TOBIN

Ballincor Wind Farm

Volume 3

Appendix 6-1

Biodiversity Enhancement Management Plan (BEMP)

BUILT ON KNOWLEDGE

Document Control Sheet	
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1. INTRODUCTION

"In simple terms "biodiversity" includes all life on Earth. As defined by the United Nations Convention on Biological Diversity (CBD), "biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes genetic diversity within species, between species and of ecosystems. Humans rely on biodiversity for our health and well-being and to support many of our economic activities. Biodiversity plays a key role in the functioning of ecosystems and their continuing ability to provide "ecosystem services". Biodiversity provides us with, for example, clean air, water, food, fuel, medicines, recreation, spiritual enrichment and protects us from extreme weather. It supports pollination and soil fertility and regulates our climate.

Globally, biodiversity is declining and despite increased awareness and efforts to halt its loss, biodiversity remains threatened by human activities worldwide. Major causes of global biodiversity loss include overexploitation of wild species (Maxwell et al., 20169) and conversion of land to agricultural use[1]. Loss of biodiversity worldwide led to the wide acceptance of the need to coordinate Management for biodiversity on a global scale. In 1992 the CBD was established, and Ireland ratified the Convention in 1996."

In 2024, the European Union ratified the Nature Restoration Law, whereby member states (including Ireland) are under legal obligation to restore at least 20% of the EU's land and sea areas by 2030 and repair all ecosystems in need of restoration by 2050.

Ireland's 4th National Biodiversity Action Plan proposes that Ireland's Vision for Biodiversity is: "that biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally."

Historical industrial peat harvesting has left much of Ireland's peatland habitats, only 8% of it is deemed suitable for restoration/conservation today[2]. This Biodiversity Management Plan not will not only serve to restore habitat within the proposed Ballincor Wind Farm site to achieve 'no net loss', but will also outline areas for biodiversity net gain.

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2 EU-funded project helps to restore Ireland's raised bogs - European Commission (europa.eu)

2. METHODS

This plan was prepared in three stages:

- Conduct detailed desk and field-based habitat surveys;
- Assess areas of high biodiversity interest, including ecological corridors; and
- Develop specific proposals for managing and enhancing biodiversity and recommend conservation priorities.

2.1 DESKTOP STUDY

The ecological desktop study completed for the proposed wind farm comprised of the following elements:

- Review of rare and protected fauna including those obtained from the National Parks and Wildlife Service (NPWS) website[3], those available in NPWS reports and on the National Biodiversity Data Centre (NBDC) website[4];
- Review of Ordnance Survey maps and aerial photography to determine broad habitats that occur within the study area;
- Identification of European Sites with links to the proposed wind farm;
- A review of published data and documents from Bat Conservation Ireland, Bird-Watch Ireland, Botanical Society of Britain, and Inland Fisheries Ireland; and
- A review of relevant ecological reports/assessments previously completed within and in the vicinity of the proposed wind farm area.

2.2 FIELD SURVEYS

Multidisciplinary walkover surveys of the proposed wind farm as detailed in Chapter 6 Biodiversity.

A habitat assessment was undertaken in accordance with The Heritage Council's *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al., 2011). Habitats were classified according to The Heritage Council's A Guide to Habitats in Ireland (Fossitt, 2000) and following the *EU Habitats Interpretation Manual for Annex I Habitats*[5]. Searches for evidence of protected species and or presence of suitable habitats were also undertaken. The proposed wind farm site was also searched for evidence of invasive plant species listed in Part 1 of the Third Schedule of S.I No. 477/2011 – European Communities (Birds and Natural Habitats) Regulations 2011-25. Species protected under Flora Protection Order, 2015 (S.I. No. 356/2015) or listed under the Irish Red Data List of Irish Plants were also searched for.

[3] National Parks and Wildlife Service Website: National Parks & Wildlife Service (npws.ie) (Accessed: March 2026)
[4] National Biodiversity Data Centre Mapping Website: Maps - Biodiversity Maps (biodiversityireland.ie) (Accessed: March 2026)
[5] EU (2013). Interpretation Manual of European Union Habitats, EUR 28.

3. SUMMARY OF BIODIVERSITY WITHIN THE PROPOSED WIND FARM SITE

3.1 SITE DESCRIPTION

A full description of the Proposed Project is provided in Chapter 2 (Description of the Proposed Project) of the EIAR. The proposed windfarm development is to be located in the townlands of Cronekill, Castletown, Clonfree, Kylenamuck, Cloonaheen, Ballincor Demesne and Curralanty. The proposed wind farm planning application boundary is approximately 355 hectares in size.

Habitats within the proposed wind farm site boundary, classified by Fossitt (2000), predominantly consist of large fields of improved agricultural grassland (GA1), and areas of cutover bog (PB4).

- Wet grassland (GS4)/Improved Grassland (GA1);
- Dry meadows and grassy verges (GS2);
- Arable crops (BC1);
- Raised bog (PB1), dry siliceous heath (HH1);
- scrub (WS1);
- Bog woodland (WN7);
- Conifer plantation (WD4),
- Oak-birch-holly woodland (WN1),
- (mixed) broadleaved woodland (WD1),
- Cutover Bog (PB4),
- Raised Bog (PB1), and
- Dense bracken (HD1).

4. BIODIVERSITY ENHANCEMENT MEASURES

The actions proposed by this Biodiversity Management Plan, aim to comply and adhere to the management and objectives of the NBAP, as well as the local Offaly CDP 2021-2027 and Tipperary CDP 2022-2028[6] and both CDPs aim to protect and enhance the biodiversity and landscape nationally and in local areas.

4.1 KEY BIODIVERSITY DESIGN CRITERIA AND OBJECTIVES

4.2 HABITATS AND FLORA

The location of proposed wind farm site infrastructure is largely restricted to habitats valued of Local importance (Lower value). This will result in the direct loss of 14.1ha of GA1 Improved agricultural grassland, 4.63ha of GS4 Wet grassland, 3.27ha of WD4 Conifer plantation, 0.96ha of BC1 Arable crops, 0.42ha of WS2 Immature woodland, 0.21ha of GS2 Dry meadows and grassy verges and 0.07ha of BL3 Buildings and artificial surfaces. In addition the proposed wind farm site infrastructure will result in the direct loss off 2.82ha of WN7 Bog woodland, 0.99ha of WS1 Scrub, 0.91ha of WD1 (Mixed) broadleaved woodland, and 0.62ha of PB4 Cutover bog.

In terms of linear habitats, a total of 1.3km of WL1 Hedgerow will be lost as a result of the proposed project with 0.9km of that loss attributed to the implementation of bat buffers and 0.8km as a result of vegetation clearance along the TDR works area.

4.2.1 Scrub/Woodland area

A number of cutover bog (PB4) habitat areas and inactive face bank areas have started to recolonize with scrub and bog woodland. It is proposed to allow these areas to regenerate into scrub and bog woodland habitat.

Habitat areas within the site that do not contain any proposed infrastructure or peat storage areas will be left to allow a bog woodland/scrub community develop. Surveys were carried out in 2025 to determine the viability of these areas. Survey criteria focussed on whether the community was already developing naturally without any additional management. Additionally, in habitat areas where bog habitats were naturally regenerating and it was envisioned that a scrub-dominated habitat would impede the development of the peatland habitat, these areas were removed from the management regime as detailed in Section 4.2.4.

In order the facilitate the proposed wind farm footprint, it is proposed to fell and remove ca. 2.82 hectares of non-Annex I bog woodland habitat. The loss of woodland will be fully mitigated through the planting and management of scrub/bog woodland area within the wind farm site boundary.

For the scrub areas, it is proposed to remove any conifer saplings present and allow willows, birch and gorse to naturally recolonize. Scrub provides cover for birds (for example linnets are a ground nesting bird with previous records within the project site), small mammals, and foraging resources for birds and insects. Scrub and bramble will likely regenerate and spread again with time. Some additional planting of blackthorn (*Prunus spinosa*) may also be required,

[6] Strategic Environmental Assessment Statement & Environmental Report.pdf (tipperarycoco.ie)

depending on volume of vegetation removed during works. Blackthorn provides an early sources of nectar and pollen for insects. Additionally, its leaves serve as a food source for butterfly/moth caterpillars including lackey (*Malacosoma neustria*), clouded silver (*Lomographa temerata*), brimstone, magpie, swallow-tailed, and yellow-tailed (*Euproctis similis*) moths[7].

4.2.2 Treeline and Hedgerow Replanting and Enhancement

As previously mentioned, the proposed wind farm would result in the loss of 1.8 km of treelines and hedgerows. In order to achieve a no net loss of habitat resulting from the proposed wind farm, 2.2 km will be replanted within the proposed wind farm boundary. Hedgerow removed at the proposed TDR works at Sharavogue cross roads will be replanted.

Any species being replanted will be on the 'favourable' list of 'native tree, shrub and climbers' outlined in Appendix D of the Heritage Council's 'Best Practise Guidance on Hedgerow Surveying, Data Collation and Appraisal' (Foulkes et al., 2013). Furthermore, all species being replanted will be sourced as locally as possible.

Native fruit trees (e.g. apple and plum) will be considered for replanting, as the fruits would create an alternative food source for badgers in the area. When planting a new treeline, young trees will be spaced apart at distances of 50 cm maximum and will be planted in a herringbone/zigzag line, not a straight line. Larger "standard" tree species such as sessile oak (*Quercus petraea*), pedunculate oak (*Quercus robur*) and Scot's pine (*Pinus sylvestris*) will be planted occasionally and allowed to grow large to create structural diversity in the linear habitat.

Any planting will be undertaken during the winter, provided the ground is not frozen. The best time is early winter, when the ground is warm, and some moisture is available. Before planting, ensure that the ground is free of vegetation; this reduces competition for the young trees. Alternatively, species can be planted through black polythene to suppress weeds and reduce moisture loss (this polythene will have to be removed once trees become established). It will be necessary to use plastic tubes, spirals or quills to protect young plants from grazing rabbits or deer (again these protective measures will need to be removed once the plants have become established).

See Figure 4-1 for the locations of proposed replanting locations and hedgerows and treelines.

4.2.3 Grassland

A total of 0.22 ha of suitable Marsh Fritillary habitat will be lost as a result of the proposed project. This habitat has been identified as GS4 - Wet grassland with Devil's-bit scabious plants. To compensate for this habitat loss, 2 ha of GS4-Wet grassland located within the proposed wind farm site will be managed for suitability of the target species Marsh Fritillary.

For clarity the existing suitable habitat for marsh fritillary will be referred to here as the 'donor site' and the GS4-Wet grassland identified for mitigation measures will be referred to as the 'receiving site'.

[7] Prunus spinosa | University College Cork (Accessed March 2025)

Low intensity cattle grazing (<1 Livestock Unit/ha) will be implemented within this area with cattle, which will help to reduce the dominance of taller plants as cattle are less selective feeders. Field operations such as rush or scrub control will only be carried out November to February when caterpillars are in hibernation and less subject to disturbance, and outside of bird nesting season. No fertilizer will be used in these habitat areas.

4.2.3.1.1.1 Mowing

Selective mowing will be undertaken to improve the habitat for the Marsh Fritillary habitat. The management of the receiving site for Marsh Fritillary will begin before the main construction activities have taken place. Vegetation management of the receiving site is necessary to improve the suitability of the site for Marsh Fritillary. The GS4-Wet Grassland habitat surveyed] beyond the Marsh Fritillary habitat was noted to be species-poor. The receiving site will be topped using an ATV and flail mower once in March and once again in June, to reduce the dominance of purple-moor grass (*Molinia caerulea*) and soft rush (*Juncus effusus*) within the receiving site (INCC, 2018). Mowing is a once-off option for restoring sites that have become overgrown (Phelan *et al.* 2021).

The cuttings will be removed from the receiving site.

Small-scale non-intensive farming with cattle in spring and summer months is the optimum approach to managing wet grassland for Marsh Fritillary (Phelan et al. 2021). Cattle grazing best facilitates the creation of an uneven sward structure, which is favoured by the Marsh Fritillary (Phelan *et al.* 2021). Grazing rates will likely vairy from year to year, but recommended grazing rates prescribe 1 livestock unit/ha of cattle (INCC, 2018). Stocking rates will not be increased without written recommendation within post-construction compliance reporting from a suitably qualified ecologist. Monitoring of the receiving site will include observation on sward height, with the aim of the grazing regime to maintain the sward height between 12-25cm (Phelan *et al.* 2021). The cattle must be moved elsewhere if the sward height reaches below 12cm, as this threshold indicative of overgrazing (INCC, 2018). Similarly, if poaching is noted throughout the site, then adjustments to stocking rates and/or the length of the grazing season must be made. Supplementary feed will not be place within the area as it can lead to localised nutrient enrichment. Controlled burning events will not be implemented (INCC, 2018). Sheep grazing within GS4-Wet grassland habitats within the proposed wind farm site will be avoided as it is unsuitable for Marsh Fritillary habitat (Phelan *et al.* 2021).

4.2.4 Raised Bog /Cutover Bog

The cutover bog peatland habitats within and surrounding the proposed wind farm footprint are degraded and do not support active peat formation as the habitats are extensively drained. The cutover peatland habitats are subject to recent and continued turbary activity and are dominated by bare peat. They do not correspond to any Annex I peatland habitats.

It is proposed to enhance approximately 5 ha of the raised bog habitat within the proposed wind farm site, post construction. The restoration will follow 'Best Practice in Raised Bog Restoration in Ireland' (Mackin et al., 2017).

The main measures for restoration of peat forming conditions are:

- Drain blocking
- Removal of encroaching trees/scrub
- Inoculation with *Sphagnum sp*
- Excavation/reprofiling
- Bunding on high bog

For the peat deposition area and borrow pits, turves of the surface vegetation will be retained and will be emplaced on top of the peat repository areas in order to retain and translocate existing cutover community habitats and reduce run-off potential from these areas. These repository areas will be left to naturally recolonise.

4.2.5 Creation of New Aquatic Habitats

The settlement ponds are likely to create some wetland areas with the flood compensation area providing a wet grassland/pond area.

An area adjacent to the substation will be designated for flood compensation measures. This will have a dual function for biodiversity as it will also act as an ephemeral pond. The base will not be lined, which will result in the water level rising and falling depending on weather conditions. The advantage of ephemeral ponds is that frog spawn will have a chance to mature as large diving beetles (*Dytiscus marginalis*) will die out when the pond dries out. The large diving beetles is described as a 'voracious predator'[8] which preys on smaller invertebrates, tadpoles and small fish. The flood compensation area will be approximately 1.3 ha in area. In time, areas that are rewetting are likely to transition to mires, overall, 'Ireland could have an area of potential natural mires greater than in any other European country at these latitude' (Wilson, 2011). The pond area will be sloped around the edge to allow safe entrance and exit of small mammals. This will benefit Hedgehog fatalities often occur in ponds and drains, as they can fall in and don't have the agility to climb out[9].

4.2.6 Enhancement of Aquatic Habitats

4.2.6.1 Removal of Invasive Non-native Plant Species (INNS)

It is proposed to remove the Canadian pondweed (*Elodeo canadensis*) from two drainage ditches within the proposed wind farm site to improve biodiversity conditions at the proposed wind farm site. Canadian pondweed is no longer listed as a Third Schedule species (as of 2023), however, it is still considered to be a high impact invasive species, and was given a risk score of 19[10].

[8] Great diving beetle | The Wildlife Trusts

[9] Hedgehogs In Your Garden | RSPCA - RSPCA - rspca.org.uk

[10] Invasives_taggedlist_website_pdfs.xls

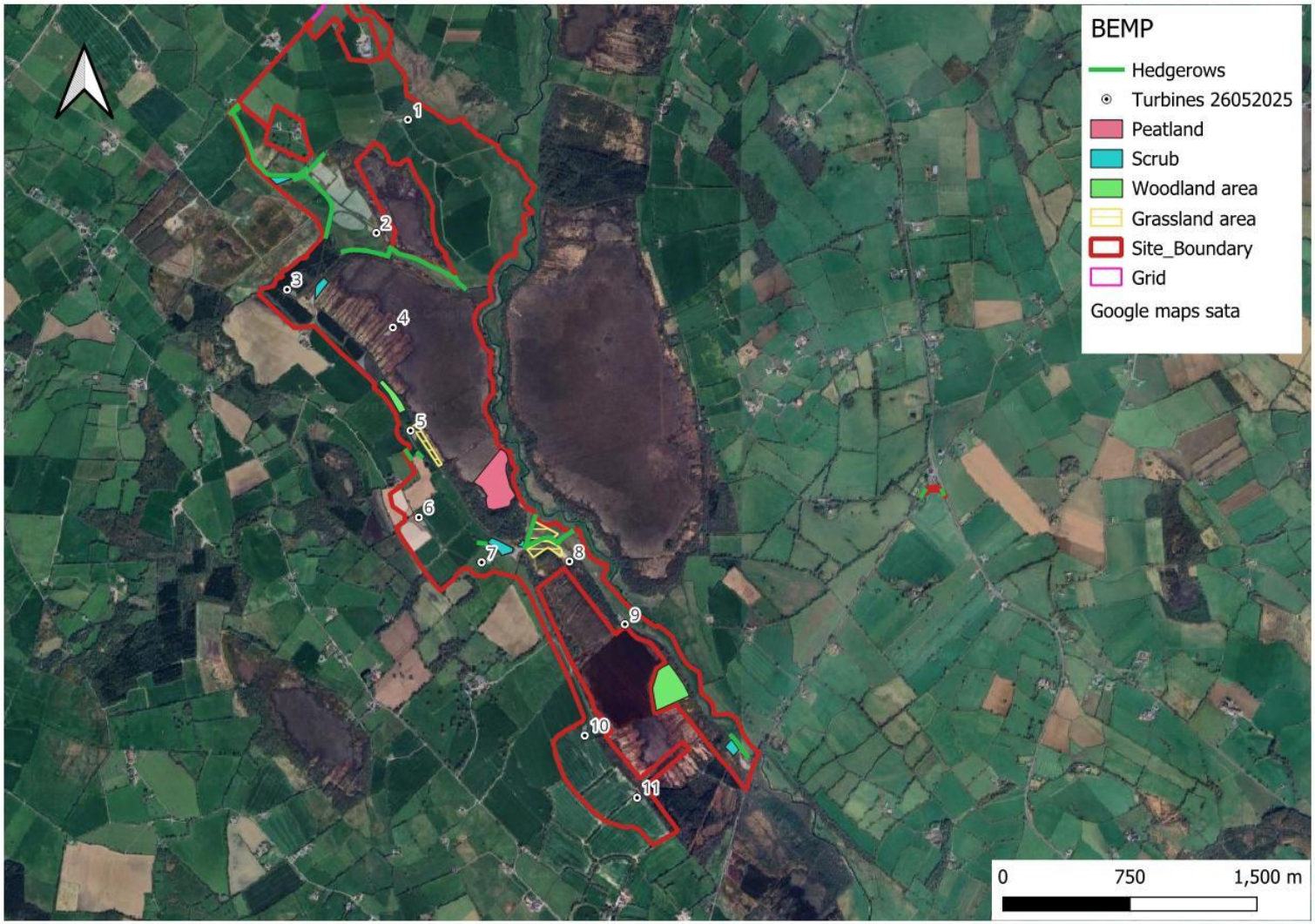

Figure 4-1 Biodiversity Management Areas

4.3 FAUNA

4.3.1 Badgers

A number of disused badger setts were recorded within the proposed wind farm site along with snuffle holes, latrines and scat. It is therefore likely that this species is commuting throughout the proposed wind farm site. Their favoured foraging areas are short, improved grassland with high densities of earthworms, maintaining these features in or around a development is therefore desirable [11].

As outlined in the Nature Scot's 'Managing Land as a Foraging Resource for Badger's (2018), habitats of 'primary', 'secondary' and 'other' value to badgers, (in relation to worm densities) are presented in Table 4-1.

Table 4-1 Values for Badger Foraging Habitats

Value	Habitat
Primary foraging habitat	Short grazed or mown grassland i.e improved grassland
	Golf course
	Broadleaved woodland
Secondary foraging habitat	Arable
	Rough grassland (not grazed by domestic stock)
	Scrub
	Mixed woodland
Other	Coniferous woodland

It is proposed to retain or replace improved grassland habitat and broadleaved woodland habitats within the proposed wind farm site. It will also be beneficial to this species to retain some areas of arable crop, rough grassland, scrub and mixed woodland to ensure a diversity of foraging habitats for this species.

[11] Thomson Ecology Handbook - Practical techniques - Badger

4.3.2 Bats

4.3.2.1.1 Habitat Management for Bat Species

As outlined in Chapter 6 (Biodiversity) of the EIAR for this proposed wind farm, a buffer of 104 m has been established between the blade of each turbine and the surrounding treelines and woodland habitats, in order to deter bats from approaching the turbines.

Bats use hedgerows and treelines as commuting corridors to navigate their way through the wider landscape. These habitats are also crucial for foraging bats. Small gaps (<5m) have been found to interrupt commuting bats (Altringham and Kerth, 2016). The enhancement and removal of gaps within the woody ecological corridors (as outlined in Section 4.2.2) within and surrounding the proposed wind farm site would be highly beneficial to local bat populations.

The installation of bat boxes along treelines within the proposed wind farm site but situated <70 m from any turbines would be beneficial to enhancing suitable bat habitat within the proposed wind farm site. It is proposed that a total of 3 bat boxes will be installed along treelines as depicted in Figure 4-1. Ideally, boxes which are made of Woodcrete material (a mix of concrete and wood fibres) will be chosen, as these are more robust and last longer in the elements when compared to similar wooden designs[12]. The dark colouring also makes them favourable for bat usage, as they heat up in the sunlight (Bat Conservation Ireland, 2015) Bat boxes require little maintenance, they will be inspected visually to assure they are weather tight (no large holes or rot etc.).

Boxes will be put up, at least 4m above ground and will be positioned away from strong winds but exposed to the sun for part of the day (usually south or south-west). Ideally, three bat boxes will be installed, facing in different directions to provide a range of temperature conditions. For example, boxes facing from south-east to south-west allow the sun to fall on each box for part of the day. During very hot days a south-facing box may overheat, but the other boxes will have some shade during the day[13]. Groups of bat boxes will be placed at least 20m apart[14]. Many species of bats forage along linear features such as treelines so placing the boxes along these features will help the bats navigate to the boxes[15].

Suggested locations for the bat boxes are shown in Figure 4-1 however, final locations will be confirmed by a suitably qualified ecologist, in consultations with NPWS, following pre-construction surveys.

The planting of native flowering plants attractive to night-time insects as outlined in Bat Conservation Ireland's document 'Gardening for Bats' (2022), will also benefit local bat populations, and are presented in Table 4-2 below. These species feature on species planting lists for grassland and hedgerow habitats.

[12] Bat Conservation Ireland (2015). Guidance Notes for: Agri-environmental Schemes. Available at https://www.batconservationireland.org/wp-content/uploads/2015/05/BCIrelandGuidelines_BatBoxes.pdf.
[13] http://www.bnfc.org.uk/ewExternalFiles/Guide%20to%20Bat%20Boxes.pdf
14 http://www.bsg-ecology.com/wp-content/uploads/2015/03/NV-Bat-boxes-140414.pdf
[15] https://www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes/putting-up-your-box

Table 4-2: Native Flora to Attract Night Time Insects (for Bats)

Species			
Honeysuckle (*Lonicera periclymenum*)	Forget me not (*Myosotis arvensis*)	Red and white clover (*Trifolium pratense and Trifolium repens*)	Red valerian (*Centranthus ruber*)
Wild roses (*Rosa sp.*)	Brambles (*Rubus fruticosus sp.*)	Primroses (*Primula vulgaris*)	Irish bluebells (*Hyacinthoides non-scripta*)

4.3.3 Pollinators

4.3.3.1 Bees

Three species of ground nesting/mining bees have previously been recorded within three of the 10km grid squares N00, N10, N99, that overlay the proposed wind farm site . These species include: early mining bee (*Andrena haemorrhoa*), grey mining bee (*Andrena denticulata*), and Gwynne's mining bee (*Andrena bicolor*).

Ground nesting bees/mining bees make up 60% of Ireland's bees so it is also recommended to create a suitable habitat for these. This is achieved by the exposure of soil on an earth bank at the base of hedgerows, verges or the exposure of soil on a mound. The soil needs to be gently packed and south facing to receive sufficient sun and heat[16]. The area will also be sign-posted to avoid the habitat being damaged when site maintenance is being carried out during the operational phase. To maintain this habitat, vegetation will be cleared manually in autumn to re-expose the soil.

Bee habitats on-site must be in close proximity to floral resources as solitary bees have a much shorter foraging range than bumblebees or honeybees-100 to 200 m for small bee species and up to 1,100m for larger species (Henneburg, et al., 2016; Zurbuchen et al., 2021).

4.3.3.2 Butterflies

4.3.3.2.1 Marsh Fritillary

The marsh fritillary (*Euphydryas aurinia)* , Ireland's only legally protected species, is an Annex II species of the EU Habitats Directive,

A 0.22 ha within the proposed wind farm site have been recorded to have devil's bit scabious (*Succisa pratensis*), the larval foodplant of the marsh fritillary). Swards of devil's bit scabious were assessed for height, number of plants within the sward, if the vegetation was structured, etc.

Areas of devil's bit scabious that are located in areas proposed for turbine locations and hardstanding's will be transplanted to the area that will be managed for marsh fritillary (highlighted in Figure 4-1). Prior to this, the encroaching scrub will be cleared from the area to create more open landscape which is more suitable for marsh fritillary.

16 National Biodiversity Data Centre- How to guide: Creating wild pollinator nesting habitat

4.3.3.3 Large Heath

The large heath (*Coenonympha tullia*), another butterfly that is confined to peatland habitats, particularly blanket bogs and raised bog and has lost much of its habitat due to drainage, peat extraction and afforestation (Regan et al., 2010). This species is the only Irish butterfly with a threat status (Vulnerable) listed in the European Red List of Butterflies (Van Swaay, 2010). Previous records of this species exist within the proposed wind farm boundary, within the 2km grid squares S09 and S19 (NBDC, 2024)[17]. The sole foodplant of the large heath larvae is hare's-tail cottongrass (*Eriophorum vaginatum*), while the adult relies on the nectar provided by the cross-leaved heath (*Erica tetralix*). No records of large heath were recorded on the proposed wind farm site.

It is proposed to remove any hare's-tail cottongrass plants that could be lost as a result of the turbine or cabling placement, and transplant them to the cutover peat habitat adjacent or within the area designated for devil's bit scabious and marsh fritillary.

4.3.3.3.1 Other 'Brown' Butterflies

Grassy verge habitats provide a vital contrast of vegetation height between grasslands, hedgerows and treelines. Many grasses are larval foodplants for a large number of butterflies in Ireland, including almost all of the 'brown' category of butterflies.

[17] Maps - Biodiversity Maps (biodiversityireland.ie)

4.4 BIOSECURITY

As no invasive plant species contained within the Third Schedule of the 2011 Habitat Regulations were identified on-site, an Invasive Species Management Plan is not required for the proposed wind farm. However, if construction works are delayed more than 24 months from the initial habitat survey it is recommended a follow up survey be undertaken to ensure no invasive plant species have been introduced to the proposed wind farm site during this time. All works involved with the development will follow the Transport Infrastructure Ireland guidelines to avoid the spread of invasive species.

Monitoring detailed in Table 4-3below presents a preliminary monitoring programme for the proposed wind farm.

Table 4-3 Biodiversity Monitoring

Biodiversity Element	Monitoring Activity	Key Indicators	Target	Frequency	Time of the Year
Hedgerows and treelines	Check for damage, dead whips, gaps	Species mix, density and structure of the hedge/treeline has been maintained or improved since initial visit.	Thick hedgerows/treelines that are species-rich, structurally dense and act as high-quality corridors through the landscape.	Year 1, 3, 5, 10 and 20.	Summer
Grassland	Walk full length of grassland habitats. Review and advise on appropriate stocking rate	Flower-rich grassland with a number of different flowering plant species.	A species-rich semi-natural grassland type.	Year 1, 5, 10 and 20.	Summer
Broadleaf woodland	Walk through the new woodland habitat observing the condition of the planted trees.	Trees are healthy, growing well and the woodland habitat is developing and beginning to connect with the existing woodland.	An extension of the existing oak-birch-holly woodland.	Year 1-3, 5, 10 and 20.	Summer
Bog woodland	Walk through the new woodland habitat observing	Trees are healthy, growing well and the woodland habitat is developing and beginning to connect	An extension of the existing oak-birch-holly woodland.	Year 1-3, 5, 10 and 20.	Summer

Biodiversity Element	Monitoring Activity	Key Indicators	Target	Frequency	Time of the Year
	the condition of the planted trees.	with the existing woodland.			
Marsh fritillary	Survey devil's bit scabious swards	Presence of Devils Bit Scabious Plants	Structures are being occupied by target species and other invertebrates.	Year 1-3, 5, 10 and 20.	Summer
Invertebrates	Deadwood	Look for cavities in soil and clear away any vegetation growing on the bare face of the soil mound	Structures are being occupied by target species and other invertebrates.	Year 1-3, 5, 10 and 20.	Summer
Bat boxes	Inspect each box and clean if necessary	Check that boxes are functional and weather-proof and clean.	Boxes are being occupied by target species.	Year 1, 5, 10 and 20.	Summer
Bee Scrape on soil mound	Check if mound has been used by any mining bees	Look for cavities in soil and clear away any vegetation growing on the bare face of the soil mound	Structures are being occupied by target species and other invertebrates.	Year 1-3, 5, 10 and 20.	Summer

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