Ecological Baseline Survey

prepared for Ballybeg

as part of the Commonage Management Plan for SUAS

Final Report

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1. Introduction

This commonage is located on the slopes of Black Hill as shown on **Figure 1** below. The commonage extends from 180m to 397m on the summit of Black Hill. Lands within the commonage are under common ownership by a group of local landowners. The members of the commonage group are: John Mallick, Anita Dunne, Peter Behan, Olive Byrne, Noel Tyrell, John Hall, Tom Byrne and Charlie Hogan.

The lands are not included within the boundaries of any Natura 2000 site (SAC/SPA).

Plate 1. Looking west across the commonage near the western boundary with private plantation where remnants of dry heath (Bell heather, ling, bilberry and western gorse) are found in acid grassland.

A tributary of the Ballycumber South Stream rises within the commonage on the north-western boundary of the commonage adjoining a forestry plantation and flows north eastwards to join a tributary of the Derry Water, which is then joined by the Askanagap Stream, upstream of Ballinglen Bridge. The Ballycumber Windfarm has been recently developed on the adjacent forested lands. The Wicklow Way passes through the commonage.

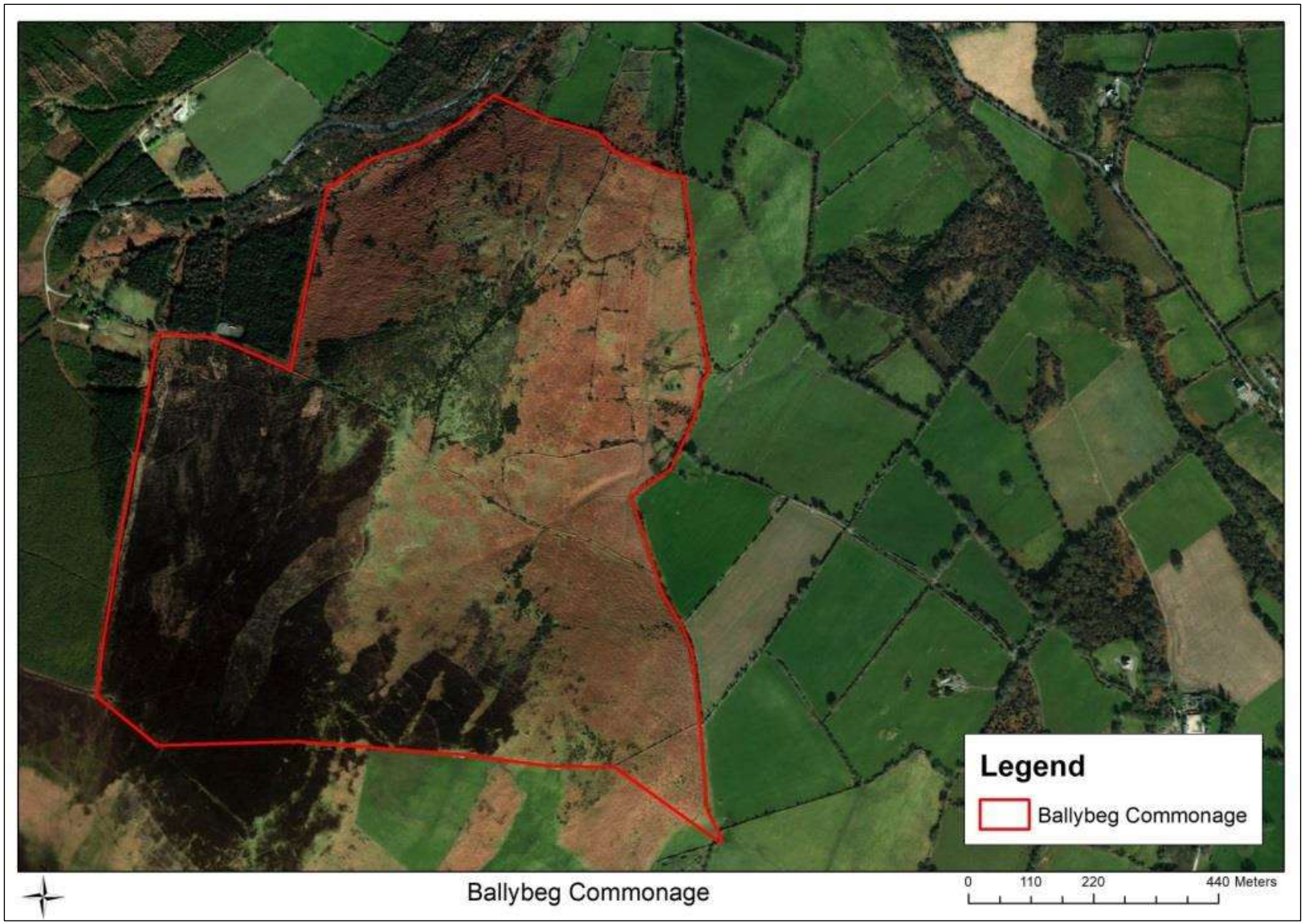

Figure 1. Ballybeg Commonage.

This area is underlain by Ordovician metasediments (both schistose and granitic rocks), which consist of Slate, schist & minor greywacke. The soils of the commonage are described as the Borrisoleigh Association consisting of fine loamy soils over mudstone, shale or slate bedrock. The soils over the majority of the upper slopes of the commonage are shallow blanket peats of various depths.

The commonage originally formed part of the Coolattin Estate, which was divided up by the land commission in 1936. This commonage was assessed as part of the joint NPWS/Department of Agriculture commonage framework plans, which were drawn up in the early 2000s. This assessment identified that the commonage was generally undamaged but that some destocking (0.183%) was required to allow recovery in some areas which had been affected by burning. The habitats within the commonage were roughly classified as dry heath, upland acid grassland and bracken or a mosaic of each.

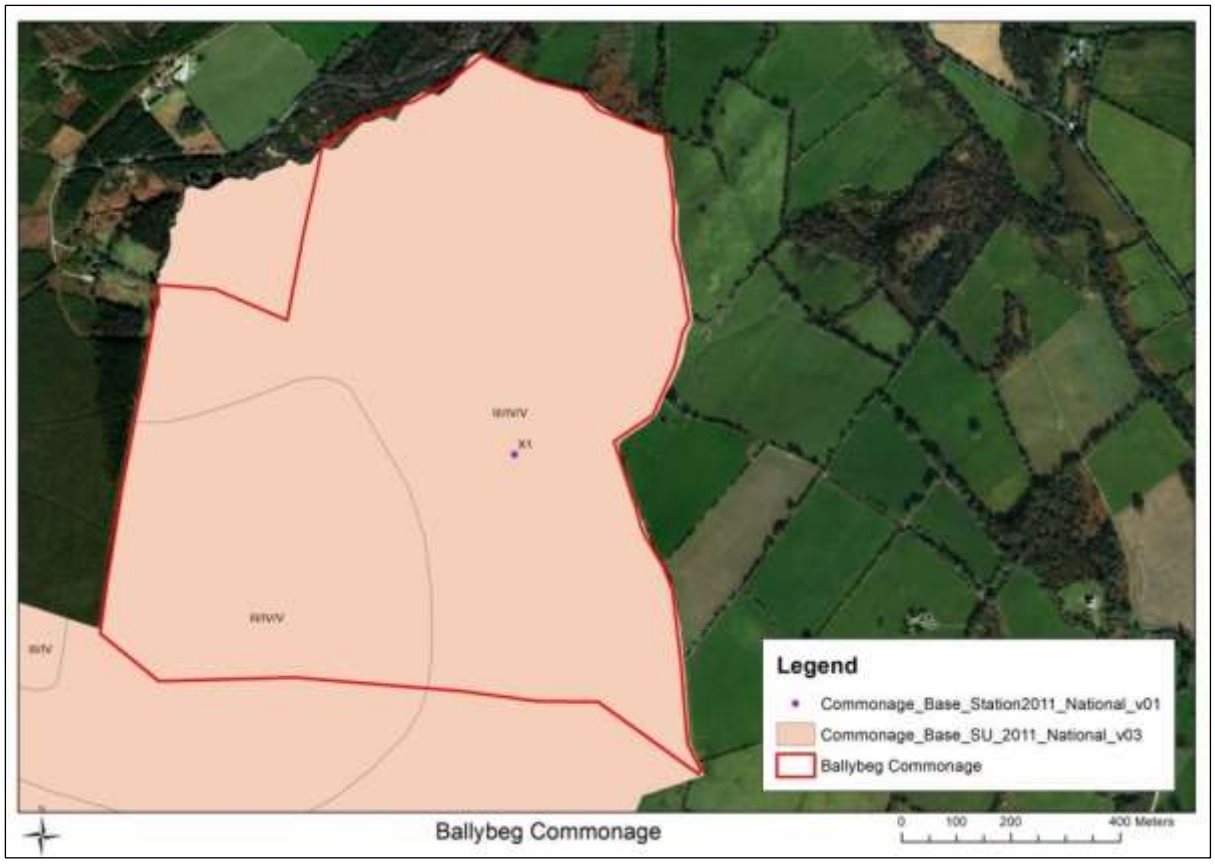

Figure 2. Commonage Framework Plan Map (2001).

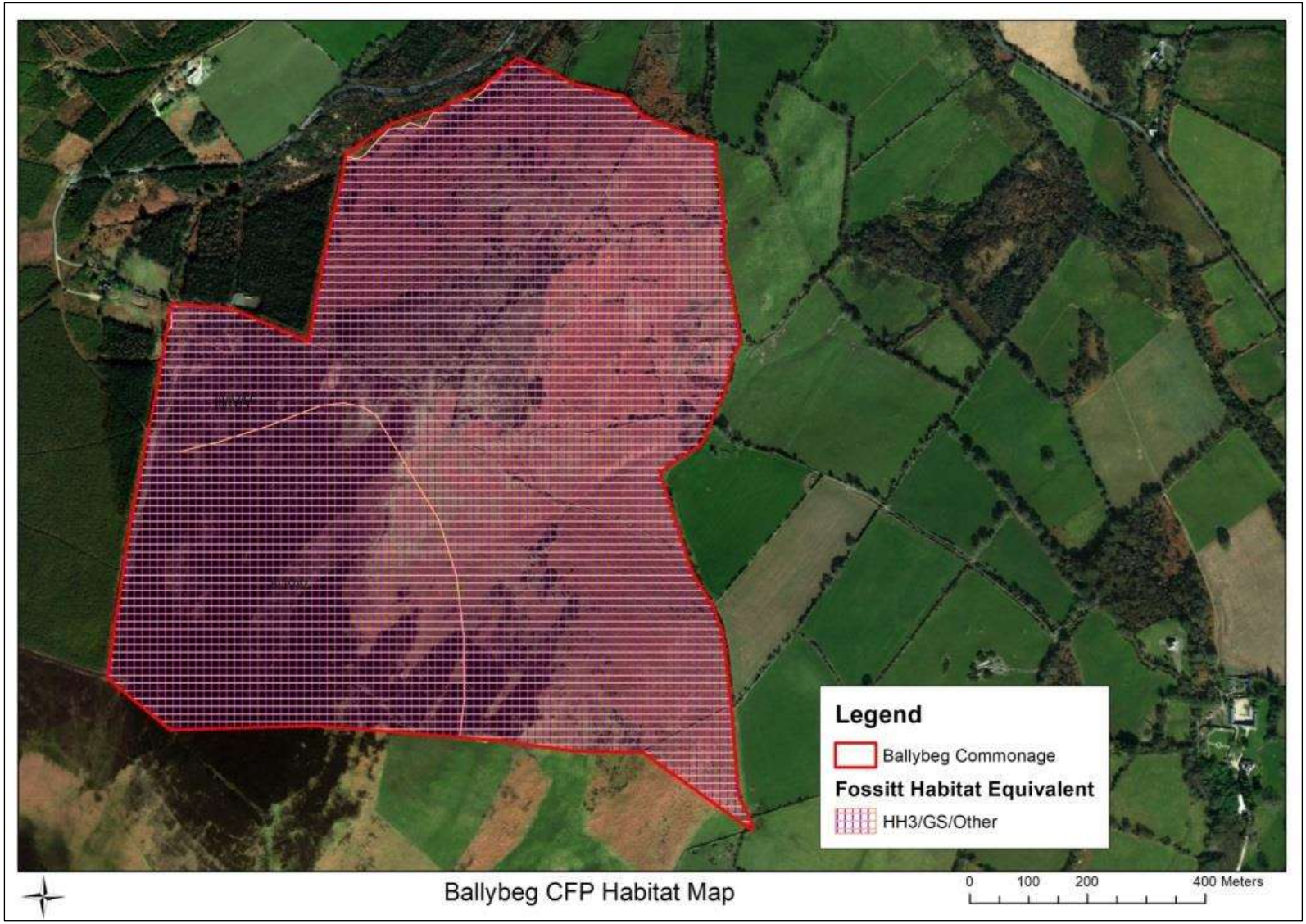

Figure 3. Commonage Framework Plan Indicative Habitat Map.

2. Receiving Environment - 2018

2.1 Habitats Present

Under Fossitt's (2000) habitat classification scheme the dominant habitat within the upper slopes of Ballybeg commonage is that of **Dry Heath HH1** (which corresponds to the Annex I habitat **4030 Dry Heath**). This habitat is dominated by ling heather (*Calluna vulgaris*) with occasional bell heather (*Erica cinerea*) and less frequently bilberry (*Vaccinium myrtillus*). This habitat is principally found in a mosaic with **Wet Heath HH3** (which corresponds to the Annex I habitat **4010 Northern Atlantic Wet Heaths with *Erica tetralix***). Within the areas of **Wet Heath HH3** cross leaved heath (*Erica tetralix*), heath rush (*Juncus squarrosus*), green ribbed sedge (*Carex binervis*), sharp flowered rush (*Juncus acutiflorus*) and purple moor-grass (*Molinia caerulea*) are common.

Plate 2. The upper slopes of Ballybeg are dominated by a mosaic of wet and dry heath. These slopes were burnt in an uncontrolled fire in May 2012, the extent of which can be seen in this photo.

On the lower slopes of the hill the habitats are dominated by a mosaic of **Acid Grassland GS3** and **Dense Bracken HD1.** Sheep regularly forage and congregate in this sheltered part of the hill. Species typically recorded in the areas of **acid grassland GS3** on the site include sheep's fescue (*Festuca ovina*), heath bedstraw (*Galium saxatile*), common bent (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*), tormentil (*Potentilla erecta*), mat grass (*Nardus stricta*), sheep's sorrel (*Rumex acetosella*) and the moss *Rhytidiadelphus squarrosus*. There are remnant stands of ling heather and bilberry (*Vaccinium myrtillus*) on the middle slopes of the commonage, which are decreasing as a result of browsing pressure. In some areas bluebells (*Hyacinthoides non-scriptus*) are common beneath the bracken.

An area of dense gorse (*Ulex europaeus* and *Ulex gallii*) **Scrub WS3** is present in the northern part of the site where it forms a mosaic with **Acid Grassland GS3** and **Dense Bracken HD1.**

There has been recent burning on the site as evidenced by the condition of the vegetation and the satellite imagery as presented in **Appendix 1**.

A series of enclosed fields with dry **Stone Walls BL1** and stone faced **Earthen Banks BL2** are found on the lower slopes of the commonage. These areas are dominated by **Acid Grassland GS3** and **Dense Bracken HD1.** Some of these fields contain lazy beds dating from the famine and a ring fort with scattered mature hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*) is present. The Wicklow Way walking track passes through the lower part of the commonage**.**

On the lower slopes of the commonage along the eastern edge and northern slope are a series of flushed areas which correspond to the habitat **Poor Fen and Flush PF2** while in other areas rushes dominate locally**.** Flushed areas in the site have several species of sedge (carnation sedge (*Carex panicea*), common sedge (*Carex nigra*), glaucous sedge (*Carex flacca*), star sedge (*Carex echinata*), green ribbed sedge (*Carex binervis*) and common yellow sedge (*Carex demissa*)), along with species such as bog asphodel (*Narthecium ossifragum*), lesser spearwort (*Ranunculus flammula*), sharp flowered rush (*Juncus acutiflorus*), marsh lousewort (*Pedicularis palustris*), tormentil (*Potentilla erecta*), marsh thistle (*Cirsium palustris*), marsh violet (*Viola palustris*), marsh pennywort (*Hydrocotyle vulgaris*), bog cottons (*Eriophorum angustifolium*, *E. vaginatum*), bog pondweed (*Potamogeton polygonifolius*), marsh St. John's-wort (*Hypericum elodes*), heath milkwort (*Polygala serpyllifolia*) and Sphagnum mosses (*Sphagnum capillifolium* and *S. papillosum*). These are fragile habitats, whose hydrology can be easily damaged by poaching and overgrazing or machinery tracking.

The lower slopes of the commonage are dominated by **Dense Bracken HD1** in several locations which later in the summer completely obscures the old lazy beds in the north eastern part of the site.

The tributary of the Ballycumber South Stream is described as an **Eroding Upland River (FW1)** and has little in the way of any instream vegetation.

Plate 3. Areas of gorse scrub.

The Annex I habitats present within the commonage include:

- 4010 Northern Atlantic Wet Heaths with *Erica tetralix*
- 4030 Dry Heath

Plate 4. Looking downslope from the upper slopes, which are dominated by wet heath/dry heath towards areas of gorse and a mosaic of acid grassland/dense bracken on the middle slopes.

Plate 5. The ring fort and enclosed fields can be seen on the lower slopes of the commonage.

Plate 6. Sheep grazing in the middle, sheltered portion of the commonage. The open areas of acid grassland are maintained by grazing and trampling but bracken has encroached in many areas.

Plate 7. Ash and hawthorn on the ring fort.

Plate 8. Species rich flushed areas at the foot of the eastern slopes.

Plate 9. Stone walls and stone faced banks are a cultural heritage feature of the commonage.

Plate 10. Dense bracken.

Plate 11. Dense bracken cover, looking south across the lower slopes.

Plate 12. A mosaic of heath, gorse, dense bracken and grassland on Black Mountain.

Plate 13. Looking down at the agriculturally improved fields adjoining the commonage.

Plate 14. Poor fen and flush on the northern slopes.

2.2 Rare Plants

There are no records of any rare, scarce or protected plant species from the Ballybeg commonage or from the 10km square in which the commonage is located (T07) (NPWS online databases). The presence of bluebells below the bracken is indicative of former woodland extent.

2.3 Rare Fauna

A Hen Harrier (*Circus cyaneus*) was recorded here during the field surveys conducted for the wintering Bird Atlas[1] and Red Grouse (*Lagopus lagopus*) were also recorded (pers. obs.). The Red Kite (*Milvus milvus*) has also been reported from the area (Brian Madden, pers. comm). Buzzard (*Buteo buteo*) are also frequent. Species typically encountered on the commonage during site visits included Skylark (*Alauda arvensis*), Snipe (*Gallinago gallinago*), Meadow Pipit (*Anthus pratensis*), Stonechat (*Saxicola torquata*), Wren (*Troglodytes troglodytes*), Blackbird (*Turdus merula*), Rook (*Corvus frugilegus*), Hooded Crow (*Corvus corone cornix*) and Raven (*Corvus corax*).

The Irish hare (*Lepus timidus* subsp. *hibernicus*) would be expected and deer (red/Sika hybrids) graze the commonage. Other faunal records reported/recorded during this survey include Fox (*Vulpes vulpes*), Common Frog (*Rana temporaria*) and Common Lizard (*Zootoca vivipara*).

This commonage would previously have been managed for Red Grouse shooting during the times of the Fitzwilliam (Coolattin) Estate. A former shooting lodge, known as Grouse Lodge, is located to the west of the commonage.

[1] Balmer, D., Gillings, S., Caffrey, B., Swann, B. Downie, I. and R. Fuller (2013). Bird Atlas 2007-11: The Breeding and Wintering Birds of Britain and Ireland. British Trust for Ornithology and BirdWatch Ireland.

The marsh fritillary butterfly (*Euphydryas aurinia*) is the only insect species in Ireland, which is listed under Annex II of the EU Habitats Directive, which means that all member states are obliged to designate special areas of conservation for the species. This butterfly relies solely on the devil's-bit scabious (*Succisa pratensis*) as it's food plant and the female adult butterfly lays eggs on the underside of the leaf of the devil's-bit plant after emergence in May. The larvae develop in early to mid-June and spin a communal web at the base of the plant. They then forage on the leaves of the devil's-bit plant as they develop through a series of instars. By August/September the larval webs are relatively conspicuous and the larvae then form a waterproof web at the base of the plant in which they hibernate for the winter. During the spring they emerge as distinctive black caterpillars to bask in the sunshine before dispersing to form an individual pupa at the end of April. The marsh fritillary adults are on the wing from about the end of the first week of May to late June or early July, with maximum numbers in late May and early June. Areas of suitable habitat for marsh fritillary require a good abundance of their food plant the devil's-bit scabious, coupled with an uneven patchwork of short and long vegetation which is typically created by grazing. This is because the butterflies require a varied habitat structure: basking sites, supplies of nectar, roosting area, etc. and appropriate conditions for the plant itself.

There is a known breeding site for the marsh fritillary butterfly from an area of wet heath at the foot of Ballymanus Hill near Askanagap (Faith Wilson, pers. obs. 2011). This population was the subject of a detailed monitoring survey conducted for National Parks and Wildlife Service in 2012[2]. There does not appear to be any suitable habitat for breeding marsh fritillary butterfly within the commonage but additional surveys will be conducted during the summer months to determine same.

2.4 Fisheries and Water Quality

The commonage is located within the Eastern River Basin District within the Ovoca-Vartry catchment (10) and the DerryWater Sub Catchment (10).

A tributary of the Ballycumber South Stream (IE_EA_10D020600 Ballycumber South) rises within the commonage on the north-western boundary of the commonage adjoining a forestry plantation and flows north eastwards to join a tributary of the Derry Water, which is then joined by the Askanagap Stream, upstream of Ballinglen Bridge. This tributary of the Derry Water River then joins the main channel of the Derry Water, which flows north easterly towards Aughrim Village.

Recent water quality monitoring on the Derry Water by the EPA/Wicklow County Council at Ballinglen Bridge immediately downstream of the commonage indicates that the River at this location is currently assigned a Q value of 4.5, which has declined from the 1990s and early 2000s when Q values of 5 were recorded (see **Table 2.4** below). The Derry Water (and its tributary within the commonage) was deemed a 'Moderate Status' watercourse in 2007 – 2009 and showed some recovery since then and was assessed as 'Good Status' in 2010 – 2012 and 2012 - 2015.

Table 2.4. Water Quality values for the Derry Water at Ballinglen Bridge (1990 – 2015).

Water Quality Monitoring Results								
1990	**1994**	**1997**	**2000**	**2003**	**2006**	**2009**	**2012**	**2015**
5.0	5.0	4.5	4.5	5.0	4.5	5.0	4.5	4.5

The Ow/ Derry Water, Aughrim River catchment is an important salmonid system, with excellent stocks of Brown Trout (*Salmo trutta*), Sea Trout (*Salmo trutta* morpha *trutta*) and Atlantic Salmon (*Salmo salar*). The freshwater pearl mussel (*Margaritifera margaritifera*) is a freshwater mollusc, which is listed under Annex II of the EU Habitats Directive (92/43/EEC). There are records of freshwater pearl mussel in the Aughrim River main channel. The Aughrim catchment hasn't been surveyed systematically to date but freshwater pearl mussel have been recorded from the Ow River (about half

[2] Wilson, F., Bond, K., Crushell, P., Foss, P. and Osthoff, C. (2012). Survey of Marsh Fritillary Colonies – South and East Ireland 2012. Unpublished report, database and GIS dataset for National Parks and Wildlife Service.

way up), from the Derry Water not far upstream from the confluence and from the Aughrim all the way down to Woodenbridge. The records are indicative of a wider distribution for the species and some of the records are quite old – the population has been recorded in the area since 1893. Recent living records (2000's) confirm a presence still in at least the Ow and Aughrim, and there was a recently dead shell out of the Derry Water in 2005, so it has been assumed that all three waterbodies still have populations of freshwater pearl mussel. None of the watercourses in this catchment are designated as a SAC to protect the freshwater pearl mussel or other Annex II aquatic species that are known to occur in them. Three species of lamprey occur in Irish waters – the sea lamprey (*Petromyzon marinus*), the river lamprey (*Lampetra fluviatilis*), and the brook lamprey (*Lampetra planeri*). All three species are listed under Annex II of the EU Habitats Directive (92/43/EEC). Brook Lamprey river lamprey and sea lamprey are known to exist in the Aughrim River main channel.

Under the Water Framework Directive this section of the Derry Water River was deemed 'not at risk' of not achieving 'good' status by 2015. It is very important that whatever measures are implemented on the commonage in SUAS do not lead to a decrease in water quality in the tributary of the Ballycumber Stream.

2.5 Recreation

The commonage provides access to the summit of Black Hill and the Wicklow Way track passes through the lower slopes of the commonage. There is a well-managed and promoted series of walking trails in the Tinahely area and the Ballycumber and Kyle Loop Walks pass through the commonage. There were recent issues with scrambler and quad access but this has been resolved through locking gates which had allowed access.

3. 2018 Ecological Assessment

3.1 Field Survey

Following the background review and desktop research the site was visited in October and November 2018 when the extent of habitats present within the commonage and their affinities to either Fossitt (Level 3) or Annex I habitats or commonly named habitat types were mapped as shown on **Figures 4, 5** and **6** below and as described above.

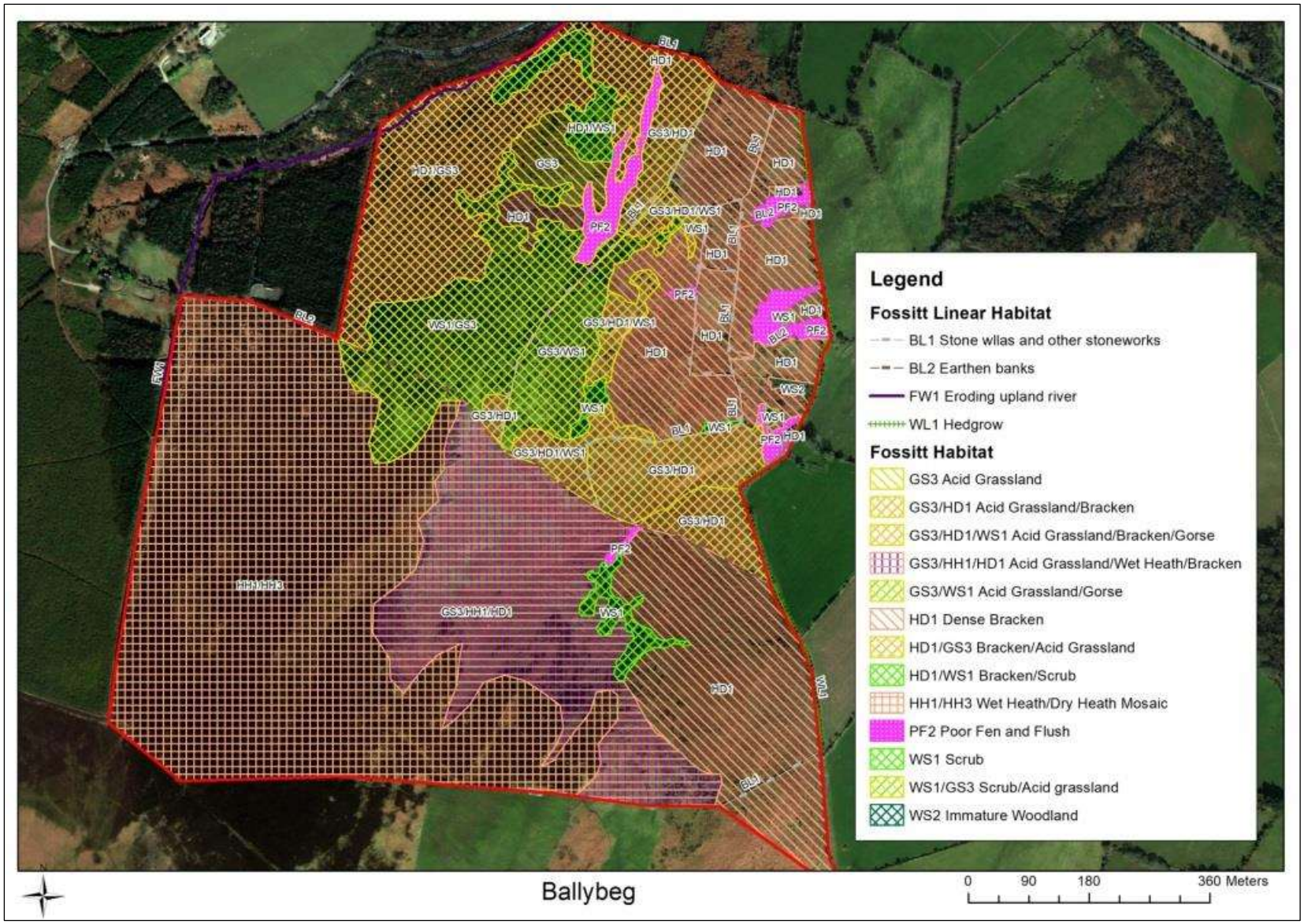

Figure 4. Habitats mapped to Level Three (Fossitt, 2000) within Ballybeg.

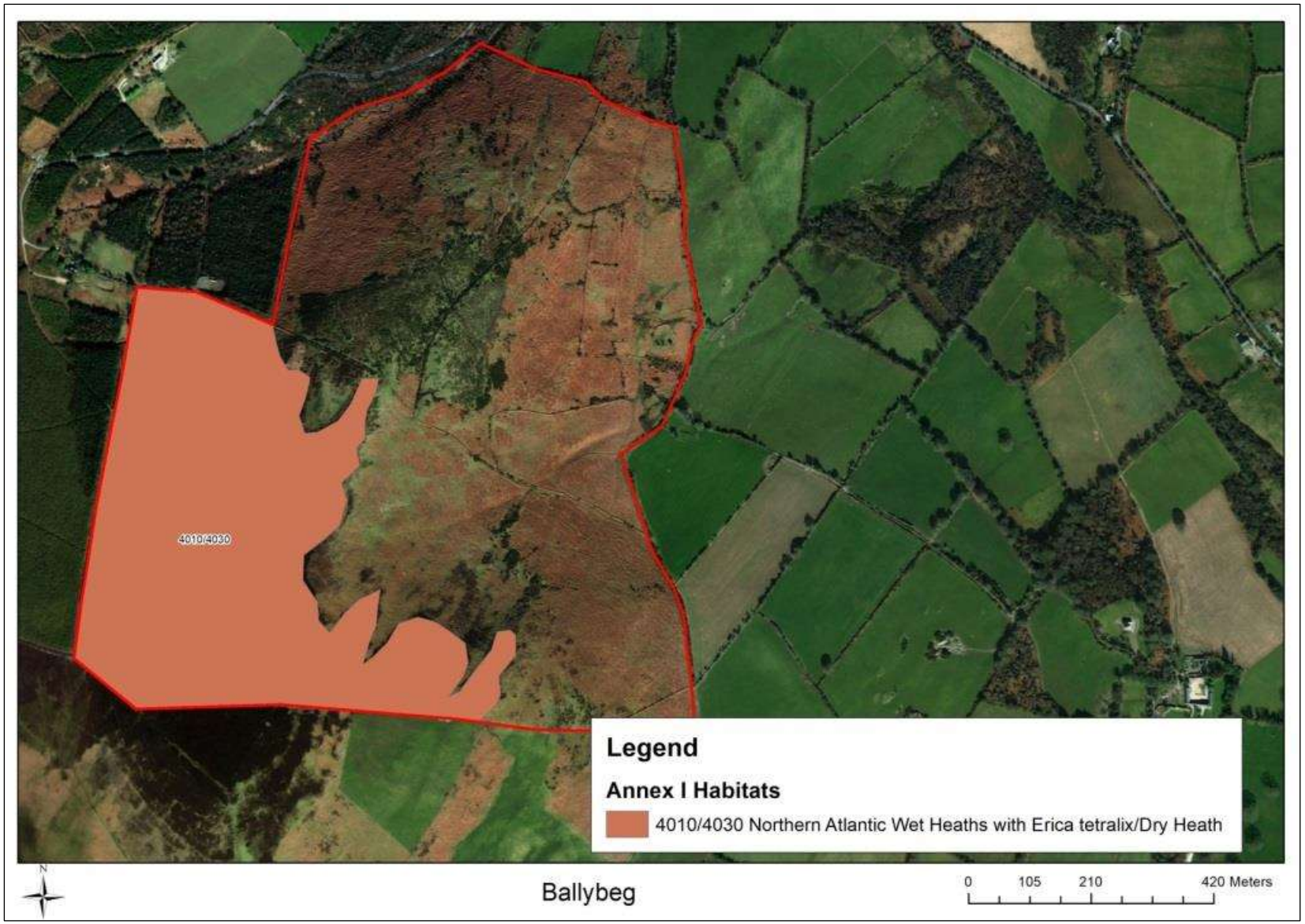

Figure 5. Habitats mapped according to their correspondence with Annex I habitats within Ballybeg.

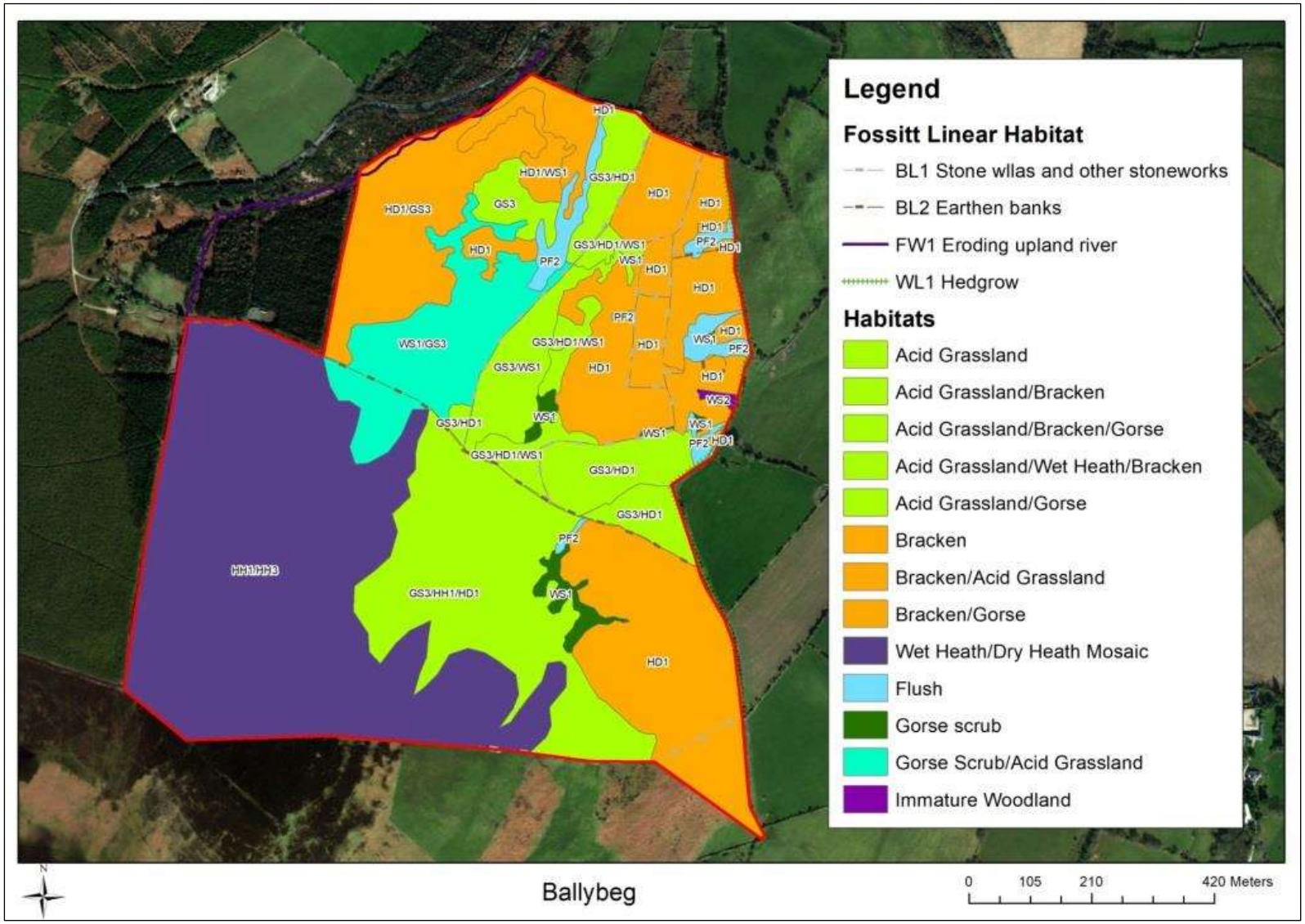

Figure 6. Habitats mapped using general vegetation descriptions.

3.2 Habitat Condition Assessments

A standardised protocol for assessing the habitat condition of those habitats listed under Annex I of the EU Habitats Directive was developed. Member states across the European Union must conduct monitoring of the habitats in their jurisdiction and report on the national condition of each habitat under Article 17 of the EU Habitats Directive on a six year basis.

The conservation status of a habitat is defined in Article 1 of the EU Habitats Directive as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species.

The conservation status of a natural habitat will be taken as favourable when:

- its natural range and the areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The Overall Conservation Status Assessment for each habitat is listed as either:

- Favourable
- Unfavourable inadequate (change in management or policy is required to return the habitat to favourable status but there is no danger of extinction in the foreseeable future)
- Unfavourable bad (serious danger of becoming extinct, at least regionally)

There is also an 'Unknown' class which can be used where there is insufficient information available to allow an assessment.

Achieving Favourable Conservation Status (FCS) is the overall objective to be reached for all Annex I habitat types and Annex II species of European Community interest listed in the EU Habitats Directive 92/43/EEC. **It is defined in positive terms such that a habitat type must be prospering and have good prospects of continuing to do so.**

There have been two rounds of monitoring of habitats in Ireland which date from the period 2001 – 2007 and 2007 – 2013. The habitats of relevance to the Wicklow Uplands were assessed at a national level in 2007 and 2013 as shown in **Table 4** below. There have been very few detailed assessments of the habitats in the Wicklow Mountains to date. In general the upland habitats of Ireland, when assessed at a national level are in very poor condition. The next round of monitoring results is due in 2019.

Table 4. Condition of upland habitats in Ireland (those habitats of relevance to the Wicklow uplands are shown).

Habitat	Area		Structure & Functions		Future Prospects		Overall Status	
	2007	2013	2007	2013	2007	2013	2007	2013
4010 Wet heaths	Unknown	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad
4030 Dry heaths	Favourable	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Inadequate	Unfavourable – Bad
4060 Alpine and Boreal heaths	Unfavourable – Inadequate	Favourable	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Inadequate	Unfavourable – Bad
6230 Nardus grasslands*,	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad
7130 Blanket bogs (* if active bog),	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Inadequate	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad	Unfavourable – Bad
8110 Siliceous screes	Unfavourable – Inadequate	Favourable	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate
8210 Calcareous rocky slopes	Unfavourable – Inadequate	Favourable	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate
8220 Siliceous rocky slopes	Unfavourable – Inadequate	Favourable	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate	Unfavourable – Inadequate

The main pressures, damaging activities and threats to the upland habitats which have been identified in the national assessments are presented below:

Wet Heath - There are ongoing losses in habitat Area due to afforestation and agricultural improvement. The quality of the habitat has been impacted by overgrazing and trampling, burning, invasive non-native species, drainage and erosion. Stock reductions implemented through commonage framework plans have led to an increase in height and cover of dwarf shrubs and reduction in extent of bare peat at many sites. Nevertheless, the Overall Status of this habitat is assessed as Bad due to the continued impact of the pressures listed above. The overall trend is considered to be stable due to the improvements resulting from stock reductions that balance out losses in Area.

Dry Heath - There have been ongoing losses in Area due to afforestation and agricultural improvement. Although the quality of the habitat has been impacted by overgrazing, burning, invasive non-native species and drainage, destocking brought about from the commonage framework plans has led to recovery in many upland areas. The Overall Status is assessed as Bad due to the impacts of the pressures listed. The overall trend is considered to be stable, the losses in Area balanced by the improvements in quality. The 2007 assessment was not underpinned by extensive survey and expert judgement was used to give an Overall Status of Inadequate. In light of current data it is likely that the 2007 assessment should have also been Bad.

Alpine & Sub-alpine Heath - Sheep grazing is widespread in uplands where alpine and subalpine heath occurs and, where levels of grazing are high, is problematic within this habitat. Hill walking is often concentrated on the ridges and summits where this habitat is found and can cause trampling and erosion of the habitat. Abandonment, scrub encroachment and decline in traditional farming methods are widely viewed to have negative effects on the conservation status of habitats in the Burren. For these reasons the Overall Status of this habitat is considered to be Bad. Conservation measures undertaken in the uplands and the Burren to address grazing problems have resulted in an improving trend. The 2007 assessment was not underpinned by extensive survey and expert judgement was used to give an Overall Status of Inadequate. In light of current data it is likely that the 2007 assessment should have also been Bad.

Species-rich Nardus Grassland - The Overall Status is assessed as Bad due to ongoing losses caused by forestry planting and agricultural improvement (fertilisation and re-seeding of the habitat) and also succession to heath and scrub. Due to ongoing losses to this habitat there is a declining trend for the habitat since the 2007 assessment.

Blanket Bog - The main threats to blanket bog include overgrazing and trampling, drainage, afforestation, mechanical peat-extraction, burning and windfarm and other infrastructural development. Reductions in sheep numbers on upland commonages over the last decade has had a major positive impact on overgrazed areas, however recovery is a slow process and restoration measures are required to prevent further erosion of blanket bog. The Overall Status of this habitat is assessed as Bad with an ongoing decline of extent and quality.

Siliceous Scree - This habitat that may be threatened by ecologically unsuitable grazing levels, recreational activities such as rock-climbing and invasive non-native species. The Overall Status is assessed as Inadequate, but with an improving trend. This trend is brought about by the implementation of the Commonage Framework Plans which address ecologically unsuitable grazing levels.

Calcareous Rocky Slopes - This habitat is threatened by ecologically unsuitable grazing levels, recreational activities such as rock climbing, quarrying and invasive non-native species. The Overall Status of this habitat is assessed as Inadequate with no major changes since 2007.

Siliceous Rocky Slopes - This habitat is threatened by ecologically unsuitable grazing levels, recreational activities such as rockclimbing, and invasive non-native species. For these reasons the Overall Status of this habitat is assessed as Inadequate with no major changes since 2007.

For a habitat to be deemed in Favourable Conservation Status an assessment is made on the following criteria:

- **Area –** there should be no decrease in the area of the habitat. For example areas of heathland habitat may have been lost to grassland as a result of overgrazing/animals congregating in one area or by the invasion of a species such as bracken.

- **Structure and Functions** - Structure and functions relates to the physical components of a habitat ("structure") and the ecological processes that drive it ("functions"). For blanket bogs and associated habitats, these include a range of aspects such as soil chemistry, vegetation composition, hydrological regime, community diversity, habitat quality, species occurrence, indicators of local distinctiveness, disturbed ground, evidence of burning and negative species occurrence.

- **Future Prospects** - The impacts of pressures and threats on the habitat coupled with the general condition of the habitat are used to determine the Future Prospects (i.e. the long term viability of the habitat).

- **Overall Status** - For a "favourable" Overall Assessment for the habitat all parameters must be assessed as "favourable" (with one "unknown" acceptable); if any one of the parameters is assessed as "unfavourable - bad", the Overall Assessment is also "bad"; any other combination would result in an "unfavourable - inadequate" Overall Assessment.

Under the SUAS project the habitats that correspond to the Annex I habitats have been assessed using the methodology outlined in Perrin *et al* (2014).

A number of monitoring stops were completed in each of the Annex I habitats present within the commonage (4010 Northern Atlantic Wet Heaths with *Erica tetralix*, 4030 Dry Heath and 4060 Alpine and Boreal Heath). The number of monitoring stops completed depended on the size of the habitat. These are detailed below.

For those habitats which are not Annex I habitats such as acid grassland or fens and flushes the habitat condition is based on best expert judgement or in some cases from the perspective of the hill farmer.

The results of these habitat condition assessments for the various parts of the commonage are presented on **Figure 7** below.

Active measures by the members of the commonage framework groups as set out in the management recommendations will assist in beginning to improve the conservation status of the habitats. However it should be recognised that it may take in some instances over twenty years for habitats to begin to recover depending on the severity of the former negative impacts such as a severe uncontrolled burn. More than one parameter may need to be addressed to see a move towards habitat recovery (e.g. restoration of hydrological condition, appropriate grazing levels (sheep/deer/sheep in combination with deer, reintroduction of seed material where a species has been lost/has declined to such an extent that seed production is low, etc.) and in some instances factors outside the site (and beyond the control of the commonage group) may be having a negative effect (such as the deposition of atmospheric nitrogen, drainage measures associated with adjacent forestry, etc.).

3.2.1 4030 Dry heath

A total of 4 monitoring stops were recorded within the **4030 Dry Heath** habitat within the commonage. The results of the four monitoring stops are presented below in **Table 3.2.1**.

Table 3.2.1: Monitoring criteria and failure rates for 4030 Dry Heath (*n* = 4).

Criteria	Scale of assessment	No. of Assessments	No of Failures	Failure Rate (%)
Vegetation composition				
1. Number of bryophyte or non-crustose lichen species present, excluding *Campylopus* spp. and *Polytrichum* spp. ≥ 3	Relevé	4	2	50
2. Number of positive indicator species present ≥ 2 (Appendix VI)	Relevé	4	1	25
3. Siliceous heaths: cover of positive indicator species ≥ 50% (Appendix VI)	Relevé	4	0	0
4. Proportion of dwarf shrub cover composed of *Myrica gale*, *Salix repens*, *Ulex gallii* collectively < 50%	Relevé	4	0	0
5. Cover of the following weedy negative indicator species: *Cirsium arvense, C. vulgare, Ranunculus repens*, large *Rumex* species (except *R. acetosa*), *Senecio jacobea*, *Urtica dioica* collectively < 1%	Relevé	4	0	0
6. Cover of non-native species < 1%	Relevé	4	0	0
7. Cover of non-native species < 1%	Local vicinity	4	0	0
8. Cover of scattered native trees and scrub < 20%	Local vicinity	4	0	0
9. Cover of *Pteridium aquilinum* < 10%	Local vicinity	4	1	25
10. Cover of *Juncus effusus* < 10%	Local vicinity	4	1	25
Vegetation structure				
11. Senescent proportion of *Calluna vulgaris* cover < 50%	Relevé	4	0	0
12. Last complete growing season's shoots of ericoids and *Empetrum nigrum* showing signs of browsing collectively < 33% (Assess a minimum of 10 shoots distributed across the plot)	Relevé	4	0	0
13. No signs of burning inside boundaries of sensitive areas[3]	Local vicinity	4	0	0
14. Outside boundaries of sensitive areas, all growth phases of *Calluna vulgaris* should occur throughout, with ≥ 10% of cover in mature phase[4]	Local vicinity	4	3	25
Physical structure				
15. Cover of disturbed bare ground < 10%	Relevé	4	0	0
16. Cover of disturbed bare ground < 10%	Local vicinity	4	0	0

[3] Sensitive areas
(a) Areas where soils are thin and less than 5 cm deep.
(b) Hill slopes greater than 1 in 2 (26°), and all the sides of gullies.
(c) Ground with abundant, and/or an almost continuous carpet of *Sphagnum*, liverworts and/or lichens.
(d) Areas of H21 and H22 heath as defined by the NVC (Rodwell 1991a). These are heaths primarily composed of mixtures of *Calluna vulgaris* and *Vaccinium myrtillus* over a moist carpet of bryophytes that often has a high *Sphagnum* content. Within the provisional classification, these communities are comparable to DH4 and damper elements of DH6 respectively.
(e) Areas with noticeably uneven structure, at a spatial scale of around 1 m² or less. The unevenness (e.g. more commonly found in very old heather stands) will relate to distinct, often large, spreading dwarf-shrub bushes. The dwarf-shrub canopy will not be completely continuous, and some of its upper surface may be twice as high as other parts. Layering is likely to be present and may be common.
(f) Pools, wet hollows, haggs and erosion gullies, and within 5 – 10 m of the edge of watercourses.

[4] *Calluna vulgaris* growth phases
1. Pioneer < 10 cm
2. Building 10 – 30 cm
3. Mature > 30 cm

Area
A review of the aerial photography from the 1990s and other data sources for the commonage would indicate that there has been no significant change in the overall area of dry heath in the commonage. However there is a lack of detailed information on what the previous extent of acid grassland habitat in the commonage was (this forms a mosaic with dry heath in places) but based on the locations of where sheep were seen to favour the hill (in the sheltered slopes of the commonage) they would appear to be focusing their grazing efforts here thus resulting in a localised increase in grassland vs heath habitat. For this reason the overall area of **4030 Dry Heath** within the commonage was therefore assessed as **Unfavourable – Inadequate**.

Structure and Functions
In the assessment of structure and functions, 2 monitoring stops failed one criterion or more. Following a review of the ecological condition of those stops, expert judgement determined that no changes should be made to the assessment, resulting in an overall failure rate of 50%. The structure and functions of **4030 Dry Heath** were therefore assessed as **Unfavourable – Inadequate**.

The vegetation composition of **4030 Dry Heath** was often poor and 50% of the monitoring stops failed – the majority of them on account of lack of bryophytes or lichens and in one stop the dry heath was almost completely dominated by ling heather (lacking diversity of the other positive indicator species such as bilberry and bell heather). This is on account of a lack of grazing/burning which would encourage diversity within the sward. This has allowed the sward of ling to dominate outcompeting the other species and shading out the mosses and lichens below.

The vegetation structure of **4030 Dry Heath** was poor in many locations as there was a lack of diversity of ages of heather in many of the stops conducted with many being dominated by tall leggy heather.

In some parts of the commonage bracken (*Pteridium aquilinum*) is starting to dominate within the dry heath. In other areas only remnants of dry heath remain with intensive grazing favouring the development of acid grassland.

A lack of appropriate management (burning and appropriate grazing), appears to be the most significant impact on the structure and functions of **4030 Dry Heath** in the commonage. The effects of this impact are apparent in the vegetation composition, vegetation structure and physical structure of this habitat.

Although the decline in sheep numbers on the hill has undoubtedly reduced grazing pressure, the current condition of the commonage would indicate a lack of active management and appropriate grazing resulting in an overall poor condition of this habitat in many areas.

Future Prospects
The future prospects for the habitat **4030 Dry Heath** are assessed as **Unfavourable – Inadequate** in the absence of active management with measures such as active shepherding and hunting the sheep out of the sheltered part of the commonage coupled with the management of those areas of dry heath which are currently unmanaged and some further intervention and a recovery period for those areas that were previously burnt.

Conservation Status Assessment
Overall the conservation status assessment for the habitat **4030 Dry Heath** within the commonage is assessed as **Unfavourable – Inadequate**.

3.2.2 4010 Northern Atlantic Wet Heaths with *Erica tetralix*

A total of 4 monitoring stops were recorded within the **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** habitat within the commonage. The results of the four monitoring stops are presented below in **Table 3.2.2**.

Table 3.2.2. Monitoring criteria and failure rates for 4010 Northern Atlantic Wet Heaths with *Erica tetralix* (n = 4).

Criteria	Scale of assessment	Number of assessments	Number of failures	Failure rate (%)
Vegetation composition				
1. *Erica tetralix* present	20m radius	4	0	0
2. Cover of positive indicator species ≥ 50%	Relevé	4	0	0
3. Total cover of *Cladonia* species, *Sphagnum* species, *Racomitrium lanuginosum* and pleurocarpous mosses ≥ 10%	Relevé	4	1	25
4. Cover of ericoid species and *Empetrum nigrum* ≥ 15%	Relevé	4	0	0
5. Cover of dwarf shrub species < 75%	Relevé	4	0	0
6. Cover of the following negative indicator species: *Agrostis capillaris, Holcus lanatus, Phragmites australis, Ranunculus repens* collectively < 1%	Relevé	4	1	25
7. Cover of non-native species < 1%	Relevé	4	0	0
8. Cover of non-native species < 1%	Local vicinity	4	0	0
9. Cover of scattered native trees and scrub < 20%	Local vicinity	4	0	0
10. Cover of *Pteridium aquilinum* < 10%	Local vicinity	4	1	25
11. Cover of *Juncus effusus* < 10%	Local vicinity	4	0	0
Vegetation structure				
12. Crushed, broken and/or pulled up *Sphagnum* species < 10% of *Sphagnum* cover	Relevé	4	0	0
13. Last complete growing season's shoots of ericoids, *Empetrum nigrum* and *Myrica gale* showing signs of browsing collectively < 33%	Relevé	4	0	0
14. No signs of burning into the moss, liverwort or lichen layer, or exposure of peat surface due to burning	Local vicinity	4	1	25
15. No signs of burning inside boundaries of sensitive areas[5]	Local vicinity	4	0	0
Physical structure				
16 Cover of disturbed bare ground < 10%	Relevé	4	0	0
17 Cover of disturbed bare ground < 10%	Local vicinity	4	0	0
18 Area showing signs of drainage resulting from heavy trampling or tracking or ditches < 10%	Local vicinity	4	0	0

Area

A review of the aerial photography from the 1990s and other data sources for the commonage would indicate that there has been no significant change in the overall area of wet heath in the commonage. However there is a lack of detailed information on what the previous extent of acid grassland habitat in the commonage was (this forms a mosaic with wet heath and dry heath in places) but based on the locations of where sheep were seen to favour the hill (in the sheltered slopes of the commonage) they would appear to be focusing their grazing efforts here thus resulting in a localised increase in grassland vs heath habitat. It is thought that this is as a result of livestock congregating, grazing and associated trampling which has resulted in an increase of acid grassland/bracken dominated areas. For this reason the area of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** within the commonage was therefore assessed as **Unfavourable – Inadequate**.

[5] Sensitive areas
(a) Vegetation severely wind-clipped, mostly forming a mat less than 10 cm thick.
(b) Areas where soils are thin and less than 5 cm deep.
(c) Slopes greater than 1 in 3 (18°) and all the sides of gullies.
(d) Ground with abundant, and/or an almost continuous carpet of *Sphagnum,* liverworts and/or lichens.
(e) Pools, wet hollows, haggs and erosion gullies, and within 5 – 10 m of the edge of watercourses.
(f) Areas above 400 m in altitude.
(g) Areas within 50 m of functioning drains.

Structure and Functions
In the assessment of structure and functions, 2 monitoring stops failed one criterion or more. Following a review of the ecological condition of these stops, expert judgement determined that the stops failed on account of two criteria – a high density of common bent grass (*Agrostis capillaris*) where the wet heath was found in mosaic with acid grassland in one stop and a lack of bryophytes in the other following uncontrolled burning. The latter was deemed to be on account of sheep congregating in this area and grass and rushes beginning to take hold. The structure and functions of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** were therefore generally assessed as **Unfavourable – Inadequate**.

The vegetation composition of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** was generally good with all monitoring stops passing. The cover of positive indicator species and the cover of *Cladonia* spp., *Sphagnum* spp. and pleurocarpous mosses failed at one monitoring stop as a result of burning. The cover of the negative indicator species *Agrostis capillaris* was excessive at one monitoring stop as a result of grazing pressure.

The vegetation structure of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** was generally good with all monitoring stops passing.

Uncontrolled burning and grazing by sheep (and possibly deer), along with associated impacts such as trampling and dunging, appears to be the most significant impact on the structure and functions of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** in the commonage.

The effects of this impact are apparent in the vegetation composition, vegetation structure and physical structure of this habitat. Whilst the reduction in sheep numbers have undoubtedly reduced grazing pressure on this habitat the natural tendency of sheep to congregate in one particular part of the hill coupled with burning has resulted in losses of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** on these slopes. This will require active management/ intervention through shepherding to ensure that the recovery in terms of vegetation composition of **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** is ongoing.

Future prospects
The future prospects for the habitat are assessed as **Unfavourable – Inadequate** in the absence of active management by the commonage group. Through active shepherding and hunting the sheep out of the sheltered part of the hill coupled with management of Dry Heath and areas dominated by bracken this scenario should improve as sheep begin to move around the commonage.

Overall the conservation status assessment for **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** habitat within the commonage is currently assessed as **Unfavourable – Inadequate**.

3.2.3 Acid Grassland
The remaining areas of acid grassland are becoming dominated and encroached by bracken or in some cases western gorse – for this reason these habitats are deemed to be in **Unfavourable** condition.

3.2.4 Poor Fen & flush
These areas are generally in **Favourable** condition within the commonage but care will need to be taken to ensure that any of the management recommendations (particularly those involving machinery does not damage them).

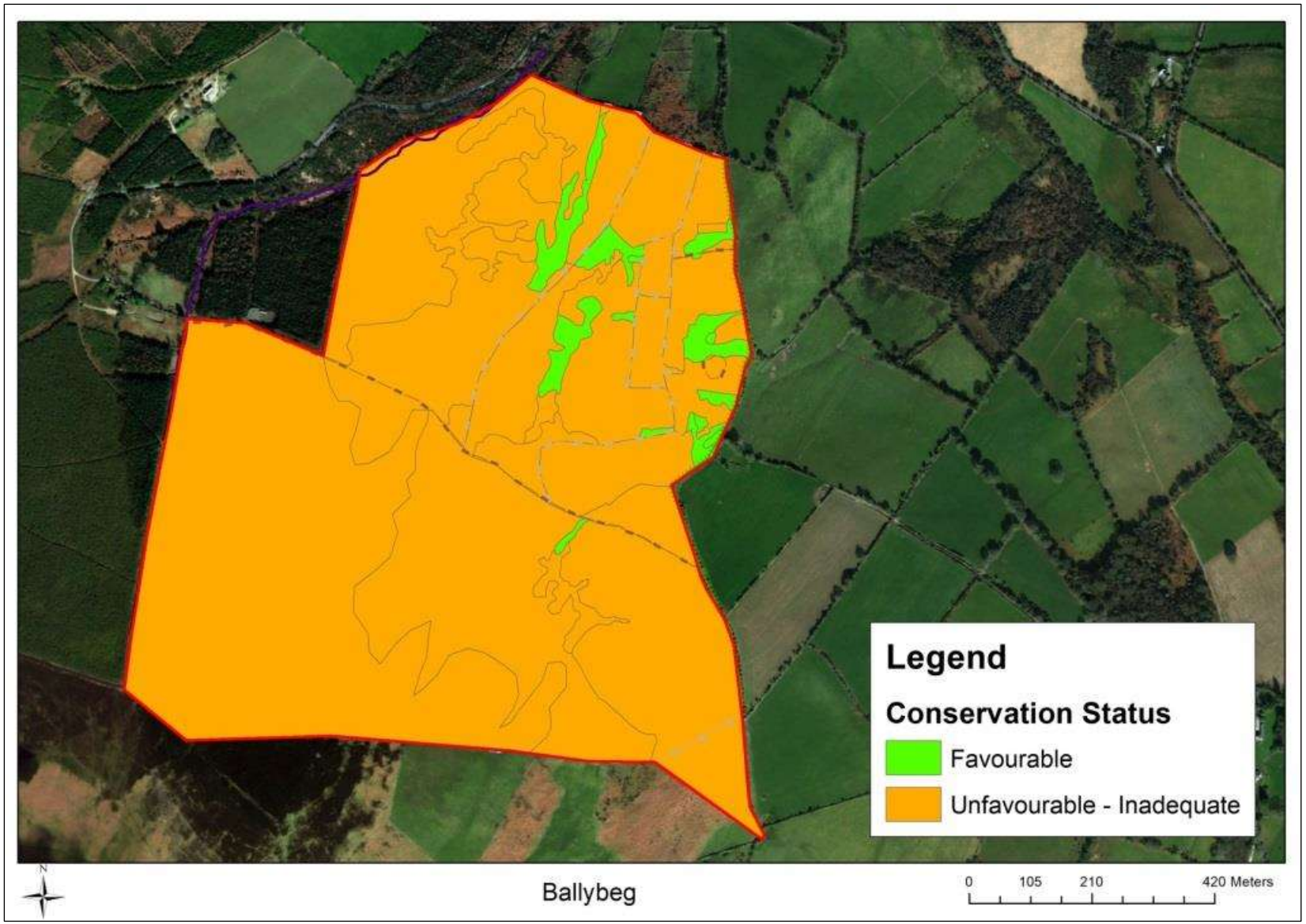

Figure 7. Habitat Condition Assessment for Ballybeg.

4. Management Recommendations for Ballybeg

This commonage is farmed by the Ballybeg Commonage Group. The management plan prepared for commonage will be developed by the members and will utilise and be informed by the information provided in this report and assessment.

The management prescriptions in the plan need to address the impacts highlighted in this report if progress is to be made towards attaining **Favourable status** for the Annex I habitats present on the site – principally **4010 Northern Atlantic Wet Heaths with *Erica tetralix*** and **4030 Dry Heath**.

The major impacts to the habitats in this commonage arise predominantly from under grazing, timing of grazing, lack of active shepherding which has resulted in more areas becoming acid grassland as sheep congregate in certain areas, and bracken and gorse encroachment and a legacy of uncontrolled burning.

The levels of livestock grazing (by sheep) were initially addressed through the Commonage Management Plan drawn up in the early 2000s, which found the commonage to generally be in an undamaged condition and recommended a minor destocking rate of 0.183%, however it was only those commonages with a destocking rate of >10% that were actually destocked. Reductions in sheep numbers on the hill has been as a result of the decline of active farming. This may have resulted in some improvement to Annex I habitats **4030 Dry Heath** and **4010 Northern Atlantic Wet Heaths with *Erica tetralix***, but other habitats such as the areas of acid grassland are in poor condition with bracken encroaching throughout much of the commonage and increases in gorse cover. Overall these habitats are generally not currently attaining **Favourable status.**

Best expert judgement would indicate that this is on account of several factors. These include:

- Uncontrolled burning in the recent past,
- Lack of sheep on the hill,
- A lack of active management of the grazing whereby those sheep that are on the hill are congregating on one area of the hill and not grazing in others,
- A lack of sheep on the hills grazing the areas of **4030 Dry Heath**,
- A lack of grazing by sheep at the appropriate time of year.

This has resulted in large parts of the hill becoming encroached by bracken and a dominance of acid grassland with subsequent losses in areas of the habitat **4030 Dry Heath.** This area was historically managed as part of the Coolattin Estate for deer stalking, and shooting of grouse, which would have indicated that more heath habitat was present in the past. Large areas of heath in the general area have been lost to afforestation.

A review of the aerial photographs of the commonage as presented in **Appendix 1** would indicate that the commonage has suffered several large uncontrolled burns as can be seen in the OSI imagery from 1995, 2000 and 2005.

The natural gathering of sheep in the sheltered part of the commonage has resulted in a decline in the areas of **4030 Dry Heath** and **4010 Northern Atlantic Wet Heaths with *Erica tetralix***, through grazing favouring the development of dry acid grassland and subsequent encroachment by bracken.

4.1 General Management Measures

Information on the principles of the management measures that can be utilised as recommended in the Natural England Upland Management Handbook and other best practice guidance from Scotland, are presented in detail in **Appendix 2**. This guidance has been modified for the Irish situation.

Cutting/flailing

Given that cutting/flailing could potentially be more safely implemented on the western slopes of the commonage near the conifer plantation, (where burning might be unwise) information from the Natural England Upland Management Handbook is provided in **Appendix 2** to inform same.

Burning

Burning may also be required in Ballybeg and so information from the Natural England Upland Management Handbook is provided in **Appendix 2** to inform same.

The various parts of the commonage requiring specific management are mapped on **Figure 8** and summarised in **Table 5**.

4.2 Measures for the Annex I Habitats 4060 Dry Heath/4010 Siliceous Atlantic Heaths with *Erica tetralix*

Several measures are required.

In some areas such as in the sheltered part of the hill, sheep are habitually congregating, resulting in the loss of Dry Heath/Wet Heath habitat in favour of acid grassland, which has then become invaded by bracken. Other areas where the natural ecology of the hill has been altered western gorse (a natural component of dry heath) is beginning to dominate forming areas of scrub in a mosaic of acid grassland. Other areas of dry heath are completely undergrazed and hence avoided by sheep.

It is recognised that this has resulted in areas becoming inaccessible for sheep and these areas can be recovered through increased grazing (including with cattle) coupled with some heather management – either flailing or controlled burning. There is also a tendency for sheep to gather and graze at the bottom of the commonage near the improved enclosed fields (particularly in and around the ring fort) and this alters the local ecology here even further through dunging, trampling, etc. in favour of acid grassland.

It is recommended that there is some areas of controlled burning conducted in those areas where the worst of the taller heather/gorse is. These areas will then regenerate and encourage the movement of sheep to these areas for grazing. They should be located at some distance from where sheep are currently congregating in the shelter of the hill to encourage this.

Overall **4060 Dry Heath** (in mosaic with **4010 Siliceous Northern Atlantic Heath with *Erica tetralix***) dominates much of the commonage (c.30.53 ha) whereas in other areas remnants of dry heath (isolated clumps of ling heather and bilberry) are found scattered through the dry acid grassland GS3.

As set out above it is recommended that a patchwork of widely scattered, small areas across the commonage (covering about 0.5-1.0 ha) are burnt. These should be located away from areas that the sheep currently congregate in to encourage sheep to forage near the top and flanks of the commonage.

In the absence of having detailed information on how many years it takes for the heather to reach the desired height on Ballybeg, we cannot define the average figure for the area to be burnt/flailed each year but those areas of heath, which were recently burnt as can be seen on the aerial photos in 2005, 2008 and 2012 should be allowed to recover the bryophyte and lichen communities they are currently lacking.

Any burning needs to be combined with active shepherding and other measures such as the use of sheep licks to draw animals into certain areas and move them away from those currently favoured.

4.3 Measures to protect areas of Poor Fen and Flush

The areas of poor fen and flush add great diversity to the site and are highly sensitive both in terms of their physical structure, their flora and potential for impacts to water quality. Care must be taken to ensure that livestock do not congregate around these features and damage them through poaching, trampling, etc. These areas should also be avoided by machinery to prevent damage.

4.4 Measures for Bracken Control

The control of bracken is the number one priority on this commonage. Dense bracken (or habitats in which bracken are beginning to encroach/take hold) now dominates more than 54% of the commonage. Information and recommendations for bracken control from the Natural England Upland Management Handbook is provided in **Appendix 2** to inform same.

Due cognisance of the importance of the cultural heritage/archaeological features on the site (ring fort, stone walls, lazy beds) will need to be taken.

Care also needs to be taken (if spraying is chosen as an option) that those areas which support an interesting ground flora including swathes of bluebells are not sprayed which result in their loss. These areas will need to be mapped during the active growing season for vascular plants when spring flowering species (such as bluebells emerge) as their true extent could not be determined in the autumn months. This survey can then inform where various sprays could be used with minimal harm.

4.5 Upland Gully Woodland

Consideration could be given to the expanding the existing of upland gully woodland along the tributary of the Ballycumber Stream (and establishment of woodland on the west facing slopes which are dominated by bracken slopes above the stream) and the protection of any existing trees along this watercourse. Such woodland would further act as protection measure for water quality within this stream as well as adding to the biodiversity of the uplands. Suitable species would include mountain ash (*Sorbus aucuparia*), willows (*Salix cinerea*), holly (*Ilex aquifolium*), birch (*Betula pubescens*) and ultimately oak (*Quercus petraea*), Scot's pine (*Pinus sylvestris*) and aspen (*Populus tremula*). Any trees would require protection from grazing animals including sheep and deer.

4.6 Cultural Heritage

Consideration could also be given to measures to repair the cultural heritage features on the hill such as the stone faced earthen banks and stone walls which point to the historic past and previous landuse of the commonage. The recently rebuilt/repaired stone wall adjoining the Wicklow Way on the access into the commonage from Garryhoe Lane has been done with great skill and sensitivity and adds greatly to the walkers experience in this unusual part of the route where open views over farming countryside are a feature.

4.7 Monitoring

Continued monitoring is required to determine what affect active shepherding of stock on the hill coupled with some limited burning would have bearing in mind that there may be a considerable delay between changes in livestock levels and a response in the vegetation.

4.8 Appropriate Assessment

Once the plan is agreed with the commonage group it will need to undergo appropriate assessment before being implemented.

Plate 15. The bracken dominated slopes of the commonage leading down to the stream could be planted with native woodland to act as a buffer for the watercourse, control bracken and add diversity to the site.

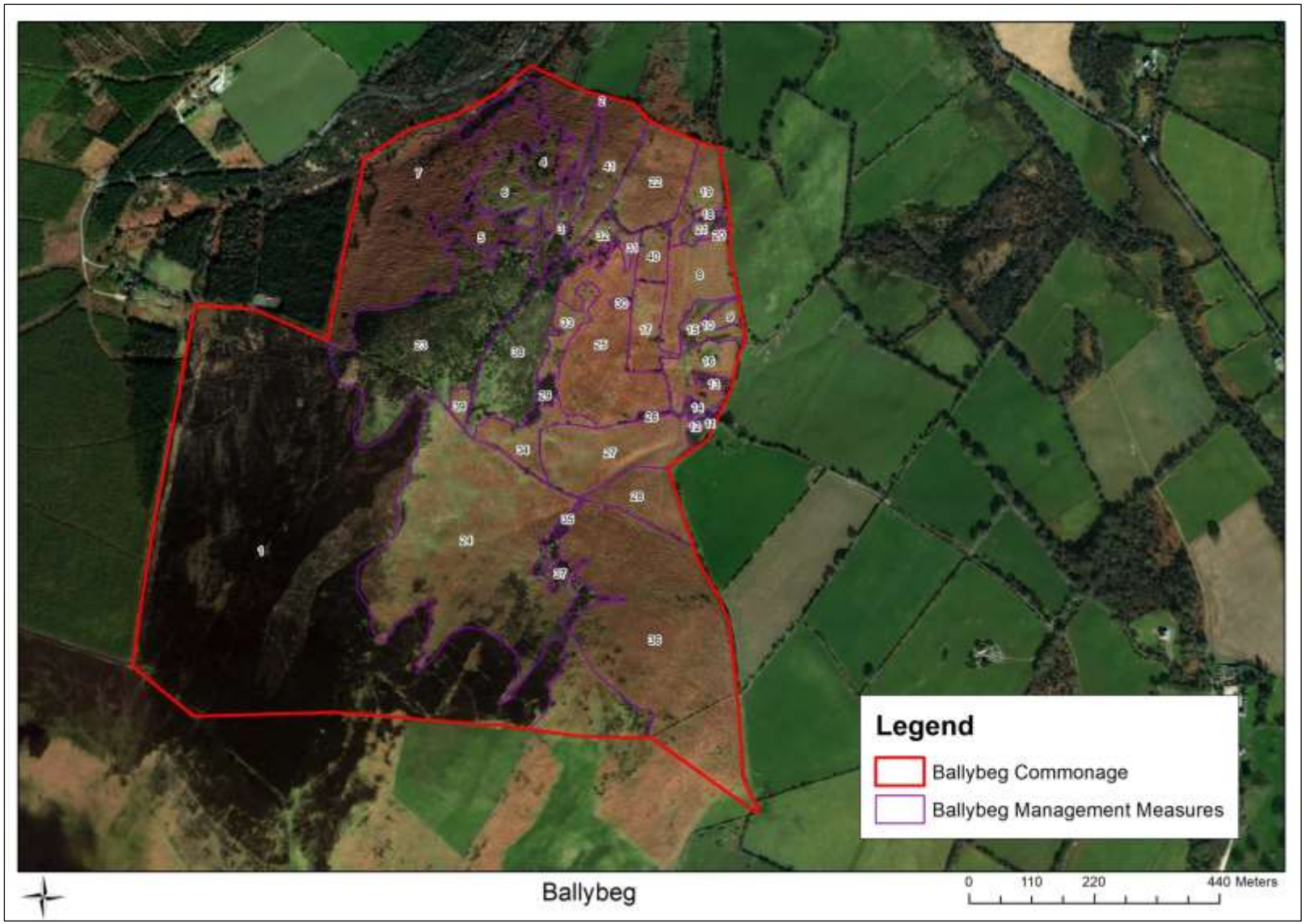

Figure 8. Management measures for Ballybeg.

Table 4. Habitats present on Ballybeg and Management Recommendations.

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measures
1	4030/4010	Dry Heath/Northern Atlantic Wet Heaths with *Erica tetralix*	HH1/HH3	Dry Heath/ Wet Heath	305365	30.54	Unfavourable - Inadequate	Ensure no further uncontrolled burning Monitor grazing and sheep movements to return to good condition. Graze with sheep/cattle/horses to open up
2			HD1	Dense bracken	218	0.02	Unfavourable - Inadequate	Control bracken Graze with sheep/cattle/horses to open up
3			PF2	Poor fen and flush	9049	0.90	Favourable	Control bracken surrounding the flush Monitor condition and move livestock if becoming poached
4			HD1/WS1	Dense bracken/scrub	11967	1.20	Unfavourable - Inadequate	Control bracken Graze with sheep/cattle/horses to open up Flail 50% of gorse if possible (retaining areas near the river as breeding habitat for birds)
5			HD1	Dense bracken	5385	0.54	Unfavourable - Inadequate	Control bracken
6			GS3	Acid grassland	11868	1.19	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up
7			HD1/GS3	Dense bracken/acid grassland	81015	8.10	Unfavourable - Inadequate	Control bracken Graze with sheep/cattle/horses to open up
8			HD1	Dense bracken	15402	1.54	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to lazy beds or light stocking
9			HD1	Dense bracken	2099	0.21	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up Ensure no significant poaching to adjoining flushed area
10			WS1	Scrub	271	0.03	Favourable	No measures required
11			HD1	Dense bracken	608	0.06	Favourable	Monitor bracken but adds diversity and cover in this area for breeding birds
12			PF2	Poor fen and flush	2325	0.23	Favourable	Monitor condition and move livestock if becoming poached
13			WS2	Immature woodland	1349	0.13	Favourable	Fence to allow natural regeneration and woodland development to continue
14			WS1	Scrub	448	0.04	Favourable	Provides cover for breeding birds - retain
15			PF2	Poor fen and flush	5407	0.54	Favourable	Monitor condition and move livestock if becoming poached
16			HD1	Dense bracken	11641	1.16	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to ring fort or light stocking

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measures
17			HD1	Dense bracken	9311	0.93	Unfavourable - Inadequate	Control bracken Recommend trialling the use of horses or cattle in this enclosed field to see the effects of trampling on spring growth
18			HD1	Dense bracken	773	0.08	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to lazy beds or light stocking
19			HD1	Dense bracken	8995	0.90	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to lazy beds or light stocking
20			HD1	Dense bracken	699	0.07	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to lazy beds or light stocking
21			PF2	Poor fen and flush	2363	0.24	Favourable	Monitor condition and move livestock if becoming poached
22			HD1	Dense bracken	19060	1.91	Unfavourable - Inadequate	Archaeological/cultural heritage interest Recommend the use of sprays in this area to prevent damage to lazy beds or light stocking
23			WS1/GS3	Scrub/acid grassland	67312	6.73	Unfavourable - Inadequate	Gorse beginning to dominate – open up with appropriate levels of grazing
24			GS3/HD1	Acid grassland/bracken mosaic	124040	12.40	Unfavourable - Inadequate	Bracken beginning to encroach Monitor grazing and sheep movements. Move sheep out of this area where they tend to congregate as this is favouring grassland over heath and the heath is being browsed out. Control bracken through grazing rather than sprays as bluebells beneath this layer which could be impacted.
25			HD1	Dense bracken	35319	3.53	Unfavourable - Inadequate	Control bracken Recommend trialling the use of horses or cattle in this enclosed field to see the effects of trampling on spring growth
26			WS1	Scrub	624	0.06	Favourable	Provides cover for breeding birds - retain
27			GS3/HD1	Acid grassland/bracken mosaic	25248	2.52	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up
28			GS3/HD1	Acid grassland/bracken mosaic	12603	1.26	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up
29			WS1	Scrub	2330	0.23	Unfavourable - Inadequate	Dense gorse in this area. Has a biodiversity value for nesting birds. Recommend that other areas of scattered gorse are controlled and to see if grazing prevents gorse from returning before effort is put into clearing this
30			PF2	Poor fen and flush	505	0.05	Favourable	Monitor condition and move livestock if becoming poached
31			WS1	Scrub	277	0.03	Favourable	Provides cover for breeding birds - retain

Id	Annex I Code	Annex I Description	Fossitt Code	Habitat	Area (m)	Area (Ha)	Conservation Status	Management Measures
32			GS3/HD1/WS1	Acid grassland/bracken/scrub mosaic	4281	0.43	Unfavourable - Inadequate	Bracken (and minor gorse) beginning to encroach Graze with sheep/cattle/horses to open up
33			GS3/HD1/WS1	Acid grassland/bracken/scrub mosaic	6309	0.63	Favourable	Bracken (and minor gorse) beginning to encroach Graze with sheep/cattle/horses to open up
34			GS3/HD1/WS1	Acid grassland/bracken/scrub mosaic	9770	0.98	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up
35			PF2	Poor fen and flush	792	0.08	Favourable	Monitor condition and move livestock if becoming poached
36			HD1	Dense bracken	95785	9.58	Unfavourable - Inadequate	Control bracken. Monitor grazing and sheep movements.
37			WS1	Scrub	6868	0.69	Unfavourable - Inadequate	Some localised control of gorse may be required to ensure that it does not spread further on the hill – grazing should keep it in check. Adds some value for breeding birds in this part of the hill.
38			GS3/WS1	Acid grassland/scrub mosaic	26256	2.63	Unfavourable - Inadequate	Some localised control of gorse Graze with sheep/cattle/horses to open up
39			GS3/HD1	Acid grassland/bracken mosaic	2074	0.21	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up
40			HD1	Dense bracken	5182	0.52	Unfavourable - Inadequate	Control bracken Recommend trialling the use of horses or cattle in this enclosed field to see the effects of trampling on spring growth of bracken
41			GS3/HD1	Acid grassland/bracken mosaic	15345	1.53	Unfavourable - Inadequate	Bracken beginning to encroach Graze with sheep/cattle/horses to open up

5. Appendix 1. Historic Imagery of the Ballybeg Commonage

Plate 1. OSI Aerial photography 1995.

Plate 2. OSI Aerial photography 2000. Possible burn highlighted in red. Recently planted forestry visible on western boundary.

Plate 3. OSI Aerial photography 2005. Extent of bracken clearly visible.

Plate 4. June 2010 (Source: Google Image). Second block of afforestation under way. Sheep appear to be accessing the top of the hill more frequently judging by tracks.

Plate 5. June 2013 (Source: Google Image).

Plate 6. March 2016 (Source: Google Image). Burn visible – indicated by red arrow.

Plate 7. April 2018 (Source: Google Image).

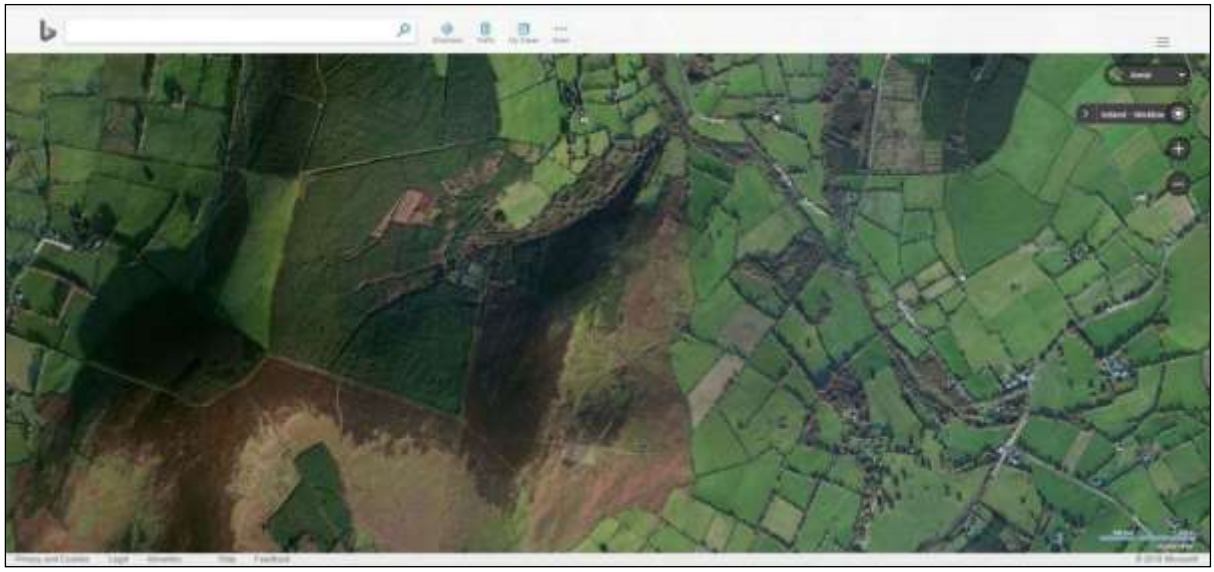

Plate 8. Bing Imagery (Undated). Density of gorse increasing.

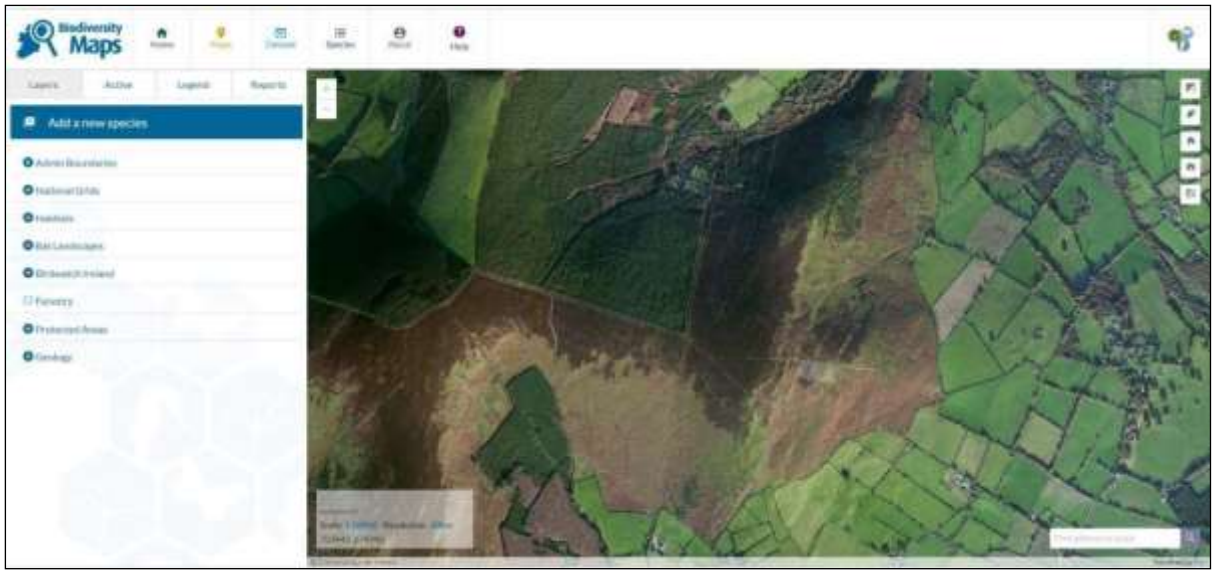

Plate 9. National Biodiversity Data Centre (Undated – looks like Bing Imagery).