heath [4010], Dry Heath [4030], Alpine and Sub Alpine Heath [4060], Blanket Bog Active* [7130] and Rhyncosporion depressions [7150]and Annex I

grasslands such as Molinia Meadows [6410] and Species-rich Nardus upland grassland* [6230] should be an urgent priority.

New afforestation should not take place on habitats that support diverse assemblages of open-habitat specialists particularly when these are red/amber-listed species or Annex I species under the Habitats Directive.

The forest service must review their guidelines and procedures and ensure compliance with the provisions relating to the protection of HNV farmland from afforestation in EU regulation No 807/2014 of 11 March 2014 (supplementing Regulation (EU) No 1305/2013) i.e. "*Minimum environmental requirements with which the afforestation of agricultural land must comply should be laid down ensuring that* ***no inappropriate afforestation of sensitive habitats including areas under high natural value farming takes place*** *and that the need for resilience to climate change is taken into account. On sites designated as Natura 2000, afforestation should be consistent with the management objectives of the sites concerned. Special attention should be paid to specific environmental needs for particular sites such as the prevention of soil erosion. More stringent rules should be provided for afforestation operations leading to the creation of larger forests in order to take into account the impact of scale of those operations on the ecosystems and to ensure that they comply with the objectives of the Green Infrastructure Strategy (1) and new EU Forest Strategy (2).*"

The forest service must review their Environmental Requirements for Afforestation Guidelines (2016) and ensure that the habitats of Annex I species and Bird of Conservation Concern are protected from afforestation where appropriate. The forest service must ensure that there is no further afforestation of sites which are nationally important for breeding hen harriers. In the six hen harrier SPAs forestry should be removed to achieve a maximum threshold of 40% for total forest cover in the landscape as per Irwin et al (2012).

The forestry service should carry out a review of their implementation of the legal requirements of Article 6(3) of the Habitats Directive and address the issues we have highlighted, including issues at screening, appropriate assessments stage and the failure to assess cumulative impacts.

Steps should be taken to ensure that no disturbance of habitats of red listed floral species occurs.

## Water Quality impact of Irish Forestry

As part of National Characterisation Report for Ireland forestry was identified as one of the land-use activities posing a potential risk in terms of diffuse pollution (Anon, 2005). Forestry in Ireland, along with agriculture are accepted as major sources of diffuse pollution.

Pressures associated with forestry are increased acidification from plantations in acid sensitive catchment, sedimentation during afforestation, road construction and clear-felling and erosion on steep catchments and eutrophication from fertilisation on steep catchments and forest harvesting on peat soils (Hutton, et al., 2008).

The distribution of forestry nationally is not homogenous and as such it is a greater source of pollution in some catchments than others. Forestry is however a significant water management issue in certain parts of the country due to the status of forestry as a significant land use and also due to other contributing factors such as local abiotic conditions and forestry management (Hutton, et al., 2008). According to the integrated water quality assessment for the North Western and Neagh Bann River Basin District in 2013, a total of 168 river stations in the North West International River Basin District (NWIRBD) had a biological Q value that was less than 'good' status (i.e. <4). The suspected causes of pollution at 93 or 55.4% of these stations was agriculture while 32 or 19% of pollution incidences were due to forestry. The third biggest pressure was municipal waste water which was identified as a pressure at 22 or 13.1% of stations (EPA, 2014). Similarly in the Western River Basin District (WRBD) forestry is one of the most significant suspected causes of pollution. The main causes of river station in the WRBD river stations being in unsatisfactory condition (i.e. biological classification less than Good) was 31% agriculture, 21% municipal waste water and 11% forestry (EPA, 2014).

The HYDROFOR study was a 7-year assessment of the Impacts of forestry operations on the ecological quality of water in Ireland (Kelly-Quinn et al., 2016). This comprehensive study reaffirmed the eutrophication, acidification and sedimentation impacts of commercial forestry during the closed canopy, harvesting and planting phases on rivers and lakes in Ireland. The study again highlighted the established negative impacts of forestry operations on surface water quality and freshwater ecology. The report recommended that some impacts could be reduced by careful onsite management. However on peaty soils the impact on hydrochemistry and aquatic macroinvertebrates was shown in catchments with both low and high forest cover, relating to elevated DOC concentrations and lower pH. These research findings, in combination with the potential for sediment and nutrient losses during harvesting and preparation for replanting and biodiversity concerns, support a recommendation for the cessation of conifer afforestation on peat soils (especially blanket and raised peat bogs) in acid-sensitive (< 15 mg CaCO3/L) headwater catchments. In relation to reforestation of sites in such catchments, there are serious concerns with respect to the aforementioned impacts. These recommendations have yet to be implemented.



Water Quality Impacts. Credit Fintan Kelly

One of the most perturbing pressures of Irish forestry on water quality is the widespread use of Cypermethrin. Cypermethrin a Priority Substance pesticide which is highly toxic to aquatic invertebrates is widely used by semi-state forestry company Coillte. Of the 6,352ha planted by Coillte in 2016 **69% has been treated with Cypermethrin** (Coillte, 2016). Cypermethrin is very toxic even at low concentrations (Marigoudar, et al., 2009). Under various lab experiments Cypermethrin has been demonstrated to be acutely toxic to an array of freshwater invertebrates and some species of fish (Stephenson, 1982). Cypermethrin is acutely toxic to crustaceans and reduces the abundance of abundance of rotifers, protozoans and bacteria and the chlorophyll-a concentration of planktonic and periphytic algae (Friberg-Jensen, et al., 2003). The reduction in predatory crustaceans is likely to lead to fundamental changes in the species composition of lower trophic levels (Friberg-Jensen, et al., 2003). At high doses cypermethrin is lethal to finfish (Marigoudar, et al., 2009).

It is likely that forestry will continue to grow in areas of the country where forestry has traditionally been a significant and growing land use such as the North Western, Western and South Western River Basin Districts as well upland areas in other parts of the country. The current water quality issues associated with forestry will be exacerbated as forestry expands nationally. This will be a challenge to Ireland meeting our targets under the WFD unless changes in practice are adopted.

The Environmental Requirements for Afforestation Guidelines (2016) made significant progress in improving the afforestation guidelines in relation to the protection of water quality. Increased setback for example were established for peat soil types and High Status water bodies under the WFD. Unfortunately An Taisce are not satisfied that these new guidelines are being implemented. A recurring issue we observe with afforestation approvals is that the conditions for approval to not stipulate what setback are required as a condition to approval nor do they give the level of site specific detail which would be necessary to properly implement the guidelines and avoid water quality impacts.

In the case of approvals which simply state 'all guidelines to apply' it is impossible for An Taisce as statutory consultees to know if our concerns or the environmental guidelines are being adhered to unless the conditions for approval are clear. Stating that the water element of the Environmental Guidelines will apply is meaningless when the guidelines themselves vary depending on the soil type, slope and proximity to High Status Sites and Natura 2000 sites. It is necessary that the approval is clearly linked to site specific conditions. It is unclear to us whether the recommendations of Forestry Inspectors are being double checked or if ecological assessments are being carried out. There is a recurring issue where peat soils are being defined as mineral peat and a minimal mineral soil setback is being implemented rather than the required peat soil setback. This is occurring in areas where Teagasc have identified the soil type as being peat for example.

In order for all relevant guidelines to be implemented An Taisce request that future conditions to approval reflect the site specific nature of the Forestry Service Water Quality Guidelines and the updated Environmental Requirements for Afforestation (2016). It is on the basis of these guidelines that we make plot level recommendations. This is the level of detail required by the governing environmental legislation.

## High Status Sites

The Water Framework Directive (WFD; 2000/60/EC) requires all EU Member States to categorise their water bodies according to their ecological status as high, good, moderate, poor and bad. The WFD also requires that Member States identify water bodies that have been minimally impaired by anthropogenic pressures (Irvine & Ní Chuanigh, 2010). High status sites are indicators of largely undisturbed conditions and reflect natural background status or only minor distortion by anthropogenic influences (Ní Chatháin et., 2012). These are the reference sites from which all other sites are compared in order to estimate an Ecological Quality Ratio (EQR) based on observed state compared with reference. High status sites are important in this regard in that they provide a baseline against which monitored sites can be compared (Irvine & Ní Chuanigh, 2010).

There has been a dramatic decline in the number of high status river sites in Ireland since 1987. The percentage number of high quality sites had almost halved in the 22 years between 1987 and 2012 (EPA, 2015). In each survey period the decline continued, from 29.6% of the total sampled in the 1987-1990 period to 16.4% in 2007-2009 (Figure 3). Although there was a slight increase in the numbers of high status sites in the latest survey (18.3%) EPA 2010-2012 survey (EPA, 2015). Only 11.5% of rivers, 9% of lakes and 3.6% of transitional waters were considered to be of high status for the 2010-2012 period (EPA, 2015).

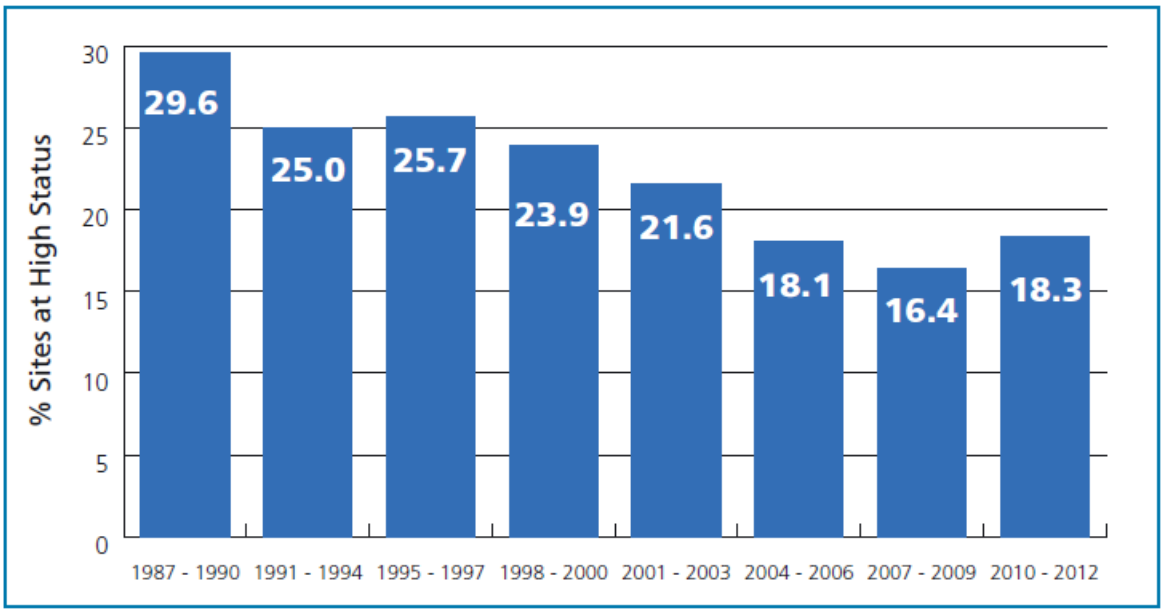



Figure 3. Long-term trends in the percentage number of high ecological quality (macroinvertebrate) river sites (1987 – 2012). EPA Water Quality Report 2010-2012 (EPA, 2015)

High Status Rivers equate to an EPA river monitoring score of Q4 or Q5. The number of sites assigned Q5 high status reference condition continues to decline in the latest survey (38 sites (2007-2009) to 27 (2010-2012)) (EPA, 2015).

The smallest pressure can impact on high status. Small increases in the amount of P and N can damage the sensitive ecology associated with these sites (Ní Chatháin, et al., 2012). Significantly the national network of high status water bodies are clustered and high status sites are negatively correlated with the intensification of land uses such as agriculture and forestry (Irvine & Ní Chuanigh, 2010). A report commissioned by the Irish Environmental Protection Agency to suggest new approaches to ensuring that high status water bodies remain at high status concluded that in order to protect the remaining high status sites and in order to reverse the trend of decline, it is important to tackle the principal pressures causing the ecological damage. Forestry activities were identified as being one of these pressures. To date the necessary protective measures have not been implemented to protect high status sites from further afforestation (Ní Chatháin, et al., 2012).

Beyond the requirements of the Water Framework Directive the loss of high status sites in Ireland is negatively impacting on species such as the freshwater pearl mussel (Margaritifera margaritifera) the endemic subspecies the Nore freshwater pearl mussel (Margaritifera durrovensis) and the Atlantic salmon (Salmo salar). The freshwater pearl mussel and the Nore freshwater pearl mussel are listed under Annex II and V of the Habitats Directive. According to the NPWS (2013) report on The Status of EU Protected Habitats and Species in Ireland both species have bad conservation status with an overall declining trend in conservation status (NPWS, 2013). Likewise the Atlantic salmon is listed under Annex II and V of the Habitats Directive. Its overall conservation status is inadequate as are its future prospects. Diffuse pollution to surface waters due to agricultural and forestry activities is considered as a threat and pressure of high importance on freshwater pearl mussels (NPWS, 2013).

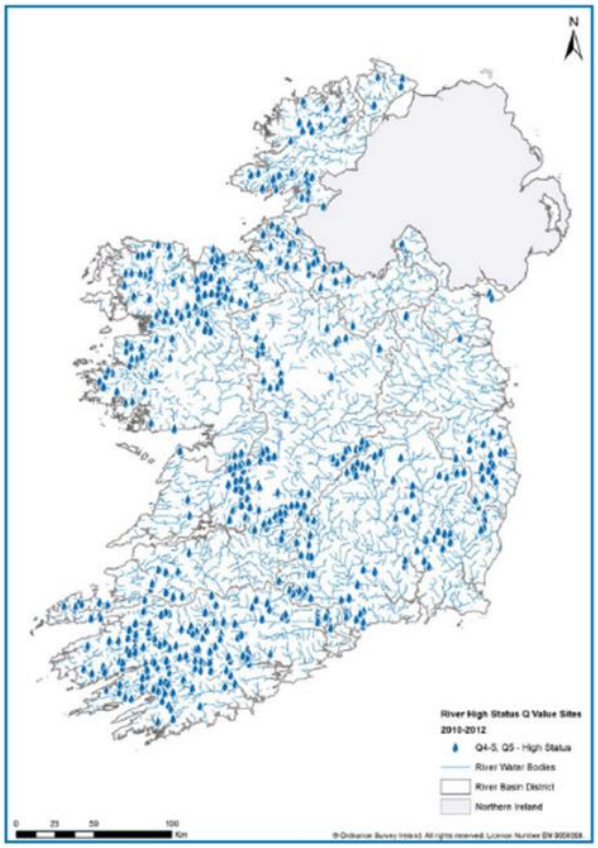



Figure 4. Map showing the location of the 507 high status Q value (Q4-5, Q5) sites across the country. EPA Water Quality Report 2010-2012 (EPA, 2015).

The distribution of HNV farmland and rivers of good ecological status are both negatively correlated with agricultural intensity and so areas of HNV farmland are often found in association with High Status Water Bodies. Recent research compared areas of high and very high HNV farmland likelihood, with the distribution of river water bodies of good ecological status (2010–2012). Of the assessed river lengths, 63% of the river water bodies at good status and 79% of the river water bodies at high status occurred in areas with high HNV farmland potential (Moran & Sullivan, 2016).

Afforestation is a threat and pressure for HNV farming and High Status sites under the WFD. According to Moran & Sullivan (2016) the maintenance of high-status water bodies in these areas requires an integrated and targeted approach to the management of HNV farmland to meet the requirements of the Water Framework Directive. The management of HNV farmland for biodiversity has the potential to have co-benefits for water quality and quantity, such as the regulation of flooding and maintaining base flow. Improved co-ordination and spatial targeting of initiatives for HNV farmland could play a major role in meeting the requirements of the Water Framework Directive and the Birds and Habitats Directives. An example of how there is a lack of joined up thinking within the forestry sector in relation to the need to protect both HNV farmland and High Status Sites is the use of native woodland belts to protect water quality in rivers supporting freshwater pearl mussel from commercial forestry. This is in many cases an overlap in the spatial distribution of SPAs designated for open habitat specialists like Hen Harriers and waterbodies designated for freshwater pearl mussels. In these instances it would be in the interests of both terrestrial and freshwater

biodiversity to maintain or re-establish extensive HNV farming practices. Currently this win – win scenario is not being implemented due to the drive to aggressively increase afforestation on marginal land. The identification and protection of HNV farmland and High tuts sites must be a priority at both a national and EU level. Afforestation in many of these areas should not be allowed.

## Recommendations

The majority of the national forest estate predates the current Forestry and Water Quality Guidelines (2000) meaning that vast areas may not be compliant with the guidelines and therefore a threat/pressure on water quality. Replanted forestry must adhere to the relevant Water Quality guidelines.

The age structure of the national forest estate means that a large proportion of the forestry in Ireland will be felled over the coming decades. This will result in an increase in water pollution. Steps should be taken to ensure that such bottlenecks do not occur in the future. Replanting in catchments which host High Status Sites should be carried out so that a heterogeneous age profile is achieved.

During onsite assessment aquatic zones are identified as a permanent or seasonal river, stream or lake shown on an Ordnance Survey 6 inch map. This is in An Taisces opinion a deeply flawed method of identifying waterbodies and wetlands. The definition of a waterbody within the Forestry and Water Quality Guidelines (2000) is linked to whether a river featured in the old Ordinance Survey Ireland 6" map series. According to a personal communication with OSI the criteria for featuring a river in the 6" map was that the river had a name. This does not seem a reasonable basis for adjudging whether a river deserves an aquatic buffer under the Forestry and Water Quality Guidelines. Many seasonal rivers are not shown on the OS maps and as the maps are based on older maps they are prone to becoming outdated. It is also noted that the EPA water layer on iFORIS may not capture all aquatic zones onsite. The definition of a waterbody needs to be updated and a new guideline adopted which is linked to the potential of forestry to negatively impact on water quality and aquatic biodiversity on site and downstream. The definition of a wetland used by the Department of Environment is "natural or artificial areas where biogeochemical functions depend notably on constant or periodic shallow inundation, or saturation, by standing or flowing fresh, brackish or saline water".

The ground preparation works associated with forestry in many instances require drainage. The drainage of wetlands in the planning regulations requires an EIA, where it is proposed, for example, to drain or reclaim a wetlands area of less than 0.1 hectares, that development will be exempted from the requirement to obtain planning permission only where it would not be deemed to have a significant adverse effect on the environment. Where it is deemed that the drainage of less than 0.1 hectares of wetlands would be likely to have a significant adverse effect on the environment, a planning application with an environmental impact assessment will be required. Development consisting of drainage and/or reclamation of wetlands (including estuarine marshes or callows) is 2 ha.

As has been highlighted previously the predominance of coniferous species nationally and in particular of sitka spruce is an issue when it comes to acidification (Johnson et al., 2008). The age structure and the related height structure of Irish forestry nationally will also lead to greater acidification affect (Johnson et al., 2008). The location of so much forestry on soil

types that are sensitive to acidification and the concentration of forestry at high altitudes is also an issue which is highlighted in the scientific literature (Johnson et al., 2008). Increasing the amount of broadleaf species nationally will reduce acidification and have obvious biodiversity benefits. Reducing the amount of forestry being planted in peaty soils and at altitude will also reduce acidification. In the UK the agreed approach is to undertake a catchment-based critical load assessment for waters failing or at risk of failing good status due to acidification (Forest Service UK, 2003). Given the ongoing loss of high status sites and the above highlighted issues it would be beneficial to carry out a catchment based assessments of pressures associated with forestry.

The opening-out of stream sides can promote biological recovery in streams showing acidification. Targeting such streams for earlier clearance of dense conifers, conversion to open, native broadleaved woodland and linking restored zones can aid the migration of fish and recolonization by invertebrates (Forest Service UK, 2003). Restructuring closed canopy conifer stands can help reduce pollutant capture and the risk of acidification by creating a more diverse forest with different aged stands, more open space, and a wider range of tree species including broadleaves. Restructuring should be prioritised in areas with - forest cover is over 50%, acid sensitive soils, areas with high-status sites or designated waterbodies (SAC/SPA/NHA/pNHA).

The impact of individual pressures on macroinvertebrate communities has been well researched but the cumulative impact of various forestry related pressures is less well understood. New bio-indicators may be needed to answer some of the questions around instream impacts moving forward.

Given the toxicity of Cypermethrin it should be completely banned in Ireland.

Sedimentation and eutrophication increase as the extent of soil disturbance increases. Limiting the area of land within a given catchment which is either being planted or harvested at any given time will limit the amount of sediment within the aquatic environment. This may be particularly beneficial in catchments with high erodible soils. Controlling the proportion of a catchment disturbed at any one time will also reduce N and P inputs (Hutton et al., 2008). The forestry service Code of Best Forest Practice – Ireland (Forest-Service, 2000b) advises that harvesting operations should take place between April and October. This is when ground conditions tend to be drier and water quality impacts associated with harvesting are therefore reduced. However the forestry service "Appropriate Assessment Procedure (AAP) requirements regarding Hen Harrier SPAs, felling and other disturbance operations" state that no disturbance operation(s) associated with the felling licence are to take place within Hen Harrier 'Red Areas' during their breeding season (1st April to 15$^{th}$ August, inclusive) (Forest-Service, 2012). Restricting felling and other operations associated with ground disturbance to August 16$^{th}$ – October increases the likelihood of forestry associated water pollution. This is a major issue in areas where there is an overlap of Hen Harrier SPAs and Freshwater Pearl Mussel SACs. In such areas it is questionable whether current forestry practices can avoid having a significant negative impact on both protected species simultaneously. This conflict between forestry, the Habitats and Birds Directives and the Water Framework Directive must be resolved.

Despite the increased risk of P loading Ireland's uplands and western seaboard are generally associated with higher Q values and high-status sites. This is likely to be due to the lower incidences of other pressures such as intensive agriculture and municipal and urban waste

water (Hutton et al., 2008). However the EPA Water Quality in Ireland 2010-2012 report (2015) highlights the ongoing decline in Irelands Q5 and high status (Q4-Q5) sites. Forestry is likely to be one of the main sources of pressures on the chemical, physical and ecological integrity of the water bodies in these sites. What is most concerning is the fact that the true impact of forestry is yet to be manifested. Given that just under three quarters of the national forest estate consists of trees of 30 years old or less a large proportion of the national forest estate will be felled within a relatively short timeframe (Forest- Service, 2014).

In relation to forestry and High Status sites An Taisce support the findings/recommendations and the key strategies proposed by the EPA in their "Management Strategies for the Protection of High Status Water Bodies" report (Ní Chatháin et., 2012).

**Findings/Recommnedations:**

(i) Planning and development in high status catchments is an environmental issue;

(ii) High status catchments provide valuable ecosystem services;

(iii) High status catchments have little to no capacity for further intensification;

(iv) High status catchments and protected areas require similar protection strategies; and

(v) County Development Plans and all plans and policies should reflect the sensitivity of high status water bodies.

**The key strategies proposed are:**

(i) High status catchment delineation and prioritisation for protection measures;

(ii) Establishment of a spatial network of high status waters;

(iii) Establishment of a 'blue dot' monitoring system by the EPA;

(iv) Potential additional measures under the WFD over and above European Directive requirements;

(v) Assessment of potential impacts, and consideration of the risk of failing to meet high status;

(vi) Planning/Licensing control and assessment of cumulative impacts;

(vii) Centralised GIS database, or activities database;

(viii) Integrated monitoring and protection;

(ix) Unregulated activities – where control mechanisms are required; and

(x) Public awareness campaigns.

As there is a direct overlap in areas containing high status sites and the distribution of marginal land targeted for the expansion of forestry it is likely that forestry will continue to drive further losses on high status sites with associated impacts on protected species such as the Atlantic salmon and freshwater peal mussel. As high status sites have no capacity to absorb further deterioration in water quality any increase in nutrient status, pH, or sediment loads associated with forestry will lead to the loss of high status. As many high status sites are found in upland areas with peaty highly erodible soils the disturbance associated with drainage and clear felling are highly likely to result in water pollution and may result in bog bursts in extreme circumstances.

There is a strong overlap with high status sites and many of our upland areas of high biodiversity value. Many of these areas are managed for conservation or are part of High Nature Value farming systems. Under the current RDP several schemes will be introduced under Pillar II in the form of Locally Led Agri-Environment Schemes. These schemes will include a freshwater pearl mussel scheme, a hen harrier scheme and an upland scheme. These schemes will also to complemented by the by the Green Low Carbon Agri-Environment Scheme (GLAS). Given the spatial overlap between the areas involved in these schemes and high status catchments there is a need for a landscape conservation approach to which focuses on the need to support traditional extensive HNV farming. Measures that protect high status sites should be part considered as part of other schemes which are targeted at upland areas.

There is a need to review forestry practices, forestry consent and the appropriate assessment procedure and the forestry and water quality guidelines has been covered in detail in the forestry section. Pressures exerted by forestry such as eutrophication, sedimentation and acidification will all negatively impact upon high status sites. These pressures will only increase as forest cover expands nationally.

There is an urgent need to explore the benefits of continuous cover forestry as an alternative to the current model in catchments which contain high status sites.

High status sites should be afforded the same level of protection as protected habitats, under the habitats and birds directives with the same approach to planning and appropriate assessment. High status sites should be connected and be part of a conservation strategy on a landscape scale. A national network of aquatic buffers and riparian habitat would protect aquatic biodiversity as well as providing habitat and corridors for terrestrial wildlife.

The protection of high status sites needs co-ordination at national level and RBD level by all local and public authorities. A detailed, of threats and pressures, within individual high status catchments will inform remediation efforts and inform the screening for potential impacts by local and public authorities and to trigger impact assessments, which may be required of applicants. Policies and objectives within CDPs will provide a focus for protection and restoration of these sensitive catchments (Ní Chatháin et., 2012). The protection of high status waters requires an effective policy framework and protection mechanisms. It also requires locally focussed stakeholder engagement and a redirection of funding targeted to be fit for purpose. Relying on current policies and structures to protect high status water bodies is unlikely to be effective. (Irvine & Ní Chuanigh, 2010).

In order for the new water quality elements of the Environmental Requirements for Afforestation Guidelines (2016) to be implemented An Taisce request that future conditions to approval reflect the site specific nature of the Forestry Service Water Quality Guidelines

and the updated Environmental Requirements for Afforestation (2016). It is on the basis of these guidelines that we make plot level recommendations. This is the level of detail required by the governing environmental legislation.

## Climate

An Taisce were one of the contributing members to the Environmental Pillar and Stop Climate Chaos published report 'Not So Green: Debunking the Myths around Irish Agriculture.' The report draws on extensive policy and scientific evidence to challenge government and industry claims regarding the sustainability of Irish agriculture, in terms of its efficiency, its contribution to global food security, and its adequacy in climate mitigation. The document also highlights inadequacies in the Irish Government's approach to LULUCF (Land use, land use change and forestry), and challenges the argument that afforestation presents a viable option to offset emissions from agriculture.

Chapter 2 of the report titled *Challenging the Use of Afforestation for Carbon Sequestration* totally discredits the claim that Irelands Forestry Programme can contribute to Irelands EU climate obligations by offsetting agricultural greenhouse gas emissions.

In Summary the report reads:

Using land use sinks to offset agricultural emissions is NOT scientifically justifiable.

• Government and industry claim that the high level, and projected increase, of emissions from livestock can be off-set by an increase in afforestation. This argument is scientifically flawed because the off-set available is only a small fraction of potential fossil fuel emissions (Mackey et al.,2013). Also, as detailed by the Intergovernmental Panel on Climate Change (Ciais et al.,2013), such land sequestration is impermanent (relative to the thousands of years of mitigation required), highly uncertain, and subject to carbon cycle rebound effects that seriously reduce their value. Widespread afforestation also presents significant threats to Ireland's biodiversity, where planted forest replaces more diverse habitats.

• Ireland has undergone considerable afforestation with non-native conifers over the course of the 20th century. Forest management for bioenergy and wood has stored far less carbon than would have occurred without management. Darker conifers absorb more sunlight increasing global warming (Naudts et al.,2016).

• Irish plans for developing a bioenergy sector from forestry are relying on a critical EU climate accounting error (Searchinger, 2009) which incorrectly counts bioenergy from all biomass sources as carbon neutral. In fact, timber harvested from existing forests burned for electricity adds net carbon to the atmosphere.

• Although forestry and soils are regarded by the Irish government as viable land-use options for offsetting agricultural emissions, wetlands and peatlands are not. The failure by government to include peatlands is likely explained by the fact that our peatlands are currently being used unsustainably for the industrial scale extraction of peat for burning and horticultural purposes. This extraction and associated drainage creates large emissions, making peatlands, which were once a net sink, now a major emission source. Peatlands are still Ireland's largest terrestrial carbon reservoir. Purposely selecting one land-use sink to

offset emissions, while continuing to actively destroy a much greater reservoir and a former sink (i.e. Ireland's peatlands), is unjustifiable.

• There is no scientific justification for offsetting emissions against any particular sector or group of sectors against possible but highly doubtful, enhanced carbon sequestration in land-use sinks. Carbon removals should be additional to emission reductions, not replacing them (Carbon Market Watch, 2016).

**Real carbon sequestration in Ireland: the need to preserve our peatlands**

● A contradiction exists whereby the Irish government want to include certain land uses to offset agricultural emissions, namely forestry and soils but they do not want to include wetlands, which are Irelands greatest terrestrial carbon sink. Ireland's highly degraded peatlands are a source of very large flux emissions. Disturbances in the form of industrial and domestic peat extraction, private afforestation, overgrazing, wind farms and recreational activities are having major negative impacts on the hydrology, ecology and sequestration capacity of Ireland's peatlands.

Peatlands cover less than 3 per cent of the global land surface but store more carbon than is contained in the vegetation of the world's forests (Parish et al., 2008). The Republic of Ireland is third only to Finland and Canada in proportional area of peatland cover with peat soils covering 20 per cent of the country (Gore ., 1983). In their healthy state, bogs will not only store carbon but they will continue to absorb CO2 as they grow (Wilson et al., 2013). In Ireland however, we have a poor record of managing our bogs and, it is estimated that at the national level, emissions from Irish peatlands and related activities (e.g. combustion, horticulture) are around 11.01 Mt CO2 yr-1 to the atmosphere (Wilson et al., 2013). In comparison annual net C sequestration rates for Irish forests are equivalent to 3.6 MT CO2 yr-1. The sequestration through afforestation is finite, potentially short term and reversible. The actual climate contribution of the Irish forestry sector is highly dependent moving forward on afforestation rates and when the overall environmental and climate impacts are considered it is clear that this is not a credible approach to climate action.

In addition neither Ireland nor the EU can have a credible approach to LULUCF unless peat and soil carbon sink issues are addressed. If properly acknowledged and managed, sequestered carbon could yield important income in terms of agri-climate environmental measures under the Rural Development Plan Regulations. In the UK, the recommended approach to sustainable soil carbon sequestration is to include the management and protection of carbon stocks in existing highly organic soils such as those found in the uplands, peatlands, grasslands and native forests (Billett et al., 2004). Such measures are complimentary to obligations under the Birds Directive and commitments under the National Peatland Strategy (NPWS., 2014) and EU Biodiversity Strategy.

**Not So Green: Debunking the Myths around Irish Agriculture**
http://www.antaisce.org/sites/antaisce.org/files/not_so_green_report.pdf

## Conclusion

Commercial forestry in Ireland is dominated by intensively managed plantations of non-native conifers. It is clear that the right trees in the right place under the right management can deliver a host of benefits for both Irish society and the environment. Unfortunately the Irish forestry sector continues to be dominated by too many bad trees species in unsuitable areas under unsustainable management. This has resulted regrettably in the forestry sector being a major driver of biodiversity loss both inside and outside of the Natura 2000 network. The loss, degradation and fragmentation of habitat due to the intensification of land use practices such as agriculture and afforestation are the greatest threats to Irish biodiversity. For some habitats and species the situation is now critical and unless swift and decisive action is taken to protect designated habitats and species and High Nature Value farming a range of species including the Hen Harrier and the Curlew will be pushed towards national extinction. Irish forestry is associated with negative impacts on water quality during both afforestation, management and harvest stages of the forestry cycle. It is implicated in the loss of High Status Sites in Ireland over the last two decades and with the associated impacts on the species such as freshwater pearl mussel, the Nore freshwater pearl mussel and the Atlantic salmon. Many of these impacts are occurring because environmental legislation and guidelines are simply is not being properly implemented.

Under these circumstances the current forestry programme has failed to adhere to the overarching EU Policy Framework Europe 2020 strategy of "smart, sustainable and inclusive growth". It has failed to reach its targets for native woodland and broadleaf cover. On the broader role of Irish forestry in relation to the EU climate strategy it is our position that the use of intensive commercial forestry to offset emissions from an expanding and intensifying agricultural sector in Ireland will incentivise the expansion of both sectors to the detriment of the Irish environment. Such a move would not be aligned with important environmental legislation such as the Habitats Directive, Birds Directive or the Water Framework Directive and would run counter to the EUs Biodiversity Strategy 2020. Policies should be pursued which align the EUs climate and biodiversity strategy's. The conservation and restoration of credible carbon sinks such as peatlands, wetlands or more stable and more biodiverse sinks such as permanent native woodland cover and semi-natural grasslands on high carbon soils should be encouraged through LULUCF. Sustainable models of forestry such as continuous cover native broadleaves and agroforestry should be given greater attention moving forward.

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