

Wild Atlantic Way Signature Discovery Points

Ecological Study of Visitor Movement Areas 2015

Prepared for:
CAAS Ltd.

by

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Statement of Authority

This report was compiled by Dr Patrick Crushell, Dr Peter Foss, and Mr Brendan Kirwan on behalf of Wetland Surveys Ireland Ltd.

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Of particular relevance to this project, Dr Crushell has been involved in a number of national and regional surveys of semi-natural habitat including field surveys throughout Ireland on behalf of NPWS and various local authorities. See www.WetlandSurveysIreland.com for further details on project experience.

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Of particular relevance to this project, Dr Crushell has been involved in a number of national and regional surveys of semi-natural habitat including field surveys throughout Ireland on behalf of NPWS and various local authorities. See www.fossenvironmentalconsulting.com for further details.

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1 Introduction and background

Wetland Surveys Ireland Ltd. were commissioned by CAAS Ltd. to undertake detailed ecological baseline surveys at fifteen signature discovery points on the Wild Atlantic Way (see Table 1.1; Figure 1.1).

The aim of the ecological study was to collect baseline ecological information on sites in order to inform an assessment of visitor impacts associated with the current level and pattern of use of each site. The data collected during the survey should prove useful as a baseline for any future ecological monitoring at the sites.

Prior to the ecological study, a visitor monitoring survey examined the types, spatial patterns, and intensity of existing visitor activities at and adjacent to each of the Discovery Points (CAAS 2015). This visitor monitoring survey informed the design of the ecological study so that baseline ecological conditions at each site could be investigated in areas known to receive; maximum, moderate, minimum, and no loading.

1.1 Study aims

The main aims of the ecological study included:

- Describe the existing ecological characteristics of areas at and in proximity to Signature Discover Points;
- Provide baseline ecological data against which future monitoring of potential visitor related impacts can be undertaken;
- Undertake a condition assessment of semi-natural habitats in those areas in proximity to each individual signature discovery point, and where degradation is recorded, elucidate on the likely causative factors taking into consideration the known visitor behaviour at each site;
- Determine, using evidence based data, those sites where current use or future development of signature discovery points are / or could potentially lead to significant ecological effects on habitats / species of conservation concern. This determination will make particular reference to habitats / species of conservation concern and areas designated for nature conservation (SAC / SPA / NHA);
- Make recommendations with regards the need for improved visitor management at particular sites based on the outcome of the study; and
- Make recommendations with regard to the benefit of undertaking future ecological monitoring at individual sites.

Table 1.1: Wild Atlantic Way Signature Discovery Points surveyed as part of the study

Site Name	County	GPS
Malin Head	Donegal	55.381018, -7.3738003
Cionn Fhánada (Fanad Head)	Donegal	55.275617, -7.6345941
Sliabh Liag	Donegal	54.627438, -8.6847138
Mullaghmore Head	Sligo	54.470555, -8.4630775
Downpatrick Head	Mayo	54.322906, -9.3459186
Keem Bay	Mayo	53.967177, -10.195409
Killary Harbour	Galway	53.595759, -9.7645229
Derrigimlagh	Galway	53.467003, -10.03306
Cliffs of Moher	Clare	52.971639, -9.4260442
Loop Head	Clare	52.560901, -9.9304605
Radharc na mBlascaodaí (Blaskets View)	Kerry	52.104973, -10.455488
Bray Head	Kerry	51.891958, -10.396685
Dursey Island	Cork	51.607717, -10.158341
Mizen Head	Cork	51.451562, -9.8109117
Old Head of Kinsale	Cork	51.619701, -8.542146

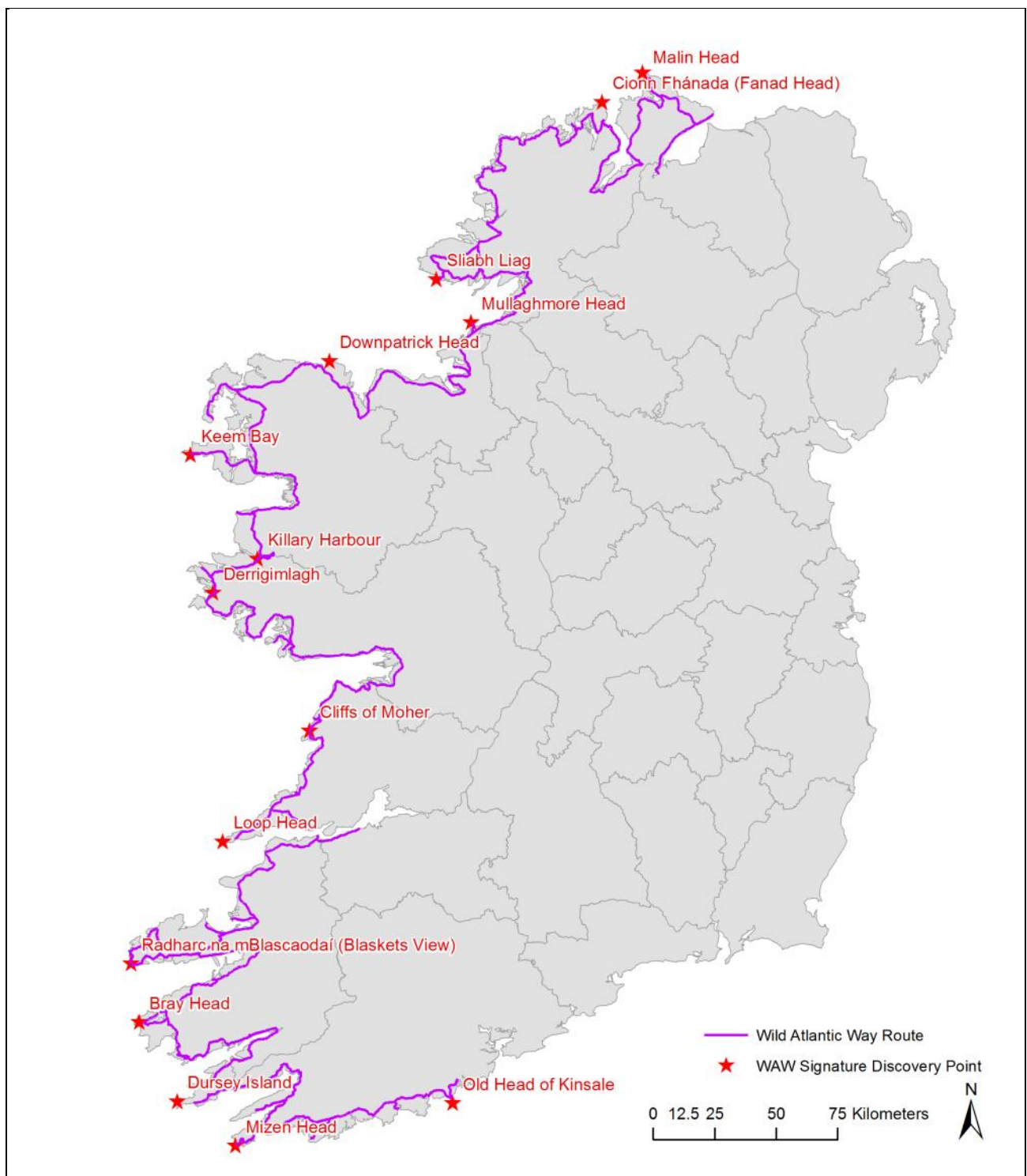


Figure 1.1: Signature Discovery Points along the Wild Atlantic Way surveyed during 2015

2 Methods

The methods followed during the ecological field survey were based on the standard approach to vegetation description and analysis by use of representative vegetation quadrats (or relevés). In all, 150 quadrats were recorded during the survey. The various parameters recorded at each quadrat location are described in Section 2.3 below.

2.1 Quadrat selection

A visitor behaviour survey undertaken during early 2015 examined the types, spatial patterns and intensity of existing visitor activities at and adjacent to each Discovery Point (CAAS 2015). This work served to direct

the ecologists to areas known to receive maximum (core movement areas), moderate (secondary movement areas), and minimum and no loading (termed control areas).

The locations of quadrats representative of each of these three categories were chosen based on the outcome of the visitor surveys prior to the commencement of ecology surveys.

2.2 Desktop review

A desktop review of ecological datasets was undertaken with a view to determining known sensitive ecological receptors at each discovery point. This included a review of NPWS designated site datasets. Field maps were prepared which showed the location of each of the pre-assigned quadrat locations and designated site boundaries (where relevant).

2.3 Field survey methods

2.3.1 Quadrat recording

Quadrats of the different vegetation types on the site were recorded in a specially designed digital database (FileMaker Pro software application) running on a GPS enabled field computer. The location of each of the quadrats was determined with the assistance of field maps and GIS software running on the GPS enabled field computer.

Once located, a wooden frame was laid down (orientated according to cardinal points) to indicate the extent of the quadrat (1m X 1m). All plant species within the quadrat were recorded and cover abundance value applied. The Domin scale of cover abundance was used during the study as follows:

- +: 1 individual, no measureable cover
- 1: <4% cover, with few individuals
- 2: <4% cover, with several individuals
- 3: <4% cover, with many individuals
- 4: 4-10% cover
- 5: 11-25% cover
- 6: 26-33% cover
- 7: 34-50% cover
- 8: 51-75% cover
- 9: 76-90% cover
- 10: 91-100% cover

A range of physical attributes were also recorded within each quadrat (e.g. slope, aspects, grazing impacts, soil type, soil/peat depth, substrate stability, cover and height values for different plant groups etc.).

A photographic record of each quadrat was taken in a north, south, east, and west direction, as well as a view vertically down onto each quadrat. Photographs were geotagged to facilitate their incorporation into a GIS. Additional photographs were also taken at regular intervals during the field survey to assist with subsequent interpretation and to record features in the wider landscape. A small bamboo cane was located in the south-east corner of each quadrat to assist in identifying quadrats in any future monitoring.

General survey target notes were recorded on a GPS enabled field computer running a GIS software application (iGIS V7.4). These notes referred to features of interest within the site and areas adjacent to quadrats.

During the course of the survey habitats present at each site were classified according to Fossitt (2000) and where relevant according to Annex I of the EU Habitats Directive. Guidance in determining whether or not a habitat type may correspond to an EU Annex I type was sought from a variety of sources including European Commission (2013), O'Neill *et al.* (2013), Perrin *et al.* (2013), Barron *et al.* (2011), Ryle *et al.* (2009), and Fossitt (2000).

2.3.2 Habitat condition assessment

An assessment of habitat condition was undertaken for each quadrat using a five point scale from good to bad as outlined in Table 2.1. The key criteria used when determining condition included; the presence (and abundance) or absence of indicator species, damage to vegetation (grazed, trampled, broken stems, etc.), erosion features, and presence and percentage cover of bare soil.

Table 2.1 Condition assessment of terrestrial habitats

Ranking	Assessment	Description
1	Good	No evidence of any negative impact on habitats or other ecological features
2	Fair	Localised degree of negative impact, but slight and capable of rapid recovery
3	Doubtful	Widespread degree of negative impact, but slight and capable of rapid recovery
4	Poor	Localised negative impact, requiring intervention to allow full recovery
5	Bad	Widespread negative impact, requiring intervention to allow full recovery

2.3.3 Nomenclature

During the field survey, attention was paid to the possible occurrence of plant species which are considered to be rare in both a national and local context (Scannell and Synnott 1987) with particular emphasis on plant species listed in the Irish Red Data Book for vascular plants (Curtis and McGough 1988), the 1999 Flora Protection Order, and Annex II of the E.U. Habitats Directive.

Plant species nomenclature in this report follows Parnell & Curtis (2012) for vascular plants, Atherton (2010) for mosses and liverworts, and Whelan (2011) for lichens. Moss species were mostly only keyed out to whether they belonged to the acrocarpous or pleurocarpous groups. Some mosses, liverworts, and higher plants not readily identified in the field were collected and keyed out at a later time using appropriate keys.

2.3.4 Survey Limitations

The survey was constrained by trampled vegetation, and over grazing which led to difficulties in the identification of floral species in some instances. The surveys were carried out over the summer period, an optimum time for most plant identification. Quadrat locations were recorded using portable GPS units which have an accuracy of up to 5 metres. It is considered that, by referring to the GPS co-ordinates together with quadrat photographs and permanent wooden markers (used in most instances), it should be possible to re-locate quadrats to a high degree of accuracy during any future monitoring surveys.

3 Results

This section of the report presents an overview of the survey on a site by site basis. The outcome of the survey in relation to each site is presented under the following headings: Site description, ecological constraints, baseline ecology, assessment of visitor impact, and recommendations.

In all, 150 quadrats were recorded during the survey. Information gathered during the survey of quadrats informed the individual site reports presented in this section. The original data pertaining to each of the 150 quadrats is presented in Appendix I.

3.1 Malin Head, County Donegal

3.1.1 Site Description



Plate 3.1: Malin Head, County Donegal

Malin Head is located in Co. Donegal and is a privately owned site. The site comprises two small car parks, some derelict historic buildings and tower, and a cliff top walk. Three World War 2 huts and a viewing platform (constructed in late 2014) are adjacent to the upper car park. During the July 2015 survey, a large number of visitors were present at the site, car parking was inadequate and a number of cars were observed to park on muddy verges and in off-road areas of wet soil/heath. Donegal County Council has approved Planning Permission for a new car park and toilet facility south of Malin Head at the lower car park. The site attracts visitors for being the most northerly point in the mainland of Ireland.

The site includes areas of wet and dry heath on shallow peat, acid grasslands often with maritime species present, some dense bracken stands, bare rock and gravel areas, as well as the adjacent sea cliffs. The dominant rock type is quartzite. All areas within the site are grazed by sheep.

3.1.2 Ecological Constraints

The Malin Head Discovery Point occurs within the North Inishowen Coast SAC and pNHA (see Table 3.1 and Figure 3.1). Two Annex I habitat types for which the SAC is designated occur at the site; dry heath, and vegetated sea cliffs. Both these habitats would be sensitive to potential impacts associated with visitor activities in the area.

The surrounding area is also of value to Chough (six individuals recorded during field survey) and Peregrine Falcon, species of high conservation concern (Annex I of EU Birds Directive). Both of these bird species are associated with the rocky sea cliffs. Choughs are likely to use the heath and sandy habitats for feeding.

The Malin Head SPA, located 2km from the Discover Point, is designated for the protection of Corncrake. The SPA is sufficiently removed that potential impacts are not foreseen.

Table 3.1: Designated sites in proximity and relevant sensitive ecological receptors

NPWS Code	Site	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002012		North Inishowen Coast SAC / pNHA	Discovery Point occurs within the SAC / pNHA	<p><u>Annex I Habitats</u> Mudflats and sandflats [1140] Perennial vegetation of stony banks [1220] Vegetated sea cliffs [1230] Fixed coastal dunes (grey dunes) [2130] Machairs* [21A0] Dry heath [4030]</p> <p><u>Annex II Species</u> <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Lutra lutra</i> (Otter) [1355] The site is also of importance for following Annex I bird species: Barnacle Goose (<i>Branta leucopsis</i>) Chough (<i>Pyrrhocorax pyrrhocorax</i>) Peregrine Falcon (<i>Falco peregrinus</i>)</p>

[*priority habitat]

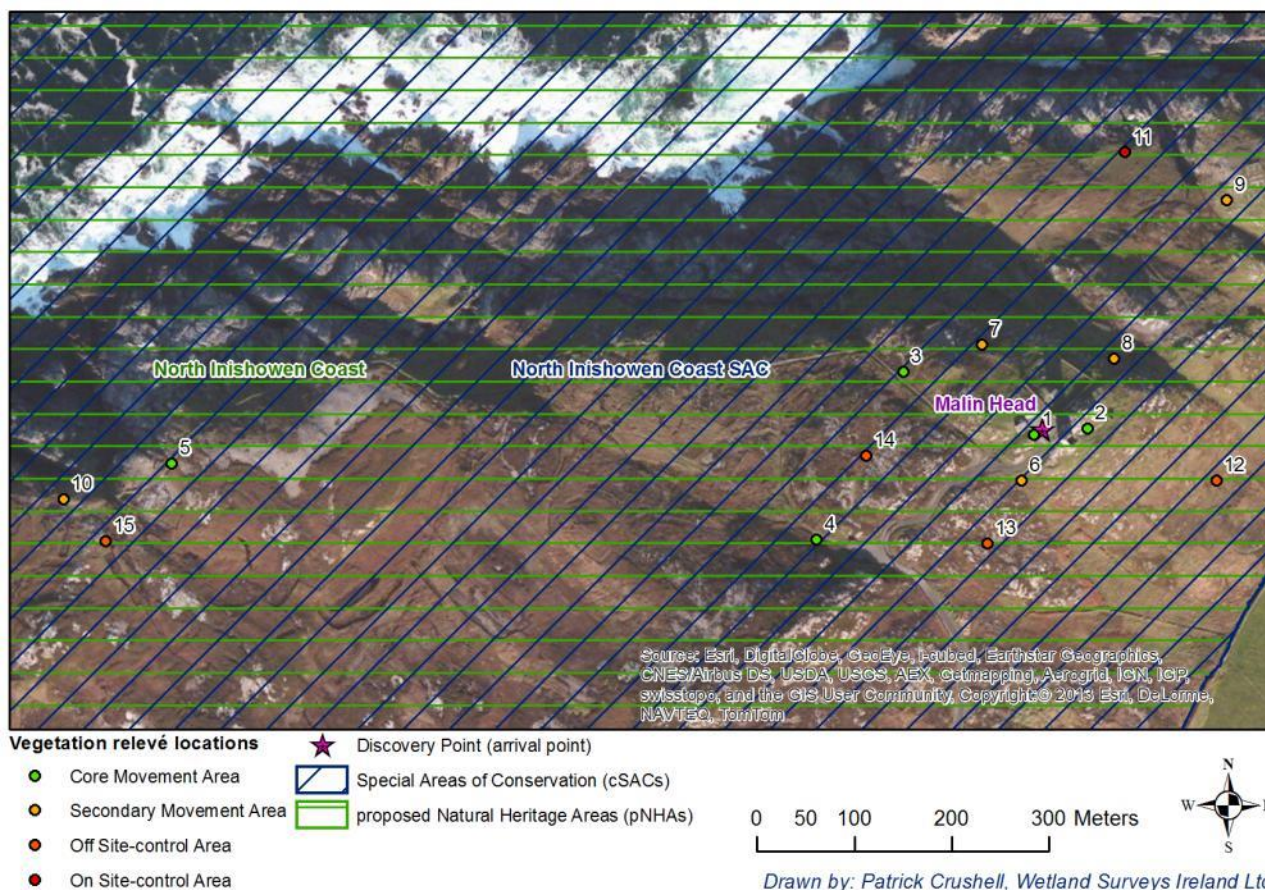


Figure 3.1: Malin Head Discovery Point. The location of quadrats and designated sites is indicated.

3.1.3 Baseline Ecology of study area

A total of 15 quadrats were recorded at Malin Head as summarised in Table 3.2. The main habitats in the area include dry heath (HH1), wet heath (HH3), acid grassland (GS3), and exposed siliceous rock (ER1). The dry heath that occurs within the site is a qualifying feature for the North Inishowen Coast SAC. Wet heath is listed on Annex I of the EU Habitats Directive but is not a qualifying habitat for the North Inishowen Coast SAC. The data collected during the survey indicates that the heathland habitats removed from the core visitor areas are in good condition while those areas in proximity to are somewhat degraded by a combination of visitor pressure and grazing.

Detailed quadrat data for the site is presented in Appendix I.

Table 3.2: Summary details of each quadrat recorded at Malin Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Car park	Poor
2	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Fair
3	Core Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Fair
4	Core Movement Area	ED3 Recolonising bare ground	NA	Grazing - sheep / Visitor use	Doubtful
5	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Fair
6	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Visitor use	Fair
7	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep / Visitor use	Poor
8	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep / Visitor use	Poor
9	Secondary Movement Area	GS1 Dry calcareous and	NA	Grazing - sheep /	Doubtful

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
		neutral grassland		Visitor use	
10	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep	Fair
11	On Site-control Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
12	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
13	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
14	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
15	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good

3.1.4 Preliminary assessment of visitor impact

Negative impacts on the site observed during the 2015 ecology survey included trampling of herbaceous vegetation and the compaction of peat soil on informal tracks. In the worst affected areas on the site bare peat and underlying sub-soil / rock have been exposed.

Off road parking by visitor vehicles between the two car park areas is also causing damage to the surface vegetation with bare peat and exposed soils.

There is a new formal hardcore path running from the car park towards the headland in the west. However, the path does not extend all the way to the headland and where the path ends a number of compacted and eroding trails or desire lines are evident.

There is no formal path towards the EIRE sign north east of the tower car park. Numerous eroding trails and desire lines occur towards this location. A trend amongst visitors is to arrange stones / rocks in this area in the form of writing.

In conclusion, there is little visitor management in the area and the current level of use by visitors is having an adverse impact on the sensitive ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe.

3.1.5 Recommendations

Visitors are having an adverse impact at this site. At times, vehicles are parked in un-surfaced areas which is causing damage to grassland and adjoining heath. Visitors are also having an impact at the south-western end of the site where a number of desire lines progress beyond the existing formal path in proximity to vegetated sea cliffs. In these areas vegetation is showing signs of trampling and soils are compacted.

Consideration should be given to preventing further damage by controlling / managing visitor access to sensitive areas, and preventing off-road parking.

Future ecological monitoring is recommended.

3.2 Cionn Fhánada, County Donegal (Fanad Head)

3.2.1 Site Description



Plate 3.2: Cionn Fhánada (Fanad Head), County Donegal

Cionn Fhánada or Fanad Head is located in Co. Donegal and is a privately owned site. The site comprises a small car park with a capacity of approximately 10 cars.

Cionn Fhánada on the Fanad Peninsula lies between Lough Swilly and Mulroy Bay on the north coast of County Donegal. The Fanad Head lighthouse sits on the western shore of the Peninsula. The lighthouse is closed to the general public at present but it is intended to open the lighthouse as a visitor attraction in the future.

The site includes areas of maritime grassland, improved grassland, Gorse scrub, wet grassland, and vegetated sea cliffs. The underlying geology is predominantly granodiorite, a basic igneous rock. The east-facing coast is of quartzite and is exposed as a rocky shore and low cliffs.

All areas within the site are grazed by sheep. Cattle are present inside the boundaries of derelict Coast Guard Station building, where extensive poaching was evident during the field survey.

3.2.2 Ecological Constraints

The Cionn Fhánada Discovery Point occurs within the Ballyhorrisky Point to Fanad Head SAC / pNHA, and the Horn Head to Fanad Head SPA (see Table 3.3 and Figure 3.2).

A single Annex I habitat for which the SAC is designated occurs at the site; vegetated sea cliffs. The cliff-top areas would be sensitive to impacts associated with visitors. The Horn Head to Fanad Head SPA is designated for ten bird species. Most of these species occur along the cliffs at Fanad Head with the exception of Barnacle Geese and Greenland White-fronted Geese. Choughs are likely to feed amongst the grassland and cliff-top habitats in the area and would be sensitive to disturbance in the breeding season.

Table 3.3 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Code	Site	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001975		Ballyhorrisky Point to Fanad Head SAC / pNHA	Discovery Point occurs within the SAC / pNHA	<p><u>Annex I Habitats</u></p> <p>Perennial vegetation of stony banks [1220] Vegetated sea cliffs [1230] Oligotrophic lakes [3110] Hard oligo-mesotrophic waters [3140]</p> <p><u>Annex II Species</u></p> <p><i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Najas flexilis</i> (Slender Naiad) [1833]</p>

NPWS Code	Site	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
004194		Horn Head to Fanad Head SPA	Discovery Point occurs within the SPA	Barnacle Goose (<i>Branta leucopsis</i>) [A045] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] Peregrine Falcon (<i>Falco peregrinus</i>) [A103] Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]

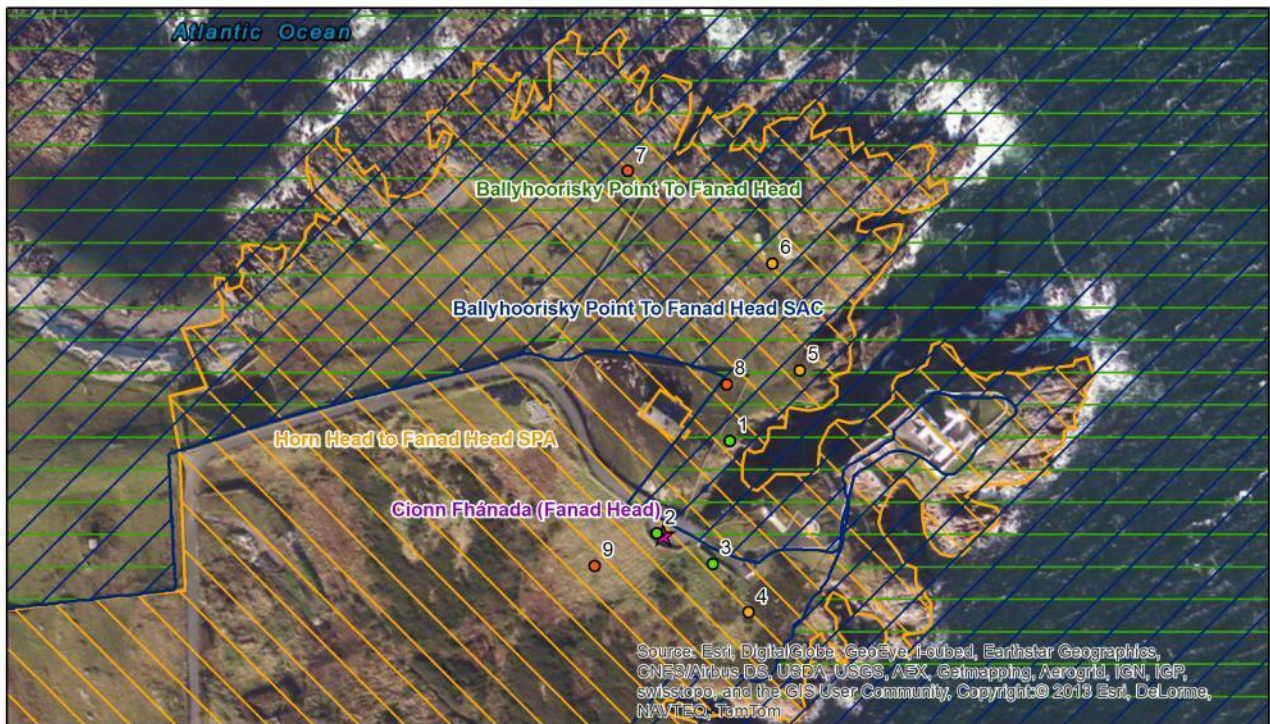


Figure 3.2: Cionn Fhánada Discovery Point. The location of quadrats and designated sites is indicated.

3.2.3 Baseline Ecology of study area

Nine vegetation quadrats were recorded at Fanad Head as summarised in Table 3.4. The main habitats in the area include maritime grassland (classified as Dry calcareous and neutral grassland (GS1)), wet grassland (GS4), improved agricultural grassland, and small areas of recolonising bare ground (ED3). The sea cliffs that occur on site are a qualifying feature for the Ballyhoorisky to Fanad Head SAC.

The data collected during the survey indicates that the offsite control areas are in good condition, and are relatively undisturbed by visitors. Off site control (Quadrat 9) occurs in an area of wet grassland, the field in which the quadrat was recorded has been subject to reclamation (ongoing) which has resulted in large areas of spoil and bare ground (ED2). The survey indicates that core visitor areas are somewhat degraded by a combination of visitor pressures and grazing.

Table 3.4: Summary details of each quadrat recorded at Cionn Fhánada

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
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No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Fair
2	Core Movement Area	ED3 Recolonising bare ground	NA	Car park	Good
3	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Visitor use	Doubtful
4	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
5	Secondary Movement Area	GS4 Wet grassland	NA	Grazing - sheep / Visitor use	Fair
6	Secondary Movement Area	GS4 Wet grassland	NA	Grazing - sheep / Visitor use	Fair
7	Off Site-control Area	GA1 Improved agricultural grassland	NA	Grazing - sheep	Good
8	Off Site-control Area	GA1 Improved agricultural grassland	NA	Grazing - cattle	Good
9	Off Site-control Area	GS4 Wet grassland	NA	None	Good

3.2.4 Preliminary assessment of visitor impact

Adverse localised impacts on the site observed during the 2015 ecology survey included trampling of herbaceous vegetation and the compaction of soil on informal tracks. In the worst affected areas on the site the surface is bare of vegetation.

There is no formal path towards the sea cliffs to the north of the car park. An eroding trail is present along this route, adjacent to the coastguard station boundary wall.

In conclusion, there is little visitor management in the area and the current level of use by visitors is having a minor adverse impact on the ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe.

3.2.5 Recommendations

Visitor activities at this site are having a minor adverse impact on maritime grassland due to trampling on informal pathways. Consideration should be given to preventing further damage by controlling / managing visitor access to sensitive areas.

Future ecological monitoring is recommended.

3.3 Sliabh Liag, County Donegal

3.3.1 Site Description



Plate 3.3: Sliabh Liag, County Donegal

Sliabh Liag (Slieve League) is located west of Killybegs in Co. Donegal. The site comprises of a lower car park and toilet block (under construction) and an upper car park facilitating approximately 20 cars. There is a walking trail towards the summit of Sliabh Liag at the site. Visitor facilities include a large viewing platform, interpretation panels, picnic benches and formal paths. A cliff top walkway is under construction towards the peak of Sliabh Liag. The site is a very busy visitor location.

The dramatic Slieve League cliffs are said to be some of the best and highest examples of marine cliffs in the world. The site includes areas of grassland often with maritime species present, stands of dense bracken, wet and dry heathland, blanket bog, and siliceous and calcareous rocky slopes together with vegetated sea cliffs.

The geology of the area is mainly of quartzite, with the cliffs capped by a basal inlier of Carboniferous

sandstones and conglomerates, a remnant of the Tertiary peneplain. All areas within the site are grazed by sheep.

3.3.2 Ecological Constraints

The Sliabh Liag Discovery Point occurs within the Slieve League SAC / pNHA, and the West Donegal Coast SPA (see Table 3.5 and Figure 3.3). Three Annex I habitats for which the SAC is designated occur in proximity to the discovery point; sea cliffs, wet heath, and blanket bog. These habitats would be sensitive to potential impacts associated with visitor activities in the area.

The West Donegal Coast SPA contains nationally important breeding populations of both Chough (six individuals recorded during field survey) and Peregrine Falcon. Choughs are likely to nest on the sea cliffs adjacent to visitor access routes and would be sensitive to disturbance during the breeding season.

Table 3.5 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000189	Slieve League SAC / pNHA	Discovery Point occurs within the SAC/NHA	<u>Annex I Habitats</u> Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Northern Atlantic wet heaths with Erica tetralix [4010] Alpine and Boreal heaths [4060] Blanket bogs (* if active bog) [7130] Calcareous rocky slopes with chasmophytic vegetation [8210] Siliceous rocky slopes with chasmophytic vegetation [8220]

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
004150	West Donegal Coast SPA	Discovery Point occurs within the SPA	<p><u>Annex I Bird Species</u> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]</p> <p><u>Other Bird Species</u> Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Razorbill (<i>Alca torda</i>) [A200]</p>

[*priority habitat]

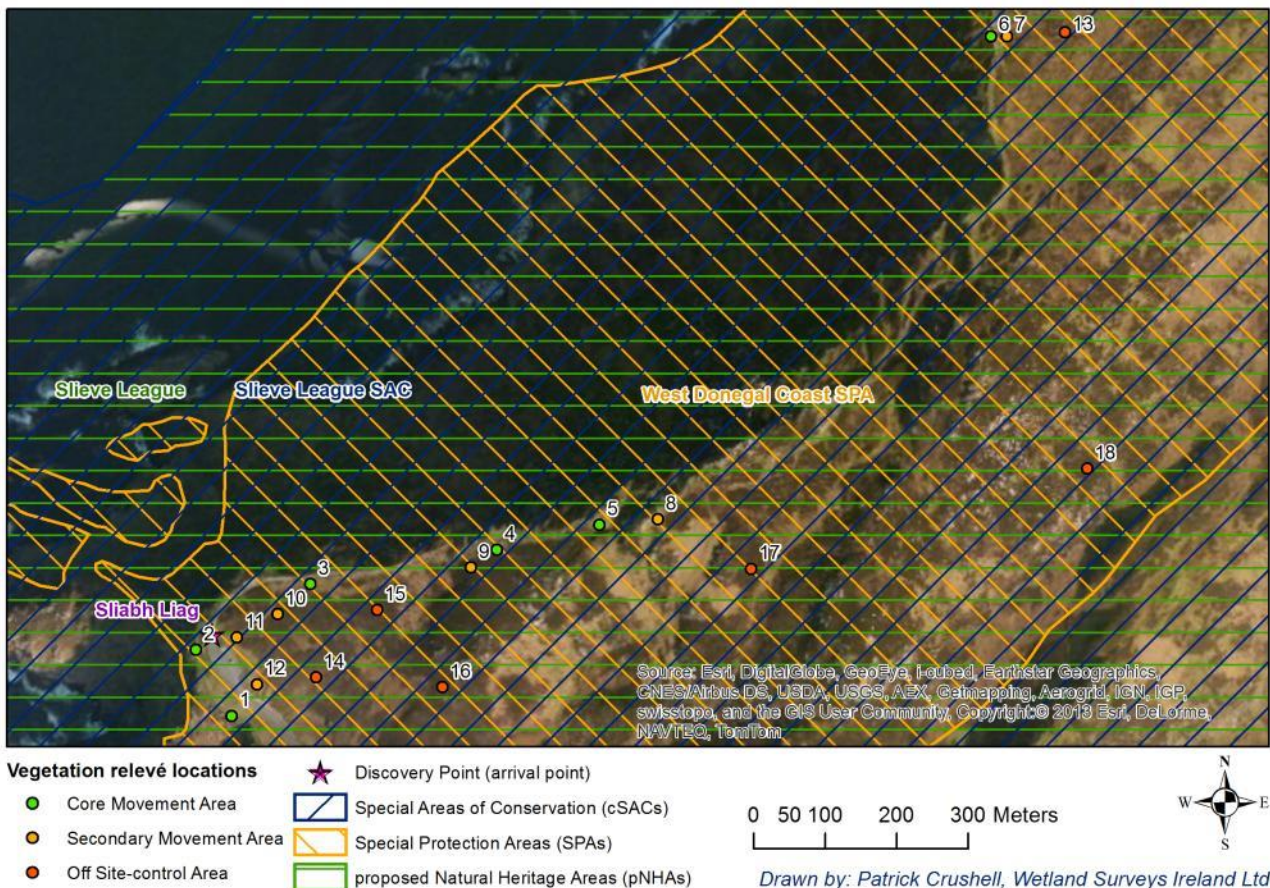


Figure 3.3: Sliabh Liag Discovery Point. The location of quadrats and designated sites is indicated.

3.3.3 Baseline Ecology of study area

Eighteen vegetation quadrats were recorded at Sliabh Liag as summarised in Table 3.6 below. The main habitats in the area include wet heath (HH3), dry heath (HH1), maritime grassland (GS1), and upland blanket bog (PB2). The wet heath, blanket bog, and sea cliffs that occur on site are qualifying features for the Slieve League SAC.

The data collected during the survey indicates that the offsite control areas are in good condition, and are relatively undisturbed by visitors to the Discovery Point. The survey indicates that core and secondary visitor areas are somewhat degraded by a combination of visitor pressure and sheep grazing.

Table 3.6: Summary details of each quadrat recorded at Sliabh Liag

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Fair
2	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Fair
3	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Doubtful
4	Core Movement Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep / Visitor use	Doubtful
5	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / picnic location	Doubtful
6	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Good
7	Secondary Movement Area	PB2 Upland blanket bog	Blanket bog [7130]	Grazing - sheep	Good
8	Secondary Movement Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep / Visitor use	Fair
9	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
10	Secondary Movement Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
11	Secondary Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Fair
12	Secondary Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Good
13	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
14	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
15	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
16	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
17	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
18	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good

3.3.4 Preliminary assessment of visitor impact

Adverse impacts on the site observed during the 2015 ecology survey included trampling of heathland vegetation and the compaction of soil on informal tracks. In the worst affected areas on the site bare peat and underlying sub-soil have been exposed.

A new formal path has been constructed from the main car park towards the sea cliffs to the north-east; the path also comprises a viewing platform adjacent to the sea cliffs. Trampled of vegetation is evident in proximity to the formal path where visitors traverse heathland en route to the cliff tops. These informal trails appear to be recovering following installation of new path.

In conclusion, there is some recently improved visitor management in the area although the past level of use by visitors has had a local adverse impact on the ecology of the site. Should visitor numbers increase without appropriate management then such effects may become more severe.

3.3.5 Recommendations

Visitor use of this site has in the past impacted on the heathland habitats present although with recent management such damage is showing signs of recovery. Consideration should be given to preventing further damage by controlling / managing visitor access to sensitive areas.

Future ecological monitoring is recommended.

3.4 Mullaghmore Head, County Sligo

3.4.1 Site Description



Plate 3.4: Mullaghmore, County Sligo

Mullaghmore Head is located north from the village of Mullaghmore in Co. Sligo. The area is noted for its surfing waves, the historical interest of Classiebawn castle, and the skyline dominated by Ben Bulbin Mountain. This site comprises a layby with parking for approximately 10 cars located beside coastal cliffs. There are no interpretive facilities at the site.

The site includes areas of grassland often with maritime species present, dry heathland, rank grassland, improved grassland and less commonly vegetated sea cliffs. The underlying geology is of sedimentary rocks including limestone, shale and sandstone.

Cattle grazing is generally confined to enclosed fields adjacent to the main visitor area.

3.4.2 Ecological Constraints

The Mullaghmore Head Discovery Point occurs within the Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA (see Table 3.7 and Figure 3.4). There are no SPAs or other designated sites within 1km of the Discovery Point,

the closest SPA, Donegal Bay SPA, occurs ca 15km north-west of Mullaghmore.

Table 3.7 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000625	Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA	The Discovery Point occurs within the SAC / pNHA.	<p><u>Annex I Habitats:</u> Alkaline fens Fixed dunes (grey dunes)* Juniper scrub Large shallow inlets and bays Machair* Marram dunes (white dunes) Orchid-rich calcareous grassland Reefs Tidal mudflats</p> <p><u>Annex II Species:</u> <i>Petalophyllum ralfsii</i> (Petalwort) [1395]</p>

[*priority habitat]

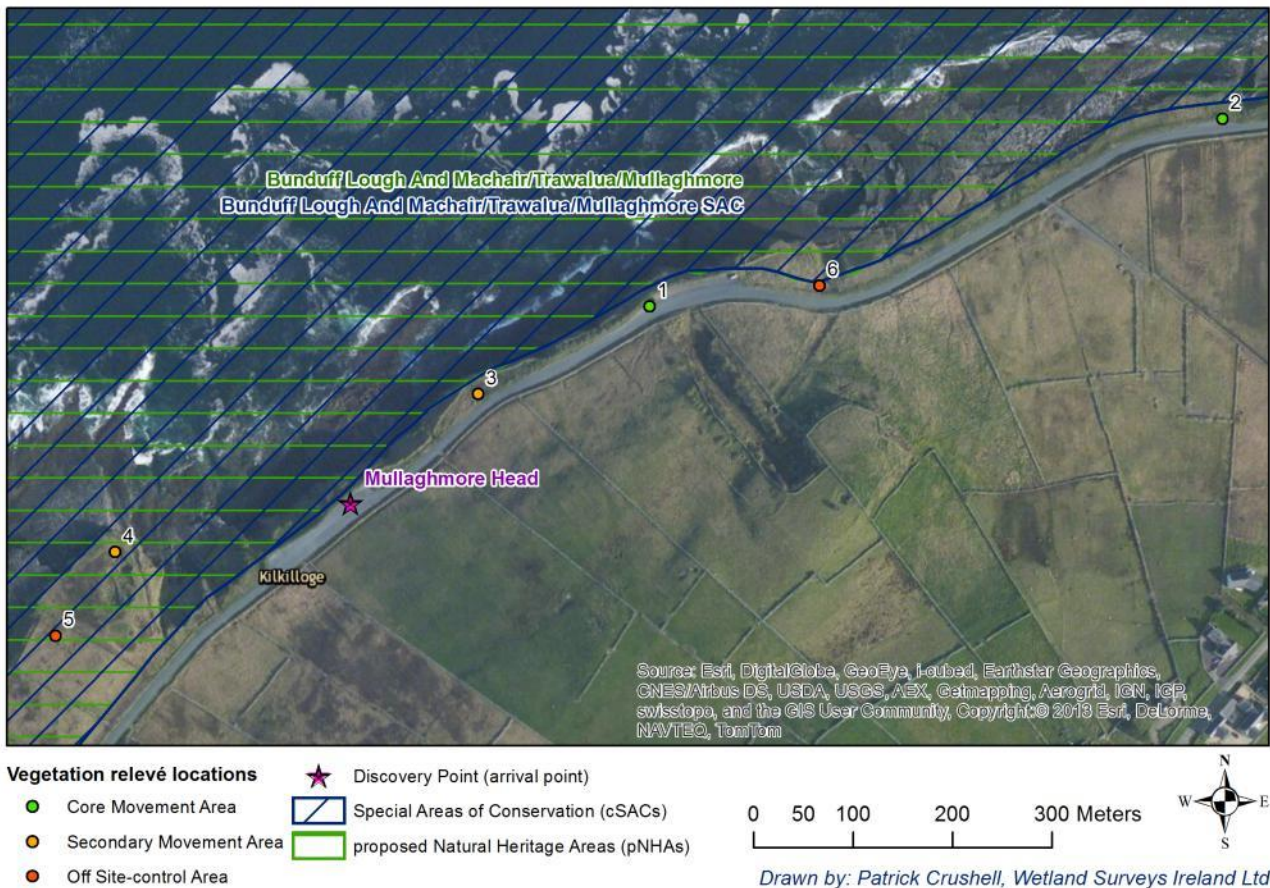


Figure 3.4: Mullaghmore Head Discovery Point. The location of quadrats and designated sites is indicated.

3.4.3 Baseline Ecology of study area

Six vegetation quadrats were located at Mullaghmore Head as summarised in Table 3.8 below. The main habitats in the area include maritime grassland (GS1) in association with dry heath (HH2). The data collected during the survey indicates that the secondary and control areas are generally in good condition, and show little signs of disturbance. Any disturbance to habitats in the area is mostly confined to areas immediately adjacent to the car park.

Table 3.8: Summary details of each quadrat recorded at Mullaghmore Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	ED3 Recolonising bare ground	NA	Car park	Doubtful
2	Core Movement Area	ED3 Recolonising bare ground	NA	Visitor use	Fair
3	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
4	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Visitor use	Fair
5	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - cattle	Good
6	Off Site-control Area	GS2 Dry meadows and grassy verges	NA	None	Good

3.4.4 Preliminary assessment of visitor impact

Very minor adverse impacts on the site observed during the 2015 ecology survey included trampling of vegetation on informal tracks, and along roadside verges (due in part to vehicle parking and movements).

There are no formal paths to the rocky shores to the north of the Discovery Point. A number of informal paths in the form of desire lines are present in this area where vegetation is trampled but vegetation cover remains intact.

In conclusion, there is little visitor management in the area and the current level of use by visitors is having a very minor localised impact on the ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe.

3.4.5 Recommendations

Visitors are having a negligible adverse impact at this site. Car parking along the edge of the roads by visitors is causing damage to the grass verge. Visitors traverse areas of herbaceous vegetation, leading to the compaction of herbaceous plants and soil. Consideration should be given to preventing further damage by controlling / managing visitor access to sensitive areas, and controlling visitor parking along the roadside verge.

Future ecological monitoring is recommended.

3.5 Downpatrick Head, County Mayo

3.5.1 Site Description

Downpatrick Head is located in Co. Mayo and is a privately owned site. The site consists of a car park with a further two laybys south of the main car park. The main car park has capacity for approximately 30 cars and there are no toilet facilities. From the car park visitors can walk to Downpatrick Head along un-surfaced pathways.



Plate 3.5: Main car park at Downpatrick Head, County Mayo

The site has recently been developed to include a bund and viewpoint around the larger of two blowholes. There is also glass/safety railing surrounding the blowhole. There was some interpretive materials inside the hideout underneath the viewing platform at the larger blowhole.

The smaller blowhole (near to the car park) has been covered by steel mesh allowing visitors to walk over it and look down into the blow hole.

The site provides some spectacular and accessible coastal scenery which illustrates marine erosion and the structure of sedimentary rocks. Downpatrick Head is formed of yellowish Carboniferous sandstone which is bedded horizontally and therefore stands as vertical cliffs around the headland and its outlier, the sea stack of Doonbristy.

The vegetation around the cliffs is mostly maritime grassland. To the south acid grassland is found beyond a 'flushed' belt of Black Bog rush on a shallow peat layer. The site is grazed by sheep in all areas.

3.5.2 Ecological Constraints

The Downpatrick Head Discovery Point occurs within the Downpatrick Head pNHA (see Table 3.9 and Figure 3.5). The pNHA is of importance for its sea cliffs, stacks, and seabird colonies. The site is chiefly noted for its seabird colony, which has a documented history going back to the 1890s. The sea cliffs on site provide suitable habitat for breeding sea birds. Large numbers of Kittiwake and Guillemot (Annex I Birds Directive) were recorded during the 2015 ecology survey. Both Kittiwake and Guillemot nest on the vertical cliff faces and are unlikely to be disturbed by visitors. The sea cliffs on site conform to EU Habitat Annexed quality. The nearest sites designated as European sites are the Glenamoy Bog Complex SAC (6km to the south-west), and the Lackan Saltmarsh and Kilcullen Head SPA (7km to the south-east).

Table 3.9 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000494	Downpatrick Head pNHA	The Discovery Point occurs within the pNHA.	<p><u>Habitats:</u> Vegetated Sea Cliffs Maritime grassland Wet heath</p> <p><u>Birds:</u> Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199]</p>

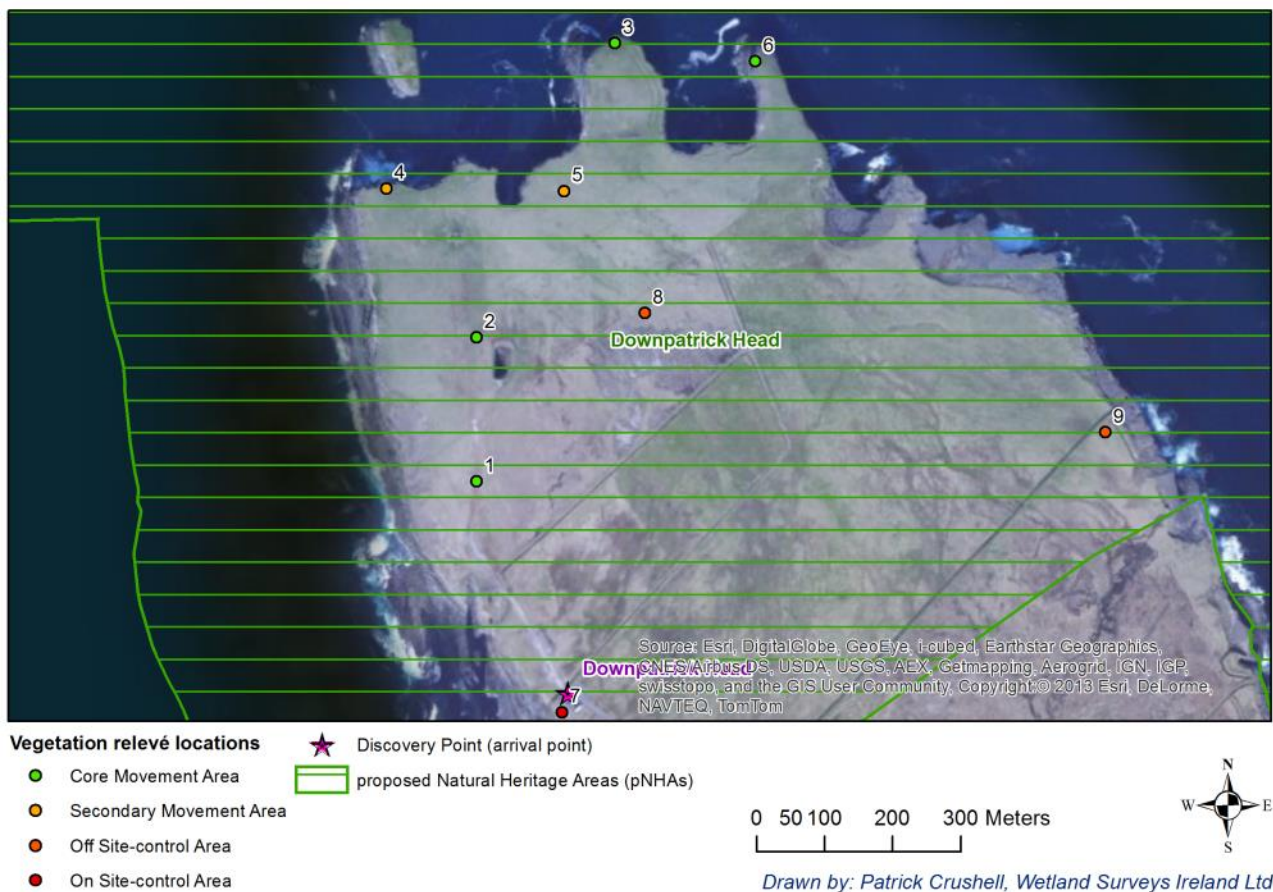


Figure 3.5: Downpatrick Head Discovery Point. The location of quadrats and designated sites is indicated.

3.5.3 Baseline Ecology of study area

Nine vegetation quadrats were recorded at Downpatrick Head as summarised in Table 3.10. The main habitats in the area include maritime (GS1) and improved agricultural grassland (GA1) towards the east. Pockets of wet heath (HH3) occur and the headland is surrounded by sea cliffs (CS1 & CS3). The data collected during the survey indicates that the habitats removed from the core visitor areas are in good condition while those areas in proximity are somewhat degraded by a combination of visitor pressure and grazing.

Table 3.10: Summary details of each quadrat recorded at Downpatrick Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GA2 Amenity grassland (improved)	NA	Grazing - sheep / Visitor use	Doubtful
2	Core Movement Area	GA1 Improved agricultural grassland	NA	Grazing - sheep / Visitor use	Doubtful
3	Core Movement Area	GA1 Improved agricultural grassland	NA	Grazing - sheep / Visitor use	Fair
4	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep	Good
5	Secondary Movement Area	GA1 Improved agricultural grassland	NA	Grazing - sheep / Visitor use	Good
6	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use - fishing	Fair
7	On Site-control Area	GS1 Dry calcareous and neutral grassland	NA	Visitor car park	Fair
8	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
9	Off Site-control Area	GA1 Improved agricultural grassland	NA	Grazing - sheep & cattle	Good

3.5.4 Preliminary assessment of visitor impact

Adverse impacts on the site observed during the 2015 ecology survey included trampling of herbaceous vegetation and the compaction of soil on informal tracks. In the worst affected areas the underlying sub-soil have been exposed, particularly in proximity to the main car park and at the headland at the north-east of the site in proximity to Quadrat No.6 where the surface is dominated by bare soil caused by visitor activity. A large group of anglers were observed fishing from the sea cliffs on this headland.

Adverse effects are also evident in proximity to the two blow holes on site. The main access track to the first blow hole comprises an informal path with bare soil surface. Evidence of trampling and informal paths also occurs in proximity to the second blow hole. A glass barrier and viewing platform has recently been installed here.

In conclusion, there is minor visitor management in the area and the current level of use by visitors is having a localised adverse impact on the ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe.

3.5.5 Recommendations

Visitors are having an adverse impact at this site, as is evident by presence of eroding paths near the blow holes and areas of bare exposed soil on the headland to the north-east (caused mainly by people fishing from this location).

Consideration should be given to preventing further damage by controlling / managing visitor access to sensitive areas.

Future ecological monitoring is recommended.

3.6 Keem Bay, County Mayo

3.6.1 Site Description

Keem Bay is located in Co. Mayo. It consists of a sheltered bay with a winding road leading down to the main car park and beach area.



Plate 3.6: Keem Bay, County Mayo

Keem Bay is a perfect horseshoe bay at the head of a valley between the cliffs of Benmore to the west and Croaghaun Mountain on the east. At the southern end of the valley, the beach is sheltered to the west by Moyteoge Head, while at the north-western end of the valley the cliffs of Benmore connect with the spectacular mile long promontory of Achill Head. This is the most westerly point on Achill and tails off with two sea stacks called Gaoí Saggart and Carrickakin.

A total of 5 car park areas exist on the way down to the main and largest car park near the strand. These are all connected to the road leading down to the site. Toilet, picnic tables and car

parking facilities are located north of the site. Visitors to the site primarily use the beach area, with a small number trekking on the headland to the south.

The site includes areas of acid grasslands and semi-improved grassland often with maritime species present, wet and dry heathland, stands of dense bracken and vegetated sea cliffs. The geology of the area is mainly of Dalradian Quartzites and Schists. All grassland and heath areas within the site are grazed by sheep.

3.6.2 Ecological Constraints

Keem Bay Discovery Point occurs within the Croaghaun/Slievemore SAC/pNHA, and immediately adjacent to Achill Head SAC (marine) (see Table 3.11 and Figure 3.6). The Croaghaun/Slievemore SAC is designated for alpine and boreal heath; this habitat type occurs to upland areas within the SAC.

Maritime grassland and heath provide suitable foraging habitat for Chough (six individuals recorded during the 2015 survey), an Annex I bird species, in proximity to the Discovery Point. It is considered unlikely that the QIs of Achill Head SAC (see Table 3.11) will be adversely impacted on by visitor activity at Keem Bay Discovery Point, given the location of the Discovery Point, and the habitat types present. There are no SPAs within 1km of the Discovery Point, the nearest SPA, Bills Rocks SPA, occurs ca 15km to the south.

Table 3.11 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001955	Croaghaun/Slievemore SAC / pNHA	The Discovery Point occurs within the SAC / pNHA.	<u>Annex I Habitat:</u> Alpine and Boreal Heath [4060] <u>Annex I Bird Species:</u> Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]
002268	Achill Head SAC	The Discovery Point occurs immediately adjacent to the SAC.	<u>Annex I Habitats:</u> Mudflats and sandflats [1140] Large shallow inlets and bays [1160] Reefs [1170]

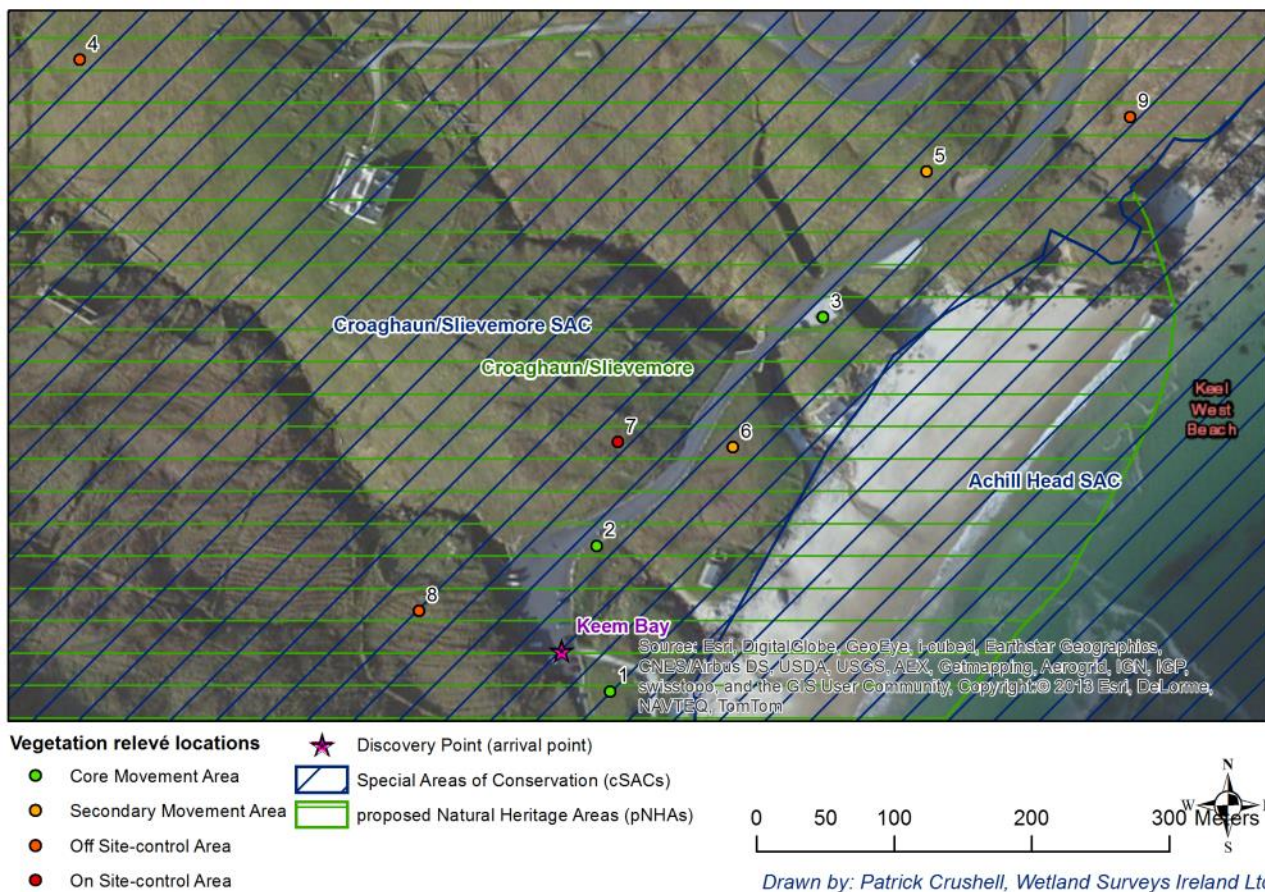


Figure 3.6: Keem Bay Discovery Point. The location of quadrats and designated sites is indicated.

3.6.3 Baseline Ecology of study area

Nine vegetation quadrats were recorded at Keem Bay as summarised in Table 3.12. The main habitats in the area include dry humid acid grasslands (GS3), wet heath (HH3), buildings and artificial surfaces (BL3), and sand shores (LS2). The hillsides to the north-west of the Discovery Point are dominated by wet heath (Annex I of EU Habitats Directive). This habitat is vulnerable to trampling due to visitor activity. The data collected during the survey indicates that the heathland habitats removed from the core visitor areas are in good condition. Those grassland and heath areas in proximity to the discovery point show little evidence of damage by visitors.

Table 3.12: Summary details of each quadrat recorded at Keem Bay

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Good
2	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep / Visitor use	Good
3	Core Movement Area	BL3 Buildings and artificial surfaces	NA	Grazing - sheep / Visitor use / Car park	Good
4	Off Site-control Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
5	Secondary Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
6	Secondary Movement Area	GS4 Wet grassland	NA	Grazing - sheep	Good
7	On Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
8	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
9	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good

3.6.4 Preliminary assessment of visitor impact

Only minimal impacts of visitors on the ecology of the area were noted during the 2015 ecology survey. Most visitors remain within the confines of the surfaced car park and paths leading to the beach.

Potential effects of visitors on the heathland to the west were not assessed as part of the current survey. There is no formal path towards to the top of the hills to the west of the strand where a number of visitors were observed traversing sensitive heath habitat.

In conclusion, there is adequate visitor management in the area to cater for the current level of use by visitors. Should visitor numbers increase without appropriate management then adverse impacts could potentially occur.

3.6.5 Recommendations

Based on the outcome of the current study, no adverse impacts on the ecology of the area are occurring.

Future ecological monitoring is recommended in particular targeting those heathland areas to the west.

3.7 Killary Harbour, County Galway

3.7.1 Site Description

The Killary Harbour site is located in Co. Galway. The site consists of a large layby west of Leenaun (capacity approximately 10-20 cars) to the north of the N59 road.



Plate 3.7: Killary Harbour, County Galway

The car park is enclosed by a recently constructed stone wall (ca 1m high) on the northern side, which is topped by a wooded fence. The car park has also recently been resurfaced with tarmac. The site has a small viewing platform constructed from stone with a hardcore surface at the western end of the layby. There was no interpretive material at the site.

The area surrounding the car park includes areas of agricultural grassland, minor stands of dense bracken, and willow scrub. Sheep graze the fields to the south of the road.

3.7.2 Ecological Constraints

The Killary Harbour Discovery Point occurs within 120m of the Maumturk Mountains SAC / pNHA at its nearest point, and within ca 750m of the Mweelrea/Sheeffry/Erriff Complex SAC / pNHA (see Table 3.13 and Figure 3.7). There are no hydrological links between the Discovery Point and either SAC / pNHA. It is considered very unlikely that adverse impacts to these sites will arise from visitor activity at the Discovery Point. There are no SPAs within 1km of the Discovery Point, the nearest SPA (Illaunanoon SPA) occurs ca 24km south-west.

Table 3.13: Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001932	Mweelrea/Sheeffry/Erriff Complex SAC/NHA	Killary Harbour Discovery Point occurs ca 750m south of the SAC/NHA.	Twenty four peatland and coastal Annex I habitats. Seven Annex II Species.
002008	Maumturk Mountains SAC/NHA	Killary Harbour Discovery Point occurs ca 120m north of the SAC/NHA.	Six upland and peatland Annex I habitats and two Annex I species.

3.7.3 Baseline Ecology of study area

Six vegetation quadrats were recorded at Killary Harbour Discovery Point as summarised in Table 3.14. The main habitats surrounding the car park include semi-improved agricultural grassland. The Discovery Point and its immediate surroundings comprise a large car park and viewing platform. The data collected during the survey suggests that the managed grassland habitats in the surroundings are low ecological interest and removed from any visitor use. The primary and secondary movement areas are within the confines of the road and associated verges.

Table 3.14: Summary details of each quadrat recorded at Killary Harbour

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep	Fair
2	Core Movement Area	BL3 Buildings and artificial surfaces	NA	Car park	Good
3	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Good
4	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep / Visitor use	Fair
5	Off Site-control Area	PF2 Poor fen and flush	NA	Grazing - sheep	Good
6	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep	Good

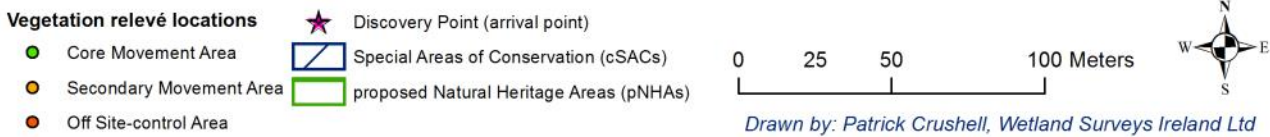


Figure 3.7: Killary Harbour Discovery Point. The location of quadrats and designated sites is indicated.

3.7.4 Preliminary assessment of visitor impact

The site provides adequate parking space and there is no evidence of impacts on sensitive habitats.

3.7.5 Recommendations

No ecological impacts recorded.

No further ecological monitoring is required at this managed site.

3.8 Derrigimlagh, County Galway

3.8.1 Site Description

Derrigimlagh Discovery Point is located in Co. Galway. This site consists of a large car park (capacity approximately 10-20 cars) located in a remote area south of Clifden. A monument to the Alcock and Whitten-Brown landing site is located across the road from the car park.



Plate 3.8: Derrigimlagh, County Galway

The car park is enclosed by a one meter high stone wall on the northern side. The monument is located to the south of the road, and is surrounded by a hardcore area. South of the hardcore area is a sloped bank of heath/grass vegetation which is separated from the adjacent rough grazing land by a barbed wire fence. Visitors mainly remain within car park and hardcore area around the monument.

The area surrounding the car park includes areas of wet grasslands, rank grassland, heath with outcropping rocks, a small lake, stands of dense bracken, and Gorse scrub.

Planning permission for development of a car park and walkway has been sought for the Marconi site south of the monument.

3.8.2 Ecological Constraints

The Derrigimlagh Discovery Point occurs ca 750m north of the Slyne Head Peninsula SAC (see Table 3.15 and Figure 3.8). There are no direct hydrological links between the Discovery Point and the SAC. Given the management of the area, absence of a hydrological link, and the distance from the Discovery Point, there is no potential for adverse impacts on the Slyne Head Peninsula SAC. Dry heath and wet heath which occur at the Discovery Point is listed as an Annex I habitats under the EU Habitats Directive would be sensitive to trampling.

There are no SPAs within 1km of the Discovery Point, the nearest SPA, Connemara Bog Complex SPA, occurs approximately 2.5km west of the Discovery Point and it is considered very unlikely that that SCIs of the SPA will be adversely impacted by visitor activity at the Derrigimlagh Discovery Point.

Table 3.15: Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001932	Slyne Head Peninsula SAC / pNHA	Derrigimlagh Discovery Point occurs ca 750m south of the SAC / pNHA.	Eighteen Annex I habitats including a range of peatland (including dry heath), freshwater, and coastal habitats.

3.8.3 Baseline Ecology of study area

Six vegetation quadrats were recorded at Derrigimlagh Discovery Point as summarised in

Table 3.16. The main habitats in the surrounding area include dry heath and wet heath (HH1 and HH3). The area used by visitors is confined to the car park and hardcore area surrounding the monument. The data collected during the survey confirms that the heathland habitats are in good condition although grazing is, in places, causing local degradation.

Table 3.16: Summary details of each quadrat recorded at Derrigimlagh

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	BL3 Buildings and artificial surfaces	NA	Car Park	Good
2	Core Movement Area	ED3 Recolonising bare ground	NA	Visitor Use	Doubtful
3	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
4	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
5	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - cattle	Good
6	Off Site-control Area	HH3 Wet heath	Wet heath [4010]	Grazing - cattle	Fair



- Vegetation relevé locations**
- Core Movement Area
 - Secondary Movement Area
 - Off Site-control Area
 - ★ Discovery Point (arrival point)

0 12.5 25 50 75 Meters



Drawn by: Patrick Crushell, Wetland Surveys Ireland Ltd

Figure 3.8: Derrigimlagh Discovery Point. The location of quadrats and designated sites is indicated (none present within 750m).

3.8.4 Preliminary assessment of visitor impact

Ecological impacts on sensitive receptors were not recorded during the survey. Visitor effects are confined to the car park area and areas of low ecological value immediately surrounding the monument.

3.8.5 Recommendations

No ecological impacts recorded.

Ecological monitoring may be required during works associated with any proposed further expansion of the Discovery Point.

3.9 Cliffs of Moher, County Clare

3.9.1 Site Description

The Cliffs of Moher site is located in Co. Clare approximately six kilometres north of Liscannor. This is an example of a highly managed site. The site has a visitor centre, a large car park across the road and coach parking adjacent to the visitor centre. O’Brien’s Tower is accessible from the North Platform. From here, access can be gained to the northern part of the coastal walk trail which extends northwards along the cliff-top.



Plate 3.9: Car park and visitor centre at Cliffs of Moher, County Clare

top.

The South Platform allows access to the walk to the southern section of the coastal walk trail.

On both trails north and south of the site, visitors were observed leaving the trails and walking along desire lines – which have formed deeply eroded tracks – along the headland. The study area includes areas of semi-improved grassland and maritime grassland, as well as cliffs. No evidence of grazing was noted within the site during the 2015 quadrat survey.

3.9.2 Ecological Constraints

The Discovery Point occurs immediately adjacent to the Cliffs of Moher SPA and the Cliffs of Moher pNHA (see Table 3.17 and Figure 3.9). The SCIs of the Cliffs of Moher SPA may be sensitive to disturbance from visitor activity at the site although they typically occur on the steep cliff faces removed from the visitor areas.

There are no SACs within 1km of the Discovery Point, the nearest SAC, the Inagh River Estuary, occurs ca 8km south-east of the Discovery Point.

Table 3.17: Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
004005	Cliffs of Moher SPA	The Discovery Point occurs immediately adjacent to the SPA.	<p><u>Annex I Bird Species:</u> Guillemot (<i>Uria aalge</i>) [A199] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]</p> <p><u>Other Bird Species</u> Fulmar (<i>Fulmarus glacialis</i>) [A009] Kittiwake (<i>Rissa tridactyla</i>) [A188] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]</p>
000026	Cliffs of Moher pNHA	The Discovery Point occurs immediately adjacent to the pNHA.	Maritime grassland Sea cliffs Sea Birds

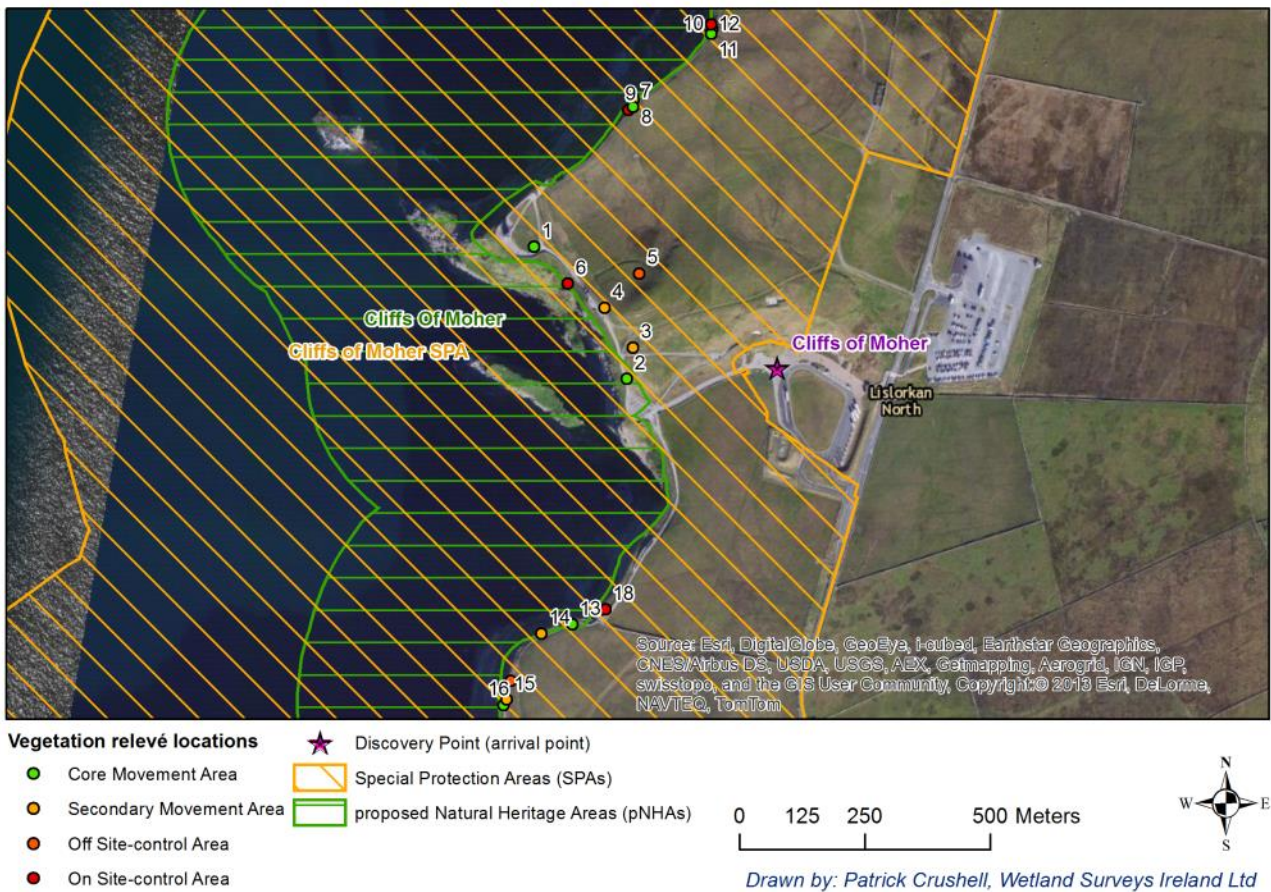


Figure 3.9: Cliffs of Moher Discovery Point. The location of quadrats and designated sites is indicated.

3.9.3 Baseline Ecology of study area

Eighteen vegetation quadrats were recorded at the Cliffs of Moher as summarised in Table 3.18. The main semi-natural habitats in the area include maritime grassland (GS1) and sea cliffs (CS1 & CS3) with bare ground (ED1) occurring in degraded cliff-top areas. In the managed areas of that site amenity grassland (GA2) and buildings and artificial surfaces are present.

The data collected during the survey shows that the grasslands to the east of the site are intensively managed for agriculture. The cliff-top habitats along the un-surfaced trails are heavily degraded while more inaccessible areas on the cliff-top are in good condition.

Table 3.18: Summary details of each quadrat recorded at Cliffs of Moher

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GA2 Amenity grassland (improved)	NA	Path edge	Fair
2	Core Movement Area	GA2 Amenity grassland (improved)	NA	Path edge	Poor
3	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Fair
4	Secondary Movement Area	GA2 Amenity grassland (improved)	NA.	Amenity Management	Good
5	Off Site-control Area	GA1 Improved agricultural grassland	NA.	Grazing - cattle	Good
6	On Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
7	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Walking - no management	Bad
8	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Walking-management no	Fair
9	On Site-control Area	GS1 Dry calcareous and	NA.	None	Good

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
		neutral grassland			
10	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Poor
11	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Walking track	Bad
12	On Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
13	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Walking - no management	Bad
14	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Walking - no management	Poor
15	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Walking - no management	Poor
16	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Walking - no management	Bad
17	Off Site-control Area	GA1 Improved agricultural grassland	NA.	Meadow - silage	Good
18	On Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good

3.9.4 Preliminary assessment of visitor impact

Negative impacts on the site observed during the 2015 ecology survey included trampling of herbaceous vegetation and the compaction of peat soil on informal tracks on the north and south coastal walking trails. In the worst affected areas complete removal of surface vegetation has occurred and erosion features are evident on the exposed soils.

In conclusion, there is insufficient visitor management in areas removed from the main surfaced paths and significant adverse impacts on the cliff top habitat are evident.

3.9.5 Recommendations

Visitors are having a significant negative impact on cliff-top habitats at this site, in particular on the north and south coastal walk trails where large numbers of visitors are trafficking across un-surfaced informal paths. Such damage is leading to erosion of the soil surface.

Further damage should be avoided by controlling / managing visitor access to sensitive areas. Measures to reinstate damaged areas also need to be considered.

Future ecological monitoring is recommended.

3.10 Loop Head, County Clare

3.10.1 Site Description

Loop Head is located in south-west Co. Clare. The site comprises of a car park for approximately 30-40 cars as well as a bicycle parking stand and information signs. The headland west of the lighthouse contains an 'EIRE' sign. The lighthouse is enclosed by a wall and is accessible to the public. Most visitors were observed to visit the lighthouse. Loop Head Lighthouse is open to the public and managed by Clare County Council.



Plate 3.10: Car park at Loop Head, County Clare

Visitors were observed walking west towards the headland – primarily along un-surfaced paths – to view the 'EIRE' sign and then south around the headland. Desire lines from visitor behaviour are evident.

The study area includes areas of maritime grassland with small pockets of dry heath as well as sea cliffs. No evidence of grazing was noted within the site during the 2015 quadrat survey.

3.10.2 Ecological Constraints

The Loop Head Discovery Point occurs immediately adjacent to the Lower River Shannon SAC (see Table 3.19 and Figure 3.10). The vegetated sea cliffs which occur at the site are a qualifying interest of SAC.

The Loop Head Discovery Point occurs within ca 300m of the Loop Head SPA which includes the coastal cliffs. The SPA is designated for the protection of Kittiwake, and Guillemot. The trails used by visitors to this Discovery Point traverse areas in close proximity to potential the cliff habitats used by these birds. However, considering their known ecology potential for adverse impacts is low. Other bird species of note that occur in the area include Chough, and Peregrine Falcon.

The Marsh Fritillary butterfly has been recorded from areas around the tip of Loop Head in recent years.

Table 3.19 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002165	Lower River Shannon SAC	The Discovery Point occurs immediately adjacent to the SAC.	<u>Fourteen terrestrial, freshwater, and marine Annex I habitats.</u> <u>The only habitats relevant to the Discovery Point is:</u> Sea cliffs <u>Seven Annex II Species.</u>
004119	Loop Head SPA	The Discovery Point occurs within 300m of the SPA/	<u>Annex I Species:</u> Guillemot (<i>Uria aalge</i>) [A199] <u>Other Species</u> Kittiwake (<i>Rissa tridactyla</i>) [A188]
000045	Loop Head pNHA	The Discovery Point occurs immediately adjacent to the pNHA.	Peregrine Falcon (<i>Falco peregrinus</i>)

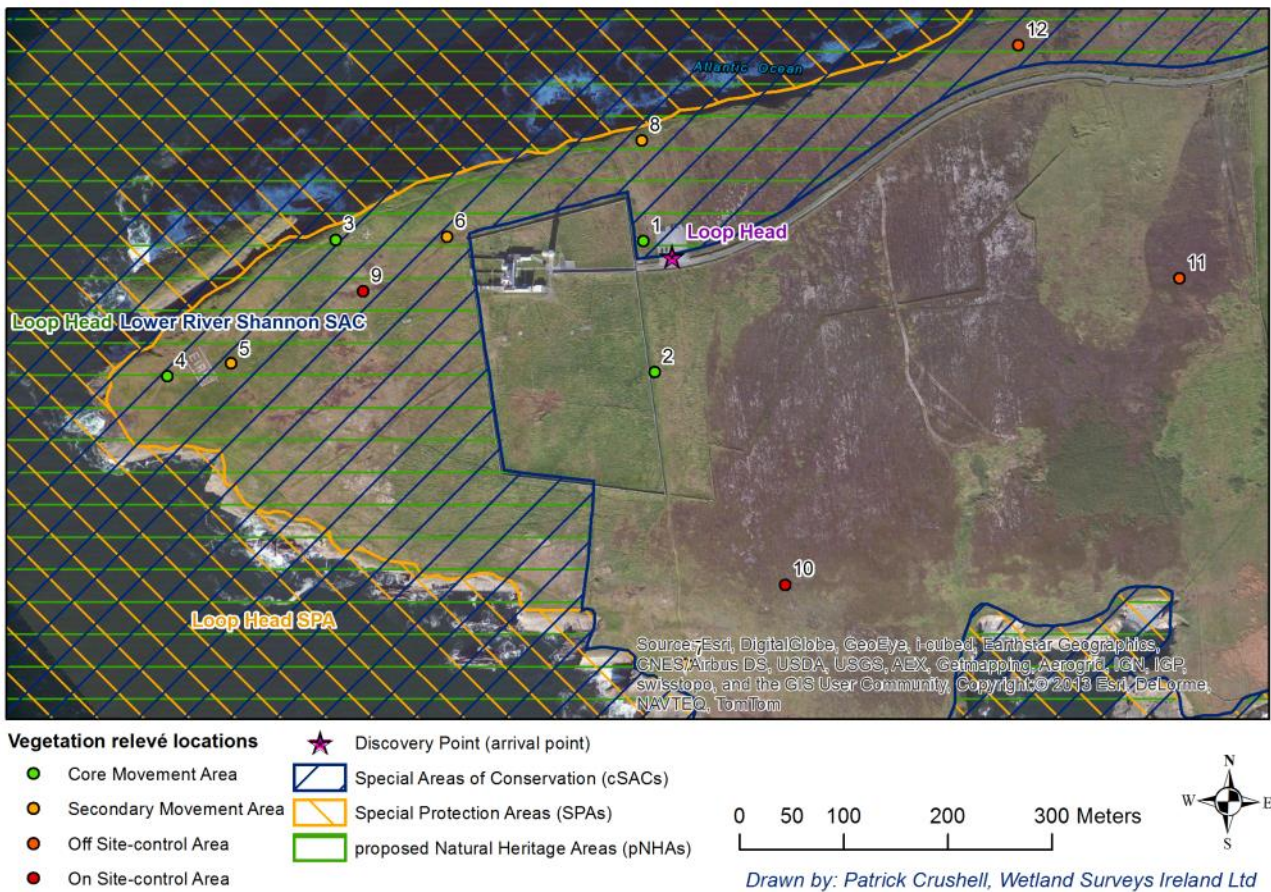


Figure 3.10: Loop Head Discovery Point. The location of quadrats and designated sites is indicated.

3.10.3 Baseline Ecology of study area

Twelve vegetation quadrats were recorded at Loop Head Discovery Point as summarised in Table 3.20. The main habitats in the area include maritime grassland (GS1), dry heath (HH1), and sea cliffs (CS1 and CS3). Amenity grassland (GA2) and buildings and artificial surfaces (BL3) occur in the area of the car park.

The data collected during the survey indicates that the grassland and heath habitats removed from the core and secondary visitor areas are in good condition. Quadrats that were recorded along un-surfaced paths are locally degraded with trampled herbaceous vegetation and exposed soil in places.

Table 3.20: Summary details of each quadrat recorded at Loop Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Un-surfaced path	Fair
2	Core Movement Area	GA1 Improved agricultural grassland	NA	Walking track	Fair
3	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	On un-surfaced path.	Poor
4	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Walking track	Poor
5	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
6	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Adjacent to un-surfaced path.	Good
7	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Fair
8	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Adjacent to path.	Good
9	On Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
10	On Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
11	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
12	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good

3.10.4 Preliminary assessment of visitor impact

Negative impacts on the site observed during the 2015 quadrat survey included trampling of herbaceous and heath vegetation, with exposed soil locally occurring in the worst affected areas.

In conclusion, there is little visitor management beyond the car park and the current level of use by visitors is having a minor localised adverse impact on the ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe

3.10.5 Recommendations

Visitors are having a minor localised adverse impact at this site, in particular along the coastal walking trails where desire lines are evident. At present these informal un-surfaced paths generally retain a low grassland sward. Some localised bare soil erosion features were noted on paths. Consideration needs to be given to control / manage visitor access to sensitive areas to prevent further damage to sensitive habitats.

Future ecological monitoring is recommended particularly in the context of a way marked trail being established in the area.

3.11 Radharc na mBlascaodaí (Blaskets View), County Kerry

3.11.1 Site Description

Radharc na mBlascaodaí (Blaskets View) is located along the Sleah Head Drive on the Dingle Peninsula in Co. Kerry and comprises a busy layby. The site includes car park, picnic benches built into the wall of car park, and information signs.



Plate 3.11: Radharc na mBlascaodaí (Blasket View), County Kerry

It was an example of best practice management for layby sites. Visitors observed to spend approximately 5 minutes on site primarily sight-seeing and taking photos.

The study area includes areas of amenity grassland and grassy verges.

No evidence of grazing was noted within the site during the 2015 quadrat survey. Sheep graze the fields to the west of the visitor car park and road.

3.11.2 Ecological Constraints

The Radharc na mBlascaodaí Discovery Point occurs approximately 130m east of the Blasket Islands SAC (see Table 3.21 and Figure 3.11). The habitats within and surrounding the discovery point do not correspond with any EU Annex I habitat are of low ecological importance.

The site also occurs immediately adjacent to the Dingle Peninsula SPA. The SPA is designated for the protection of Chough, Peregrine Falcon, and Fulmar.

The Sleah Head proposed NHA occurs immediately adjacent to the Discovery Point, the conservation interest of the site lies in the variety of habitat types it contains in the rich diversity of locally uncommon plant species that it supports.

Table 3.21 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002172	Blasket Islands SAC	The Discovery point occurs ca 130m east of the SAC.	<u>Annex I Habitats:</u> Dry heaths Reefs Sea caves Sea cliffs <u>Annex II Species:</u> <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] <i>Halichoerus grypus</i> (Grey Seal) [1364]
004153	Dingle Peninsula SPA	The Discovery Point occurs immediately adjacent to the SPA.	<u>Annex I Bird Species:</u> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] Other Species: Fulmar (<i>Fulmarus glacialis</i>) [A009]
001377	Sleah Head pNHA	The Discovery Point occurs immediately adjacent to the pNHA.	Coastal habitats Sea Birds

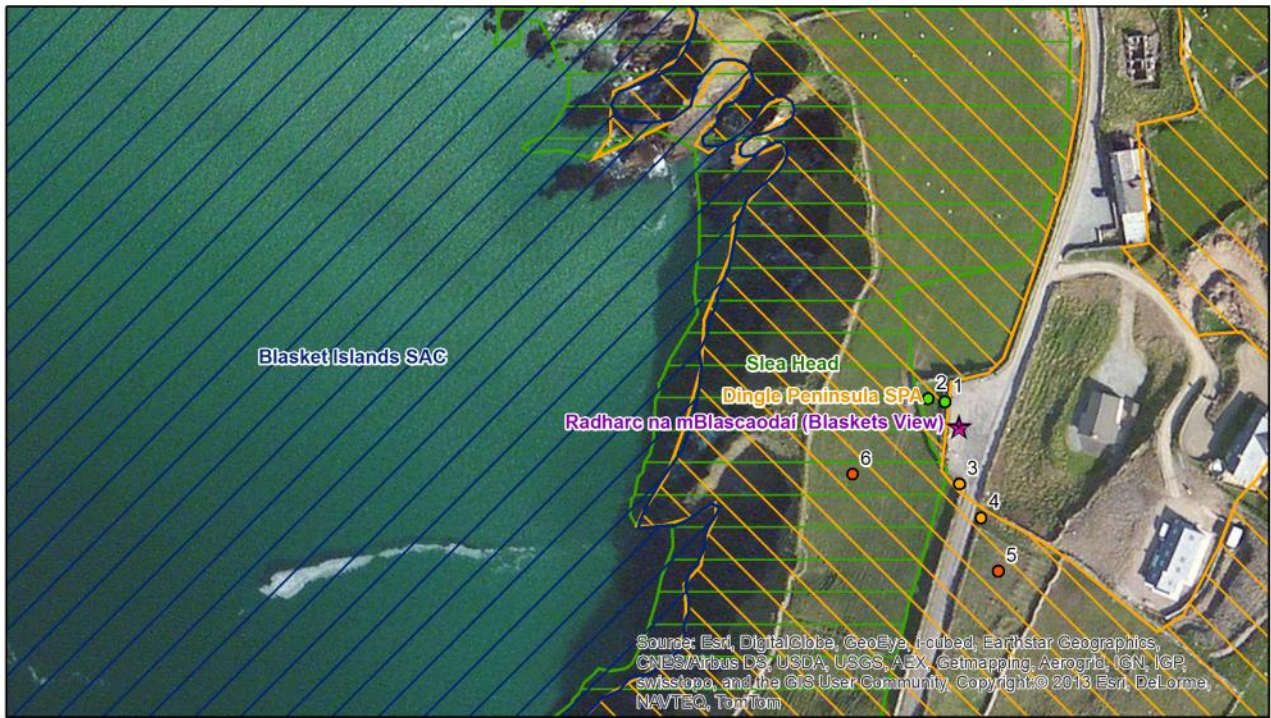


Figure 3.11: Radharc na mBlascaodaí Discovery Point. The location of quadrats and designated sites is indicated.

3.11.3 Baseline Ecology of study area

Six vegetation quadrats were recorded at Radharc na mBlascaodaí as summarised in Table 3.22. The main habitats in the area include buildings and artificial surfaces (BL3), amenity grassland (GA2), and dry meadows and grassy verges (GS2). The surrounding enclosed fields comprise improved grassland (GA1) and wet grassland (GS4) which are of low ecological value. The data collected during the survey indicates that the habitats within and surrounding the site are of low ecological importance. Cough may occasionally forage amongst the grassland habitats in the surroundings.

Table 3.22: Summary details of each quadrat recorded at Radharc na mBlascaodaí

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GA2 Amenity grassland (improved)	NA	Picnic area	Fair
2	Core Movement Area	GA2 Amenity grassland (improved)	NA	None	Good
3	Secondary Movement Area	GS2 Dry meadows and grassy verges	NA	None	Good
4	Secondary Movement Area	GS2 Dry meadows and grassy verges	NA	None	Good
5	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	Pasture	Good
6	Off Site-control Area	GA1 Improved agricultural grassland	NA	Grazing - sheep	Good

3.11.4 Preliminary assessment of visitor impact

No sensitive ecological receptors occur at the site and no ecological impacts were recorded. Visitors are restricted to the managed surfaced areas at the discovery point.

3.11.5 Recommendations

No potential ecological impacts recorded.

No further ecological monitoring is required at this managed site.

3.12 Bray Head, County Kerry

3.12.1 Site Description

Bray Head is located on the southern side of Valentia Island in Co. Kerry. The site comprises a newly constructed car park, with picnic tables and is the trailhead for a walk to the signal tower (not included in current assessment). There are no interpretive facilities at the site.



Plate 3.12: Bray Head, County Kerry.

Visitors were observed to largely remain in the car park and adjoining picnic area.

The lands surrounding the car park include maritime heathland, improved grassland, as well as sea cliffs.

The car park and picnic area is fenced in and therefore sheep grazing is restricted to the adjoining lands to the west.

3.12.2 Ecological Constraints

The Bray Head Discovery Point occurs approximately 100m north of the Valentia Harbour / Portmagee Channel SAC (see Table 3.23 and Figure 3.12). The Discovery Point occurs within the Iveragh Peninsula SPA and the Valentia Island Cliffs pNHA. The area is of high value to sea birds and other birds which breed on the cliffs.

The Bray Head Discovery Point occurs approximately 100m north of the Valentia Harbour / Portmagee Channel SAC (see Table 3.23 and Figure 3.12). The Discovery Point occurs within the Iveragh Peninsula SPA and the Valentia Island Cliffs pNHA. The area is of high value to sea birds and other birds which breed on the cliffs.

Table 3.23 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Code	Site	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002262		Valentia Harbour/Portmagee Channel SAC	The Discovery Point occurs approximately 100m north of the SAC.	<u>Annex I Habitats:</u> Large shallow inlets and bays Reefs Tidal mudflats
004154		Iveragh Peninsula SPA	The Discovery Point occurs within the SPA.	<u>Annex I Bird Species:</u> Peregrine (<i>Falco peregrinus</i>) [A103] Guillemot (<i>Uria aalge</i>) [A199] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] <u>Other Bird Species:</u> Fulmar (<i>Fulmarus glacialis</i>) [A009]
001382		Valentia Island Cliffs pNHA	The Discovery Point occurs within the pNHA.	Vegetated Sea Cliffs Sea Birds

3.12.3 Baseline Ecology of study area

Six vegetation quadrats were recorded at Bray Head as summarised in Table 3.24. The habitats in the car park area include buildings and artificial surfaces (BL3), and amenity grassland (GA2). Improved grassland used for grazing occurs to the west while maritime grassland (GS1) and dry heath (HH1) occur to the south between the car park and the cliffs. The vegetated sea cliffs that occur ca 100m south of the Discovery Point provide suitable breeding habitat for cliff-nesting birds. The data collected during the survey indicates that the heathland habitats removed from the core visitor areas are in good condition while those areas in within the car park area are heavily modified and of low ecological value.



Figure 3.12: Bray Head Discovery Point. The location of quadrats and designated sites is indicated.

Table 3.24: Summary details of each quadrat recorded at Bray Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	ED3 Recolonising bare ground	NA	Car park lawn	Fair
2	Core Movement Area	GA2 Amenity grassland (improved)	NA	Edge of car park below fence	Poor
3	Secondary Movement Area	GA2 Amenity grassland (improved)	NA	Northern car park embankment	Good
4	Secondary Movement Area	GA2 Amenity grassland (improved)	NA	Path edge	Good
5	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
6	Off Site-control Area	GA1 Improved agricultural grassland	NA	Grazing - sheep	Good

3.12.4 Preliminary assessment of visitor impact

Negative impacts on the site observed during the 2015 quadrat survey were minimal and limited to some trampling of herbaceous vegetation on a soil bank in the car park area. No assessment of visitor impacts on the trail towards Bray Head and at the signal tower located were undertaken during this survey.

3.12.5 Recommendations

The car park and associated picnic area is well managed and visitors to this discovery point are not impacting on sensitive ecological receptors in the area. Potential ecological impacts associated with the trail to Bray head were not assessed.

No further ecological monitoring is required at this managed site.

3.13 Dursey Island, County Cork

3.13.1 Site Description

Dursey Island and Garnish View opposite on the mainland, are located on the south-western tip of the Beara Peninsula in Co. Cork.



Plate 3.13: Car park at Garnish View (the mainland where cable car departs for Dursey Island)

On the Dursey Island, visitors – mainly profiled as hikers – were observed to follow the road and way marked trail (un-surfaced path). Visitor access to the island is restricted by the running times of the cable car. A looped walkway was evident where visitors began along the trail and return via the road.

At Garnish Point, the majority of the visitors remained in the car park and paved areas. Some visitors were observed to leave the vicinity of the car park and step onto grazed land/bare rock to take photos and/or cross the stile onto the trail. The area was popular for hikers who were observed to follow the way marked trails (un-surfaced

paths). There is a car park, ticket office and toilet facilities at this point, as well as interpretative signs. The study area includes areas of wet heathland, improved and semi-improved grassland and maritime grassland, as well as cliffs. Both Dursey Island and Garnish View are grazed by sheep, with the exception of the immediate area of the car park. Interpretive material is presented in the car park.

3.13.2 Ecological Constraints

The Dursey Island Discovery Point occurs ca 140m from the Kenmare River SAC (see Table 3.25 and Figure 3.13). Dry heath, a qualifying habitat of Kenmare River SAC, occurs throughout much of the lands surrounding the car parks at Garnish Point and on Dursey Island. The heath occurs in association with semi-improved grassland. Sea cliffs also occur in proximity, some of which are likely to be of value to cliff nesting birds (including Chough), for which the Beara Peninsula SPA is designated. The discover point also occurs within Garnish Point pNHA (mainland) and Dursey Island pNHA (island).

Table 3.25 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002158	Kenmare River SAC	The Discovery Point occurs approximately 140m from the SAC.	<u>Designated for 11 Annex I habitats, two of which occur in proximity to the discovery point:</u> Dry heaths; and Sea cliffs <u>Four annex II species which are unlikely to occur in proximity to the discover point.</u>
004155	Beara Peninsula SPA	The Discovery Point occurs within the SPA.	<u>Annex I Bird Species:</u> Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] <u>Other Bird Species:</u> Fulmar (<i>Fulmarus glacialis</i>) [A009]
000086	Dursey Island pNHA	The Discovery Point occurs within the pNHA	Coastal site with heath, semi-natural grassland and sea cliffs with significant bird populations.
001986	Garnish Point pNHA	The Discovery Point occurs within the pNHA	Coastal site with heath, semi-natural grassland and sea cliffs with significant bird populations.

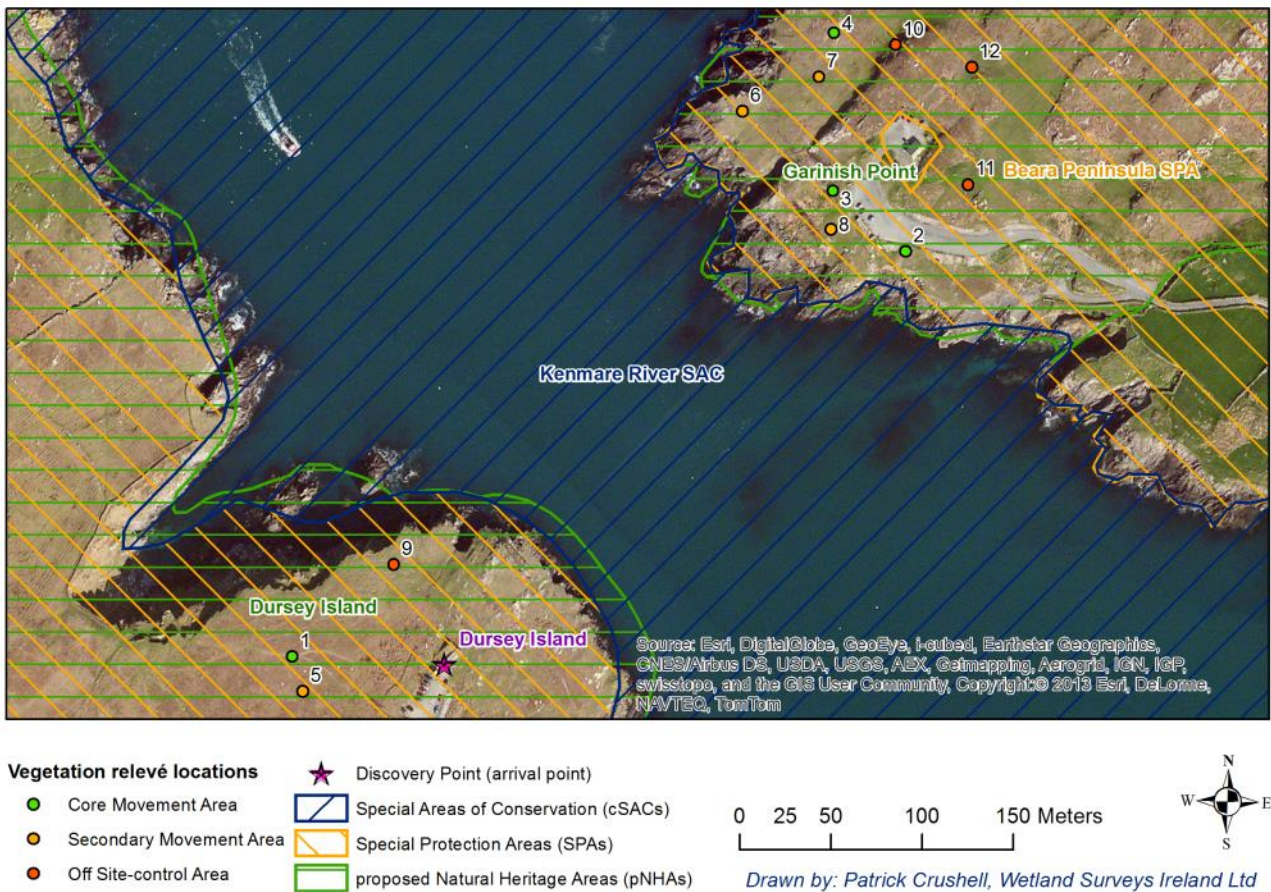


Figure 3.13: Dursey Island Discovery Point. The location of quadrats and designated sites is indicated.

3.13.3 Baseline Ecology of study area

Twelve vegetation quadrats were recorded at Dursey Island and Garnish Point as summarised in Table 3.26. The main habitats in the area surrounding the car parks include dry-humid acid grassland (GS3) and dry heath (HH1) which are regularly traversed by visitors.

The data collected during the survey indicates that the offsite control areas are in good condition, and are relatively undisturbed by visitors to the Discovery Point. The survey indicates that core visitor areas are somewhat degraded by a combination of visitor pressure and grazing.

Table 3.26: Summary details of each quadrat recorded at Dursey Island

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Fair
2	Core Movement Area	ED3 Recolonising bare ground	NA	Edge of car park	Poor
3	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Path	Bad
4	Core Movement Area	ED1 Exposed sand, gravel or till	NA	Grazing - sheep / Track	Bad
5	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
6	Secondary Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
7	Secondary Movement Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
8	Secondary Movement Area	HH1 Dry siliceous heath	Dry heath [4030]	Grazing - sheep	Good
9	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	Grazing - sheep	Good
10	Off Site-control Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
11	Off Site-control Area	GS3 Dry-humid acid grassland	NA	Grazing - sheep	Good
12	Off Site-control Area	GS34 Wet Grassland	NA	Grazing - sheep	Good

3.13.4 Preliminary assessment of visitor impact

Negative impacts on the site observed during the 2015 quadrat survey included trampling of herbaceous and heath vegetation and the compaction of peat soil on informal tracks. The worst affected areas occur in proximity to the car park on the mainland, as well as desire lines leading from the main site areas on both the mainland and the island. The trampling of vegetation in some of these informal paths has led to the creation of localised bare soil and erosion areas.

In conclusion, there is little visitor management in the area and the current level of use by visitors is having a minor impact on the sensitive ecology of the area. Should visitor numbers increase without appropriate management then such impacts can be expected to become more severe.

3.13.5 Recommendations

Visitors are having a minor localised adverse impact at this site. Trampling of vegetation on the island is restricted to the un-surfaced trails which are currently retaining a vegetation structure although any intensification of use by visitors is likely to lead to development of bare peat / soil and possible erosion issues.

Consideration should be given to the controlling / management of visitors to sensitive habitats.

Future ecological monitoring is recommended.

3.14 Mizen Head, County Cork

3.14.1 Site Description

Mizen Head is located in Co. Cork and is Ireland's most south-westerly point.



Plate 3.14: Mizen Head, County Cork

This is a highly managed site and has a constant presence of staff on the site. It is an example of best practice visitor management. The site is fenced off controlling visitor flow in all areas. Visitors have no option other than to remain on the pathways and viewing points.

The site has a visitor centre, cafe, toilets, picnic tables and a large car park east of the visitor centre. A number of interpretative signs are located at the site. By entering the visitor centre access can be gained to the cliff walk out to the headland.

Habitats immediately surrounding the Discovery point include areas of dry heathland, and maritime grassland, as well as sea cliffs. The site itself is enclosed by stock-proof fencing therefore grazing is limited to surrounding areas.

3.14.2 Ecological Constraints

The areas visited by visitors are largely within the Three Castle Head to Mizen Head SAC/pNHA (see Table 3.27 and Figure 3.14). The SAC is designated for both dry heath and sea cliffs. The discovery Point also occurs within the Sheep's Head to Toe Head SPA which is designated for the protection of Chough, and Peregrine Falcon, which are both likely to nest on cliffs in the surroundings. Chough forage amongst the heath and grassland habitats.

Table 3.27 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000109	Three Castle Head to Mizen Head SAC/pNHA	The Discovery Point occurs immediately adjacent to the SAC, and within the pNHA.	Sea Cliffs Dry Heath
004156	Sheep's Head to Toe Head SPA	The Discover Point occurs within the SPA.	<u>Annex I Bird Species:</u> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]

3.14.3 Baseline Ecology of study area

Nine vegetation quadrats were recorded at Mizen Head as summarised in Table 3.28. The main habitats in the area include dry heath (HH1), maritime grassland (GS1), sea cliffs (LS1), and within the confines of the Discovery Point, buildings and artificial surfaces (BL3).

The data collected during the survey indicates that the offsite control areas are in good condition, and are undisturbed by visitors to the Discovery Point. The survey also demonstrates that those areas that are open to visitors are modified habitats of low ecological value.

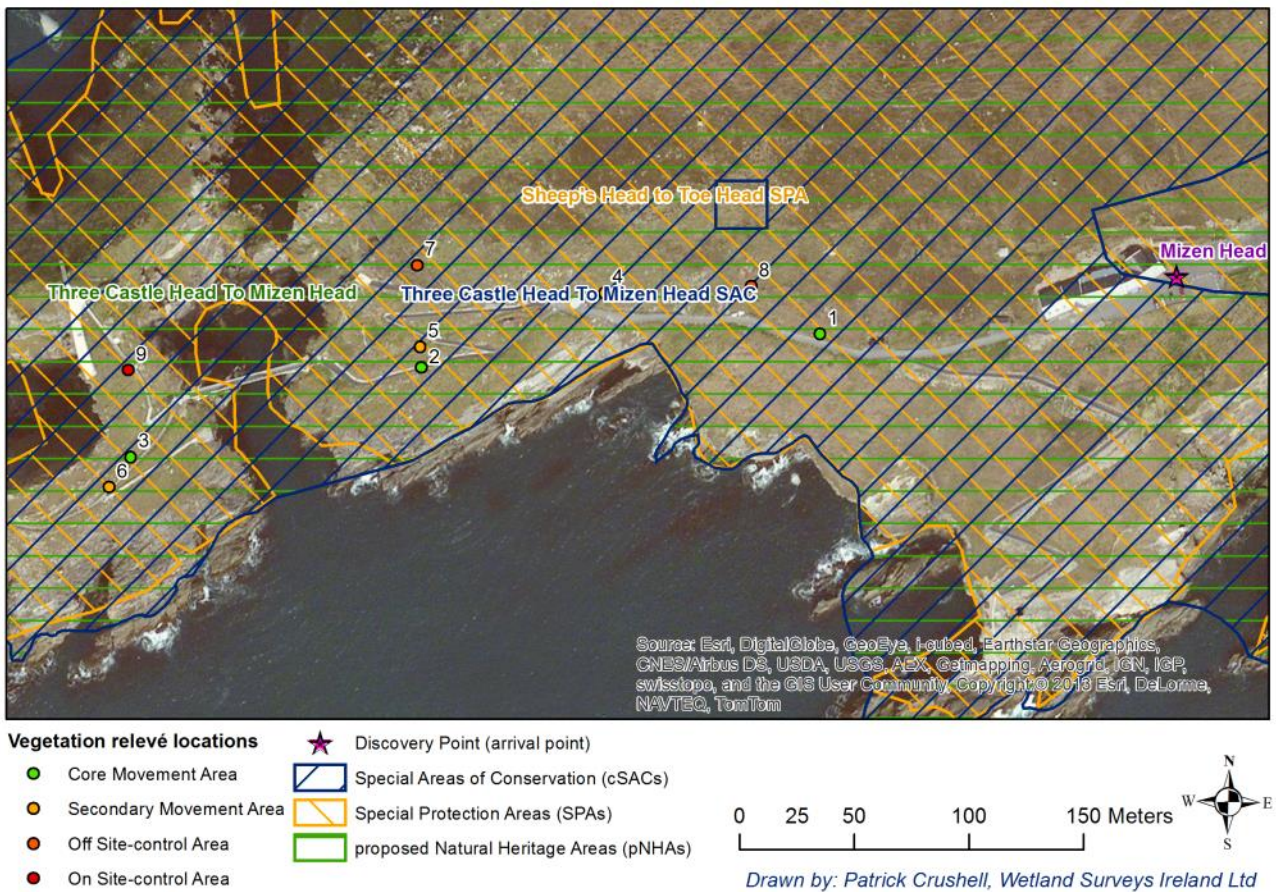


Figure 3.14: Mizen Head Discovery Point. The location of quadrats and designated sites is indicated.

Table 3.28: Summary details of each quadrat recorded at Mizen Head

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Path edge	Doubtful
2	Core Movement Area	ER1 Exposed siliceous rock	NA	Path	Good
3	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	Path	Good
4	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Path edge	Good
5	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
6	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
7	Off Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
8	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good
9	On Site-control Area	HH1 Dry siliceous heath	Dry heath [4030]	None	Good

3.14.4 Preliminary assessment of visitor impact

There were no adverse impacts from visitor activity recorded at this Discovery Point. The site represents good visitor management practice with no potential impacts on sensitive ecological receptors.

3.14.5 Recommendations

Visitors appear to present no adverse impact at this site.

No further ecological monitoring is required at this managed site.

3.15 Old Head of Kinsale, County Cork

3.15.1 Site Description

Old Head of Kinsale is located in Co. Cork, the headland is privately owned with an onsite golf course and accommodation. The golf course and the lighthouse at the tip of the peninsula are inaccessible to visitors.



Plate 3.15: Old Head of Kinsale, County Cork

The Discovery Point Visitors comprises a layby where visitors are observed to pull in briefly to admire the scenic views. Some visitors were observed to walk across improved grassland (grazed and cut for silage) south of the layby to the cliff edge. Un-surfaced paths in this area show signs of erosion.

The Old Head Signal Tower north of the layby, has been refurbished and was opened in May 2015.

The Old Head Signal Tower site consists of an road access, parking for 18 cars and 2 buses, 2 information signs, a flag and ball signalling

system with a mast 15 metres high, and the signal tower which is open to visitors. Future works proposed for the tower site include a Lusitania memorial garden consisting of garden infrastructure including; footpaths, steps, disabled access ramp, seating, signage, viewing area, iconic artefact/sculpture memorial features and all associated utility & landscaping works. These proposed developments are located within the current site boundary. No interpretative facilities are currently located at this site.

The study area includes areas of recolonising bare ground, improved and semi-improved grassland, rank grassland, gorse scrub and maritime grassland, as well as cliffs. No evidence of grazing was noted within the site during the 2015 quadrat survey, although previous reports indicate that the field to the south of the car park is grazed by cattle (CAAS 2015).

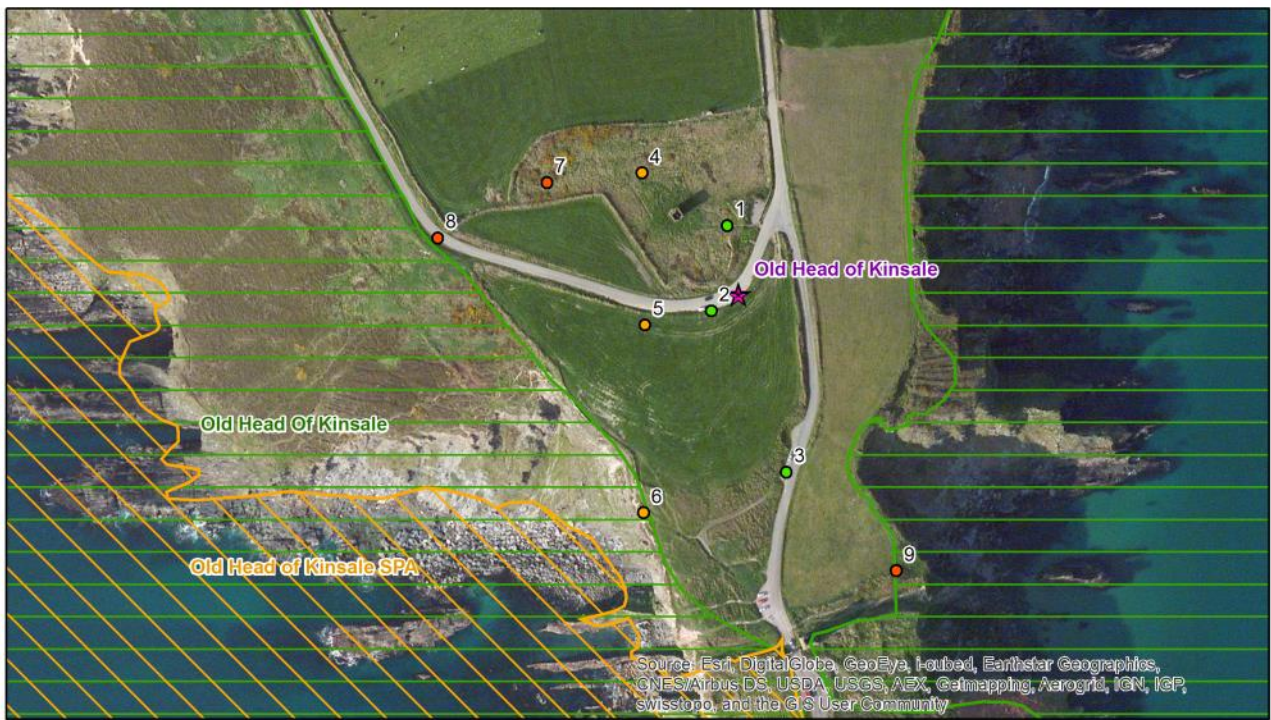
3.15.2 Ecological Constraints

The Old Head of Kinsale Discovery Point layby occurs approximately 250m north of the Old Head of Kinsale SPA (see Table 3.29 and Figure 3.15). Visitors walk along cliff-top maritime grassland adjacent to the SPA. The SPA is designated for the protection of sea birds that breed on the cliffs.

The Discovery Point is located approximately 150m from the Old Head of Kinsale pNHA. This proposed designated site includes the coastal cliffs and associated cliff top habitats of dry heath and maritime grassland. Chough were recorded feeding in the area during the site visit.

Table 3.29 Designated sites in proximity and relevant sensitive ecological receptors

NPWS Site Code	Site name	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000100	Old Head of Kinsale pNHA	The Discovery Point occurs within approximately 150m of the pNHA.	Cliff top dry heath and maritime grassland. Site of high value for sea bird colonies that breed on the cliffs.
004021	Old Head of Kinsale SPA	The Discovery Point occurs ca 250m north of the SPA.	<u>Annex I Species:</u> Guillemot (<i>Uria aalge</i>) [A199] Other Species: Kittiwake (<i>Rissa tridactyla</i>) [A188]



Vegetation relevé locations

- Core Movement Area
- Secondary Movement Area
- Off Site-control Area
- ★ Discovery Point (arrival point)
- Special Protection Areas (SPAs)
- proposed Natural Heritage Areas (pNHAs)

0 25 50 100 150 Meters

Drawn by: Patrick Crushell, Wetland Surveys Ireland Ltd

Figure 3.15: Old Head of Kinsale Discovery Point. The location of quadrats and designated sites is indicated.

3.15.3 Baseline Ecology of study area

Nine vegetation quadrats were recorded at the Old Head Kinsale as summarised in Table 3.30. The main habitats in the area include maritime grassland (GS1), improved agricultural grassland (GA1), and in the vicinity of the layby and signal tower, buildings and artificial surfaces (BL3) and grassy verges (GS3).

The sea cliffs and associated habitats adjacent to site are a feature of the Old Kinsale pNHA. The areas surrounding the signal station are of low value and are recovering following recent construction works. The data collected during the survey indicates that the off-site control areas are in good condition, and are relatively undisturbed by visitors to the Discovery Point. The survey indicates that secondary movement areas along the cliff-top (see Quadrat 6) are somewhat degraded due to trampling.

Table 3.30: Summary details of each quadrat recorded at Old Head Kinsale

No	Quadrat Type	Habitat (Fossitt)	EU Habitat	Landuse	Condition
1	Core Movement Area	GS1 Dry calcareous and neutral grassland	NA	None	Fair
2	Core Movement Area	GS2 Dry meadows and grassy verges	NA	Track over earth mound	Poor
3	Core Movement Area	GS2 Dry meadows and grassy verges	NA	Car park edge	Fair
4	Secondary Movement Area	ED3 Recolonising bare ground	NA	None	Good
5	Secondary Movement Area	GA1 Improved agricultural grassland	NA	Meadow - silage	Good
6	Secondary Movement Area	GS1 Dry calcareous and neutral grassland	NA	Track	Fair
7	Off Site-control Area	GS2 Dry meadows and grassy verges	NA	None	Good
8	Off Site-control Area	GS2 Dry meadows and grassy verges	NA	None	Good
9	Off Site-control Area	GS1 Dry calcareous and neutral grassland	NA	None	Good

3.15.4 Preliminary assessment of visitor impact

The areas in proximity to the newly constructed car park at the signal tower and the lay by south of the signal tower are not sensitive to impacts and any effects are restricted to trampling and compaction of an earth mound which forms the southern edge of the layby.

However, localised adverse visitor impacts in the form of eroding and bare surfaces along desire lines and more extensive flat bare soil areas near cliff edges, were noted on the cliff top to the south west of the lay by and adjacent to the agricultural field. An earthen bank running along western side of the field is dominated by bare soil as a result of visitors using the feature as a "path" down to the cliff-top.

3.15.5 Recommendations

Visitor pressures are evident along the cliff-top maritime grassland areas to the south of the discovery point where surface vegetation is trampled and bare soil is exposed along informal un-surfaced paths.

Further damage should be avoided by controlling / managing visitor access to sensitive areas.

Future ecological monitoring is recommended.

4 Discussion and Recommendations

Summary results of the survey in relation to each Discovery Point are presented in Table 4.1 below. Details that are presented include relevant designated sites, sensitive ecological features, impacts, and recommendations.

Of the fifteen sites surveyed thirteen occur within or almost directly adjacent to sites designated (or proposed for designation) for nature conservation. Most of the sites surveyed are coastal sites. The features of ecological importance are remarkably consistent throughout most sites comprising coastal habitats (principally dry heath, maritime grassland, and sea cliffs), and cliff nesting birds (including: Chough, Peregrine Falcon, Guillemot, Kittiwake, Fulmar, Puffin, and Razorbill,). Dunes, wetlands, or significant freshwater habitats are absent from all sites.

Two sites, Derrigimlagh and Killary, are somewhat removed from any designated sites. While both these sites have features of ecological interest in the surroundings, it is considered that visitor activities at these sites do not result in any adverse ecological impacts, due in part to the pattern of use by visitors. Similar conclusions are made with regards to Keem Bay, Radharc na mBlascaodaí (Blaskets View), Bray Head, and Mizen Head. Visitor management at these sites ensure that sensitive terrestrial and aquatic habitats in the surroundings are safeguarded from potential impacts.

At the remaining nine sites, some level of visitor impacts were noted on terrestrial habitats of ecological importance. These impacts are mainly associated with trampling of vegetation in areas regularly accessed by significant numbers of visitors. Such trampling may lead to exposure of bare soil surfaces and thereby making the areas vulnerable to further erosion. The impacts are usually localised in nature and confined to the area being directly traversed. The impacted habitats are usually cliff-top maritime grassland and / or heath. There is limited potential for vegetated sea cliffs (EU Annex I habitat) to be impacted as they are defined by their steep slopes thereby making them inaccessible to most visitors.

It is considered that the potential for sea bird colonies to be impacted is low, as the nest sites typically occur on the near vertical cliff faces that are inaccessible to most visitors and sufficiently removed that disturbance impacts would not occur. Most sea birds do not venture further inland than the coastal cliffs, spending most of their time foraging at sea.

Similarly Chough and Peregrine Falcon nest sites typically occur on the sea cliffs and therefore impacts on nesting birds are deemed unlikely. However, Chough are known to utilise cliff-top habitats such as semi-improved maritime grassland for foraging. There is therefore potential for adverse impacts on Chough due to displacement as a result of disturbance and habitat alteration. Incidental Chough observations recorded from the current survey confirms that the species have not been displaced from these areas.

Sea angling is occurring at a number of the sites (most notably at Loop Head and Downpatrick Head). This activity, if undertaken at certain sensitive locations, may pose a risk to cliff-nesting birds during the breeding season.

The key recommendations made during the current study relate to:

- **Improve visitor management / controls:** In those sites where ecological impacts have been recorded there is a requirement to improved visitor management. This can include (but not restricted to) such measures as:
 - Improved signage directing visitors away from sensitive areas;
 - Creation of surfaced pathways or raised boardwalks; and
 - Improved interpretation facilities informing visitors of the sensitivity of the area and appropriate behaviour / activities.

The choice of appropriate actions / measures will be site specific depending on the sensitivity and characteristics of the area.

- **Ecological monitoring:** In those sites where visitor pressures on ecological features have been recorded then further ecological monitoring is suggested. In other instances where there is an absence of sensitive ecological features in proximity to the Discovery Point and / or where visitor management is appropriate to the current and future levels of activity then monitoring is not recommended.

Table 4.1: Summary results of ecological monitoring at WAW signature discovery points undertaken in 2015

Discovery Point	Designated sites	Sensitive features	Ecological impacts ¹	Recommendation(s)
Malin Head	North Inishowen Coast SAC / pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor localised impacts on coastal habitats (QIs of SAC)	Improve visitor management Further monitoring
Cionn Fhánada (Fanad Head)	Ballyhorrisky Point to Fanad Head SAC / pNHA Horn Head to Fanad Head SPA	Coastal habitats (sea cliffs, maritime grassland); Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improve visitor management Further monitoring
Sliabh Liag	Slieve League SAC / pNHA West Donegal Coast SPA	Coastal and upland habitats (sea cliffs, wet heath); Cliff nesting birds	Minor localised impacts on coastal and upland habitats, though signs of recent recovery (QIs of SAC)	Improve visitor management Further monitoring
Mullaghmore Head	Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA	Coastal habitats (maritime grassland, dry heath)	Negligible localised impacts No impacts on designated site QIs	Improve visitor management Further monitoring
Downpatrick Head	Downpatrick Head pNHA	Coastal habitats (sea cliffs, maritime grassland, wet heath) Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improve visitor management Further monitoring
Keem Bay	Croaghaun/Slievemore SAC / pNHA Achill Head SAC	Wet heath Cliff nesting birds (Chough)	No impacts identified No impacts on designated site QIs	Further targeted monitoring
Killary Harbour	None (nearest is 120m away)	None	None	None
Derrigimlagh	None (nearest is 750m away)	Wet heath (surroundings)	None	None
Cliffs of Moher	Cliffs of Moher SPA / pNHA	Coastal habitats (sea cliffs, maritime grassland); Cliff nesting birds	Significant damage to cliff-top habitats recorded in areas removed from managed areas. No impacts on designated site QIs	Improve visitor management Further monitoring
Loop Head	Loop Head SPA / pNHA Lower River Shannon SAC	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improve visitor management Further monitoring
Radharc na mBlascaodaí (Blaskets View)	Dingle Peninsula SPA Slea Head pNHA	Coastal habitats (sea cliffs, dry heath); Cliff nesting birds	None	None
Bray Head	Iveragh Peninsula SPA Valentia Island Cliffs pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	None	None
Dursey Island	Beara Peninsula SPA Dursey Island pNHA Garnish Point pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improved visitor management Further monitoring
Mizen Head	Three Castle Head to Mizzen Head SAC/pNHA Sheep's Head to Toe Head SPA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	None	None
Old Head of Kinsale	Old Head of Kinsale SPA / pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor local impacts on coastal habitats	Improved visitor management Further monitoring

¹ This refers to potential impacts on terrestrial habitats. Potential impacts on birds were not considered in detail.

5 References

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Appendix 1

Quadrat Data