

Observation

Re: Application Number: PAX07.323699

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Professor Mike Gormally FRES,

Cloonsheen,

Cloghans Hill,

Tuam.

Co. Galway

15.11.2025

Observation

Re: Application Number: PAX07.323699

Proposal by RWE Renewables Ireland Limited to erect eleven wind turbines of 180m within the townlands of Beagh, Beagh More, Cloonbar, Cloonmweelaun, Cloonaglasha, Cloonteen, Corillaun, Derrymore, Ironpool, Shancloon, Toberroe and Tonacoolen, Co. Galway.

Request for planning permission lodged on 19.09.2025

Competency of Professor Mike Gormally FRES

Professor (Environmental Science), University of Galway where, for more than 30 years, my scientific research has focussed on **nature conservation** and **habitat management**. The range of Environmental Science modules developed and taught by me at both undergraduate and postgraduate levels have included **Ecological Survey Techniques**, **Nature Conservation & Habitat Management** and **Environmental Impact Assessment**. I also spearheaded the development of a novel masters programme entitled: MSc in **Biodiversity & Land-use Planning** at the University of Galway.

I have published extensively in peer-reviewed scientific journals on a range of habitats, many of which are found in and around the site of the proposed Shancloon Wind Farm (Application Number: PAX07.323699). These publications include, among others, 22 peer-reviewed papers on **turloughs**, 16 peer-reviewed papers relating to **peatland** ecology and 22 peer-reviewed papers relating to the ecology of **farmland**, particularly grasslands. I am a member of the **Galway County Heritage & Biodiversity Forum** (2024 – 2030), the **Irish Ramsar Wetlands Committee**, a **Fellow of the Royal Entomological Society**, a member of the

Botanical Society of Britain and Ireland, a member of BirdWatch Ireland and a member of An Taisce.

To date, 24 students have successfully completed their PhDs under my supervision and I currently co-supervise three PhD students, one of whom is undertaking **ornithological research** (funded by Research Ireland and the NPWS) in the area of the proposed **Shancloon Wind Farm and its surrounds**. In addition, since 2019, I have supervised **seven research projects** within and surrounding the **area of the proposed Shancloon Wind Farm**. The data relating to these projects are currently being prepared for submission to peer-reviewed scientific journals. Finally, I have hosted many **site visits** by **Irish and international** university students to **Cloonbar Bog** and its surrounds as well as fellow scientists who have visited the area.

To whom it may concern,

I believe it is essential that An Coimisiún, in considering this application, take account of the fact that the EIAR is fundamentally flawed and is not fit for the purpose intended in allowing a full and robust assessment of the likely significant effects of the proposed development on the receiving environment direct or indirect, or in combination with other effects. The criteria for these considerations of what must be assessed and considered is set out in the criteria of projects falling under the remit of the EU EIA Directive 2011/92/EU as amended by 2014/52/EU under Article 3(1).

An Coimisiún cannot permit this development on the basis of an inadequate adherence to the regulations of this Directive and therefore must refuse.

Council Regulations (EU) 2022/2577 permits streamlining of permit granting processes for renewable energy projects. This does not set aside the obligations for proper environmental assessment and the identification of likely significant and cumulative impacts of a proposed project on the receiving environment.

Summary of Observations

1.1 Flawed Environmental Impact Assessment Report (EIAR)

The EIAR is **fundamentally inadequate** and **fails to meet the standards required** under the **EU EIA Directive 2011/92/EU (as amended by 2014/52/EU)**. It omits key baseline ecological data, misapplies survey methodologies, and disregards EU and national biodiversity legislation. On this basis alone, An Coimisiún Pleanála cannot make a lawful decision to permit the development.

1.2 Complexities of bird/turlough interactions not taken into account

- The proposed wind farm lies in a **turlough-dense landscape**. Research at the University of Galway has documented, for the first time, at least **16, 29 and 114 turloughs within 5km, 10km and 15 km** of the proposed wind farm site covering an area **21km²** (approx.) within this 15km radius.
- **Turloughs are EU Priority Habitats (*3180)** that, unlike permanent waterbodies (e.g. lakes) flood and empty depending primarily on rainfall levels.
- **Bird behaviour is different in turlough-dense landscapes**. With permanent waterbodies, overwintering birds generally display similar flight paths year-on-year feeding into the currently applied collision risk models. In turloughs, however, birds use **opportunistic flight paths** which vary within and between years depending on which turloughs are flooded or empty at any one time. This has significant implications for the **accuracy** of collision risk models in a turlough-dense landscape.
- **Fluctuating hydrology** in turloughs adds **complexity** to overwintering bird behaviour, an area in which little research has been undertaken to date. **Until this data gap** has been filled, the **precautionary principle** must apply since it is not currently possible to make predictions with any rigour on the potential impacts of a wind farm on overwintering birds in a turlough-dense landscape.
- The EIAR **fails to quantify** turlough density or flooding variability, omitting the, as of yet, poorly understood ecological interactions between birds and these habitats.

1.3 University of Galway research reveals deficiencies of EIAR bird surveys

- The EIAR relies on **Scottish Natural Heritage (SNH, 2017)** survey guidelines which were designed for Scotland where turloughs do not exist and therefore were not

considered in the guidelines. SNH acknowledges that their guidelines are “**not able to cater for every possible scenario**”.

- **Acoustic monitoring**, undertaken by University of Galway, demonstrates the presence of **Annex I Greenland White-fronted Goose** within the footprint of the proposed wind farm. This Annex I species was **excluded from collision risk modelling** in the EIAR on the basis that it was not observed there during Vantage Point counts.
- **Acoustic monitoring**, undertaken by University of Galway, suggests **frequent night-time movements of Greenland White-fronted Geese** between turloughs surrounding the proposed wind farm – this was **undetected** in the EIAR.
- **Night-time activity** was frequently recorded by the University of Galway in surrounding turloughs and within the footprint of the proposed wind farm (combined) for IUCN red-listed waterbirds such as **Shoveler, Dunlin, Snipe, Curlew, Golden Plover** and **Lapwing** in addition to nine amber-listed species – this was **undetected** in the EIAR.
- **UAV** surveys undertaken by University of Galway at a turlough < 5km from proposed wind farm, revealed **up to 40% more birds** being recorded in comparison to bird counts similar to those undertaken in the EIAR for the 6km walkover survey. This demonstrates that survey methods used in the EIAR likely resulted in significant **under-recording** of bird abundances in the area. The same applies to **national datasets** referred to in the EIAR where, given the very high numbers of turloughs in the area (many previously unmapped) significant national data gaps for the area exist.
- Out of date information in SNH Guidelines (2016) regarding the foraging range of the **Annex I Greenland White-fronted Goose** resulted in this species (Qualifying Interest for the Lough Corrib SPA) being incorrectly excluded from further discussion in the EIAR.
- **“Absence of evidence is not the same as evidence of absence”**

Research at the University of Galway which examined data from **long-term studies** (over 18 years) at a turlough, demonstrates **the large inter- and intra-annual variability** in overwintering bird abundance and species composition in turloughs. At this site, an Annex I species which was absent for up to five consecutive winters returned again in 2024.25. EIAR bird surveys undertaken for two to three years during this period would have made the **incorrect assumption** that this Annex I

species was permanently absent from the site and therefore excluded from risk collision modelling.

Conclusion: The EIAR grossly **underestimates bird activity** and collision risk; **its ornithological assessment** and use of **incomplete meta-data** are **invalid**. The **precautionary principle** must apply until the results of long-term research in the area (currently funded by the Government of Ireland with the support of NPWS and Wildfowl & Wetlands Trust, UK) are available.

1.4 Raised Bogs and Peatland Ecology

- **Five of the eleven turbines** are proposed for **three raised bog systems** which are **sensitive hydrological units**, acting as carbon sinks and biodiversity hotspots.
- A survey by **Dr George Smith** (peatland expert) of just 33% of one of the bogs (Cloonbar Bog) found more EU Priority Habitat **Annex I Active Raised Bog (*7110)** than in 20% of existing Special Areas of Conservation (SACs) where this habitat is a qualifying interest.
- The EIAR claims that rehabilitation is “unlikely within 30 years” contradict Dr Smith’s findings that a **plan for restoration** should be prepared informed by the necessary hydrological, topographical and drainage surveys.

Conflict with Law and Policy

- Developing wind turbines here would breach **EU Regulation 2024/1991 on Nature Restoration**, which mandates rewetting and peatland restoration to mitigate climate change.
- National and county plans (e.g. **National Energy & Climate Plan (2021-2030)**; **National Biodiversity Action Plan (2023-2030)**; **Galway County Climate Action Plan (2024–2029)**; and **Galway County Heritage Plan (2024-2030)**) emphasise, *inter alia*, **peatland restoration, carbon sequestration and nature-based solutions**, not development.

Conclusion: Turbine installation on these bogs would **release stored carbon, damage biodiversity**, and **contradict national and EU climate policies**. Turbine installation would effectively prevent the restoration of these peatlands within the timescale of **EU Regulation 2024/1991**.

1.5 Invertebrates – Marsh Fritillary Butterfly (Annex II, Habitats Directive)

- The EIA assessment for **Marsh Fritillary (*Euphydryas aurinia*)** is **wholly inadequate** given the presence of Devil's-bit Scabious, the food plant of the caterpillar, throughout the footprint of the proposed wind farm.
- Larval web surveys were conducted **on one day only** which does not take into account inter- and intra-annual variation in species distribution. There was also insufficient mapping of suitable habitats.
- **Known populations near Turbine 9** were omitted from the EIA, despite confirmed presence.
- The species depends on a **network of habitat patches and supporting corridors within 2 km** for long-term survival – this was ignored in the EIA “Biodiversity Enhancement Plan.”

Conclusion: The **Marsh Fritillary** was wrongly excluded as a Key Ecological Receptor. This omission violates the **Habitats Directive (92/43/EEC)** and the **precautionary principle**.

1.6 Cloonbar East Wetland incorrectly classified

- The EIA vegetation survey was **conducted mostly outside the growing season**, omitting peak flowering and pollinator activity.
- As a result, **90% of plant species** (including the **Near Threatened Autumn Gentian**) recorded by expert plant ecologists were missed.
- The site contains **at least three potential EU Annex I habitats**:
 - Transition Mires
 - Orchid-rich Calcareous Grassland* (priority)
 - Wet Heath
- The presence of an esker on the site and the impacts of its removal for the development was not documented
- A **floated access road and turning head** would **irreversibly damage hydrology** and **destroy Annex I habitats**, yet these impacts were not assessed.

Conclusion: The EIA misclassification of Cloonbar East Wetland as “Dry-Humid Acid Grassland” invalidates its habitat evaluation.

1.7 Overall Conclusion

The proposed Shancloon Wind Farm:

- Is located in an **ecologically unsuitable area** containing **priority habitats and protected species**;
- Depends on a **flawed EIAR** that omits critical baseline data, misapplies methodologies and makes predictions without reference to current knowledge gaps particularly relating to overwintering bird behaviour in a turlough-dense landscape.
- Conflicts directly with **EU Directives on Habitats, Birds, Nature Restoration**, and **Ireland's Biodiversity and Climate Action Plans**.

Therefore, **permission must be refused** on scientific, legal, and policy grounds until independent, site-specific research studies are completed.

2. Ornithology

2.1 Bird behaviour in a turlough-dense landscape

Turloughs (disappearing lakes found primarily in the mid-west of Ireland) are EU Priority Habitats¹ which exhibit a wide range of flooding patterns mostly throughout the Winter. This results in the surface area of water available to overwintering birds constantly fluctuating unlike permanent waterbodies such as lakes and rivers where water is always present. By way of example, Geological Survey of Ireland (GSI) data (2018 - 2021) show that the area of land covered with water at Shrule Turlough (4km approx. west of the proposed development) was approximately 9.5 times greater at 3km² (approx.) during February 2021 compared to just 0.2km² (approx.) during February 2022.

Research at the University of Galway^{2,3} has documented, for the first time, that there are at least 16, 29 and 114 turloughs within 5km, 10km and 15km respectively, of the centre of the proposed wind farm development with a conservative estimate of 21km² as the total area of turloughs combined within this 15km radius (Fig. 2.1).

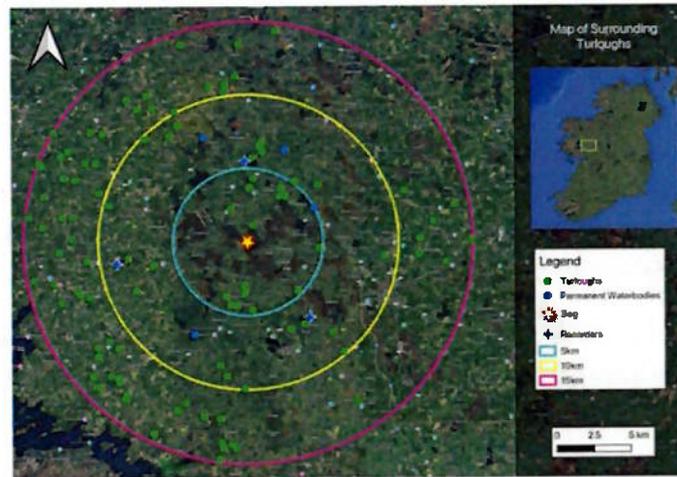


Figure 2.1: Aerial view of Cloonbar bog (location of proposed Shanclon Wind Farm) and the distribution of turloughs (green dots) within 5, 10 and 15km radius of a bird acoustic song meter recorder located at Cloonbar bog. Turlough locations were determined using the Wetlands Map of Ireland. For turloughs not included in the Wetlands Map of Ireland, expert knowledge in conjunction with the BING satellite basemap were employed to complete the database³.

(<https://wetland.maps.arcgis.com/apps/View/index.html?appid=c13b75c3bcab4932b992aa0169aa4a32&extent=-12.6266,51.3236,-3.2168,55.4102>). Blue stars represent the positions of Rathbaun (north), Shrule (west) and Belclare (south-east) respectively.

Note: When the footprint of the proposed wind farm is taken into account, Rathbaun, Shrule and Belclare Turloughs are ≤ 5 km from the footprint of the proposed Shanclon Wind Farm.

Regular patterns of bird flight directions, foraging distances and roosting behaviour commonly found in permanent waterbodies and for which SNH (NatureScot, 2017)⁴ bird survey methodologies were designed, do not apply in a turlough-dense landscape where the availability of flooded turloughs changes frequently. Since the location of the proposed windfarm is surrounded by turloughs, the direction and frequency with which overwintering birds cross the footprint of the proposed windfarm for foraging or roosting using opportunistic flight paths will vary within and between years depending on which turloughs are flooded or empty at any one time.

Observation: No quantification of the density or total area of turloughs within 15km of the proposed wind farm was presented in the EIAR thereby disregarding the complexity of interactions between bird species composition and abundance and turlough flooding patterns.

Observation: No clear description of the ephemeral nature of turloughs and how this can influence the abundance and species richness of over-wintering birds between and within years was given in the EIAR.

2.2 SNH guidelines used to inform the EIAR

Based on SNH (2016) guidelines⁵ which gives the winter core foraging distance for the Greenland White-fronted Goose (Annex I species) as 5-8km, the proposed development was considered to lie outside the foraging ranges of this species which is a Qualifying Interest (QI) for the Lough Corrib SPA (just under 10km west of the proposed development).

However, Schindler et al. (2025)⁶ reports a foraging range of 15km (verified by GPS data) for the Greenland White-fronted Goose which means that the proposed development is well within the range of this QI species and must be treated accordingly.

In the EIAR, it is stated that SNH (2017)⁴ bird survey guidelines were followed. A close examination of the bird surveying intensity for the proposed Shancloon Windfarm EIAR reveals that the percentage of total hours (day and night) in which bird surveying was undertaken over the three sampling years combined was consistently <6% per month (September – March) for Vantage Point surveys on which Collision Risk Models are based. This figure went as low as 1% of hours in March when there is frequently a particularly high level of bird activity as birds get ready to migrate to their Summer breeding grounds. The 500m Winter Walkover surveys undertaken for the EIAR ranged from no sampling at all in

September across the three sampling years to a maximum of just 1.1% of hours in February. Even less was the maximum percentage of hours of sampling for the 6Km Walkover at just 0.8% of sampling hours in February with no sampling undertaken in September for any of the three years although the I-WeBS “non-breeding” survey season (BirdWatch Ireland) runs from September to March each year.

In addition, the accuracy of the SNH recommended Vantage Point Surveys used in this EIAR has recently (2024)⁷ been questioned by Dr Tom Gittings (Independent Ecological Consultant since 2001) who has analysed Vantage Point data. He states that detection rates tend to decline with distance from Vantage Points “...with very low detection rates at distances of more than 1 km from the vantage points. “

Observation: *The inappropriateness of simply applying SNH (2017) bird survey guidelines designed for Scotland where turloughs are absent and therefore not considered in the guidelines, were not described in the EIAR. SNH (2017) states that this guidance document is “not prescriptive or able to cater for every possible scenario...” and “..not exhaustive and there may well be occasions where novel or different survey methods are required”.*

Observation: *Bird detections decrease with distance from Vantage Points suggesting that numbers of birds seen flying over the footprint of a proposed development are often underestimated.*

Observation: *Information given in the SNH guidelines regarding bird foraging ranges which is incorrect is of serious concern if it results in species which are a Qualifying Interest for an SPA being excluded from consideration.*

2.3 Significant knowledge gaps recognised regarding how overwintering birds utilise a turlough-dense landscape

An acknowledgement of the significant knowledge gaps regarding how overwintering waterbirds use turloughs has been recognised by the recent (2025) awarding to the University of Galway of a research grant by Research Ireland. Research Ireland is part of the **Government of Ireland Impact 2030** (Ireland’s Research and Innovation Strategy⁸) to position “research and innovation at the heart of addressing Ireland’s..... **environmental challenges.**” Application for this highly competitive grant was based on almost six years of research by the University of Galway on the turloughs and bogs in the area of the now

proposed Shancloon Wind Farm. This culminated in the recognition that a single, dedicated research project was required to start addressing these significant knowledge gaps.

A PhD has commenced (under the joint supervision of myself and Dr Caitríona Carlin, University of Galway) to increase our understanding, in particular, of how two Annex I bird species utilise this ecologically complex region. With the support of NPWS staff and advice and training from the Wildfowl & Wetlands Trust (UK), this winter (2025.26) we will fit Greenland White-fronted Geese and Whooper Swans with GPS collars to measure, in real time, how these birds utilise turloughs in this area over four years. Additional research using UAVs with thermal cameras and acoustic monitors will also determine general bird species composition and night-time activities on turloughs. Since each bird has species-specific ecological requirements, it is planned that further studies of other red and amber listed bird species in the area will be undertaken in the future. The research objectives align with those of the **Irish National Biodiversity Action Plan**⁹: Objective 4 i.e. “**enhancing the evidence base for biodiversity action**”; the **EU Nature Restoration Law**¹⁰ and **EU Biodiversity Strategy for 2030**¹¹, emphasising improving species populations such as wetland birds, many of which are currently in decline in Ireland.

Observation: *Until the results of the above long-term, independent research studies are available, it is not possible, with any degree of confidence, to determine the potential impacts of a wind farm on over-wintering birds in this turlough-dense landscape. Until then, the precautionary principle should, therefore, apply.*

Observation: *The above independent research is of international significance in that the results will also be of benefit not only to Ireland but to wetland bird researchers and policy makers in the UK, Iceland and Greenland with whom we will be collaborating. A windfarm development in the area during the lifetimes of the above research projects could seriously jeopardise the aims of these studies resulting in reputational damage to Ireland as a place to do biodiversity research.*

2.4 Research at the University of Galway provides evidence of the unsuitability of SNH guidelines for ornithological surveys in this turlough-dense landscape

In conjunction with Point Count surveys, research at the University of Galway has utilised modern ornithological survey methods within and around the area of the proposed

windfarm. These methods, recommended as best practice by Bird Survey Guidelines (2025)¹², include the deployment of acoustic monitors and UAVs, neither of which were used to inform the EIAR for Shancloon Wind Farm (Table 2.1).

Table 2.1: A comparison of a selection of appropriate methodologies recommended by the Bird Survey Guidelines (UK) compared with the SNH (2017) methodologies used in the Shancloon Wind Farm EIAR

	Bird Survey Guidelines UK (2025)	Methodologies used in EIAR based on SNH (2017)
Nocturnal bird surveys	<p>Recommends that thermal imaging be undertaken to quantify how birds are using habitats after dark, particularly for:</p> <ul style="list-style-type: none"> • Winter waders • Migratory geese • Certain species of owl 	<p>No thermal imaging undertaken</p> <p><i>Note: This technology has been in use for avian studies since the early 2000s</i></p>
Passive audio recording	<p>Passive audio recording should be considered to identify:</p> <ul style="list-style-type: none"> • extent of nocturnal migration over site • presence of nocturnal site usage 	<p>No passive audio recording undertaken.</p> <p><i>Note: This technology has been in use for over 10 years in avian studies</i></p>

Summaries of University of Galway research within and around the footprint of the proposed Shancloon Wind Farm are given below:

Acoustic monitoring^{2,3}:

- The **presence of Annex I Greenland White-fronted Goose** was confirmed within the footprint of the proposed windfarm using acoustic monitoring. This is in contrast with the EIAR which states that this species was not recorded using Vantage Point counts within the development footprint and it was, therefore, **excluded from Collision Risk Modelling**.

- Vocalisation patterns, recorded simultaneously at three turloughs (Fig. 1) to the north (Rathbaun), west (Shrule) and south (Belclare) of the proposed Shancloon Wind Farm, suggest **frequent movement** of Greenland White-fronted Goose between these turloughs, all of which are $\leq 5\text{km}$ from the footprint of the proposed wind farm.
- Patterns of presence/absence of Greenland White-fronted Goose vocalisations at each of the above three turloughs demonstrates considerable **night-time activity** suggesting frequent movement between turloughs at night during which no ornithological surveys for this species were undertaken for the EIAR.
- Analysis of site utilisation by Greenland White-fronted Geese using acoustic monitors shows an increase in the number of sites being used by the species within a single sampling window. In November (2024), Greenland White-fronted Geese were detected exclusively at single sites during sampling windows, with no instances of simultaneous multi-site occupation. By December 2024, the species **exhibited expanded site usage**, with detections spanning two to three sites within individual sampling windows. This pattern intensified further in January 2025, when Greenland White-fronted Geese were detected within single sampling windows across two, three and all four study sites. The progressive increase in multi-site utilisation could suggest resource depletion at individual sites, requiring increased foraging ranges to meet energetic requirements. These apparent changes in behaviour throughout the winter would not have been detected using Vantage Point Count surveys which were used for the EIAR as recommended by SNH guidelines. In addition, a foraging range of 15km would facilitate movement of Greenland White-fronted Geese between Shrule, Belclare, Rathbaun turloughs (all within c. 6.5km to 7.5km of the proposed windfarm and Cloonbar Bog and c. 12-13km apart from each other).
- **Night-time activity** was frequently recorded (Nov. 10th - Dec 9th, 2024) across the four sites (three turloughs and bog within the footprint of the proposed Shancloon Wind Farm) for IUCN red-listed waterbirds such as **Shoveler, Dunlin, Snipe, Curlew, Golden Plover and Lapwing** in addition to nine amber-listed species.

Observation: *Passive audio recording, a methodology recommended by Bird Survey Guidelines UK (2025) and undertaken by University of Galway, confirms significant gaps*

in the EIAR data. It also indicates potential risks to Greenland White-fronted Geese crossing the footprint of the proposed wind farm when moving between turloughs at nighttime.

Observation: Potential changing patterns in turlough usage by the Greenland White-fronted Goose as Winter proceeds and night-time activity for other red-listed bird species confirms the complexities of the relationships between overwintering birds and turloughs not presented in the EIAR.

UAV (Drone) surveys¹³:

- UAV transects across Rathbaun turlough (<5km from the proposed windfarm) recorded greater mean bird abundances with up to **40% more overwintering birds being recorded using a UAV** compared to bird counts similar to those undertaken for the Shanclon Windfarm EIAR. Turloughs, unlike lakes, frequently have stonewalls, hedgerows and scrub running through them, making it difficult to determine accurate bird composition/densities using Point Counts alone (Fig. 2). The 6Km Walkover undertaken for the proposed Shanclon Windfarm with sampling undertaken for $\leq 0.8\%$ of available hours is, therefore, likely a significant **underestimation** of true bird densities within 5km of the proposed development.

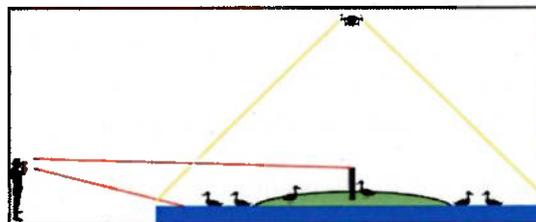


Figure 2: A simplified schematic of the limitations of using Point Counts to determine turlough bird abundances in turloughs in comparison to UAV counts¹³.

Observations: The underestimation of bird abundances using only bird counts to inform the EIAR demonstrates the absence of robust data to confidently determine the impacts of the proposed development on overwintering birds.

Turlough water surface area measurements¹³:

A significant positive correlation was detected between bird species richness and flooded area indicating the possibility that the greater the flooded area within a single turlough, the greater over-wintering bird diversity it supports. This study was undertaken at Rathbaun turlough (<5km from footprint of proposed development) where for the first time, turlough water surface area was calculated using a UAV and measured against bird species richness.

Observation: *Variability in the area of flooding of turloughs surrounding the proposed windfarm at Shanclon at the times of surveying and its potential effects on determinations of bird species composition/abundance was wholly ignored in the EIAR.*

2.5 Absence of evidence is not the same as evidence of absence:

Recent research at the University of Galway analysed 18 years of Vantage Point Count surveys undertaken at a Roscommon turlough within the period November to January (2004-2025)¹⁴. These surveys were carried out by the same ornithologist making this dataset particularly robust in that the surveyor knows the site intimately and there is no potential for variation in surveyor competency.

Over these 18 years, Greenland White-fronted Goose was not recorded on site during one Winter sampling period on three occasions (2007/2008; 2013/2014 and 2016 /2017); two consecutive winters on one occasion (2009 - 2011) and one instance of four consecutive winters (2018 – 2024) (no sampling took place in 2019.20). The birds returned again to the site last Winter (2024.25) after an absence of up to five years.

Similarly, other red and amber-listed overwintering birds were not recorded on site during one Winter sampling period (on one occasion for Teal, Wigeon, Shoveler, and Dunlin; on two occasions for Lapwing and Golden Plover; on three occasions for Pintail, Black-headed Gull and Mute Swan); on two consecutive Winters – Pintail and Golden Plover (once) and Dunlin (three times).

Observation: *In turlough-dense regions such as the landscape surrounding the proposed Shanclon Windfarm, bird data collected over three years, as was undertaken for this EIAR, is not sufficient to capture a true picture of overwintering bird species composition and abundance given the variability in turlough flooding patterns. For this reason, these data cannot be used to predict the potential impacts of the proposed windfarm on overwintering birds in the area.*

2.6 Limitations of metadata employed in the EIAR

BirdWatch Ireland's Bird Sensitivity Mapping Tool¹⁵

In section 10.6.1.2 - Avifauna (p22), it is stated that:

“BirdWatch Ireland's Bird Sensitivity Mapping Tool [...] was utilised to predict the sensitivity of birds to wind farm developments within the 10km grid square M35 that overlaps the site and “there is no data available for the western portion of the Site”.

Observation: It has not been stated explicitly in the EIAR that BirdWatch Ireland's Bird Sensitivity Mapping Tool does not have any data for more than half (56%) of the 16 turloughs situated within 5km of the proposed wind farm site. With more than half the data missing, this cannot be used with confidence to predict the sensitivity of birds in the area to the proposed wind farm.

Gaps in Irish Wetland Bird Survey (IWeBs) data

Mapping by the University of Galway has demonstrated, for the first time, that there are at least 16 turloughs within 5km of the proposed Shancloon Wind Farm. However, IWeBs annual data referred to in the EIAR, indicate that less than 20% of these 16 turloughs contribute to the national IWeBs dataset within the 5km radius.

Bird counts are the standard method used for the annual national IWeBs bird counts. IWeBs data are referred to extensively in the EIAR to give an indication of bird species composition and abundance in the area surrounding the proposed Shancloon Wind Farm. The underestimation of bird numbers at Rathbaun Turlough using bird counts alone demonstrates that the annual IWeBs data are likely an underestimation of true bird abundances, not only at Rathbaun Turlough but in the turloughs in the area for which IWeBs counts are undertaken.

Research undertaken by the University of Galway at Rathbaun Turlough alone which is only one of the 16 turloughs \leq 5km from the proposed development, has recorded in a single day (2024.25) numbers of birds exceeding the 1% thresholds required to qualify as a site harbouring nationally important populations. This applied not only to Shoveler (up to 3.5 times the 1% threshold), Tufted Duck and Wigeon (as indicated in the EIAR for the North Galway Central Lakes as a whole) but also to Pochard (greater than twice the 1% threshold) and Mallard. We also recorded (2023.24) Shoveler numbers reaching the 1% threshold at Belclare Turlough (5km approx. from the footprint of the proposed development).

Observation: Given that no IWeBs data exist for more than 80% of the turloughs within 5km of the proposed Shancloon Wind Farm, these incomplete datasets cannot be

taken as a true reflection of bird abundances on which a decision regarding planning permission for a wind farm can be based.

Observation: Data gaps for IWeBs metadata in the area within and immediately surrounding the footprint of the proposed development in combination with the likelihood that existing metadata gathered using bird counts are under-recording, means that these metadata are not a true reflection of overwintering bird species composition and abundances. These meta-data cannot, therefore, be used with confidence to determine potential impacts of the proposed windfarm at Shancloon on overwintering wetland birds in the area.

2.7 Overview:

Twenty-one species of overwintering wetland birds found within 0-5km of the proposed windfarm at Shancloon are of conservation concern (Table 2.2, below). Of these, 33% are ranked as having the highest conservation concern, many of which are in large decline nationally (Pochard, Lapwing, Golden Plover); moderate decline (Dunlin, Curlew); and intermediate decline (Coot, Mallard, Wigeon, Tufted Duck, Pintail, Great Crested Grebe and Shoveler). In addition, eight of the bird species present which are Qualifying Interests for Lough Corrib SPA (Table 2.2), may well use these turloughs as part of their wider home range particularly during the winter. This is particularly relevant to Gadwall which recent GPS tracking has shown has a foraging range up to 20km (Spencer et al., 2023)¹⁶ and Pochard and Tufted Duck (Gourlay-Larour et al., 2012) which have been shown to fly >10km during the overwintering period making these turloughs well within the foraging range of Lough Corrib SPA. Indeed, any winter wildfowl or waders are likely to be moving through the location to access feeding and roosting sites.

Given the significant gaps in the knowledge (as proven above) regarding how overwintering birds utilise ephemeral waterbodies such as the turloughs in the area of the proposed wind farm, the precautionary principle must apply and the Bord refuse to permit this development on the basis of an inadequate adherence to the regulations of EU EIA Directive 2011/92/EU as amended by 2014/52/EU under Article 3(1) to “....*ensure maintenance of the diversity of species and to maintain the reproductive capacity of the ecosystem as a basic resource for life*”.

Table 2.2: IUCN listed waterbirds found within 0 - 5km of the proposed Shancloon Wind Farm (Red listed species of high conservation risk (in red); Amber listed species of medium conservation concern (in yellow) (Gilbert et al., 2021)). QI = Qualifying Interests

Group	Latin Name	Common Name	Lough Corrib SPA QI
Ducks	<i>Anas acuta</i>	Pintail	-
	<i>Anas crecca</i>	Teal	-
	<i>Anas platyrhynchos</i>	Mallard	-
	<i>Aythya ferina</i>	Pochard	Yes
	<i>Aythya fuligula</i>	Tufted Duck	Yes
	<i>Mareca penelope</i>	Wigeon	-
	<i>Mareca strepera</i>	Gadwall	Yes
	<i>Spatula clypeata</i>	Shoveller	Yes
Waders	<i>Calidris alpina</i>	Dunlin	-
	<i>Gallinago gallinago</i>	Snipe	-
	<i>Numenius arquata</i>	Curlew	-
	<i>Pluvialis apricaria</i>	Golden Plover	Yes
	<i>Vanellus vanellus</i>	Lapwing	-
Geese	<i>Anser albifrons flavirostris</i>	Greenland White-fronted Geese	Yes
	<i>Anser anser</i>	Greylag Goose	-
Grebes	<i>Podiceps cristatus</i>	Great Crested Grebe	-
Swans	<i>Cygnus cygnus</i>	Whooper Swan	-
	<i>Cygnus olor</i>	Mute Swan	-
Gulls	<i>Chroicephalus ridibundus</i>	Black-headed Gull	Yes
	<i>Larus fuscus</i>	Lesser Black backed Gull	-
Rails	<i>Fulica atra</i>	Coot	Yes

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3. Raised Bog

Almost half (five) of the proposed wind turbines for Shanclon Windfarm are planned to be situated on three bogs (Cloonteen-Cloonbar-Toberroe Complex; Cloonsheen Shanclon; and Beagh More North) which, because of their complex hydrological processes, are particularly sensitive to large developments. When degraded by developments such as the installation of wind turbines, raised bogs will emit carbon due to the decomposition of dry peat, switching from being a carbon sink to a carbon source. The viable long-term alternative for these bogs is to rewet them, thereby restoring Sphagnum-rich, actively peat-forming bog (Wilson et al., 2022)¹. Interference with the peat on the surface or at any depth will further damage a valuable recovering wetland system. Ireland hosts more than half of the Atlantic sub-type of raised bog that remains in Europe and as such is obliged under EU law to prioritise their conservation.

3.1 Conservation value of Cloonbar Bog “surprisingly high”

An ecological survey² of just over 33% of one of the bogs on which three wind turbines are proposed to be placed (i.e. Cloonbar Bog), was undertaken in 2024 by peatland expert ecologist Dr George Smith. Dr Smith has worked on raised bogs for many years and is author of the books “The Habitats of Cutover Raised Bog³” and “Best Practice Guidance for Habitat Survey and Mapping⁴”, the former of which is referred to in the EIAR for its assessment of the ecological value of the bog.

The EIAR concludes that: “*it is **not likely that rehabilitation** could be achieved within 30 years*”.

The above statement contrasts sharply with Dr Smith’s comments wherein he describes the conservation value of Cloonbar Bog as:

“***surprisingly high***” and that “*a **plan for restoring the high bog and cutover bog should be prepared...informed by the necessary hydrological, topographical and drainage surveys***”.

A summary of Dr Smith’s report on Cloonbar Bog documents that:

- A total of 5.8 ha of priority **Annex I ‘active raised bog (*7110)’** occurs on site, of which 0.3 ha is central ecotope, the **highest quality raised bog habitat**.
- There is **more ‘active raised bog (*7110)’** in the area of Cloonbar Bog surveyed (circa 33%) **than in 10 of 48 existing Special Areas of Conservation (SACs)** in Ireland where ‘active raised bog (*7110)’ is a qualifying interest.

- Cloonbar bog is notable as one of **the most westerly raised bogs in Ireland** and its **distinctive western raised bog flora** increases its conservation value.
- A **full suite of typical species** is present, including some that are **uncommon indicators of quality**, such as *Sphagnum austinii* (Near Threatened in Europe) and *Sphagnum beothuk*.
- A **plan for restoring** the high bog and cutover bog **should be prepared**. This should be informed by the necessary hydrological, topographical and drainage surveys.
- **Additional survey work** should be undertaken to map further areas of active raised bog (*7110), including on old cutover bog.

Observation: The conclusion in the EIAR indicating it unlikely that restoration could be achieved within 30 years contrasts sharply with Dr Smith's expert opinion that a restoration plan be prepared on the basis that there is more Annex 1 Active Raised Bog (*7110) present than in 20% of Special Areas of Conservation in Ireland where Active Raised Bog (*7110)' is a qualifying interest.

3.2 Bogs in and surrounding the proposed wind farm not yet surveyed by a national agency

None of the three bogs on which wind turbines are proposed (Figure 3.1) have yet been fully evaluated by a national agency (Table 3.1). In the absence of ecological and hydrological surveys by independent national agencies to determine the conservation value of the bogs, it is not possible to determine the impacts of the proposed wind farm even if only part of the bog is developed. This is because raised bogs function as **single hydrological units** that are interdependent and water loss can occur laterally through the peat impacting anaerobic conditions necessary for peat formation as well as leading to biodiversity loss and increased carbon emissions.

Observation: Independent national agency evaluation of bogs within and surrounding the proposed wind farm required to determine conservation value.

Figure 3.1: Location of bogs in and around the proposed wind farm at Shancloon adapted from Wetland Surveys Ireland's *Map of Irish Wetlands (MIW Intro — Wetland Surveys)* where 1a in red outline indicates the area surveyed by Smith (2024)² - see Table 3.1 for further details. Black dots indicate approximate location of five of the eleven turbines located on bog (see Shancloon Wind Farm EIAR)



Table 3.1: Current survey status of bogs in and surrounding the proposed wind farm at Shanclon taken from Wetland Surveys Ireland's *Map of Irish Wetlands (MIW)** (bogs highlighted in orange represent bogs on which wind turbines are proposed)

Site Number	Site Name	Site Code	County	MIW Area (ha)	Site Evaluation
1a & 1b	Cloonteen Cloonbar Toberroe Cutover Complex <i>Proposed location for Wind Turbines 7, 10 & 11</i>	WMI_GA559	Galway	321.68	Nationally Important 1a Dr George Smith Report ² covers just over 33% (approx.) of the area
2	Cloonsheen Shanclon Bog & Cutover <i>Proposed location for Wind Turbine 1</i>	WMI_GA562	Galway	Not given	Unknown value Survey required
3	<i>Beagh More North Cutover</i> <i>Proposed location for Wind Turbine 5</i>	MIW_GA566	Galway	Not given	Unknown value Survey required
4	Cloonglasha Beagh More Cutover Complex	MIW_GA563	Galway	Not given	Unknown value Survey required

	South-east of proposed Shancloon Wind Farm				
5	Beagh Cloonmweelaun Cloonaglasha Cutover Complex North-east of proposed Shancloon Wind Farm	MIW_GA558	Galway	Not given	Unknown value Survey required

*<http://www.wetlandssurveysireland.com/wetlands/map-of-irish-wetlands--/map-of-irish-wetlands--map/>

3.3 European Law and Peatlands

Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on **Nature Restoration** and amending Regulation (EU) 2022/869 (<http://data.europa.eu/eli/reg/2024/1991/oj>), states that Regulation (EU) 2023/839:

*“...emphasises the need for the protection and enhancement of **nature-based carbon removals**, for the improvement of the resilience of ecosystems to climate change, for the restoration of degraded land and ecosystems, and for **rewetting peatlands**”*

Under Article 11 of EU 2024/1991 (**Nature Restoration**), it states:

- *“Restoration measures that consist in **rewetting peatland**, including the water levels to be achieved, shall contribute to **reducing greenhouse gas net emissions and increasing biodiversity**...”*

- “Member States shall, as appropriate, **incentivise rewetting** to make it an attractive option for farmers and private landowners...”
- Member States shall put in place measures to: “**Restore organic soils in drained peatlands on at least 50% of such areas by 2050**”.

Observation: This Regulation is primarily for the mitigation of climate change and its impacts, since wetlands such as bogs sequester carbon and manage water flow, preventing floods. To place wind turbines on these three bogs is contrary to this Regulation, essentially preventing their restoration within the timescale of the Regulation targets. This would prevent any chance of the bogs being restored to mitigate climate change on a permanent basis in addition to destroying the range of ecosystem services they provide.

3.4 The Ecosystem Functions of Raised Bogs:

Active Raised Bog is a **priority habitat** listed under Annex I of the EU Habitats Directive (92/43/EEC) – “active raised bog (*7110)”. Priority habitats are considered to be in **danger of disappearing** within the EU territory and as such member states have a **special obligation to protect** them. Objectives of the EU Directive also align with the **restoration of non-protected bogs** and are not limited to SACs.

Peatlands perform key ecological functions on which humans are dependent. Although peatlands only cover approximately 3% of Earth's land⁵, they store up to 33% of the earth's terrestrial organic **carbon** – up to twice as much carbon as all the world's forests (including tropical rainforests) combined. Under natural wet conditions, raised bogs contribute to long term **climate stabilisation** by emitting less greenhouse gases than other ecosystems. They also **regulate water** by absorbing water which is released gradually (thereby reducing risk of flooding) as well as playing a significant role in the recharging of groundwater. Raised bogs support unique habitats which are home to specialised plant and animal species, thereby contributing to **regional and global biodiversity**. The slow decomposition of organic matter which occurs in raised bogs prevents the excessive runoff of nutrients into rivers and lakes, thereby playing a critical role in **nutrient cycling**. Educational, recreational and cultural services are also provided by raised bogs, including the bogs on which wind turbines are to be placed for the proposed Shanclon Wind Farm.

Active and restored raised bogs contribute directly to **permanent climate mitigation** and biodiversity benefits through **long-term storage of carbon**. Wind turbines on raised bog also come with complex **ecological risks** such as the release of carbon, loss of biodiversity, peat instability and long-term degradation of ecosystem services. At sites such as those described above where raised bog conservation and restoration are not only possible but recommended by an independent peatland expert, ecological restoration should be the priority.

The **survey, protection and restoration** of the raised bogs selected for the proposed Shanclon Wind Farm is supported by the following national and local Climate Action and Heritage / Biodiversity Action Plans:

National Energy & Climate Plan 2021-2030

*“Undertake further research to assess the potential to sequester, store and reduce emissions of carbon through the management, **restoration and rehabilitation of peatlands**”.*

National Biodiversity Action Plan 2023–2030

*“Minimize the impact of climate change [...] through **nature-based solutions** and/or ecosystem-based approaches.”* Target 8 (Kunming-Montreal Global Biodiversity Framework)

Galway County Climate Action Plan (2024-2029)

*“Identify priority areas [.....] for **habitat restoration**, enhancement for wildlife and protection for **carbon and biodiversity** benefits”.* Action LN2.1

*“Carry out ecological/habitat surveys and highlight areas at risk (as well as areas which are thriving or **providing sequestration services**) and those suitable for restoration and **enhanced carbon storage**.”* Action LN2.2

Galway County Heritage Plan 2024-2030

*“Support the **assessment, protection and restoration** of Annex 1 Priority habitats **outside designated sites** to inform planning decisions”.* Action BD3.5

Observation: National and local Climate/Heritage/Biodiversity plans strongly support the restoration of the bogs in and surrounding the proposed Shanclon Wind Farm primarily as a long-term solution to carbon sequestration along with benefits for biodiversity and other ecosystem services. The installation of a wind farm on these bogs is incompatible with these action plans.

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4. Invertebrates:

4.1 Marsh Fritillary – Protected under Annex II of the Habitats Directive

Marsh Fritillary Ecological Requirements

The Marsh Fritillary butterfly functions as a **metapopulation** where rather than having one large population at a single site, it survives by having many small, connected colonies where the foodplant of the caterpillar (Devil's-bit Scabious) is found. In addition, a characteristic of the Marsh Fritillary butterfly is that its population undergoes extreme **cyclical fluctuations** (NPWS)¹.

To ensure the local survival of the species, habitat creation must include **networks of habitat patches** that are close enough to facilitate butterfly movement between them². It is suggested that clusters of patches up to a 2 km radius from known populations are required to maintain a viable metapopulation³.

4.2 Marsh Fritillary records at the site of the proposed wind farm incomplete

In section 9.5.5.1 of the EIAR, it is stated that:

“As part of ecological walkover assessments for the Proposed Development, the habitats within the Site were assessed for suitability to support Marsh Fritillary”

Observation: Describing the survey for Marsh Fritillary as an “ecological walkover” does not provide sufficient detail of sampling intensity. It is, therefore, not possible to determine the quality of the baseline data used to predict potential impacts of the proposed wind farm on an Annex II protected species.

In section 9.5.5 of the EIAR, it is also stated that only *“Habitats which were determined to be potentially suitable or habitats in good condition to support Marsh Fritillary (as per the habitat condition form) were subjected to dedicated Marsh Fritillary larval web searches..”*

And

In Figure 9.6, only two areas in the south-west of the proposed development are presented as “Marsh Fritillary Survey Areas”.

Observation: The larval food plant of the Marsh Fritillary (Devil's-bit Scabious) is found growing in many areas of the footprint of the proposed wind farm. Therefore, a map of

all these areas with an NDBC Marsh Fritillary Habitat Condition Assessment for each area is required. This will provide proof that habitat surveying was done according to best practice.

In addition, the provision of a map of the locations and habitat condition of Devil's-bit Scabious sites within 2km of the footprint of the proposed windfarm is particularly important given the reliance of the species on networks of potential habitat patches³.

In Table 9-11, it is stated that “no larval webs were recorded during dedicated marsh fritillary surveys” which only took place on one day i.e. “on 31st August 2022”.

Observation: It is of serious concern that a search for larval webs took place on just a single day at the end of August in only one calendar year. This excludes finding later hatching colonies which might not be visible until mid-September or in other years with different weather conditions. Neither does it allow for the known cyclical fluctuations in populations of the butterfly. This level of sampling is not sufficient to determine the presence of Marsh Fritillary and therefore, it is impossible, on this basis, to make predictions regarding the impacts of the proposed wind farm on this Annex II species.

In section 2.8, it is stated that: “the lands within the proposed Shancloon Wind farm were not found to contain areas of suitable habitat for Marsh Fritillary.”

Observation: I have frequently recorded Marsh Fritillary butterflies along the north-eastern and south-western boundaries of the footprint near Turbine 9 which is situated towards the north-eastern end of the proposed wind farm. A quick survey using 10 standard 1m² quadrats (as recommended by the NDBC Marsh Fritillary Habitat Condition Form) revealed that eight supported > 10 *Succisa pratensis* plants (Category C) with the other two quadrats supporting seven plants each (Category B). Categories B and C are one of the indicators of Good Condition Habitat.

Observation: Best practice⁴ recommends that “In combination with a larval web survey; a survey of adult butterflies should also take place between May and July, as this can aid identification of web locations. Adult butterflies only fly in warm, sunny conditions, so visits should only be undertaken in favourable weather conditions between 10.30 and 16.30. The presence of adults confirms that there is a marsh fritillary colony in the area”.

Observation: Based on the above best practice⁴, a detailed table indicating the dates and times of the adult butterfly surveys and the weather conditions on each day of the survey is required along with Marsh Fritillary abundances in addition to a map indicating the areas surveyed.

Observation: It is of serious concern that no record of Marsh Fritillary in these areas has been documented within the footprint of the proposed wind farm in the EIAR although Marsh Fritillary is present as evidenced by my observations close to proposed Turbine 9.

9.7.6 states that: “Two locations within the Site were assessed through habitat walkover survey as having potential to support Marsh Fritillary: the wet grassland near T2 and the patches of Devils-bit scabious along the turbary road adjacent to cutover bog at Cloonbar Bog.”

Observation: There are many “turbary roads” at Cloonbar Bog, so it is not possible to determine from the above statement where these “patches of Devil’s-bit scabious” are.

Observation: The absence of EIAR records of Marsh Fritillary close to Turbine 9 suggests that sampling intensity for the species was inadequate.

Observation: The Marsh Fritillary butterflies recorded by me on the north-eastern and southwestern edges of the windfarm boundary will be separated by a road and Turbine 9 should the development proceed. This increases the risk of creating a barrier (caused by the turbine, the road and potential loss of habitat) between these two populations of Marsh Fritillary. In addition, mitigation measures regarding potential changes to microclimatic conditions caused by turbine-induced air turbulence need to be addressed given the sensitivity of Marsh Fritillary especially during overwintering in webs close to the ground. This is of particular concern to the population on the north-eastern boundary given the prevailing south-westerly winds at the site.

In Table 9.11 – “Ecological Receptors”, it is stated with reference to Marsh Fritillary that: “No areas identified as providing suitable habitat for this species are located within the red line

boundary” and, on that basis, the Marsh Fritillary has been excluded as a Key Ecological Receptor.

Observation: Given that I have recorded Marsh Fritillary along the north-eastern and south-western boundaries of the footprint of the proposed development at Turbine 9, the exclusion in the EIAR of Marsh Fritillary as a Key Ecological Receptor does not apply.

4.3 Biodiversity Enhancement and Management Plan (BEMP)

9.9.4.4 states that: *“a proposed peat storage area will be actively managed for habitat enhancement for Marsh Fritillary”*. Fig. 9.4a shows that the location of the proposed habitat enhancement for Marsh Fritillary is located towards the south-west of the site near Turbines 3 and 4.

Observation: Only two immediately adjacent areas are set aside for habitat development for the Marsh Fritillary in the south-western end of the wind farm close to Turbines 3 and 4. There is, however, no indication of the locations of the required habitat patches within a 2km radius of this site to ensure the survival of the population.

To guarantee the success of the “newly created sites”, an intensive survey of the surrounding area is required to provide evidence on a map that there are an adequate number of patches within the footprint of the proposed windfarm to support this Annex II species. In addition, landowner agreements to manage these patches for the Marsh Fritillary need to be provided as evidence of good intent for the lifetime of the wind farm. Details of the locations of supporting corridors between habitat patches to improve connectivity also need to be provided on a map.

Observation: The locations where Marsh Fritillary is found near Turbine 9 (documented by me) are > 2km from the proposed “newly created site” and therefore, too far away to act as one of the required habitat patches. A conservation plan for the north-eastern end of the wind farm ensuring sufficient habitat patches with supporting corridors (inside the footprint and within 2km of the footprint) would, therefore, need to be considered to support the conservation of this Annex II species.

4.4 Conclusion:

Based on inadequate surveying where locations of the Annex II Marsh Fritillary butterfly were overlooked and a poorly considered Biodiversity and Habitat Enhancement Plan, the potential impacts of the Shancloon Wind Farm, particularly the associated drainage and

road infrastructure cannot be determined with any confidence. In addition, the exclusion of the Marsh Fritillary as an Ecological Receptor on the basis of inadequate sampling is of serious concern, particularly for an Annex II species.

Note that NRA (TTI)⁵ guidance recommends a precautionary approach with regard to marsh fritillary because “...*due to the sometimes ephemeral nature of their sub-populations, their absence from otherwise suitable sites in the vicinity of existing populations in a given year cannot rule-out the use of the area in subsequent seasons. As such, suitable but currently unoccupied habitat near to existing populations should also be considered of value, as these habitats may be critical to the long-term survival of the population.*”

References:

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5 Cloonbar East Wetland (Commonage)

5.1 Vegetation Sampling

Sampling season

67% of the vegetation surveys took place in September, October and January (i.e. outside the active growing season) and no vegetation sampling was undertaken in July and August, the peak flowering time for most plant species. This means that some of the less common plant species and many of their pollinators will have been missed.

The statement in Table 9-11 (Ecological Receptors) that the site “*is of limited use to pollinators*” cannot be substantiated when no visits to the site took place when pollinators are most active. An example that shows up these poor sampling methods that refutes the above statement is the recording of the **Moss Carder Bee** (*Bombus muscorum*) which is **Near Threatened** in the Irish Red List of Bees by an ecologist in 2023 on East Cloonbar Wetland. Only a comprehensive survey mid-season would provide evidence to evaluate the site, which is clearly not of ‘limited use to pollinators’.

Observation: *Vegetation sampling season inadequate to fully determine the ecological value (including plants and pollinators) at the site.*

Sampling intensity

No indication is given in the EIAR of the location, size and number of quadrats undertaken for the vegetation survey nor are the names of surveyors supplied, as they are in the ornithology section.

Volume 2 Chapter 9 Biodiversity 9.5.4.1 simply states:

“Vegetation was sampled by taking botanical quadrats/relevés which were undertaken to analyse potential links with Annex I habitat types.”

Observation: *Noting the location, size and number of each quadrat is essential in a survey to fully assess whether it adequately represents the vegetation in/around each site.*

Best practice for habitat surveys

9.5.4.1 states: “The DAFOR scale was used to record species abundance within relevés: Dominant, Abundant, Frequent, Occasional and Rare (DAFOR).”

The Heritage Council's *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al. 2011)¹ was cited in the EIAR as the methodology used for botanical surveys, yet Smith et al. (2011)¹ explicitly state: “The relative abundance of different plant species, including bryophytes, should be recorded in quadrats. **Recording species presence or using the DAFOR scale is generally inadequate**”. “In Ireland, the most commonly used [...] is the Domin scale.”

Observation: Smith et al. (2011)¹ cited as the methodology used for botanical surveys was incorrectly applied and instead an inadequate method was used.

Plant species list

Almost 90% of the plant species recorded on Cloonbar East Wetland during preliminary surveys (Table 1) undertaken by plant experts in July 2023 and October 2023, were **not recorded in the EIAR/AA/NIS** for the proposed windfarm at Shancloon.

The plant experts who undertook these surveys included:

Dr Micheline Sheehy Skeffington, Ireland (Past President of the Botanical Society of Britain and Ireland) and **Dr Steven Sylvester**, UK (Plant Taxonomist and Ecologist), both experienced field botanists who visited the area along with Professor Mike Gormally.

Observation: Inadequate vegetation sampling has led to key plant species which inform habitat types not being documented.

Presence of notable plant species

Gentianella amarella subsp. *hibernica* (Autumn Gentian), a **Near Threatened, Red Listed** species of international significance (Jackson et al, 2016)², is present on the site (Table 1) but was not noted in the EIAR, Appropriate Assessment or Natura Impact Statement.

Observation: Inadequate vegetation sampling has led to an important Near Threatened plant species being overlooked.

5.2 Geological formation

The presence of an esker running primarily along the north-eastern boundary of the Cloonbar East Wetland was not recorded in the Shancloon Wind Farm EIAR. County Galway hosts some of the most westerly eskers in Ireland. They often act as refuges for species-rich grasslands and an attendant invertebrate fauna (Hennessy et al. 2010)³. In addition, they often support dry calcareous grasslands GS1 with links to Annex 1 habitats (Fossitt 2000)⁴.

Observation: From the maps provided in the EIAR, it would appear that much of this esker will be removed to facilitate the floated access road and turning head. The impacts of the proposed development on the function of the esker as an ecological corridor, natural aquifer with biodiversity value cannot, therefore, be determined with confidence given that the esker was not recorded in the EIAR as being present on the site.

5.3 Habitat Classification

Cloonbar East Wetland (also referred to as “the Commonage”) is described in its entirety in the EIAR as a “*Dry-Humid Acid Grassland GS3*” (Fossitt, 2000)⁴.

This is incorrect as even a walkover survey of Cloonbar East Wetland will reveal that there are, in fact, a range of habitats present including Dry calcareous and neutral grassland (GS1), Rich Fen & Flush (PF1) and Wet Heath (HH3). None of these habitats are mapped in the EIAR.

Further investigations of these habitats by Drs Micheline Sheehy Skeffington, Steven Sylvester and Professor Mike Gormally reveal a range of plant species present on the site (Table 5.1) that were not documented in the EIAR. Indeed, the site contains at least three potential EU Annex I Habitats which were not referred to in the EIAR/NIS/AA.

These include (Table 5.1)⁵:

1. FE2B – *Carex limosa* – *Menyanthes trifoliata*

Examples of this community may correspond with **EU HD Annex I habitat 7140 Transition Mires**

2. GL3A – *Briza media* – *Thymus polytrichus* Grassland

Very species-rich grassland with most examples corresponding with the **priority EU HD Annex I habitat Orchid-rich calcareous grassland***. In addition, it supports populations of rare orchids such as *Gymnadenia conopsea*, a rare orchid present on the site, important for a range of pollinators. The site also contains the Near Threatened species *Gentianella amarella subsp. hibernica*.

3. HE4E- *Molinia caerulea* – *Calluna vulgaris* – *Erica tetralix*

Heath community which may qualify as **EU HD Annex I habitat Wet Heath**

Several of the species recorded (Table 1) are indicators of relatively intact wetland (e.g. *Parnassia palustris* and *Selaginella selaginoides*) and thus vulnerable, or species of species-rich heathland (*Antennaria dioica*) and are declining across Ireland and Britain (Stroh et al. 2023)⁶.

Table 5.1: Plant species recorded at Cloonbar East Wetlands by Drs Sheehy Skeffington, Sylvester and Gormally indicating the presence of potential EU Annex I habitats (Codes are Irish Vegetation Classification (IVC) codes⁵).

Plant Species List	FE3A	FE2B	GL3A	HE4E
	<i>Carex nigra</i> – <i>Ranunculus flammula</i> fen	<i>Carex limosa</i> – <i>Menyanthes trifoliata</i> mire	<i>Briza media</i> – <i>Thymus polytrichus</i> grassland	<i>Molinia caerulea</i> – <i>Calluna vulgaris</i> – <i>Erica tetralix</i> heath
<i>Achillea_millefolium</i>			+	
<i>Anagallis_tenella</i>		+	+	
<i>Antennaria_dioica</i>			+	
<i>Bellis_perennis</i>			+	
<i>Calluna_vulgaris</i>				+
<i>Carex_panicea</i>	+	+	+	
<i>Cirsium_dissectum</i>	+			
<i>Crepis_capillaris</i>			+	
<i>Comarum_palustre</i>		+		
<i>Erica_tetralix</i>				+
<i>Euphrasia_officinalis_agg</i>			+	
<i>Gentianella_amarella</i> subsp. <i>hibernica</i>			+	
<i>Gymnadenia_conopsea</i>			+	
<i>Hydrocotyle_vulgaris</i>	+	+		
<i>Hypochaeris_radicata</i>			+	

<i>Juncus_articulatus</i>	+	+		
<i>Linum_catharticum</i>			+	
<i>Lotus_corniculatus</i>			+	
<i>Mentha_aquatica</i>	+	+		
<i>Menyanthes_trifoliata</i>		+		
<i>Molinia_caerulea</i>	+			+
<i>Narthecium_ossifragum</i>				+
<i>Parnassia_palustris</i>	+			
<i>Plantago_lanceolata</i>			+	
<i>Polygala_vulgaris</i>			+	
<i>Potentilla_anserina</i>	+		+	
<i>Potentilla_erecta</i>				+
<i>Prunella_vulgaris</i>			+	
<i>Ranunculus_flammula</i>	+			
<i>Selaginella_selaginoides</i>	+			
<i>Succisa_pratensis</i>	+		+	+
<i>Trifolium_pratense</i>	+		+	
<i>Triglochin_palustre</i>	+			
<i>Viola_riviniana_reichenbachiana</i>			+	

Other plant species recorded: *Alchemilla filicaulis* subsp. *vestita*; *Callitriche stagnalis*; *Callitriche hermaphroditica*; *Cerastium fontanum*; *Eleogiton fluitans*; *Hypericum humifusum*; *Isolepis setacea*; *Pinguicula vulgaris*; *Potamogeton polygonifolius*; *Ranunculus acris*; *Ranunculus hederaceus*; *Ranunculus trichophyllus*; *Silene flos-cuculi*.

Observation 1: The outcome of poor practice with regard to vegetation sampling resulted in Cloonbar East Wetland not being selected as a KER (Key Ecological Receptor) in Table 9-12 (Habitats Occurring Within the Proposed Development

Boundary). As a result, the potential effects of the development on this site are not discussed in the subsequent tables (Assessment of effects on....).

Observation 2: The impacts of the floated access road and turning head on each the potential EU Annex I habitats at Cloonbar East Wetland (Table 1) need to be presented in detail. Potential impacts include: disruption of natural water flow, altered hydroperiods (threatening functional integrity), erosion, direct habitat loss, barrier effects as well as long-term effects such as chronic hydrological stress, restoration challenges and elevated human presence in a sensitive area.

Observation 3: Based on the diversity of habitats on the site, some of them potentially EU Annex I Habitats, the building of the proposed floated access road and turning head would result in irreversible damage to the ecological and hydrological integrity of this site.

5.4 Do Nothing Scenario

Under the “Do Nothing Scenario (9.9.1), it is stated that “*The Cloonbar East Wetland would likely continue to be heavily grazed and as such would be unlikely to evolve successionally*”.

It is unclear what is meant by ‘evolving successionally’. In addition, no mention is made of the possibility of the commonage shareholders becoming part of an agri-environmental scheme which would protect and support the EU Annex I habitats at Cloonbar East Wetland.

5.5 Action Plans

The survey, protection and restoration of the above species and habitats in Cloonbar East Wetland is supported by:

Galway County Heritage Plan (2024-2030) which states under Action BD3.5:

“Support the assessment, protection and restoration of Annex 1 Priority habitats outside designated sites to inform planning decisions”.

Galway County Climate Action Plan (2024-2029) which states under Action LN2.1:

“Identify priority areas appropriate to receiving environment for habitat restoration, enhancement for wildlife and protection for carbon and biodiversity benefits”.

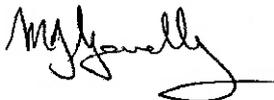
5.6 Overview

The inaccurate botanical assessment of Cloonbar East Wetland, as a whole, provides no substantive evidence on which the potential impacts of the proposed development can be evaluated with any rigour. Therefore, this is not fit for the purpose intended i.e. in allowing a full and robust assessment of the likely significant effects of the proposed development on the receiving environment of Cloonbar East Wetland direct or indirect, or in combination with other effects. The criteria for evaluation of what must be assessed and considered are set out in the criteria of projects falling under the remit of the EU EIA Directive 2011/92/EU as amended by 2014/52/EU under Article 3(1). Yet these have not been followed.

References:

1. Smith, G F, O'Donoghue, P, O'Hora, K, Delaney, E (2011) Best Practice Guidance for Habitat Survey and Mapping. The Heritage Council.
2. Jackson, M W, Fitzpatrick, Ú, Cole, E, Jebb, M, McFerran, D, Sheehy Skeffington, M, Wright, M (2016) Ireland Red List No. 10: Vascular Plants. National Parks & Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.
3. Hennessy, R, Feely, M, Cuniffe, C and Carlin, C (2010) Galway's Living Landscapes - Part 1 Eskers. Galway Co. Co.
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5. Irish Vegetation Classification – National Biodiversity Centre, Ireland.
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Yours faithfully,



Professor Mike Gormally

