

PROPOSED FIR LOUGH WIND FARM

RED GROUSE BASELINE SURVEY

2021

DECEMBER 2021

Prepared for

**Mercury Renewables
(Carrowleagh Ltd.)**

by

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1. Introduction

Baseline ecological surveys are underway at Fir Lough, Carrowleagh, Co. Mayo to inform an Environmental Impact Assessment report for a proposed wind farm development. As part of the baseline ornithological programme, which includes Vantage Point watches and transect surveys, a Red Grouse *Lagopus lagopus* survey is required to assess the potential breeding population at this site.

2. Red Grouse

Red Grouse is a Red Listed species owing to a severe decline in breeding population size (> 50%) over 25 years (Gilbert *et al.*, 2021). Red Grouse is associated with heaths, blanket bog and raised bog. Its diet is almost exclusively ling heather *Calluna vulgaris* and its distribution is therefore restricted to peatland habitats that have ling heather. During the last national survey in Ireland Red Grouse were found in wet heath, upland blanket bog and lowland blanket bog (Cummins *et al.*, 2010).

Red Grouse establish territories in autumn and defend them over the winter. Nesting begins during April depending on the weather. Incubation is usually within 19 to 25 days and fledging within 12-13 days. Red Grouse are largely single brooded and typically nest on the ground in vegetation which is taller than average. The nesting season from incubation to fledged young extends between April and June (Watson and Moss, 2008).

3. The Study Site

The study site lies approximately 10 km to the east of Ballina town in north Co. Mayo (Figure 1). The site is dominated by cutover bog and is crossed by tracks and drains. The blanket bog has been cut over many years and extraction has been by hopper (extract from face bank with digger and spread in rows to dry) and sausage machine (extract from underneath the surface and spread in rows to dry). Hand cutting may also occur. Both hopper and sausage extraction have degraded much of the blanket bog habitat (loss of scragh, drying out of bog, compaction etc), though some areas of uncut high bog remain within the site. Such areas, along with some of the older cutover bog, support good heather cover. The Ox Mountains Special Area of Conservation (code: 002006) occurs to the east and southeast of the Fir Lough site. There is extensive coniferous forestry to the west and southwest of the site and an operational wind farm immediately to the east.

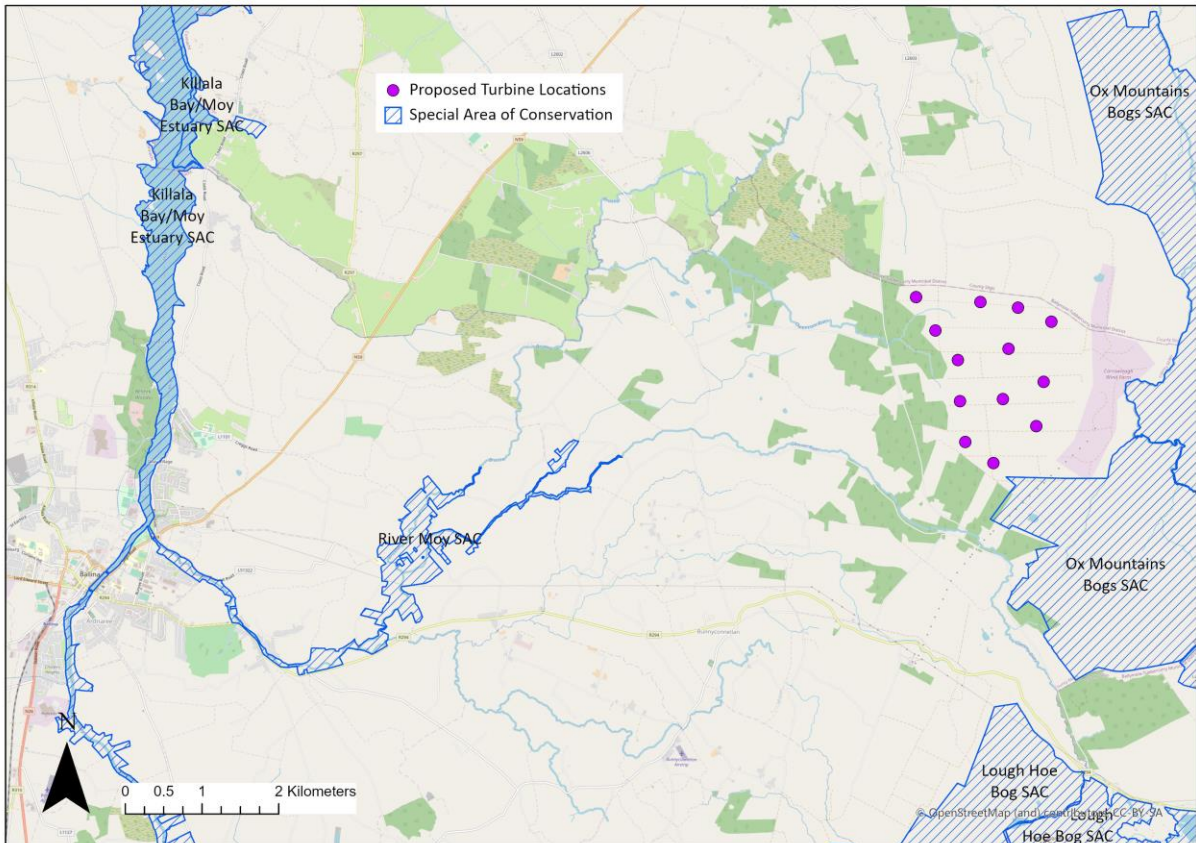


FIGURE 1. STUDY SITE AND LOCATION OF PROPOSED TURBINES (PURPLE DOTS) AT FIR LOUGH, NORTH CO. MAYO.

4. Survey Methods

The Red Grouse survey was undertaken on March 23rd 2021 under license (012/2021) (see Appendix I). As required, the local conservation ranger, Hazel Doyle, was contacted prior to the survey. Surveys were conducted by Jackie Hunt and Joe Adamson in association with BioSphere Environmental Services. The survey team have extensive previous experience in Red Grouse survey.

Standard survey methods using tape playback (Cummins *et al*, 2013) were used. Line transects were walked within the study area, to cover as much of the study site as possible over one survey day (Figure 2). At intervals of 250m along the transect the call of the male Red Grouse was played for 30 seconds using a megaphone (full volume and playing call of Red Grouse). When deemed necessary (increased wind, terrain preventing carriage of sound) the call was played a second time, but no more. Any response to the call was recorded and mapped (male call in response, bird flies up in response). As each surveyor walked the transect, the ground was scanned for signs of Red Grouse (single droppings, single roost, double roost, roost with caecal pellets, feathers). Any signs of Red Grouse and any flushed or responding birds were recorded and mapped. All movements of Red Grouse were mapped and care was taken to avoid double counting.

The following signs were recorded, following Murray *et al.*, 2002:

- **Roost sites.** Piles of Red Grouse droppings indicate that a bird has been sitting or roosting overnight. If the droppings have white caps this indicates a fresh roost site where the bird is likely to have been roosting at this location in the last 1-3 nights (depending on the weather). Soft

droppings or caecal pellets may also be present and are a classic indicator of a fresh roost site (Murray *et al.*, 2003). Roost sites may be of a single bird or two birds. Where two dropping piles are located (spaced up to 1m apart) this indicates a pair roost site. A pair roost site indicates the presence of a potentially breeding pair of Red Grouse. During transect surveys all roost sites were recorded together with detail on “single or paired”, “fresh or old”.

- **Red Grouse droppings.** Grouse droppings indicate that Grouse are present in an area. While grouse are feeding and moving around they will leave droppings. Where the white cap is present on a dropping this indicates that it is fresh (c. 1-3 days, depending on the weather) or old (c. up to 4 weeks, depending on the weather). During transect surveys all Red Grouse droppings were recorded with detail regarding “fresh or old”.
- **Flushed male or female Red Grouse.** If Red Grouse are present in an area during day time they will sit tight unless the disturbance source comes very close at which point the bird will fly quickly out of the way.

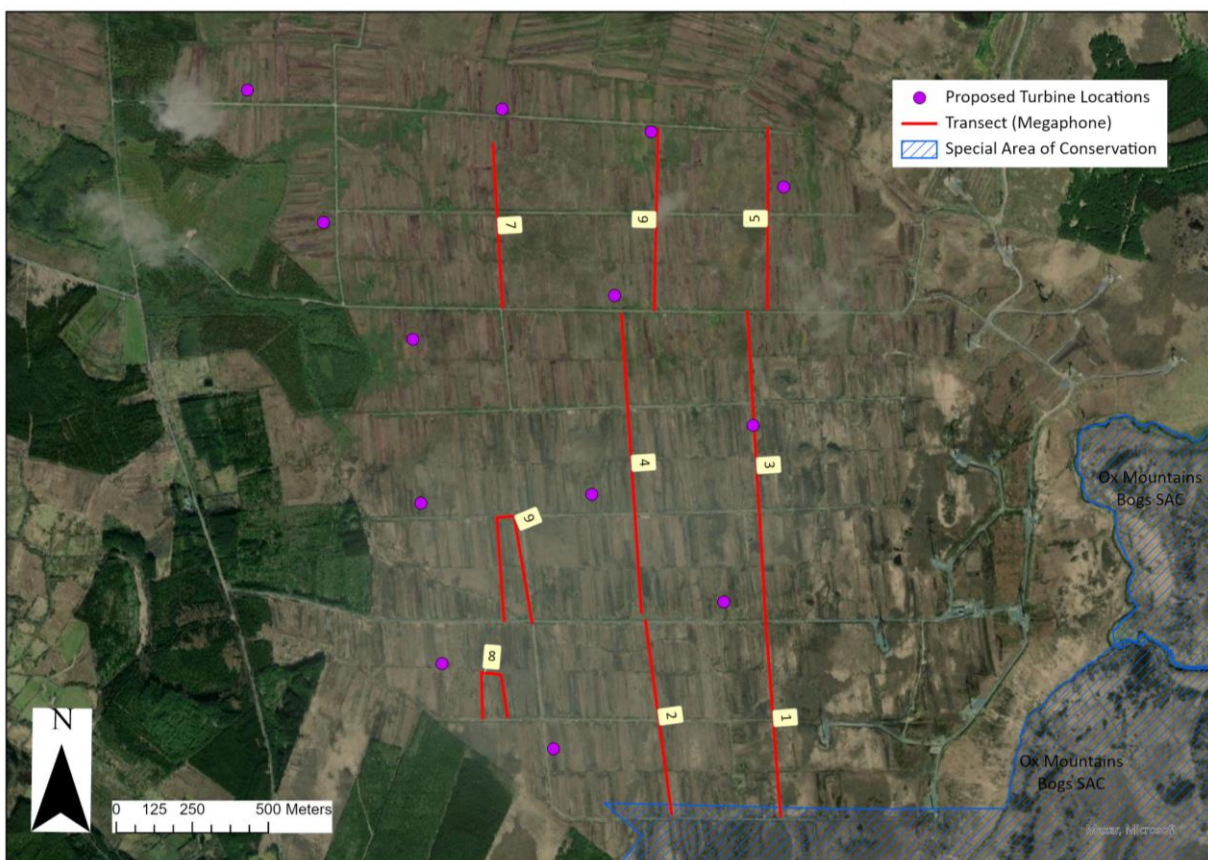


FIGURE 2. ROUTE OF TRANSECT SURVEY WITHIN THE STUDY SITE AT FIR LOUGH. TRANSECTS WALKED WITH MEGAPHONE PLAYBACK ONLY SHOWN (SECOND OBSERVER WALKED PARALLEL TRANSECT AT 250 M).

5. Survey Results

Weather on the day was cloudy with light to moderate winds, good visibility and rain showers. Towards the end of the day heavy rain showers limited transect coverage in the western part of the site (the megaphone cannot be taken out and played in heavy rain)

The tape playback survey elicited four responses (call back with/without flight) from male Red Grouse (Table 1 & Figure 3). Signs of Red Grouse were recorded in three locations: at one location there was a paired roost considered be 5-10 days old and at two other locations single fresh (1-5 day old) droppings were found.

A number of additional bird species were recorded while on site: Merlin, Golden Plover and Snipe. Meadow pipit and Skylark were also present.

TABLE 1. RESULTS FROM PLAYBACK SURVEYS.

Observation (RG response/signs).	Other Observations
Transect 1. Start at 1030	
No signs or response	1 Snipe flushed
Transect 2.0	
No signs or response	8 Golden Plover, Hare droppings
Transect 3 start at 1130	
No signs or response	Jack Snipe flushed
Transect 4 start at 1230	
<ul style="list-style-type: none"> Single RG dropping fresh (white urine cap present) 	Snipe flushed
Transect 5 start 1520.	
<ul style="list-style-type: none"> Male RG response and flight <i>Note: Good growth and cover of heather</i>	Merlin in flight. 5 Snipe in flight
Transect 6	
<ul style="list-style-type: none"> Single RG dropping with white urine cap (c.1-5days old) RG rose no call (presume same bird as responded on T5) <i>Note: Sausage machined bog where RG dropping found.</i>	
Transect 7	
<ul style="list-style-type: none"> RG response call and flush. RG response call and flush <i>Note: Two separate male RG.</i>	
Transect 8	
No signs or response. <i>Note: Active turf cutting with hopper underway here.</i>	
Transect 9 1410	
<ul style="list-style-type: none"> Paired roost (two piles with some white on tips; c.5-10days old) 	40 GP in flight & calling

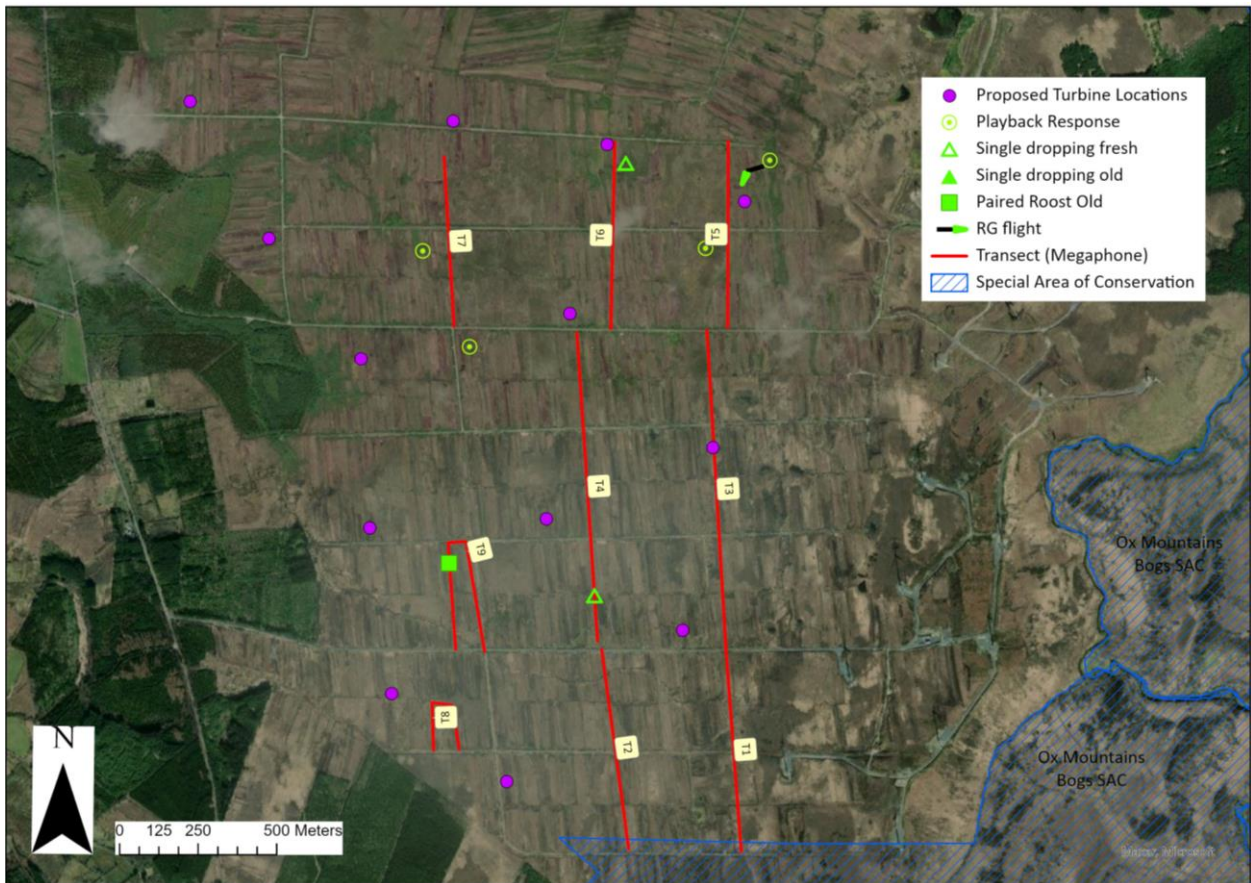


FIGURE 3. RESULTS FROM TAPE PLAYBACK SURVEYS FOR RED GROUSE.

6. Discussion

While four calls were elicited during the survey, consideration of the call locations together with observations during the field survey indicates that three territorial males were present in the survey area (Figure 4).

The total survey area represents approximately 4 km². Based on three Red Grouse territories, this gives a density of 0.75 Red Grouse per km². Typical Red Grouse densities in Ireland were estimated to be 1.1 individuals per km² of suitable habitat. Densities in West Connaught are estimated at 0.64 males per km² (Cummins *et al.*, 2010). The Owenduff/Nephin Complex SPA supports an extensive area of largely intact blanket bog and lies in north west Mayo (c.40 km west of the study site). A systematic survey of Red Grouse was completed at this SPA in 2016 (McLoughlin & Hunt, 2016) and densities of 1.4-1.5 males per km² were recorded. The present sample survey indicates that Red Grouse densities within the study site are comparable to those reported by Cummins *et al.* (2010) but are low when compared to estimates for the Owenduff/Nephin SPA. This is perhaps not surprising given the level of past and on-going turf extraction at this site and the proximity of other site pressures (forestry etc.). There is some correspondence between the remnant areas of intact blanket bog and the presence of Red Grouse (see Figures 4 & 5).

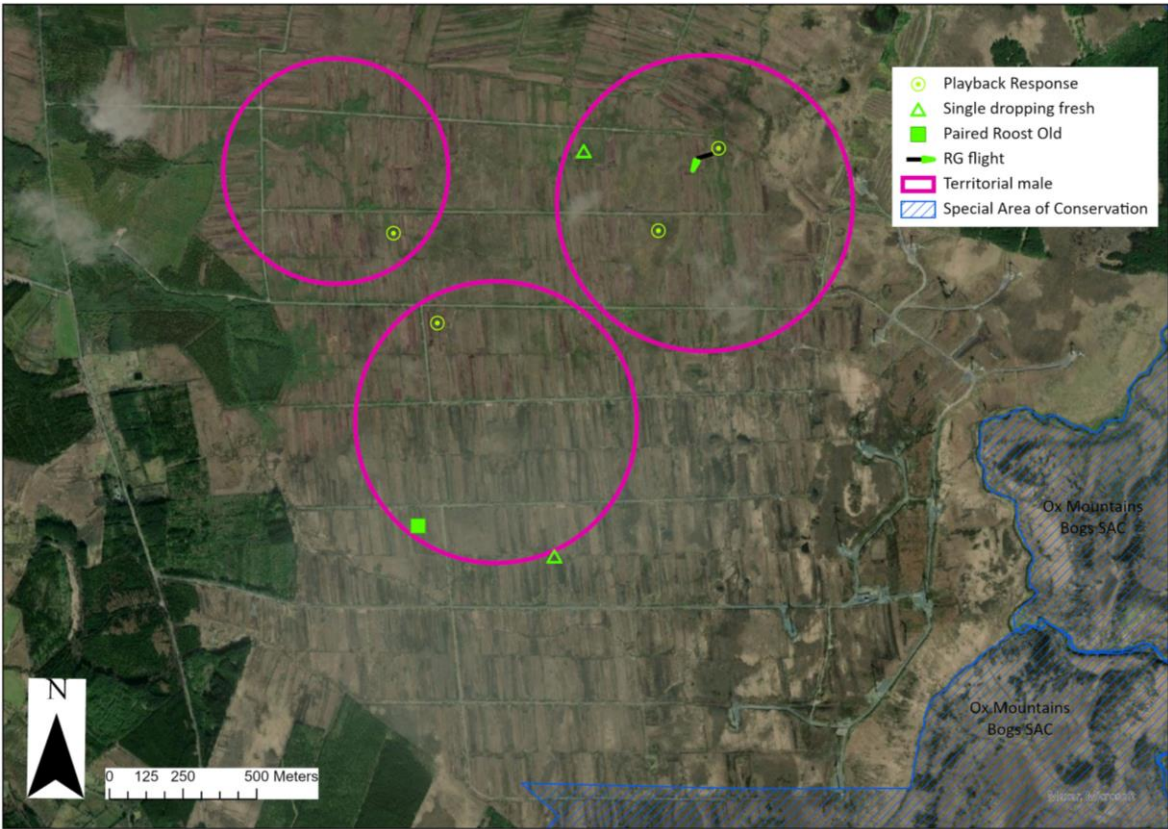


FIGURE 4. POTENTIAL TERRITORIAL MALES



FIGURE 5: AREAS OF REMNANT WET BOG HABITAT (MAP PREPARED BY DR. JOHN CONAGHAN)

7. Conclusion

A minimum of three territorial Red Grouse males were recorded at the Fir Lough study site. This represents three potential pairs of Red Grouse with a density of 0.75 pair per km². This provides a sound baseline for future monitoring at this site.

References

Cummins, S., Bleasdale, A., Douglas, C., Newton, S., O'Halloran, J. & Wilson, H.J. (2010) The status of Red Grouse in Ireland and the effects of land use, habitat and habitat quality on their distribution. *Irish Wildlife Manuals*, No. 50. NPWS, Department of the Environment, Heritage and Local Government, Dublin.

Gilbert, G., Stanbury, A. & Lewis, L. (2021) Birds of conservation concern in Ireland 2020-2026. *Irish Birds* 43: 1-22.

McLoughlin, D. and Hunt, J. (2016) Red Grouse Survey Owenduff/Nephin Complex SPA and Slieve Bearnagh SAC: Discussion document on survey methods for Red Grouse *Lagopus lagopus*. Report for National Parks and Wildlife Service.

Murray, T., Clotworthy, C. & Bleasdale, A. 2013. A Survey of Red Grouse (*Lagopus lagopus scoticus*) in the Owenduff/Nephin Complex Special Protection Area. *Irish Wildlife Manuals*, No. 77. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland

Watson, A. & Moss, R. 2008. *Grouse*. The Natural History of British and Irish Species. The New Naturalist Library. Collins, London.

Appendix 1 – Copy of Licence for Red Grouse Survey at Fir Lough, Co, Mayo



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht
Department of Housing,
Local Government and Heritage

Licence No. 12/2021

NATIONAL PARKS & WILDLIFE SERVICE

Wildlife Acts 1976 to 2018 - Section 35

The Minister for Housing, Local Government and Heritage, in exercise of the powers conferred on the Minister by Section 35 of the Wildlife Acts 1976 to 2018 authorises:

Applicant: Brian Madden
(on behalf of Jennings O' Donovan Consulting Engineers)

Address: 29 La Touche Park, Greystones, Co. Wicklow. A63 E024

Licencee: Brian Madden - Jackie Hunt - Joe Adamson

To use a tape-luring device for the birds specified in Column 2 for the purpose of identifying their presence in the area specified in column 3 during the period
From 24 March 2021 to 31 March 2021

Subject to the conditions listed overleaf.

SCHEDULE

1	2	3
TYPE OF DEVICE	SPECIES	AREA
Tape Lure	Red Grouse <i>(Lagopus lagopus hibernicus)</i>	Carrowleagh (GRID REF: G 36 21) Townlands: Carrowleagh, Co. Mayo.

Dated this the 24 of March 2021

For the Minister for Housing, Local Government and Heritage

Claire Costello

