

**Ecological Baseline Survey**  
**prepared for**  
**Kilmashogue Upland Farm**  
**as part of the Commonage Management Plan for SUAS**



**Final Report**

**15<sup>th</sup> November 2019**

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**1. Introduction**

This small upland farm (40ha) at Kilmacshogue belonging to Richard and Elizabeth Ryan extends from an elevation of 400m at the base of the slope rising to the 480m on the shoulder of Two Rock Mountain (537m) as shown on **Figure 2** below. Two Rock Mountain is also known as the 'Fairy Castle'<sup>1</sup> as:

'It is distinguished by a great cairn of stones called the Fairy Castle, thirty yards in diameter and about ten feet high. No enclosing kerb can be seen and there is no evidence that it has ever been opened. It probably contains a chamber built of large stones similar to that on Seefin Mountain'.

The farm is located within the townland of Kilmacshogue and is also known as Calbeck's Hill. Patrick Healy<sup>2</sup> reports:

'In a survey made for the Royal Dublin Society in 1801, Cllr. Calbeck was commended for having planted 200,000 forest trees of various types at Kilmacshogue and for improving the mountain land by roads, building, enclosures and drainage. These improvements can still be seen on the north-west slope of Two Rock Mountain where an area of over two hundred acres is divided into a great number of small square fields with roads laid out to serve the various enclosures. The area now shows no evidence of reclamation and is a wilderness of swamp and heather. The remains of the cottages can also be seen but it is very doubtful if they were ever tenanted. On Duncan's map of 1821 this is named Calbeck's Hill'.

These lands were surveyed botanically as part of the survey of 'The Vegetation of the District Lying South of Dublin' conducted by George H. Pethybridge and Robert Lloyd Praeger<sup>3</sup> in 1904.

They were described as follows:

**'The Two-rock Mountain group.**

This group of hills, including Two-rock, Three-rock, Tibbradden, and Kilmacshogue, and rising to 1699 feet in Two-rock, is characterized by a general absence of peat of any depth; and, in consequence, an absence of the *Scirpus* association and other wet-vegetation types of the high moors. Here, on the other hand, the *Ulex gallii* association attains a large development, forming in places a fringe of great breadth and considerable altitudinal range. This gives way at length to a poor *Calluna* association. Thus, on the Three-rock Mountain, at 1300 feet, a rather abrupt change is noticeable from a friable earthy soil

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<sup>1</sup> Healy, P. (2005). Rathfarnham Roads. Topographical notes on Rathfarnham and the adjacent hills, including Two Rock and Three Rock Mountains, Kilmacshogue, Tibbradden, Killakee, Cruagh, Glencullen and Glendoo. South Dublin Libraries – April 2005.

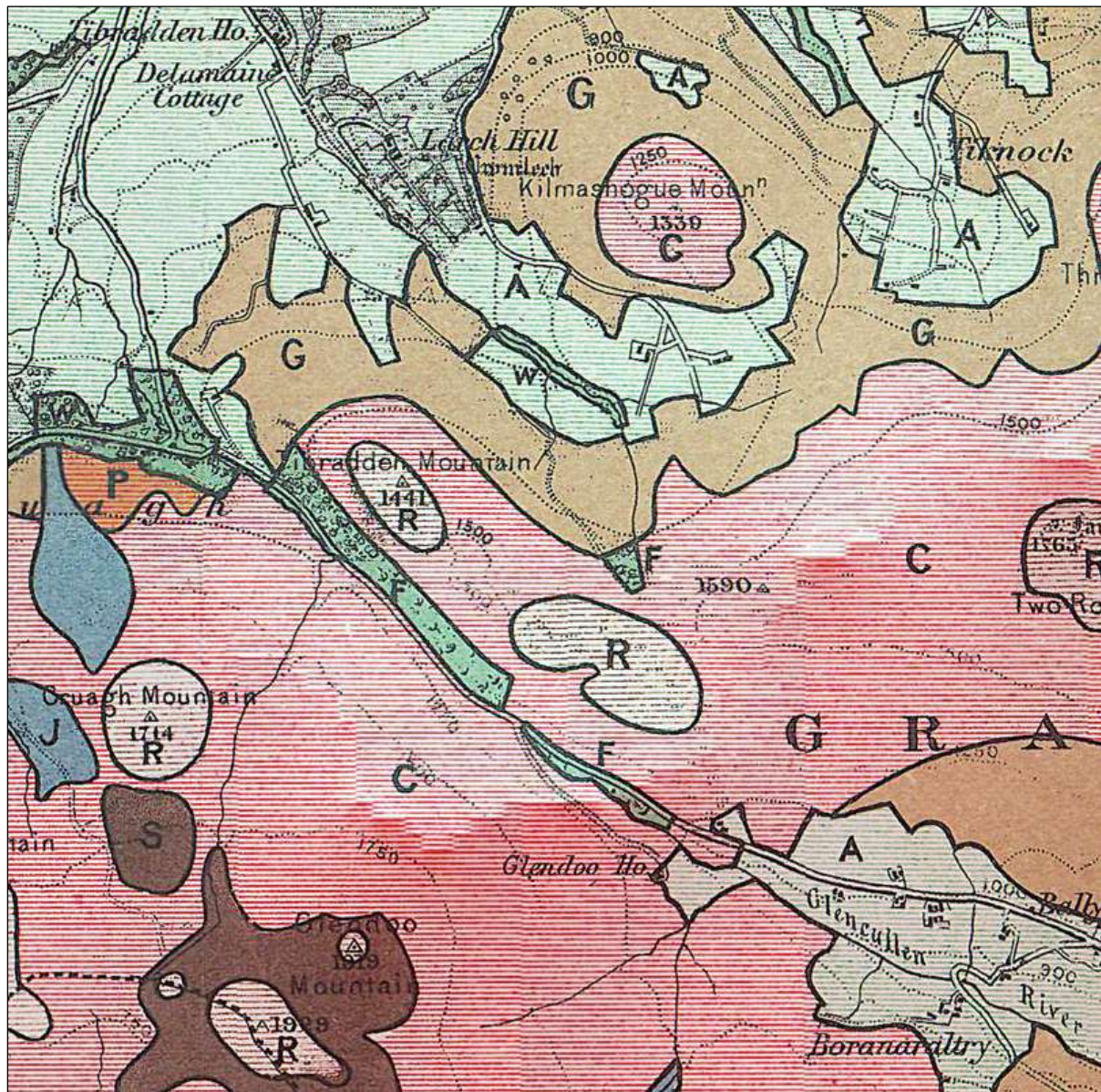
<sup>2</sup> Healy, P. (2005). Rathfarnham Roads. Topographical notes on Rathfarnham and the adjacent hills, including Two Rock and Three Rock Mountains, Kilmacshogue, Tibbradden, Killakee, Cruagh, Glencullen and Glendoo. South Dublin Libraries – April 2005.

<sup>3</sup> Pethybridge G. H. and R. L. Praeger (1905). The Vegetation of the District Lying South of Dublin Proceedings of the Royal Irish Academy. Section B: Biological, Geological, and Chemical Science, Vol. 25 (1904/1905), pp. 124-180. Published by: Royal Irish Academy.



covered with a grassy sward dotted with rounded bushes *U. gallii*, among which *Calluna*, *Erica cinerea*, and *Agrostis vulgaris* flourish, to a thin, wet, peaty soil, under a brown, level sheet of vegetation in which *Calluna* is dominant, low *U. gallii*, *Erica cinerea*, and *Nardus* abundant, with wet tracts inhabited by *Juncus squarrosus*, *Scirpus cespitosus*, and *Sphagnum*'.

They were mapped as the *Ulex gallii* association (identified by 'G') on the lower slopes with the *Calluna vulgaris* association (identified by 'C') on the higher elevations (See **Figure 1** below).



**Figure 1.** Vegetation of the District Lying South of Dublin (Pethybridge G. H. and R. L. Praeger (1905)). (*Ulex gallii* association (identified by 'G') on the lower slopes with the *Calluna vulgaris* association (identified by 'C') on higher ground).

The lands adjoin the boundary of Wicklow Mountains National Park and the Wicklow Way long distance walking route adjoins the property.

The lands within the farm are currently undesignated and are not included within the boundaries of the Wicklow Mountains SAC and Wicklow Mountains SPA.

The lands were not assessed as part of the joint NPWS/Department of Agriculture commonage framework plans, which were drawn up in the early 2000s as they are privately owned.

Coillte plantations adjoin the farm to the north east and west with open mountainside to the south east and south. The enclosed grazing land of the farm is found to the north.

The farm is predominantly underlain by Caledonian granite (Muscovite-microcline porphyritic granite). The soils are described as the Carrigvahanagh association and consist of peat over lithoskeletal acid igneous rock.



**Plate 1. Looking across to the hill from the lower fields of the farm.**





Figure 2. Kilmashogue.

## 2. Receiving Environment - 2019

### 2.1 Habitats Present

Under Fossitt's (2000) habitat classification scheme the dominant habitat on the lower slopes of the Kilmashogue upland farm is that of **Dry Heath HH1**, which in some locations forms a mosaic with **Wet Heath HH3** and **Dry Humid Acid Grassland GS3**. The upper part of the hill is dominated by old **Cutover Bog PB4**. Areas of **Dry Heath HH1** correspond to the habitat **4030 European Dry Heaths**, as listed under Annex I of the EU Habitats Directive.



**Plate 2. Looking south west across the slopes of showing extensive areas of dry heath.**

The areas of **Dry Heath HH1** are dominated by Ling heather (*Calluna vulgaris*) which is 30 – 50cm high with very occasional Bilberry (*Vaccinium myrtillus*), and localised patches of Western Gorse (*Ulex gallii*). Cross leaved Heath (*Erica tetralix*) is occasional, as was Heath Rush (*Juncus squarrosus*), Heath Wood-rush (*Luzula multiflora*) and occasional grasses – Sweet Vernal Grass (*Anthoxanthum odoratum*) and Sheep's Fescue (*Festuca ovina*). The western slopes of the hill have quite high heather (c. 60 – 90cm high) and diversity here is poorer as a result.

On the north-eastern slopes **Dry Heath** forms a mosaic with **Acid Grassland GS3**, which is dominated by Sheep's Fescue (*Festuca ovina*), Sweet Vernal Grass (*Anthoxanthum odoratum*), Velvet Bent (*Agrostis canina*), and Mat-grass (*Nardus stricta*), with Heath Bedstraw (*Galium saxatile*), Sheep's Sorrell (*Rumex acetosella*), Tormentil (*Potentilla erecta*) and the moss *Polytrichum commune*. There is occasional Bilberry (*Vaccinium myrtillus*), Ling heather (*Calluna vulgaris*) and Western Gorse (*Ulex gallii*), within the sward. Patches of Western gorse were recently burnt in this area.



In the north eastern part of the hill is a small area of **Wet Heath HH3** adjoining **Poor Fen and Flush PF2**. This small area corresponds to the habitat **4010 Northern Atlantic Wet Heaths with *Erica tetralix***, as listed under Annex I of the EU Habitats Directive.



**Plate 3. Burning of gorse in grassland on the lower slopes.**

Further up the slopes the lands are characterised by a series of banks composed of dry peats/stones (mapped as **Stone Walls BL1**) on which Ling heather (*Calluna vulgaris*) and Bilberry (*Vaccinium myrtillus*) are present. These are the remnants of the enclosures created by Cllr. Calbeck in 1801. Between these structures are areas of **Cutover Bog PB4**, which have now fully regenerated and some areas are actively forming peat with good *Sphagnum* moss cover. These areas are dominated by Ling heather (*Calluna vulgaris*) and Deer grass (*Trichophorum cespitosum*) with occasional Hare's tail cottongrass (*Eriophorum vaginatum*), Common cottongrass (*Eriophorum angustifolium*), Heath Rush (*Juncus squarrosus*), Bog Asphodel (*Narthecium ossifragum*), and the bog mosses *Sphagnum capillifolium*, *Sphagnum papillosum* and *Sphagnum subnitens*.

The ruins of three old cottages and associated stone walls are located on these upper slopes adjoining what was a small track. Around these stones are pockets of **Acid Grassland GS3** with Sweet Vernal Grass (*Anthoxanthum odoratum*), Sheep's Fescue (*Festuca ovina*), and Velvet Bent (*Agrostis canina*), with Sheep's Sorrell (*Rumex acetosella*), Heath Bedstraw (*Galium saxatile*), Tormantil (*Potentilla erecta*) and the moss *Polytrichum commune*. There is occasional Bilberry (*Vaccinium myrtillus*), Ling heather (*Calluna vulgaris*) and Broad Buckler-fern (*Dryopteris dilatata*).

The hillside outside the farm towards Two Rock Mountain has been recently burnt.





**Plate 4. Flushed area.**



**Plate 5. Earthen banks/stone walls with ling heather and bilberry.**





**Plate 6. Areas of dry heath on the lower slopes.**



**Plate 7. Areas of old cutover bog which have regenerated on the upper slopes.**





Plate 8. Old revegetated trackway.



Plate 9. Ruins of old cottages on the brow of the hill.



**Plate 10. Cutover Bog which has regenerated. Note burning on the hillside outside the fence-line.**



**Plate 11. Fence-line at the top of the farm.**





**Plate 12. The lower western slopes of the farm have taller heather.**

## **2.2 Rare Plants**

There are historic records of Red Hemp-Nettle (*Galeopsis angustifolia*) from between Two-rock and Three-rock Mountain. Small Cudweed (*Filago minima*) was historically recorded from the base of Three-rock Mountain and in quarry rubbish at 1050 feet and was seen more recently in 1993 on the north side of Three Rock Mountain above Barnacullia. The legally protected orchid species Small-white Orchid (*Pseudorchis albida*) was historically recorded from near Three Rock Mountain.

## **2.3 Rare Fauna**

The farm is within the known range of Merlin (*Falco columbarius*) and Kestrel (*Falco tinnunculus*) was recorded during the site surveys.

The Irish hare (*Lepus timidus* subsp. *hibernicus*) would be expected and large herds of deer (red/Sika hybrids) graze the farm for which deer culling licences are regularly granted from National Parks and Wildlife Service. Other faunal records recorded during this survey include Common Frog (*Rana temporaria*), Fox (*Vulpes vulpes*), Meadow Pipit (*Anthus pratensis*), Skylark (*Alauda arvensis*) and Raven (*Corvus corax*). Common Lizard (*Zootoca vivipara*) would also be expected. The cocoon of an Emperor Moth (*Saturnia pavonia*) was recorded.

Red Grouse have been recorded from these lands during previous surveys. Indicative estimates of the population of Red Grouse within the Wicklow Mountains SPA is extracted below in **Table 1** from the 2011 survey<sup>4</sup>.

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<sup>4</sup> Cummins, S., Bleasdale, A., Douglas, C., Newton, S., O'Halloran, J. & Wilson, H.J. (2010) The status of Red Grouse in Ireland and the effects of land use, habitat and habitat quality on their distribution. Irish Wildlife Manuals, No. 50. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.



Table 1. Figures given below are crude estimates of the populations of Red Grouse in some protected areas of blanket bog throughout the country. These figures were derived using calculated suitability factors for each region (which are not site specific), the mean density of birds (adjusted using the correction factor\*) and the total area of each SAC / SPA. (The Wicklow figures were thought to be an underestimate).

Area	Designation	Region	Suitability Factor	Each Region Mean Males $\pm$ CL's	Total Males $\pm$ CL's	Population Estimate (correction factor*) $\pm$ CL's
Wicklow Mts.	SAC	E & S	0.27	1.22 0.96-1.49	45.5 36-55.7	96.4 76.4-113.3



Plate 13. Emperor moth cocoon.

#### 2.4 Recreation/Amenity

The Wicklow Way adjoining the farm provides hillwalking access to the Dublin uplands.

### **3. 2019 Ecological Assessment**

#### **3.1 Field Survey**

Following the background review and desktop research the site was visited in June 2019 when the extent of habitats present within the hill farm and their affinities to either Fossitt (Level 3) or Annex I habitats or commonly named habitat types were mapped as shown on **Figures 3, 4 and 5** below and as described above.

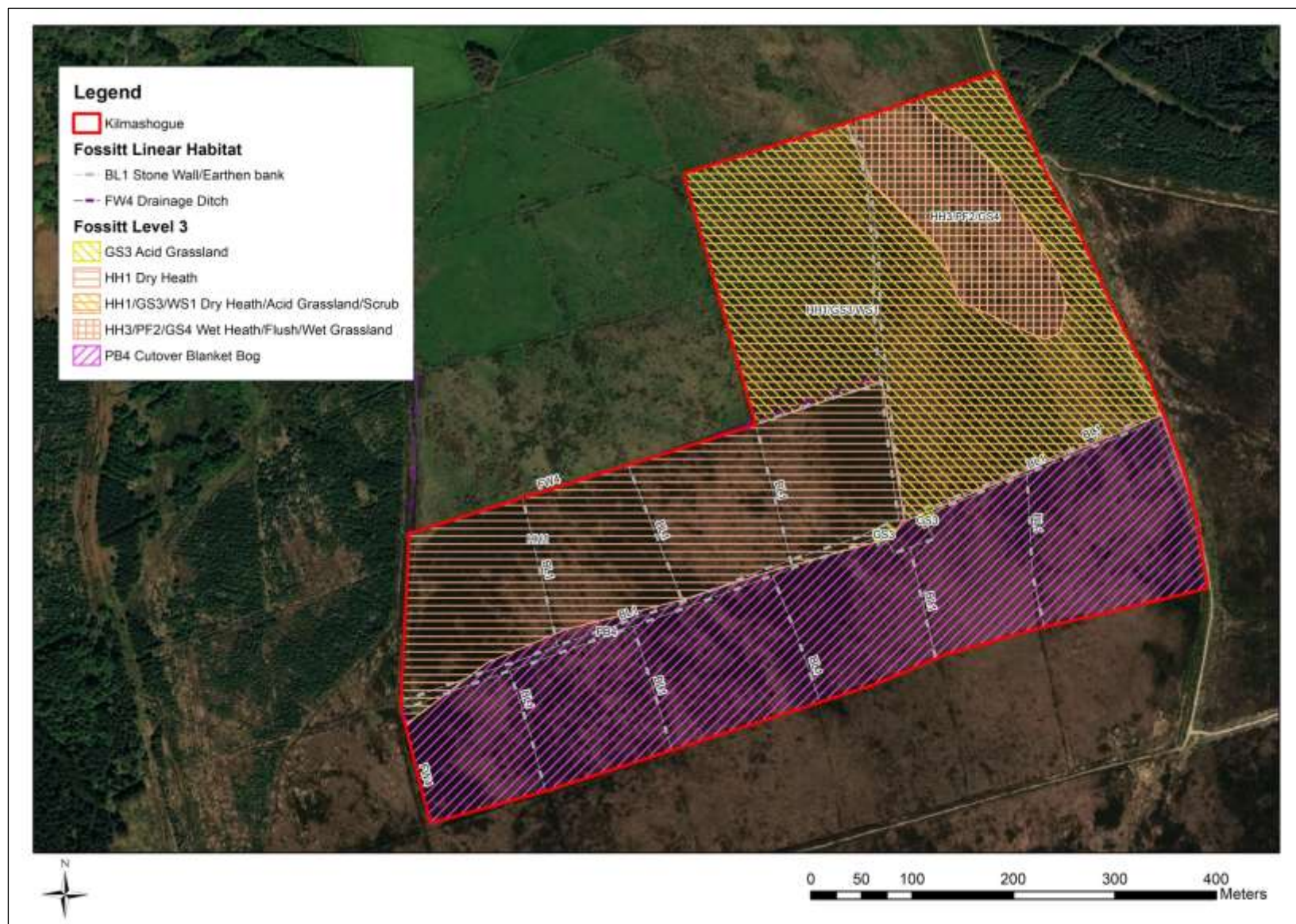
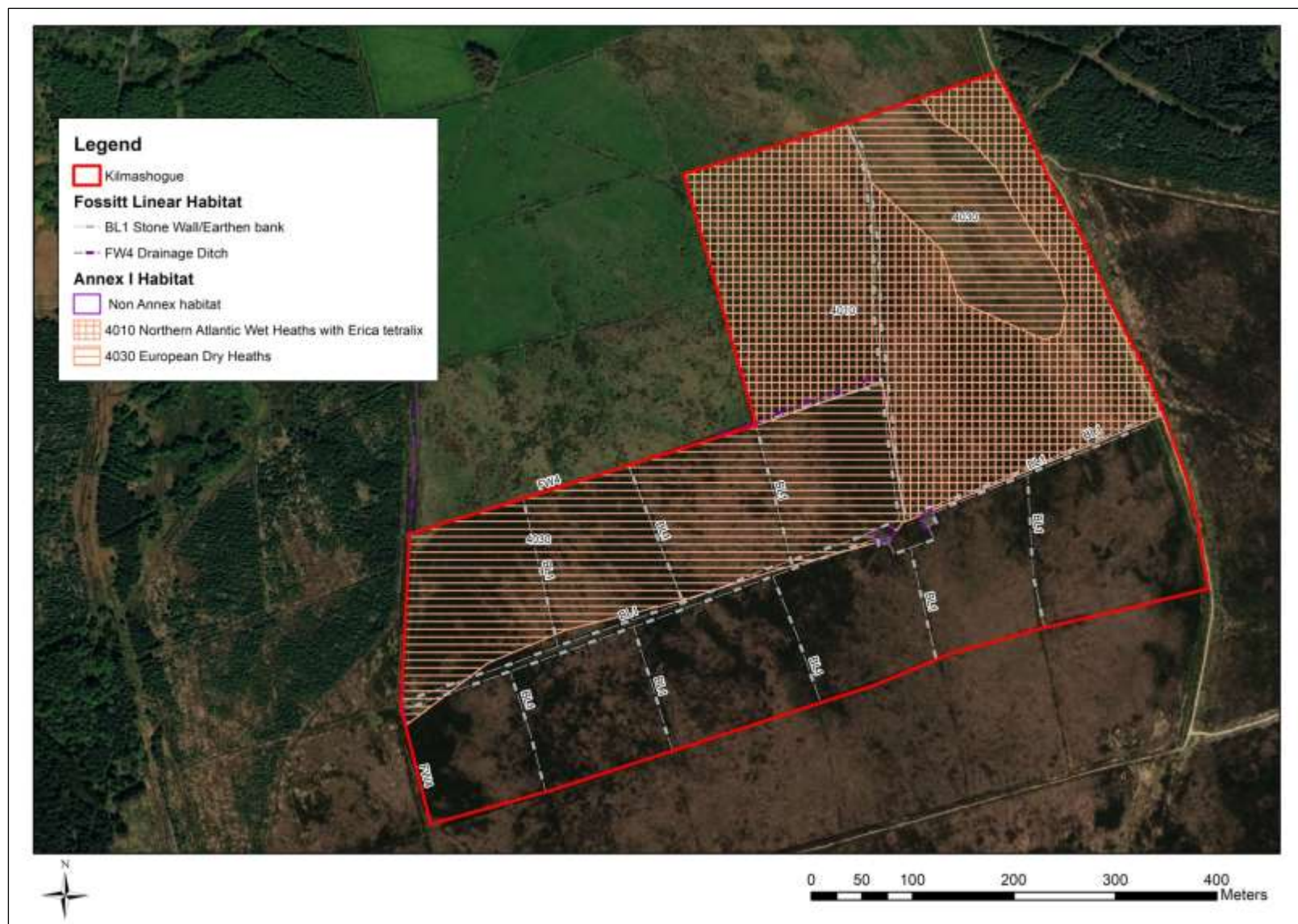


Figure 3. Habitats mapped to Level Three (Fossitt, 2000) within the Kilmashogue lands.





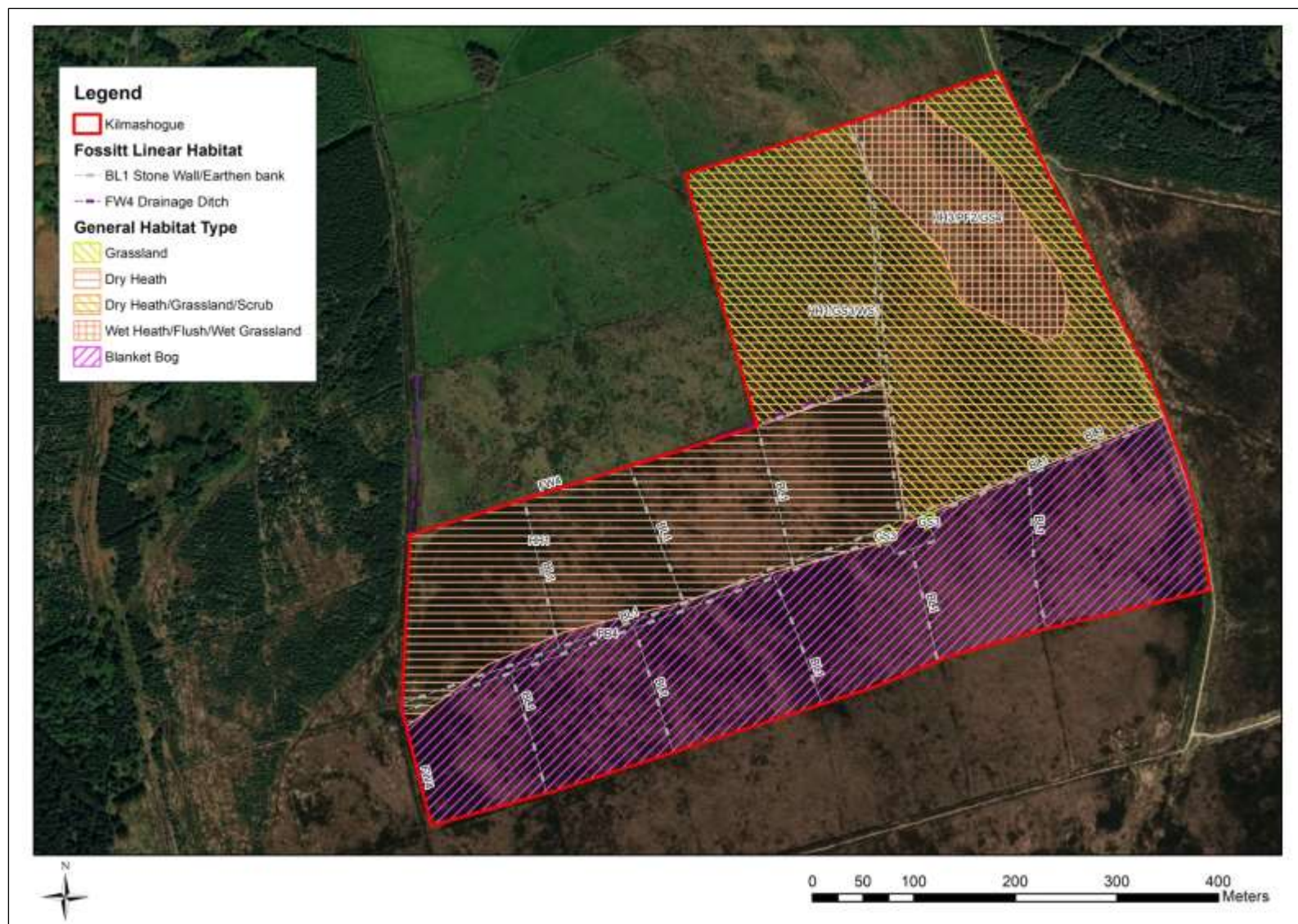


Figure 5. Habitats mapped using general vegetation descriptions.



### 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/Dublin Uplands were assessed at a national level in 2007 and 2013 as shown in **Table 2** below. There have been very few detailed assessments of the habitats in the Wicklow/Dublin 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 2. 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 most recent 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 the Annex I habitat present - **4030 Dry Heath**. These are detailed below.

For those habitats which are not Annex I habitats such as acid grassland, areas of fens and flushes, cutover bog, etc. 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 hill, which have been entered into SUAS, are presented on **Figure 6** below.

### 3.2.1 4030 Dry heath

A total of 2 monitoring stops were recorded within the **4030 Dry heath** habitat within the farm. The results of the monitoring stops are presented below in **Table 3.2.1**.

**Table 3.2.1: Monitoring criteria and failure rates for 4030 Dry heath ( $n = 2$ ).**

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

#### <sup>5</sup> 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 m<sup>2</sup> 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, hags and erosion gullies, and within 5 – 10 m of the edge of watercourses.

#### <sup>6</sup> *Calluna vulgaris* growth phases

- 1. Pioneer  $< 10$  cm
- 2. Building 10 – 30 cm
- 3. Mature  $> 30$  cm



Dry heath is found on the lower slopes of the hill.

#### **Area**

A review of the aerial photography from the 1990s and other data sources indicate that there has been no significant change in the overall area of dry heath in the property. The overall area of **4030 Dry heath** within the SUAS part of the farm was therefore assessed as **Favourable**. However a review of the lands outside the SUAS area would indicate that there has been losses of this habitat to acid grassland as a result of grazing and afforestation.

#### **Structure and Functions**

In the assessment of structure and functions, both monitoring stops passed. Following a review of the ecological condition of those stops, expert judgement determined that no changes should be made, resulting in an overall pass rate of 100%. The structure and functions of **4030 Dry heath** were therefore assessed as **Favourable**.

The vegetation composition and structure of **4030 Dry heath** was generally good with a good diversity of mosses and bryophytes present.

The western slopes are becoming a little overgrown and there is some loss of diversity here as result. Appropriate grazing of this part of the hill could resolve this.

#### **Future Prospects**

The future prospects for the habitat are assessed as **Favourable** as the lands have been well managed and not burnt. A return to traditional grazing with cattle would assist in restoring a diversity of structure to those parts of the hill which are becoming inaccessible for sheep.

#### **Conservation Status Assessment**

Overall the conservation status assessment for dry heath habitat within the property is assessed as **Favourable**.

**The results of these assessments are presented on Figure 6 below.**

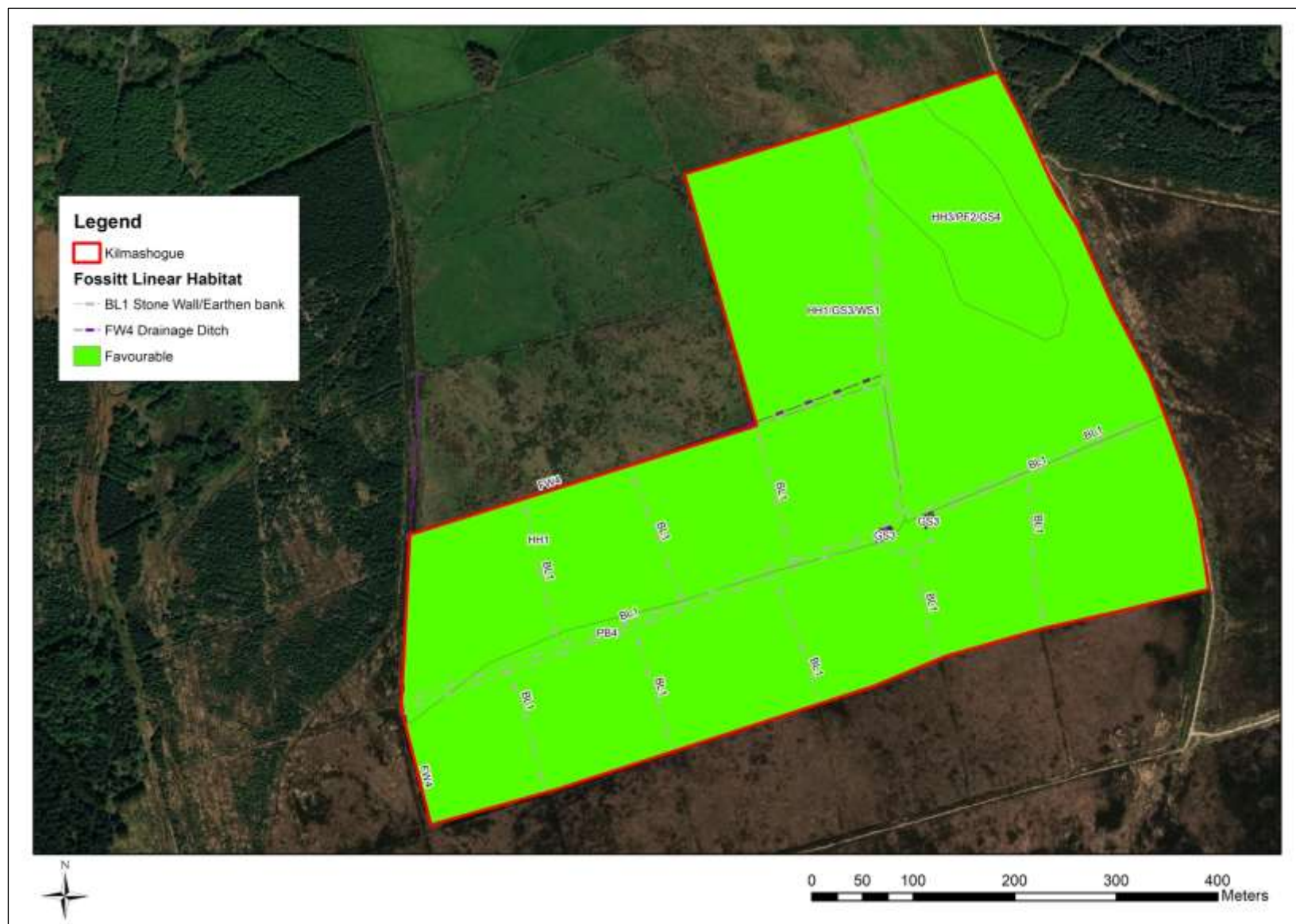


Figure 6. Habitat Condition Assessment for Kilmashogue.

## **4. Management Recommendations for Kilmashogue**

### **4.1 General Management Measures**

Any management proposals for the farm will utilise and be informed by the information provided in this report and assessment. The management prescriptions in this plan are set out to principally meet farming objectives as opposed to conservation based ones as the habitats on the hill are in **Favourable status**.

**The main recommendation is that there is no uncontrolled burning of the hill.**

The western slopes of the hill are becoming less accessible for grazing sheep on account of the leggy heather. The impacts of grazing deer have been addressed through ongoing shooting and deer control but with a site surrounded on nearly all sides by commercial forestry this will be an ongoing challenge.

The various parts of the hill requiring specific management are mapped on **Figure 7** and summarised in **Table 4**. Further information and best practice guidance on each of the management measures recommended are outlined below. Detailed 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.

### **4.2 Measures for the Annex I Habitat 4060 Dry Heath**

The western parts of the hill are currently dominated by tall and leggy heather, which is not favourable to grazing sheep as they cannot physically access it.

While a controlled burn could be considered in this location the proximity of the commercial forestry nearby and the risk to areas of intact habitat in good condition should a fire get out of control are a significant constraint.

Some of these areas could be flailed manually but a more holistic option would be to return cattle to the hill during the winter months which was traditionally practised on this farm. Their larger size and differences in grazing patterns could help to break up the areas of dense heather, promote heather regeneration and improve access for sheep. If possible one of the smaller, traditional hardy breeds of cattle or younger lighter animals should be considered.

### **4.3 Deer**

Consideration should be given to developing a deer management plan in the area in collaboration with other landowners/parties (Coillte/NPWS). Recording of deer numbers and their locations on the hill could be implemented during active shepherding. This will assist in developing a deer management plan for the area.

### **4.4 Monitoring**

Continued monitoring is required to determine how the vegetation responds to whichever management is implemented bearing in mind that there may be a delay between changes in grazing and a response in the vegetation.

### **4.4 Appropriate Assessment**

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



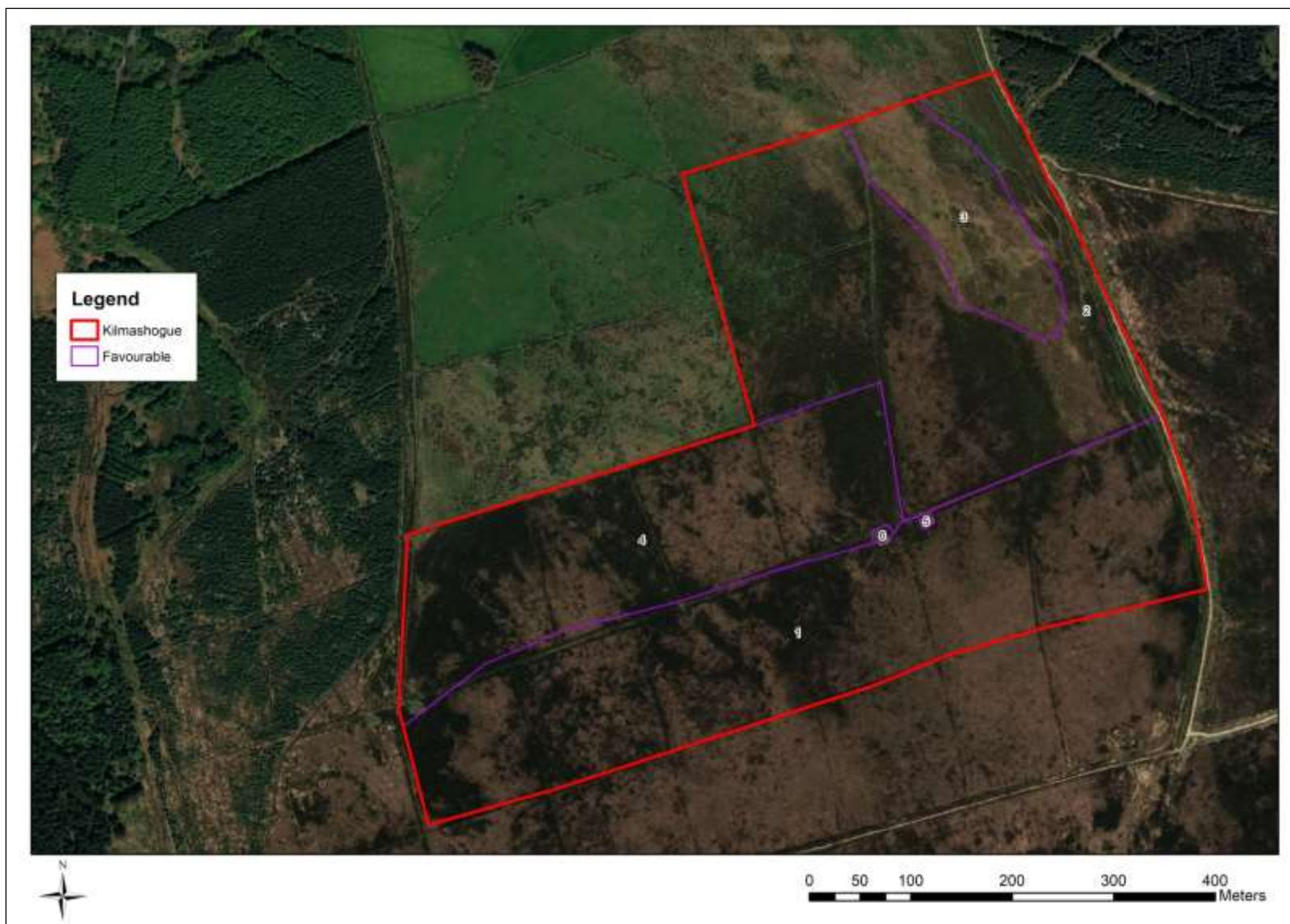


Figure 7. Management measures for Kilmashogue.

**Table 4. Habitats present on Kilmashogue and Management Recommendations.**

<b>Id</b>	<b>Annex 1 Code</b>	<b>Fossitt Code</b>	<b>Habitat</b>	<b>Area (m<sup>2</sup>)</b>	<b>Conservation Status</b>	<b>Management Prescription</b>
1		PB4	Cutover Bog	114801	Favourable	No uncontrolled burning  Control deer  No other specific measures required
2	4010	HH1/GS3/WS1	Dry Heath/ Acid Grassland/Scrub	98607	Favourable	No uncontrolled burning  Cut and remove encroaching gorse  Winter graze with cattle
3	4030	HH3/PF2/GS4	Wet Heath/Flush/Wet Grassland	23316	Favourable	No uncontrolled burning  Cut and remove encroaching gorse in areas of wet heath/flush  Winter graze with cattle
4	4030	HH1	Dry Heath	73569	Favourable	No uncontrolled burning  Winter graze with cattle  Could trial some manual cutting of leggy heather if required
5		GS3	Acid Grassland	177		No measures required
6		GS3	Acid Grassland	257		No measures required

5. Appendix 1. Historic Imagery of Kilmashogue



Plate 1. OSI Aerial photography 1995.



Plate 2. OSI Aerial photography 2000.





Plate 3. OSI Aerial photography 2005.



Plate 4. OSI Aerial photography 2005 - 2012.

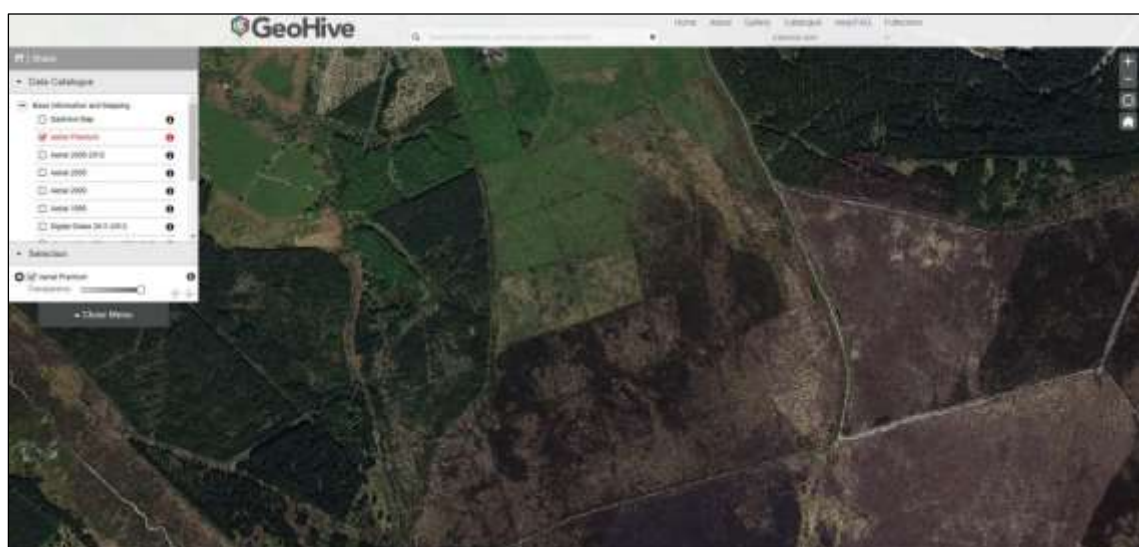


Plate 5. OSI Aerial Premium.



Plate 6. Google Maps Undated. Note burn to east of farm.

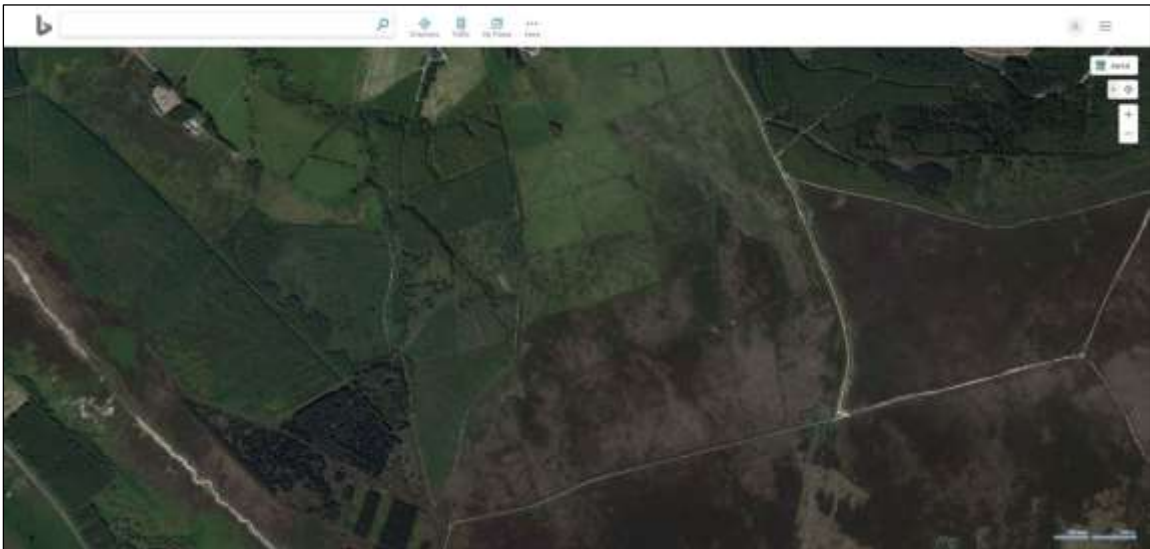


Plate 7. Undated (Source: Bing Maps).