

Red Grouse Species Action Plan

2013

National Red Grouse Steering Commitee



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Cover Photo: Red Grouse at Boleybrack Mountain, Co. Leitrim by Billy Clarke

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UCD Dublin

Minister's Foreword



Jimmy Deenihan, T.D.,
Minister for Arts, Heritage and the Gaeltacht

The Red Grouse is a bird intimately associated with the wild and beautiful places in Ireland. A century ago its population ranged throughout our peatlands, which occurred in most counties and covered almost 20% of the Irish landscape. The unmistakable cackle of the Red Grouse has always been regarded as a welcome sound to users of Ireland's peatlands.

Sadly its numbers are greatly reduced nowadays, owing to changes in the way we have used these areas over the years. Fortunately though, many people are determined that the grouse will not be lost to Ireland and are prepared to work for its conservation.

The production of this species action plan for Red Grouse is an important step in securing the conservation of the species as part of our natural and sporting heritage. Effective conservation measures need the engagement and enthusiasm of local people to make a difference in their area which is why I welcome the recognition in this plan of the efforts of so many local Red Grouse projects run by local people.

Apart from being an important manual for guidance of people engaged in grouse conservation projects, I expect this document to be useful as we work out policies on the wise use of peatlands taking into account the wide range of interests who use and benefit from them.

I congratulate each of the field sport and conservation organisations that have come together and worked long and hard to produce this Red Grouse species action plan. I am very pleased to be associated with the plan through the involvement of the National Parks and Wildlife Service of my Department and, in particular, I commend the Irish Grey Partridge Conservation Trust for facilitating the many meetings and bringing the plan to fruition.

I am delighted to launch the plan and I wish those who work to look after this truly native species every success in making it work.

September 2013

Jimmy Deenihan

Jimmy Deenihan, T.D.,

Minister for Arts, Heritage and the Gaeltacht

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Background to this document



21st century Ireland presents many significant challenges to our native game birds. Indeed the plight of Ireland's native game birds was the motivation to establish the Irish Grey Partridge Conservation Trust. From the outset it was our contention that a mixture of science and action is the best way to meet the challenges faced by Red Grouse in Ireland.

In October 2010 the Trust invited Red Grouse enthusiasts from both North and South of Ireland to a one-day conference in Tullamore, Co. Offaly. One of the Trust's key objectives was to put forward the idea that a National Conservation Strategy for Red Grouse was urgently required. We felt that the first step in achieving this objective was to formulate a Species Action Plan. Equally it was critical that such an agreement would enjoy the support of all organizations that profess an interest in the future of the species in Ireland. Accordingly, the Trust established a forum where all Red Grouse protagonists were invited to meet, plan and agree a way forward.

Three years later we have an agreement on the way forward for Red Grouse that enjoys universal support among all of Ireland's shooting and conservation communities.

This agreement recognizes the aspirations of over 50,000 people, who work in a professional and voluntary capacity for the benefit of Red Grouse in Ireland. It has the support of organisations including BirdWatch Ireland, the Countryside Alliance Ireland, the National Association of Regional Game Councils, the Irish Red Grouse Association, the Golden Eagle Trust, the Irish Red & White Setter Association, the Irish Kennel Club, the IFA Countryside, Cró na mBraonáin habitat & Red Grouse sanctuary and the Irish Grey Partridge Conservation Trust. Moreover we acknowledge that the National Parks & Wildlife Service, have supported our journey at every stage

We believe that this document is the first of many steps in the right direction for an iconic native game bird of Ireland's boglands. At the very heart of this Species Action Plan is a desire to work together, to overcome obstacles and by doing so, ensure that Ireland's Red Grouse are not put beyond the reach of this generation or the generations to come.

John Walsh

John Walsh,
Chairman,
Irish Grey Partridge Conservation Trust

Irish Grey Partridge Conservation Trust

SUMMARY

The Red Grouse is an iconic species and familiar to many nature lovers including game enthusiasts and biologists. In many respects, the fate of Red Grouse in Ireland has been inextricably linked with the continued decline of its habitats and the condition and extent of our bogs. As human pressures and exploitation have increased, the effect on grouse populations and their habitats has been profoundly detrimental. Red Grouse require large areas of natural and semi-natural habitat and the destruction and fragmentation of these habitats have been identified as major threats to Red Grouse populations not just in Ireland but for all grouse species globally. Given their susceptibility to changes in their surroundings, Red Grouse can act as useful indicators of the bogland ecosystem.

The level of local support and its input into the management of grouse moors is critical for the successful implementation of the Species Action Plan. Local groups must get priority in the allocation of the various resources necessary.

The purpose of this action plan is to provide guidance for the conservation and management of Red Grouse and their habitats in Ireland. It details relevant research on Red Grouse (past and present) and outlines their biological and habitat requirements. The plan suggests a framework for actions, and provides a range of recommendations on how to apply this.

1 Biological assessment of Red Grouse in Ireland

1.1 Current status of Red Grouse

The Red Grouse, often referred to as the heather hen, or an Cearc fhraigh in Gaelic, is on the Irish Red List of Birds of Conservation Concern.[1] They are protected under the Wildlife Act, 1976-2000, as amended Republic of Ireland (ROI) and under the Game Preservation Act, 1928, as amended Northern Ireland (NI). They are listed under Annex III/I of the EC Council Directive on the Conservation of Wild Birds (79/409/EEC), and also under Annex II/I, which lists those species, which may be hunted in such a manner so as not to endanger their conservation status.

1.2 Current population size and distribution

The Red Grouse is currently Red Listed due to a 70% decline in range (including both NI and ROI) over the past 40 years.[1] A 2008 survey in the Republic of Ireland[2] estimated that the breeding range had declined by 50% during the previous 40 years with the population estimated at 4,200 adult birds (95% Confidence limits: 3795 – 4,702) which is in accordance with a recent genetic study[8]. These figures relate to spring densities of Red Grouse[2]. A survey in Northern Ireland in 2004 estimated a population of 202 breeding pairs.[3] Local populations vary considerably in size depending on factors such as habitat type and quality and the level of management. Details of one of the projects that successfully manage these populations are identified in the appendices.

Figure 1: Map representing the full extent of the distribution of Red Grouse across 10km squares in Ireland recorded during the Old Atlas (1968-72) and the New Atlas (1988-91). Squares which are white, indicate Red Grouse were absent during the latter survey.
Atlas data provided by BirdWatch Ireland and the British Trust for Ornithology

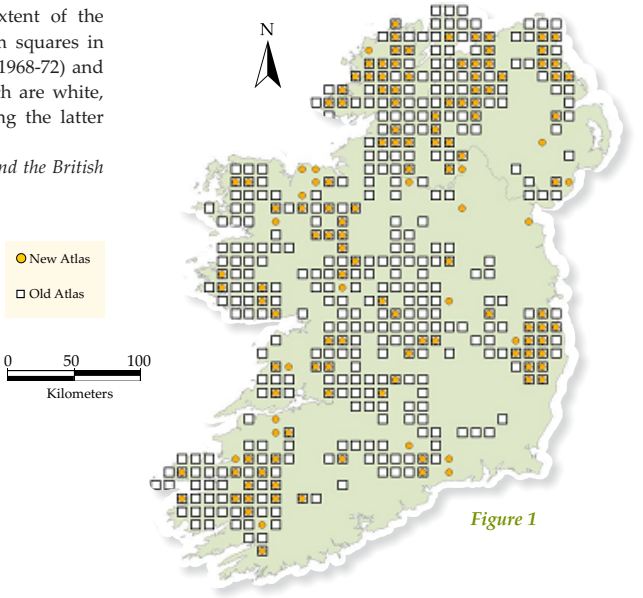


Figure 1

Averages of 1.1 Red Grouse per km-2 (in spring before the breeding season) were recorded during the survey in ROI[2]. Irish populations exist at lower densities of 1-6 individuals per km-2 compared to many populations in Britain with numbers here more akin to those of the Western Isles in Scotland.[4]

These differences in densities to grouse moors in eastern Scotland and England are due in part to the wetter, nutrient poorer soils of Western Scotland, Wales and Ireland[5] with underlying bedrock also influencing soil fertility with average numbers over base-rich rock greater than those over acidic granite.[6]

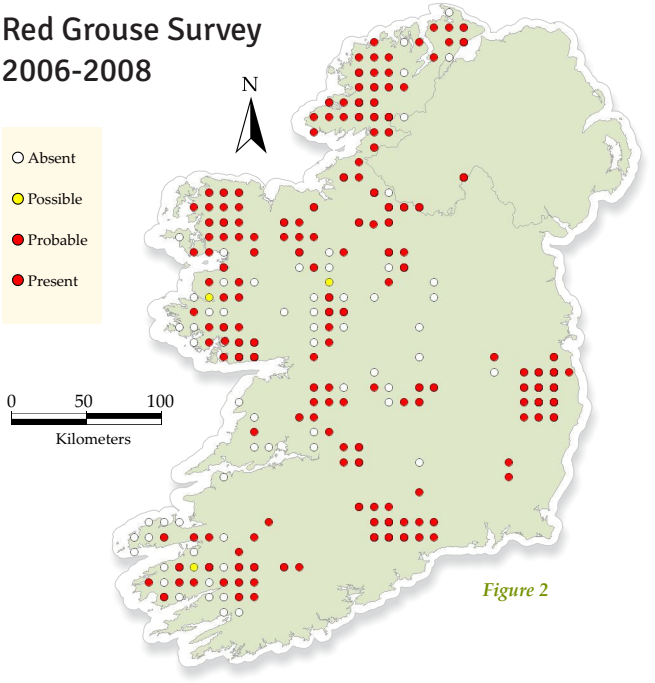


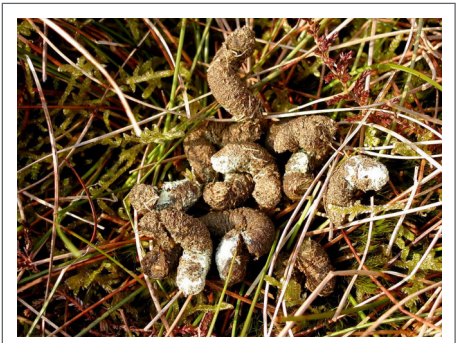
Figure 2

Figure 2: All records (at 10km square resolution) collected as part of the national Red Grouse Survey* between 2006 and 2008 during the survey period. Any 10km squares with sightings of birds or fresh droppings are indicated by red circles. Note: data from the Northern Ireland Red Grouse Survey of 2004 are not represented.

**The Red Grouse Survey 2006-08[2], was managed by BirdWatch Ireland and funded by the National Parks and Wildlife Service.*

1.3 Characteristics

The Red Grouse is a medium-sized gamebird, slightly smaller than a pheasant. Males have a large red comb above each eye and generally a darker chestnut coloured plumage than females, which are lighter in colour and lack an obvious comb. Physical characteristics of Red Grouse, including plumage, may vary from region to region. Red Grouse are well camouflaged amongst heathery landscapes and their largely ground dwelling nature means they are harder to detect unless flushed or when males are displaying (i.e. crowing) in spring.



Fresh Red Grouse Pellets and Caecal droppings *(BirdWatch Ireland)*



1.4 Taxonomy

There are considered to be 18-21 species of grouse worldwide, with the IUCN '*Grouse-Status Survey and Conservation Action Plan 2006-2010*', listing a total of 18 species.

Across nations, 14 of the 18 species are red listed in at least one country. In Ireland we have the Red Grouse, which is currently classified as a sub-species of Willow Grouse, although recent research has found unique genetic variability within the Irish population.[8]

This species has a circumpolar distribution and are largely found on tundra, bogs and heaths. Native populations of Red Grouse have been augmented from Britain. Current genetic evidence from the ROI, suggests that the introduction of Red Grouse from Britain to Ireland has made no contribution to naturally occurring populations in Ireland. [8]

Of the other grouse species, which occur in Britain, Capercaille became extinct in Ireland by 1770. Black Grouse and Ptarmigan may also have been present in Ireland in the distant past.

1.5 Territories

Males establish territories in late winter and early spring with neighbouring males often displaying at the corner boundaries to these territories, particularly evident post dawn[7] where calls can be heard between neighbouring males. Females become territorial by pairing up with the males in spring. The sizes of territories differ between suitable areas and even between years within the same area and are dependent on population density.[9] Habitat that is less suitable (often wetter with less heather cover and/or dominated by grass and bracken) will hold fewer or no birds.[5]

1.6 Breeding and survival

Males generally pair with one female, but can pair with two females while some remain unmated, particularly in low-density populations[7]. Pairs defend their territories until after the chicks hatch. Eggs are laid in early to mid-April with most chicks hatching in late May. Females tend to delay laying in colder springs.[10] Nests are usually in vegetation that is taller than average for the area and are usually located beside an open patch to allow females to leave the nest at ease.[10] After laying, females can cover the eggs with plant debris to camouflage the eggs and reduce cooling.[9] Incubation, by females only, usually lasts three weeks[10] with females leaving the nest a few times during the day to feed. During these feeding bouts females will emit a distinctive 'clocker' dropping some distance away from the nest. In Ireland the mean clutch size is 6.7 eggs.[11]

A hen that loses her clutch early in the season can re-lay with a second clutch usually of 3-4 eggs.[12]



Photo 3: Grouse nest remains at Boleybrack (F. Wheeldon)

Females incubating eggs can slow their heart-rate down to avoid detection by a potential intruder, making it harder for mammalian predators to detect her. Distraction displays are performed by the adults if a human or dog disturbs the nest or chicks.[7]

The average brood size (number of chicks hatched) is 2.9 in Ireland.[13] *(Note: average brood sizes incorporate total nest losses, therefore average brood sizes are much lower than average clutch sizes).* Once hatched, young chicks are covered in down but still need to be brooded during the day until 7-10 days and appear fully-grown within 12 weeks. Their diet for the first two weeks consists of invertebrates, moss capsules and young heather shoots.[14] Studies of chicks in Ireland have shown them to be slower-growing than in Scotland[15], which is thought to relate to the milder Irish summers with a later onset of colder temperatures. Wet flushes are particularly important as they harbour insects important for young chicks. Tall grasses, sedges, and rushes, offer good cover from predators. After being cared for by both adults, young birds move away from their parent territories (natal dispersal) in autumn. Broods break up, with females moving further than males[12] which helps reduce inbreeding.

By spring, any young males that have survived the winter will have established territories. The average survival of Red Grouse in their first year is about 33-35% with more adult cocks than hens recorded in spring.[7]
Extensive research was carried out on Red Grouse population dynamics on Irish peatland habitat during the 1970's in Co. Mayo by Watson and O'Hare[13], Lance and Mahon[33], and in Co. Wicklow by Lance.[11] These results demonstrated the impact of soil fertility, rainfall and vegetation on grouse densities, hatch size and survival rates.[11, 33]

1.7 Food

The decline in habitat quality for Red Grouse in Ireland has no doubt impacted on the availability of 'good' heather i.e. young nutritious shoots and other edible plant species preferred by them. Ling heather is integral to the life cycle of Red Grouse (Appendix 1), as it constitutes the biggest portion of their diet, particularly heather aged between 2-8 years.[17]



Cotton-grass seed head *(J. Carslake)*



Bilberry *(F. Wheeldon)*

Heather is also required for shelter and nesting.[9] The prevalence of insects on blanket bogs in the summer is also an important food supply for young grouse chicks.[15] Other food sources including bilberry, cowberry, crowberry, cranberry, sedges, cotton grasses, wild strawberry, bog myrtle, moss capsules and oats are also important in dietary terms. Red Grouse regularly swallow grit (preferring quartz granules if available) to aid digestion.

1.8 Habitat requirements

Heather is a low-growing shrubby plant, which occurs mainly on bogs and heath (*see Appendix 1 for more information).* Heathland communities are characterised by plant cover of 25% small shrubs such as ling heather and bilberry[14]. Bogs, which generally have less heather cover than heaths, are typified by mosses (such as *Sphagnum*), sedges and small shrubs and have peat depths of greater than 0.5 meters[14].

In Ireland, most of the Red Grouse population remaining is limited to areas of blanket bog or heath, with just 2% of the population occurring on raised bog[2]. Wet flushes are important as a source of insect larvae in the summer; an essential food source needed to provision young chicks and are integral to their survival[15]. Fragmented habitats supports lower average densities of Red Grouse[7] and it is likely that the extensive losses that have occurred on raised bogs in particular, are a result of habitat loss and fragmentation[2]. The Red Grouse in Ireland is under threat of extinction largely as a result of changes in land use and loss of suitable habitat.

1.9 Hunting and cultural importance

Hunting and dog-trialling of Red Grouse is a traditional land use exercise, which is part of Ireland's culture and heritage. Complex historical changes in landownership in the late 1800s and early 1900s led to the break – up of many large keepered estates. There were over 500 gamekeepers in the 1901 census and these numbers declined rapidly with the changes in landowner structure and the economic impact of two world wars on farming enterprises. The decline in the number of grouse keepers in Ireland may have accelerated declines in Red Grouse numbers due to a reduction in the amount of land being managed specifically for Red Grouse.

In Scotland, in 2000, grouse shooting was estimated to support 630 (full time equivalent) jobs, and brought in £26.7m in revenue.[7]

Dog trialling, which supports two native breeds of setter in Ireland, has an international aspect, with tourists from other countries coming to participate in and watch dog trialling events.

Dog trialling organisations are very active in carrying out regular grouse counts during their dog trials and as requested across specified moors.



Irish Red and White Setter *(J. Sheridan)*

Setters and pointers have been and continue to be a very important part of the management of grouse moors in Britain, providing spring and autumn counts, which are essential for determining the 'shootable surplus'. In Ireland, the importance of this skill is again becoming apparent with Red Grouse management projects obtaining the services of licensed dog handler teams for spring pair counts and autumn counts to determine breeding success.



Irish Red Setters at Boleybrack *(F. Wheeldon)*

2

Habitat management to benefit Red Grouse

The appropriate management of heather on peatlands, in particular heaths, is important to ensure the habitat remains suitable for Red Grouse and other upland breeding birds such as Merlin, Golden Plover and Curlew.[18]

Heaths and bogs are unique landscapes and have been managed by our farming ancestors for thousands of years and were used mainly for the grazing of livestock, cutting of herbage and fuel extraction. The importance of maintaining an appropriate grazing regime and of grazing as a landscape management tool cannot be over emphasised and is an integral contributor to a rich flora and fauna biodiversity of peatlands.

The High Nature Value (HNV) farming concept, describes farming that can be expected to support high levels of biodiversity or species and habitats of conservation concern. Three core characteristics of HNV farming include: low intensity farming, presence of semi-natural vegetation and diversity of land cover. In the case of species of conservation concern (especially birds), it is considered that HNV farming may include more intensive farming methods in the interests of enhancing and maintaining populations of specific species.[19]

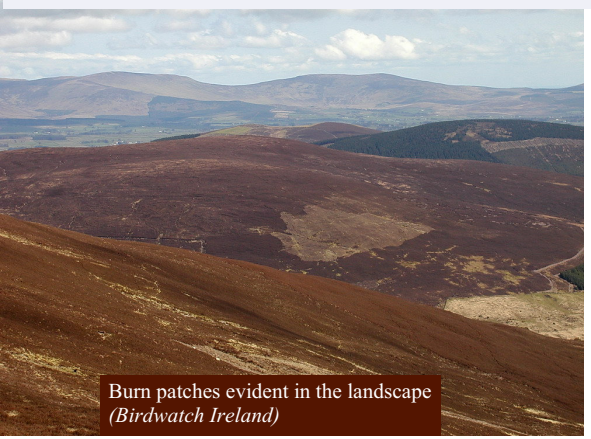
In general, the objective of heather management is to interrupt the natural life cycle of the plant in order to retain young heather shoots which are nutritionally superior to old heather for grazing animals (having more nitrogen, phosphorus and potassium).[20] If heather is not managed, it degenerates, eventually breaking down in patches, dying after about 25-30 years. At this stage, heather is of little value for grazing animals and, in particular, for Red Grouse. The most valuable productive heather moorland is one with a patchwork of heather at different stages of maturity.[7]

Please note: Heather can be regenerated using a number of techniques including controlled burning, cutting and grazing in accordance with statutory requirements (see Section 3.2) and the requirements of designated sites.

2.1 Controlled burning

It is recognised, that carefully planned and controlled rotational burning of heather on moorland can be beneficial for Red Grouse, sheep and other wildlife. Well-managed burns only remove the vegetation and do not damage the peat.

Driven by the commercial nature of grouse shooting, controlled 'strip burning' of heather expanded rapidly in the mid 19th century, largely to maintain habitat for Red Grouse creating a mosaic of new growth for feeding while maintaining older stands for shelter and nesting. Prior to this, burning was carried out to improve grazing for sheep or red deer. Burns for these grazers tended to be larger than those needed for Red Grouse. It is important to point out that controlled burning does not include deliberate acts of arson. In order to manage Irish peatlands and try to restore those damaged in the past through inappropriate practices, a collaborative effort from stakeholders to develop the best practice for their management is needed.



Burn patches evident in the landscape *(Birdwatch Ireland)*

The controlled burning of heather described above is commonly practiced in Britain and has increased Red Grouse population densities well above natural densities in many places.[21] Controlled burning as a management strategy, encourages fresh new growth to sprout from existing heather plants, removes dead material and recycles nutrients. Burning also rejuvenates the heather stand and provides a structural layer of plants preferred by Red Grouse.[20] Burning alters vegetation composition and structure sometimes positively but it can also negatively affect the presence of some flora and fauna species, such as lichens and bryophytes.

In Britain, average densities and bags of Red Grouse are related to the extent of heather, to the percentage of young heather after burning, and the pattern of burning (higher densities follow narrow fires).[7] From a management perspective, it is important that burning is well planned and carried out in suitable weather conditions and when the vegetation is sufficiently dry.[23]

Inappropriate burning can lead to wild fires risking soil erosion and water pollution, and in dry conditions fires can become too hot, consuming topsoil and greatly delaying the recovery of heather.[7]

Under the Wildlife Act, burning is not permitted in ROI from the 1st of March to the 31st of August. Under the Game Law Amendment Act (Northern Ireland) 1951, burning is not permitted from the 15th of April to the 31st of August and in the case of potentially nesting larks and pipits, it is recommended to complete burning before the 1st of April. Any burning of hedgerows, gorse and bracken or on thin eroding soils or along watercourses should be avoided. In addition, any burning on blanket bogs/designated sites (SPAs, SACs, NHAs, ASSIs, National Parks and Nature Reserves) should not be carried out unless agreed with the statutory authority (NPWS or NIEA).

2.2 Cutting of Heather

Several gun clubs in Ireland currently practice cutting as a management strategy. Suitable cutting equipment includes specifically designed heather flails; self-powered flails which can be towed behind an ATV, and strimmers. Cutting heather may not produce results as good as burning but in some situations, where burning is not appropriate, cutting should be undertaken.[20] These situations typically include: on areas adjacent to forestry, on wetter areas of peatland and on areas where the peat depth is greater than 0.5 meters. Cutting is also particularly useful in areas where *Molinia* grass is mixed with the heather but has not formed tussocks. However, on areas of old heather, cutting may not stimulate suitable recovery from seed.[20] Cutting heather requires the same degree of planning as controlled burning and it is important that cutting patterns are as irregular as possible to result in a more natural appearance in the landscape.

Cutting may not be suitable for all sites, and can be labour intensive. Cutting of vegetation is not permitted between the 1st of March and the 31st of August (ROI and NI). In addition, any cutting on blanket bogs/designated sites should not be carried, out unless agreed with the statutory authority (NPWS or NIEA).

2.3 Restoration of blanket bog and raised bog

Restoration works carried out on blanket and raised bogs in Ireland have primarily been undertaken to conserve the entire ecosystem, rather than specifically targeting the management needs of priority species such as Golden Plover and Red Grouse.

In recent years, Coillte have carried out a number of restoration projects on both raised bog and blanket bog. 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. Work on Coillte's EU LIFE NATURE Blanket Bog restoration project, which began in 2002, was completed in December 2007 and resulted in the restoration of 2000 hectares of blanket bog. Various restoration techniques such as tree removal, felling of trees to waste, and drain blocking to re-wet previously drained areas were used. Coillte's latest LIFE Project "**Demonstrating Best Practice in Raised Bog Restoration in Ireland**" (LIFE09 NAT/IE/000222) is a nature conservation project jointly funded by EU DG-Environment, the Department of Arts, Heritage and the Gaeltacht and Coillte (The Irish Forestry Board) under the EU LIFE-Nature Programme.

The project is being managed by Coillte and focuses on the restoration of 636 ha of raised bog habitat on 17 Coillte owned sites within the Natura 2000 Network and in Natural Heritage Areas.

2.4 Bracken management

Bracken has little advantage to Red Grouse as a habitat as it replaces the natural blanket bog/raised bog/heath habitat, provides no cover in winter and contributes to the spread of diseases in sheep and grouse by harbouring ticks which thrive in bracken litter. Consequently the control of bracken is also of benefit to the farming community. Bracken management is primarily via physical control (i.e. bracken cutting/rolling/bruising).

Inappropriate management i.e. intensive burning can lead to the increased spread of bracken.

2.5 Disease and parasite management

Louping ill is a virus transmitted by the sheep tick *Ixodes ricinus*, which can occur on sheep, hare and deer. Louping ill affects the central nervous system in Red Grouse, having an adverse effect on chick survival, which once infected, have a high mortality rate.[7] In Britain Louping ill can cause substantial reductions in chick survival rates (Game and Wildlife Conservation Trust - GWCT).

While very little is known about the potential threat of Louping ill and other parasites such as caecal threadworms to Red Grouse populations in Ireland, existing GWCT research should be supported with some further studies to establish the impact of diseases and parasites on Irish Red Grouse populations and their origins.

2.6 Grazing

Grazing (by sheep, deer and others) occurs over large areas, particularly on peatland habitats and therefore overlaps with Red Grouse habitat. Traditional hill sheep grazing plays an important role in the production and maintenance of young palatable heather shoots – the mainstay of the Red Grouse diet; however concentrated or prolonged winter sheep grazing of young heather and trampling can cause the complete loss of heather in localised areas. Heather can be kept in good condition by carefully controlled grazing which can be compatible with Red Grouse conservation. For example, sheep or cattle grazing at low density can benefit Red Grouse by making trails that allow birds' access to tall heather, while their dung can introduce agricultural weeds that are good foods for Red Grouse in spring.[7] Well managed sheep grazing can also cause heather to continue producing new shoots and flowers. It is important that livestock are encouraged to graze the whole area and should be prevented from grazing on regenerating blocks of heather.[24]



Different grazing regimes on a Donegal hillside *(F. Wheeldon)*

In general, however, controlled burning and cutting are considered to be better heather management strategies for Red Grouse as they create the edge effect by providing a mosaic of nesting and chick rearing habitats which are used as reference points by territorial cocks and are selected by hens for nesting.[20]

Both controlled burning and cutting should be considered as important habitat management tools for Red Grouse (not as an either or situation). Differing site conditions may favour or restrict the use of one method over the other, and in other circumstances both methods may be required, e.g. in under grazed situations tall rank heather may need to be cut, prior to burning, to facilitate a more controlled burn.

Since the 1970s the sheep grazing regime and practices have been influenced by various EU policies. Stocking levels have varied as the underlying legislation changes. This is an evolving process and the current CAP reform is likely to bring further changes. Farmers and landowners can be subject to severe penalties for over stocking and under stocking moorland and peatland.

Intensive overgrazing can significantly affect the structure, height and species composition of heather and thus destroy or degrade cover, nesting and feeding habitats of grouse.[23] In many parts of Ireland, extensive areas of peatland have been severely degraded as a result of changes in farming policy on Ireland's accession to the EU in 1973 (formerly EEC). Such overgrazing led to major loss of heather cover allowing less nutritious plants such as deer grass and purple moor grass to become established. Overgrazing has also resulted in the exposure of bare peat surfaces with subsequent erosion of peat to the underlying mineral soil.

In recent years, however, changes in EU policy and payment schemes have resulted in a significant reduction in sheep numbers on peatlands in Ireland. In the majority of cases, heather will recover, although at variable rates depending on the initial peatland habitat type and level of degradation, once the grazing pressure is removed.[26]

On the other hand, under grazing also has potential to impact on heathland through succession (e.g. scrubbing up with secondary woodland) and/or invasion of bracken and gorse. Extensive areas of rank heather are not favoured. Therefore heather height is particularly important with studies showing that Red Grouse tend not to utilise heather, which is taller than 35 cm.[17]

2.7 Management of Red Grouse populations in Ireland

In Ireland bogs and heath are natural and semi-natural habitats, which have been part of the Irish landscape since the last Ice Age. In the past, such peatlands would have been regarded as an important local natural resource.

However in more recent times, peatlands have been cut away on an industrial scale for commercial peat extraction, afforested, and damaged by infrastructural developments.[27] Peatlands and upland moors in Britain are often managed intensively in order to maximise the production of Red Grouse for commercial hunting.[28]

Any management in Ireland is much less intensive and is limited to discrete areas managed by local gun clubs or grouse conservation projects. Densities of Red Grouse are markedly different between these managed moors and 'less-intensive' or 'unmanaged' grouse populations in Ireland. Densities on grouse moors in Britain can reach over 100 birds per km^2 [29], whereas Irish populations occur in lower densities of 1-6 individuals per km^2.[4] It is important to note that densities in Ireland very much reflect densities of grouse populations elsewhere, i.e. Scandinavia, which exist at natural levels with very little management as opposed to privately owned grouse moors in Britain where intensive habitat management and full time gamekeepers are the norm.

There have been a number of studies carried out on Red Grouse, mainly observational surveys but a limited amount of experimental research has also been carried out.[30] Studies have revealed that Red Grouse in Ireland are also closely associated to the presence and abundance of ling heather[31], for food, nesting and protection and it is the only bird species found in Ireland that is exclusively associated with peatlands.[32] Red Grouse diet is made up of approximately 90% ling heather[33] but other plant species such as bilberry and cotton grasses are also taken.[17] In a recent Irish study[34] of peatlands, blanket peatland (Atlantic and montane) was the preferred choice for Red Grouse with a weaker preference shown for areas with high densities of heather cover. Therefore habitat management can have a significant positive effect on Red Grouse densities on Irish peatlands[35] and in addition, other wildlife including other moorland nesting birds, and hares may also benefit.



Red Grouse observed during the 2006-08 Survey *(Birdwatch Ireland)*

Although there is evidence of parasites such as Louping ill[36] and caecal threadworm[37] within the Irish population of Red Grouse, these parasites are unlikely to have a major role in regulating Irish populations. Further research is required into the levels of Louping ill and caecal threadworm in the Irish population of Red Grouse. In addition, there are no studies to date that deal with the dynamics of Red Grouse in Ireland and provide evidence or otherwise as to whether populations go through cycles. Even in low density populations in areas of Britain where numbers are comparable to Ireland Red Grouse populations can go through relatively high and low population cycles.[38] Parasites can have a disproportional impact on small populations[39] and this factor may come into play in small fragmented populations should the Irish population of Red Grouse be reduced and/or constricted further.

The impact of the heather beetle on Red Grouse populations in Ireland is not well known and further research into this is needed. In Britain, recent mild, wet winters and wet summers have caused severe heather beetle problems and the damage caused to heather is a worry to landowners and conservation organisations.[2]

2.8 Access rights and landowner support

It is vital that Red Grouse projects have the co-operation of the local landowner and recognise this by controlling unauthorised access. All moorland management activity, such as burning, must have the prior approval of the farmer and be carried out in accordance with the Department of Agriculture guidelines.[40] Appropriate Public Liability Insurance needs to be in place for any management operation that could impact on farmers livelihood or farming activities, where required.

3

Polices and legislation relevant for management

In recent decades, there is an increased recognition that an integrated national management policy for Irish peatlands is required.[39] This should be led by policy changes at government and EU level. From a Red Grouse conservation perspective, there remains significant potential and opportunity to integrate best-practice heather management strategies within future policies. Such efforts should also integrate local experience and knowledge and raise public awareness of the best practice in terms of peatland management.

3.1 Current conservation measures – national policies

Red Grouse are listed under Annex III/I of the EC Council Directive on the Conservation of Wild birds (79/409/EEC). Annex II/I lists those species, which may be hunted in such a manner so as not to endanger their conservation status. Red Grouse and their habitats are currently not specifically included in any agri-environment schemes in the ROI.

3.2 Legislation

- Red Grouse are protected under the Wildlife Act, 1976, as amended (ROI) and under the Game Preservation Act, 1928, as amended (NI).
- Open Seasons during which Red Grouse can be shot are 1st – 30th September (ROI), and 12th August – 30th November (NI).
- Under the Game Law Amendment Act (Northern Ireland) 1951, it is an offence to burn between 15th April and 31st August, any gorse, furze, whin, heath, ling or fern growing on any mountain, moor, heath, bog or other uncultivated land. (In upland areas, where meadow pipit and skylark may be nesting, it is recommended not to burn after the 1st of April).
- Under the Wildlife Act 1976, as amended (ROI), it is an offence to burn uncultivated land between the 1st of March and the 31st of August.
- Burning within 1 mile of forestry is a restricted activity in both ROI and NI. Consent is required in advance from the forestry owner.
- Cutting of vegetation on uncultivated land is an offence between the 1st of March and the 31st of August (ROI and NI)

Summary of legislation	Republic of Ireland	Northern Ireland
Open Season dates	1st –30th September	12th August–30th November
Restrictions on burning vegetation on uncultivated land during the bird nesting season (1st March–31st of August)	Wildlife Act 1976, as amended	
Restrictions on burning on uncultivated land (15th April–31st of August)		Game Law Amendment Act (Northern Ireland) 1951
Restrictions on clearing vegetation on uncultivated land during the bird nesting season (1st March–31st of August)	Wildlife Act 1976, as amended	Wildlife (NI) Order, 1985

3.3 Ongoing activities

Many local Red Grouse projects are in existence throughout the country, often initiated and managed by a local gun club with the assistance/support of various bodies including BASC, Bord Na Mona, CAI, Coillte, GET, IRGA, NARGC, and NPWS.

Critical to the success of Red Grouse conservation projects is the active support and co-operation of landowners, farmers and other land users and it is imperative that their co-operative input is recognised and incentivised in any downstream funding regimes of moorland management for grouse.



Blanket Bog habitat, Co. Mayo
(Red Grouse Survey 2006-08)

There are over 60 Red Grouse conservation projects in operation across the country, mostly managed by local game conservation societies, gun clubs, and gun dog trialling organisations with others managed by the NPWS, Bórd Na Móna, and a number by private landowners.

Examples include:

- Ballycroy/Kiltane Red Grouse project
- Ballydangan Bog Red Grouse project[44]
- Boleybrack Red Grouse habitat management project[42]
- Cró na mBraonáin habitat & Red Grouse sanctuary
- Keadeen Red Grouse project
- Kilcreest Grouse project
- Knockmealdown Red Grouse conservation project
- Mountbellew-Moylough Red Grouse conservation project[43]
- Slieve Blooms Red Grouse project
- West Connemara Grouse project[62]

In general, the management plans for these projects attempt to identify the main factors affecting local Red Grouse populations. At the same time, they recommend a number of management strategies aimed at improving the ecological conditions for Red Grouse. These management strategies typically include maintaining the distribution and diversity of heather quality, increased predator control, disturbance control, population monitoring and improving public awareness.

The successful integrated implementation of such plans across the country may help reverse the declines of Red Grouse in Ireland. Detailed examples of Red Grouse projects submitted to the SAP committee, after consultation, are included below. Please refer to a table of all Red Grouse project information submitted (Appendix 2), including a map of their their locations included in Appendix 3.

Ballycroy/Kiltane Red Grouse project

In January 2011, NPWS agreed a 5-year lease for a Bórd Na Móna site, adjacent to Ballycroy National Park, to be used for Red Grouse habitat management. This site is located in North Mayo just southwest of Bangor village.

It comprises 931 hectares of blanket bog and wet heath. With 30% of the area previously worked for milled peat harvesting, the remaining area was ditch drained but never worked as production bog. Peat production there ceased in 2006. A site adjacent to the leased Bórd Na Móna site (owned by NPWS), contains 186 ha of intact Atlantic Blanket Bog, giving a combined area of 1,117 ha. Breeding birds on this project site include Red Grouse, Golden Plover and Merlin on open bog, with Kestrel and Raven present in coniferous forests to the south.

Boleybrack Red Grouse habitat management project

Boleybrack Mountain, Co. Leitrim is located north of Lough Allen between the towns of Drumkeeran, Manorhamilton and Blacklion. The extensive upland plateau is dominated by mountain blanket bog, wet and dry heaths, with small lakes scattered throughout.

Most of Boleybrack is designated as a Special Area of Conservation (SAC) and lies within the club territory of Glenfarne Gun Club. In 2007, Glenfarne Gun Club developed a Red Grouse habitat management plan to protect and enhance the fragile Red Grouse population. Thanks to the assistance of NPWS, GET, NARGC, Coillte and the support of commonage shareholders, this management plan is now approaching its sixth year with modest success. The project area is 900 hectares but the habitat area is much greater allowing scope for future expansion of the project. The key objectives of the project are to maintain and increase the Red Grouse population and to maintain and enhance the sensitive priority habitats. These are achieved through disturbance control, heather management, predator control, public awareness and education, monitoring, and continuous reviewing of management practices. Glenfarne Gun Club has built up excellent relations with local NPWS staff, Coillte, Leitrim County Council, the Fire Brigade and Gardai when required. Glenfarne Gun Club carried out successful heather burning during February 2011 in compliance with their approved Burn Plan.

Cró na mBraonáin Red Grouse sanctuary

Cró na mBraonáin Red Grouse Sanctuary is located on Achla Mountain, Co Donegal. A habitat management plan is in place with the assistance of the Heritage Council for six years. The 300 ha site is enclosed and stock control (mostly sheep) measures are in place. The implementation of an intensive heather management programme and predator control measures has resulted in a good increase in numbers.

Traditional fragmentation issues were around farm splits and forestation but in recent years Cró na mBraonáin faced enclosure from several massive wind farm projects. A recent Bórd Pleanála Report (ref 240166) following a lengthy Oral Hearing found in favour of the project given the protected status of Red Grouse. The Inspector stated it was "extraordinary that there was no assessment of the impact on Cró na mBraonáin given its proximity to the appeal site". Much emphasis was put on such sites which are, because of flight lines, "stepping stone sites" between other habitats in the area. The site is protected in the County Development Plan with a specific policy (NH-P-15) to "ensure the protection of Cró na mBraonáin habitats and Grouse sanctuary given its high concentration of Red Grouse and its importance to the national Red Grouse population".

Keadeen Red Grouse project

Keadeen Hill was a renowned grouse moor in past decades; however, this 1,300 acre site fell into the usual pattern of decline in numbers due to lack of awareness. With the co-operation of its six landowners, Sean O'Neill has single-handedly stopped this decline with the commencement of a Red Grouse conservation project. With the support of CAI and the IRGA, a predator control exercise commenced in 2011 supported by the local sheep farmers. The heather quality on the hill is of mixed quality and suffered an extensive burn five years ago. The heather regrowth since has attracted numbers of Red Grouse from neighbouring moors to breed. The site is now being managed by flailing and cutting with a power scythe. This is carried out with the assistance of the local farmers and this has already given encouraging results.

Kilcreest Grouse project

This project was started in 2010 by the Peterswell and Kilcreest Conservation and Gun Club on moorland held in both private and commonage ownership. The site is a SPA and the local landowners have given their full support to the project. Each year substantial numbers of grey crows, magpies, foxes and mink are accounted for and the existing small Red Grouse population has already benefited from this measure. Overall the heather quality is not in good condition, as it has not been managed during the past century. The vegetation is characterised by such species as Ling Heather *(Calluna vulgaris)*, Bell Heather *(Erica cinerea)*, Cross-leaved heather *(Erica tetralix)*, Bilberry, Cotton grass, and Purple Moor grass.

A very significant element of this project has been the support and co-operation of the landowners, NARGC, IRGA, NPWS, Coillte and the Pointer & Setter organisation.

Knockmealdown Red Grouse conservation project

This very successful Red Grouse management project is ongoing since 2004 on lands leased from Coillte. It is managed by Ardfinnan, Ballybacon, Grange and Newcastle Gun Club (ABNG). Previously the club operated on short-term leases and secured a long term lease from Coillte in 2004. Coillte own extensive forestry in the Knockmealdown Mountains and co-operated with the club on the various aspects of the project. This very active club's focus is on year round predator control with a rotational heather burning regime which is carried out during February. Grouse counts are carried out annually using pointers and setters

and there is a steady growth in Red Grouse numbers since the project began. The Knockmealdown Grouse project is part of the ABNG Conservation Project which includes many other conservation features such as wildlife ponds, tree planting, wildlife crops and the preservation of existing wildlife habitats.

Slieve Blooms Red Grouse (SBRG) project

The Slieve Blooms Nature Reserve is Ireland's largest nature reserve and is managed by the National Parks and Wildlife Service. It covers 2,300 ha straddling counties Laois and Offaly and contains mostly mountain blanket bog with areas of wet and dry heath and alluvial forests. The site is largely ungrazed by livestock. The primary management objectives for the site is to protect and maintain at a favourable conservation status the blanket bog ecosystem, areas of wet heath, alluvial forests and the breeding population of Hen Harrier. The Slieve Bloom Nature Reserve is also a stronghold of Red Grouse in the midlands and a special effort is taken to maintain their numbers at their optimum natural levels for the site. To this end, the SBRG Project has commenced a programme of habitat management/restoration, primarily aimed at blanket bog restoration and reversing habitat fragmentation through the removal of non-native conifer regeneration (ongoing since 2004, 500 ha removed in 2010–11). Pools and flushes (especially important for young chicks) are created through ditch blocking. Population surveys through tape luring and dog trialling are used to establish accurate counts and monitor fluctuations of the number of Red Grouse in the site. Further research includes monitoring of deer and goat grazing on heather using enclosures and survey and monitoring water levels on the reserve throughout the year. Predator species are monitored and avian perches are removed to deter corvid species.

Education work at the reserve includes educating local schools on Red Grouse ecology and conservation at the boardwalk trail at Capard, open day/events for members of the public, e.g. Heritage week, and the production of educational/interpretative literature for schools and the public. The Red Grouse population in the Slieve Bloom Nature Reserve appears to be at a healthy and stable level. However, due to the demise of other surrounding populations caused by the destruction of their raised bogs habitats, the Red Grouse in the Slieve Blooms have become isolated with no opportunity of interaction with other populations. The long-term impact of this isolation needs to be monitored.

West Connemara Grouse project

This project is situated in the heart of west Connemara centred on Roundstone Bog and the Cregg district bisected by the Galway to Clifden road. It is managed by Clifden Gun Club to a plan approved by NPWS. Land ownership is a combination of private landowners and commonage holders. These lands were part of extensive estates in the past and Red Grouse numbers had dwindled to an unsustainable level. The Clifden Club members work in liaison with the NPWS personnel for guidance on legislation. Intensive predator control is the cornerstone of the success to date and the members were trained by the NARGC on the use of predator control equipment sponsored by the IRGA.

The project is in its infancy and already Red Grouse numbers have shown a positive benefit from the management inputs. The project team put major efforts to secure the cooperation of landowners and promotes the project through local community groups.

Irish Red Grouse Association

The Irish Red Grouse Association (IRGA) was founded in 2010 at the initiative of Countryside Alliance Ireland and with the support of IFA Countryside and the Pointer/Setter Trialling Clubs. This is a voluntary organisation in its truest sense and its executive and members devote their time freely while financing their own personal expenses. From the onset the IRGA expressed the desire to work closely with individuals, NGO's and government agencies whose focus is the preservation of Red Grouse in Ireland. The IRGA has an experienced executive who, with the support of a panel of international experts on moorland and Red Grouse management, is dedicated to the conservation of the Red Grouse in Ireland. The IRGA team give generously of their time in supporting and initiating Red Grouse projects throughout Ireland.

To date they have over 30 projects at varying stages of development with 20 approved management plans in place on the ground. They are actively supporting local projects with advice and equipment and have successfully completed 24 Red Grouse counts to date. The IRGA backed Red Grouse projects extend over 85,000 acres of varying moorland habitats and while the focus is on grouse management a watching brief is kept on other moorland species that are benefiting from a continuous predator control exercise. In supporting local projects the IRGA has initiated a number of seminars and training sessions using the theme of 'walking the talk' to enhance Red Grouse populations throughout the island of Ireland.

National Association of Regional Game Councils

The National Association of Regional Game Councils (NARGC) is the largest voluntary organisation in Ireland involved in game shooting and conservation. The association has 28,000 members in 926 Clubs spread throughout the country - one Club in almost every parish. The NARGC's Red Grouse Specialist Group (RGSG) was established to provide guidance and encouragement to gun clubs undertaking Red Grouse management in Ireland. The NARGC RGSG supports the development of a Species Action Plan for Red Grouse in Ireland. Currently, over 15 NARGC gun clubs are involved in Red Grouse management in Ireland. Several of these projects are well established and are listed in Appendix 2 of this document. In January 2011, the NARGC RGSG conducted an assessment into the availability of suitable Red Grouse habitat in Ireland at Gun Club level and the potential to establish new Red Grouse projects. In total, gun clubs in ten counties identified 44 potential sites where Red Grouse projects could be developed. The NARGC RGSG are supporting and advising these gun clubs with a view to establishing Red Grouse projects in these areas.





Irish Red Setter *(J. Sheridan)*

Setter and Pointer committee

Pointer and Setter trials are run under licence from the Department of Arts, Heritage and the Gaeltacht through the Irish Kennel Club. There is a maximum of 30 dogs in any trial. The dogs are run in pairs (a brace) under the watchful eyes of two or three judges. The dogs are always worked into the wind and are required to quarter the allocated ground in a systematic manner ranging approximately 150-200m on each side of the handlers. Dogs are required to point any game found on their beat, wait until handler and judges come up, produce the game on command and remain steady.

Trials are primarily run on Red Grouse and Snipe. Currently, grouse trials are held in Wicklow Mountains National Park, Slieve Blooms Nature Reserve, Moycullen and Mountbellew in Galway and more recently Kilchreest, Monaghan and Rathmore, Co. Kerry. Pointer and Setter teams have much to offer, coming from all over the country, with knowledge of our mountains and bogs, accompanied by dogs available to do initial counts and annual population counts. Pointer and Setter teams are familiar with the ground and Red Grouse where trials are held. Trials are generally held on the same grounds at the same time each year, allowing population fluctuations to be easily identified.

4

Challenges to Red Grouse conservation and management

This section provides an overview of the current activities impacting on Red Grouse in Ireland. A table listing these activities and their associated impacts on Red Grouse is included in Appendix 4.

4.1 Policy and legislation

Incorrect or poorly thought out environmental or agricultural policy can have a negative impact on Red Grouse. On the other hand there is great scope within policy to improve the situation for Red Grouse. A Species Action Plan, would put a focus on Red Grouse within the island of Ireland and could lead to increased promotion of and practical and financial support for, Red Grouse management projects around the country. The inclusion of Red Grouse as a management option or measure within the N. Ireland Countryside Management Scheme (NICMS) or the Agri-Environment Options scheme (AEOS) (ROI), could allow an added intrinsic value to be placed on peatlands, facilitating greater respect for their management and benefits to local communities. CAP reform will dictate what type of funding will continue to be made available and what impact this will have on peatlands management.

4.2 Habitat fragmentation

The range of Red Grouse on the island of Ireland decreased by an estimated 70% in the 40 years prior to 2008.[1] This has resulted in the fragmentation of populations, where small islands of Red Grouse are isolated from other populations. Fragmented populations are more at risk of localised extinctions, as there is little opportunity for populations to re-establish. There is a need to establish and support a network of habitat management projects, with particular focus on vulnerable populations and to assess those gaps in range that could potentially be managed for future expansion of the population.



Fragmentation of peatlands *(Birdwatch Ireland)*

Corridors of suitable habitat may need to be established to link up fragmented habitats and allow isolated Red Grouse populations to mix.

4.3 Habitat loss and modification

Currently, Irish peatlands support multiple land uses i.e. agriculture, commercial forestry, wind energy, peat extraction, leisure and tourism.

4.3.1 Agriculture

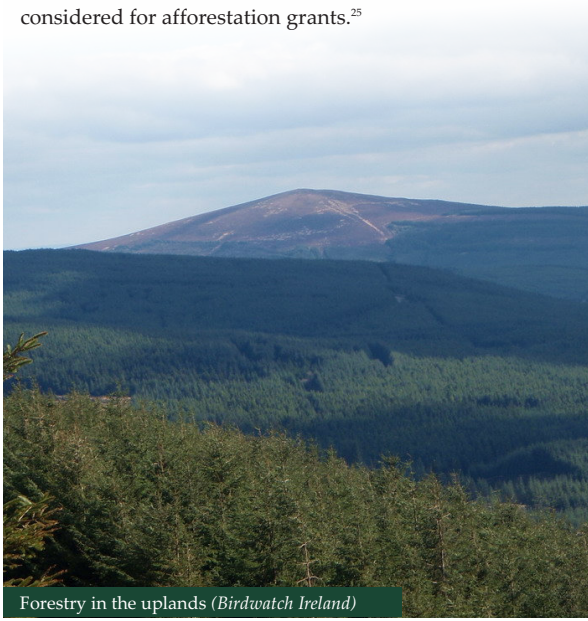
Irish peatlands in the past have been significantly degraded due to drainage and conversion to grassland. In particular, some raised bogs and cutover bogs close to centres of population (e.g. Counties Dublin, Kildare and Wicklow) have been drained and reclaimed for arable grassland farming.

Currently agricultural activity on peat soils is largely confined to grassland production and the grazing of cattle or sheep, with blanket bog in particular being extensively grazed throughout its history. An upsurge in sheep numbers during the 1980s and 1990s was brought about via the EU headage grant scheme, however the threat of overgrazing has reduced in recent years with the introduction of agri-environment schemes and the decoupling of the CAP.[27] Current and future changes to agricultural policy may affect stocking regimes and stock levels on some suitable grouse habitats.

4.3.2 Commercial forestry

In the ROI, forestry makes up 10% of the landscape, 9% of which is primarily coniferous, with extensive conversion to short-rotation conifer plantations since the 1950s. The current total area of peat soils afforested is estimated at 43.5% of the total area afforested (301,770 ha broken down into 218,850 ha on blanket peat, 74,080 ha on Basin peat and 8,840 ha on cutaway peat). There is also a decrease in the rate of afforestation on peat, with an estimated 9,000 ha planted on peat in 1990, declining to 4,000 ha planted on peat in 2005.[43]

Current policy afforestation grants offered by the Forest Service provide for higher payments for planting of broadleaves on productive mineral soils, however other factors considered by landowners and the forest industry often determine the location and type of planting. In addition the Forest Service requires that peatland sites designated as SAC are no longer considered for afforestation grants.[25]



Forestry in the uplands *(Birdwatch Ireland)*

Bog restoration projects for raised and blanket bog under LIFE funding have been implemented by Coillte, with its current LIFE project (for raised bog restoration) running from 2011 to 2015.

4.3.3 Leisure and Tourism

Activities include hill walking, climbing, cycling, scramblers, quad bikes and game shooting. In parts of the country, i.e. near areas of high population, such as the Wicklow and Mourne mountains, trampling from outdoor activities can cause degradation of habitat along routes used. Disturbance from these activities may cause Red Grouse to avoid areas of high recreational use. There is potential for economic benefit from the management of Bórd Na Móna land for Red Grouse and tourism benefits from this. Nonetheless, Irish peatlands and their associated habitats remain sites of international importance as they support a unique diversity of flora and fauna. In general, Irish peatland habitats are varied but mainly include ling heather, bilberry, sphagnum mosses, cotton grass, sheep's fescue and mat grass. As a result of the strong association with heather, peatlands are often referred to as 'heather moors', or for the animals for which they are managed (e.g. 'grouse moors').[46]

4.4 Burning - (illegal and/or uncontrolled)

Rotational burning of heather is used as a land management tool to generate a patchwork of young and old heather which is beneficial to Red Grouse populations in providing older stands for cover and young shoots for food.[8]

While widely used on managed grouse moors in Britain, appropriate burning regimes are not widely used as a management tool in Ireland. In Ireland, the practice of burning large sections of peatlands (often carried out illegally during the bird nesting season) can lead to more serious damage to grouse habitat than intended. Aside from creating larger tracts of heather of similar heights, rather than the preferred mosaic, it can lead to potential nest losses, bracken encroachment, and damage to the underlying peat leading to erosion.

The dates for legal burning season of scrub and heather are from the 1st of September to the 28th of February (ROI) and from the 1st of September to the 15th of April (NI). Where landowners and farmers are found responsible for illegal, unauthorised, or uncontrolled burning of moorland and peatland vegetation they are liable to severe penalties being imposed on them under EU agri-schemes.



Uncontrolled burning *(Birdwatch Ireland)*

4.5 Restocking of Red Grouse

Although not officially recognised as a separate subspecies or race from *Lagopus lagopus scotica*, the Red Grouse in Ireland, often referred to as *Lagopus lagopus hibernicus* is regarded by many as important to maintain separately from *scotica*[8]. Provided that there is an existing local population, Red Grouse management projects should be encouraged to look at methods such as habitat management and predator control as a first point of call for boosting populations.

Where local extinctions have occurred, reintroduction and/or translocation of native Red Grouse may be required but only where the receiving habitat is suitable. Any reintroductions or translocations should only be carried out in accordance with best practice guidelines (i.e. Guidelines for Re-introductions produced by the International Union for Conservation of Nature (IUCN) and its Species Survival Commission).

Whilst it is recognised there are a number of projects that use non-Irish Red Grouse for restocking, it is desirable from both a genetic heritage and bio-security perspective to move towards a situation where birds are sourced from within the island of Ireland. In the first instance, this requires a sustainable stock of Irish bred birds available for translocation. Extreme care is needed to ensure that any stock is taken from healthy viable populations that can support the removal of young birds.

4.6 Disturbance

Disturbance from a wide range of sources can be damaging to Red Grouse, particularly if disturbed during severe weather and/or during sensitive times of the year, such as when eggs are being incubated or when chicks are very young. If disturbed, a brood usually scatters in flight, with the cock and hen often separating to follow different chicks. The time to regroup will vary according to number of chicks and how far they scatter but generally family groups will re-group themselves within an hour.[8]

There is growing concern over the inappropriate use of off road vehicles, such as quads and scramblers, which have the potential to cause significant disturbance, particularly during the nesting season.

4.7 Predation

Effective predator control is important for maintaining and increasing Red Grouse populations. Local projects teams should be resourced with the training and equipment for this purpose.

The legal control of vertebrate predators (e.g. corvids, foxes and mustelids) is well known to enhance populations of game[47] and indeed other endangered ground nesting birds.[18] There has been a limited amount of professional or systematic control of predators with the objective of increasing Red Grouse numbers on Irish peatlands in recent years. To engage in any predator control would require widespread consultation and education to inform all stakeholders about the reasoning, logic and motives of such a course of action.

Predator control in areas managed for Red Grouse should be focussed at a site specific level, to encourage a drop in predation levels, and to improve breeding success. However, in the case of density dependent predation, stressed populations such as those in fragmented habitats may be at greater risk, and additional predator control efforts may be required. Unnaturally high populations of foxes and crows may have arisen due to increased numbers of livestock, afforestation and the loss of our biggest predators.

4.8 Development

Peatlands have been impacted by centuries of domestic cutting for fuel, industrial extraction for electricity generation and fertilizers (after 1940) and infra-structural developments such as roads and wind farms.[48] Given that national policy promotes renewable energy, such as

wind energy with EU targets set at 20% of energy from renewable sources by 2020 (Directive 2009/28/EC), the expansion of new and existing windfarms on non-designated peatlands is likely to increase.[27] Fencing of upland areas can also impact on Red Grouse, due to the possibility of flying grouse colliding with fences[51].



Fencing can increase collision risks in Red Grouse *(Birdwatch Ireland)*

Development plans currently do not take account of Red Grouse. The Irish Wind Energy Association (IWEA) provide guidelines[49] for surveying Red Grouse, but they do not detail how wind farm projects could mitigate against any possible negative impacts on Red Grouse such as the creation of Habitat Enhancement Areas adjacent to the windfarms. Wind power is a renewable energy source and a means of reducing carbon emissions, however it is important to ensure that wind farms themselves do not damage the environment and in particular the cumulative impacts of many turbines on sensitive bird populations.[50] Wind farm developments have a huge potential for either positive and/or negative impacts on Red Grouse and upland bogs. Such developments may provide the potential for financial support for Red Grouse projects, but may impact directly on Red Grouse though habitat displacement or collision risk.

Displacement effects of wind farms on Red Grouse were found to be minimal to positive in one study, whereas other studies in Norway have highlighted evidence of collisions with wind farm masts.[51] Several peat failures on blanket bogs have been associated with wind-farm developments in recent times and this has questioned the ability of EIAs to fully assess the likely environmental impacts on bog habitats. More research into the cumulative impacts of wind farms on bird populations is needed along with a more strategic approach in terms of planning (i.e. incorporating bird sensitivity mapping).

4.9 Information gaps

A lack of information and awareness amongst the wider public about Red Grouse and their sensitivities to changes in their habitats and the effects of potential developments have probably hindered any recovery of the population up to now. Poor communication and dissemination of information about Red Grouse management projects, a lack of public awareness and the absence of a Red Grouse Species Action Plan, have done little to highlight the plight of Red Grouse in Ireland.

Due to its economic benefits to Scottish and English moorland estates and communities, Red Grouse is one of the most researched game species. Research has been ongoing since the 1850s. This research can help inform a better understanding of the population dynamics of Red Grouse in Ireland.



Red Grouse skulking through the heather *(Billy Clarke)*

4.10 Climate change

Worldwide, Grouse are a cold adapted species largely confined to higher latitudes of the western Palaearctic within arctic, subarctic, boreal and marginally into temperate zones[52], with little evidence to suggest that they are susceptible to perishing during prolonged snowfall.[8] As peatlands are sensitive ecosystems with a complex hydrology, climate, change is likely to influence Red Grouse distribution in Britain and Ireland with a predicted shift north westwards in the breeding range of Willow Grouse (and the sub species Red Grouse) by the end of the 21st Century.[53] While the threat of climate change is likely to be in the longer term, its potential impacts, particularly on a population in decline, cannot be ignored.

4.11 Unsustainable or illegal hunting of Red Grouse

Many gun clubs operate under a strict code of sustainable hunting. This species action plan recognises the role that hunters play in Red Grouse conservation. Many hunters and clubs will willingly adopt a hunting moratorium where Red Grouse numbers are threatened.

Conclusions

In many respects the major issues regarding Red Grouse management and what can be done to boost numbers are understood. However, the implementation of these management measures is another issue. The consultation required to mitigate human-wildlife conflict (with specific reference to Red Grouse) with regard to understanding the objectives of hunting organisations, conservationists, farming bodies, developers and government departments cannot be understated.[54] In Ireland we have the opportunity to progress the interests of all stakeholders by working together, provided the motives of stakeholders are true and communication is open and appropriate. The management science required for Red Grouse recovery has the potential not only to boost populations, but will also benefit our natural heritage, increase tourism, economic growth and quality of life for outdoor enthusiasts in Ireland. Like the implementation of many applied scientific disciplines, successful Red Grouse management requires excellent science, excellent communication and excellent understanding.[55]

5

Framework for action (completion 2013 to 2023)

5.1 Goals

- Maintain and enhance existing populations through appropriate management. Increase the amount of peatland and moorland under active grouse management.
- To improve awareness of the Red Grouse in Ireland and the factors affecting its numbers and range amongst regulatory authorities, landowners and the wider public.
- To stop the decline and increase the population of Red Grouse in Ireland to a minimum of 2,500 breeding pairs by 2018, through the maintenance and enhancement of existing suitable habitats.
- Strive to maintain and potentially expand the current range of Red Grouse as detailed in the most recent Red Grouse Surveys in Ireland.[2,3]

5.2 Objectives of the plan

1. Preserve and maintain sufficient area and quality of habitat for Red Grouse.
2. **Surveying** - Standardise a programme of monitoring Red Grouse at a local level and at a national scale.
3. Apply existing and emerging research to develop long-term goals for development of Red Grouse and its habitats.
4. **Red Grouse policy:** Ensure Red Grouse conservation policy is integrated into ongoing policy and land use strategy.
5. **Local support and management** – Encourage and support local groups who are interested and have control over the landscape to self-organise, i.e. assessing populations, managing habitat (grazing/burning/cutting) and the legal control of predators.
6. **Raising public awareness** - Create a forum involving all clubs, groups and interested organisations such as gun, game, setter/pointer clubs etc., with a view to communicating advice, best practice, and support.



5.3 Actions

1. Preserve and maintain sufficient area and quality of habitat for Red Grouse.

1.1 Promote the re-establishment of habitat corridors where opportunities arise and maintain existing flight corridors connecting isolated populations. Action: NARGC, BWI, CAI, IFAC, IRGA, NPWS.

1.2 Promote the inclusion of Red Grouse as key feature in relevant land use plans. Action: NPWS, BWI, NARGC, IRGA, CAI, IFAC.

1.3 Promote heather and moorland management for Red Grouse, as an option in future CAP reform incentives. Action: NPWS, CAI, IFAC, BWI, NARGC, IRGA.

1.4 Promote awareness of the current difficulties with the legal burning season and the disparities between NI and the ROI, and lobby for potential legislative change. Action: CAI, GET, NARGC, IFAC, IRGA.

2. Monitoring of populations and habitats

2.1 'Standardise a population survey methodology across ROI and NI so that local, regional and national population estimates are directly comparable. Action: NPWS, CAI, SPC, BWI, NARGC, IFAC, IKC, IRGA.

2.2 Compile annual monitoring results. Action: NPWS, CAI, NARGC, IRGS, SPC.

2.3 Compile annual spring and autumn results. Action: NPWS, SPC, CAI, NARGC, IRGA.

3. Research and development

3.1 Investigate the potential impacts of heather burning on suitable peatland habitats in March in the ROI on ground nesting birds. Action: 3rd Lvl, BWI, NARGC, CAI, IGPCT, IFAC, IKC, SPC, IRGA.

3.2 Review, in liaison with landowners and grouse project groups, the impact of Red Grouse habitat management on peatland habitats and grazing systems. Action: CAI, BWI, NARGC, 3rd Lvl, IRGA, NPWS.

3.3 Review the impact of Red Grouse habitat management with local grouse project groups, on Red Grouse populations. Action: NARGC, 3rd Lvl, IRGA, NPWS, CAI, IFAC, IKC, SPC.

3.4 Study, in conjunction with local project groups, the dispersal, annual survival and breeding productivity of Red Grouse. Action: IRGA, NPWS, NARGC, CAI, BWI,3rd Lvl, SPC, IKC.

3.5 Conduct research into the cumulative impacts of windfarm development on Red Grouse. Action: IRGA, NPWS, BWI, NARGC, CAI, 3rd Lvl. IFAC.

3.6 Monitor and experiment, with grit usage patterns on raised bog sites. Action: IRGA, NPWS, NARGC, CAI, IFAC, 3rd Lvl.

3.7 Collate records and examine impacts of heather beetle in Ireland. Action: IRGA, NPWS, NARGC, CAI, IFAC, BWI, 3rd Lvl.

3.8 Examine the incidence and impact of disease on Red Grouse in Ireland. Action: 3rd Lvl, NPWS, CAI, NARGC, IRGA.

3.9 Review all existing Red Grouse research and supplement this with further research as required and as outlined below. Action: All.

4. Red Grouse policy

4.1 Promote the development of Red Grouse population resource centres in Ireland to support the propagation of Red Grouse, for providing surplus stock that can be used for translocations/reintroductions into smaller managed populations/extinct sites (specifically where predator control, habitat management, monitoring and other recommended guidelines are in place). Action: NPWS, IGPCT, BWI, NARGC, CAI, IRGA, IFACS, 3rd Lvl.

4.2 Encourage communication at a local level in cross border areas in relation to Red Grouse. Action: NPWS, NARGC, CAI, IRGA.

4.3 Promote the improvement of ecological conditions for Red Grouse and enhanced habitat management under pillar 1 and pillar 2 of CAP reform 2014. Action: NPWS, NARGC,BWI, IFACS, CAI, IRGA, 3rd Lvl.

4.4 Continue to promote the habitat requirements of Red Grouse at site level during bog restoration projects. Action: All.

4.5 Seek legislative change to allow licences for controlled heather burning for specific Red Grouse projects in order to examine potential impacts on other nature conservation interests. Action: CAI, NARGC, IRGA, IFAC.

5. Local support and management

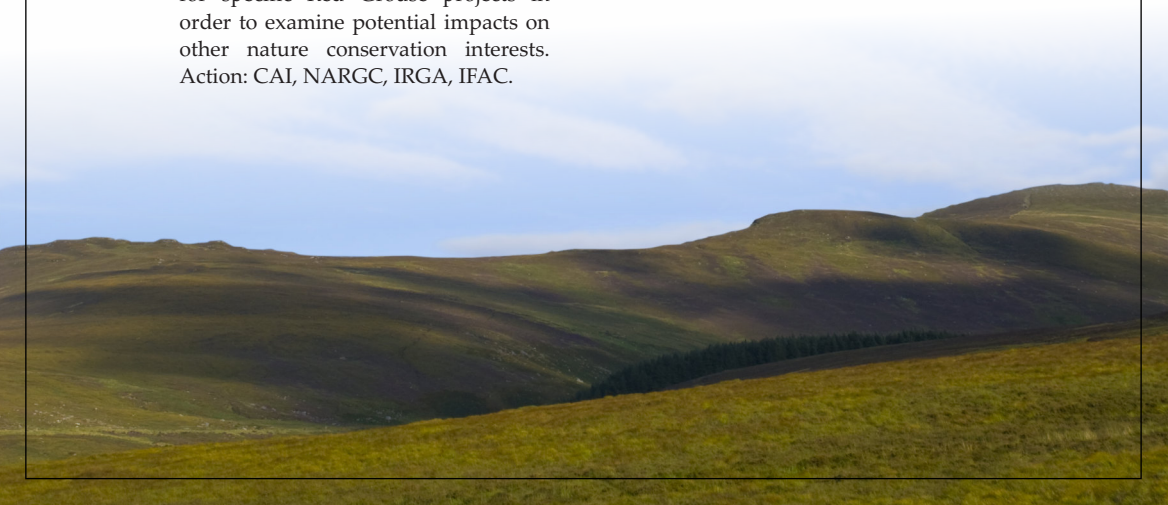
5.1 Encourage research and development on devising and implementing appropriate actions on grouse moors by supporting and encourage local grouse project teams into action in Ireland. Action: NPWS, IRGA, NARGC, CAI, IKC, IFAC, SPC.

5.2 Prioritise legal predator control and heather management to increase Red Grouse populations. Action: NPWS, NARGC, CAI, IRGA, IFACS, IGPCT, SPC.

5.3 Support the monitoring and management of sustainable harvesting at a local level. Action: NPWS, NARGC, IRGA, IFACS, CAI, IKC, SPC.

5.4 Endeavour to establish the carrying capacity of varying sites/ habitats for Red Grouse, taking into consideration that every site has many variables and different constraints. Action: All.

5.5 Prepare Best Practice Guidelines for the Translocation of Red Grouse for the purposes of local reintroductions. (With due regard to the Guidelines for Re-introductions produced by the IUCN and its Species Survival Commission (SSC). Action: All.



6. Raising public awareness

6.1 Interpretation and Public awareness: At both local and national levels communicate with and educate the general public, land owners and users on Red Grouse and the importance of peatlands. Action: NPWS, IRGA, NARGC, CAI, IFACS, BWI.

6.2 Develop promotional/educational material on Red Grouse (in all relevant languages) in conjunction with other partners. Action: All.

6.3 Review the Red Grouse Species Action Plan on a regular basis, and where necessary amend/update appropriately. Action: All.



Abbreviations:

3rd Lvl	Third Level Institutions
BWI	BirdWatch Ireland
BNM	Bórd Na Móna
CAI	Countryside Alliance Ireland
DAFM	Department of Agriculture, Food and the Marine
GET	Golden Eagle Trust
IFAC	IFA Countryside
IGGCC	Irish Grouse Ground Conservation Committee
IGPCT	Irish Grey Partridge Conservation Trust
IKC	Irish Kennel Club
IPCC	Irish Peatland Conservation Council
IRGA	Irish Red Grouse Association
NARGC	National Association of Regional Game Councils
NI	Northern Ireland
NPWS	National Parks and Wildlife Service
ROI	Republic of Ireland
SPC	Setter and Pointer Clubs
TEAGASC	The Irish Agriculture and Food Development Authority

Life cycle of heather

Heather is obviously key to the composition of heather moorland and knowledge of the life cycle of the heather plant is important in understanding the process that leads to the formation of heather moorland and to some extent raised bog and blanket bog. Heather plants go through a life cycle involving four main growth phases over a 25-40 year period. This cycle consists of four distinct age classes known as: pioneer, mature, building and degenerate. The pioneer phase lasts 5-6 years, from seedling development until the plant has developed into a fully formed bush. In this phase, heather cover is small and other plant species reach their greatest abundance. The building phase lasts approximately 15 years, when the bush-like form is well-established. In the building phase, heather excludes all other plant species.[56] Greatest growth occurs in the building phase, after which production declines. The mature phase continues until the plant is about 25 years old. Growth takes place much more in the building phase, although gradually it becomes less vigorous and towards the end of the phase, the centre of the bush begins to open and branches grow on the soil surface. By the mature phase, mosses colonise the soil surface because of increased humidity beneath the closed canopy.[57] As heather becomes woody and tall, its ability to produce new shoots declines. This is known as the degenerate phase which eventually leads to death after about 30 years. During this stage, heather is invaded by more competitive grasses, gorse and scrub. The nutrient value of the plants is also seriously reduced.[57]

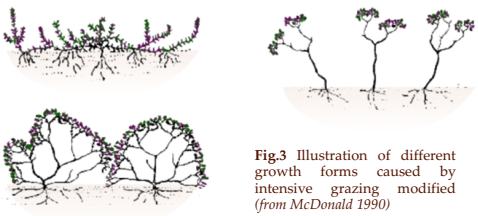
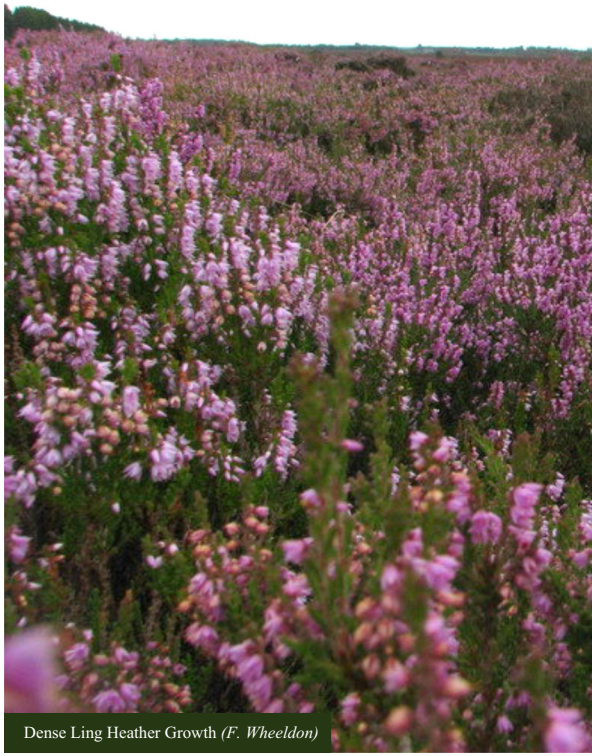


Fig.3 Illustration of different growth forms caused by intensive grazing modified *(from McDonald 1990)*



Dense Ling Heather Growth *(F. Wheeldon)*

Determination of heather growth

Heather is known to be especially sensitive to grazing. Studies in Britain have shown a major decrease in heather cover over the past century.[57] Much of this reduction in heather vegetation is thought to have been caused by increased grazing pressure and other land management practices.[57] Monitoring of heather damage can be used to determine whether land-use practices such as grazing is having a detrimental effect on the vegetation. It is recognised that controlled burning (every 10-20 years) and low intensity grazing are traditional management techniques aimed at maintaining the cover of heather. In some situations such 'controlled damage and disturbance' may be essential for the continued existence of heather-dominated vegetation which is free from extensive invasion by shrubs and trees.[57]

There are three distinct growth forms caused by high intensities (but sub-lethal) of grazing that are easily recognisable in the field; 'carpet' 'topiary' and 'drumstick'. See *Figure 3* for illustration of these different growth forms. 'Carpet' heather is found where sustained heavy grazing on seedlings produces a dense mat-like growth form. 'Carpet' forms of heather can occur in coastal situations, even when browsing is not heavy. Bell Heather may also exhibit this growth form. 'Topiary' heather occurs when persistent heavy grazing on older, branched plants may produce heather plants with dense, compact canopies, in which the size of bushes is considerably reduced. Note: in wind-pruned vegetation, this may be difficult to separate and other indicators of overgrazing, such as uprooted Ling Heather should be looked for. Prolonged heavy grazing on mature plants may also produce 'drumstick' or 'mop' heather bushes in which the heather canopy is reduced to small, compact masses of intertwined and contorted shoots on the ends of scattered long, bare stems. Note that tall drumstick like heather can occur on wet heaths when browsing is not heavy. This can be checked by looking for browsed shoots and contorted shoot growth.

Irish Peatlands

Currently, peatland covers 14% of Ireland[58] and is generally found in areas of high rainfall under conditions of poor drainage. There are three main types of peatland associated with Red Grouse in Ireland: upland blanket bog, lowland (or oceanic) bog and raised bog. In the west, because of the wet climate, blanket bog occurs down to sea level; this explains why low lying bog is also referred to as oceanic bog. Blanket bog covers both upland blanket bog (>150 m above sea level) and lowland blanket bog (<150 m a.s.l.) with montane peat (referred to as mountain blanket bog) occurring in areas above 300 m (a.s.l.).The extent of each type is controlled to a degree by rainfall and elevation. Upland blanket bog covers large expanses of most mountainous areas.

Raised bogs are commonly found in the Midlands and are so called because of their growth above the level of the horizontal water table.[59] Raised peatlands originate as a body of open water that becomes filled with peat. Over millennia the peat accumulates, often with the formation of a fen, until it builds a raised dome or mound above the level of the surrounding land.[31]

In the course of history, peatlands have shaped Ireland's landscape, influencing rural economy and culture, settlement distribution and communications.[60] In many cases, peatlands have evolved, indeed sometimes originated, in close association with land use systems such as wide-scale deforestation that started around 2000 BC by Mesolithic hunter-gatherers.[61] During this time, tree growth was kept at bay by grazers and by deliberate fire setting.[46] In the absence of management or grazing, it is likely that heather moorland would change to scrub and forest over time.

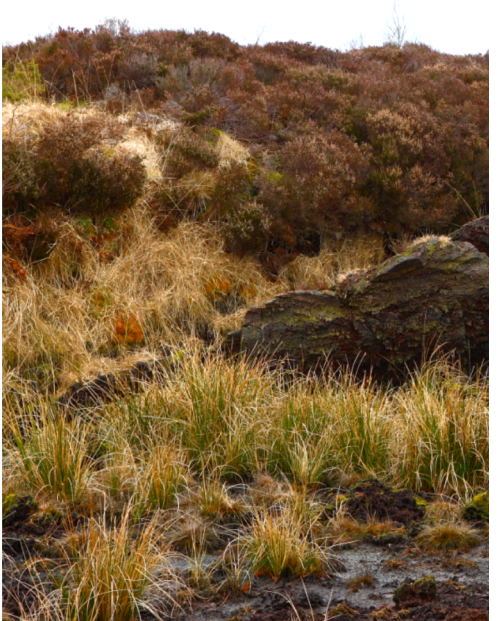


Table 1. Details of Red Grouse projects submitted to the SAP committee.

	County	Project Name	Habitat type	Size (ha)	Designation	Location
1	Cavan/ Fermanagh	West Cavan Grouse Association	UBB	2,025	NHA	Slieve Rushen
2	Cavan/ Fermanagh	West Cavan Grouse Association	UBBDH WH	6,070	SAC	Cuilcagh-Ben Brack
3	Cork	Dunmanway Red Grouse project	UBB	1600	None	Shegha Mountain
4	Cork	Muskerry Group	UBB	610	SAC, SPA	Derrynasaggart Mts
5	Donegal/ Femanagh	Breezy Conservation Group	UBB	486	SPA	Breezy-Congo Mts
6	Donegal	Cró na mBraonáin habitat and grouse sanctuary	UBB	1000	none	Fintown
7	Donegal	Glenveagh Project	UBBWH DH	1,215	SPA, SAC.	Slieve Snaght Mountain
8	Galway	Connemara Red Grouse Association		808		Clifden Moor
9	Galway	Kilcreest Grouse project	UBB	1416	SAC, SPA	Kilchreest Moor
10	Galway	Mountbellew-Moylough Red Grouse project	RB	800	SAC	Carrownagappul Bog
11	Galway	Moyglass Grouse Group	UBB		NHA, SPA	Woodford
12	Galway	West Connemara Grouse project	LBB WH DH	2,035	SAC	Glenaruid Mountain
13	Kerry	Sillahertane Grouse project	UBB	607	NHA	Grousemount Hill
14	Kildare	Kildare Game Council	RB	2,025	None	Allenwood
15	Kildare	Kildare Game Council	RB	2000	None	Lullymore
16	Kildare	Kildare Wildlife Trust		245		Monasterevin
17	Laois/ Offaly	IAGHC/Erril Gun Club				Errill Bog
18	Laois/ Offaly	Slieve Blooms Nature Reserve Red Grouse project	UBB	2300	SAC, SPA	Slieve Blooms
19	Leitrim	Boleybrack Red Grouse habitat management project	UBBWH DH	900	SAC	Glenfarne
20	Leitrim	Mohill Gun Clun Red Grouse project	RB	890	NHA	Mohill, Barnacoole
21	Leitrim	Sliabh an Iarainn Red Grouse project	UBB	700	SAC	Drumshanbo
22	Louth	Jenkinstown Grouse project		405		Cooley Mts
23	Mayo	Kiltane/Ballycroy Red Grouse project	LBB	1117	None	Ballycroy, Bangor
24	Mayo	Mulrany Grouse project		3,645		Burn and Bing Hills
25	Monaghan	Slieve Beagh	UBB	384	NHA,	Slieve Beagh
26	Roscommon	Ballydangan Bog Red Grouse project	RB	700	None	Ballydangan Bog
27	Tipperary	Knockmealdown Red Grouse conservation project	DH	1,215	None	Knockmealdown
28	Tipperary	Cnoc Bawn project	UBBDH	1,095	SAC	Galtee Mountain
29	Tipperary	Ormonde Grouse project	WH DH	245	SAC, SPA	Mucklin,and Round Hill
30	Tipperary	Ormonde Grouse project	UBBWH	485	SAC	Keepers Hill
31	Waterford	Nire Valley G.C., Four Mile Water G.C.			None	Commeraghs
32	Wexford	Wexford Regional Game Council Grouse project	UBB	2500	SPA, SAC	Blackstairs
33	Wicklow	Ballinacor Estate		1,416	None	Ballinacor Hills
34	Wicklow	Keadeen Grouse project		607	None	Keadeen Mountain
35	Wicklow	Newpark project	UBBWH DH	809	SAC	Sugarloaf, Lowbawn,
36	Wicklow	Wicklow Mountains National Park Red Grouse project	WH DH	353	SAC, SPA	Djouce Mountain

DH – Dry Heath
LBB – Lowland Blanket Bog
RB – Raised Bog
UBB – Upland Blanket Bog
WH – Wet Heath
IAGHC – Irish Association of Game Hunting and Conservation
ABNG– Ardfinnan, Ballybawn, Newcastle and Grange Gun Club

Map of Red Grouse projects listed in Appendix 2

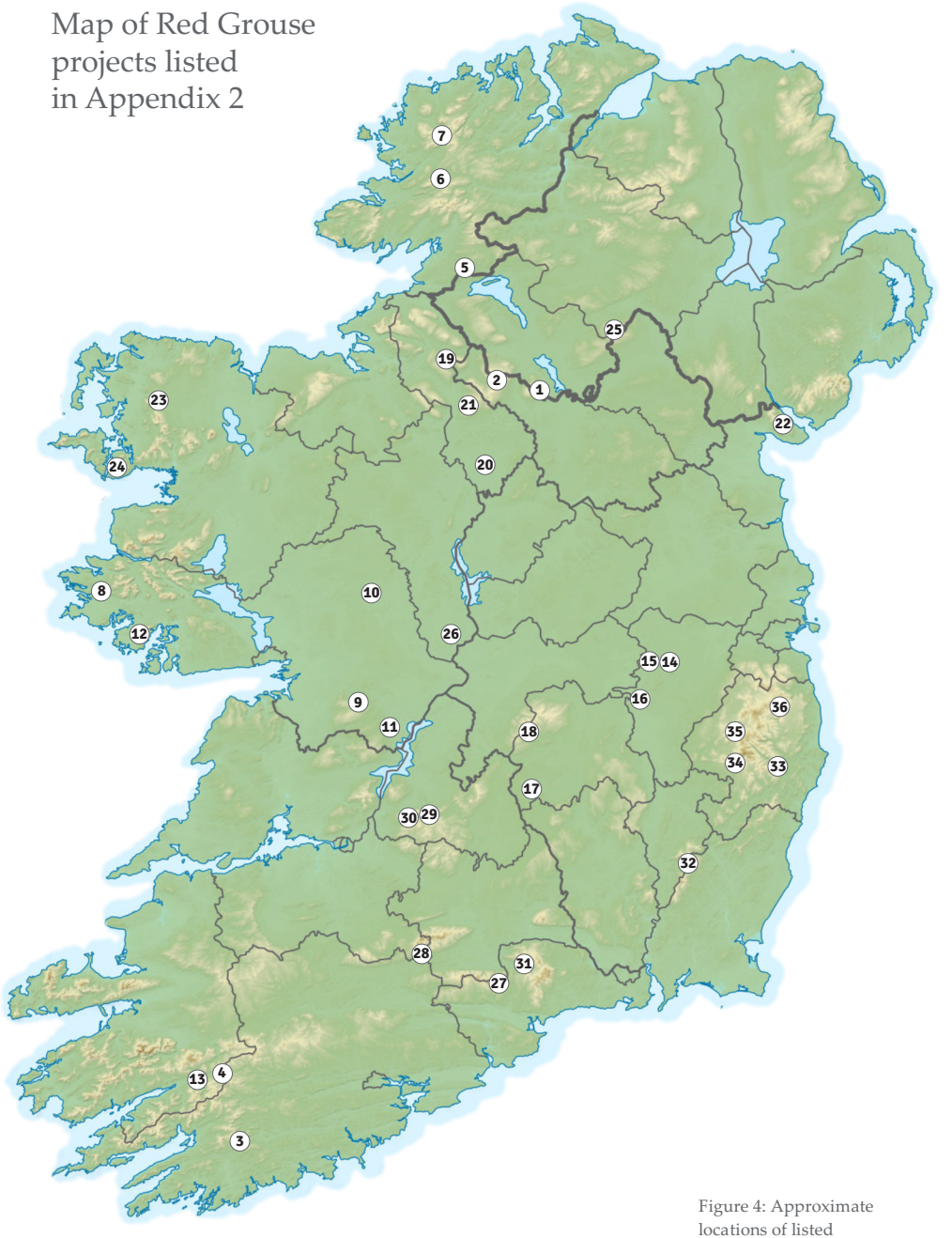


Figure 4: Approximate locations of listed Red Grouse Projects

Table 2: Summary of challenges: Red Grouse conservation and management (Section 4)

Impacts have been rated as follows: Critical, High, Medium, Low, Local, or Unknown.

Section	Aspect	Impact	Rating
4.1	Policy and Legislation	No current policy/focus on Red Grouse	Critical
4.2	Habitat and Fragmentation	Significant impact on midlands Raised Bogs	High
4.3.1	Habitat loss and Modification: Agriculture	Undergrazing and overgrazing can both affect quality of habitat for Red Grouse	High
4.3.2	Habitat loss and Modification: Commercial Forestry	Afforestation affects most peatlands throughout Ireland	High
4.3.3	Habitat loss and Modification: Leisure and Tourism	Possibly some impact from recreational off road vehicles in high use areas	Local
4.4	Burning (illegal/uncontrolled)	Illegal and uncontrolled burning has potential to cause significant damage and wipe out local populations	High
4.5	Importation and Release of Red Grouse from Britain to Ireland	Use of native stock preferred	Medium
4.6	Disturbance	As per 3.3 above, may be a problem if disturbance occurs during nesting time	Local
4.7	Predation	Probably the most important limiting factor for Red Grouse projects	High
4.8	Land Development	Developments, e.g. wind farms likely to increase in future. Cumulative Impacts need to be determined and more strategic planning required	Medium
4.9	Information Gaps	As per 1 above, no current policy/focus on Red Grouse, and v. little public awareness	Critical
4.10	Climate Change	Predicted NW shift in breeding range[53]	Medium
4.11	Unsustainable/illegal Red Grouse harvesting	Illegal and unsustainable harvesting of Red Grouse is a challenge to the management of projects around the country	Medium

Note: Ratings listed above were discussed and agreed by Species Action Plan committee members at a meeting on the 3rd of March 2012

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