Appendix 7-4 - Habitat Survey at Derryadd Proposed Wind Farm Subsite, Lanesborough, Co. Longford (Alexis FitzGerald, FitzGerald Ecology)

Habitat Survey at Derryadd Proposed Wind Farm Subsite, Lanesborough, Co. Longford

Report for Bord na Móna

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1. INTRODUCTION

TOBIN Consulting Engineers commissioned FitzGerald Ecology to produce a habitat study of a subsite within a proposed wind farm site in Derryadd, near Lanesborough, Co. Longford, in April 2023. This study will inform ecological impact and appropriate assessments being carried out on the proposed development.

A full habitat mapping and assessment study of the habitats (including EU Habitats Directive Annex I habitats, if present) on site was conducted, along with a detailed summary report outlining and describing the various habitats present on the subsite, including detailed habitat maps and species lists. This report is presented herein.

The study area for this habitat survey is displayed in Figure 1.1. The subsite encompasses a c. 12 hectare area of cutover raised bog, which has been gradually recolonised by areas of scrub, (immature) woodland, grassland and wetlands, including fen. The proposed wind farm site is generally flat in aspect.

Figure 1.1: Subsite Study Area (in yellow)

2. SURVEY METHODOLOGY

The habitat/plant walkover surveys were carried out by Alexis FitzGerald B.A. M.Sc. on the 14th April 2023. All of the habitats within the subsite were mapped on GIS according to Fossitt (2000) Level 3 classification, and with reference to Smith *et al.* (2011). The abundance of each vascular plant species (and also some relevant bryophyte indicator species) present in each habitat was recorded using the Domin scale[1]. EU Habitats Directive Annex I habitats were classified as per the European Commission (2013), also with reference to the corresponding national habitat survey reports and descriptions, particularly NPWS (2019) and Perrin *et al.* (2014). The nomenclature for the Annex I habitats also follows the European Commission (2013), with any abbreviated names for the habitats following NPWS (2019). Vascular plant taxonomy and nomenclature follows Stace (2019), whilst bryophyte taxonomy and nomenclature follow Atherton *et al.* (2010). Ecological evaluations were made according to the criteria as set out by the National Roads Authority (2009) (Appendix II). All of the relevant data were recorded within the shapefile metadata.

[1] The Domin scale is used to estimate the abundance of a particular species in a particular area of vegetation. The scale utilised here is from + to 10, each stage representing a range of percentage values from + = cover of <1% and a single individual, to 10 = cover of 91-100%.

3. SURVEY RESULTS

Legally Protected and Rare Flora

No plant species listed on the *Flora (Protection) Order 2022* were recorded during the field survey in 2023. One locally rare native species was recorded just outside the study area to the south and southeast, namely, *Juncus subnodulosus*. It was found in exposed peat and scrub habitats. According to the plant distribution maps of Botanical Society of Britain and Ireland (2023), this species should be considered rare in Co. Longford. This species is listed as Least Concern (LC) by Wyse Jackson *et al.* (2016).

Non-native (Invasive) Flora

No plant species listed on the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations, 2011* were recorded during the field survey in 2023. Furthermore, no (nonlisted) non-native/introduced plant species were recorded.

Habitats

The habitat types (and/or mosaics) recorded within the study area according to the Heritage Council classification system (Fossitt, 2000) are described in detail in section 3.1 (and are also mapped in Figure 2). Full plant species lists (with Domin abundance estimates for each species) for each recorded habitat are also presented in Appendix I of this report. Any EU Habitats Directive Annex I habitats recorded on the study area are presented in Figure 3.

The following 12 habitat types (and/or mosaics) were recorded within the study area during the field survey in 2023:

- Other artificial lakes and ponds (FL8)
- Dry calcareous and neutral grassland (GS1)
- Recolonising bare ground (ED3)
- Scrub (WS1)
- Wet grassland (GS4)
- Dense bracken (HD1)
- Oak-ash-hazel woodland (WN2)
- Cutover bog (PB4)
- Immature woodland (WS2)
- Buildings and artificial surfaces (BL3)
- Rich fen and flush (PF1)
- Calcareous springs (FP1)

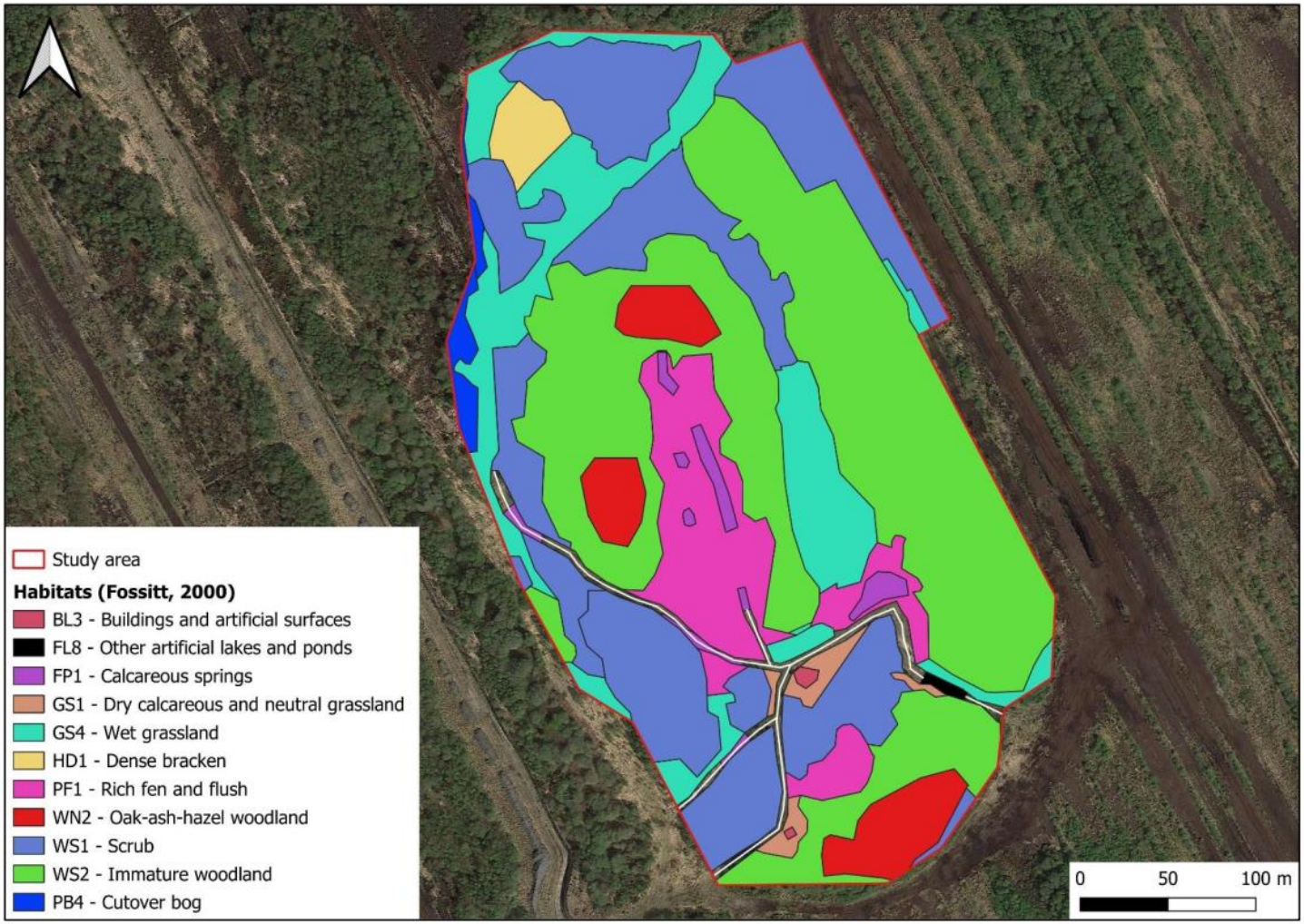

Figure 3.1: All Fossitt (2000) habitats recorded within the study area during the field survey in 2023 – the dominant habitat in each polygon is displayed here (habitat mosaics do occur but are not displayed for ease of viewing) – background mapping is © Google Satellite

Figure 3.2: All EU Habitats Directive Annex I habitats recorded within the study area during the field survey in 2023 – background mapping is © Google Satellite

3.1 HABITAT DESCRIPTIONS

Other artificial lakes and ponds (FL8)

Other artificial lakes and ponds (FL8) (see Plate 1) habitat occurs as one narrow ponding of rainwater in low-lying ground in the south-east of the study area. The water was likely calcareous in nature, as indicated by the presence of the charophyte species *Chara vulgaris*. However, no marl was noted here, which would indicate calcareous springs (FP1) habitat. The pond also contains *Juncus articulatus,* with lesser quantities of *Juncus effusus, Glyceria* sp., *Alisma plantago-aquatica, Juncus inflexus, Agrostis stolonifera* and *Typha latifolia*.

This habitat is considered to be of **Local importance (higher value)**, due to the relatively high species diversity present here and its habitat potential (petrifying spring (FP1) habitat may form here over time.

Plate 1. Other artificial lakes and ponds (FL8) habitat in the south-east of the study area

Dry calcareous and neutral grassland (GS1)

Dry calcareous and neutral grassland (GS1) (see Plate 2) habitat is scattered by pathways and beside old buildings in the south of the study area. The substrate here is likely to be neutral to calcareous, given the plant species composition here. This habitat has a relatively high level of plant species diversity, including such grass species as *Festuca rubra* agg. and *Agrostis capillaris,* and herbaceous species such as *Plantago lanceolata*, *Trifolium pratense* and *Succisa pratensis.*

The grassland on the study area does not correspond with the EU Habitats Directive Annex I habitat [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometea). This is because there were no positive indicator species for this habitat recorded within the study area, as shown by the recorded species list for the habitat in Appendix I.

This habitat is considered to be of **Local importance (higher value)**, due to the relatively high species diversity present here.

Plate 2. Dry calcareous and neutral grassland (GS1) habitat in the south of the study area

Recolonising bare ground (ED3)

Recolonising bare ground (ED3) habitat can be found along old trackways throughout the south of the study area. These trackways have been gradually recolonised by vegetation over time. Some of the ED3 habitat here has even become partly re-vegetated (in a mosaic) with wet grassland (GS4), and in one location in the south of the study area, with rich fen and flush (PF1) (see separate habitat accounts below, also see Figure 3). The exposed gravel material has been recolonised by a number of plant species, namely, *Juncus effusus, Taraxacum* agg., *Ranunculus repens, Potentilla anserina, Equisetum arvense, Carex flacca, Juncus articulatus* and *Calliergonella cuspidata*.

This habitat is considered to be of **Local importance (higher value)**, due to the relatively high species diversity present here.

Scrub (WS1)

Scrub (WS1) (see Plate 3) habitat was recorded widely across the study area and constitutes one of the more dominant habitat types by area. This habitat is characterised by the dominance of such shrub species as *Rubus fruticosus* agg., *Ulex europaeus, Salix cinerea* subsp. *oleifolia* and *Betula pubescens*. In the ground layer of these shrubs, some tall and/or shade-tolerant, perennial grass species occur, including *Arrhenatherum elatius,* as well as creeping herbaceous species like *Galium aparine* and low woody shrubs like *Hedera helix*.

This habitat is considered to be of Local importance (higher value), due to the relatively high species diversity present here and its broad habitat potential.

Plate 3. Scrub (WS1) habitat in the south of the study area

Wet grassland (GS4)

Wet grassland (GS4) habitat was recorded widely across the study area, however, it was often recorded in vegetation mosaics with scrub (WS1) and dense bracken (HD1). Both of these latter habitats are beginning to overcome many areas of wet grassland on the study area over time due to encroachment. This habitat is characterised by having an increased influx of freshwater near the soil surface relative to GS2/GS1 grassland, which allows this grassland type to support some wetland plant species. As a result, the habitat within the study area is dominated by such grass species as *Agrostis stolonifera* and *Molinia caerulea*, alongside such bryophyte species as *Calliergonella cuspidata*. Occasional species in this habitat include *Ranunculus repens* and *Succisa pratensis*.

This habitat is considered to be of **Local importance (higher value)**, due to the relatively high species diversity present here.

Dense bracken (HD1)

Dense bracken (HD1) habitat is present across the study area, however, it is rarely the dominant habitat in the vegetation mosaics here, frequently being recorded in mosaics with larger quantities of scrub (WS1) and wet grassland (GS4). A dominant area of HD1 does occur, however, in the north of the study area (see Figure 2). This habitat is indeed dominated by the characteristic fern *Pteridium aquilinum*, which establishes extensive rooting systems in the deeper soils. However, a few other shrub species are competing with this dominant species here, including *Rubus fruticosus* agg., and

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underneath the cover of these species, a few herbaceous species occur, including *Agrostis stolonifera* and *Chamerion angustifolium.*

This habitat is considered to be of **Local importance (lower value),** due to its low species diversity.

Oak-ash-hazel woodland (WN2)

Oak-ash-hazel woodland (WN2) (see Plate 4) habitat occurs in three patches, surrounded by younger immature woodland (WS2), in both the south and north of the study area. These woodlands appear to be substantially older than the surrounding immature woodland, as indicated by the size and girth of trees here. This dry semi-natural woodland habitat is dominated by the tall canopy species *Fraxinus excelsior*. The understorey of the woodland here is very densely vegetated by *Rubus fruticosus* agg. and *Hedera helix,* with lesser quantities of *Polystichum setiferum, Lonicera periclymenum* and *Asplenium scolopendrium.* The bryophyte layer contains *Kindbergia praelonga* and *Eurhynchium striatum*.

Some areas of WN2 habitat correspond with the EU Habitats Directive Annex I habitat [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. However, the area of WN2 habitat within the study area is not classified as such due to the lack of sufficient key indicator species for this habitat type, including *Quercus* species. This habitat is considered to be of **County importance**, due to its relatively well-developed woodland vegetation, which is locally scarce.

Plate 4. Oak-ash-hazel woodland (WN2) vegetation within the south of the study area

Cutover bog (PB4)

Cutover bog (PB4) habitat occurs as two narrow isolated strips of cutover raised bog in the north-west of the study area and grades into scrub (WS1) habitat immediately to the east. This habitat generally occurs on deep peat substrate. *Calluna vulgaris*, *Erica tetralix* and *Molinia caerulea* were all recorded within the vegetation, the former species being dominant. The herbaceous species *Carex panicea* and the bryophyte species *Pseudoscleropodium purum* and *Hypnum jutlandicum* were also recorded. This vegetation type has close affinities with the 'Calluna vulgaris cutover bog (LS1)' habitat type of Smith & Crowley (2020).

Some areas of PB4 habitat correspond with the EU Habitats Directive Annex I habitat [7150] Depressions on peat substrates of the Rhynchosporion. However, the areas of PB4 habitat within the study area are not classified as such due to the lack of sufficient key indicator species for this habitat type, including *Rhynchospora alba*. Despite its cutover state, this habitat is considered to be of **County importance**, given the scarcity of the habitat within the county.

Immature woodland (WS2)

Immature woodland (WS2) (see Plate 5) habitat occurs widely across the study area, and is the most dominant habitat on the study area, along with scrub (WS1). This immature woodland appears to have formed by natural means from scrub habitat in this under-managed area and is currently dominated by the canopy species *Betula pubescens* and *Salix cinerea* subsp. *oleifolia*. *Rubus fruticosus* agg., *Hedera helix, Ulex europaeus* and *Arrhenatherum elatius* occur within the undergrowth. This habitat is considered to be of **Local importance (higher value),** due to its broad habitat potential to form mature woodland over time, despite its current immature status.

Plate 5. Immature woodland (WS2) vegetation within the south of the study area

Buildings and artificial surfaces (BL3)

Buildings and artificial surfaces (BL3) habitat within the study area is represented by a few old farm buildings and other built structures located in the south of the study area. This habitat is devoid of plant species and so is considered to be of **Negligible importance**.

Rich fen and flush (PF1)

Rich fen and flush (PF1) (see Plate 6) habitat was recorded in three-four separate extensive patches in the south of the study area. These areas of flush habitat adjoin mostly immature woodland (WS2) and scrub (WS1) on the drier areas adjacent to the wetter fen. This habitat is wet and highly mineral-rich and calcareous in nature, being as it is directly adjacent to a number of calcareous springs (FP1). Grass, rush and sedge species are the dominant vascular plants in this vegetation, with *Juncus inflexus, Carex nigra, Carex flacca* and *Molinia caerulea* all being widespread. The herbaceous and bryophyte species *Succisa pratensis, Ranunculus flammula, Carex panicea, Campylium stellatum, Scorpidium cossonii* and the orchid *Dactylorhiza* species are all occasional, whilst the bryophyte species *Fissidens adianthoides, Didymodon tophaceus* and *Bryum pseudotriquetrum* all occur as rarities in the vegetation. Scattered tufa accumulation was observed around these brown mosses in parts of the vegetation, however, the petrifying spring (FP1) habitat (see below) represents the highest accumulation of this tufa.

Of the species recorded within this vegetation, the following 11 are considered to be positive indicator species for the Annex I habitat [7230] Alkaline fens, according to NPWS (2019): *Succisa pratensis, Campylium stellatum, Scorpidium cossonii, Molinia caerulea, Carex flacca, Carex panicea, Ctenidium molluscum, Ranunculus flammula, Galium palustre, Fissidens adianthoides* and *Carex nigra.* Therefore, given the abundance of positive indicator species for this Annex I habitat within the vegetation on the study area, and the accordance of the vegetation composition with its description in NPWS (2019) and Perrin *et al.* (2014), all of the rich fen and flush habitat within the study area has been classified as [7230] Alkaline fen.

This habitat is considered to be of **National importance**, given the scarcity of such wetland features on a national scale, their decreasing area nationally, and the fact that the examples on the study area occur within the favourable reference range for this EU Annex I habitat in Ireland (NPWS, 2019).

Plate 6. Rich fen and flush (PF1) vegetation within the south of the study area

Calcareous springs (FP1)

Calcareous springs (FP1) (see Plates 7 and 8) habitat was recorded in scattered patches across the south of the study area, adjoining rich fen and flush (PF1) habitat. No spring heads were observed, and the tufa accumulation here appears to be diffuse and widespread across the habitat. The habitat appears to have formed in low-lying former access trackways, hence their apparent linear distribution in most areas (see Figure 3). Brown moss species were recorded widely growing out of the tufa deposits. These include *Bryum pseudotriquetrum* and *Campylium stellatum*. The herbaceous species *Mentha aquatica* was also found to be widespread.

All of the spring habitats within the study area have been classified as the Priority EU Annex I Habitat [*7220] Petrifying springs with tufa formation (Cratoneurion), as per its definition within the *Interpretation Manual of European Union Habitats* (CEC, 2013), and the description of the habitat in the Irish context within Perrin *et al.* (2014) and NPWS (2019). Work on the classification of Irish petrifying spring vegetation communities was undertaken by Lyons & Kelly (2016), however the authors acknowledge that many of the sites described in their report do not conform strictly to the EU Annex I habitat type. NPWS (2019) has adapted a list of positive indicator species for the EU Annex I habitat from Lyons and Kelly (2016), however the definition of the habitat in the Irish context remains poorly defined. Perrin *et al.* (2014) stress the importance of certain brown moss and tufa presence, in conjunction with low quantities of sedges.

Indeed, all of the petrifying spring habitat recorded on the study area contained abundant tufa, as well as brown moss representation and low sedge cover. Furthermore, seven positive indicator species of this EU Annex I habitat (as outlined within NPWS (2019)) were recorded at calcareous

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springs within the study area, namely *Aneura pinguis, Campylium stellatum, Bryum pseudotriquetrum, Carex panicea, Mentha aquatica, Juncus articulatus* and *Anagallis tenella*.

This habitat is considered to be of **National importance**, given the scarcity of such wetland features on a national scale and their current "*inadequate*" conservation status in Ireland (NPWS, 2019).

Plate 7. Calcareous springs (FP1) habitat within the south of the study area

Plate 8. Calcareous springs (FP1) habitat within the south of the study area, showing the abundant deposited tufa and some inundated bryophytes, including scattered plants of Bryum pseudotriquetrum

4. SUMMARY

This report presents a summary of findings from a habitat field survey in the spring of 2023 at Derryadd, near Lanesborough, Co. Longford. A total of twelve separate habitat types were recorded across the study area, including two EU Habitats Directive Annex I habitats, namely, [7230] Alkaline fen, and the Priority habitat [*7220] Petrifying springs with tufa formation (Cratoneurion). Protecting the quality and integrity of the Annex I habitats and their associated plant species on site will be an important focus going forward. These issues will be assessed in detail in ecological impact and appropriate assessments to be completed for the proposed development.

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