

BORD@NA MÓNA

Naturally Driven

Derryadd Wind Farm

Marsh Fritillary Survey

January 2019

Revision: A



REPORT

PROJECT:

Derryadd Wind Farm

CLIENT:

Bord na Móna Powergen Ltd.
Main Street,
Newbridge,
County Kildare

COMPANY:

TOBIN Consulting Engineers
Block 10-4
Blanchardstown Corporate Park
Dublin
Ireland
T +353 1 803 0401
F +353 1 803 0409
Email: dublin@tobin.ie

www.tobin.ie

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Project:	Derryadd Proposed Wind Farm
Title:	Marsh Fritillary Survey

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1 INTRODUCTION

TOBIN Consulting Engineers (TOBIN) were commissioned in 2018 to carry out a Marsh Fritillary (*Euphydryas aurinia*) survey of a proposed wind farm site on Bord na Móna lands, in County Longford. The site encompasses three individual bogs within the Mountdillon Bog Group; Derryaroge, Derryadd and Lough Bannow (and a small part of Derryshannoge Bog).

Marsh Fritillary is the only Irish butterfly species protected under the Annex II of the EU Habitats Directive [92/43/EEC]. It is considered vulnerable and under threat of extinction on the island of Ireland and is included on the red list of Irish butterflies Regan *et al.*, (2010)¹. Its population status is listed as “inadequate”, and in decline within the 2013 Status of EU Protected Habitats and Species in Ireland². The species was once widespread in Ireland, however numbers declined severely during the 20th century due to loss of uncultivated grasslands, overgrazing and its requirement for extensive habitat area and wildlife corridors.

Fragments of suitable habitat exist within the study area including some areas of regenerating cutaway bog, comprising birch/ willow scrub, and areas of more open dry heather. Devil’s-bit Scabious *Succisa pratensis*, was found growing on site, the larval food plant of the Marsh Fritillary butterfly.

In this regard, a Marsh Fritillary survey was undertaken on the 4th and 5th October 2018. The survey was conducted to coincide with the time period when larval webs are at their most conspicuous and most easily detected. The favourable conditions over the summer of 2018 permitted the survey period to be extended³. The main aims of this survey were to record signs of breeding colonies and identify suitable breeding habitat. The surveys were undertaken by experienced ecologists from TOBIN Consulting Engineers.

2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken prior to the field study in order to gather existing information regarding Marsh Fritillary within the study area. Potential breeding habitats were identified during other ongoing field surveys. Habitats were also identified based on an aerial imagery review. The desk study included:

- Review of public consultation records and NPWS data regarding Marsh Fritillary records within the study area, and any previous field surveys that may be relevant;
- A review of Ordnance Survey Ireland⁴, and NPWS internet map viewer⁵ in order to determine typical habitats that occur within the study area and areas of dry grassland and raised bog fringe habitats potentially suitable for Marsh Fritillary;
- A review of Biodiversity Ireland⁶, in order to identify records of Marsh Fritillary in the vicinity of the study area;
- A review of Butterfly Conservation Ireland⁷, in order to identify records of Marsh Fritillary likely to be impacted by the study area;

¹ Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) *Ireland Red List No. 4 – Butterflies*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland. Cover

² NPWS (2013). *The Status of Protected EU Habitats and Species in Ireland. Overview Volume 1*. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. Editor: Deirdre Lynn

³<http://www.ukbms.org/Downloads/UKBMS%20Ng2%20-%20Marsh%20Frit%20Webs%20guidance%20notes.pdf> (Accessed October 2018)

⁴ <http://map.geohive.ie/> (Accessed October 2018)

⁵ <http://webgis.npws.ie/npwsviewer/> (Accessed October 2018)

⁶ <https://maps.biodiversityireland.ie/Map/Terrestrial/Species/77487> (Accessed October 2018)

⁷ <https://butterflyconservation.ie/wp/> (Accessed October 2018)

- Review of Report on the main results of the surveillance under Article 17 for Annex II, IV and V species (Annex B) – Species Name and Code – Marsh Fritillary (1065)⁸. This report forms part of the NPWS (2013) Report on the Status of EU Protected Habitats and Species in Ireland; and
- A review of relevant reports and literature including Regan et al., 2010, Harding (2008)¹⁰ and Nash et al., (2008)⁹.
- A review of habitat maps provided by Bord na Móna.

2.2 FIELD STUDY

Marsh Fritillary eggs are laid shortly after the emergence of the females in mid- May. The eggs are laid on the underside of the basal leaves of Devil's-bit Scabious (*Succisa pratensis*), the species food plant. The larvae hatch from the eggs from early to mid-June. The larvae spin a web close to the ground on the *Succisa pratensis* basal leaves. These webs become enlarged over time and become much more noticeable from August onwards, by late September the webs are very visible. No more than a metre away the larvae will construct a similar web where they will over winter. They will emerge in spring, generally in mid-March. The individual larvae will form pupae, which is attached to a twig or grass stem close to the ground from late April to early May. Adult butterflies emerge from late May to late June¹⁰. This information informed the survey approach.

Areas of potential breeding habitats were identified to focus the surveys based on;

- Desktop studies of previous records and aerial imagery checks of potential suitable habitat;
- Results of other ecology surveys which identified potentially suitable habitats, including ecological walkover surveys in 2016 and 2018.

Marsh Fritillary surveys were carried out in accordance with the National Biodiversity Data Centre methodology¹¹, and the UK Butterfly Monitoring Scheme¹² whereby a large map was prepared, key sites were identified and areas containing Devil's-bit Scabious were systematically searched for *occupied* larval webs. Walkover and transect surveys were conducted throughout suitable habitats and checks were conducted in areas of low vegetation height for signs of larval webs or possible feeding signs. Marsh Fritillary prefer a mosaic of vegetation height ranging from 8-25cm and typically areas dominated by Purple Moor Grass *Molinia caerulea* with associated Devil's-bit Scabious are the most likely areas that they will occur in the study area.

If larval webs or other signs were noted, then the extent of Devil's-bit Scabious throughout the site was marked on a field map. Any occupied webs identified were marked on the map with a target note. When no larval webs were found, the suitability of the habitat for Marsh Fritillary was determined (presence and extent of Devil's-bit Scabious).

Surveys were carried out on the 4th and 5th October 2018 by experienced TOBIN ecologists. Despite the weather conditions being favourable for weeks in advance of the survey, conditions took a turn during the survey period. During the first day of surveying, heavy rains occurred at 2pm, approximately halfway through the survey. This rain continued through the night but had ceased at the beginning of the second survey.

⁸ http://www.npws.ie/publications/archive/1065_Marsh_Fritillary_assessment.pdf (Accessed October 2018)

⁹ Harding J (2008) Discovering Irish Butterflies & their Habitats - J.M. Harding
Nash D, Boyd T and Hardiman D (2012). Ireland Butterflies A Review. The Dublin Naturalists Field Club

¹⁰ <http://www.ipcc.ie/a-to-z-peatlands/marsh-fritillary-butterfly/> (Accessed October 2018)

¹¹ <http://www.biodiversityireland.ie/record-biodiversity/surveys/butterfly-monitoring-scheme/> (Accessed October 2018)

¹² <http://www.ukbms.org/Downloads/UKBMS%20Ng2%20-%20Marsh%20Frit%20Webs%20guidance%20notes.pdf> (Accessed October 2018)

3 RESULTS

As described above, a desk study and ecological walkover surveys were carried out in 2016 and 2018 within the proposed development site. These surveys were used to identify areas of potentially significant ecological value, including identifying suitable habitat for the Marsh Fritillary butterfly (*Eurodryas aurinia*). Suitable habitat was identified at Lough Bannow and within the Derryaroge Bog, with target surveys carried out during the appropriate season in 2018. No suitable habitat for marsh fritillary was found during the surveys within Derryadd Bog and Derryshannoge Bog.

The site at Lough Bannow, shown in Figure 1 below, was an active site for peat harvesting at the time of survey. *Succisa pratensis* was found with the highest abundance bordering the rail tracks that run through the site, and in recolonising areas of the bog. One active web was found on this site. A second web was also found; however, the web had unfortunately been destroyed during the previous night's rain, and all the Marsh Fritillary larvae were deceased. The locations of these findings, and the areas of Devil's-bit scabious can be seen in Figure 1 below.

It is noted that an internal access road is proposed c. 300 m east from where this population was recorded, resulting in a potential loss of suitable habitat (along approximately 300m) to the east of this area, where the road will interact with the existing environment. It is recommended that surveys are undertaken in advance of construction to determine whether marsh fritillary are present in the area. If larval webs are present, disturbance of the plants during the larval stage of the life-cycle of the butterfly (August-September) will be avoided.

Despite there being a record for Marsh Fritillary within Derryaroge Bog within 2016⁶, no Marsh Fritillary were observed on this site. This is despite the fact that there was significantly more *Succisa pratensis* than the site at Lough Bannow. The *Succisa pratensis* was prevalent along the railway tracks and recolonising harvested sites. The railway track at the most western point of the site had a high percentage coverage of *Succisa pratensis* along its border and in adjacent grassy verges. There was no *Succisa pratensis* found in areas of dense scrub or taller swards. Results can be seen in Figure 2 below.

4 CONCLUSION

As mentioned above, a desk study and ecological walkover surveys were carried out within the proposed development site, to identify areas of potentially suitable habitat for Marsh Fritillary. Suitable habitats were identified at Lough Bannow Bog and Derryaroge Bog only. As a result, Derryadd Bog and Derryshannoge Bog were excluded from the target surveys.

As is shown in Figure 1, Marsh Fritillary were recorded on the west of the site at Lough Bannow Bog. An internal access road is proposed c. 300 m east from where this population was recorded. As stated above, it is recommended that surveys are undertaken in advance of construction to determine whether marsh fritillary are present in the area and, if larval webs are present, disturbance of the plants during the larval stage of the life-cycle of the butterfly (August- September) will be avoided.

A deceased population was also found to the southwest of Lough Bannow Bog, which was the result of the heavy rain from the previous night. This area shows suitable habitat for Marsh Fritillary. However, it is located c. 1.3km from the nearest turbine. Therefore, should a population re-occur, there will be no impact to the population from the proposed works.

Despite extensive surveys throughout the remainder of the site, including additional surveys at Derryaroge Bog, no other populations of Marsh Fritillary were recorded.



Legend

- Marsh_Fritillary
- Devils_Bit_Scabious.lyr
- Survey_Area

- NOTES**
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
 2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
 3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
 4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Issue	Date	Description	By	Chkd.
D01	OCT '18	Draft Issue	K.M	P.C.

Client:
BORD NA MÓNA
 Naturally Driven

Project:
 Derryadd windfarm

Title:
 Marsh Fritillary survey

Scale @ A3:
 Prepared by: K. Murphy Checked: P. Cregg Date: October 2018
 Project Director: D. Grehan

TOBIN
 Patrick J. Tobin & Co. Ltd.
 Consulting, Civil and Structural Engineers,
 Block 10-4, Blanchardstown Corporate Park,
 Dublin 15, Ireland.
 tel: +353-(0)1-8030406
 fax: +353-(0)1-8030409
 e-mail: info@tobin.ie
 www.tobin.ie

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Drawing No: **Figure 1** Rev: **D02**

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- ★ Marsh_Fritillary
- Devils_Bit_Scabious.lyr
- Survey_Area

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TOBIN
 Patrick J. Tobin & Co. Ltd.
 Consulting, Civil and Structural Engineers,
 Block 10-4, Blanchardstown Corporate Park,
 Dublin 15, Ireland.
 tel: +353-(0)1-8030406
 fax: +353-(0)1-8030409
 e-mail: info@tobin.ie
 www.tobin.ie

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Drawing No: **Figure 2** Rev: **D02**

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



INTERNATIONAL NETWORK

Galway
Fairgreen House,
Fairgreen Road,
Galway.
Ph +353 (0)91 565398
Fax +353 (0)91 565398
E-mail galway@tobin.ie

Dublin
Block 10-4,
Blanchardstown Corporate
Park,
Dublin 15.
Ph +353 (0)1 803 0406
Fax +353 (0)1 803 0409
E-mail dublin@tobin.ie

Castlebar
Market Square,
Castlebar,
Co. Mayo.
Ph +353 (0)94 902 1401
Fax +353 (0)94 902 1534
E-mail castlebar@tobin.ie

United Kingdom
17 Bowling Green Lane
Clerkenwell
London EC1R 0QB
Ph +44 (0)20 391 56301
E-mail info@tobin-uk.com