# Ballydangan Bog Red Grouse Project

## Conservation Plan: 2021-2025


Report prepared by
Dr. David Scallan

This conservation plan was part funded by the Department of Housing, Local Government and Heritage under the Peatlands Community Engagement Scheme 2021 and the Heritage Council Heritage Council (Community Heritage Grant Scheme 2021).

Rialtas na hÉireann
Government of Ireland

An Chomhairle Oidhreachta
The Heritage Council

*In conjunction with:*

Bord na Móna

Local Land Owners

Roscommon Regional Game Council

Moore Community Council

Moore Game and Conservation Club

An Chomhairle Oidhreachta
The Heritage Council

An Roinn Coimirce Sóisialaí
Department of Social Protection
www.welfare.ie

An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht

Roscommon County Council

## Contents



**Front cover photo:**
19 October 2017: A site visit from two Government Ministers – Heather Humphreys, Minister for Culture, Heritage and the Gaeltacht and Denis Naughten, Minister for Communications, Climate Action and Environment.

## Summary

Established in 2009, the Ballydangan Bog Red Grouse Project aims to prevent the decline and, in the long-term, increase the numbers of Red Grouse and other birds of conservation concern including breeding Curlew on Ballydangan Bog, Co. Roscommon.

Building on the original project management plans 2010-2015 and 2016-2020, this conservation plan (2021-2025) provides the local community (e.g. Moore Gun Club, Moore Community Council and local farmers) as well as the partners involved with detailed guidance on how to improve the ecological conditions of the site in a manner that supports a diversity of wildlife species and existing conservation priorities.

The project utilises the best biological methods available for Red Grouse and breeding Curlew conservation. The management is achieved through a range of strategies, including habitat improvement, predator control, monitoring, disturbance control, public awareness and education.

An unintended consequence of the project has been the arrival of breeding Curlew to the project site. This plan sets out to better incorporate the needs of this critically endangered species into the conservation programme building on experiences learned.

As a community-based venture, the project also aims to engage with the local community to create awareness about the importance of Red Grouse conservation on raised bogs. Some of the public awareness activities include the development of educational material, hosting school visits and disseminating the project's outcomes through site visits and local press.

This conservation plan is intended to be dynamic and will be reviewed annually. It recommends actively consulting with stakeholders and encouraging participation and involvement from the local community in the management programme.

Monitoring, evaluation and active dissemination of the results and lessons learned will remain integral parts of the project and its aftermath.

This project is managed by Moore Gun Club and Roscommon Regional Game Council in conjunction with Bord na Móna, Moore Community Council, the National Association of Regional Game Councils, FÁS/Department of Social Protection, the Heritage Council, the National Parks and Wildlife Service, Roscommon County Council. The project has been also supported by the Local Agenda 21 (Environmental Partnership) Grant Scheme.

**www.ballydanganbog.com**

## Acknowledgements

The project team would like to acknowledge the grant aid from the Heritage Council of €6,000 to the project in 2010, 2011, 2012; €5,000 in 2014, €4,000 in 2015, €8000 in 2016, €5,500 in 2017, €7,000 in 2018 and €4,500 in 2021. This significant financial support is greatly appreciated.

Through Moore Community Council, the Department of Social Protection (DSP) has annually allocated personnel to work on the project site for the duration of the project. This contribution from FÁS/DSP is set to continue for the foreseeable future.

The project would like to acknowledge the financial support of €4,000 per year (from 2010-2015) from the National Association of Regional Game Councils (NARGC) through their Irish Habitat Trust Fund.

Bord na Móna has generously agreed to provide the use of Ballydangan Bog for the Red Grouse project. The project would not be possible without this support. Bord na Móna has also provided funding for several actions and ongoing technical support towards the project's management practices.

The project would like to acknowledge the contribution from Dr. Mark McCorry from Bord na Móna as well as David Fallon and Dr. Catherine Farrell, who previously worked for Bord na Móna. David Fallon has remained actively engaged in providing ecological advice on the project's implementation.

The project team would like to acknowledge the ongoing support and grant aid from National Parks and Wildlife Service (NPWS) of €3,000 in 2011 and €1,500 in 2017 and €4450.00 in 2018/2019 under the NPWS Curlew Conservation Partnership. The project team would also like to acknowledge the assistance from NPWS during the translocation exercise (2014) and the donation of one tonne of grit supplied in December 2013.

The project would like to acknowledge the support of €3,000 from the Department of Housing, Local Government and Heritage under the Peatlands Community Engagement Scheme 2021.

The project would like to acknowledge the grant of €5,000 to purchase a heather cutting machine under the Co. Roscommon LEADER Programme in 2021.

Moore Gun Club and Roscommon Regional Game Council would like to acknowledge the grant of €500 provided by Roscommon County Council under the Community Heritage Bursary 2013.

The project team would also like to acknowledge the grant of €1,500 from Roscommon County Council under biodiversity Action 1.16 of the County Roscommon Heritage Plan to: "Promote and encourage participation wildlife projects and surveys, which gather information on habitats and species throughout the county" (2013-2014).

Finally, the project team would like to acknowledge the Local Agenda 21 (Environmental Partnership) Grant Scheme (2013-2014) for a grant of €1,000; and in 2015 for a grant of €500 towards the development of environmental and awareness resources for primary and secondary schools.

## Introduction

For a number of decades, members of the local Moore community (in Moore Gun Club and Roscommon Regional Game Council) expressed concern about declining Red Grouse populations on raised bogs throughout County Roscommon. Many Gun Club members recall numerous populations of Red Grouse in the past, however, there has been a continuous decline with several local extinctions. This is primarily due to habitat loss via commercial peat extraction, which has since ceased.

In late 2009, Moore Gun Club and Roscommon Regional Game Council undertook an effort to initiate a conservation project to address the declining Red Grouse population on Ballydangan bog, Co. Roscommon.

The original project conservation plan (2010-2015) produced by Scallan (2009) established a framework to achieve community-based conservation actions on Ballydangan Bog in a manner that supports Red Grouse, a healthy diversity and abundance of wildlife species and human uses. Moore Community Council played a key role in providing resources to implement the project's actions through a community employment scheme.

*Initial meeting between project team and Bord na Móna (2009)*

The plan recommended actively consulting with Red Grouse stakeholders and encouraged participation and involvement from the local community in the management programme. At the time, it was decided that the plan's working time-frame shall be five-year intervals. In 2015, a decision was taken to develop a new conservation plan from 2016-2020. This revised plan provides a framework to operate for the next four years, until 2025.

**Aims of Project**

The main purpose of this project is to limit the specific factors affecting Red Grouse and breeding Curlew on Ballydangan Bog while supporting existing conservation priorities for the site. More specifically, the Ballydangan Bog Red Grouse Conservation Project (2021-2025) aims to:

- Provide best-practice management strategies aimed at increasing the Red Grouse, breeding Curlew and other ground nesting birds on Ballydangan Bog;
- Implement management strategies in a manner that supports wider biodiversity goals, particularly for the conservation of raised bog habitat other red-listed bird species;
- Promote community involvement in planning and decision-making;

- Maintain an atmosphere of cooperation, participation and commitment among conservation rangers, landowners, land managers and other stakeholders in the development and implementation of Red Grouse management strategies;
- Encourage the long-term funding necessary to ensure the survival of Ballydangan's Red Grouse population and to facilitate the collection and analysis of data during the course of the project.

Monitoring and evaluation are an important part of this plan, and adjustments to the goals, objectives and conservation actions will be made considering the best available data.

**Irish Red Grouse**

The Red Grouse (*Lagopus lagopus hibernicus*); known in Gaelic as *Cearc Fraoigh* – 'the Heather Hen' is one of Ireland's most iconic native game-birds. It is characteristic of heather-dominated moorland and feeds mainly on a diet of Ling heather (*Calluna vulgaris*).

During breeding, hen Red Grouse usually nest in mature heather adjacent to young heather as well as wet flushes, where fresh shoots and insects are readily available for the first ten days to two weeks of the chicks' lives. The nest is usually a shallow scrape lined with small amounts of vegetation.

The clutch average is 6-9 eggs but nests with up to 17 eggs have been recorded. Chicks are mobile and feeding themselves within hours. Incubation is usually within 19-25 days, with fledging within 12-13 days when chicks are capable of precocious flight. The chicks are fully grown within 30-35 days (Snow *et al*., 1998; Murry *et al*., 2013).

*Red Grouse. Photo: Fiona Wheeldon*

*Red Grouse*

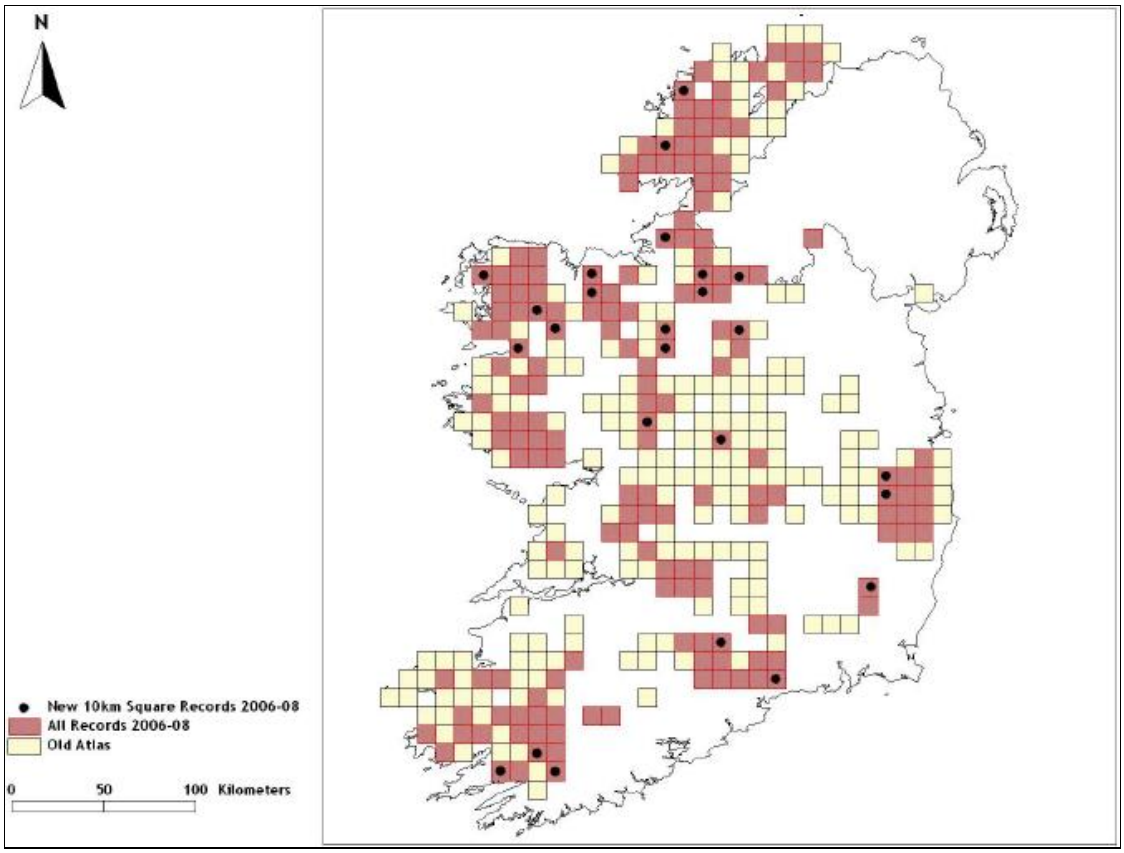
The results of the most recent Red Grouse survey (2006-2008) show a dramatic decline in the population over the last 40 years. The 2008 survey (in the Republic of Ireland) estimated that the breeding range has declined by 50% with the current (spring) population estimated at 4,200 adult birds (Cummins *et al*., 2010).

The National Red Grouse Survey also showed that most Red Grouse in Ireland are found on upland blanket bog, with the numbers on raised bogs[1] regarded as being extremely low, i.e. at only 2% of the

[1] Raised bogs are accumulations of deep acid peat (3-12 m) that originated in shallow lake basins or topographic depressions at the end of the last glaciation - 10,000 years ago. The name is derived from the elevated surface, or dome, that develops as raised bogs grow upwards from the surface. They occur throughout the midlands of Ireland and are characterised by low-growing, open vegetation dominated by mosses, sedges and heathers, all of which are adapted to waterlogged, acidic and exposed conditions (IPCC, 2015). The original extent of raised bog in the Republic of Ireland was 308,742ha according to the Peatland Map of Ireland drawn by Hammond in 1979.

national figure. From a total extent of 310,000 hectares of raised bog habitat, it is estimated that only 18,000 hectares of this habitat of 'conservation value' remains (Derwin and MacGowan, 2000). If all of this area was suitable for Red Grouse, then the potential population on these areas of raised bog (of conservation value) would be 85 birds (95% C.L.: 50-146), which is only marginally greater than the figure estimated for the national survey - 71 birds (95% C.L.: 48-111) (Cummins *et al.*, 2010).

Scallan (2015) produced a report on the Red Grouse situation on Irish raised bogs (link), which highlighted the vulnerability of these scarce birds on Irish raised bogs.




*Change in the range of Red Grouse in the last 40 years. Source: Cummins et al. (2010)*

**Threats to Red Grouse**

The primary causes of decline in Irish Red Grouse are:

- Habitat loss, particularly of heather-dominated landscapes, from under/over-grazing, afforestation as well as commercial and, in cases, domestic peat extraction;
- Lack of active traditional habitat management – Red Grouse need a variety of different ages of heather, offering habitat for shelter, nesting and feeding;
- Predation – as a ground-nesting bird, Red Grouse are susceptible to mammalian and avian predation.
- Genetics – Irish Red Grouse populations are deemed to be affected by poor genetic diversity.

See Appendix I for more information on Red Grouse management and the Irish Red Grouse Species Action Plan (2013) – link.

Unfortunately, much of Ireland's raised bog habitat has been dramatically reduced in size, with less than a quarter remaining in relatively intact condition (Foss *et al.*, 2001). Declines in the midland region, in particular, can be largely attributed to large-scale mechanical peat extraction, which has seen the conversion of huge areas of once suitable raised bog, to cutaway bogs (Foss *et al.*, 2001).

Other factors include drainage, turf-cutting, forestry activities and agricultural reclamation. These activities have resulted in a significant decrease in the area of active bog in most of these sites and the loss of smaller areas of degraded bog capable of restoration, principally through turf-cutting (RBC, 2015). It is estimated that only 25,189ha (8%) of raised bog remains relatively intact. Notwithstanding, raised bogs are extremely rare in global terms and many are sites of European and international importance.

**Curlew**

A good context to the Curlew situation in Ireland is provided by O'Donoghue and Carey (2020) - link. They refer to the first national breeding Curlew survey, which was undertaken between 2015 and 2017, that found drastic declines of the national breeding population of Curlews. Whereas 3300-5500 pairs are estimated to have bred in the Republic of Ireland in the late 1980s, there now remains no more than 150 pairs (O'Donoghue *et al*., 2019). This represents at least a 96% decline. They go on to state that breeding productivity is so low that population viability analysis undertaken in 2017, predicted that unless an average of 0.425 fledglings were produced per breeding pair, the Curlew will go extinct as a breeding species in Ireland before 2030 (A. Lauder, *unpubl. data*, 2017).

The Curlew Conservation Programme was established to promote Curlew conservation in Ireland (link). It involves locally based teams of advisors, community engagement and nest protection officers, working closely with landowners and other local interests, to protect Curlew nesting attempts and to improve habitat quality. In 2020, the Curlew Conservation Programme focussed on nine of the most important areas in Ireland for breeding Curlew, including the Stack's Mountains in Kerry, Lough Ree, Roscommon/Mayo, Leitrim, North Monaghan, Donegal, Lough Corrib, Slieve Aughties and Laois/Kildare.

Ballydangan Bog is not part of the Curlew Conservation Programme although it is a nationally important site for Curlew as shown by recent surveys:

- See survey in 2016 – link
- See survey in 2017 – link
- See survey in 2019 – link
- See survey in 2021 – *link to be added*

**Overview of Curlew and Red Grouse situation on Ballydangan Bog (2009-2021):**

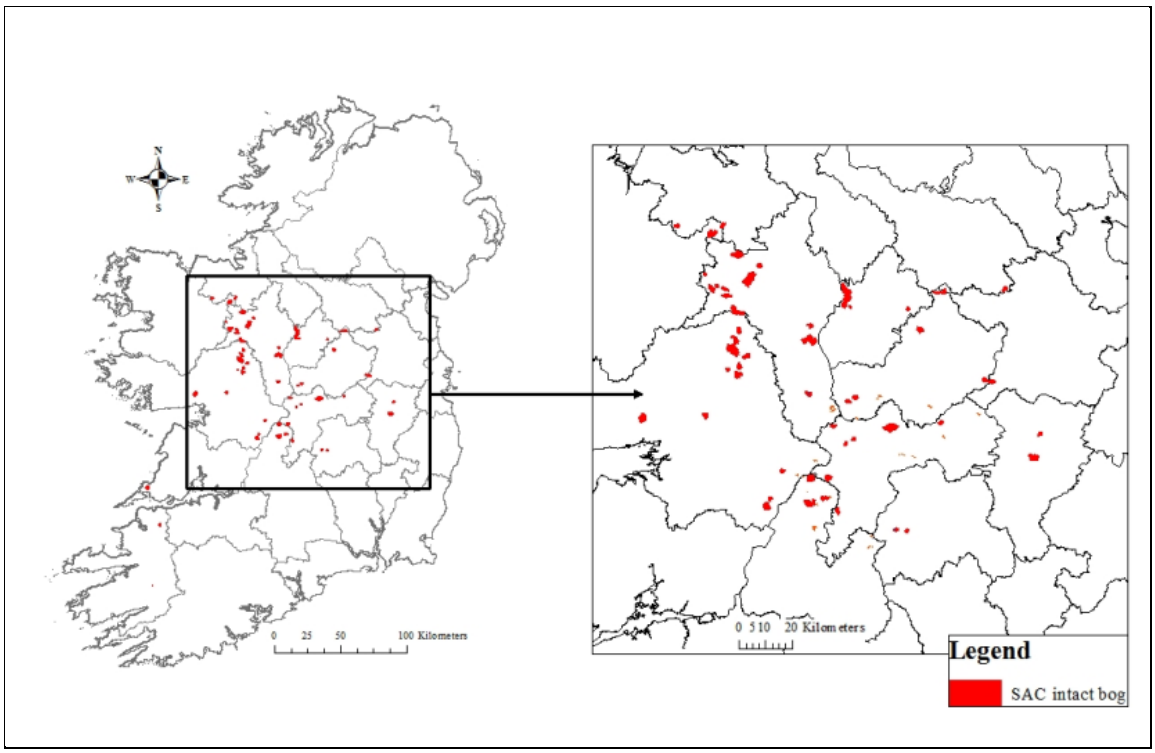
| Year | Grouse - Spring | Grouse - Autumn | Curlew pairs | Curlew productivity |
|---|---|---|---|---|
| 2009 | No survey | 3 | 0 | Not assessed |
| 2010 | No survey | 1 | 0 | Not assessed |
| 2011 | 2 | 3 | 0 | Not assessed |
| 2012 | 1 (tape-lure survey) | 2 | 2 pairs | Not assessed |
| 2013 | 0 | 0 | 2 pairs | Not assessed |
| 2014 | 0 | 1 | 1 pair | Not assessed |
| 2015 | 2 | 1 | 3 pairs | Not assessed |
| 2016 | 1-2 | 2 | 7 pairs | Not assessed |
| 2017 | 2 (i.e. 1 pair) | 3 | 3-4 pairs | 0 |
| 2018 | 3 hens, 1 cock | 1 pair + juv. & 2 cocks* | 1/2 – 7 pairs | Juveniles heard/observed |
| 2019 | 2 calling cocks | 2/3 | Min. 4 pairs | Likely 1 pair hatched chicks |
| 2020** | 1 pair | 2/3 | No survey | No survey |
| 2021 | 1 cock (March) | 1 cock + 2 juveniles | 4-5 pairs | Juveniles heard/observed |

** Two surveys were conducted in autumn 2018 and 2019 covering different parts of the project site.*

*** Covid-19 prevented Curlew survey work on the site.*

**Raised bog conservation**

Between 1997 and 2002, Ireland nominated a total of 53 raised bog sites for designation as Special Areas of Conservation (SACs) under the Habitats Directive. According to EU law, Ireland must protect, manage and restore these sites to ensure they achieve their objective of conserving raised bog habitats and species. In addition, 75 raised bogs were designated as Natural Heritage Areas (NHAs) in 2004 under the Wildlife Amendment Act (2000).




*Ireland's 53 SAC Raised bogs. Source: NPWS.*

In terms of management, the focus of NPWS and semi-state agencies such as Bord na Móna and Coillte has been on bog restoration. The objective is to improve the poor conservation status of raised bogs. Many of the site-specific management works on raised bogs focus on rewetting. These projects essentially aim to restore the hydrology of sites, which requires drain blocking and sometimes other engineered actions. In 2004, Coillte received funding from the EU LIFE Nature Programme to actively restore 571 hectares of raised bog habitat on 14 midland sites in counties Galway, Roscommon, Longford, Westmeath, Meath, Cavan and Laois.

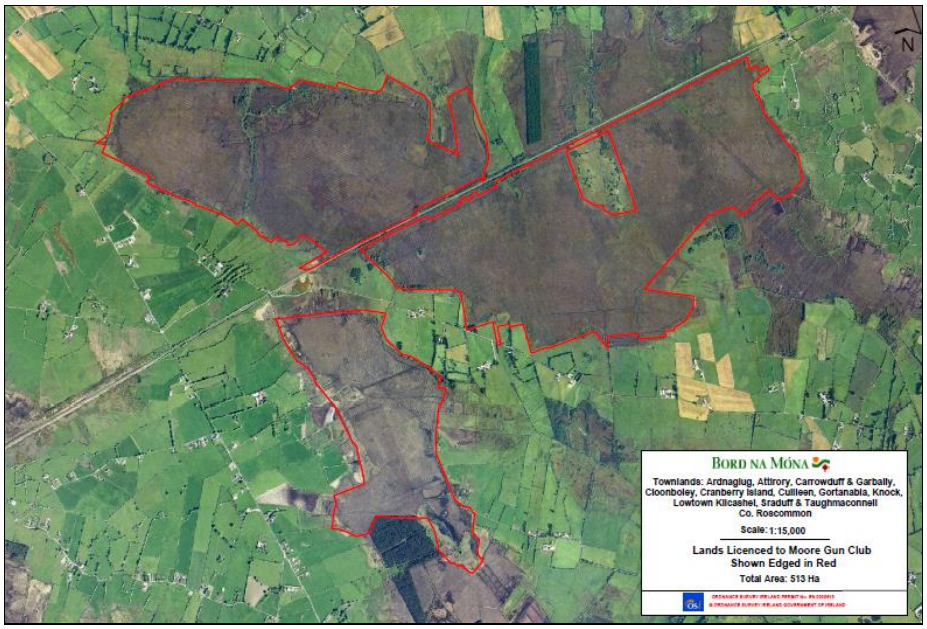
Another Coillte's LIFE Project "Demonstrating Best Practice in Raised Bog Restoration in Ireland" (LIFE09 NAT/IE/000222) was jointly by the Department of Arts, Heritage and the Gaeltacht and Coillte under the EU LIFE Nature Programme. From 2016-2020, NPWS has been managing the restoration of active raised bog habitat on 12 SAC project sites, which is being funded by LIFE (link).

The Bord na Móna raised bog restoration project has been focused on a number of raised bogs in the midlands. Bog restoration has focused on the construction of peat dams to restore the hydrological function of the raised bog habitats and over 3,000ha have been restored.

**Ballydangan Bog**

Although owned by Bord na Móna, Ballydangan Bog is unique in that it escaped peat production. In the 1980s, a drainage operation took place on Ballydangan Bog. At the time, Bord na Móna considered the site to have potential as a peat production bog. Consequently, the entire site was drained, which affected the hydrology and vegetation of the site. The exterior of the site is drier as more of the drains

are unenclosed and still function. Towards the interior of the site, the drains have become mostly enclosed making it wetter and parts of the bog appears to be actively peat-forming.



*Ballydangan Bog, Co. Roscommon*

A large-scale drain-blocking operation was conducted on Ballydangan Bog by Bord na Móna, and consequently the site is now on a path to restoration. An indication of the scale of the drain-blocking operation by Born na Móna can be seen below:

*Drain blocking operation on Ballydangan Bog*

See Appendix II for more information on the ecological conditions on Ballydangan Bog.

## Conservation Actions (2021-2025)

The Ballydangan Bog Red Grouse project team has been developing their conservation project for over 10 years. The following nine sections set out the specific management actions required for this project until 2025:

1. *Monitoring*
2. *Red Grouse translocation*
3. *Habitat management*
4. *Nest Protection*
5. *Awareness-raising*
6. *Grit provision*
7. *Disturbance control*
8. *Research and best practice*
9. *Longevity and expansion*

### 1. Monitoring

Annual monitoring of Red Grouse and breeding Curlew on the project site is essential to assess the impact of the proposed management practices. Spring counts establish the number of breeding pairs in the area and autumn counts establish how well (or not) the same pairs have produced. The autumn counts will therefore establish a ratio of young–old birds for that year. Early morning (i.e. dawn chorus) surveys are also useful to monitor (i.e. by listening to) the Red Grouse population.

*Grouse counting with setters*

*Breeding Curlew on Ballydangan*

When carrying out population assessments, it is important to use the same methods over the same area of ground and at the same time of year. It is always beneficial to take note of other birds and mammals during monitoring. Records should also be kept of all casual observations of Red Grouse and other species of conservation concern on the site.

**Actions - Monitoring:**

Red Grouse:

- Spring Dog Count: late February/early March annually using pointing dogs.
- Autumn Dog Count: late July/early August annually using pointing dogs.

Curlew:

- Summer breeding Curlew survey follows the recommendations by Brown and Shepherd (1993) - link.

Other species:

- Where resources permit, carry out an annual breeding survey of Common Snipe and Lapwing on Ballydangan Bog.
- There should be casual reporting of all species of conservation concern.

Adjacent bogs:

- Survey adjacent bogs for Red Grouse and breeding Curlew where resources permit in conjunction with relevant stakeholders.

*Description of a 'standard' survey method for breeding Curlew*:
A standard method to survey breeding Curlew follows the recommendations by Brown and Shepherd (1993). In brief, this technique recommends that two visits should be made in areas of suitable habitat before the end of June. Separate visits to the same areas should be at least seven days apart. Even if no Curlew are recorded during the first visit to a site, a second visit should be still carried out if suitable habitat was present. Brown and Shepherd (1993) recommend a third visit to survey sites in July, but this is to detect breeding productivity. Survey visits are divided into the following periods:

- Visit 1: 15th April – 31st May
- Visit 2: 1st – 30th June
- Visit 3: July (to detect breeding productivity)

Red Grouse on adjacent/nearby bogs:
Although the project is succeeding in preventing a local extinction of Red Grouse, the monitoring indicates that Red Grouse are present on the site at a very low density. Anecdotal evidence suggests that Red Grouse have been observed on adjacent bogs. Reports from Bord na Móna and NPWS indicate that Red Grouse are present on Goats Lough bog and Lough Gore bog. Red Grouse were also observed on Cuckoo Hill bog in recent years also. It is probable that birds from Ballydangan Bog are dispersing to adjacent bogs. Additional survey work (using pointing dogs) is required to get a better understanding of the situation.

In general, the presence of breeding Curlew on Ballydangan Bog supports existing evidence, which recognises that Red Grouse management can help to maintain the numbers and range of some breeding waders. This evidence should be used to form an even stronger argument for funding and support to be directed into Red Grouse projects being managed by local community groups in Ireland.

Other species:
Breeding (and wintering) Common Snipe are present in healthy numbers on Ballydangan Bog. Lapwing are present and should be monitored in the future. Additionally, it has been noted and commented by many local residents that other bird species (e.g. passerines that use hedgerows as well as wild pheasants) have seen a steady increase in numbers. Hares are also very common throughout the project site. Mallard use the site annually for breeding. Lapwing (potentially breeding) were observed

adjacent to the site in May/June during 2014, 2015, 2016 and 2017. In 2021, three pairs of Lapwing produced several juvenile birds that successfully fledged. There is a need for a dedicated survey of breeding Lapwing on the site. Other important bird species that use the site include a Barn Owl, wintering Golden Plover, Whimbrel and wintering Lapwing. The site is also used by Grey Herron, Kestrel, Cuckoo, Magpie, Raven, Sedge Warbler, Hooded Crow, Magpie and Reed Bunting. Since 2012, the project site has been occasionally used in winter by a male Hen Harrier.

Breeding Curlew:
Curlew has been added to the IUCN Red List of globally threatened species, and is on the Red List of Birds of Conservation Concern in Ireland, due to significant population and range contractions over the last 50 years. The presence of breeding Curlew on Ballydangan bog may support the evidence already published in the UK, which recognises that Red Grouse management helps to maintain the numbers and range of some upland breeding birds. This evidence should be used to form an even stronger argument for funding and support to be directed into Red Grouse projects being managed by local community groups in Ireland.

In 2016, the project team has commissioned survey of breeding Curlew on the project site. This report also include the provision of recommendations towards the better management of Curlew on the project site (link). These have been incorporated into this management plan. Breeding Curlew surveys have taken place since then where resourced permitted.

Hen harrier:
Since 2012, the project site has been used as winter roost for a male hen harrier.

**2. Red Grouse translocation:**
Red Grouse breeding productivity remains poor on Ballydangan Bog (1-2 pairs), which may be due to poor genetic diversity. McMahon *et al*. (2012) highlights that extant populations of Irish Red Grouse (*Lagopus lagopus hibernicus*) are both small and fragmented, and as such may have an increased risk of extinction through the effects of inbreeding depression and compromised adaptive potential (link).

During spring 2014 and autumn/winter 2015, the project team attempted to undertake a Red Grouse translocation from a 'healthy' population (i.e. Boleybrack Mountain SAC, Co. Leitrim) into Ballydangan Bog to improve the genetic vigour of the Ballydangan Bog Red Grouse population. At the time, no Red Grouse were caught using the lamp and net method but there were several close encounters.

The project team agrees that there is scope for a possible future translocation and team members should continue to explore what potential options exist (e.g. whether a suitable site exists with a healthy Red Grouse population).

The project team has also discussed the concept of reintroducing Irish Red Grouse to the site using other methods. One option could be to try to locate the nest of a Red Grouse in spring (on a site with healthy numbers in Ireland), take some eggs (depending on clutch size), and attempt to breed them in captivity for eventual release. In 2019, this was attempted (under license), but was not successful.

**Actions - Red Grouse translocation:**

- In conjunction with stakeholders including NPWS, explore options to pursue a Red Grouse translocation (under license) from a healthy population to Ballydangan Bog.
- Pursue (under license) efforts to locate the nest of a Red Grouse in spring (on a site with healthy numbers) to take some eggs (depending on clutch size), and attempt to breed them in captivity for eventual release on Ballydangan Bog.

**3. Habitat management**

Red Grouse require a broad age-range of heather to allow for cover, shelter, nesting and feeding. Hens usually nest in mature heather adjacent to freshly cut/burnt or second year cut/burnt heather, where fresh shoots will be available for chicks. This improved micro-climate is beneficial to the reproduction of invertebrates which are a vital food source for chicks. A patchwork of old and new heather is widely considered as the best management practise for Red Grouse.

Progress:

- An estimated 55 acres of heather have been cut in the past several years.
- The regeneration of the heather in those areas that were cut with the bush-master is significant in places (dryer in nature) with up to four inches (maximum) in some areas. As the machine cuts the heather and 'mulches it to dust' the resultant dust layer must insulate the heather seed and give it a chance to germinate.
- The managed sites are being casually monitored to assess the impact of heather management on species analysis, distribution, and re-growth.

*Heather strimming - September 2015*


*Heather strimming - February 2021*

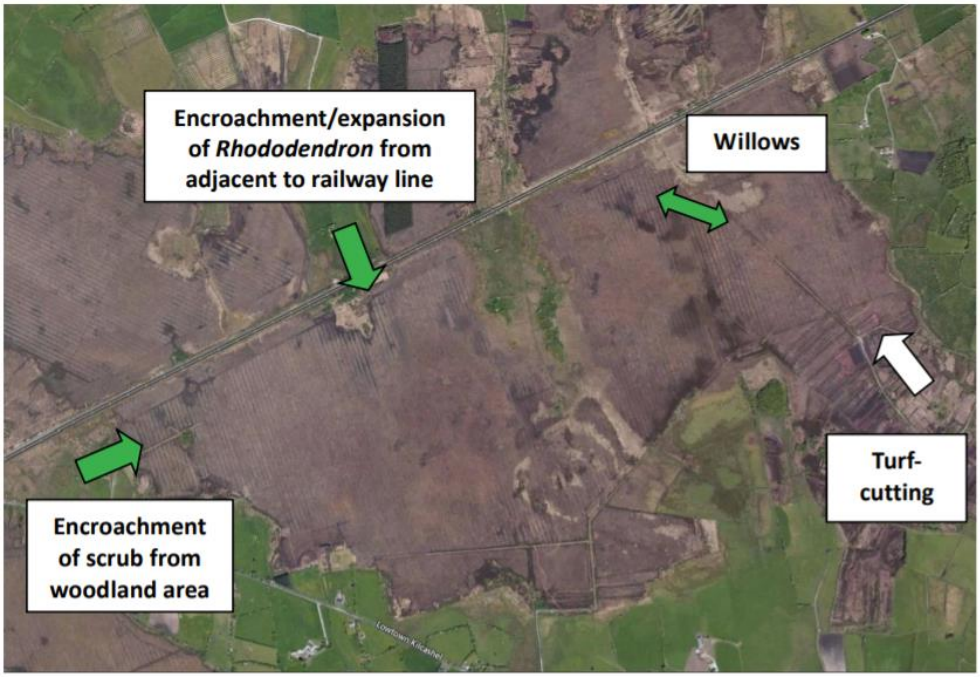
*Bog restoration work (drain blocking)*

*Heather strimming area*

Additional heather management should be carried out under the appropriate legal framework (i.e. the Wildlife Act 1976 and 2010 Amended).

Some scrub removal works have taken place in accordance with the legal framework. Additional heather management work and some scrub removal was carried out in October 2018 under the appropriate legal framework (i.e. the Wildlife Acts 1976 and 2012). The purpose of the scrub removal is to make certain parts of the site less attractive to nest predators. This also allows more light on the raised bog habitat, which is positive for the habitat conservation interests of the site.

*Scrub removal during October 2018*




*Ariel photo of Ballydangan South showing land management pressures (Copland, 2016)*

**Actions - Habitat management:**

- Cut narrow strips of mature/rank heather on a rotational basis in suitable heather dominate areas.
- Manage Rhododendron (see above map) and scrub encroachment.
- Seek advice on the management of farmland adjacent to Ballydangan Bog, which has important foraging sites for breeding Curlew:
    - Management options include the creation of scrapes (i.e. shallow depressions that are constructed in fields to benefit wading birds) on the verges of the site as well as managing rushes in a favorable manner for waders.
- Develop wild bird feed crops and wild meadows for pollinators adjacent to the site.

<u>Advice on heather cutting/strimming:</u>

- When cutting heather, it is important that the strips do not exceed 20m in width as Red Grouse are reluctant to stray further than 13m from heather stands with good cover. Strips can be up to 100m in length.
- In areas on Ballydangan Bog where the heather is old and tall in height, cutting should take place in well-spaced narrow strips or small patches.
- Avoid areas where heather is naturally wet or short as a result of wind exposure.

*Curlew. Photo: John Carey/BirdWatch Ireland*

*Heather management on Ballydangan Bog*

**4. Nest protection**

Research has shown that predation is an important cause of Red Grouse and breeding Curlew mortality. Predation during nesting and early brood-rearing has the greatest influence. Nest predators include fox, grey crow, magpie and mink. Reducing predation rates can lead to increases in Red Grouse and breeding Curlew productivity.

To be effective, predator control should be undertaken when it confers the greatest benefit, i.e. mainly spring and early summer. Hence, control efforts should be concentrated in the period February to July to remove the key predators just before nesting and during the chick-reading period. Controlling predation is most likely to be effective when undertaken over a wide area, hence requiring cooperation with numerous farmers. The Ballydangan project site is surrounded by forestry, which will provide a continuing supply of foxes and crows that may predate grouse.

Foxes can have a significant impact on Red Grouse numbers as they will take nesting hens in the breeding season and broods of young, as well as adults, in winter. Hooded crows and magpies are the main corvid species that are likely to reduce breeding success as they will feed on eggs. Reducing the number of crows can be achieved by shooting and by using ladder/larsen traps. As crows are highly territorial in spring, trapping has proved to be most effective after the crows established their territorial pairs (from spring-late summer).

The work of the CE workers should therefore focus on establishing mink (cage) trap lines, fox middens and larsen traps. With assistance from members of Moore Gun Club and Roscommon Regional Game Council, some foxes are controlled at night on and around the project site under a lamp with a high-powered rifle. Some dawn and dusk fox calls take place on and near the project site. Mink are controlled using cage traps, particularly adjacent to drains, stream sides and under piles of stones.

*Larsen traps are used for grey crows*

*North American Mink are trapped on the site*

<u>Timing:</u>

To be effective, predator control should be undertaken when it confers the greatest benefit, i.e. mainly spring and early summer. Hence, control efforts should be concentrated in the period February to July to remove the key predators just before nesting and during the chick-reading period. The Ballydangan predator control strategy should address the following:

- the species to be controlled;
- the scale of control;
- the season and length of control;
- methods to be used;
- ways of evaluating results.

**Actions - Nest protection:**

| | | |
|---|---|---|
| FEBRUARY TO SEPTEMBER<br>Set/Check Large Crow Traps:<br>• Feed\water call birds<br>• Remove captured birds<br>• Maintain traps as required | FEBRUARY TO SEPTEMBER<br>Set/Check Larsen Traps:<br>• Feed\water call birds<br>• Remove captured birds<br>• Maintain traps as required | ALL (EXCEPT MAY TO AUGUST)<br>Set/Check Mink Traps:<br>• Remove captured mink<br>• Bait traps as required<br>• Maintain trap as required |
| ONLY COLD WINTER WEATHER<br>Set/Check Fox Traps:<br>• Remove captured foxes<br>• Bait traps as required<br>• Maintain traps as required | ALL YEAR<br>Lamping;<br>Set/Check Snare Lines:<br>• Remove captured foxes<br>• Reset snares as required | ONLY COLD WINTER WEATHER<br>Set/Check fox middens:<br>• Use only in cold weather<br>• Check snares daily<br>• Refresh bait frequently |

- If funding is acquired, nest protection efforts should be expanded to adjacent bogs.

**5. Awareness-raising:**

As Red Grouse and breeding Curlew are mostly threatened by human influences, education is an important accompanying measure in conservation programmes. Public awareness and education can greatly improve the success of conservation efforts. In general, farmers, the general public and decision-makers require better education on habitat requirements, threats and ecology of the species on their land and under their responsibility. As a community-based venture, the Ballydangan Red Grouse Project aims to engage with the local community and create awareness within the wider general public about the importance of Red Grouse and breeding Curlew conservation. Some of the educational and public awareness activities could include the development of educational material, hosting school visits and disseminating the project's outcomes through local media.

**Actions - Awareness-raising:**

- Develop and implement a communication plan that identifies the audience and the message;
- Circulate educational materials to the public describing the Red Grouse project effects (brochure, newsletters, etc.);
- Ensure that all landowners are aware of the Red Grouse conservation project by promoting and disseminating to them the significance and conservation value of the project;
- Develop links with the other organisations involved in managing Red Grouse projects in the Republic of Ireland;
- Disseminate the outcomes and effects of the management project to the general public and interested stakeholders through the publication of annual reports and accompanied site visits (including local schools and Irish 3rd level institutions).

Examples of awareness raising:

In 2021, the project received good awareness at national level through the Farming Independent and at European level through the European Federation for Hunting and Conservation (FACE).


*1 June 2021, Farming Independent*


*European project on Curlew by [www.face.eu](http://www.face.eu)*

The site has been visited by numerous politicians, RTE's Eco-eye, journalists, scientists as well as a visit from two Government Ministers – Heather Humphreys, Minister for Culture, Heritage and the Gaeltacht and Denis Naughten, Minister for Communications, Climate Action and Environment (in 2017).

Schools see the Red Grouse Restoration Project as a useful way to learn more about wildlife management and community-based conservation. The project was previously awarded funding from Local Agenda 21 (Roscommon County Council) towards the development of resource material for primary schools. The project team has engaged Ecoenvolve (Environmental Training and Consultancy) to develop educational materials for primary schools based on the Ballydangan Bog Red Grouse Project.


*Visit from NUI Galway*


*Heritage Week Open Day (2015)*

*Heritage week attendees, (August 2021)*


*Project educational poster designed Wildlife Artist, Michael O'Cleary*

**6. Grit Provision**

Coarse/angular grit is placed in multiple locations on the project site to allow easy access to an essential dietary requirement as well as offering suitable high points. Each grit station is recorded by GPS to allow the project team to regularly monitor their use. In summary:

- Grouse require grit in their diet and will travel considerable distances to source it;
- The angular grit or small stone is eaten and acts as a pestle and mortar in the birds' gizzard to help digest the fibrous, low nutrient value heather that forms almost 90% of their diet;
- Natural grit is often found on road sides or where exposed stone is found;
- Providing grit for Red Grouse may encourage birds to establish territories.
- It should be placed on a high point that can be used as a vantage point for Red Grouse to look out for predators and for the cock bird to survey his territory.

*Maintaining the network of grit stations*

**Actions - Grit provision:**

- Maintain and erect grit stations (well-space apart) on the project site using the design of the Ballydangan grit station (see above).

**7. Disturbance Control**

The project needs to maintain a rigorous system of territory management and disturbance especially during the breeding season. In the past, there have been some reports of unauthorised access or disturbance to the site, but these cases are becoming much rarer in recent years. Members of the project team also kept a close eye out for fires on the project site over the summer months. Having a constant monitoring system in place is crucial to the success of the project.

Increased awareness about the project is also obtained by placing signs at access points to inform people about the project. In addition to erecting small project signs, two large information signs for the project were developed to provide information about the various stakeholders involved in the project. Other signs were erected to satisfy public liability/insurance concerns relating to the project site. Public liability insurance for the project site is organised annually through the NARGC Compensation Fund Scheme. Two large project signs (purchased in 2014) have been erected along the Galway-Dublin rail line to promote the project to rail passengers.



*Project Signs used to highlight the project work*



*Signs used to highlight/promote the project*


*Educational sign*


Sign for dog walkers

<u>Site Management Works to support awareness-raising/ site visits:</u>

The project team has put in place (and maintains) new access bridges on the site to facilitate site visits, public safety and better management access. The site access road was regularly maintained with strimming and several gaps in fencing were repaired.

*Access bridges built and maintained*

Parking and road access improved (2021)

Road access improved (2021)

**8. Research and best practice**

Future research on Curlew:

Colour ringing Curlew (via catching through the use of a mist net on identified feeding sites next to the bog) should be explored. The idea was deemed to be worthwhile by the project team to get a better understanding of possible breeding success and movement ecology of Curlew on Ballydangan Bog. It was agreed that this can be further explored with NPWS and relevant experts.

This research would improve our understanding of breeding Curlew on Ballydangan Bog. This is to be further explored with NPWS and relevant experts. It would also be valuable to engage in research via radio-tagging Curlew chicks to gain an understanding of their survival and ecology.

**9. Longevity and expansion**

Community Employment Scheme:

The involvement of Moore Community Council through the Department of Social Protection (DSP) staff was a major boost for the project. This agreement between Moore Gun Club, Roscommon Regional Game Council and Moore Community Council (via the DSP) has provided four Community Employment (CE) staff to work on the project.

The CE aspect of the project is managed by Mr. Paddy Feehily of Moore Community Council. An initial Health and Safety assessment was carried out by Mr. John Henson of HB Safety Services Ltd. Moore Gun Club and Roscommon RGC assist DSP staff with the management activities.

National funding:

There are a wide range of partners that have contributed and still contribute to the project. The annual running costs are small because the work is undertaken on a voluntary capacity by the local community.

Ideally, funding for a full-time project officer should be provided to ensure a more focused approach to Red Grouse and breeding Curlew on Ballydangan Bog and adjacent sites. Work is demanding even for CE staff and the local Gun Club, particularly during the nesting and chick-rearing season.

LIFE funding:

The potential for a LIFE-supported move from small-scale/localised conservation efforts on raised bogs for bird species like Curlew and Red Grouse (that require monitoring, habitat management, disturbance control, nest protection, community/stakeholder support, etc.) towards a more coordinated/strategic approach (e.g. with management plans for different sites/areas) has been discussed by the project team.

A future LIFE project could improve community/local support for raised bog conservation, increase scientific knowledge about key species, promote best practice, etc. There are a number of existing LIFE projects on Irish raised bogs, which are relevant, but not primarily focused on bird conservation. It is also relevant that the new list of bird species considered as priority for funding under the LIFE programme has been agreed by the Ornis Committee on 28 April 2021. The Irish Red Grouse is included on this list. This list was updated using the most recent available data on status and trends of bird populations in the EU reported by Member States to the European Commission (2013-2018): https://ec.europa.eu/environment/nature/conservation/wildbirds/life_priority/index_en.htm

There is a lot consider e.g. whether there is sufficient interest and financing in such a project, what stakeholders could be interested, what an approach could be in terms of objectives and expected results, etc. Note that a new element to LIFE is the submission of a short 'concept note', where formal feedback is provided in advance of the submission of a full application. It is also important to acknowledge existing (Irish) experience gained through e.g. Coillte's raised bog restoration work, the Living Bog project. In the past, NPWS was interested (with others) in a LIFE project on raised bogs where Red Grouse was a key indicator species.

## Appendix I: Red Grouse Management

Ling heather (*Calluna vulgaris*) is crucial in the life cycle of Red Grouse and a diversity of different aged heather stands is required. For example, Red Grouse require tall heather for nesting and shelter as well as young heather shoots, flowers and seeds for food.

Research has shown that the diet of the Red Grouse is predominantly Ling heather and therefore its distribution is restricted to heather-dominated peatlands. Berries such as bilberry and some insects are also eaten. Grit is required to assist the breakdown of heather in the gizzard.

Grouse management typically consists of burning heather in rotation, so that the moor becomes a diverse patchwork of different-aged heather stands. The traditional way of managing heather moorland is to burn the heather periodically in small patches. This alters the structure of the heather, and the young heather which regenerates after burning/cutting is more nutritious than old heather. Research in the UK suggests that good stocks of Red Grouse can be maintained by burning heather regularly in well-spaced narrow strips or small patches on a 10-12 year rotation.

Well managed moorland results in a patchwork effect offering grouse a mosaic of differing heather lengths. However, where large areas (of over 200 metres wide) are burned, Red Grouse will not colonise that ground for several years, until the heather has grown enough to provide cover. A suitable fire size should not be wider than 30 – 40 metres in width, so that a bird foraging at the centre of a burnt area has no further than 15 – 20 metres to travel should it be threatened by adverse weather or a predator.

In Glenamoy, County Mayo, Watson and O'Hare (1979) attempted to find out whether the low densities of Red Grouse on Irish blanket bog could be increased by experiments to improve the poor heather growth. Before the habitat treatment commenced, densities of Red Grouse averaged only 5 per km² in spring, ranging from 0-12 per km². However, fertilising (with draining) increased the heather's production, nutritional value and ground coverage. In addition, grouse density in spring increased five-fold and hen grouse reared larger broods and concentrated on the treated plots. In relation to breeding, though not significant, Watson and O'Hare (1979) also suggested that hens on fertilised ground were more likely to rear young.

In general, the research by Watson and O'Hare (1979) showed that grouse preferred the experimental plots but this preference did not appear until the heather abundance increased (which happened in the second growing season). However, to raise grouse densities to Scottish standards, they concluded that management areas would have to be bigger. In order to explain the possible reasons for grouse being scarce in Mayo during the study, they suggested that population gains on vacant areas were possibly due to immigration. Similarly, the grouse losses on areas of higher density were more than likely due to emigration to areas of lower density. However, this explanation is speculative as Watson and O'Hare (1979) had no strong evidence to show that emigration and immigration occurred.

Although we have some evidence of Red Grouse management on upland blanket bog, little research exists regarding the conservation of Red Grouse on raised bogs. A survey by Scallan (2015) illustrated the presence of Red Grouse on 19 out of 53 SAC raised bogs. Red Grouse also exist on non-SAC raised bogs. For example, there are records of Red Grouse and projects in place on the Clonboley complex (which includes Ballydangan Bog) and the Kileglan complex (sites owned by Bord na Móna). Some Natural Heritage Area (NHA) raised bogs also have Red Grouse present.

*Curlew benefit from grouse management*

*Breeding golden plover can also gain*

It has been suggested in research by Tharme *et al*. (2001) that heather management for grouse contributes to biodiversity conservation in several ways. For example, in Scotland, Hudson (1992) found a correlation between golden plover (*Pluvialis apricaria*) abundance and both grouse bags and gamekeeper density. Haworth and Thompson (1990) found that golden plover, Curlew (*Numenius arquata*), and redshank (*Tringa tetanus*) were more frequent in upland areas managed by gamekeepers. Similarly, Tharme *et al*. (2001) found that densities of breeding golden plover and lapwing were five times higher, and those of Red Grouse and Curlew, twice as high on grouse moors as on other moors.

Another study by Fletcher *et al*. (2010) investigated the effects of predator control on breeding success and abundance of ground nesting bird species on moorland in northern England. Predator control increased breeding numbers of lapwing, Curlew, golden plover and Red Grouse, which declined in the absence of predator control. Predator control led to an average threefold increase in the breeding success of lapwing, Curlew, golden plover, Red Grouse and meadow pipit (Anthus pratensis). The conservation benefits of grouse management come from the combined effects of heather management and predator control.

In Ireland, the Boleybrack Red Grouse Habitat Management Project, Co. Leitrim has shown that Red Grouse management can bring benefits to both Red Grouse and breeding golden plover (Scallan, 2013; Scallan and Carslake, 2014).

## Appendix II: Ecological conditions on Ballydangan Bog

Active bog/pool systems

In the wettest sections of Ballydangan the pools are infilled and the bog is quaking. Abundant lawns of *Sphagnum magellanicum* and *S. papillosum* are located here as well as extensive *S. cuspidatum* in the pools. White-beaked Sedge is prominent around these pools. Species such as *Aulacomnium palustre*, Cranberry and Bog Rosemary were also present. Some relic large hummocks of *Sphagnum imbricatum* and *S. fuscum* are also present. These areas are actively forming peat (Fallon, *pers*. *comm*.).

Rich Fen and Flush

A large flushed area has developed in the central section of Ballydangan that runs through the bog in a north-south direction and is dominated by both Saw Sedge and Bog-rush and is classified as rich fen. This habitat type may have developed along a natural drainage feature within the flush that is providing base-rich ground water. Other species found in this habitat included Bog Myrtle, Milkwort, Cross-leaved Heath, Soft Rush, Sphagnum spp. growing in hummocks (*S. subnitens, S. papillosum*), other moss species (*Hylocomium splendens, Polytrichum spp*.), Cladonia lichen species, Heather, Creeping Bent, Common Reed, Bilberry, Bog Rosemary, Bog Bean, Common Reed, Lesser Spearwort, Compact Rush, Spear Moss, Water Horsetail, Marsh Arrowgrass, Jointed Rush, Yellow Sedge, Round-leaved Sundew, Flea Sedge, Dioecious Sedge, Star Sedge, Bottle Sedge and Common Sedge. This habitat type is rare in Ireland (Fallon, *pers*. *comm*.).

Heather

Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Tricopherum cespitosum*), Common and Hare's-tail Cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*) and Bog Asphodel (*Narthecium ossifragum*) are common on the bog. In addition, there are a number of stands of Bog-myrtle (*Myrica gale*) scattered over the site.

Red Grouse

It is probable that Red Grouse on the project site have been threatened for a number of decades. One of the main factors in the wider region has been commercial peat extraction, which has led to the direct loss of viable Red Grouse habitat. Some adjacent bogs remain intact near Ballydangan bog. On the project site, anecdotal evidence suggests that the drains (dug in the 1980s) were detrimental to the breeding success of Red Grouse.

Project Location

Ballydangan Bog is located approximately 8km north-east of Ballinasloe in the townlands of Thomastown, Clonbuila and Ballydangan. The entire bog is about 1,100 hectares and is divided in the centre by the main Dublin/Galway railway line. The N6 Ballinasloe/Athlone road runs just south of the site. The project site (Ballydangan south) is about 630 hectares in size

Site Biogeographic Specifications:

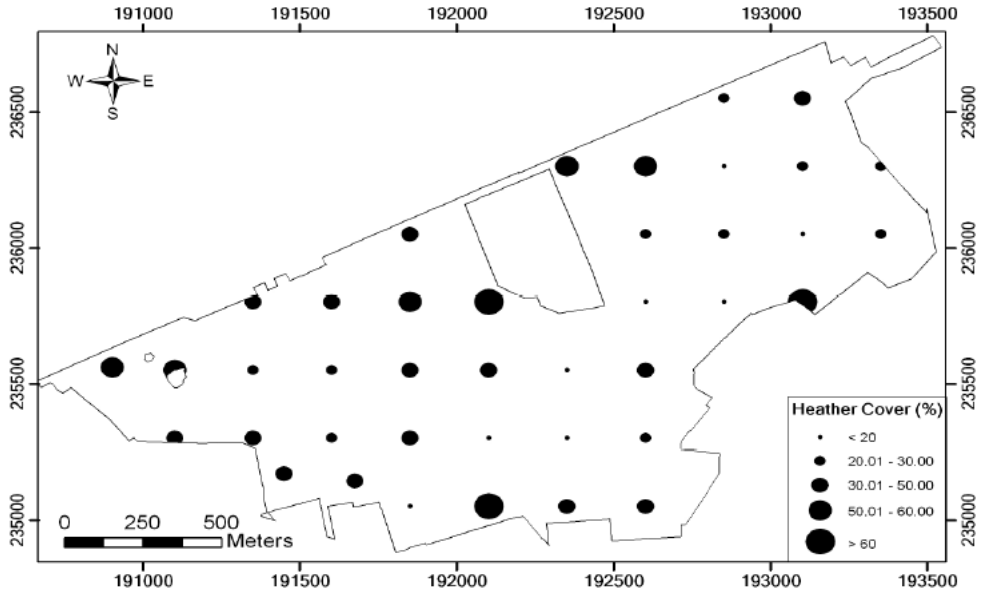
- Minimum Altitude (m): 65
- Maximum Altitude (m): 70
- Longitude: 8° 7' 17"W
- Latitude: 53° 22' 14"N
- Normal Grid Ref: M 919 355

Heather mapping on Ballydangan Bog

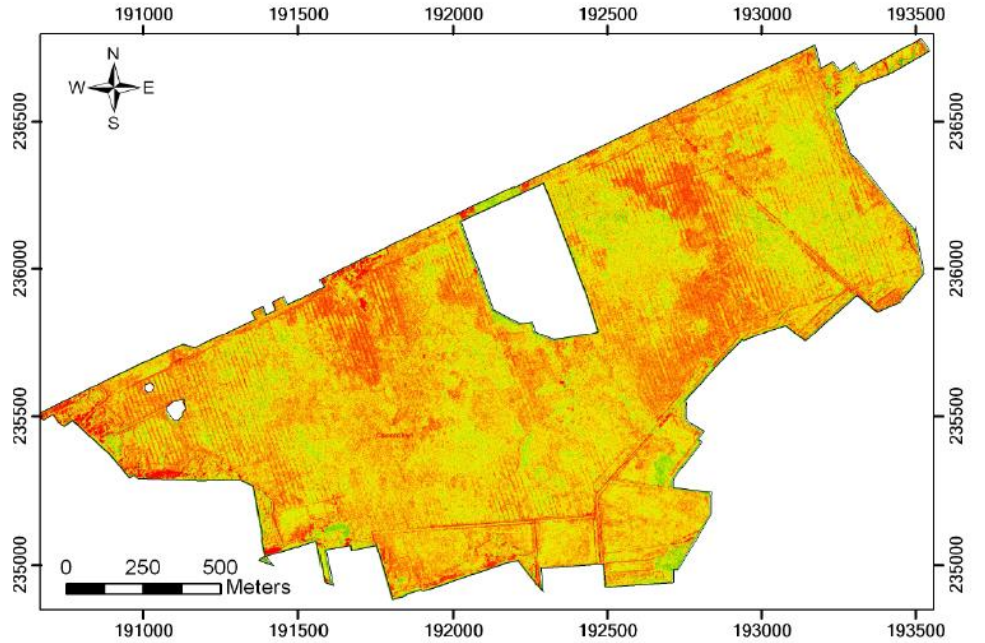
In an attempt to support habitat management efforts, a heather mapping study using geographic information system (GIS) software was conducted by Dr. David Scallan, Brendan Canning and Dr.

Ligang Dao of NUI Galway in June 2010. The purpose of the study was to create landscape-scale maps of the heather habitat found within the Ballydangan Bog project site. This study has provided Moore Gun Club and Roscommon Regional Game Council with guidance to:

1. Determine the suitability of specific areas as potential Red Grouse habitat;
2. Prioritise areas in need of habitat management;
3. Evaluate areas that may impact management efforts.




*Heather cover survey on Ballydangan Bog*




*Heather dominance and previous areas damaged by fire on Ballydangan Bog (GIS)*

Some of the mapping variables included categorising the age, height and cover of the heather habitat. Since the maps are GIS-based, they can easily be shared, updated and overlaid with other landscape/ecological features such as management locations and bird counts. The managed sites were selected based on the mapping study and advice from Bord na Móna ecologists.

# Appendix III: Summary of Specific Legislation and Licences for Predator Control in Ireland

**Use of fox/crow callers & crow decoys**

Section 35 (1) (d) of the Wildlife Acts 1976 to 2012 states that a person shall not - *use an electrical or other instrument or appliance (including recording apparatus) emitting sound, for the purpose of hunting any wild bird or any wild animal*. The use of the term "…or other instrument…" obviously does not restrict the definition to electrically operated instruments/appliances only. For example, metal and plastic callers and possibly even polystyrene rubbed against a window could be interpreted as an "instrument or appliance" under the legislation. Calling a fox with one's mouth, however, would be acceptable.

In effect, this means that it is illegal to use callers for grey crow, magpie and fox. However, Section 35 (4) allows the Minister to grant a licence to a person *to use an instrument or appliance emitting sound for the purpose of repelling, scaring or capturing any wild bird or any wild animal for scientific research or for another purpose approved of by the Minister*. Note that the legislation refers to "repelling, scaring or capturing" and does not say for the purpose of killing.

In this context, the wording of the licence application is important and the author is aware that licences have been refused to applicants seeking to use electric callers "to assist in controlling corvids and foxes". However, the author is aware of applicants being granted a licence to "assist in the identification of these species" as part of a predator control programme. Section 35 also makes the use of decoys for crows, including grey crow and magpie, illegal without a licence. Artificial decoys can only be used for the purpose of hunting ducks, geese and woodpigeon. If you wish to use decoys for grey crow, magpie or fox, you must apply for a specific licence under Section 35 of the Wildlife Acts 1976 to 2012. The same licence (Section 35) covers the use of callers and decoys. An application for a licence under Section 35 requires the applicant to outline the:

i. Purpose of licence
ii. Species Name
iii. Area(s) in which applicant will operate (e.g. county & townland)
iv. Qualifications/experience in this field of activity
v. Other supporting licence/permit(s)
vi. Organisation to which applicant is affiliated
vii. Period for which licence is required

**Destroying the nests of magpie and grey grow**

Section 22 (4) (e) makes it an offence to wilfully disturb a protected wild bird on or near a nest containing eggs or unflown young. Note that all birds are protected in Ireland under the EU Birds Directive. However, Section 22 (9) (d) states that the Minister may grant a licence to a person *to* "*examine, inspect or take the nest or eggs of protected wild birds of a species so specified for such educational, scientific or other purpose as shall be so specified*".

Therefore, if you wish to remove/destroy the nests of magpies and grey crows, you must apply for a specific licence under Sections 9 and 22 (9) (d) of Wildlife Acts 1976 to 2012. In the licence application, you must state the:

i. Purpose of licence
ii. Species Name
iii. Area(s) in which applicant will operate (e.g. county & townland)
iv. Qualifications/experience in this field of activity
v. Other supporting licence/permit(s)
vi. Organisation to which applicant is affiliated
vii. Period for which licence is required

**Lamping/Hunting from a vehicle**
It is not an offence under the Wildlife Acts to hunt fox and rabbit using a lamp (and other dazzling equipment, etc.) as they are not protected wild animals. It is, however, illegal to lamp protected species such as hare and deer.

Furthermore, the use of a mechanically propelled vehicle may not be used for the purposes of hunting any wild animal, including a fox or rabbit, whether the vehicle is stationary or moving. Therefore, a hunter must not be in any vehicle while lamping as the definition of hunting in the Wildlife Acts includes to "search for". More specifically, hunting means: "*stalk, pursue, chase, drive, flush, capture, course, attract, follow, search for, lie in wait for, take, trap or shoot by any means whether with or without dog except in sections 28 and 29 of this Act, includes killing in the course of hunting and kindred words shall be construed accordingly*". Legally, lamping and shooting would both be considered as "hunting" under the Wildlife Acts.

However, if you wish to hunt from a vehicle (with or without a lamp regardless of whether the vehicle is stationary or moving), you must apply for a specific licence under Section 36 of the Wildlife Acts 1976 to 2012. An application for a licence under Section 36 requires the applicant to specify the areas where he/she intends to hunt (county and townland) and the period for which the licence is required.

It is also important to note that lamping land for foxes from a road without the permission of the landowner can be considered hunting/trespass and subject to Section 44 of the Wildlife Acts. For example, it would be an offence under Section 44 of the Wildlife Acts (trespass) for a person who not being the owner or occupier of land to either use a lamp to hunt for foxes or carry a gun for shooting them on the land without the permission either of the person who is the owner or the occupier of the land or other person entitled to enjoy sporting rights over the land.

**Shooting from a road or near public places/dwellings**
It is illegal to shoot from a public road or near public places/houses. While lamping, a shot should be taken from inside the field and then at a distance of not less than 60 feet (18.3 metres) from the road and shooting away from the direction of the road. However, care should be taken because there is a tendency not to use the legal provision of specifying 60 feet but rather to use a charge of "reckless discharge of a firearm" where no proof of distance may be required.

**Snaring**
Irish legislation states that a stop snare must have a minimum length from noose to stop of 13 inches (33cm) if it is intended to snare foxes and 6½ inches (16.5cm) if it is intended to snare rabbits and which complies with the following:

1. A swivel is incorporated in the snare;
2. The snare is designed so that when it is used it will be securely tied to a fixed object;
3. The snare is designed so that for the purpose of avoiding catching large animals (for example deer, cattle or horses) by the leg when it is used a jump bar, i.e. a cross-bar at least two feet above the ground and supported by a pair of forked sticks fixed not less than two feet apart, may also be used.

**Semi-automatic shotguns**
It is an offence (under Section 33 of the Wildlife Acts 1976-2012) for a person to shoot, hunt or injure in the course of hunting any wild bird with a repeating or automatic shotgun (other than a repeating or automatic shotgun which is adapted or modified so as to render it incapable of carrying more than three shotgun cartridges).

**Shooting birds with a rifle**
It is illegal under the Wildlife Acts 1976-2012 (i.e. the primary legislation) to shoot any bird with a rifle.

**Poison**
Since 2010, the use of poison (except for rodents) is illegal in Ireland. More specifically, the (Restrictions on Use of Poison Bait) Regulations (2010) make it illegal to use any poison to kill birds or animals, with the exception of rats and mice, without a special exemption. Therefore, it is now an offence to use meat, eggs or any other animal-based product as poisoned bait, unless in accordance with a specific licence granted by the National Parks and Wildlife Service (NPWS).

**Spring (or Fenn) traps**
Spring (or Fenn) traps (but not Gin traps, which are illegal) must be designed to cause the immediate death of the target species or the immediate unconsciousness and subsequent death without intervening consciousness. Spring traps (i.e. the Mark 6 Fenn Trap for mink and Mark 4 for Grey squirrels/rats) can be set in tunnels, but trap entrances must be well protected and measured (e.g. for mink, not greater than 8cm) to avoid catching non-target species (e.g. pine marten, otter, etc.).

**Derogations for controlling crows and pigeons**
Under the terms of the EU Birds Directive, all wild birds (including grey crows and magpies) are protected in Ireland. However, each EU Member State is allowed to make derogations for the control of certain bird species that cause damage to crops, livestock and fauna or represent a threat to public health or to air safety. Every year, the Minister permits the control of grey crows, magpies, rooks, jackdaws, woodpigeon and feral pigeon. However, Gun Club members should note that different control methods are allowed for different bird species in different situations.

Minister Heather Humphreys TD recently signed a nationwide Declaration for the 12 month period from 1st May 2015 to 30th April 2016. Note that the derogations do not allow for the control of grey crows and magpies for the protection of fauna (notably the nests and young of game birds) from 1st of October 2015 to 31st of January 2016. This means that magpies and grey crows can only be controlled if they are a threat to public health and a vector in the spread of disease from 1st of October to 31st of January (and from December 1st 2015 to 30th April 2016 to prevent serious damage to livestock). From the 1st of February 2016, control can take place for the 'protection of fauna' i.e. protecting nesting birds and their young from corvid predation.

**Section 42 Licences**
Protected wild birds and animals can be controlled under a Section 42 licence (Wildlife Acts 1976-2012), where they are causing serious damage to:

- food (including human food products and animal feeds), livestock, poultry or agricultural crops (including vegetables or fruit) either on pasture or on cultivated land;
- pen-reared wild birds on any land;
- other fauna and flora;
- a woodland, forest plantation or a fishery;
- buildings and other structures and their contents, or aquaculture installations.

A property owner or occupier may, on application to the NPWS, seek a permission (i.e. Section 42 Licence) to take appropriate steps to stop the damage. All Section 42 applications are investigated by local NPWS staff to determine if serious damage is being caused and, if so, the most practical method of stopping or controlling the problem.

**Larsen traps**

Any larsen traps used must comply with the (Approved Traps, Snares and Nets) Regulations 2003, and Section 35(5) of the Wildlife Acts. For example, the decoy bird must only be used for hunting birds of the same species. The bird must regularly be provided with ample food and water and shall, when caged, only be kept in a cage which is of sufficient dimensions to enable it to move and exercise freely. Note that the welfare of decoy birds is covered by law (i.e. the Animal Health and Welfare Act 2013). More specifically, the following conditions must be in place:

- The live decoy may only be used to hunt birds of the same species;
- There must be suitable food readily accessible;
- There must be clean drinkable water available at all times;
- There must be shelter which protects the bird from prevailing weather conditions;
- There must be a perch placed under the shelter;
- No decoy bird should be left in a trap when the trap is not in use;
- The live decoy most only by kept in a cage which is of sufficient dimensions to enable it to move and exercise freely.

## 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 Manual No. 50. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Derwin, J. & MacGowan, F. (2000) *Raised Bog Restoration Project: A Continuation of the Investigation into the Conservation and Restoration of Selected Raised Bog Sites in Ireland*. Unpublished report, Dúchas - the Heritage Service, Dublin.

Fletcher, K., Aebischer, N.J., Baines, D., Foster, R. and Hoodless, A.N. (2010) Changes in breeding success and abundance of ground-nesting moorland birds in relation to the experimental deployment of legal predator control. *Journal of Applied Ecology*. 47, 263-272.

Foss, P., O'Connell, C. & Crushell, P.H. (2001) *Bogs and Fens of Ireland: Conservation Plan 2005.* Irish Peatland Conservation Council. Dublin.

Haworth, P.F. and Thompson, D.B.A. (1990) *Factors associated with the breeding distribution of upland birds in the South Pennines, England*. *Journal of Applied Ecology*. 27, 562-577.

Hudson, P.J. (1992) *Grouse in Space and Time*. Game Conservancy Trust, Fordingbridge, UK.

McMahon, B.J., Johansson, M.P., Piertney, S.B. *et al.* Genetic variation among endangered Irish Red Grouse (*Lagopus lagopus hibernicus*) populations: implications for conservation and management. *Conserv Genet* **13,** 639–647 (2012). https://doi.org/10.1007/s10592-011-0314-x

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.

O'Donoghue, B.G., Donaghy, A. and Kelly, S.B.A. (2019). National survey of breeding Eurasian Curlew Numenius arquata in the Republic of Ireland, 2015–2017. *Wader Study* 126: 43-48.

O'Donoghue, B.G. and Carey J.G.J. (2020). Curlew Conservation Programme Annual Report 2020. National Parks & Wildlife Service, Killarney: https://www.npws.ie/sites/default/files/general/Curlew-conservation-programme-annual-report-2020.pdf

RBC (2015) Scientific Basis for Raised Bog Conservation in Ireland Study. Available at: http://rbc.cfram.com/

Scallan, D. (2009) *Red Grouse Conservation Plan for Ballydangan Bog, County Roscommon for 2010-2015*. Unpublished report. Roscommon: Roscommon Regional Game Council: http://www.ballydanganbog.com/wp-content/uploads/2017/10/Ballydangan_Conservation_Plan_2016-2020.pdf

Scallan, D. (2013) *Hunting and Habitat Conservation: Evidence from the Republic of Ireland*. IUGB Congress (International Union of Game Biologists), Brussels, Belgium (27-30 August 2013).

Scallan, D. and Carslake, J. (2015) *Red Grouse Manual for Gun Clubs*. Offaly: National Associations of Regional Game Councils, NARGC.

Scallan, D. (2015) *Development of Best Practice Guidelines for Red Grouse on SAC Raised Bogs*. Unpublished report. Offaly: National Associations of Regional Game Councils, NARGC. http://www.ballydanganbog.com/wp-content/uploads/2017/10/Report_on_Red_Grouse_on_SAC_Raised_Bogs.pdf

Scallan, D. (2016) *Predator Control Manual*. Offaly: National Associations of Regional Game Councils, NARGC: http://www.ballydanganbog.com/wp-content/uploads/2017/10/NARGC_Predator-Control_Manual_2016.pdf

Snow, D.W. & Perrins, C.M. (1998) *The Birds of the Western Palearctic: Concise Edition*. Oxford University Press, New York.

Tharme, A.P., Green, R.E., Bains, D., Bainbridge, I.P. and O'Brien, M. (2001) The effect of management for Red Grouse shooting on the population density of breeding birds on heather-dominated moorland. *Journal of Applied Ecology*. 38, 439-457.

Watson, A. & O'Hare, P.J. (1979) Red Grouse populations on experimentally treated and untreated Irish bog. *Journal of Applied Ecology*. 16:433-452.